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Memorandum

To:	Corey King– Washington State Department of Ecology
From:	Robert Trahan on behalf of the Port of Anacortes
Date:	December 12, 2025
File:	5147-016-11
Subject:	Supplemental Sediment Investigation Data Report Technical Memorandum No. 2 Update Anacortes Port Log Yard, Anacortes, Washington, Ecology Agreed Order No. DE 10630

This Data Report Technical Memorandum presents the supplemental sediment investigation results for the Anacortes Port Log Yard site (Site) in Anacortes, Washington (Figure 1) completed in accordance with the Ecology-approved Remedial Investigation/Feasibility Study (RI/FS) Work Plan Addendum No. 2 (GeoEngineers 2022). The supplemental sediment sample collection and analysis were completed to fill data gaps identified by Ecology to refine the nature and extent of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and polychlorinated biphenyls (PCBs) in marine sediment at the Site. The sediment data presented in this document was collected on January 26 and 27, 2023.

1.0 Background

1.1. LOCATION AND DESCRIPTION

The Site includes the intertidal and subtidal marine areas within an embayment along Guemes Channel at the northern terminus of T Avenue in the nearshore area northwest of 718 - 4th Street. The Site is bounded to the west by the Port's Pier 2 Marine Terminal (Pier 2), which is an earth fill structure and pile-supported wharf along the northernmost portion of the facility. The shoreline south and east of the Site includes a mixture of riprap, remnant structures, rock outcroppings, and beaches comprised of sand and gravel. A wooden dock (Pier 61) used for commercial vessels extends into the marine area from the southern shoreline within the western part of the Site. Public access to the Port's Pier 2 facility, including the beach area south of the Site between Pier 2 and Pier 61 (former log handling area), is currently restricted by fencing, signage, and guards who maintain security for the Port's marine terminal.

Historically, the Site and surrounding area was used for lumber and wood milling and ship building operations from the early 1900s to 1965. In 1965, the Port purchased the Site and adjacent uplands (the "Property"). Between 1965 and 2004, the Port leased the Property to multiple tenants for log handling and loading operations. Log handling operations ceased after 2004 and the Site has remained largely unchanged since that time. The adjacent upland area is currently used for storing oil spill response booms, and Pier 61 is used for loading and offloading commercial vessels.

1.2. REGULATORY FRAMEWORK

Following the closure of log handling operations in 2004, the Port began working with Ecology to characterize sediment conditions at the Site due to evidence of degraded habitat resulting from wood debris. Initial investigations identified up to 75 percent wood waste by volume in shallow intertidal sediment. In addition to wood waste, the initial investigations identified levels of organic carbon and volatile

solids above recommended levels (Ecology 2013). Sediment investigations completed between 2008 and 2010 found that sediment samples exceeded Ecology's Sediment Cleanup Objective (SCO) and Cleanup Screening Level (CSL) criteria for benthic invertebrate community health.

Based on the results of the initial and follow-up investigations, the Port entered into Agreed Order No. DE 10630 (Agreed Order) with Ecology on November 3, 2014 pursuant to the Model Toxics Control Act (MTCA). Under the Agreed Order, the Port is required to complete an RI in accordance with the Ecology-approved RI/FS Work Plan (GeoEngineers 2015) to characterize the nature and extent of contamination within the intertidal and subtidal portions of the Site and FS to evaluate remedial technologies for developing cleanup action alternatives that will address sediment contamination. The selected cleanup action alternative will be described in a Draft Cleanup Action Plan (DCAP) for public review. Completion of the RI, FS and DCAP will fulfill the requirements of the Agreed Order.

1.3. PREVIOUS REMEDIAL INVESTIGATION ACTIVITIES

In accordance with the Ecology-approved RI/FS Work Plan, RI activities were completed by the Port to evaluate Site conditions and determine the nature and extent of contamination in marine sediments at the Site (Figure 2). The RI identified wood waste, metals, polycyclic aromatic hydrocarbons (PAHs), benzoic acid, phenols, and dioxins and furans at concentrations exceeding proposed cleanup levels (PCULs) in sediment. The RI results served as the basis for the cleanup action evaluation and selection of a preferred cleanup action alternative for the Site. A draft RI Report (GeoEngineers 2018a) and the FS Report (GeoEngineers 2018b) summarize the RI and previous investigation results and the evaluation of cleanup action alternatives for the Site. Based on a review of the draft RI and FS reports, Ecology determined that an additional cleanup action alternative considering further sediment removal to provide a greater degree of permanence over the preferred alternative identified in the draft FS Report must be considered in the final FS. After Ecology completed their review of the draft RI and FS reports, the City of Anacortes (City) completed a nearshore sediment investigation (DOF 2021; Figure 2) within the Site boundary to evaluate sediment conditions along the alignment of a proposed outfall for the City wastewater treatment plant. The investigation was completed by the City to inform construction decisions as the proposed outfall alignment is within the previously identified cleanup area. As part the City's investigation, concentrations of cPAHs, tributyltins (TBT), PCBs, and dioxins and furans were found to exceed the PCULs in portions of the Site where contamination had not been previously identified.

Between August 30 and September 2, 2021, additional sediment investigation activities were completed by the Port and multiple samples were collected at locations LY-14 through LY-27 (Figure 2) to refine Ecology's cleanup alternative approach and estimated cost, and to further evaluate the nature and extent of contamination identified during the nearshore sediment investigation. Based on a review of these additional sampling and analysis data, Ecology determined that there were additional data gaps, because the interpretation of the recent sampling results showed that the northern extent of surface (0-10 centimeters [cm]) and subsurface cPAH and PCB contamination may not have been bound by the existing samples and additional sediment sampling will be required to further refine the extent of cPAH and PCB contamination. Sampling collection and analysis (summarized in the following sections) were subsequently completed to address the identified data gaps and define the northern extent of contamination for the Site.

2.0 Supplemental Sediment Investigation

2.1. SEDIMENT SAMPLING AND ANALYSIS

To fill the additional data gaps identified by Ecology, additional sediment sampling was completed in the northern portion of the Site. The sampling and analysis were focused on further refining cPAH and PCB contamination to better define the northern Site boundary. Sampling locations were positioned in a grid pattern approximately 125 feet apart to provide adequate spatial coverage and for consistency with the previous investigation sampling locations.

The sample locations were positioned to provide a grid pattern in the northern portion of the marine area along the outer harbor line extending into Guemes Channel to further evaluate sediment conditions. Sample locations are spaced between approximately 175 feet and 200 feet apart (east to west) to provide adequate spatial coverage and for general consistency with the previous investigation locations.

2.1.1. Surface Sediment Sample Collection

On January 26, 2023, surface samples were collected from the upper 10 cm of sediment at sampling locations LY-SS-28 through LY-SS-33 using a power grab sampler deployed from a research vessel owned and operated by Gravity Marine Consulting (Gravity). Surface sediment samples were collected generally following the procedures outlined in the Sampling and Analysis Plan (SAP; Appendix B of the RI/FS Work Plan).

Upon retrieval of the power grab sampler, the recovered sample material was examined to ensure that minimum surface sediment acceptance criteria were met, including:

1. Closed sampler jaws.
2. Sediment surface was below top of sampler.
3. Minimal observed leakage and sample disturbance.
4. Target penetration depth had been achieved.

Surface sediment samples meeting the minimum requirements were photographed and visually evaluated for the presence of wood debris, classified in accordance with ASTM International (ASTM) D 2488 methods and the Unified Soil Classification System (ASTM D 2487), homogenized in a stainless-steel bowl to a uniform color and texture and placed into laboratory-prepared sample containers for analysis. The field screening results, including observed wood content and a description of the material encountered during surface sediment sampling activities are summarized on exploration logs presented in Attachment 1.

2.1.2. Subsurface Sediment Sample Collection

On January 27, 2023, sediment cores were advanced at locations LY-SC-28 through LY-SC-33 using a vibracore sampler deployed from a research vessel owned and operated by Gravity. Subsurface sediment samples were collected in general accordance with the procedures outlined in the SAP (Appendix B of RI/FS Work Plan).

Upon retrieval of the sediment cores, the recovered sample material was examined to ensure that the minimum sediment core acceptance criteria were met, including:

1. Intact surface with overlying water present.
2. A minimum of 75 percent recovery in the core/linear compaction (compression) not greater than 25 percent.
3. Intact core tube without obstructions or blockage.
4. Achievement of the target penetration depth.

Sediment core samples meeting the minimum requirements were processed on the research vessel. Sediment from each core location was photographed and visually evaluated for the presence of wood debris, classified in accordance with ASTM D 2487 and ASTM D 2488 methods, correction for sample recovery (decompressed) and sectioned into 1-foot sample intervals. The samples were homogenized in a stainless-steel bowl to a uniform color and texture and placed into laboratory-prepared sample containers for analysis. Field screening results, including observed wood content and a description of the material encountered during subsurface sediment sampling activities are summarized on exploration logs presented in Attachment 2.

2.1.3. Water Quality Measurements

Water quality measurements including dissolved oxygen (DO), temperature, acidity (pH), electrical conductivity (EC), and salinity were obtained during sample collection using a YSI-Pro water quality meter. Measurements were obtained within approximately 1-foot of the air/water surface interface, at the approximate water/sediment interface and at the approximate midpoint of the water column. In accordance with RI/FS Work Plan Addendum No. 2, the water column midpoint was measured because evidence of a pycnocline was not identified during the monitoring activities.

Measured water quality parameters for sampling locations LY-28 through LY-33 are summarized in Table 1.

2.1.4. Chemical Analysis

Sediment samples collected as part of this supplemental sediment investigation were submitted to Analytical Resources, Inc. (ARI) located in Tukwila, Washington. Selected samples were submitted for a combination of the following analysis in accordance with RI/FS Work Plan Addendum No. 2:

- cPAHs by United States Environmental Protection Agency (EPA) Method 8270-SIM.
- PCB Aroclors by EPA 8082.

Surface and subsurface samples not initially selected for analysis were archived for potential follow-up analysis based on the results of the initial sample analyzed. Based on the initial sample results, follow-up samples for analyses were identified to further refine the characterization. The chemical analytical results for the selected sediment samples (initial and follow-up samples) are summarized in Table 2 and further discussed below.

2.2. QUALITY ASSURANCE AND QUALITY CONTROL

2.2.1. Sample Handling and Shipment

Sediment samples collected during the sediment investigation were transported to ARI using chain-of-custody procedures presented in the SAP. Samples were placed in laboratory-prepared containers and stored in coolers with ice following collection and during transport to the testing laboratory.

2.2.2. Laboratory Data Quality

Laboratory data reports for the Supplemental Sediment Investigation area presented as Attachment 3. Laboratory data were subject to an EPA Level 2B review. The results of this data quality review are presented in Attachment 4.

2.2.3. Investigation Waste Management

In accordance with the Sediment Cleanup User's Manual (SCUM; Ecology 2021), excess sediment, not used for sample analysis was returned to the water at the location in which it was generated because visible evidence of contamination (e.g., sheen) was not observed. Other investigation wastes including disposable sampling supplies such as gloves, sediment core liners, paper towels, aluminum foil, plastic bags, etc. were collected and transferred from the sampling vessel for upland landfill disposal. Equipment decontamination washwater generated during the investigation was collected and placed in a sealed and labeled 35-gallon container which is temporarily stored at the Port's Pier 2 facility pending receipt of analytical results and subsequent permitted disposal.

2.2.4. Deviations from RI/FS Work Plan Addendum

Supplemental surface and subsurface samples were collected in general accordance with Ecology-approved RI/FS Work Plan Addendum No. 2. However, refusal on native material was encountered at depths less than the 6 feet below mudline core sample target depth of at each location. Although the target depth of 6 feet below mudline was not achieved, the primary objective of reaching native (or refusal) was met. Final core penetration for sediment cores ranged from approximately 3.25 to 5.0 feet below mudline.

3.0 Supplemental Sediment Investigation Results

3.1. SEDIMENT STRATIGRAPHY

The sediment stratigraphy is based on the information provided by sediment cores collected as part of the RI, November 2020 Nearshore Sediment Investigation and the supplemental sediment investigations. Based on the sediment core data, the sediment stratigraphy generally consists of recent sediment deposits overlying native glacially consolidated sediment deposits. Accumulations of wood and wood waste from historical log handling operations are visible in the intertidal area between Pier 2 and Pier 61 during low tides. An underwater video survey conducted as part of the RI identified accumulations of wood debris in the lower intertidal and shallow subtidal zones.

3.1.1. Recent (Non-Native) Deposits

The recent deposits are comprised of silts, sands and wood debris to a maximum depth of 6.5 feet below the mudline surface. In the upper intertidal zone, the recent deposits consist of fine to coarse gravel with varying sand and silt content. In the lower intertidal/shallow subtidal zone, the recent deposits consist of silts and fine-grained sands. In the northern portion of the Site near Guemes Channel, the recent deposits consist of sandy silts and gravelly sands. Within the nearshore area between Pier 2 and Pier 61, accumulations of wood and wood waste up to 75 percent are present and as the result of historical log handling operations. The wood debris generally consists of varying amounts of chips, fibers, bark and various wood chunks. The area of accumulated wood waste and thickness of the recently deposited sediment at the Site is shown on Figure 3.

3.1.2. Native (Glacially Deposited) Sediment and Bedrock

Native sediment underlying the recent deposits generally consists of very stiff/medium dense to hard/very dense silt and silty sand. Native sediment is classified as recessional marine (glaciomarine) drift from the Everson interstade of the Fraser glaciation.

Bedrock outcroppings from the Lummi Formation are present along the shoreline to the south and east of the Site. Based on the close proximity of the outcrop, bedrock likely extends into the area underlying the recently deposited sediment and/or native sediment deposits.

3.2. CHEMICAL ANALYTICAL RESULTS

Consistent with MTCA Cleanup Regulation (Washington Administrative Code [WAC] 173-340) and Ecology's Sediment Management Standard (SMS; WAC 173-204), PCULs were developed as part of the RI/FS Work Plan to identify potential exposure pathways for protection of benthic organisms, and human health and higher trophic level ecological receptors. Sediment samples collected as part of this supplemental sediment investigation and previous investigations were compared to the PCULs to evaluate the nature and extent of contamination in surface and subsurface sediment.

In accordance with RI/FS Work Plan Addendum No. 2, surface and subsurface sampling locations for initial chemical analysis of cPAHs and PCBs were selected based on the interpreted PCUL exceedance areas identified in surface and subsurface sediment by previous environmental studies. Samples not initially selected for chemical analysis were archived at the laboratory. Select archived samples were subsequently submitted for follow-up analysis to further evaluate the nature and extent of contamination based on the initial sample results. Through this iterative process, sufficient archive samples were analyzed to complete the characterization of the nature and extent of contaminants.

Chemical analytical results for selected samples (initial and archive) are summarized in Table 2 and discussed below.

3.2.1. Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)

The distribution of total cPAHs calculated using the toxicity equivalency (TEQ) methodology in surface and recently deposited subsurface sediment is shown on Figures 4 and 5, respectively. Total cPAH TEQ results in surface and subsurface sediment are as follows:

- Surface Sediment – In surface sediment, total cPAH TEQ concentrations exceeding the PCUL were detected throughout the marine area south of the outer harbor line with an ER ranging between 1.1 to 59.9. The highest concentrations are located in the vicinity of the Pier 61 dock structure (LY-SS-09), in the north central portion of the Site (LY-SS-16, LY-SS-20 and LY-SS-21), and along the southeast shoreline (COA-02, LY-SS-26 and LY SS 27). Surface sediment samples collected along the outer harbor line and/or within Guemes Channel (FB-A4-19, COA-08, LY-18, LY-30 and LY-31) define the northern extent of cPAHs in surface sediment.
- Recently Deposited Subsurface Sediment – In the recently deposited subsurface sediment, PCUL exceedance are detected in the nearshore area between Pier 2 and Pier 61 extending northeast of Pier 61 with an ER ranging between 8.8 and 23.1 and extent north to the outer harbor line (LY-28). Subsurface sediment samples collected along the outer harbor line and/or within Guemes Channel (LY-SC-07, LY SC 16 through LY-SC-18, LY-30 and LY-31) define the northern extent of cPAHs in subsurface sediment. Within Guemes Channel, surface sediment samples are representative of the recent deposits due to the thickness of the recent deposits observed (i.e., 0.5 feet). As a result, the northern extent of cPAH contamination identified in the recent deposits at LY-28 is defined by sample results for FB-A4-19 and LY-31.
- Native Sediment – PCUL exceedances were not detected in native sediment samples submitted for chemical analysis.

3.2.2. Polychlorinated Biphenyls (PCBs)

The distribution of total PCBs (sum of Aroclors or Congeners) in surface and recently deposited subsurface sediment is shown on Figures 6 and 7, respectively. Total PCB results in surface and subsurface sediment are as follows:

- Surface Sediment – In surface sediment, total PCB concentrations exceeding the PCUL were detected north and east of Pier 61 with an ER ranging between 3.1 to 45.9. The highest concentrations are generally located in the north central portion of the marine area (LY-SS-15 and LY-SS-16) and at the southeast portion of the marine area near the City of Anacortes stormwater outfall (LY-SS-27). Surface sediment samples collected along the outer harbor line and/or within Guemes Channel (LY-SS-17, LY SS-18, LY-28, LY-31 and LY-32) define the northern extent of PCB contamination.
- Recently Deposited Subsurface Sediment – In recently deposited subsurface sediment, PCUL exceedance are detected in the central portion of the marine area (LY-SC-19, LY-SC-21 and LY-SC-24) with an ER ranging between 6.7 and 10.9 and in the northwest portion of the marine area at location LY-28 within a ER of 6.97. In other portions of the marine area, the ER ranges from less than 1.0 to 4.0. Subsurface sediment samples collected along the outer harbor line and/or within Guemes Channel (LY SC 16, LY-SC-17, LY-29 and LY-31) define the northern extent of PCBs in subsurface sediment. Additionally, PCBs were not detected in the composite sediment samples collected during the Pier 2 Dredged Material Management Characterization Study (GeoEngineers 2013) and at location FB-A4-19 which is representative of the recent deposit layer within Guemes Channel as described above. The non-detect PCB concentrations at these locations slightly exceeded the PCUL, therefore are not included in the interpolation presented on Figure 7 as requested by Ecology during preparation of the Draft RI (GeoEngineers 2018a).

- Native Sediment – PCUL exceedances were not detected in native sediment samples submitted for chemical analysis.

4.0 Data Gap Analysis

At the request of Ecology, supplemental sediment investigation activities were completed to fill data gaps identified by Ecology and further evaluate the nature and extent of cPAHs and PCBs in marine sediment at the Site. Sediment data collected as part of this supplemental sediment investigation for locations LY-28 through LY-33, as well as previous sampling and analysis results are summarized in Table 2 and shown on Figures 4 through 7. Based on this investigation and previous studies, adequate environmental data exists to define the extent of PCUL exceedances. Based on these data, a Remedial Action Boundary defining the area requiring cleanup evaluation has been identified on Figures 4 through 7 and will serve as the basis for the evaluation of cleanup alternatives in the revised FS.

Upon concurrence with Ecology that adequate environmental data has been collected, the sampling and analytical results will be incorporated into a revised RI/FS Report for final review and approval followed by preparation of a DCAP as required by Agreed Order No. DE 10630 describing details of the preferred cleanup action alternative. The RI/FS Report and DCAP will be subject to public review and then finalized by Ecology with the Port's assistance.

5.0 Limitations

This report has been prepared for the exclusive use of the Port of Anacortes, their authorized agents and regulatory agencies for the Anacortes Port Log Yard Site located at northern terminus of T Avenue in the nearshore area northwest of 718 - 4th Street in Anacortes, Washington. No other party may rely on the product of our services unless we agree in advance and in writing to such reliance.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

6.0 References

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Table 1

Field Measured Water Quality Parameters

Anacortes Port Log Yard

Anacortes, Washington

Sampling Location[1]	Date	Water Column Position[2]	pH	Specific Conductance (µS/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	TDS (g/L)	Salinity (ppt)	Turbidity (NTU)
LY-28	01/27/23	Surface	7.61	31,057	7.70	9.81	30.37	31.0	0.02
		Midpoint	7.54	31,048	7.70	9.10	10.37	30.0	0.02
		Mudline	7.31	31,052	7.70	9.62	30.35	30.0	0.02
LY-29	08/31/21	Surface	8.07	31,291	7.70	9.65	30.38	30.3	0.02
		Midpoint	8.10	31,293	7.70	8.81	30.38	30.0	1.89
		Mudline	8.17	31,287	7.70	8.45	30.38	30.0	3.40
LY-30	09/01/21	Surface	8.21	31,316	7.70	8.32	30.41	30.1	0.02
		Midpoint	8.24	31,310	7.70	8.24	30.42	30.1	2.10
		Mudline	8.27	31,308	7.70	8.15	30.40	30.1	2.81
LY-31	09/02/21	Surface	8.28	31,353	7.70	8.78	30.32	30.0	0.04
		Midpoint	8.13	31,371	7.70	11.32	30.39	29.9	0.02
		Mudline	8.21	31,349	7.70	8.81	30.42	30.0	0.02
LY-32	09/01/21	Surface	8.44	31,243	7.70	10.34	30.09	30.1	0.02
		Midpoint	8.45	31,200	7.70	9.43	30.08	29.8	0.02
		Mudline	8.49	31,229	7.70	8.85	30.08	29.9	0.02
LY-33	09/01/21	Surface	7.93	31,238	7.70	8.53	30.41	30.0	0.05
		Midpoint	7.81	31,241	7.70	8.61	30.41	30.0	0.02
		Mudline	7.94	31,254	7.70	8.58	30.41	30.0	0.02

Notes:

[1] Sediment sampling locations are shown on Figure 2.

[2] Measurements were obtained within 1 foot of the air/water surface interface, at the water/sediment interface, and at the approximate midpoint of the water column (a pycnocline was not observed at the time of monitoring).

°C = degree Celsius

g/L = gram per liter

mg/L = milligram per liter

mV = millivolts

NTU = Nephelometric Turbidity Unit

ppt = parts per thousand

TDS = total dissolved solids

µS/cm = microSiemens per centimeter

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LP-1	LP-2	FB-A4-14	FB-A4-15	FB-A4-19	FB-A4-20	FB-A4-21	S-1	S-2	S-3	S-4	S-5	S-6	S-7
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Tidal Zone						Intertidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						07/13/04	07/13/04	09/06/07	09/06/07	09/05/07	09/05/07	09/05/07	08/28/08	08/28/08	09/01/09	09/01/09	09/01/09	09/01/09	09/01/09
Field Screening																			
Sheen	–	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Visual Wood Content	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**15**	**10.3**	**0.95**	**0.26**	**0.29**	**2.25**	**0.89**	**4.47**	**6.64**	**2.35**	**2.36**	**2.33**	**4.35**	**2.96**
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	**10.1**	**28.7**	**2.46**	**2.35**	**2.4**	**5.16**	**3.35**	–	–	**15.15**	**16.01**	**17.35**	**17.78**	**14.29**
Total Solids (TS)	%	NE	NE	NE	NE	**49**	**38.8**	**79.1**	**76.8**	**76.5**	**64.6**	**70.1**	**42.5**	**47.5**	**47.3**	**40.8**	**40.4**	**44.4**	**46**
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ammonia	mg/kg	NE	NE	NE	NE	**47.9**	**22.5**	**5.88**	**5.88**	**12.3**	**6.33**	**7.18**	**53.4**	**14.4**	**11.8**	**24.2**	**61.3**	**29.6**	**67.3**
Porewater Sulfides	mg/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Sulfides	mg/kg	NE	NE	NE	NE	**520**	**1900**	**6.7**	**6.7**	**6.7**	**224**	**2.3**	**3,210**	**1,890**	**2,320**	**1,720**	**2,370**	**3,440**	**3,340**
Grain Size																			
Gravel	%	NE	NE	NE	NE	**53.9**	**28.8**	–	**59.9**	**35**	**4.44**	**6.82**	–	–	–	–	–	–	–
Very Coarse Sand	%	NE	NE	NE	NE	**9**	**3.5**	–					–	–	–	–	–	–	–
Coarse Sand	%	NE	NE	NE	NE	**7.5**	**4.6**	–					–	–	–	–	–	–	–
Medium Sand	%	NE	NE	NE	NE	**6.5**	**6.2**	–	**7.29**	**15.1**	**4.64**	**8.83**	–	–	–	–	–	–	–
Fine Sand	%	NE	NE	NE	NE	**6.2**	**9.6**	–					–	–	–	–	–	–	–
Very Fine Sand	%	NE	NE	NE	NE	**4.3**	**13.6**	–					–	–	–	–	–	–	–
Coarse Silt	%	NE	NE	NE	NE	**5**	**9.1**	–					–	–	–	–	–	–	–
Medium Silt	%	NE	NE	NE	NE	**2.4**	**13.2**	–	**3.52**	**17.6**	**14.4**	**8.16**	–	–	–	–	–	–	–
Fine Silt	%	NE	NE	NE	NE	**1.4**	**3.2**	–					–	–	–	–	–	–	–
Very Fine Silt	%	NE	NE	NE	NE	**0.5**	**1.1**	–					–	–	–	–	–	–	–
Clay	%	NE	NE	NE	NE	**3.3**	**7.1**	–	**1.25**	**3.62**	**5.57**	**3.67**	–	–	–	–	–	–	–
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	–	–	–	–	–	**160**	–	–	–	–	–	–	–	–
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	10 U	10 U	**2.37**	**2.1**	**3.2**	**5.6**	**4.3**	**4.52**	**5.3**	10 U	10 U	10 U	10 U	9 U
Cadmium	mg/kg	5.1	5.1	0.8	0.8	0.5 U	0.5 U	**0.09**	0.08 U	**0.12**	**0.41**	**0.39**	**0.698**	**0.642**	**0.6**	**0.7**	**1**	**1**	**0.9**
Chromium	mg/kg	260	260	960,000	6,900,000	**12**	**29**	**12.3**	**13.5**	**21.2**	**20.4**	**21.2**	**31.2**	**31.9**	**33**	**51**	**39**	**41**	**36.6**
Copper	mg/kg	390	390	26,000	180,000	**17.1**	**31.7**	**10.4**	**9.49**	**15.4**	**12.6**	**11.3**	**28.5**	**29.7**	**40.8**	**248**	**38.2**	**39.8**	**33.9**
Lead	mg/kg	450	450	21	21	5 U	**8**	**2.23**	**1.63**	**3.39**	**5.74**	**3.48**	**9.29**	**9.32**	**8**	**23**	**10**	**11**	**11**
Mercury	mg/kg	0.41	0.41	0.2	0.2	0.1 U	0.09 U	**0.01 J**	**0.01**	**0.01**	**0.04**	**0.03**	**0.033**	**0.037**	**0.07**	**0.06**	**0.08**	**0.08**	**0.07**
Silver	mg/kg	6.1	6.1	3,200	23,100	0.8 U	0.8 U	0.02 U	**0.03**	**0.043**	**0.07**	**0.06**	**0.15**	**0.1**	0.6 U	0.7 U	0.7 U	0.7 U	0.6 U
Zinc	mg/kg	410	410	190,000	1,400,000	**35**	**69**	**20.9**	**19.1**	**32.6**	**37.8**	**28.3**	**784**	**711**	**79**	**105**	**102**	**96**	**78**

Sample Identification		Preliminary Cleanup Level (PCUL)				LP-1	LP-2	FB-A4-14	FB-A4-15	FB-A4-19	FB-A4-20	FB-A4-21	S-1	S-2	S-3	S-4	S-5	S-6	S-7
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Tidal Zone						Intertidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						07/13/04	07/13/04	09/06/07	09/06/07	09/05/07	09/05/07	09/05/07	08/28/08	08/28/08	09/01/09	09/01/09	09/01/09	09/01/09	09/01/09
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	NA	NA	**1.0**	NA	NA	**6.8**	**8.1**	NA	NA	**9.8**	**11.7**	**12.8**	NA	**5.4**
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	NA	NA	1.0 U	NA	NA	**0.4**	**0.6**	NA	NA	0.9 U	0.9 U	0.9 U	NA	0.7 U
Acenaphthene	mg/kg OC	16	NE	NE	NE	NA	NA	1.0 U	NA	NA	**0.3**	1.1 U	NA	NA	0.9 U	0.9 U	**0.5 J**	NA	0.7 U
Acenaphthylene	mg/kg OC	66	NE	NE	NE	NA	NA	**0.2**	NA	NA	**0.7**	**0.6**	NA	NA	**0.4 J**	0.9 U	**0.6 J**	NA	0.7 U
Anthracene	mg/kg OC	220	NE	NE	NE	NA	NA	1.0 U	NA	NA	**1.7**	**0.9**	NA	NA	**1.9**	**1.3**	**1.9**	NA	**0.6 J**
Fluorene	mg/kg OC	23	NE	NE	NE	NA	NA	1.0 U	NA	NA	**0.4**	**0.5**	NA	NA	**0.7 J**	**0.6 J**	**0.8 J**	NA	0.7 U
Naphthalene	mg/kg OC	99	NE	NE	NE	NA	NA	1.0 U	NA	NA	**1.5**	**2.9**	NA	NA	0.9 U	0.9 U	0.9 U	NA	0.7 U
Phenanthrene	mg/kg OC	100	NE	NE	NE	NA	NA	**0.9**	NA	NA	**1.9**	**2.6**	NA	NA	**5.1**	**7.2**	**8.2**	NA	**2.1**
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	–	–	32 U	**204**	**9.6**	9.1 U	**2.4**	**152.1**	**71.7**	**301.8 J**	**302 J**	**191 J**	**215 J**	**278 J**	**295 J**	**79 J**
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	32 U	20 U	9.7 U	9.1 U	9.7 U	**8.7**	**4.9**	**13**	**10 J**	20 U	20 U	20 U	**12**	20 U
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	32 U	**28**	9.7 U	9.1 U	9.7 U	**5.7**	10 U	**8.8 J**	**7 J**	20 U	20 U	**12 J**	**14 J**	20 U
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	32 U	20 U	**1.4**	9.1 U	9.7 U	**16**	**5.3**	**13**	**69**	**10 J**	20 U	**13 J**	**15 J**	20 U
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	32 U	**55**	9.7 U	9.1 U	9.7 U	**38**	**8.1**	**73**	**47**	**45**	**31**	**44**	**48**	**17 J**
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	32 U	**27**	9.7 U	9.1 U	9.7 U	**8.7**	**4.4**	**18**	**19**	**16 J**	**14 J**	**19 J**	**26**	20 U
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	32 U	20 U	9.7 U	9.1 U	9.7 U	**33**	**26**	**16**	**10**	20 U	20 U	20 U	20 U	20 U
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	32 U	**94**	**8.2**	9.1 U	**2.4**	**42**	**23**	**160**	**140**	**120**	**170**	**190**	**180**	**62**
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	NA	NA	**12.8**	NA	NA	**17.9**	**23.2**	NA	NA	**54.5**	**44.1**	**72.1**	NA	**21.9**
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	NA	NA	**0.4**	NA	NA	**2.6**	**2.0**	NA	NA	**3.5**	**2.2**	**3.6**	NA	**1.6**
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	NA	NA	**0.3**	NA	NA	**2.0**	**1.9**	NA	NA	**3.1**	**2.1**	**4.0**	NA	**1.2**
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	NA	NA	**1.0**	NA	NA	**1.1**	**4.2**	NA	NA	**9.4**	**7.6**	**12.0**	NA	**3.4**
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	NA	NA	**0.2**	NA	NA	**1.2**	**1.2**	NA	NA	**1.9**	**1.4**	**2.1**	NA	**0.5 J**
Chrysene	mg/kg OC	110	NE	NE	NE	NA	NA	**1.9**	NA	NA	**3.7**	**2.9**	NA	NA	**6.4**	**4.2**	**6.4**	NA	**2.4**
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	NA	NA	1.0 U	NA	NA	0.4 U	1.1 U	NA	NA	**0.7 J**	0.9 U	**0.9**	NA	0.7 U
Fluoranthene	mg/kg OC	160	NE	NE	NE	NA	NA	**5.3**	NA	NA	**3.6**	**4.6**	NA	NA	**19.6**	**19.1**	**32.2**	NA	**8.8**
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	NA	NA	**0.2**	NA	NA	**1.3**	**1.3**	NA	NA	**1.6**	**1.1**	**1.9**	NA	**0.5 J**
Pyrene	mg/kg OC	1,000	NE	NE	NE	NA	NA	**3.5**	NA	NA	**4.9**	**4.9**	NA	NA	**8.5**	**5.5**	**9.0**	NA	**2.9**
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	–	–	**310**	**930**	**121.4**	**2.2**	**5.8**	**402**	**206.6**	**1,700**	**3,182**	**1,113 J**	**883**	**1,464**	**1,582**	**557 J**
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	32 U	**40**	**4.1**	9.1 U	9.7 U	**59**	**18**	**140**	**320**	**82**	**52**	**84**	**94**	**48**
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	**32**	**38**	**2.6**	9.1 U	9.7 U	**45**	**17**	**100**	**330**	**72**	**50**	**92**	**100**	**35**
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	82	125	**9.9**	9.1 U	9.7 U	**25**	**37.6**	**241**	**398**	**51.7**	**42.48**	**65.24**	**320**	**29.6**
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	32 U	20 U	**2**	9.1 U	9.7 U	**27**	**11**	**54**	**150**	**44**	**32**	**48**	**44**	**14 J**
Chrysene	µg/kg	NE	1,400	75,000	570,000	**38**	**73**	**18**	9.1 U	9.7 U	**83**	**26**	**280**	**430**	**150**	**100**	**150**	**160**	**70**
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	**19**	**44**	**16 J**	20 U	**20**	20 U	20 U
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	**110**	**320**	**50**	**2.2**	**3.1**	**82**	**41**	**490**	**560**	**460**	**450**	**750**	**630**	**260**
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	32 U	20 U	**1.8**	9.1 U	9.7 U	**30**	**12**	**66**	**160**	**37**	**27**	**45**	**44**	**14 J**
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	**48**	**130**	**33**	9.1 U	**2.7**	**110**	**44**	**310**	**790**	**200**	**130**	**210**	**170**	**87**
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	**50.2**	**59.2**	**5.3**	12.8 U	13.6 U	**58.2**	**25.02**	**149.4**	**426.5**	**92.2 J**	**65.2**	**114.9**	**149.4**	**46.7 J**
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	**45.4**	**57.2**	**4.6**	6.42 U	6.83 U	**57.7**	**24.52**	**149.4**	**426.5**	**92.2 J**	**64.2**	**114.9**	**148.4**	**45.7 J**
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	**40.6**	**55.2**	**4.0**	0 U	0 U	**57.2**	**24.02**	**149.4**	**426.5**	**92.2 J**	**63.2**	**114.9**	**147.4**	**44.7 J**

Sample Identification		Preliminary Cleanup Level (PCUL)				LP-1	LP-2	FB-A4-14	FB-A4-15	FB-A4-19	FB-A4-20	FB-A4-21	S-1	S-2	S-3	S-4	S-5	S-6	S-7
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Tidal Zone						Intertidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						07/13/04	07/13/04	09/06/07	09/06/07	09/05/07	09/05/07	09/05/07	08/28/08	08/28/08	09/01/09	09/01/09	09/01/09	09/01/09	09/01/09
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	NA	NA	1.02 U	NA	NA	0.44 U	1.12 U	NA	NA	0.26 U	0.26 U	0.26 U	NA	0.20 U
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	NA	NA	1.02 U	NA	NA	0.44 U	1.12 U	NA	NA	0.26 U	0.26 U	0.26 U	NA	0.20 U
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	NA	NA	1.02 U	NA	NA	0.44 U	1.12 U	NA	NA	0.26 U	0.26 U	0.26 U	NA	0.20 U
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	NA	NA	0.10 U	NA	NA	0.44 U	1.12 U	NA	NA	0.26 U	0.26 U	0.26 U	NA	0.20 U
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	3.1 U	2.8 U	6 U	6.2 U	6 U	6.1 U	6 U
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	3.5 U	3.1 U	6 U	6.2 U	6 U	6.1 U	6 U
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	3.5 U	3.1 U	6 U	6.2 U	6 U	6.1 U	6 U
Hexachlorobenzene	µg/kg	NE	22	340	2,600	32 U	20 U	0.99 U	9.1 U	9.7 U	10 U	10 U	1.5 U	1.3 U	6 U	6.2 U	6 U	6.1 U	6 U
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	NA	NA	10.2 U	NA	NA	**0.76**	**1.69**	NA	NA	**4.26**	**28.81**	**16.74**	NA	**3.72**
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	NA	NA	1.02 U	NA	NA	0.44 U	1.12 U	NA	NA	0.64 U	0.68 U	0.64 U	NA	0.51 U
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	NA	NA	0.97	NA	NA	**0.84**	**2.70**	NA	NA	0.85 U	0.85 U	0.86 U	NA	0.68 U
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	NA	NA	0.2	NA	NA	0.44 U	**0.22**	NA	NA	0.85 U	0.85 U	0.86 U	NA	0.68 U
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	NA	NA	0.11	NA	NA	0.44 U	1.12 U	NA	NA	**2.85**	0.85 U	0.86 U	NA	0.68 U
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	NA	NA	1.02 U	NA	NA	0.44 U	1.12 U	NA	NA	0.85 U	0.85 U	0.86 U	NA	**4.39**
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	32 U	**25**	97 U	91 U	**11**	**17**	**15**	**75**	**44**	**100**	**680**	**390**	**150**	**110**
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	3.8 U	3.4 U	15 U	16 U	15 U	**20**	15 U
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	32 U	20 U	**9.2**	**16**	**20**	**19**	**24**	**22**	26 U	20 U	20 U	20 U	20 U	20 U
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	32 U	20 U	**1.9**	9.1 U	9.7 U	10 U	**2**	**10 J**	1.4 U	20 U	20 U	20 U	20 U	20 U
Dimethyl phthalate	µg/kg	NE	71	–	–	32 U	20 U	**1**	9.1 U	9.7 U	10 U	10 U	**5.9 J**	**10 J**	**67**	20 U	20 U	20 U	20 U
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	2 U	1.8 U	20 U	20 U	20 U	20 U	**130**
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	32 U	20 U	20 U	46 R	49 R	50 R	50 R	6.5 U	5.8 U	**6.6**	6.2 U	6 U	6.1 U	6 U
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	32 U	20 U	20 U	9.1 U	**2.1**	10 U	10 U	1.8 U	1.6 U	6 U	6.2 U	6 U	6.1 U	6 U
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	32 U	**70**	20 U	9.1 U	**65**	10 U	**4**	**130**	**26**	**48**	**47**	**82**	**66**	**55**
Pentachlorophenol	µg/kg	360	360	1,400	10,000	160 U	99 U	49 U	91 U	97 U	100 U	100 U	**32 J**	22 U	30 U	31 U	30 U	**71**	30 U
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	32 U	20 U	49 U	13 U	**80**	16 U	17 U	**12**	2.2 U	20 U	20 U	**15**	20 U	20 U
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	NA	NA	1.02 U	NA	NA	**0.25**	**0.31**	NA	NA	0.85 U	**0.42 J**	**0.52 J**	NA	0.68 U
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	NA	NA	1.02 U	NA	NA	0.44 U	1.12 U	NA	NA	0.26 U	0.26 U	0.26 U	NA	0.20 U
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	NA	NA	1.02 U	NA	NA	0.44 U	1.12 U	NA	NA	0.26 U	0.26 U	0.26 U	NA	0.20 U
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	32 U	20 U	9.7 U	9.1 U	9.7 U	**5.7**	**2.8**	**9 J**	**7.3 J**	20 U	**10 J**	**12 J**	**20**	20 U
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	3 U	2.7 U	6 U	6.2 U	6 U	6.1 U	6 U
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	32 U	20 U	9.7 U	9.1 U	9.7 U	10 U	10 U	1.9 U	1.7 U	6 U	6.2 U	6 U	6.1 U	6 U
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	320 U	200 U	**200**	19 U	200 R	200 R	200 R	**120 J**	110 U	200 U	200 U	200 U	200 U	200 U
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	32 U	20 U	**6.2**	190 R	20 U	20 U	10 U	2.5 U	2.3 U	30 U	31 U	30 U	30 U	30 U
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	NA	NA	2.11 U	NA	NA	0.71 U	1.69 U	NA	NA	0.17 U	0.17 U	0.17 U	NA	0.14 U
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	16 U	16 U	20 U	13 U	14 U	16 U	15 U	14 U	7.5 U	3.9 U	4 U	4 U	**4.6 J**	4 U

Sample Identification		Preliminary Cleanup Level (PCUL)				LP-1	LP-2	FB-A4-14	FB-A4-15	FB-A4-19	FB-A4-20	FB-A4-21	S-1	S-2	S-3	S-4	S-5	S-6	S-7
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Tidal Zone						Intertidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						07/13/04	07/13/04	09/06/07	09/06/07	09/05/07	09/05/07	09/05/07	08/28/08	08/28/08	09/01/09	09/01/09	09/01/09	09/01/09	09/01/09
Polychlorinated Biphenyl (PCB) Congeners																			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	**1.43**	--	--	--	**8.29**	--	--	--	--
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	**0.73**	--	--	--	**8.12**	--	--	--	--
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	**0.34**	--	--	--	**7.95**	--	--	--	--

Notes:

[1] Sediment sample locations shown on Figure 2.

[2] Intertidal zone is above -3 feet MLLW.

[3] Subtidal zone is below -3 feet MLLW.

[4] PCUL based on the practical quantification limit.

[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration

NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs

NE = not established

J = estimated concentration

T = sum of compounds

cm = centimeters

mg/kg = milligram per kilogram

mg/L = milligram per liter

mg-N/L = milligrams of nitrogen per liter

µg/kg = microgram per kilogram

µg/L = microgram per liter

ng/kg = nanogram per kilogram

MLLW = Mean Lower Low Water

TOC = total organic carbon

OC = organic carbon

R = rejected result

TEQ = toxicity equivalent

-- = not tested

Bold indicates analyte was detected.

Yellow shading indicates exceedance of PCUL protective of benthic organisms.

Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.

Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.

Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LHO-REF	DUP (LHO-REF)	P2-1-A-COMP (P2-1/P2-2/P2-3)	P2-1-B-COMP (P2-1/P2-2/P2-3)	P2-1-Z-COMP (P2-1/P2-2/P2-3)	P2-1-A	P2-2-A	P2-3-A	LY-SS-01_ 0-10	LY-SS-02_ 0-10	LY-SS-03_ 0-10	LY-SS-Dup-01 (LY-SS-03_ 0-10)	LY-SC-03_ 3-4	LY-SC-03_ 4-5
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	Surface Layer Composite (0-Core	Subsurface Layer Core	Z-Layer Composite (5-Core	Surface Layer Discrete Core	Surface Layer Discrete Core	Surface Layer Discrete Core	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5
Sample Type						Surface	Surface	Core	Core	Core	Core	Core	Core	Surface	Surface	Surface	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Native	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						10/14/10	10/14/10	11/16/12	11/16/12	11/16/12	11/14/12	11/15/12	11/16/12	11/17/15	11/17/15	11/17/15	11/17/15	11/18/15	11/18/15
Field Screening																			
Sheen	--	NE	NE	NE	NE	--	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Visual Wood Content	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	<5	Absent	5	5	75	10
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**2.2**	**2.4**	**0.21**	**0.13**	**0.15**	--	--	--	**1.21**	**0.561**	**5.56**	**2.95**	**8.74**	**9.29**
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	--	--	**1.83**	**1.37**	**1.14**	--	--	--	**1.69**	**0.98**	**13.75**	**11.81**	**28.21**	--
Total Solids (TS)	%	NE	NE	NE	NE	--	--	**79.4**	**80.5**	**82.1**	--	--	--	**85.91**	**89.87**	**48.23**	**55.37**	**39.87**	**45.45**
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	**15.4**	**15.8**	**16.7**	--
Ammonia	mg/kg	NE	NE	NE	NE	--	--	**2.24**	**0.87**	**0.93**	--	--	--	--	--	--	--	--	--
Porewater Sulfides	mg/L	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	0.05 U	**37.5**	**44**	--
Total Sulfides	mg/kg	NE	NE	NE	NE	--	--	**94**	1.24 U	1.21 U	--	--	--	--	--	--	--	--	--
Grain Size																			
Gravel	%	NE	NE	NE	NE	--	--	**1.2**	**0.3**	**0.2**	--	--	--	**60.2**	**63.3**	**1.7**	**1.2**	**18.1**	--
Very Coarse Sand	%	NE	NE	NE	NE	--	--	**1.3**	**0.3**	**0.3**	--	--	--	**5.4**	**12.3**	**2.1**	**1.4**	**3.8**	--
Coarse Sand	%	NE	NE	NE	NE	--	--	**1.6**	**0.5**	**0.6**	--	--	--	**7.3**	**12.9**	**3.2**	**2.7**	**4.8**	--
Medium Sand	%	NE	NE	NE	NE	--	--	**9**	**7.2**	**8.4**	--	--	--	**13.2**	**8.7**	**4.8**	**4.6**	**7**	--
Fine Sand	%	NE	NE	NE	NE	--	--	**15.3**	**21.8**	**31.3**	--	--	--	**8.1**	**1.6**	**6**	**8.4**	**7.9**	--
Very Fine Sand	%	NE	NE	NE	NE	--	--	**12.6**	**20.9**	**12.8**	--	--	--	**0.6**	**0.4**	**10.4**	**12**	**8.4**	--
Coarse Silt	%	NE	NE	NE	NE	--	--	**18.8**	**22.2**	**13.4**	--	--	--	**4.6**	**0.7 U**	**22.9**	**21.8**	**6.5**	--
Medium Silt	%	NE	NE	NE	NE	--	--	**16.5**	**12.8**	**11.5**	--	--	--	**0.1**	**0.7 U**	**20.8**	**19.8**	**15**	--
Fine Silt	%	NE	NE	NE	NE	--	--	**9.5**	**6.3**	**8.9**	--	--	--	**0.1**	**0.7 U**	**10**	**10.2**	**8**	--
Very Fine Silt	%	NE	NE	NE	NE	--	--	**6.1**	**3.3**	**5.5**	--	--	--	**0.1**	**0.7 U**	**4.3**	**4.5**	**5.2**	--
Clay	%	NE	NE	NE	NE	--	--	**8.3**	**4.5**	**7**	--	--	--	**0.3 U**	**0.7 U**	**13.8**	**13.6**	**15.2**	--
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	--	--	**0.38**	--	--	**4.9 J**	**0.45 J**	**0.02 J**	--	--	--	--	--	--
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	--	--	--	**3.7**	**2.9 J**	**280 J**	**91 J**	**10 J**	--	--	--	--	--	--
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	10 U	11 U	6 U	6 U	6 U	--	--	--	**5.60 J**	**5.15 J**	**9.7 J**	**8.0 J**	**8.6 J**	--
Cadmium	mg/kg	5.1	5.1	0.8	0.8	1 U	1.1 U	**0.3**	**0.3**	0.2 U	--	--	--	0.072 U	0.023 U	**1.1**	**1.2**	**0.8**	--
Chromium	mg/kg	260	260	960,000	6,900,000	**39**	**41**	**26.5 J**	**19 J**	**19.9 J**	--	--	--	**42.4**	**53.8**	**40**	**40**	**35**	--
Copper	mg/kg	390	390	26,000	180,000	**42**	**120**	**22.2**	**16.2**	**14.5**	--	--	--	**17.2**	**42.4**	**34.6**	**36.8**	**41.1**	--
Lead	mg/kg	450	450	21	21	**11**	**14**	**4**	2 U	**4**	--	--	--	**11**	**11**	**18**	**17**	**13**	--
Mercury	mg/kg	0.41	0.41	0.2	0.2	0.1 U	0.11 U	0.03 U	0.03 U	0.02 U	--	--	--	**0.0052 J**	**0.0026 J**	**0.08**	**0.08**	**0.08**	--
Silver	mg/kg	6.1	6.1	3,200	23,100	1 U	1.1 U	0.4 U	0.4 U	0.3 U	--	--	--	0.4 U	0.3 U	0.6 U	0.6 U	0.7 U	--
Zinc	mg/kg	410	410	190,000	1,400,000	**79**	**73**	**48**	**32**	**30**	--	--	--	**61**	**57**	**95**	**89**	**90**	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LHO-REF	DUP (LHO-REF)	P2-1-A-COMP (P2-1/P2-2/P2-3)	P2-1-B-COMP (P2-1/P2-2/P2-3)	P2-1-Z-COMP (P2-1/P2-2/P2-3)	P2-1-A	P2-2-A	P2-3-A	LY-SS-01_ 0-10	LY-SS-02_ 0-10	LY-SS-03_ 0-10	LY-SS-Dup-01 (LY-SS-03_ 0-10)	LY-SC-03_ 3-4	LY-SC-03_ 4-5
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	Surface Layer Composite (0-	Subsurface Layer	Z-Layer Composite (5-	Surface Layer Discrete	Surface Layer Discrete	Surface Layer Discrete	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5
Sample Type						Surface	Surface	Core	Core	Core	Core	Core	Core	Surface	Surface	Surface	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Native	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						10/14/10	10/14/10	11/16/12	11/16/12	11/16/12	11/14/12	11/15/12	11/16/12	11/17/15	11/17/15	11/17/15	11/17/15	11/18/15	11/18/15
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	**7.2**	**11.6**	NA	NA	NA	--	--	--	**0.9 J**	**1.1**	NA	**13.7 J**	NA	--
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	0.6 U	0.6 U	NA	NA	NA	--	--	--	0.4 U	**0.4**	NA	**2.2 J**	NA	--
Acenaphthene	mg/kg OC	16	NE	NE	NE	0.6 U	0.6 U	NA	NA	NA	--	--	--	0.4 U	0.8 U	NA	**0.8**	NA	--
Acenaphthylene	mg/kg OC	66	NE	NE	NE	0.6 U	0.6 U	NA	NA	NA	--	--	--	0.4 U	0.8 U	NA	**0.5**	NA	--
Anthracene	mg/kg OC	220	NE	NE	NE	**1.8**	**3.4**	NA	NA	NA	--	--	--	0.4 U	0.8 U	NA	**1.6 J**	NA	--
Fluorene	mg/kg OC	23	NE	NE	NE	0.6 U	**0.7**	NA	NA	NA	--	--	--	0.4 U	0.8 U	NA	**1.2 J**	NA	--
Naphthalene	mg/kg OC	99	NE	NE	NE	0.6 U	0.6 U	NA	NA	NA	--	--	--	**0.3**	0.8 U	NA	**3**	NA	--
Phenanthrene	mg/kg OC	100	NE	NE	NE	**2.8**	**5.8**	NA	NA	NA	--	--	--	**0.7 J**	**0.7**	NA	**4.1**	NA	--
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	--	--	**102**	**237**	**35 J**	18 U	19 U	--	--	--	**11.3 J**	**6.4**	**612 J**	**403 J**	**1,351**	--
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	14 U	14 U	19 U	18 U	19 U	--	--	--	4.7 U	**2.4 J**	**140 J**	**64 J**	**99**	--
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	14 U	14 U	19 U	18 U	19 U	--	--	--	4.7 U	4.7 U	**25**	**23**	**140**	--
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	14 U	14 U	19 U	18 U	19 U	--	--	--	4.7 U	4.7 U	**29**	**16**	**42**	--
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	**40**	**81**	19 U	18 U	19 U	--	--	--	4.7 U	4.7 U	**69 J**	**46 J**	**210**	--
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	14 U	**16**	19 U	18 U	19 U	--	--	--	4.7 U	4.7 U	**49 J**	**34 J**	**180**	--
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	14 U	14 U	**17 J**	18 U	19 U	--	--	--	**3.1 J**	4.7 U	**160**	**100**	**340**	--
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	**62**	**140**	**18 J**	18 U	19 U	--	--	--	**8.2 J**	**4.0 J**	**140**	**120**	**340**	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	**51.9**	**56.6**	NA	NA	NA	--	--	--	**9.0 J**	**6.4**	NA	**34.1 J**	NA	NA
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	**3.6**	**4.2**	NA	NA	NA	--	--	--	**0.6 J**	0.84 U	NA	**2.2 J**	NA	NA
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	**4.5**	**3.7**	NA	NA	NA	--	--	--	**0.6**	**0.6**	NA	**1.8**	NA	NA
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	**10.9**	**9.8**	NA	NA	NA	--	--	--	**2.2**	**2.0**	NA	**5.1**	NA	NA
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	**2.5**	**2.1**	NA	NA	NA	--	--	--	**1.3**	**0.7**	NA	**1.2**	NA	NA
Chrysene	mg/kg OC	110	NE	NE	NE	**7.3**	**7.9**	NA	NA	NA	--	--	--	**1.2 J**	**1.0**	NA	**4.1 J**	NA	NA
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	0.6 U	0.6 U	NA	NA	NA	--	--	--	0.4 U	0.84 U	NA	0.5 U	NA	NA
Fluoranthene	mg/kg OC	160	NE	NE	NE	**9.1**	**13.8**	NA	NA	NA	--	--	--	**1.5 J**	**0.8**	NA	**12.0**	NA	NA
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	**2.5**	**2.5**	NA	NA	NA	--	--	--	**0.7**	**0.6**	NA	**0.9**	NA	NA
Pyrene	mg/kg OC	1,000	NE	NE	NE	**10.9**	**12.1**	NA	NA	NA	--	--	--	**1.0 J**	**0.8**	NA	**7.5**	NA	NA
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	--	--	**1,127**	**1,345**	**539**	**10 J**	19 U	--	--	--	**109.3 J**	**35.9 J**	**1,332 J**	**1,007 J**	**3,012**	**2,700**
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	**79**	**100**	**15**	18 U	19 U	--	--	--	**6.6 J**	4.7 U	**99 J**	**64 J**	**190**	**200**
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	**98**	**89**	**58**	18 U	19 U	--	--	--	**6.6**	**3.3 J**	**64**	**52**	**110**	**120**
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	**240**	**236**	**100**	37 U	37 U	--	--	--	**27 J**	**11**	**220**	**150**	**300**	**350**
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	**55**	**51**	**26**	18 U	19 U	--	--	--	**16**	**3.7 J**	**43**	**35**	**60**	**68**
Chrysene	µg/kg	NE	1,400	75,000	570,000	**160**	**190**	**30**	18 U	19 U	--	--	--	**15 J**	**5.5**	**220 J**	**120 J**	**320**	**320**
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	14 U	14 U	**15**	18 U	19 U	--	--	--	4.7 U	4.7 U	**11 J**	15 U	**18**	**17**
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	**200**	**330**	**26**	18 U	19 U	--	--	--	**18 J**	**4.7 J**	**360**	**340**	**1,200**	**1,000**
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	**55**	**59**	**19**	18 U	19 U	--	--	--	**8.1**	**3.1 J**	**35**	**26**	**54**	**52**
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	**240**	**290**	**250**	**10 J**	19 U	--	--	--	**12 J**	**4.6 J**	**280**	**220**	**760**	**590**
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	**138.4**	**131.8**	**73.2**	27.3 U	28.6 U	--	--	--	**11.4 J**	**5.7 J**	**102.7 J**	**78.7 J**	**169.4**	**185**
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	**137.7**	**131.1**	**73.2**	13.6 U	14.3 U	--	--	--	**11.2 J**	**5.2 J**	**102.7 J**	**77.9 J**	**169.4**	**185**
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	**137**	**130.4**	**73.2**	0 U	0 U	--	--	--	**10.9 J**	**4.8 J**	**102.7 J**	**77.2 J**	**169.4**	**185**

Sample Identification		Preliminary Cleanup Level (PCUL)				LHO-REF	DUP (LHO-REF)	P2-1-A-COMP (P2-1/P2-2/P2-3)	P2-1-B-COMP (P2-1/P2-2/P2-3)	P2-1-Z-COMP (P2-1/P2-2/P2-3)	P2-1-A	P2-2-A	P2-3-A	LY-SS-01_ 0-10	LY-SS-02_ 0-10	LY-SS-03_ 0-10	LY-SS-Dup-01 (LY-SS-03_ 0-10)	LY-SC-03_ 3-4	LY-SC-03_ 4-5
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	Surface Layer Composite (0-	Subsurface Layer	Z-Layer Composite (5-	Surface Layer Discrete	Surface Layer Discrete	Surface Layer Discrete	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5
Sample Type						Surface	Surface	Core	Core	Core	Core	Core	Core	Surface	Surface	Surface	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Native	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						10/14/10	10/14/10	11/16/12	11/16/12	11/16/12	11/14/12	11/15/12	11/16/12	11/17/15	11/17/15	11/17/15	11/17/15	11/18/15	11/18/15
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	0.39 U	0.84 U	NA	0.17 U	NA	--
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	0.39 U	0.84 U	NA	0.17 U	NA	--
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	0.39 U	0.84 U	NA	0.17 U	NA	--
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	0.39 U	0.84 U	NA	0.17 U	NA	--
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	35 U	35 U	**3.2 J**	4.6 U	4.6 U	--	--	--	4.7 U	4.7 U	4.8 U	4.9 U	5.0 U	--
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	35 U	35 U	4.7 U	4.6 U	4.6 U	--	--	--	4.7 U	4.7 U	4.8 U	4.9 U	**2.8 J**	--
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	35 U	35 U	4.7 U	4.6 U	4.6 U	--	--	--	4.7 U	4.7 U	4.8 U	4.9 U	5.0 U	--
Hexachlorobenzene	µg/kg	NE	22	340	2,600	35 U	35 U	4.7 U	4.6 U	4.6 U	--	--	--	4.7 U	4.7 U	4.8 U	4.9 U	5.0 U	--
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	**2.23**	1.46 U	NA	NA	NA	--	--	--	**91**	**5.9**	NA	**6.1**	NA	--
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	**0.4**	0.84 U	NA	**1.1 J**	NA	--
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	1.6 U	3.4 U	NA	0.7 U	NA	--
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	7.73 U	7.50 U	NA	NA	NA	--	--	--	2.7 U	3.4 U	NA	0.7 U	NA	--
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	1.6 U	3.4 U	NA	0.7 U	NA	--
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	1.6 U	3.4 U	NA	0.7 U	NA	--
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	**49**	35 U	34 U	24 U	27 U	--	--	--	**1,100**	**33 J**	**160**	**180**	250 U	--
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	35 U	35 U	4.7 U	4.6 U	4.6 U	--	--	--	**4.9**	4.7 U	**5.4**	**31 J**	5.0 U	--
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	35 U	35 U	19 U	18 U	19 U	--	--	--	19 U	19 U	19 U	20 U	**35 J**	--
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	170 U	180 U	47 U	4.6 U	4.6 U	--	--	--	33 U	19 U	37 U	20 U	100 U	--
Dimethyl phthalate	µg/kg	NE	71	--	--	35 U	35 U	4.7 U	4.6 U	4.6 U	--	--	--	19 U	19 U	19 U	20 U	100 U	--
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	35 U	35 U	19 U	18 U	19 U	--	--	--	19 U	19 U	19 U	20 U	100 U	--
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	870 U	880 U	19 U	18 U	19 U	--	--	--	24 U	24 U	24 U	**13 J**	**17 J**	**12 J**
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	35 U	35 U	4.7 U	4.6 U	4.6 U	--	--	--	19 U	19 U	19 U	20 U	100 U	19 U
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	35 U	35 U	38 U	37 U	37 U	--	--	--	19 U	19 U	**800 J**	**460 J**	**3,900**	**1,100**
Pentachlorophenol	µg/kg	360	360	1,400	10,000	170 U	180 U	47 U	46 U	46 U	--	--	--	95 U	94 U	96 U	98 U	**480 J**	95 U
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	**240**	35 U	19 U	18 U	19 U	--	--	--	19 U	19 U	**42 J**	**76 J**	**560**	**370**
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	**0.26**	0.84 U	NA	**1.2**	NA	NA
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	0.39 U	0.84 U	NA	0.17 U	NA	NA
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	1.59 U	1.46 U	NA	NA	NA	--	--	--	0.39 U	0.84 U	NA	0.17 U	NA	NA
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	35 U	35 U	19 U	18 U	19 U	--	--	--	**3.1 J**	4.7 U	**48**	**36**	**130**	**140**
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	35 U	35 U	4.7 U	4.6 U	4.6 U	--	--	--	4.7 U	4.7 U	4.8 U	4.9 U	5.0 U	4.8 U
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	35 U	35 U	19 U	18 U	19 U	--	--	--	4.7 U	4.7 U	4.8 U	4.9 U	5.0 U	4.8 U
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	35 U	35 U	380 U	370 U	370 U	--	--	--	190 U	190 U	**200**	**220**	**4,300 J**	**160 J**
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	35 U	35 U	19 U	18 U	19 U	--	--	--	19 U	19 U	19 U	20 U	100 U	19 U
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	4.55 U	4.58 U	NA	NA	NA	--	--	--	--	--	--	--	--	--
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	100 U	110 U	3.8 U	3.8 U	3.8 U	--	--	--	--	--	--	--	--	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LHO-REF	DUP (LHO-REF)	P2-1-A-COMP (P2-1/P2-2/P2-3)	P2-1-B-COMP (P2-1/P2-2/P2-3)	P2-1-Z-COMP (P2-1/P2-2/P2-3)	P2-1-A	P2-2-A	P2-3-A	LY-SS-01_ 0-10	LY-SS-02_ 0-10	LY-SS-03_ 0-10	LY-SS-Dup-01 (LY-SS-03_ 0-10)	LY-SC-03_ 3-4	LY-SC-03_ 4-5
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	Surface Layer Composite (0-	Subsurface Layer	Z-Layer Composite (5-	Surface Layer Discrete	Surface Layer Discrete	Surface Layer Discrete	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5
Sample Type						Surface	Surface	Core	Core	Core	Core	Core	Core	Surface	Surface	Surface	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Intertidal	Intertidal	Intertidal	Intertidal	Intertidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Native	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						10/14/10	10/14/10	11/16/12	11/16/12	11/16/12	11/14/12	11/15/12	11/16/12	11/17/15	11/17/15	11/17/15	11/17/15	11/18/15	11/18/15
Polychlorinated Biphenyl (PCB) Congeners																			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	NA	**0.043 J**	NA	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	--	--	--	--	--	--	**1.71 J**	**0.128 J**	**3.0 J**	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	**0.154 J**	**0.134 J**	**0.385 J**	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	**0.079 J**	**0.069 J**	**0.197 J**	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	**0.004 J**	**0.004 J**	**0.009 J**	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	--	--	**0.316**	**0.157**	**0.176**	--	--	--	**1.21 J**	--	**11.22 J**	**7.53 J**	--	--
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	--	--	**0.22**	**0.08**	**0.09**	--	--	--	**0.88 J**	--	**11.26 J**	**7.53 J**	--	--
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	--	--	**0.12**	**0.01**	**0.01**	--	--	--	**0.56 J**	--	**11.26 J**	**7.53 J**	--	--

Notes:

[1] Sediment sample locations shown on Figure 2.
[2] Intertidal zone is above -3 feet MLLW.
[3] Subtidal zone is below -3 feet MLLW.
[4] PCUL based on the practical quantification limit.
[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration
NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs
NE = not established
J = estimated concentration
T = sum of compounds
cm = centimeters
mg/kg = milligram per kilogram
mg/L = milligram per liter
mg-N/L = milligrams of nitrogen per liter
µg/kg = microgram per kilogram
µg/L = microgram per liter
ng/kg = nanogram per kilogram
MLLW = Mean Lower Low Water
TOC = total organic carbon
OC = organic carbon
R = rejected result
TEQ = toxicity equivalent
-- = not tested

Bold indicates analyte was detected.
Yellow shading indicates exceedance of PCUL protective of benthic organisms.
Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.
Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.
Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-04_ 0-10	LY-SC-04_ 3-4	LY-SC-Dup-02 (LY-SC-04_3-4)	LY-SS-05_ 0-10	LY-SC-05_ 1-2	LY-SC-05_ 3-4	LY-SC-05_ 4-5	LY-SS-06_ 0-10	LY-SS-Dup-02 (LY-SS-06_ 0-10)	LY-SC-06_ 3-4	LY-SC-06_ 4-5	LY-SS-07_ 0-10	LY-SC-07_ 0-1	LY-SC-07_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	3 - 4	3 - 4	0 - 10 cm	1 - 2	3 - 4	4 - 5	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5	0 - 10 cm	0 - 1	3 - 4
Sample Type						Surface	Core	Core	Surface	Core	Core	Core	Surface	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Native	Recent	Recent	Native
Sample Date						11/17/15	11/18/15	11/18/15	11/17/15	11/19/15	11/19/15	11/19/15	11/17/15	11/17/15	11/19/15	11/19/15	11/17/15	11/20/15	11/20/15
Field Screening																			
Sheen	–	NE	NE	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Visual Wood Content	%	NE	NE	NE	NE	20	40	40	10	Absent	Absent	Absent	10	10	10	Absent	Absent	Absent	Absent
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**2.75**	**1.21**	**0.905**	**3.3**	**0.551**	–	–	**1.75**	**2.24**	–	**0.557**	**0.734**	**0.19**	–
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	**10.1**	**2.34**	**2.01**	**8.23**	–	–	–	**6.43**	**8.42**	–	–	–	–	–
Total Solids (TS)	%	NE	NE	NE	NE	**46.85**	**75.44**	**87.7**	**54.66**	**77.73**	–	–	**55.08**	**55.37**	–	**76.47**	–	**75.82**	–
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	**34**	–	**22.1**	**8.21**	–	**8.04**	–	**6.18**	**7**	**29.6**	–	–	–	–
Ammonia	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Porewater Sulfides	mg/L	NE	NE	NE	NE	**161**	–	–	**7.2**	–	–	–	**0.191**	**49.2**	**16.2**	–	–	–	–
Total Sulfides	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grain Size																			
Gravel	%	NE	NE	NE	NE	**0.6**	**26.6**	**35.4**	**3.3**	–	–	–	**2.9**	**2.8**	–	–	**2.8**	–	–
Very Coarse Sand	%	NE	NE	NE	NE	**1.5**	**2.2**	**2.6**	**2.4**	–	–	–	**1.5**	**2.1**	–	–	**2.1**	–	–
Coarse Sand	%	NE	NE	NE	NE	**1.4**	**2.6**	**2.7**	**2.7**	–	–	–	**2.5**	**2.9**	–	–	**2.9**	–	–
Medium Sand	%	NE	NE	NE	NE	**2.4**	**11.1**	**10.9**	**4.6**	–	–	–	**5.9**	**6.4**	–	–	**6.4**	–	–
Fine Sand	%	NE	NE	NE	NE	**3.3**	**26.2**	**24.8**	**13.5**	–	–	–	**22.4**	**21.4**	–	–	**21.4**	–	–
Very Fine Sand	%	NE	NE	NE	NE	**7**	**15.7**	**13.8**	**18.9**	–	–	–	**17.7**	**18.1**	–	–	**18.1**	–	–
Coarse Silt	%	NE	NE	NE	NE	**28**	**5.2**	**1.7**	**17.8**	–	–	–	**13.9**	**12.3**	–	–	**12.3**	–	–
Medium Silt	%	NE	NE	NE	NE	**18**	**3.1**	**2.1**	**12.2**	–	–	–	**8.7**	**8.8**	–	–	**8.8**	–	–
Fine Silt	%	NE	NE	NE	NE	**14.2**	**1.6**	**1.2**	**7.5**	–	–	–	**6.4**	**6.7**	–	–	**6.7**	–	–
Very Fine Silt	%	NE	NE	NE	NE	**5.6**	**1.3**	**1**	**3.4**	–	–	–	**3.7**	**4.1**	–	–	**4.1**	–	–
Clay	%	NE	NE	NE	NE	**17.9**	**4.4**	**3.7**	**13.5**	–	–	–	**14.3**	**14.5**	–	–	**14.5**	–	–
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	–	–	–	–	–	–	–	**0.013**	**0.011**	**0.009**	–	0.005 U	–	0.043 U
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	**8.3 J**	**11**	**14**	**10**	**11**	–	–	**12**	**11**	–	**7**	–	–	–
Cadmium	mg/kg	5.1	5.1	0.8	0.8	**1**	**0.5**	**0.5**	**0.6**	**1.6**	**1.1**	**0.8**	**0.5**	**0.4**	–	**0.7**	–	–	–
Chromium	mg/kg	260	260	960,000	6,900,000	**41**	**15.7**	**18.6**	**33.4**	–	–	–	**31.8**	**32.1**	–	–	–	–	–
Copper	mg/kg	390	390	26,000	180,000	**33.8**	**9.6**	**10.8**	**30**	–	–	–	**31.7**	**28.3**	–	–	–	–	–
Lead	mg/kg	450	450	21	21	**18**	**2.11 J**	**2.21 J**	**14**	–	–	–	**9**	**8**	–	–	–	–	–
Mercury	mg/kg	0.41	0.41	0.2	0.2	**0.06**	**0.0182 J**	**0.0141 J**	**0.05**	–	–	–	**0.06**	**0.05**	–	–	–	–	–
Silver	mg/kg	6.1	6.1	3,200	23,100	0.6 U	0.4 U	0.4 U	0.5 U	–	–	–	0.6 U	0.5 U	–	–	–	–	–
Zinc	mg/kg	410	410	190,000	1,400,000	**93**	**27**	**34**	**73**	–	–	–	**67**	**70**	–	–	–	–	–

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-04_ 0-10	LY-SC-04_ 3-4	LY-SC-Dup-02 (LY-SC-04_3-4)	LY-SS-05_ 0-10	LY-SC-05_ 1-2	LY-SC-05_ 3-4	LY-SC-05_ 4-5	LY-SS-06_ 0-10	LY-SS-Dup-02 (LY-SS-06_ 0-10)	LY-SC-06_ 3-4	LY-SC-06_ 4-5	LY-SS-07_ 0-10	LY-SC-07_ 0-1	LY-SC-07_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	3 - 4	3 - 4	0 - 10 cm	1 - 2	3 - 4	4 - 5	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5	0 - 10 cm	0 - 1	3 - 4
Sample Type						Surface	Core	Core	Surface	Core	Core	Core	Surface	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Native	Recent	Recent	Native
Sample Date						11/17/15	11/18/15	11/18/15	11/17/15	11/19/15	11/19/15	11/19/15	11/17/15	11/17/15	11/19/15	11/19/15	11/17/15	11/20/15	11/20/15
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	**97.4**	**4.2 J**	**6.2 J**	**3.3**	**16.2 J**	--	--	**44.7 J**	**35.8 J**	--	--	--	--	--
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	**2.3**	**0.3 J**	**0.5 J**	**0.3**	**0.9**	--	--	**4.6**	**3.1**	--	--	--	--	--
Acenaphthene	mg/kg OC	16	NE	NE	NE	**58.2**	0.4 U	**0.5 J**	**0.3**	**0.7 J**	--	--	**3.3**	**2.8**	--	--	--	--	--
Acenaphthylene	mg/kg OC	66	NE	NE	NE	**1.0**	**0.2 J**	0.5 U	**0.1**	**0.7 J**	--	--	**2.3**	**2.1**	--	--	--	--	--
Anthracene	mg/kg OC	220	NE	NE	NE	**7.3**	**0.5**	**0.9**	**0.3**	**1.5**	--	--	**3.9 J**	**4 J**	--	--	--	--	--
Fluorene	mg/kg OC	23	NE	NE	NE	**10.2**	**0.4 J**	**0.7**	**0.3**	**1.3**	--	--	**3.7**	**2.8**	--	--	--	--	--
Naphthalene	mg/kg OC	99	NE	NE	NE	**3.6**	**1.9**	**2.2**	**1.3**	**7.4**	--	--	**17**	**13**	--	--	--	--	--
Phenanthrene	mg/kg OC	100	NE	NE	NE	**17.1**	**1.2**	**1.9**	**0.9**	**4.5**	--	--	**10**	**8.5**	--	--	--	--	--
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	--	--	**2,740**	**54.1 J**	**60.6 J**	**780**	**89 J**	--	--	**783 J**	**802 J**	--	--	--	--	--
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	**63**	**3.6 J**	**4.4 J**	**72**	**5**	--	--	**81**	**69**	--	--	--	--	--
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	**1,600**	4.8 U	**4.7 J**	**64**	**4.0 J**	--	--	**58**	**63**	--	--	--	--	--
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	**27**	**2.4 J**	4.9 U	**30**	**3.6 J**	--	--	**41**	**47**	--	--	--	--	--
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	**200**	**5.5**	**8.1**	**70**	**8**	--	--	**68 J**	**90 J**	--	--	--	--	--
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	**280**	**4.6 J**	**6.4**	**74**	**7.4**	--	--	**65**	**63**	--	--	--	--	--
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	**100**	**23**	**20**	**280**	**41**	--	--	**290**	**280**	--	--	--	--	--
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	**470**	**15**	**17**	**190**	**25**	--	--	**180**	**190**	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	**72.6**	**5.4 J**	**10.3 J**	**4.8**	**18.7 J**	--	--	**87.4**	**59.5**	--	--	--	--	--
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	**3.0**	**0.3 J**	**0.7**	**0.3**	**1.1**	--	--	**8.0**	**4.0**	--	**3.6**	--	NA	--
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	**1.6**	**0.5**	**0.41 J**	**0.2**	**1.1**	--	--	**5.3**	**3.7**	--	**2.5**	--	NA	--
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	**4.7**	**0.6**	**1.1**	**0.6**	**2.2**	--	--	**11.0**	**9.0**	--	**4.7**	--	NA	--
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	**1.0**	**0.6**	**0.46 J**	**0.2**	**0.8 J**	--	--	**2.6**	**2.0**	--	--	--	--	--
Chrysene	mg/kg OC	110	NE	NE	NE	**4.4**	**0.5**	**1.0**	**0.4**	**1.3**	--	--	**8.6**	**6.3**	--	**3.2**	--	NA	--
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	0.5 U	0.4 U	0.5 U	0.08 U	0.9 U	--	--	**0.7**	0.6 U	--	0.9 U	--	NA	--
Fluoranthene	mg/kg OC	160	NE	NE	NE	**35.6**	**1.5 J**	**3.8 J**	**1.4**	**6.0**	--	--	**18.0**	**14.0**	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	**0.8**	0.4 U	0.5 U	**0.1**	**0.6 J**	--	--	**2.2**	**1.6**	--	**1.3**	--	NA	--
Pyrene	mg/kg OC	1,000	NE	NE	NE	**21.5**	**1.4 J**	**2.9 J**	**1.5**	**5.6**	--	--	**31.0**	**18.0**	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	--	--	**1,996**	**65 J**	**92.8 J**	**1,023**	**103 J**	--	--	**1,529 J**	**1,333**	--	--	--	--	--
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	**82**	**3.8 J**	**6.3**	**66**	**6.1**	--	--	**140**	**100**	--	**20**	--	**5**	--
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	**44**	**6.2**	**3.7 J**	**48**	**5.9**	--	--	**93**	**83**	--	**14**	--	**4.2 J**	--
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	**130**	**7.6**	**10**	**130**	**12**	--	--	**190**	**200**	--	**26**	--	**11**	--
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	**27**	**6.6**	**4.2 J**	**40**	**4.3 J**	--	--	**46**	**44**	--	--	--	--	--
Chrysene	µg/kg	NE	1,400	75,000	570,000	**120**	**5.8**	**8.6**	**91**	**7.4**	--	--	**150**	**140**	--	**18**	--	**6.3**	--
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	14 U	4.8 U	4.9 U	17 U	5.0 U	--	--	**12 J**	14 U	--	4.8 U	--	4.8 U	--
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	**980**	**18 J**	**34 J**	**290**	**33**	--	--	**310**	**320**	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	**23**	4.8 U	4.9 U	**28**	**3.5 J**	--	--	**38**	**36**	--	**7.4**	--	4.8 U	--
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	**590**	**17 J**	**26 J**	**330**	**31**	--	--	**550**	**410**	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	**73.0**	**8.4 J**	**6.4 J**	**73.0**	**8.1 J**	--	--	**132.5 J**	**119.4**	--	**20.0**	--	**6.8 J**	--
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	**69.4**	**7.9 J**	**5.9 J**	**72.2**	**8.1 J**	--	--	**132.5 J**	**118.7**	--	**19.8**	--	**6.3 J**	--
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	**68.7**	**7.4 J**	**5.4 J**	**71.3**	**8.1 J**	--	--	**132.5 J**	**118.0**	--	**19.5**	--	**5.9 J**	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-04_ 0-10	LY-SC-04_ 3-4	LY-SC-Dup-02 (LY-SC-04_3-4)	LY-SS-05_ 0-10	LY-SC-05_ 1-2	LY-SC-05_ 3-4	LY-SC-05_ 4-5	LY-SS-06_ 0-10	LY-SS-Dup-02 (LY-SS-06_ 0-10)	LY-SC-06_ 3-4	LY-SC-06_ 4-5	LY-SS-07_ 0-10	LY-SC-07_ 0-1	LY-SC-07_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	3 - 4	3 - 4	0 - 10 cm	1 - 2	3 - 4	4 - 5	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5	0 - 10 cm	0 - 1	3 - 4
Sample Type						Surface	Core	Core	Surface	Core	Core	Core	Surface	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Native	Recent	Recent	Native
Sample Date						11/17/15	11/18/15	11/18/15	11/17/15	11/19/15	11/19/15	11/19/15	11/17/15	11/17/15	11/19/15	11/19/15	11/17/15	11/20/15	11/20/15
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	0.17 U	0.4 U	0.54 U	0.02 U	--	--	--	0.27 U	0.21 U	--	--	--	--	--
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	0.17 U	0.4 U	**0.17**	0.02 U	--	--	--	0.27 U	0.21 U	--	--	--	--	--
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	0.17 U	0.4 U	0.54 U	0.02 U	--	--	--	0.27 U	**0.11**	--	--	--	--	--
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	0.17 U	0.4 U	0.54 U	0.02 U	--	--	--	0.27 U	0.21 U	--	--	--	--	--
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	4.8 U	4.8 U	4.9 U	4.9 U	--	--	--	4.8 U	4.8 U	--	--	--	--	--
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	4.8 U	4.8 U	**1.5 J**	4.9 U	--	--	--	4.8 U	4.8 U	--	--	--	--	--
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	4.8 U	4.8 U	4.9 U	4.9 U	--	--	--	4.8 U	**2.5 J**	--	--	--	--	--
Hexachlorobenzene	µg/kg	NE	22	340	2,600	4.8 U	4.8 U	4.9 U	4.9 U	--	--	--	4.8 U	4.8 U	--	--	--	--	--
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	**9.5**	**52 J**	**4.9 J**	**2.2**	--	--	--	**3.4**	**2.9**	--	--	--	--	--
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	**0.29**	0.4 U	**0.43**	0.02 U	--	--	--	0.27 U	0.21 U	--	--	--	--	--
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	0.69 U	1.6 U	2 U	0.09 U	--	--	--	1.1 U	0.85 U	--	--	--	--	--
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	1.2 U	1.6 U	2 U	**0.3**	--	--	--	1.1 U	1.7 U	--	--	--	--	--
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	0.69 U	1.6 U	2 U	0.09 U	--	--	--	1.1 U	0.85 U	--	--	--	--	--
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	0.69 U	1.6 U	2 U	0.09 U	--	--	--	1.1 U	0.85 U	--	--	--	--	--
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	**260**	**630 J**	**44 J**	**480**	--	--	--	**60**	**64**	--	--	--	--	--
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	**7.9**	4.8 U	**3.9 J**	4.9 U	--	--	--	4.8 U	4.8 U	--	--	--	--	--
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	19 U	19 U	20 U	20 U	--	--	--	19 U	19 U	--	--	--	--	--
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	34 U	19 U	20 U	**55**	--	--	--	19 U	38 U	--	--	--	--	--
Dimethyl phthalate	µg/kg	NE	71	--	--	19 U	19 U	20 U	20 U	--	--	--	19 U	19 U	--	--	--	--	--
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	19 U	19 U	20 U	20 U	--	--	--	19 U	19 U	--	--	--	--	--
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	24 U	24 U	24 U	25 U	--	--	--	24 U	**14 J**	--	24 U	--	--	--
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	19 U	19 U	20 U	20 U	--	--	--	19 U	19 U	--	19 U	--	--	--
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	**1,100**	**53**	**46**	**330**	--	--	--	**310 J**	**550 J**	--	19 U	--	--	--
Pentachlorophenol	µg/kg	360	360	1,400	10,000	96 U	97 U	98 U	98 U	--	--	--	97 U	97 U	--	96 U	--	--	--
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	**67 J**	**20**	**20**	**300 J**	--	--	--	**50 J**	**78 J**	--	8.6 J	--	--	--
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	**12.4**	**0.29 J**	**0.53 J**	**0.4**	--	--	--	**3.5**	**2.4**	--	--	--	--	--
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	0.17 U	0.4 U	0.54 U	0.02 U	--	--	--	0.27 U	0.21 U	--	--	--	--	--
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	0.17 U	0.4 U	0.54 U	0.02 U	--	--	--	0.27 U	0.21 U	--	--	--	--	--
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	**340**	**3.5 J**	**4.8 J**	**82**	--	--	--	**61**	**53**	--	--	--	--	--
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	4.8 U	4.8 U	4.9 U	4.9 U	--	--	--	4.8 U	4.8 U	--	--	--	--	--
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	4.8 U	4.8 U	4.9 U	4.9 U	--	--	--	4.8 U	4.8 U	--	--	--	--	--
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	**110 J**	190 U	200 U	**110 J**	--	--	--	**130 J**	**78 J**	--	--	--	--	--
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	19 U	19 U	20 U	20 U	--	--	--	19 U	19 U	--	--	--	--	--
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-04_ 0-10	LY-SC-04_ 3-4	LY-SC-Dup-02 (LY-SC-04_3-4)	LY-SS-05_ 0-10	LY-SC-05_ 1-2	LY-SC-05_ 3-4	LY-SC-05_ 4-5	LY-SS-06_ 0-10	LY-SS-Dup-02 (LY-SS-06_ 0-10)	LY-SC-06_ 3-4	LY-SC-06_ 4-5	LY-SS-07_ 0-10	LY-SC-07_ 0-1	LY-SC-07_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	3 - 4	3 - 4	0 - 10 cm	1 - 2	3 - 4	4 - 5	0 - 10 cm	0 - 10 cm	3 - 4	4 - 5	0 - 10 cm	0 - 1	3 - 4
Sample Type						Surface	Core	Core	Surface	Core	Core	Core	Surface	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Native	Recent	Recent	Native
Sample Date						11/17/15	11/18/15	11/18/15	11/17/15	11/19/15	11/19/15	11/19/15	11/17/15	11/17/15	11/19/15	11/19/15	11/17/15	11/20/15	11/20/15
Polychlorinated Biphenyl (PCB) Congeners																			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	**0.067 J**	--	--	**0.062 J**	--	--	--	**0.611 J**	**0.162 J**	--	**0.009 J**	**0.062**	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	**1.83 J**	--	--	**2.06 J**	--	--	--	**10.7 J**	**3.62 J**	--	**0.0479 J**	**0.458 J**	--	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	**0.099 J**	--	--	**0.164 J**	--	--	--	**1.19 J**	**0.243 J**	--	**0.059 J**	**0.091 J**	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	**0.052 J**	--	--	**0.153 J**	--	--	--	**1.17 J**	**0.231 J**	--	**0.029 J**	**0.046 J**	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	**0.005 J**	--	--	**0.142 J**	--	--	--	**1.14 J**	**0.219 J**	--	**0 J**	**0.001 J**	--	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	**3.56 J**	**2.84 J**	--	--	--	--	--
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	**3.56 J**	**2.68 J**	--	--	--	--	--
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	**3.56 J**	**2.52 J**	--	--	--	--	--

Notes:

[1] Sediment sample locations shown on Figure 2.

[2] Intertidal zone is above -3 feet MLLW.

[3] Subtidal zone is below -3 feet MLLW.

[4] PCUL based on the practical quantification limit.

[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration

NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs

NE = not established

J = estimated concentration

T = sum of compounds

cm = centimeters

mg/kg = milligram per kilogram

mg/L = milligram per liter

mg-N/L = milligrams of nitrogen per liter

µg/kg = microgram per kilogram

µg/L = microgram per liter

ng/kg = nanogram per kilogram

MLLW = Mean Lower Low Water

TOC = total organic carbon

OC = organic carbon

R = rejected result

TEQ = toxicity equivalent

-- = not tested

Bold indicates analyte was detected.

Yellow shading indicates exceedance of PCUL protective of benthic organisms.

Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.

Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.

Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-08_ 0-10	LY-SC-08_ 3-4	LY-SC-08_ 5-6	LY-SS-09_ 0-10	LY-SC-09_ 2-3	LY-SC-09_ 3-4	LY-SS-10_ 0-10	LY-SC-10_ 0-1	LY-SS-11_ 0-10	LY-SC-11_ 0-1	LY-SS-13_ 0-10	LY-SS-14_ 0-10	LY-SC-14_ 0-1	LY-SC-14_ 1-2
Sample Depth (feet below mudline)		**Protection of Benthic Organisms**		**Protection of Human Health and Higher Trophic Levels**		**0 - 10 cm**	**3 - 4**	**5 - 6**	**0 - 10 cm**	**2 - 3**	**3 - 4**	**0 - 10 cm**	**0 - 1**	**0 - 10 cm**	**0 - 1**	**0 - 10 cm**	**0 - 10 cm**	**0 - 1 ft**	**1 - 2 ft**
Sample Type						**Surface**	**Core**	**Core**	**Surface**	**Core**	**Core**	**Surface**	**Core**	**Surface**	**Core**	**Surface**	**Surface**	**Core**	**Core**
Tidal Zone						**Intertidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**	**Subtidal**
Stratigraphic Horizon		**TOC (0.5% to 3.5%)**	**TOC (<0.5% or >3.5%)**	**Intertidal Sediment[2]**	**Subtidal Sediment[3]**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Recent**	**Native**
Sample Date						**11/17/15**	**11/20/15**	**11/20/15**	**11/17/15**	**11/18/2015**	**11/18/2015**	**11/17/15**	**11/18/15**	**11/17/15**	**11/19/15**	**11/17/15**	**08/30/21**	**08/31/21**	**08/31/21**
Field Screening																			
Sheen	–	NE	NE	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Visual Wood Content	%	NE	NE	NE	NE	10	40	<5	10	<5	<5	<5	<5	Absent	<5	Absent	Absent	Absent	Absent
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**1.86**	**6.32**	**3.17**	**1.52**	**2.7**	–	**1.84**	**2.65**	**1.32**	**1.25**	**1.29**	**1.11**	**1.55**	**0.1**
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	**6.61**	**16.08**	–	**6.15**	–	–	**5.49**	–	–	–	–	–	–	–
Total Solids (TS)	%	NE	NE	NE	NE	**55.02**	**47.41**	**51.09**	**56.34**	**47.87**	–	**53.01**	**50.91**	**57.04**	**53.17**	**59.13**	**64.31**	**77.32**	**78.98**
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	**7.84**	**41**	–	**7.73**	–	**76.2**	**6.16**	–	–	–	–	–	–	–
Ammonia	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Porewater Sulfides	mg/L	NE	NE	NE	NE	**1.6**	**8.26**	–	**1.56**	–	**0.335**	**0.934**	–	–	–	–	–	–	–
Total Sulfides	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grain Size																			
Gravel	%	NE	NE	NE	NE	**1.8**	**6.8**	–	**2.2**	–	–	**2**	–	–	–	–	–	–	–
Very Coarse Sand	%	NE	NE	NE	NE	**1.4**	**3.4**	–	**1.2**	–	–	**1.2**	–	–	–	–	–	–	–
Coarse Sand	%	NE	NE	NE	NE	**1.8**	**3.4**	–	**2.2**	–	–	**0.8**	–	–	–	–	–	–	–
Medium Sand	%	NE	NE	NE	NE	**3.5**	**4.1**	–	**3.9**	–	–	**1.8**	–	–	–	–	–	–	–
Fine Sand	%	NE	NE	NE	NE	**14.5**	**7.5**	–	**10.8**	–	–	**10.6**	–	–	–	–	–	–	–
Very Fine Sand	%	NE	NE	NE	NE	**22.4**	**9.8**	–	**23.7**	–	–	**20.8**	–	–	–	–	–	–	–
Coarse Silt	%	NE	NE	NE	NE	**20.8**	**13.4**	–	**26.2**	–	–	**21.8**	–	–	–	–	–	–	–
Medium Silt	%	NE	NE	NE	NE	**11.2**	**15.7**	–	**11.7**	–	–	**15.1**	–	–	–	–	–	–	–
Fine Silt	%	NE	NE	NE	NE	**5.8**	**9**	–	**4.2**	–	–	**6.4**	–	–	–	–	–	–	–
Very Fine Silt	%	NE	NE	NE	NE	**3.6**	**5.9**	–	**2.9**	–	–	**4.1**	–	–	–	–	–	–	–
Clay	%	NE	NE	NE	NE	**13.2**	**21**	–	**11**	–	–	**15.4**	–	–	–	–	–	–	–
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	**0.013**	**0.007**	–	–	–	–	–	–	–	–	–	–	–	–
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	**10**	**10**	–	**8.40 J**	10 U	–	**8.29 J**	–	–	–	–	–	–	–
Cadmium	mg/kg	5.1	5.1	0.8	0.8	**0.7**	**0.6**	–	**0.7**	**0.7**	–	**0.7**	–	–	–	–	–	–	–
Chromium	mg/kg	260	260	960,000	6,900,000	**33**	**38**	–	**29.6**	–	–	**31.5**	–	–	–	–	–	–	–
Copper	mg/kg	390	390	26,000	180,000	**25.8**	**32.2**	–	**27.2**	–	–	**22.2**	–	–	–	–	–	–	–
Lead	mg/kg	450	450	21	21	**10**	**14**	–	**7**	–	–	**8**	–	–	–	–	–	–	–
Mercury	mg/kg	0.41	0.41	0.2	0.2	**0.0435 J**	**0.15**	–	**0.05**	–	–	**0.09**	–	–	–	–	–	–	–
Silver	mg/kg	6.1	6.1	3,200	23,100	0.6 U	0.6 U	–	0.5 U	–	–	0.5 U	–	–	–	–	–	–	–
Zinc	mg/kg	410	410	190,000	1,400,000	**79**	**86**	–	**67**	–	–	**68**	–	–	–	–	–	–	–

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-08_ 0-10	LY-SC-08_ 3-4	LY-SC-08_ 5-6	LY-SS-09_ 0-10	LY-SC-09_ 2-3	LY-SC-09_ 3-4	LY-SS-10_ 0-10	LY-SC-10_ 0-1	LY-SS-11_ 0-10	LY-SC-11_ 0-1	LY-SS-13_ 0-10	LY-SS-14_ 0-10	LY-SC-14_ 0-1	LY-SC-14_ 1-2
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	3 - 4	5 - 6	0 - 10 cm	2 - 3	3 - 4	0 - 10 cm	0 - 1	0 - 10 cm	0 - 1	0 - 10 cm	0 - 10 cm	0 - 1 ft	1 - 2 ft
Sample Type						Surface	Core	Core	Surface	Core	Core	Surface	Core	Surface	Core	Surface	Surface	Core	Core
Tidal Zone						Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native
Sample Date						11/17/15	11/20/15	11/20/15	11/17/15	11/18/2015	11/18/2015	11/17/15	11/18/15	11/17/15	11/19/15	11/17/15	08/30/21	08/31/21	08/31/21
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	144.3	NA	75.4	163.6	36.0	--	23.6	--	--	--	--	--	--	--
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	3.8	NA	5.1	4.8	2.6	--	2.7	--	--	--	--	--	--	--
Acenaphthene	mg/kg OC	16	NE	NE	NE	6.5	NA	5.4	1.7	2.8	--	1.3	--	--	--	--	--	--	--
Acenaphthylene	mg/kg OC	66	NE	NE	NE	5.0	NA	1.9	3.4	1.3	--	1.6	--	--	--	--	--	--	--
Anthracene	mg/kg OC	220	NE	NE	NE	9.1	NA	15.5	85.5	9.3	--	3.3	--	--	--	--	--	--	--
Fluorene	mg/kg OC	23	NE	NE	NE	9.1	NA	8.5	16.5	5.9	--	2.1	--	--	--	--	--	--	--
Naphthalene	mg/kg OC	99	NE	NE	NE	12.4	NA	24.9	9.2	5.9	--	8.2	--	--	--	--	--	--	--
Phenanthrene	mg/kg OC	100	NE	NE	NE	102.2	NA	19.2	47.4	10.7	--	7.1	--	--	--	--	--	--	--
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	--	--	2,754	4,350	2,400	2,560	970	--	484	--	--	--	--	--	--	--
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	71	120	160	73	69	--	50	--	--	--	--	--	--	--
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	120	620	170	26	76	--	24	--	--	--	--	--	--	--
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	93	100	61	51	35	--	30	--	--	--	--	--	--	--
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	170	800	490	1,300	250	--	61	--	--	--	--	--	--	--
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	170	750	270	250	160	--	39	--	--	--	--	--	--	--
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	230	860	790	140	160	--	150	--	--	--	--	--	--	--
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	1,900	1,100	610	720	290	--	130	--	--	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	369.6	NA	143.2	619.5	182.3	--	62.01 J	196.6	–	–	–	--	--	--
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	11.8	NA	10.1	72.4	13.0	--	6.0	21.9	9.9	13.6	5.8	0.9	2.5	--
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	7.0	NA	5.7	55.3	7.0	--	4.5	12.1	8.3	13.6	10.1	0.9	2.3	--
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	32.3	NA	12.9	111.8	3.2	--	12.5	30.9	20.5	32.8	25.6	1.3	5.2	--
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	3.4	NA	3.5	21.1	20.7	--	2.2	4.9	–	–	–	0.8	1.2	--
Chrysene	mg/kg OC	110	NE	NE	NE	41.9	NA	12.9	118.4	23.3	--	9.8	30.9	14.4	26.4	10.1	1.2	5.5	--
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	1.0	NA	0.7	5.7	1.0	--	0.65 J	1.6	1.3	1.8	1.6	0.6 J	0.5	--
Fluoranthene	mg/kg OC	160	NE	NE	NE	161.3	NA	56.8	125.0	66.7	--	10.3	33.2	–	–	–	--	--	--
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	3.4	NA	2.7	17.8	2.9	--	2.0	4.5	3.7	5.6	4.8	0.6	1.0	--
Pyrene	mg/kg OC	1,000	NE	NE	NE	107.5	NA	37.9	92.1	44.4	--	14.1	56.6	–	–	–	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	--	--	6,874	8,086	4,500	9,417	4,900	--	1,141 J	5,200	--	--	--	--	--	--
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	220	540	320	1,100	350	--	110	580	130	170	75	10	39.2	--
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	130	240	180	840	190	--	82	320	110	170	130	10.1	35.3	--
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	600	660	410	1,700	86	--	230	820	270	410	330	14.76	80.1	--
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	63	95	110	320	560	--	41	130	--	--	--	8.98	18.1	--
Chrysene	µg/kg	NE	1,400	75,000	570,000	780	750	410	1,800	630	--	180	820	190	330	130	12.8	85.6	--
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	18	23	23	87	26	--	12 J	41	17	23	20	3.84 J	7.17	--
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	3,000	3,500	1,800	1,900	1,800	--	190	880	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	63	78	85	270	79	--	36	120	49	70	62	6.26	15.2	--
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	2,000	2,200	1,200	1,400	1,200	--	260	1,500	--	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	227.9	377.6	268	1,174	298	--	122.6 J	484	159	241	180	13.7 J	50.3	--
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	227.9	377.6	268	1,174	298	--	122.6 J	484	159	241	180	13.7 J	50.3	--
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	227.9	377.6	268	1,174	298	--	122.6 J	484	159	241	180	13.7 J	50.3	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-08_ 0-10	LY-SC-08_ 3-4	LY-SC-08_ 5-6	LY-SS-09_ 0-10	LY-SC-09_ 2-3	LY-SC-09_ 3-4	LY-SS-10_ 0-10	LY-SC-10_ 0-1	LY-SS-11_ 0-10	LY-SC-11_ 0-1	LY-SS-13_ 0-10	LY-SS-14_ 0-10	LY-SC-14_ 0-1	LY-SC-14_ 1-2
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	3 - 4	5 - 6	0 - 10 cm	2 - 3	3 - 4	0 - 10 cm	0 - 1	0 - 10 cm	0 - 1	0 - 10 cm	0 - 10 cm	0 - 1 ft	1 - 2 ft
Sample Type						Surface	Core	Core	Surface	Core	Core	Surface	Core	Surface	Core	Surface	Surface	Core	Core
Tidal Zone						Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native
Sample Date						11/17/15	11/20/15	11/20/15	11/17/15	11/18/2015	11/18/2015	11/17/15	11/18/15	11/17/15	11/19/15	11/17/15	08/30/21	08/31/21	08/31/21
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	0.26 U	NA	--	0.33 U	--	--	0.26 U	--	--	--	--	--	--	--
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	0.26 U	NA	--	0.33 U	--	--	0.26 U	--	--	--	--	--	--	--
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	0.26 U	NA	--	0.33 U	--	--	0.26 U	--	--	--	--	--	--	--
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	0.26 U	NA	--	0.33 U	--	--	0.26 U	--	--	--	--	--	--	--
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	4.9 U	4.8 U	--	5.0 U	--	--	4.8 U	--	--	--	--	--	--	--
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	4.9 U	**3.5 J**	--	5.0 U	--	--	4.8 U	--	--	--	--	--	--	--
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	4.9 U	**11**	--	5.0 U	--	--	4.8 U	--	--	--	--	--	--	--
Hexachlorobenzene	µg/kg	NE	22	340	2,600	4.9 U	4.8 U	--	5.0 U	--	--	4.8 U	--	--	--	--	--	--	--
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	**3.6**	NA	--	**3.7**	--	--	**2.3**	--	--	--	--	--	--	--
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	**0.7**	NA	--	**1.3**	--	--	**0.52**	--	--	--	--	--	--	--
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	1 U	NA	--	1 U	--	--	1 U	--	--	--	--	--	--	--
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	1 U	NA	--	2.8 U	--	--	3.1 U	--	--	--	--	--	--	--
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	1 U	NA	--	1 U	--	--	1 U	--	--	--	--	--	--	--
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	1 U	NA	--	1 U	--	--	1 U	--	--	--	--	--	--	--
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	**67**	**62 J**	--	**56**	--	--	**42 J**	--	--	--	--	--	--	--
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	**13**	4.8 U	--	**20**	--	--	**9.5**	--	--	--	--	--	--	--
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	20 U	19 U	--	20 U	--	--	19 U	--	--	--	--	--	--	--
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	20 U	19 U	--	43 U	--	--	57 U	--	--	--	--	--	--	--
Dimethyl phthalate	µg/kg	NE	71	--	--	20 U	19 U	--	20 U	--	--	19 U	--	--	--	--	--	--	--
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	20 U	19 U	--	20 U	--	--	19 U	--	--	--	--	--	--	--
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	24 U	**12 J**	--	25 U	--	--	24 U	--	--	--	--	--	--	--
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	20 U	**15 J**	--	20 U	--	--	19 U	--	--	--	--	--	--	--
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	**280**	**330**	--	**200**	--	--	**370**	--	--	--	--	--	--	--
Pentachlorophenol	µg/kg	360	360	1,400	10,000	97 U	96 U	--	99 U	--	--	96 U	--	--	--	--	--	--	--
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	**41 J**	**160**	--	**47 J**	--	--	**46 J**	--	--	--	--	--	--	--
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	**5.9**	NA	--	**4.4**	--	--	**1.8**	--	--	--	--	--	--	--
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	0.26 U	NA	--	0.33 U	--	--	0.26 U	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	0.26 U	NA	--	0.33 U	--	--	0.26 U	--	--	--	--	--	--	--
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	**110**	**370**	--	**67**	--	--	**33**	--	--	--	--	--	--	--
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	4.9 U	4.8 U	--	5.0 U	--	--	4.8 U	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	4.9 U	4.8 U	--	5.0 U	--	--	4.8 U	--	--	--	--	--	--	--
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	**92 J**	**360**	--	**96 J**	--	--	**110 J**	--	--	--	--	--	--	--
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	20 U	19 U	--	20 U	--	--	19 U	--	--	--	--	--	--	--
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	**0.8 J**	**6.4 J**	NA
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	--	--	--	--	--	--	--	**0.9 J**	**9.9 J**	1.6 U

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-08_ 0-10	LY-SC-08_ 3-4	LY-SC-08_ 5-6	LY-SS-09_ 0-10	LY-SC-09_ 2-3	LY-SC-09_ 3-4	LY-SS-10_ 0-10	LY-SC-10_ 0-1	LY-SS-11_ 0-10	LY-SC-11_ 0-1	LY-SS-13_ 0-10	LY-SS-14_ 0-10	LY-SC-14_ 0-1	LY-SC-14_ 1-2
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	3 - 4	5 - 6	0 - 10 cm	2 - 3	3 - 4	0 - 10 cm	0 - 1	0 - 10 cm	0 - 1	0 - 10 cm	0 - 10 cm	0 - 1 ft	1 - 2 ft
Sample Type						Surface	Core	Core	Surface	Core	Core	Surface	Core	Surface	Core	Surface	Surface	Core	Core
Tidal Zone						Intertidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native
Sample Date						11/17/15	11/20/15	11/20/15	11/17/15	11/18/2015	11/18/2015	11/17/15	11/18/15	11/17/15	11/19/15	11/17/15	08/30/21	08/31/21	08/31/21
Polychlorinated Biphenyl (PCB) Congeners																			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	**0.059 J**	--	--	--	--	--	**0.054**	--	**0.037**	--	**1**	--	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	**1.1 J**	--	--	--	--	--	**0.997**	--	**0.489**	--	**13.0 J**	--	--	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	**0.144 J**	--	--	--	--	--	**0.119**	--	**0.12**	--	**0.495 J**	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	**0.074 J**	--	--	--	--	--	**0.061**	--	**0.061**	--	**0.475 J**	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	**0.003 J**	--	--	--	--	--	**0.004**	--	**0.002**	--	**0.454 J**	--	--	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	**8.04 J**	--	**6.58**	--	--	--	**4.04 J**	--	--	--	--	--	--	--
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	**8.04 J**	--	**6.58**	--	--	--	**4.03 J**	--	--	--	--	--	--	--
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	**8.04 J**	--	**6.58**	--	--	--	**4.02 J**	--	--	--	--	--	--	--

Notes:

[1] Sediment sample locations shown on Figure 2.
[2] Intertidal zone is above -3 feet MLLW.
[3] Subtidal zone is below -3 feet MLLW.
[4] PCUL based on the practical quantification limit.
[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration
NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs
NE = not established
J = estimated concentration
T = sum of compounds
cm = centimeters
mg/kg = milligram per kilogram
mg/L = milligram per liter
mg-N/L = milligrams of nitrogen per liter
µg/kg = microgram per kilogram
µg/L = microgram per liter
ng/kg = nanogram per kilogram
MLLW = Mean Lower Low Water
TOC = total organic carbon
OC = organic carbon
R = rejected result
TEQ = toxicity equivalent
-- = not tested

Bold indicates analyte was detected.
Yellow shading indicates exceedance of PCUL protective of benthic organisms.
Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.
Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.
Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-15_ 0-10	LY-SC-15_ 0-1	LY-SS-16_ 0-10	LY-SC-16_ 1-2	LY-SS-17_ 0-10	LY-SC-17_ 1-2	LY-SS-18_ 0-10	LY-SC-18_ 0-1	LY-SS-19_ 0-10	LY-SC-19_ 1-2	LY-SC-19_ 2-3	LY-SS-20_ 0-10	LY-SC-20_ 1-2	LY-SC-20_ 2-3
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft
Sample Type						Surface	Core	Surface	Core	Surface	Core	Surface	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/30/21	09/02/21	08/31/21	09/01/21	08/30/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	08/31/21	08/31/21
Field Screening																			
Sheen	–	NE	NE	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Visual Wood Content	%	NE	NE	NE	NE	10	Absent	10	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	5	Absent	Absent
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**0.84**	**0.49**	**1.35**	**1**	**0.49**	**0.09**	–	–	**1.73**	**1.44 J**	**1.07**	**2.23**	–	**1.2**
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Solids (TS)	%	NE	NE	NE	NE	**62.28**	**64.46**	**68.86**	**71.58**	**70.26**	**84.92**	–	–	**47.07**	**61.39**	**67.14**	**51.29**	–	**64.19**
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ammonia	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Porewater Sulfides	mg/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Sulfides	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grain Size																			
Gravel	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Very Coarse Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Coarse Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fine Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Very Fine Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Coarse Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fine Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Very Fine Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Clay	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	–	–	**4.17**	**1.9**	**0.809**	**0.559**	–	–	**5.72**	–	–	**97.9**	–	–
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cadmium	mg/kg	5.1	5.1	0.8	0.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chromium	mg/kg	260	260	960,000	6,900,000	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	mg/kg	390	390	26,000	180,000	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	mg/kg	450	450	21	21	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mercury	mg/kg	0.41	0.41	0.2	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	mg/kg	6.1	6.1	3,200	23,100	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	mg/kg	410	410	190,000	1,400,000	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-15_ 0-10	LY-SC-15_ 0-1	LY-SS-16_ 0-10	LY-SC-16_ 1-2	LY-SS-17_ 0-10	LY-SC-17_ 1-2	LY-SS-18_ 0-10	LY-SC-18_ 0-1	LY-SS-19_ 0-10	LY-SC-19_ 1-2	LY-SC-19_ 2-3	LY-SS-20_ 0-10	LY-SC-20_ 1-2	LY-SC-20_ 2-3
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft
Sample Type						Surface	Core	Surface	Core	Surface	Core	Surface	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/30/21	09/02/21	08/31/21	09/01/21	08/30/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	08/31/21	08/31/21
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	mg/kg OC	16	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	mg/kg OC	66	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	mg/kg OC	220	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	mg/kg OC	23	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	mg/kg OC	99	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	mg/kg OC	100	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	**3.83**	NA	**0.79**	**1.27**	NA	NA	--	--	**2.5**	**1.2**	--	**11.8**	--	**8.3**
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	**3**	NA	**1.17**	**1.73**	NA	NA	--	--	**2.1**	**1.9**	--	**10.9**	--	**6.1**
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	**5.7**	NA	**1.99**	**2.56**	NA	NA	--	--	**4.7**	**3.1**	--	**36.8**	--	**9.8**
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	**1.99**	NA	**0.88**	**1.26**	NA	NA	--	--	**1.7**	**1.4**	--	**6.6 J**	--	**3.3**
Chrysene	mg/kg OC	110	NE	NE	NE	**5.32**	NA	**1.31**	**2.08**	NA	NA	--	--	**5.1**	**2.2**	--	**40.0**	--	**8.4**
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	**0.67**	NA	**0.32 J**	**0.41 J**	NA	NA	--	--	**0.5**	**0.4**	--	**1.5 J**	--	**2.3**
Fluoranthene	mg/kg OC	160	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	**1.73**	NA	**0.67**	**1.16**	NA	NA	--	--	**1.4**	**1.0**	--	**6.5 J**	--	**3.1**
Pyrene	mg/kg OC	1,000	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	**32.2**	**25**	**376**	**10.7**	**12.7**	**3.36 J**	**2.29 J**	4.97 U	**43.3**	**17.3**	--	**263**	**229**	**100.0**
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	**25.2**	**26.4**	**276**	**15.8**	**17.3**	**3.1 J**	**2.96 J**	4.97 U	**36.3**	**26.7**	--	**242**	**154**	**72.7**
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	**47.9**	**39.8**	**602**	**26.84**	**25.55**	**3.21 J**	**3.88 J**	4.97 U	**81.6**	**44.6**	--	**820**	**324**	**117.7**
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	**16.7**	**20.4**	**98.7**	**11.9**	**12.6**	**1.17 J**	**2.65 J**	4.97 U	**28.8**	**19.9**	--	**146 J**	**86.9**	**39.0**
Chrysene	µg/kg	NE	1,400	75,000	570,000	**44.7**	**37.4**	**640**	**17.7**	**20.8**	**4.63 J**	**4.02 J**	4.97 U	**87.3**	**30.9**	--	**892**	**445**	**101.0**
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	**5.63**	**7.93**	**44.6**	**4.38 J**	**4.14 J**	4.99 U	5 U	4.97 U	**9.31**	**5.17**	--	**33.4 J**	**27.7**	**27.0**
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	**14.5**	**18.2**	**107**	**9**	**11.6**	**1.12 J**	**2.09 J**	4.97 U	**23.9**	**15**	--	**145 J**	**81.5**	**37.3**
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	**35.7**	**35.9**	**395.4**	**21.1 J**	**22.9 J**	**4.4 J**	**4.3 J**	7.0 U	**53.0**	**35.2**	--	**377.1 J**	**224.7**	**101.9**
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	**35.7**	**35.9**	**395.4**	**21.1 J**	**22.9 J**	**4.2 J**	**4.1 J**	3.5 U	**53.0**	**35.2**	--	**377.1 J**	**224.7**	**101.9**
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	**35.7**	**35.9**	**395.4**	**21.1 J**	**22.9 J**	**3.9 J**	**3.8 J**	0 U	**53.0**	**35.2**	--	**377.1 J**	**224.7**	**101.9**

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-15_ 0-10	LY-SC-15_ 0-1	LY-SS-16_ 0-10	LY-SC-16_ 1-2	LY-SS-17_ 0-10	LY-SC-17_ 1-2	LY-SS-18_ 0-10	LY-SC-18_ 0-1	LY-SS-19_ 0-10	LY-SC-19_ 1-2	LY-SC-19_ 2-3	LY-SS-20_ 0-10	LY-SC-20_ 1-2	LY-SC-20_ 2-3
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft
Sample Type						Surface	Core	Surface	Core	Surface	Core	Surface	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/30/21	09/02/21	08/31/21	09/01/21	08/30/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	08/31/21	08/31/21
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	µg/kg	NE	22	340	2,600	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	µg/kg	NE	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	µg/kg	360	360	1,400	10,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	**14.4**	NA	**11.9**	**0.2 J**	NA	NA	--	--	**0.53 J**	**2.64 J**	**0.11 J**	**0.43 J**	--	0.31 J
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	**121**	**13.9**	**160.6**	**2 J**	1.6 U	1.6 U	--	--	**9.2 J**	**38 J**	**1.2 J**	**9.6 J**	--	**3.7 J**

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-15_ 0-10	LY-SC-15_ 0-1	LY-SS-16_ 0-10	LY-SC-16_ 1-2	LY-SS-17_ 0-10	LY-SC-17_ 1-2	LY-SS-18_ 0-10	LY-SC-18_ 0-1	LY-SS-19_ 0-10	LY-SC-19_ 1-2	LY-SC-19_ 2-3	LY-SS-20_ 0-10	LY-SC-20_ 1-2	LY-SC-20_ 2-3
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 1 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft	0 - 10 cm	1 - 2 ft	2 - 3 ft
Sample Type						Surface	Core	Surface	Core	Surface	Core	Surface	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Native	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/30/21	09/02/21	08/31/21	09/01/21	08/30/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	08/31/21	08/31/21
Polychlorinated Biphenyl (PCB) Congeners																			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	--	--	--	--	**2.87 J**	**8.09 J**	--
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	--	--	--	--	**2.74 J**	**8.09 J**	--
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	--	--	--	--	**2.61 J**	**8.09 J**	--

Notes:

[1] Sediment sample locations shown on Figure 2.
[2] Intertidal zone is above -3 feet MLLW.
[3] Subtidal zone is below -3 feet MLLW.
[4] PCUL based on the practical quantification limit.
[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration
NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs
NE = not established
J = estimated concentration
T = sum of compounds
cm = centimeters
mg/kg = milligram per kilogram
mg/L = milligram per liter
mg-N/L = milligrams of nitrogen per liter
µg/kg = microgram per kilogram
µg/L = microgram per liter
ng/kg = nanogram per kilogram
MLLW = Mean Lower Low Water
TOC = total organic carbon
OC = organic carbon
R = rejected result
TEQ = toxicity equivalent
-- = not tested

Bold indicates analyte was detected.
Yellow shading indicates exceedance of PCUL protective of benthic organisms.
Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.
Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.
Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-21_ 0-10	LY-SC-21_ 1-2	LY-SS-22_ 0-10	LY-SS-22_Dup-1 (LY-SS-22_0-10)	LY-SC-22_ 1-2	LY-SS-23_ 0-10	LY-SC-23_ 2-3	LY-SC-23_ 5-6	LY-SS-24_ 0-10	LY-SC-24_ 0-1	LY-SC-24_ 1-2	LY-SS-25_ 0-10	LY-SC-25_ 1-2	LY-SC-25_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 10 cm	1 - 2 ft	0 - 10 cm	2 - 3 ft	5 - 6 ft	0 - 10 cm	0 - 1 ft	1 - 2 ft	0 - 10 cm	1 - 2 ft	3 - 4 ft
Sample Type						Surface	Core	Surface	Surface	Core	Surface	Core	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/31/21	08/31/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	09/01/21	09/01/21	08/30/21	09/02/21	09/02/21
Field Screening																			
Sheen	–	NE	NE	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Visual Wood Content	%	NE	NE	NE	NE	5	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**1.92**	**3.09**	**1.68 J**	**1.36**	**1.24**	–	**2.33**	–	–	**1.62**	–	**1.6**	**1.78**	–
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Solids (TS)	%	NE	NE	NE	NE	**56.4**	**50.1**	**69.61**	**70.26**	**58.82**	–	**53.71**	–	–	**55.14**	–	**47.14**	**55.51**	–
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ammonia	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Porewater Sulfides	mg/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Sulfides	mg/kg	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grain Size																			
Gravel	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Very Coarse Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Coarse Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fine Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Very Fine Sand	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Coarse Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Medium Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fine Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Very Fine Silt	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Clay	%	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	**21.9**	**4.31**	**42.3 J**	**17.6 J**	**17.9 J**	–	–	–	–	**267**	–	**15.5 J**	**97.8**	**87.9 J**
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cadmium	mg/kg	5.1	5.1	0.8	0.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chromium	mg/kg	260	260	960,000	6,900,000	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Copper	mg/kg	390	390	26,000	180,000	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lead	mg/kg	450	450	21	21	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mercury	mg/kg	0.41	0.41	0.2	0.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Silver	mg/kg	6.1	6.1	3,200	23,100	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Zinc	mg/kg	410	410	190,000	1,400,000	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-21_ 0-10	LY-SC-21_ 1-2	LY-SS-22_ 0-10	LY-SS-22_Dup-1 (LY-SS-22_0-10)	LY-SC-22_ 1-2	LY-SS-23_ 0-10	LY-SC-23_ 2-3	LY-SC-23_ 5-6	LY-SS-24_ 0-10	LY-SC-24_ 0-1	LY-SC-24_ 1-2	LY-SS-25_ 0-10	LY-SC-25_ 1-2	LY-SC-25_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 10 cm	1 - 2 ft	0 - 10 cm	2 - 3 ft	5 - 6 ft	0 - 10 cm	0 - 1 ft	1 - 2 ft	0 - 10 cm	1 - 2 ft	3 - 4 ft
Sample Type						Surface	Core	Surface	Surface	Core	Surface	Core	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/31/21	08/31/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	09/01/21	09/01/21	08/30/21	09/02/21	09/02/21
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	mg/kg OC	16	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	mg/kg OC	66	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	mg/kg OC	220	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	mg/kg OC	23	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	mg/kg OC	99	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	mg/kg OC	100	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	**12.4**	**5.6**	**4.5 J**	**3.68**	**4.74**	--	**7.77**	--	--	--	--	**1.9**	**7.0**	--
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	**9.95**	**4.08**	**3.85 J**	**6.79**	**6.36**	--	**6.18**	--	--	--	--	**2.0**	**8.1**	--
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	**36.51**	**7.4**	**10.57 J**	**15.1**	**12.37**	--	**12.36**	--	--	--	--	**5.4**	**18.2**	--
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	**5.57**	**2.82**	**2.4 J**	**3.64**	**3.44**	--	**3.53**	--	--	--	--	**1.3**	**5.6**	--
Chrysene	mg/kg OC	110	NE	NE	NE	**50.31**	**9.58**	**13.04 J**	**9.85**	**8.47**	--	**16.09**	--	--	--	--	**4.2**	**14.3**	--
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	**2.21 J**	**0.87**	**0.72**	**1.17**	**1.23**	--	**1.25**	--	--	--	--	**0.4**	**2.0**	--
Fluoranthene	mg/kg OC	160	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	**6.04**	**2.69**	**2.29 J**	**3.57**	**3.6**	--	**3.56**	--	--	--	--	**1.2**	**5.6**	--
Pyrene	mg/kg OC	1,000	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	**238**	**173**	**75.6 J**	**50.1**	**58.8**	**89.2**	**181**	**198**	**11.8**	--	**68.1**	**30**	**125**	**34.6**
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	**191**	**126**	**64.7 J**	**92.4**	**78.9**	**56.1**	**144**	**172**	**14**	--	**114**	**32.6**	**144**	**46.6**
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	**701**	**228.6**	**177.5 J**	**205.3**	**153.4**	**110.7**	**288**	**247.5**	**23.43**	--	**223**	**86.1**	**323**	**71.9**
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	**107**	**87.1**	**40.4 J**	**49.5**	**42.6**	**34.6**	**82.3**	**103**	**12.2**	--	**64.6**	**20.4**	**100**	**35.5**
Chrysene	µg/kg	NE	1,400	75,000	570,000	**966**	**296**	**219 J**	**134**	**105**	**235**	**375**	**258**	**18.5**	--	**119**	**67.7**	**255**	**47.8**
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	**42.4 J**	**26.8**	**12.1**	**15.9**	**15.2**	**11.7**	**29.2**	**24**	**3.4 J**	--	**21.4**	**6.13**	**34.9**	**6.1**
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	**116**	**83**	**38.5 J**	**48.6**	**44.7**	**31.8**	**82.9**	**81.7**	**9.27**	--	**61.3**	**19**	**100**	**23.5**
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	**310.4 J**	**180.1**	**97.3 J**	**125.7**	**107.2**	**82.8**	**205.9**	**229.7**	**19.0 J**	--	**152.6**	**47.4**	**204.8**	**60.7**
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	**310.4 J**	**180.1**	**97.3 J**	**125.7**	**107.2**	**82.8**	**205.9**	**229.7**	**19.0 J**	--	**152.6**	**47.4**	**204.8**	**60.7**
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	**310.4 J**	**180.1**	**97.3 J**	**125.7**	**107.2**	**82.8**	**205.9**	**229.7**	**19.0 J**	--	**152.6**	**47.4**	**204.8**	**60.7**

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-21_ 0-10	LY-SC-21_ 1-2	LY-SS-22_ 0-10	LY-SS-22_Dup-1 (LY-SS-22_0-10)	LY-SC-22_ 1-2	LY-SS-23_ 0-10	LY-SC-23_ 2-3	LY-SC-23_ 5-6	LY-SS-24_ 0-10	LY-SC-24_ 0-1	LY-SC-24_ 1-2	LY-SS-25_ 0-10	LY-SC-25_ 1-2	LY-SC-25_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 10 cm	1 - 2 ft	0 - 10 cm	2 - 3 ft	5 - 6 ft	0 - 10 cm	0 - 1 ft	1 - 2 ft	0 - 10 cm	1 - 2 ft	3 - 4 ft
Sample Type						Surface	Core	Surface	Surface	Core	Surface	Core	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/31/21	08/31/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	09/01/21	09/01/21	08/30/21	09/02/21	09/02/21
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	µg/kg	NE	22	340	2,600	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	µg/kg	NE	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	µg/kg	360	360	1,400	10,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	**0.42 J**	**0.76 J**	**0.58 J**	**0.68 J**	**0.85 J**	--	**0.54 J**	--	--	1.58 J	--	**0.53**	**1.7**	--
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	**8.1 J**	**23.4**	**9.8 J**	**9.2 J**	**10.5 J**	--	**12.5 J**	--	--	**25.6 J**	--	**8.5**	**10.2**	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-21_ 0-10	LY-SC-21_ 1-2	LY-SS-22_ 0-10	LY-SS-22_Dup-1 (LY-SS-22_0-10)	LY-SC-22_ 1-2	LY-SS-23_ 0-10	LY-SC-23_ 2-3	LY-SC-23_ 5-6	LY-SS-24_ 0-10	LY-SC-24_ 0-1	LY-SC-24_ 1-2	LY-SS-25_ 0-10	LY-SC-25_ 1-2	LY-SC-25_ 3-4
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	1 - 2 ft	0 - 10 cm	0 - 10 cm	1 - 2 ft	0 - 10 cm	2 - 3 ft	5 - 6 ft	0 - 10 cm	0 - 1 ft	1 - 2 ft	0 - 10 cm	1 - 2 ft	3 - 4 ft
Sample Type						Surface	Core	Surface	Surface	Core	Surface	Core	Core	Surface	Core	Core	Surface	Core	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent
Sample Date						08/30/21	09/02/21	08/31/21	08/31/21	09/01/21	08/30/21	08/31/21	08/31/21	08/30/21	09/01/21	09/01/21	08/30/21	09/02/21	09/02/21
Polychlorinated Biphenyl (PCB) Congeners																			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	--	--	--	--	**4.50 J**	**10.73 J**	--
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	--	--	--	--	**4.41 J**	**10.62 J**	--
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	--	--	--	--	--	--	--	--	--	--	--	**4.32 J**	**10.51 J**	--

Notes:

[1] Sediment sample locations shown on Figure 2.

[2] Intertidal zone is above -3 feet MLLW.

[3] Subtidal zone is below -3 feet MLLW.

[4] PCUL based on the practical quantification limit.

[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration

NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs

NE = not established

J = estimated concentration

T = sum of compounds

cm = centimeters

mg/kg = milligram per kilogram

mg/L = milligram per liter

mg-N/L = milligrams of nitrogen per liter

µg/kg = microgram per kilogram

µg/L = microgram per liter

ng/kg = nanogram per kilogram

MLLW = Mean Lower Low Water

TOC = total organic carbon

OC = organic carbon

R = rejected result

TEQ = toxicity equivalent

-- = not tested

Bold indicates analyte was detected.

Yellow shading indicates exceedance of PCUL protective of benthic organisms.

Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.

Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.

Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-26_ 0-10	LY-SS-26_ Dup-1	LY-SS-27_ 0-10	LY-SS-27_ 1-2	LY-28_ 0-10	Dup (LY-28_0-10)	LY-28_ 1-2	LY-28_ 2-3	LY-29_ 0-10	LY-29_ 1-2	LY-30_ 0-10	LY-30_ 1-2	LY-31_ 0-10	LY-31_ 1-2
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	1 -2 ft	0 - 10 cm	0 - 10 cm	1 -2 ft	2 - 3 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft
Sample Type						Surface	Surface	Surface	Core	Surface	Surface	Core	Core	Surface	Core	Surface	Core	Surface	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Native	Recent	Native	Recent	Native
Sample Date						08/31/21	08/31/21	08/31/21	09/01/21	01/26/23	01/26/23	01/27/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23
Field Screening																			
Sheen	--	NE	NE	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Visual Wood Content	%	NE	NE	NE	NE	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**0.61 J**	**0.61 J**	**1.15**	--	--	--	--	--	--	--	--	--	--	--
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Solids (TS)	%	NE	NE	NE	NE	**63.39**	**60.84**	**62.32**	--	--	--	--	--	--	--	--	--	--	--
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ammonia	mg/kg	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Porewater Sulfides	mg/L	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Sulfides	mg/kg	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grain Size																			
Gravel	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Very Coarse Sand	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coarse Sand	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Medium Sand	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fine Sand	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Very Fine Sand	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Coarse Silt	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Medium Silt	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fine Silt	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Very Fine Silt	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Clay	%	NE	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	**12 J**	**128 J**	**257**	**291**	--	--	--	--	--	--	--	--	--	--
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	5.1	5.1	0.8	0.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	260	260	960,000	6,900,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	mg/kg	390	390	26,000	180,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	450	450	21	21	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	0.41	0.41	0.2	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	6.1	6.1	3,200	23,100	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	410	410	190,000	1,400,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-26_ 0-10	LY-SS-26_ Dup-1	LY-SS-27_ 0-10	LY-SS-27_ 1-2	LY-28_ 0-10	Dup (LY-28_0-10)	LY-28_ 1-2	LY-28_ 2-3	LY-29_ 0-10	LY-29_ 1-2	LY-30_ 0-10	LY-30_ 1-2	LY-31_ 0-10	LY-31_ 1-2
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	1 -2 ft	0 - 10 cm	0 - 10 cm	1 -2 ft	2 - 3 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft
Sample Type						Surface	Surface	Surface	Core	Surface	Surface	Core	Core	Surface	Core	Surface	Core	Surface	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Native	Recent	Native	Recent	Native
Sample Date						08/31/21	08/31/21	08/31/21	09/01/21	01/26/23	01/26/23	01/27/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	mg/kg OC	16	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	mg/kg OC	66	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	mg/kg OC	220	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	mg/kg OC	23	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	mg/kg OC	99	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	mg/kg OC	100	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	**74.6 J**	**1.8 J**	**3.2**	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	**54.4 J**	**2.2 J**	**3.5**	--	--	--	--	--	--	--	--	--	--	--
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	**89.8 J**	**4.4 J**	**6.5**	--	--	--	--	--	--	--	--	--	--	--
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	**23.6 J**	**1.8 J**	**3.3**	--	--	--	--	--	--	--	--	--	--	--
Chrysene	mg/kg OC	110	NE	NE	NE	**109.0 J**	**3.3 J**	**4.6**	--	--	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	**7.8 J**	**0.8 J**	**0.9**	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	mg/kg OC	160	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	**25.4 J**	**1.7 J**	**2.0**	--	--	--	--	--	--	--	--	--	--	--
Pyrene	mg/kg OC	1,000	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	**455 J**	**19.9 J**	**37.3**	--	**11.2 J**	**28.7 J**	**136**	**3.80 J**	--	--	**9.31**	**1.57 J**	**9.01**	4.98 U
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	**332 J**	**24.1 J**	**40.3**	--	**11.4 J**	**29.2 J**	**204**	**7.37**	--	--	**11.8**	**3.41 J**	**6.83**	4.98 U
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	**548 J**	**47.8 J**	**74.7**	--	**13.45 J**	**79.5 J**	**333**	**14.43 J**	--	--	**10.46 J**	**7.37 J**	**7.2 J**	4.98 U
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	**144 J**	**19.2 J**	**37.9**	--	**9.15**	**13.9**	**118**	**3.11 J**	--	--	**9.28**	**1.62 J**	**4.04 J**	4.98 U
Chrysene	µg/kg	NE	1,400	75,000	570,000	**665 J**	**35.1 J**	**52.7**	--	**11.9 J**	**62.7 J**	**212**	**6.13**	--	--	**25**	**2.73 J**	**11.4**	4.98 U
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	**47.6 J**	**8.48 J**	**10.6**	--	**2.83 J**	**4.06 J**	**32.2**	4.98 U	--	--	**2.9**	4.95 U	**1.09 J**	4.98 U
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	**155 J**	**18.2 J**	**23.3**	--	**5.35**	**13.1**	**106**	**2.43 J**	--	--	**3.77**	**1.31 J**	**2.98 J**	4.98 U
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	**459.2 J**	**33.9 J**	**55.4**	--	**14.8 J**	**42.4 J**	**266.8**	**10.0 J**	--	--	**14.7 J**	**4.9 J**	**9.0 J**	6.9 U
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	**459.2 J**	**33.9 J**	**55.4**	--	**14.8 J**	**42.4 J**	**266.8**	**9.8 J**	--	--	**14.7 J**	**4.7 J**	**9.0 J**	3.4 U
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	**459.2 J**	**33.9 J**	**55.4**	--	**14.8 J**	**42.4 J**	**266.8**	**9.5 J**	--	--	**14.7 J**	**4.5 J**	**9.0 J**	0.0 U

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-26_ 0-10	LY-SS-26_ Dup-1	LY-SS-27_ 0-10	LY-SS-27_ 1-2	LY-28_ 0-10	Dup (LY-28_0-10)	LY-28_ 1-2	LY-28_ 2-3	LY-29_ 0-10	LY-29_ 1-2	LY-30_ 0-10	LY-30_ 1-2	LY-31_ 0-10	LY-31_ 1-2
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	1 -2 ft	0 - 10 cm	0 - 10 cm	1 -2 ft	2 - 3 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft
Sample Type						Surface	Surface	Surface	Core	Surface	Surface	Core	Core	Surface	Core	Surface	Core	Surface	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Native	Recent	Native	Recent	Native
Sample Date						08/31/21	08/31/21	08/31/21	09/01/21	01/26/23	01/26/23	01/27/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	µg/kg	NE	22	340	2,600	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	µg/kg	NE	71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	µg/kg	360	360	1,400	10,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	**1.44 J**	**1.13 J**	**4.24**	--	--	--	--	--	--	--	--	--	--	--
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	**8.8 J**	**12.2 J**	**48.8**	--	--	--	--	--	--	--	--	--	--	--

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-SS-26_ 0-10	LY-SS-26_ Dup-1	LY-SS-27_ 0-10	LY-SS-27_ 1-2	LY-28_ 0-10	Dup (LY-28_0-10)	LY-28_ 1-2	LY-28_ 2-3	LY-29_ 0-10	LY-29_ 1-2	LY-30_ 0-10	LY-30_ 1-2	LY-31_ 0-10	LY-31_ 1-2
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	1 -2 ft	0 - 10 cm	0 - 10 cm	1 -2 ft	2 - 3 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft	0 - 10 cm	1 -2 ft
Sample Type						Surface	Surface	Surface	Core	Surface	Surface	Core	Core	Surface	Core	Surface	Core	Surface	Core
Tidal Zone						Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal	Subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Recent	Native	Recent	Native	Recent	Native
Sample Date						08/31/21	08/31/21	08/31/21	09/01/21	01/26/23	01/26/23	01/27/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23	01/26/23	01/27/23
Polychlorinated Biphenyl (PCB) Congeners																			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--		--	--	--	--	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	1.6 U	1.6 U	**24.4 J**	1.6 U	**8.5**	1.6 U	1.6 U	--	1.6 U	1.6 U
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	**1.89 J**	**2.38 J**	**4.87 J**	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	**1.85 J**	**2.24 J**	**4.87 J**	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	**1.81 J**	**2.10 J**	**4.87 J**	--	--	--	--	--	--	--	--	--	--	--

Notes:

[1] Sediment sample locations shown on Figure 2.
[2] Intertidal zone is above -3 feet MLLW.
[3] Subtidal zone is below -3 feet MLLW.
[4] PCUL based on the practical quantification limit.
[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration
NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs
NE = not established
J = estimated concentration
T = sum of compounds
cm = centimeters
mg/kg = milligram per kilogram
mg/L = milligram per liter
mg-N/L = milligrams of nitrogen per liter
µg/kg = microgram per kilogram
µg/L = microgram per liter
ng/kg = nanogram per kilogram
MLLW = Mean Lower Low Water
TOC = total organic carbon
OC = organic carbon
R = rejected result
TEQ = toxicity equivalent
-- = not tested

Bold indicates analyte was detected.
Yellow shading indicates exceedance of PCUL protective of benthic organisms.
Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.
Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.
Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-32_ 0-10	COA_01_G_20 201120	COA_02_G_20 201119	COA_03_G_20 201118	COA_04_G_20 201118	COA_05_G_20 201119	COA_05-D_G_ 20201119	COA_06_G_20 201120	COA_06-D_G_ 20201120	COA_07_G_20 201118	COA_08_G_20 201119	COA-SS-1-1-3-20201116	COA-SS-1-3-5-20201116	COA-SS-1-6.5-8.5-20201116
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	1 - 3 ft	3 -5 ft	6.5 - 8.5 ft
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Core	Core	Core
Tidal Zone						Subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Native
Sample Date						01/26/23	11/20/20	11/19/20	11/18/20	11/18/20	11/19/20	11/19/20	11/20/20	11/20/20	11/18/20	11/19/20	11/16/20	11/16/20	11/16/20
Field Screening																			
Sheen	–	NE	NE	NE	NE	NS	–	–	–	–	–	–	–	–	–	–	–	–	–
Visual Wood Content	%	NE	NE	NE	NE	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	<5	Absent	Absent	Absent
Conventionals																			
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	–	**1.08**	**1.36**	**1.57**	**1.38**	**1.56**	**1.63**	**0.97**	**1.09**	**0.93**	**0.13**	**0.35**	**0.14**	**0.11**
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	–	**82.25**	**54.46**	**43.8**	**48.12**	**55.95**	**55.27**	**69.3**	**69.36**	**69.31**	**76.9**	**2.5**	**1.29**	**1.35**
Total Solids (TS)	%	NE	NE	NE	NE	–	**82.23**	**54.12**	**44.94**	**48.19**	**57.16**	**56.48**	**69.17**	**69.25**	**68.82**	**77.93**	**75.68**	**86.55**	**87.04**
Porewater Ammonia	mg-N/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–		
Ammonia	mg/kg	NE	NE	NE	NE	–	**1.93**	**27.9**	**41.5**	**34.8**	**27.7**	**28**	**11.8**	**12.8**	**8.76**	**1.81**	**8.77 H**	**2.27 H**	**2.46 H**
Porewater Sulfides	mg/L	NE	NE	NE	NE	–	–	–	–	–	–	–	–	–	–	–	–		
Total Sulfides	mg/kg	NE	NE	NE	NE	–	**2.63**	**984**	**2,260**	**1,690**	**1,380**	**1,270**	**257**	**277**	**114**	**2.89**	**158 H,D**	**1.19 H, U**	**1.4 H**
Grain Size																			
Gravel	%	NE	NE	NE	NE	–	–	–	–	–	**2.0**	–	–	–	–	–	**20.1**	**16**	**29**
Very Coarse Sand	%	NE	NE	NE	NE	–	–	–	–	–	**1.0**	–	–	–	–	–	**2.3**	**3.7**	**4.6**
Coarse Sand	%	NE	NE	NE	NE	–	–	–	–	–	**2.0**	–	–	–	–	–	**3.1**	**4.5**	**6.1**
Medium Sand	%	NE	NE	NE	NE	–	–	–	–	–	**3.9**	–	–	–	–	–	**5.6**	**6.2**	**8.5**
Fine Sand	%	NE	NE	NE	NE	–	–	–	–	–	**20.9**	–	–	–	–	–	**7.2**	**11**	**8.3**
Very Fine Sand	%	NE	NE	NE	NE	–	–	–	–	–	**25.9**	–	–	–	–	–	**6.8**	**8.5**	**7**
Coarse Silt	%	NE	NE	NE	NE	–	–	–	–	–	**11.8**	–	–	–	–	–	**9.7**	**9.5**	**6.7**
Medium Silt	%	NE	NE	NE	NE	–	–	–	–	–	**10.7**	–	–	–	–	–	**10.5**	**10.1**	**6.6**
Fine Silt	%	NE	NE	NE	NE	–	–	–	–	–	**5.0**	–	–	–	–	–	**7.6**	**8**	**6.7**
Very Fine Silt	%	NE	NE	NE	NE	–	–	–	–	–	**3.1**	–	–	–	–	–	**6.8**	**6.9**	**5.3**
Clay	%	NE	NE	NE	NE	–	–	–	–	–	**13.8**	–	–	–	–	–	**20.2**	**15.7**	**11.3**
Organometallic Compounds																			
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	–	**16.7**	**118**	**17**	**8.97**	**382**	**119**	**15.9**	**3.08 J**	**2.05 J**	**0.838 J**	**23.1**	**4.92**	3.81 U
Metals (dry weight)																			
Arsenic	mg/kg	57	57	11	11	–	**3.15**	**6.44**	**6.17**	**6.26**	**7.5**	**7.24**	**6.56**	**5.65**	**5.98**	**3.2**	**4.38**	**4.02**	**5.11**
Cadmium	mg/kg	5.1	5.1	0.8	0.8	–	**0.14**	**0.85**	**0.58**	**0.57**	**0.54**	**0.55**	**0.39**	**0.39**	**0.41**	**0.14**	**0.28**	**0.12**	**0.12**
Chromium	mg/kg	260	260	960,000	6,900,000	–	**27.5**	**32.3**	**34.3**	**34.2**	**36.9**	**30.8**	**25.4**	**30.3**	**55.6**	**32**	**62**	**124**	**99.7**
Copper	mg/kg	390	390	26,000	180,000	–	**28.4**	**36.3**	**31.7**	**25.4**	**29.3**	**22.2**	**12.3**	**6.63**	**23.8**	**12.5**	**34.3**	**23.7**	**23.9**
Lead	mg/kg	450	450	21	21	–	**13.6**	**11.4**	**9.44**	**7.82**	**9.73**	**7.21**	**5.16**	**3.82**	**2.02**	**3.71**	**5.01**	**2.78**	**3.02**
Mercury	mg/kg	0.41	0.41	0.2	0.2	–	**0.0149 H,J**	**0.111 H**	**0.0835 H**	**0.0716 H**	**0.0531 H**	**0.46 H**	**0.0534 H**	**0.04 H**	**0.046 H**	**0.0181 H,J**	**0.157 H**	**0.0347 H**	**0.0321 H**
Silver	mg/kg	6.1	6.1	3,200	23,100	–	**0.05 J**	**0.17 J**	**0.11 J**	**0.11 J**	**0.08 J**	**0.08 J**	**0.06 J**	**0.05 J**	**0.05 J**	**0.03 J**	**0.1 J**	**0.07 J**	**0.06 J**
Zinc	mg/kg	410	410	190,000	1,400,000	–	**122**	**82.8**	**77.8**	**76.2**	**62**	**63.9**	**38.5**	**39.9**	**38.4**	**38.6**	**59.9**	**45.4**	**47.4**

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-32_ 0-10	COA_01_G_20 201120	COA_02_G_20 201119	COA_03_G_20 201118	COA_04_G_20 201118	COA_05_G_20 201119	COA_05-D_G_ 20201119	COA_06_G_20 201120	COA_06-D_G_ 20201120	COA_07_G_20 201118	COA_08_G_20 201119	COA-SS-1-1-3-20201116	COA-SS-1-3-5-20201116	COA-SS-1-6.5-8.5-20201116
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	1 - 3 ft	3 -5 ft	6.5 - 8.5 ft
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Core	Core	Core
Tidal Zone						Subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Native
Sample Date						01/26/23	11/20/20	11/19/20	11/18/20	11/18/20	11/19/20	11/19/20	11/20/20	11/20/20	11/18/20	11/19/20	11/16/20	11/16/20	11/16/20
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)																			
Total LPAH	mg/kg OC	370	NE	NE	NE	--	**0.7 J**	**22.6 J**	**12.8 J**	**13.3 J**	**31.7 J**	**17.6 J**	**38.7 J**	**29.5 J**	**25.7 J**	NA	NA	NA	NA
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	--	**0.8 J**	**1.3 J**	**1.5**	**1.6**	**1.4**	**1.5**	**1.4 J**	**1.7 J**	**1.5 J**	NA	NA	NA	NA
Acenaphthene	mg/kg OC	16	NE	NE	NE	--	1.8 U	**0.8 J**	**1.6**	**0.8 J**	**1.2 J**	**1.4**	**1.8 J**	**0.8 J**	**1.5 J**	NA	NA	NA	NA
Acenaphthylene	mg/kg OC	66	NE	NE	NE	--	1.8 U	**2.6**	**0.9 J**	**0.9 J**	**3.1**	**1.0 J**	**1.4 J**	**2.0**	**1.6 J**	NA	NA	NA	NA
Anthracene	mg/kg OC	220	NE	NE	NE	--	1.8 U	**4.6**	**1.9**	**2.2**	**7.7**	**2.9**	**5.3**	**6.2**	**4.2**	NA	NA	NA	NA
Fluorene	mg/kg OC	23	NE	NE	NE	--	1.8 U	**1.7**	**2.0**	**1.6**	**2.7**	**2.0**	**3.0**	**2.0**	**1.9 J**	NA	NA	NA	NA
Naphthalene	mg/kg OC	99	NE	NE	NE	--	1.8 U	**2.3**	**1.5**	**2.7**	**4.2**	**4.9**	**10.5**	**6.2**	**7.0**	NA	NA	NA	NA
Phenanthrene	mg/kg OC	100	NE	NE	NE	--	**0.7 J**	**10.7**	**4.9**	**5.0**	**12.9**	**5.5**	**16.6**	**12.2**	**9.6**	NA	NA	NA	NA
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)																			
Total LPAH	µg/kg	NE	5,200	--	--	--	**7 J**	**307.4 J**	**201.5 J**	**183.1 J**	**494.1 J**	**311.1 J**	**374.9 J**	**321.4 J**	**238.6 J**	**7.7 J**	**65.7 J**	**6.2 J**	**6 J**
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	--	**9.1 J**	**17.8 J**	**24.2**	**21.6**	**21.2**	**24.2**	**13.7 J**	**18.5 J**	**14.2 J**	**19.9 U**	**8.3 J**	19.9 U	19.9 U
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	--	19.9 U	**10.7 J**	**24.9**	**10.8 J**	**17.9 J**	**23**	**17.1 J**	**9 J**	**13.9 J**	**19.9 U**	19.9 U	19.9 U	19.9 U
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	--	19.9 U	**34.8**	**14.5 J**	**12.7 J**	**48.1**	**15.9 J**	**13.7 J**	**22.2**	**14.9 J**	**19.9 U**	19.9 U	19.9 U	19.9 U
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	--	19.9 U	**62.3**	**29.8**	**30.3**	**120**	**46.5**	**51.8**	**67.7**	**38.6**	**19.9 U**	**6.1 J**	19.9 U	19.9 U
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	--	19.9 U	**23**	**31.3**	**22.1**	**41.3**	**32**	**29.3**	**21.7**	**17.3 J**	**19.9 U**	**5 J**	19.9 U	19.9 U
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	--	19.9 U	**30.6**	**23.9**	**37.7**	**65.8**	**80.2**	**102**	**67.8**	**65.1**	**7.7 J**	**34.5**	19.9 U	19.9 U
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	--	**7 J**	**146**	**77.1**	**69.5**	**201**	**89.3**	**161**	**133**	**88.8**	**19.9 U**	**20.1**	**6.2 J**	**6 J**
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)																			
Total HPAH	mg/kg OC	960	NE	NE	NE	--	**11.68 J**	**350.0**	**64.38 J**	**61.54 J**	**302.2**	**70.28 J**	**100.53 J**	**338.8**	**160.6**	NA	NA	NA	NA
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	--	**0.57 J**	**14.19 J**	**3.7**	**4.5**	**23.5**	**5.0**	**8.3 J**	**15.6 J**	**6.94 J**	NA	NA	NA	NA
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	--	1.15 U	**12.35 J**	**4.5**	**5.23 J**	**23.53 J**	**5.1**	**8.76 J**	**35.87 J**	**9.46 J**	NA	NA	NA	NA
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	--	2.63 U	**57.9**	**13.3**	**15.7**	**52.3**	**12.4**	**18.0**	**90.7**	**64.5**	NA	NA	NA	NA
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	--	1.39 U	**6.0**	**2.62 J**	**2.85 J**	**10.6**	**2.9 J**	**3.39 J**	**14.9**	**8.45 J**	NA	NA	NA	NA
Chrysene	mg/kg OC	110	NE	NE	NE	--	2.45 U	**64.2**	**10.2**	**10.4**	**41.8**	**9.0**	**9.9**	**70.7**	**25.38 J**	NA	NA	NA	NA
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	--	1.84 U	**2.5**	**1.1**	**1.3**	**4.9**	**1.2**	**1.4**	**7.1**	**3.6**	NA	NA	NA	NA
Fluoranthene	mg/kg OC	160	NE	NE	NE	--	**1.05 J**	**108.8**	**11.6**	**7.3**	**68.0**	**13.4**	**19.5**	**41.3**	**13.2**	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	--	**1.8**	**6.88 J**	**2.45 J**	**2.84 J**	**11.73 J**	**2.69 J**	**3.81 J**	**16.51 J**	**9.19 J**	NA	NA	NA	NA
Pyrene	mg/kg OC	1,000	NE	NE	NE	--	**2.4**	**77.2**	**14.9**	**11.5**	**66.0**	**18.7**	**27.4**	**46.2**	**19.8**	NA	NA	NA	NA
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)																			
Total HPAH	µg/kg	NE	12,000	--	--	--	**126.1**	**4,760.5**	**992.9**	**831**	**4,714.8**	**1,126.1**	**961.4**	**3,693.2**	**1,493.4**	**13.4 J**	**266.7 J**	**8.2 J**	**9.3 J**
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	--	**6.2 J**	**193**	**57.9**	**62.3**	**366**	**82.1**	**80.5**	**170**	**64.5**	19.9 U	**11.5 J**	19.9 U	19.9 U
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	--	**12.4 J**	**168**	**70.4**	**72.2**	**367**	**83**	**85**	**391**	**88**	19.9 U	**16 J**	19.9 U	19.9 U
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	--	**28.4 J**	**788**	**209.0**	**217.0**	**816**	**202.0**	**175.0**	**989**	**600.0**	39.8 U	**42**	39.8 U	**39.8 U**
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	--	**15 J**	**81**	**41.2**	**39.3**	**165**	**47.2**	**32.9**	**162**	**78.6**	19.9 U	**13.6 J**	19.9 U	**9.3 J**
Chrysene	µg/kg	NE	1,400	75,000	570,000	--	**26.5**	**873**	**160**	**143**	**652**	**146**	**96**	**771**	**236**	19.9 U	**23.3**	19.9 U	19.9 U
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	--	19.9 U	**33.9**	**17.9 J**	**18.2 J**	**75.8**	**19.5 J**	**13.7 J**	**77.2**	**33.8**	19.9 U	19.9 U	19.9 U	19.9 U
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	--	**11.3 J**	**1,480**	**182**	**100**	**1,060**	**218**	**189**	**450**	**123**	**4.6 J**	**34.2**	19.9 U	19.9 U
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	--	19.9 U	**93.6**	**38.4**	**39.2**	**183**	**43.8**	**37**	**180**	**85.5**	19.9 U	**10.1 J**	19.9 U	19.9 U
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	--	**26.3**	**1,050**	**234**	**158**	**1,030**	**304**	**266**	**503**	**184**	**8.8 J**	**116**	**8.2 J**	19.9 U
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																			
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	--	**20.1 J**	**287.6**	**104.3 J**	**107.3 J**	**517.6**	**119.2 J**	**116.6**	**540.3**	**168.7**	28.1 U	**24.6 J**	28.1 U	28.1 U
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	--	**18.1 J**	**287.6**	**104.3 J**	**107.3 J**	**517.6**	**119.2 J**	**116.6**	**540.3**	**168.7**	14.0 U	**26.0 J**	14.0 U	14.0 U
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	--	**16.1 J**	**287.6**	**104.3 J**	**107.3 J**	**517.6**	**119.2 J**	**116.6**	**540.3**	**168.7**	0 U	**22.6 J**	0 U	0 U

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-32_ 0-10	COA_01_G_20 201120	COA_02_G_20 201119	COA_03_G_20 201118	COA_04_G_20 201118	COA_05_G_20 201119	COA_05-D_G_ 20201119	COA_06_G_20 201120	COA_06-D_G_ 20201120	COA_07_G_20 201118	COA_08_G_20 201119	COA-SS-1-1-3-20201116	COA-SS-1-3-5-20201116	COA-SS-1-6.5-8.5-20201116
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	1 - 3 ft	3 -5 ft	6.5 - 8.5 ft
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Core	Core	Core
Tidal Zone						Subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Native
Sample Date						01/26/23	11/20/20	11/19/20	11/18/20	11/18/20	11/19/20	11/19/20	11/20/20	11/20/20	11/18/20	11/19/20	11/16/20	11/16/20	11/16/20
Chlorinated Hydrocarbons (TOC-normalized)																			
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	--	0.46 U	0.37 U	0.32 U	0.36 U	0.32 U	0.31 U	0.52 U	0.46 U	0.54 U	NA	NA	NA	NA
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	--	0.46 U	0.37 U	0.32 U	0.36 U	0.32 U	0.31 U	0.52 U	0.46 U	0.54 U	NA	NA	NA	NA
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	--	0.46 U	0.37 U	0.32 U	0.36 U	0.32 U	**0.1 J**	**0.11 J**	0.46 U	0.54 U	NA	NA	NA	NA
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	--	1.84 U	1.46 U	1.27 U	1.44 U	1.28 U	1.23 U	2.06 U	1.83 U	2.14 U	NA	NA	NA	NA
Chlorinated Hydrocarbons (dry weight)																			
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	--	5 U	5 U	5 U	5 U	5 U	**1.7 J**	**1.1 J**	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	µg/kg	NE	22	340	2,600	--	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Phthalates (TOC-normalized)																			
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	--	4.59 U	**3.59 J**	**2.22 J**	**2.59 J**	**2.09 J**	3.06 U	5.14 U	**10.83**	5.35 U	NA	NA	NA	NA
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	--	1.84 U	**0.72 J**	1.27 U	1.44 U	1.28 U	1.23 U	2.06 U	1.83 U	2.14 U	NA	NA	NA	NA
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	--	**1.39 J**	**1.17 J**	**1.25 J**	**1.33 J**	**1.1 J**	**0.96 J**	**1.47 J**	**1.81 J**	**1.88 J**	NA	NA	NA	NA
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	--	1.84 U	**2.01**	1.27 U	1.44 U	1.28 U	1.23 U	**2.45**	**1.61 J**	2.14 U	NA	NA	NA	NA
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	--	1.84 U	**1.93**	1.27 U	**0.6 J**	1.28 U	**0.52 J**	2.06 U	**16.79**	2.14 U	NA	NA	NA	NA
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	--	1.84 U	1.46 U	1.27 U	1.44 U	1.28 U	1.23 U	2.06 U	1.83 U	2.14 U	NA	NA	NA	NA
Phthalates (dry weight)																			
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	--	49.6 U	**48.8 J**	**34.9 J**	**35.7 J**	**32.6 J**	49.9 U	49.9 U	**118**	49.8 U	49.8 U	**378**	49.8 U	49.8 U
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	--	19.9 U	9.8 J	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	--	**15 J**	**15.9 J**	**19.6 J**	**18.4 J**	**17.1 J**	**15.6 J**	**14.3 J**	**19.7 J**	**17.5 J**	**14.8 J**	19.9 U	19.9 U	19.9 U
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	--	19.9 U	**27.4**	19.9 U	19.9 U	19.9 U	20 U	**23.8**	**17.6 J**	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Dimethyl phthalate	µg/kg	NE	71	--	--	--	19.9 U	**26.3**	19.9 U	**8.3 J**	19.9 U	**8.5 J**	20 U	183	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	--	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Phenols (dry weight)																			
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	--	19.9 U	**3 J**	**2.2 J**	19.9 U	19.9 U	**3.6 J**	**2.2 J**	**3.2 J**	**2.2 J**	19.9 U	19.9 U	19.9 U	99.5 U
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	--	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	--	19.9 U	**51.3**	**33.5**	**16.3 J**	**81.3**	**46**	**31.5**	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Pentachlorophenol	µg/kg	360	360	1,400	10,000	--	99.3 U	99.6 U	99.7 U	99.7 U	99.6 U	99.8 U	99.8 U	99.6 U	99.5 U	99.6 U	99.5 U	99.6 U	99.5 U
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	--	19.9 U	**12.7 J**	**11.9 J**	**11.3 J**	**10 J**	**15 J**	**10.8 J**	**8.7 J**	19.9 U	19.9 U	19.9 U	19.9 U	**8.9 J**
Miscellaneous Extractables (TOC-normalized)																			
Dibenzofuran	mg/kg OC	15	NE	NE	NE	--	1.84 U	**0.88 J**	**1.76**	**1.02 J**	**1.41**	**1.48**	**1.48 J**	**1.94**	**1.6 J**	NA	NA	NA	NA
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	--	1.84 U	1.46 U	1.27 U	1.44 U	1.28 U	1.23 U	2.06 U	1.83 U	2.14 U	NA	NA	NA	NA
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	--	1.84 U	1.46 U	1.27 U	1.44 U	1.28 U	1.23 U	2.06 U	1.83 U	2.14 U	NA	NA	NA	NA
Miscellaneous Extractables (dry weight)																			
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	--	19.9 U	**11.9 J**	**27.6**	**14.1 J**	**22**	**24.1**	**14.4 J**	**21.1**	**14.9 J**	19.9 U	**5.1 J**	19.9 U	19.9 U
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	19.9 U
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	--	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	--	**73.4 J**	199 U	199 U	199 U	199 U	200 U	200 U	199 U	199 U	199 U	199 U	199 U	199 U
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	--	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U	19.9 U
Polychlorinated Biphenyls (PCBs)																			
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	**1.06 J**	**1.09 J**	**0.48 J**	**0.52 J**	**1.11 J**	**0.43 J**	**0.22 J**	**0.41 J**	**1.49**	NA	NA	NA	NA
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	--	**11.5 J**	**14.8 J**	**7.6 J**	**7.2 J**	**17.3**	**7**	**2.1 J**	**4.5 J**	**13.9**	1.6 U	**2.1**	1.6 U	1.6 U

Sample Identification		Preliminary Cleanup Level (PCUL)				LY-32_ 0-10	COA_01_G_20 201120	COA_02_G_20 201119	COA_03_G_20 201118	COA_04_G_20 201118	COA_05_G_20 201119	COA_05-D_G_ 20201119	COA_06_G_20 201120	COA_06-D_G_ 20201120	COA_07_G_20 201118	COA_08_G_20 201119	COA-SS-1-1-3-20201116	COA-SS-1-3-5-20201116	COA-SS-1-6.5-8.5-20201116
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	0 - 10 cm	1 - 3 ft	3 -5 ft	6.5 - 8.5 ft
Sample Type						Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Core	Core	Core
Tidal Zone						Subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Recent	Native	Native
Sample Date						01/26/23	11/20/20	11/19/20	11/18/20	11/18/20	11/19/20	11/19/20	11/20/20	11/20/20	11/18/20	11/19/20	11/16/20	11/16/20	11/16/20
Polychlorinated Biphenyl (PCB) Congeners															--	--			
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	1.6 U	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)																			
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dioxins/Furans (dry weight)																			
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	--	**4.53 J**	**5.19 J**	**4.25 J**	**3.61 J**	**5.27 J**	**3.47 J**	**2.20 J**	**4.29 J**	**3.22 J**	**2.91 J**	**2.27 J**	**3.15 J**	**3.15 J**
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	--	**3.42 J**	**4.69 J**	**4.20 J**	**3.56 J**	**4.77 J**	**2.01 J**	**1.41 J**	**3.79 J**	**1.90 J**	**1.51 J**	**2.12 J**	**1.58 J**	**1.58 J**
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	--	**2.31 J**	**4.20 J**	**4.15 J**	**3.51 J**	**4.27 J**	**0.55 J**	**0.65 J**	**3.29 J**	**0.59 J**	**0.09 J**	**1.97 J**	**0.02 J**	**0.01 J**

Notes:

[1] Sediment sample locations shown on Figure 2.
[2] Intertidal zone is above -3 feet MLLW.
[3] Subtidal zone is below -3 feet MLLW.
[4] PCUL based on the practical quantification limit.
[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration
NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs
NE = not established
J = estimated concentration
T = sum of compounds
cm = centimeters
mg/kg = milligram per kilogram
mg/L = milligram per liter
mg-N/L = milligrams of nitrogen per liter
µg/kg = microgram per kilogram
µg/L = microgram per liter
ng/kg = nanogram per kilogram
MLLW = Mean Lower Low Water
TOC = total organic carbon
OC = organic carbon
R = rejected result
TEQ = toxicity equivalent
-- = not tested

Bold indicates analyte was detected.
Yellow shading indicates exceedance of PCUL protective of benthic organisms.
Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.
Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.
Gray shading indicates a detection limit exceeds of the PCUL.

Table 2

Summary of Conventional and Chemical Analytical Data

Anacortes Port Log Yard

Anacortes, Washington

Sample Identification		Preliminary Cleanup Level (PCUL)				COA-SS-2-1.5-3.5-20201118	COA-SS-2-3.5-5.5-20201118	COA-SS-2-5.5-7.5-20201118	COA-SS-2-7.5-9.5-20201118	COA-SS-3-1-3-20201118	COA-SS-3-3-5-20201118	COA-SS-3-5-7-20201118	COA-SS-3-7-9-20201118
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		1.5 - 3.5 ft	3.5 - 5.5 ft	5.5 - 7.5 ft	7.5 - 9.5 ft	1 - 3 ft	3 -5 ft	5 -7 ft	7 - 9 ft
Sample Type						Core	Core	Core	Core	Core	Core	Core	Core
Tidal Zone						subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Native	Native	Native	Recent	Native	Native	Native
Sample Date						11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20
Field Screening													
Sheen	--	NE	NE	NE	NE	--	--	--	--	--	--	--	--
Visual Wood Content	%	NE	NE	NE	NE	<5	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Conventionals													
Total Organic Carbon (TOC)	%	NE	NE	NE	NE	**0.2**	**0.21**	**0.09**	**0.11**	**1.12 J**	**0.07**	**0.07**	**0.08**
Total Volatile Solids (TVS)	%	NE	NE	NE	NE	**2.34**	**1.68**	**1.97**	**1.41**	**1.61**	**1.11**	**1.07**	**1.18**
Total Solids (TS)	%	NE	NE	NE	NE	**77.15**	**81.9**	**81.06**	**86.33**	**79.58**	**87.44**	**90.41**	**89.5**
Porewater Ammonia	mg-N/L	NE	NE	NE	NE								
Ammonia	mg/kg	NE	NE	NE	NE	**6.69**	**3.4**	**2.99**	**1.55**	**5**	**3.61**	**3.36**	**2.96**
Porewater Sulfides	mg/L	NE	NE	NE	NE								
Total Sulfides	mg/kg	NE	NE	NE	NE	**20.9**	1.17 U	1.26 U	1.14 U	**1.57**	1.14 U	1.18 U	1.05 U
Grain Size													
Gravel	%	NE	NE	NE	NE	**5.6**	**7**	**2**	**6.3**	--	**10.6**	**21.2**	**15.2**
Very Coarse Sand	%	NE	NE	NE	NE	**2.4**	**3**	**1.4**	**2.6**	--	**5.1**	**4.3**	**4.3**
Coarse Sand	%	NE	NE	NE	NE	**2.7**	**4.3**	**2**	**3.2**	--	**6.7**	**4.6**	**4.1**
Medium Sand	%	NE	NE	NE	NE	**4.7**	**5.7**	**2.7**	**5.3**	--	**10**	**7**	**5.4**
Fine Sand	%	NE	NE	NE	NE	**6.7**	**8.9**	**6**	**6.6**	--	**9.9**	**8.3**	**10.2**
Very Fine Sand	%	NE	NE	NE	NE	**6.9**	**6.2**	**4.5**	**6.7**	--	**8.7**	**8.2**	**9.6**
Coarse Silt	%	NE	NE	NE	NE	**10.4**	**10**	**5.3**	**8.4**	--	**11.2**	**9.6**	**10.5**
Medium Silt	%	NE	NE	NE	NE	**11.8**	**9.4**	**14.5**	**14.9**	--	**10**	**10.3**	**11.8**
Fine Silt	%	NE	NE	NE	NE	**10**	**10.1**	**13.3**	**10.7**	--	**8.7**	**9.3**	**9.6**
Very Fine Silt	%	NE	NE	NE	NE	**8.4**	**8.6**	**12.2**	**9.8**	--	**6.7**	**7.1**	**8.3**
Clay	%	NE	NE	NE	NE	**30.5**	**26.8**	**36.1**	**25.5**	--	**12.5**	**10.2**	**11**
Organometallic Compounds													
Tributyltin ion (interstitial water)	µg/L	0.05	0.05	0.15	0.15	--	--	--	--	--	--	--	--
Tributyltin ion (bulk sediment)	µg/kg	73	73	73	73	**9.34**	3.84 U	3.83 U	**0.502 J**	**0.958 J**	3.82 U	3.83 U	3.8 U
Metals (dry weight)													
Arsenic	mg/kg	57	57	11	11	**3.96**	**6.05**	**6.37**	**4.9**	**3.78**	**5.02**	**1.14**	**2.82**
Cadmium	mg/kg	5.1	5.1	0.8	0.8	**0.11 J**	**0.05 J**	**0.08 J**	**0.13**	**0.25**	**0.09 J**	**0.11 U**	**0.07 J**
Chromium	mg/kg	260	260	960,000	6,900,000	**23.3**	**40.2**	**38.2**	**73.5**	**23.6**	**81.5**	**39.3**	**79.4**
Copper	mg/kg	390	390	26,000	180,000	**19.5**	**41.2**	**41.3**	**37.4**	**8.34**	**21.3**	**9.48**	**26.5**
Lead	mg/kg	450	450	21	21	**2.99**	**4.73**	**4.87**	**3.95**	**2.41**	**2.42**	**0.87**	**2.81**
Mercury	mg/kg	0.41	0.41	0.2	0.2	**0.0574 H**	**0.0377 H**	**0.0364 H**	**0.0317 H**	**0.019 H,J**	**0.0319 H**	**0.0307 H**	**0.0307 H**
Silver	mg/kg	6.1	6.1	3,200	23,100	**0.06 J**	**0.05 J**	**0.07 J**	**0.07 J**	**0.05 J**	**0.06 J**	**0.21 U**	**0.09 J**
Zinc	mg/kg	410	410	190,000	1,400,000	**34.9**	**68.1**	**69.6**	**60.1**	**27.6**	**38.6**	**20.7**	**43.5**

Sample Identification		Preliminary Cleanup Level (PCUL)				COA-SS-2-1.5-3.5-20201118	COA-SS-2-3.5-5.5-20201118	COA-SS-2-5.5-7.5-20201118	COA-SS-2-7.5-9.5-20201118	COA-SS-3-1-3-20201118	COA-SS-3-3-5-20201118	COA-SS-3-5-7-20201118	COA-SS-3-7-9-20201118
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		1.5 - 3.5 ft	3.5 - 5.5 ft	5.5 - 7.5 ft	7.5 - 9.5 ft	1 - 3 ft	3 -5 ft	5 -7 ft	7 - 9 ft
Sample Type						Core	Core	Core	Core	Core	Core	Core	Core
Tidal Zone						subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Native	Native	Native	Recent	Native	Native	Native
Sample Date						11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; TOC-normalized)													
Total LPAH	mg/kg OC	370	NE	NE	NE	NA	NA	NA	NA	**8.5 J**	NA	NA	NA
2-Methylnaphthalene	mg/kg OC	38	NE	NE	NE	NA	NA	NA	NA	1.8 U	NA	NA	NA
Acenaphthene	mg/kg OC	16	NE	NE	NE	NA	NA	NA	NA	**0.5 J**	NA	NA	NA
Acenaphthylene	mg/kg OC	66	NE	NE	NE	NA	NA	NA	NA	1.8 U	NA	NA	NA
Anthracene	mg/kg OC	220	NE	NE	NE	NA	NA	NA	NA	**1.4 J**	NA	NA	NA
Fluorene	mg/kg OC	23	NE	NE	NE	NA	NA	NA	NA	**0.7 J**	NA	NA	NA
Naphthalene	mg/kg OC	99	NE	NE	NE	NA	NA	NA	NA	**2.8**	NA	NA	NA
Phenanthrene	mg/kg OC	100	NE	NE	NE	NA	NA	NA	NA	**2.7**	NA	NA	NA
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAHs; dry weight)													
Total LPAH	µg/kg	NE	5,200	--	--	**18.7 J**	**4.7 J**	**4.8 J**	19.9 U	**95.1 J**	20 U	19.9 U	**6 J**
2-Methylnaphthalene	µg/kg	NE	670	2,000,000	16,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Acenaphthene	µg/kg	NE	500	30,000,000	240,000,000	19.8 U	19.9 U	19.9 U	19.9 U	**5.6 J**	20 U	19.9 U	20 U
Acenaphthylene	µg/kg	NE	1,300	30,000,000	240,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Anthracene	µg/kg	NE	960	150,000,000	1,200,000,000	19.8 U	19.9 U	19.9 U	19.9 U	**15.8 J**	20 U	19.9 U	20 U
Fluorene	µg/kg	NE	540	20,000,000	160,000,000	19.8 U	19.9 U	19.9 U	19.9 U	**7.6 J**	20 U	19.9 U	20 U
Naphthalene	µg/kg	NE	2,100	9,900,000	78,000,000	**6.4 J**	19.9 U	19.9 U	19.9 U	**36.1**	20 U	19.9 U	20 U
Phenanthrene	µg/kg	NE	1,500	150,000,000	1,200,000,000	**12.3 J**	**4.7 J**	**4.8 J**	19.9 U	**30**	20 U	19.9 U	**6 J**
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; TOC-normalized)													
Total HPAH	mg/kg OC	960	NE	NE	NE	NA	NA	NA	NA	**28.7 J**	NA	NA	NA
Benzo(a)anthracene	mg/kg OC	110	NE	NE	NE	NA	NA	NA	NA	1.8 U	NA	NA	NA
Benzo(a)pyrene	mg/kg OC	99	NE	NE	NE	NA	NA	NA	NA	**2.2**	NA	NA	NA
Benzofluoranthenes (total)	mg/kg OC	230	NE	NE	NE	NA	NA	NA	NA	**3.6**	NA	NA	NA
Benzo(ghi)perylene	mg/kg OC	31	NE	NE	NE	NA	NA	NA	NA	**1.2 J**	NA	NA	NA
Chrysene	mg/kg OC	110	NE	NE	NE	NA	NA	NA	NA	**5.8**	NA	NA	NA
Dibenzo(a,h)anthracene	mg/kg OC	12	NE	NE	NE	NA	NA	NA	NA	**0.6 J**	NA	NA	NA
Fluoranthene	mg/kg OC	160	NE	NE	NE	NA	NA	NA	NA	**3.8**	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	mg/kg OC	34	NE	NE	NE	NA	NA	NA	NA	**1.1 J**	NA	NA	NA
Pyrene	mg/kg OC	1,000	NE	NE	NE	NA	NA	NA	NA	**5.1**	NA	NA	NA
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAHs; dry weight)													
Total HPAH	µg/kg	NE	12,000	--	--	**171.9 J**	39.7 U	39.7 U	**6.6 J**	**321 J**	39.9 U	39.8 U	40 U
Benzo(a)anthracene	µg/kg	NE	1,300	750	5,700	**5.4 J**	19.9 U	19.9 U	19.9 U	**23.6**	20 U	19.9 U	20 U
Benzo(a)pyrene	µg/kg	NE	1,600	75	570	**9.7 J**	19.9 U	19.9 U	19.9 U	**25.1**	20 U	19.9 U	20 U
Benzofluoranthenes (total)	µg/kg	NE	3,200	750	5,700	**31.3 J**	39.7 U	39.7 U	39.9 U	**76.2**	39.9 U	39.8 U	40 U
Benzo(ghi)perylene	µg/kg	NE	670	15,000,000	120,000,000	**6.2 J**	19.9 U	19.9 U	19.9 U	**13.5 J**	20 U	19.9 U	20 U
Chrysene	µg/kg	NE	1,400	75,000	570,000	**10.8 J**	19.9 U	19.9 U	19.9 U	**65.4**	20 U	19.9 U	20 U
Dibenzo(a,h)anthracene	µg/kg	NE	230	75	570	19.8 U	19.9 U	19.9 U	19.9 U	**6.3 J**	20 U	19.9 U	20 U
Fluoranthene	µg/kg	NE	1,700	20,000,000	160,000,000	**14.8 J**	19.9 U	19.9 U	19.9 U	**42**	20 U	19.9 U	20 U
Indeno(1,2,3-c,d)pyrene	µg/kg	NE	600	750	5,700	19.8 U	19.9 U	19.9 U	19.9 U	**11.9 J**	20 U	19.9 U	20 U
Pyrene	µg/kg	NE	2,600	15,000,000	120,000,000	**93.7**	19.9 U	19.9 U	**6.6 J**	**57**	20 U	19.9 U	20 U
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)													
Total cPAHs TEQ (n=1)	µg/kg	NE	NE	21	21	**17.4 J**	28.1 U	28.1 U	28.1 U	**37.6 J**	30.2 U	28.1 U	30.2 U
Total cPAHs TEQ (n=0.5)	µg/kg	NE	NE	21	21	**16.4 J**	14.0 U	14.0 U	14.0 U	**37.0 J**	15.1 U	14.0 U	15.1 U
Total cPAHs TEQ (n=0)	µg/kg	NE	NE	21	21	**15.5 J**	0 U	0 U	0 U	**36.4 J**	0 U	0 U	0 U

Sample Identification		Preliminary Cleanup Level (PCUL)				COA-SS-2-1.5-3.5-20201118	COA-SS-2-3.5-5.5-20201118	COA-SS-2-5.5-7.5-20201118	COA-SS-2-7.5-9.5-20201118	COA-SS-3-1-3-20201118	COA-SS-3-3-5-20201118	COA-SS-3-5-7-20201118	COA-SS-3-7-9-20201118
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		1.5 - 3.5 ft	3.5 - 5.5 ft	5.5 - 7.5 ft	7.5 - 9.5 ft	1 - 3 ft	3 -5 ft	5 -7 ft	7 - 9 ft
Sample Type						Core	Core	Core	Core	Core	Core	Core	Core
Tidal Zone						subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Native	Native	Native	Recent	Native	Native	Native
Sample Date						11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20
Chlorinated Hydrocarbons (TOC-normalized)													
1,2,4-Trichlorobenzene	mg/kg OC	0.81	NE	NE	NE	NA	NA	NA	NA	0.45 U	NA	NA	NA
1,2-Dichlorobenzene	mg/kg OC	2.3	NE	NE	NE	NA	NA	NA	NA	0.45 U	NA	NA	NA
1,4-Dichlorobenzene	mg/kg OC	3.1	NE	NE	NE	NA	NA	NA	NA	0.45 U	NA	NA	NA
Hexachlorobenzene	mg/kg OC	0.38	NE	NE	NE	NA	NA	NA	NA	1.79 U	NA	NA	NA
Chlorinated Hydrocarbons (dry weight)													
1,2,4-Trichlorobenzene	µg/kg	NE	31	19,000	140,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	µg/kg	NE	35	45,000,000	350,000,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,4-Dichlorobenzene	µg/kg	NE	110	100,000	780,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	µg/kg	NE	22	340	2,600	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Phthalates (TOC-normalized)													
Bis(2-ethylhexyl) phthalate	mg/kg OC	47	NE	NE	NE	NA	NA	NA	NA	4.41 U	NA	NA	NA
Butyl benzyl phthalate	mg/kg OC	4.9	NE	NE	NE	NA	NA	NA	NA	1.79 U	NA	NA	NA
Dibutyl phthalate	mg/kg OC	220	NE	NE	NE	NA	NA	NA	NA	1.79 U	NA	NA	NA
Diethyl phthalate	mg/kg OC	61	NE	NE	NE	NA	NA	NA	NA	**2.82**	NA	NA	NA
Dimethyl phthalate	mg/kg OC	53	NE	NE	NE	NA	NA	NA	NA	1.79 U	NA	NA	NA
Di-n-octyl phthalate	mg/kg OC	58	NE	NE	NE	NA	NA	NA	NA	1.79 U	NA	NA	NA
Phthalates (dry weight)													
Bis(2-ethylhexyl) phthalate	µg/kg	NE	1,300	39,000	300,000	49.6 U	49.7 U	49.6 U	49.8 U	**49.4 J**	**49.9 U**	**219**	50 U
Butyl benzyl phthalate	µg/kg	NE	63	290,000	2,200,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Dibutyl phthalate	µg/kg	NE	1,400	49,000,000	390,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Diethyl phthalate	µg/kg	NE	200	400,000,000	3,100,000,000	**25.9**	19.9 U	**26.8**	19.9 U	**31.6**	**33.7**	**26**	20 U
Dimethyl phthalate	µg/kg	NE	71	--	--	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Di-n-octyl phthalate	µg/kg	NE	6,200	4,900,000	39,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Phenols (dry weight)													
2,4-Dimethylphenol	µg/kg	29	29	9,900,000	78,000,000	19.8 U	19.9 U	99.3 U	19.9 U	20 U	20 U	99.6 U	20 U
2-Methylphenol	µg/kg	63	63	25,000,000	200,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
4-Methylphenol	µg/kg	670	670	49,000,000	390,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Pentachlorophenol	µg/kg	360	360	1,400	10,000	99.2 U	99.4 U	99.3 U	99.7 U	99.8 U	99.8 U	99.6 U	99.9 U
Phenol	µg/kg	420	420	150,000,000	1,200,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Miscellaneous Extractables (TOC-normalized)													
Dibenzofuran	mg/kg OC	15	NE	NE	NE	NA	NA	NA	NA	**0.62 J**	NA	NA	NA
Hexachlorobutadiene	mg/kg OC	3.9	NE	NE	NE	NA	NA	NA	NA	0.45 U	NA	NA	NA
N-Nitrosodiphenylamine	mg/kg OC	11	NE	NE	NE	NA	NA	NA	NA	1.79 U	NA	NA	NA
Miscellaneous Extractables (dry weight)													
Dibenzofuran	µg/kg	NE	540	490,000	3,900,000	19.8 U	19.9 U	19.9 U	19.9 U	**6.9 J**	20 U	19.9 U	20 U
Hexachlorobutadiene	µg/kg	NE	11	7,000	54,000	5 U	5 U	19.9 U	19.9 U	5 U	5 U	5 U	5 U
N-Nitrosodiphenylamine	µg/kg	NE	28	110,000	860,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Benzoic acid	µg/kg	650	650	760,000,000	5,900,000,000	198 U	199 U	199 U	199 U	200 U	200 U	199 U	200 U
Benzyl alcohol	µg/kg	57	57	19,000,000	150,000,000	19.8 U	19.9 U	19.9 U	19.9 U	20 U	20 U	19.9 U	20 U
Polychlorinated Biphenyls (PCBs)													
Total PCB Aroclors (TOC normalized)	mg/kg OC	12	NE	NE	NE	NA	NA	NA	NA	0.14 U	NA	NA	NA
Total PCB Aroclors (dry weight)	µg/kg	NE	130	3.5	3.5	**1.8 J**	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	**1.3**

Sample Identification		Preliminary Cleanup Level (PCUL)				COA-SS-2-1.5-3.5-20201118	COA-SS-2-3.5-5.5-20201118	COA-SS-2-5.5-7.5-20201118	COA-SS-2-7.5-9.5-20201118	COA-SS-3-1-3-20201118	COA-SS-3-3-5-20201118	COA-SS-3-5-7-20201118	COA-SS-3-7-9-20201118
Sample Depth (feet below mudline)		Protection of Benthic Organisms		Protection of Human Health and Higher Trophic Levels		1.5 - 3.5 ft	3.5 - 5.5 ft	5.5 - 7.5 ft	7.5 - 9.5 ft	1 - 3 ft	3 -5 ft	5 -7 ft	7 - 9 ft
Sample Type						Core	Core	Core	Core	Core	Core	Core	Core
Tidal Zone						subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal	subtidal
Stratigraphic Horizon		TOC (0.5% to 3.5%)	TOC (<0.5% or >3.5%)	Intertidal Sediment[2]	Subtidal Sediment[3]	Recent	Native	Native	Native	Recent	Native	Native	Native
Sample Date						11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20
Polychlorinated Biphenyl (PCB) Congeners													
Total PCB Congeners (TOC normalized)	mg/kg OC	12	NE	NE	NE	--	--	--	--	--	--	--	--
Total PCB Congeners (dry weight)	µg/kg	NE	130	3.5	3.5	--	--	--	--	--	--	--	--
Dioxin-Like Polychlorinated Biphenyls (PCBs; dry weight)													
Total Dioxin-like PCB Congeners TEQ (n=1)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0.5)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--
Total Dioxin-like PCB Congeners TEQ (n=0)	ng/kg	NE	NE	2	2	--	--	--	--	--	--	--	--
Dioxins/Furans (dry weight)													
Total Dioxin/Furan TEQ (n=1)	ng/kg	NE	NE	5[4]	5[4]	**1.42 J**	**3.17 J**	**3.2**	**3.18 J**	**3.14 J**	**3.15 J**	**3.14 J**	**3.14 J**
Total Dioxin/Furan TEQ (n=0.5)	ng/kg	NE	NE	5[4]	5[4]	**1.01 J**	**1.60 J**	**1.6**	**1.61 J**	**1.61 J**	**1.58 J**	**1.58 J**	**1.57 J**
Total Dioxin/Furan TEQ (n=0)	ng/kg	NE	NE	5[4]	5[4]	**0.60 J**	**0.03 J**	**0.0**	**0.04 J**	**0.07 J**	**0.004 J**	**0.007 J**	**0.006 J**

Notes:

[1] Sediment sample locations shown on Figure 2.

[2] Intertidal zone is above -3 feet MLLW.

[3] Subtidal zone is below -3 feet MLLW.

[4] PCUL based on the practical quantification limit.

[5] Insufficient porewater volume to complete analysis.

U = The analyte is not detected at or above the reported concentration

NA = not applicable because TOC outside of range for comparison to TOC-normalized PCULs

NE = not established

J = estimated concentration

T = sum of compounds

cm = centimeters

mg/kg = milligram per kilogram

mg/L = milligram per liter

mg-N/L = milligrams of nitrogen per liter

µg/kg = microgram per kilogram

µg/L = microgram per liter

ng/kg = nanogram per kilogram

MLLW = Mean Lower Low Water

TOC = total organic carbon

OC = organic carbon

R = rejected result

TEQ = toxicity equivalent

-- = not tested

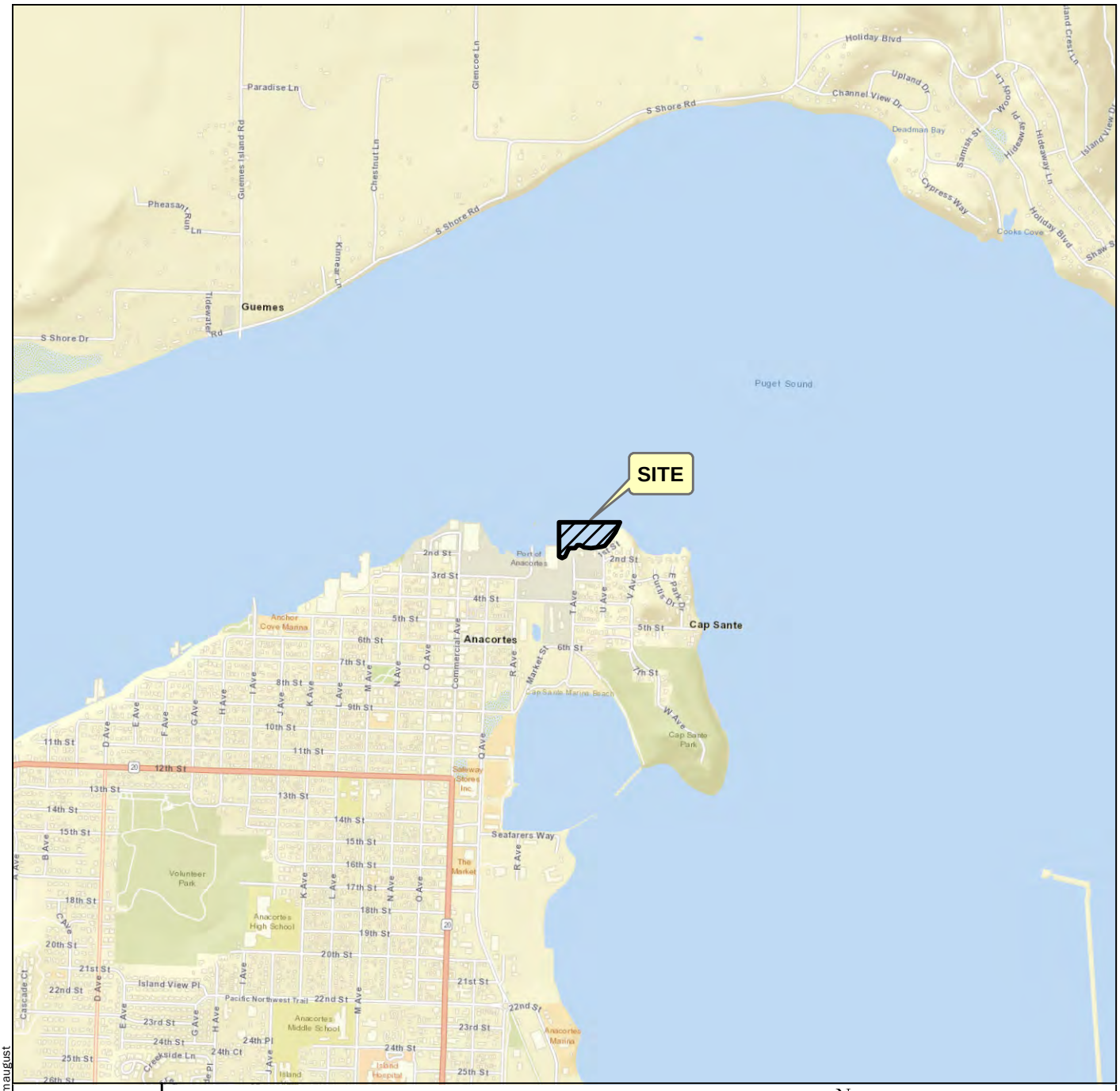
Bold indicates analyte was detected.

Yellow shading indicates exceedance of PCUL protective of benthic organisms.

Blue shading indicates exceedance of PCUL protective of human health and higher trophic level ecological receptors.

Red shading indicates exceedance of PCULs protective of benthic organisms and protective of human health and higher trophic level ecological receptors.

Gray shading indicates a detection limit exceeds of the PCUL.





N
W E
S

2,000 0 2,000

Feet

Notes:

1. The locations of all features shown are approximate.
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Data Source: Mapbox Open Street Map, 2015

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

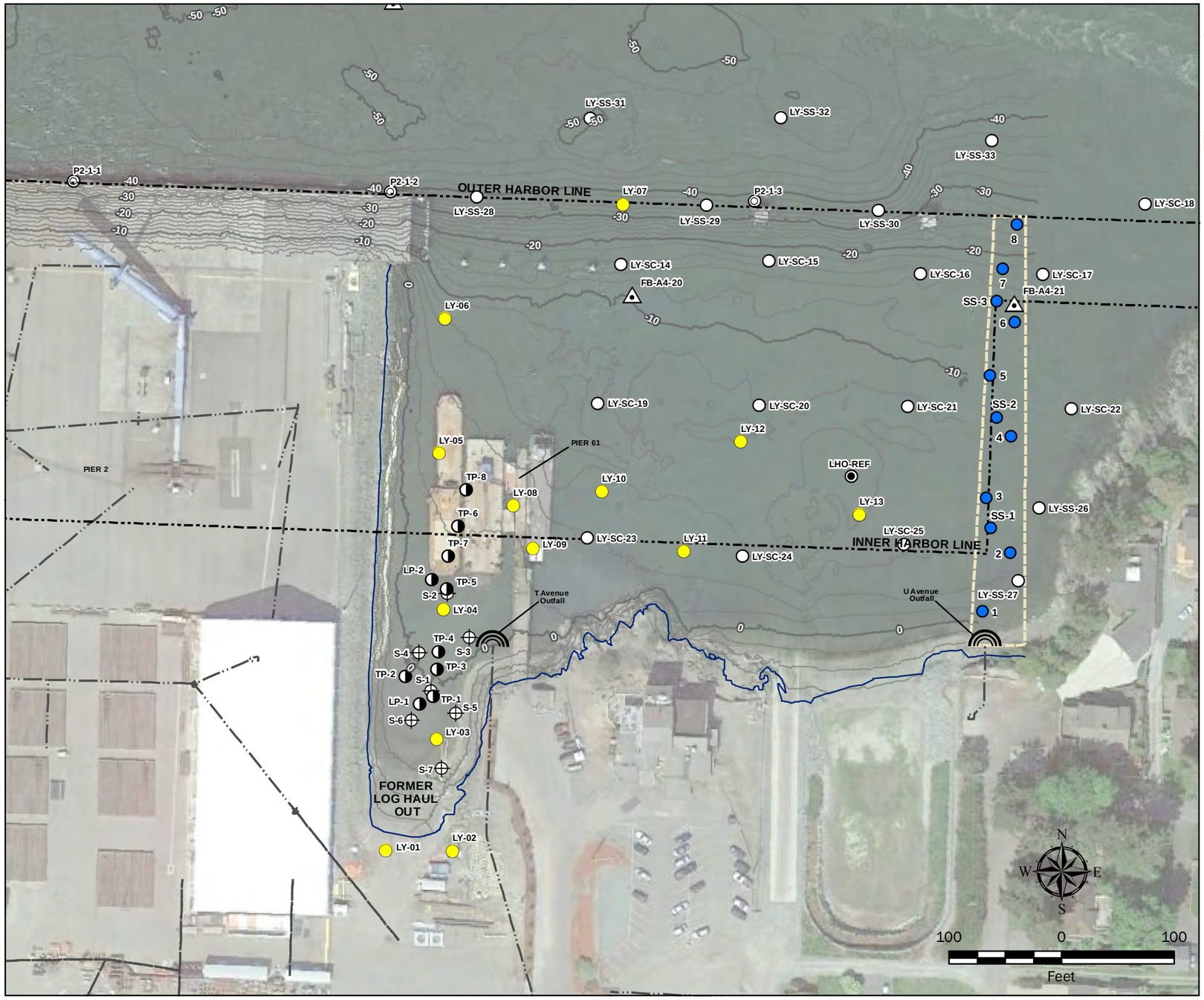
Vicinity Map

Anacortes Port Log Yard
Anacortes, Washington

GeoEngineers

Figure 1

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Legend

- Mean Higher High Water (MHHW)
- Harbor Line
- Stormdrain
- City of Anacortes Outfall
- Proposed City of Anacortes Waste Water Treatment Outfall Project Area

Sediment Investigation Legend

- Supplemental Sediment Investigation (GeoEngineers, 2021-23)
- Nearshore Sediment Characterization Study (DOF, 2020)
- RI/FS Investigation (GeoEngineers, 2016)
- Dredged Material Characterization Study (GeoEngineers, 2012)
- Supplemental Sediment Characterization Study (GeoEngineers, 2012)
- Sediment Characterization Study (GeoEngineers, 2010)
- Fidalgo Bay Sediment Investigation (SAIC, 2008)
- Pier 2 Log Haul Out Facility Due Diligence Study (Floyd|Snider, 2004)

Bathymetric Contours

- Index Contour (10 ft)
- Contour (2ft)

Notes:
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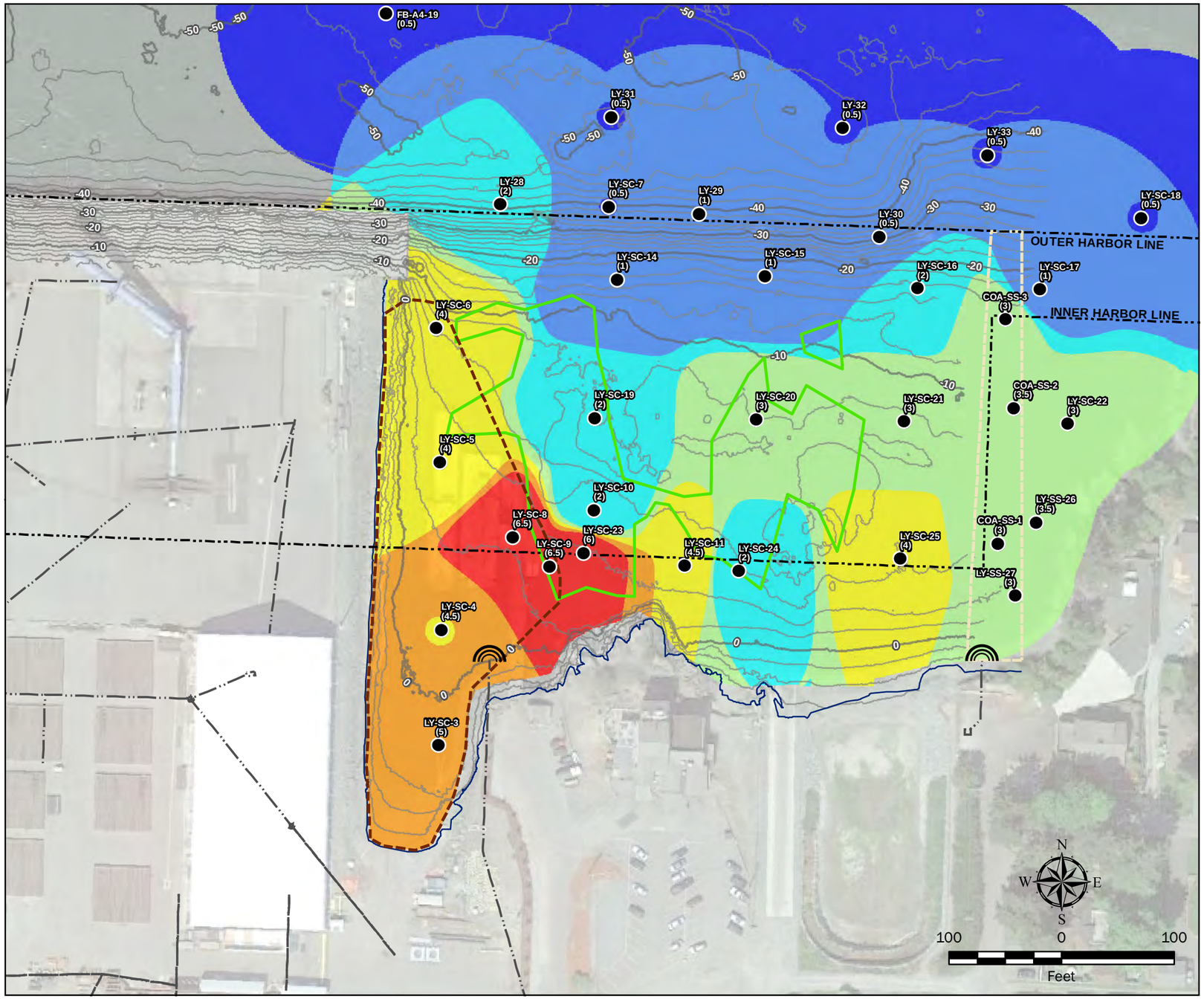
Previous Sediment Investigation Locations

Anacortes Port Log Yard
Anacortes, Washington

GeoEngineers | **Figure 2**

Data Source: Aerial Imagery - Google Earth, 2015. Bathymetry from David Evans and Associates Inc. (DEA) survey dated June 26, 2014.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

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Legend

- Mean Higher High Water (MHHW)
- Eelgrass Boundary (Approximate Extent)
- Observed Wood Debris (Approximate Extent)
- Index Contour (10 ft)
- Contour (2 ft)
- Proposed City of Anacortes Waste Water Treatment Outfall
- Sediment Core Sample Location
- **(5.0')** Depth below mudline to native sediment (feet).

Recent Sediment Deposit Thickness (feet)

- <0.5'
- 0.5-1.5'
- 1.5-2.5'
- 2.5-3.5'
- 3.5-4.5'
- 4.5-5.5'
- >5.5'

Notes:

1. Bathymetric contours referenced to Mean Lower Low Water (MLLW).
2. The locations of all features shown are approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Bathymetry: David Evans and Associates (DEA), 2014. Aerial Imagery - Google Earth, 2015

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

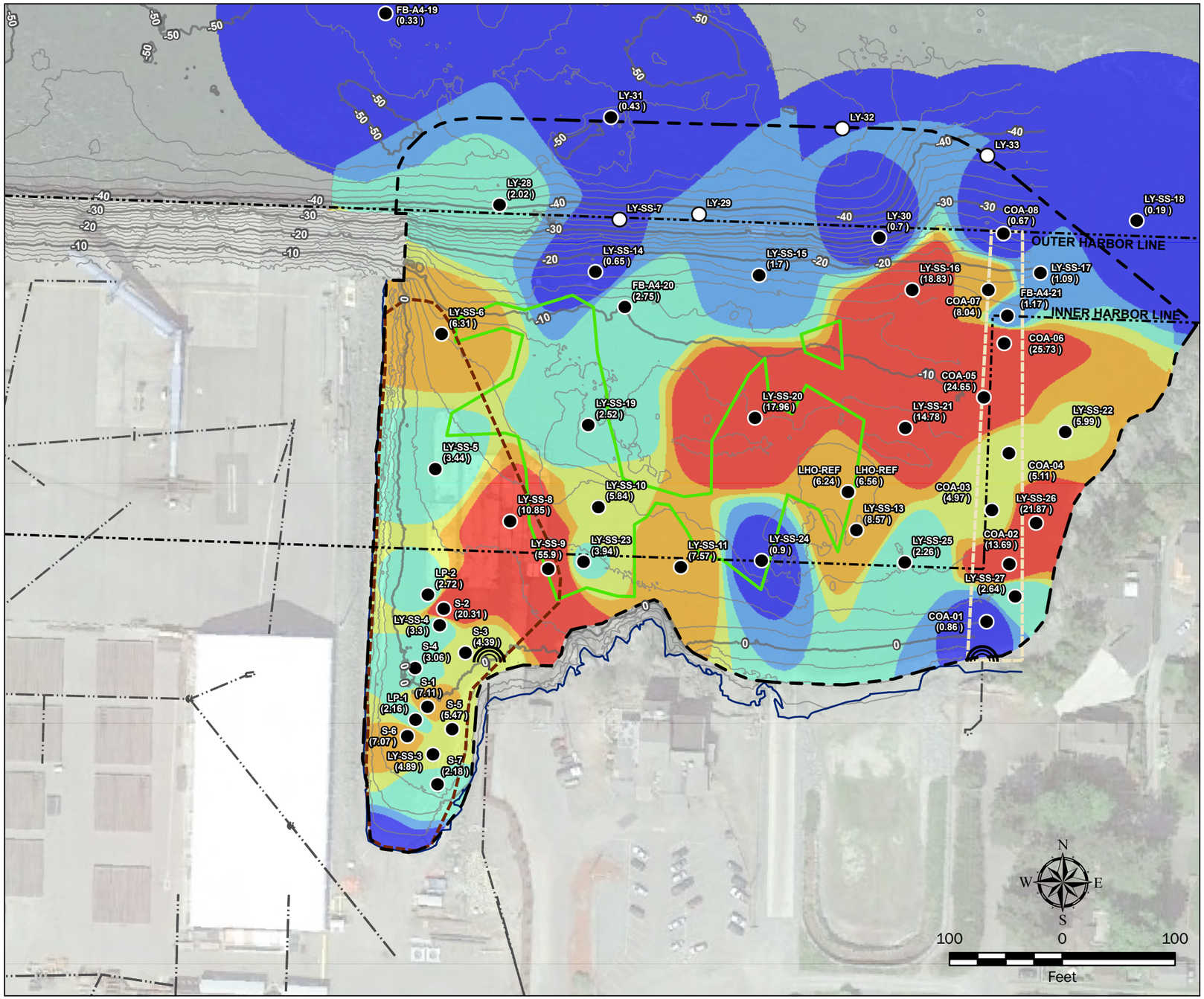
Recent Sediment Deposit Thickness

Anacortes Port Log Yard
Anacortes, Washington

GeoEngineers

Figure 3

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Legend

- Mean Higher High Water (MHHW)
- Eelgrass Boundary (Approximate Extent)
- Observed Wood Debris (Approximate Extent)
- Index Contour (10 ft)
- Contour (2 ft)
- Proposed City of Anacortes Waste Water Treatment Outfall
- Surface Sample Location - With Sediment Data
- Surface Sample Location - No Sediment Data
- Remedial Action Boundary - Extent of Benthic/ Human Health Contaminants of Concern (COCs) Based on IDW Interpolation, Sediment Stratigraphy and Depositional Environment

Inverse Distance Weighted (IDW) Concentration Gradient of Exceedance Ratio*

- <1
- 1 - 2
- 2 - 4
- 4 - 6
- 6 - 10
- >10

*Exceedance Ratio (ER) calculated by dividing the detected analyte concentration by the proposed sediment screening level. At each location, the highest ER for the identified analyte or analyte group is shown. ER for non-detect result exceeding screening level(s) not included in ER interpolation.
(2.02) Contaminant Exceedance Ratio (ER)

Notes:
1. Sediment data results are summarized in Table 1.
2. Bathymetric contours referenced to Mean Lower Low Water (MLLW).
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Bathymetry: David Evans and Associates (DEA), 2014. Aerial Imagery - Google Earth, 2015

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

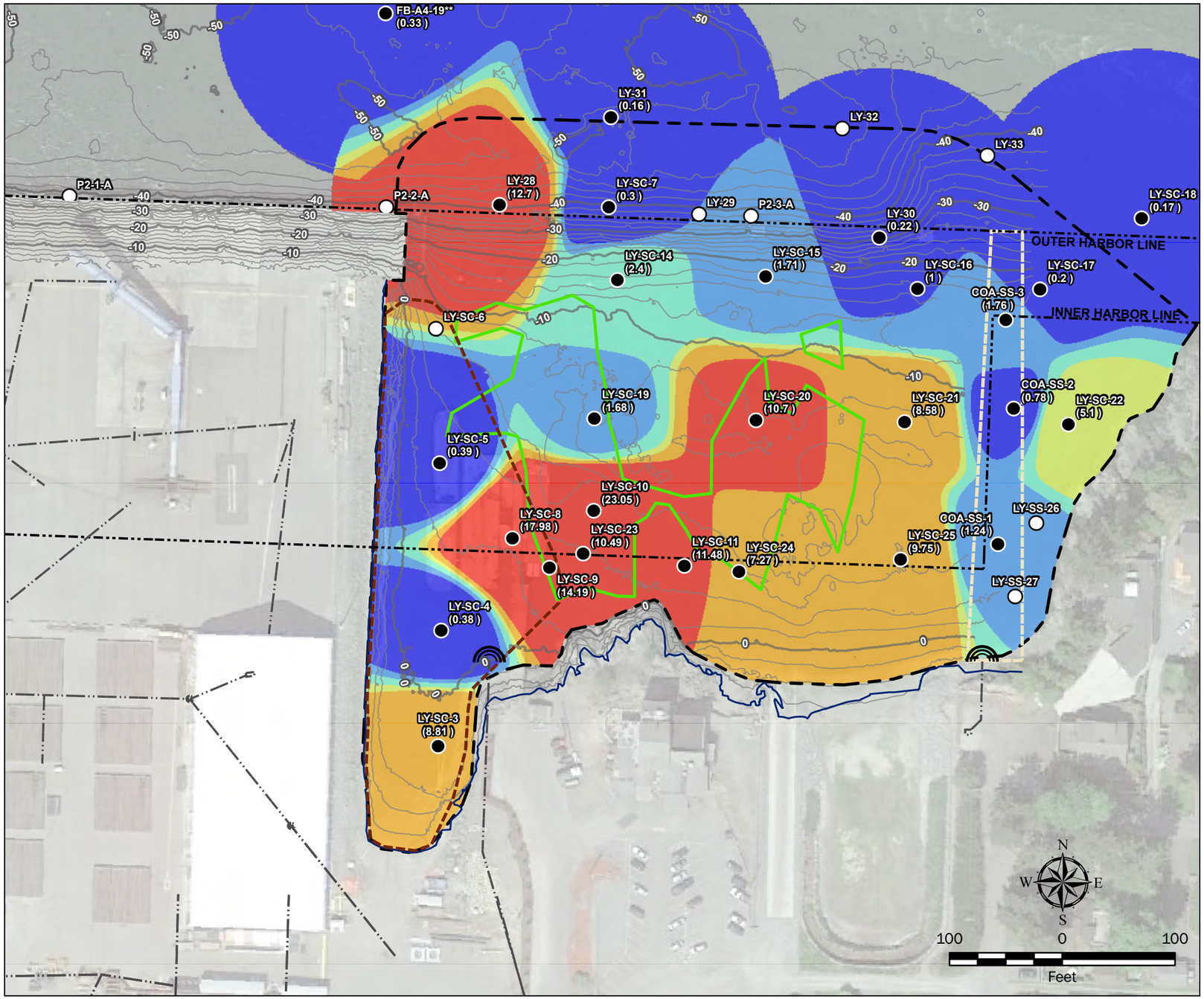
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Summary of Surface Total cPAH TEQ Results

Anacortes Port Log Yard
Anacortes, Washington

GeoEngineers

Figure 4



Legend

- Mean Higher High Water (MHHW)
- Eelgrass Boundary (Approximate Extent)
- Observed Wood Debris (Approximate Extent)
- Index Contour (10 ft)
- Contour (2 ft)
- Proposed City of Anacortes Waste Water Treatment Outfall
- Subsurface Sample Location - With Sediment Data
- Subsurface Sample Location - No Sediment Data
- Remedial Action Boundary - Extent of Benthic/ Human Health Contaminants of Concern (COCs) Based on IDW Interpolation, Sediment Stratigraphy and Depositional Environment

Inverse Distance Weighted (IDW) Concentration Gradient of Exceedance Ratio*

- <1
- 1 - 2
- 2 - 4
- 4 - 6
- 6 - 10
- >10

*Exceedance Ratio (ER) calculated by dividing the detected analyte concentration by the proposed sediment screening level. At each location, the highest ER for the identified analyte or analyte group is shown. ER for non-detect result exceeding screening level(s) not included in ER interpolation.
(2.02) Contaminant Exceedance Ratio (ER)

**Surface Sediment Sample Result Representative of the Recent Deposit Layer within Guemes Channel

Notes:

1. Sediment data results are summarized in Table 1.
2. Bathymetric contours referenced to Mean Lower Low Water (MLLW).
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Bathymetry: David Evans and Associates (DEA), 2014. Aerial Imagery - Google Earth, 2015

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

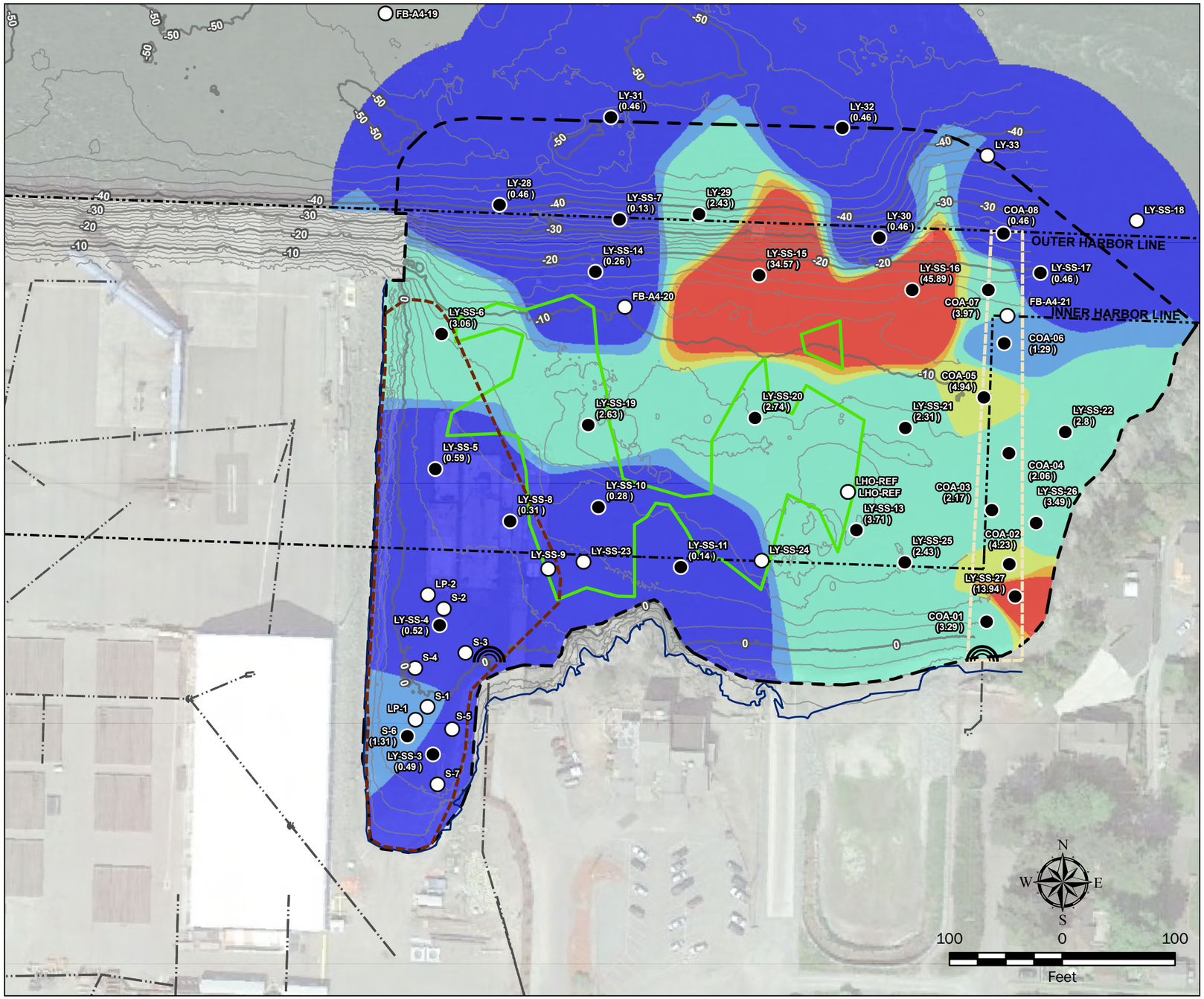
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Summary of Subsurface Total cPAH TEQ Results

Anacortes Port Log Yard
Anacortes, Washington

GeoEngineers

Figure 5



Legend

- Mean Higher High Water (MHHW)
- Eelgrass Boundary (Approximate Extent)
- Observed Wood Debris (Approximate Extent)
- Index Contour (10 ft)
- Contour (2 ft)
- Proposed City of Anacortes Waste Water Treatment Outfall
- Surface Sample Location - With Sediment Data
- Surface Sample Location - No Sediment Data
- Remedial Action Boundary - Extent of Benthic/ Human Health Contaminants of Concern (COCs) Based on IDW Interpolation, Sediment Stratigraphy and Depositional Environment

Inverse Distance Weighted (IDW) Concentration Gradient of Exceedance Ratio*

- <1
- 1 - 2
- 2 - 4
- 4 - 6
- 6 - 10
- >10

*Exceedance Ratio (ER) calculated by dividing the detected analyte concentration by the proposed sediment screening level. At each location, the highest ER for the identified analyte or analyte group is shown. ER for non-detect result exceeding screening level(s) not included in ER interpolation.
(2.02) Contaminant Exceedance Ratio (ER)

Notes:
1. Sediment data results are summarized in Table 1.
2. Bathymetric contours referenced to Mean Lower Low Water (MLLW).
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Bathymetry: David Evans and Associates (DEA), 2014. Aerial Imagery - Google Earth, 2015

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

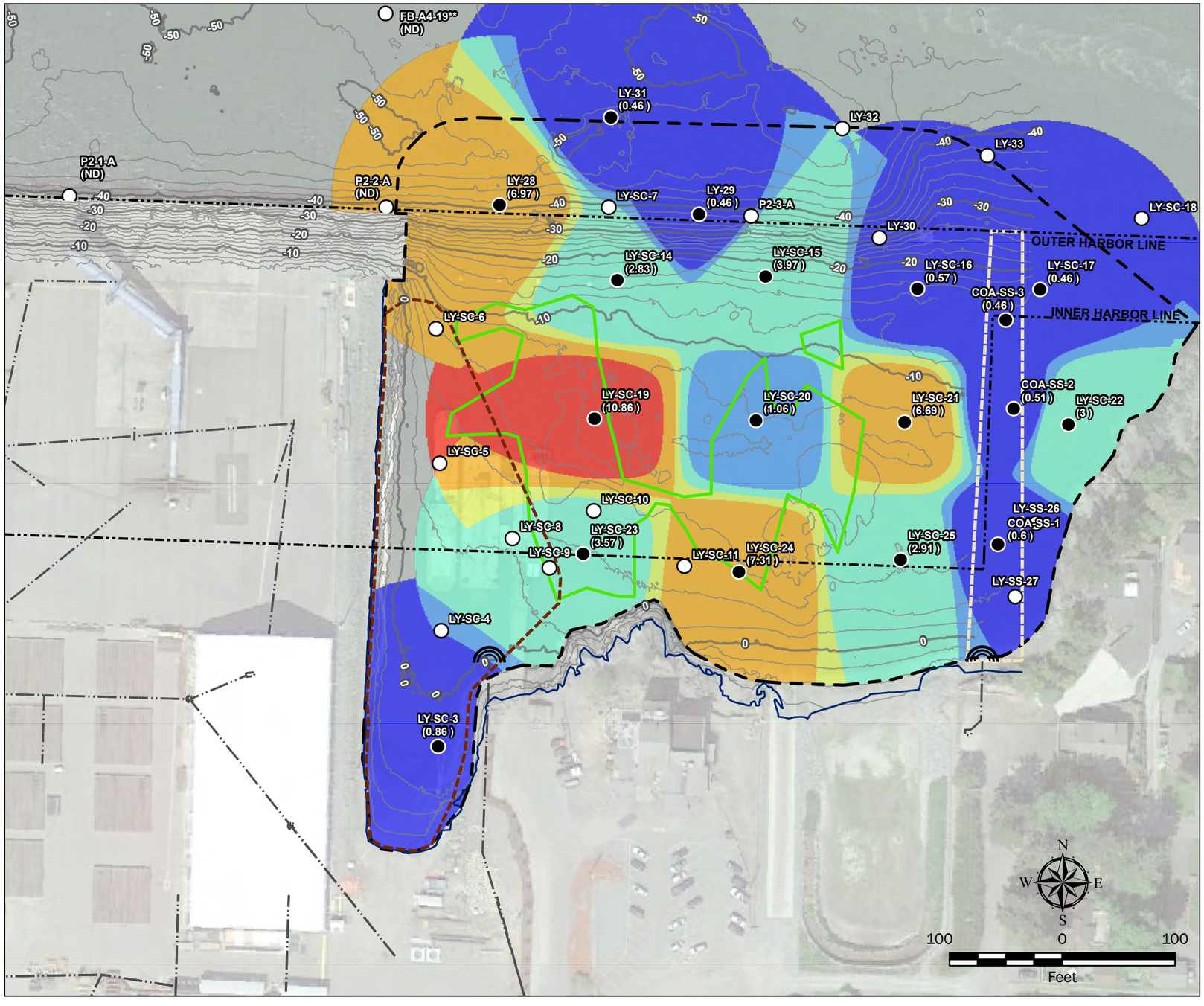
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Summary of Surface PCB Results

Anacortes Port Log Yard
Anacortes, Washington

GeoEngineers

Figure 6



Legend

- Mean Higher High Water (MHHW)
- Eelgrass Boundary (Approximate Extent)
- Observed Wood Debris (Approximate Extent)
- Index Contour (10 ft)
- Contour (2 ft)
- Proposed City of Anacortes Waste Water Treatment Outfall
- Subsurface Sample Location - With Sediment Data
- Subsurface Sample Location - No Sediment Data
- Remedial Action Boundary - Extent of Benthic/ Human Health Contaminants of Concern (COCs) Based on IDW Interpolation, Sediment Stratigraphy and Depositional Environment

Inverse Distance Weighted (IDW) Concentration Gradient of Exceedance Ratio*

- <1
- 1 - 2
- 2 - 4
- 4 - 6
- 6 - 10
- >10

*Exceedance Ratio (ER) calculated by dividing the detected analyte concentration by the proposed sediment screening level. At each location, the highest ER for the identified analyte or analyte group is shown. ER for non-detect result exceeding screening level(s) not included in ER interpolation.
(2.02) Contaminant Exceedance Ratio (ER)

**Surface Sediment Sample Result Representative of the Recent Deposit Layer within Guemes Channel

ND = Non-detect result greater than the cleanup level

Notes:

1. Sediment data results are summarized in Table 1.
2. Bathymetric contours referenced to Mean Lower Low Water (MLLW).
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Bathymetry: David Evans and Associates (DEA), 2014. Aerial Imagery - Google Earth, 2015

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Date Exported: 04/25/23 by maugust

Summary of Subsurface PCB Results

Anacortes Port Log Yard
Anacortes, Washington

GeoEngineers

Figure 7

Attachment 1
Surface Sediment Exploration Logs

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel / Dames & Moore (D&M)

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

GeoEngineers

Figure A-1

Drilled	Start	End	Total Depth (m)	Logged By	Checked By	Driller	Drilling Method
	1/26/2023	1/26/2023	0.13	NS	RST	Gravity	Power Grab

Mudline Elevation (m)	Vertical Datum	Drilling Equipment
-34.7	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (m)	Water Elevation (m)
1210721.11 / 560194.89	WA State Plane,North NAD83 (feet)	1:00:00 PM	39.20	4.5

Notes:

Elevation (meters)	Depth (meters)	FIELD DATA: Interval	Recovered (cm)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		13		LY-28_0-10 LY-Dup-01 CA		SP	Gray fine to medium sand with shell hash and trace silt	NS	ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SS-28

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-2
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (m)	Logged By	Checked By	Driller	Drilling Method
	1/26/2023	1/26/2023	0.16	NS	RST	Gravity	Power Grab

Mudline Elevation (m)	Vertical Datum	Drilling Equipment
-34.7	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (m)	Water Elevation (m)
1210898.01 / 560186.76	WA State Plane,North NAD83 (feet)	11:25:00 AM	41.20	6.5

Notes:

Elevation (meters)	Depth (meters)	FIELD DATA: Interval	Recovered (cm)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		10		LY-29_0-10 CA		SP	Gray to black fine to medium sand with shell hash	NS	ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SS-29

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-3
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (m)	Logged By	Checked By	Driller	Drilling Method
	1/26/2023	1/26/2023	0.14	NS	RST	Gravity	Power Grab

Mudline Elevation (m)	Vertical Datum	Drilling Equipment
-34.7	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (m)	Water Elevation (m)
1211057.79 / 560165.85	WA State Plane,North NAD83 (feet)	11:30:00 AM	41.20	6.5

Notes:

Elevation (meters)	Depth (meters)	FIELD DATA: Interval	Recovered (cm)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		14	↕	LY-30_0-10 / CA		SM	Gray silty fine sand with shell hash		ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SS-30

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-4
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (m)	Logged By	Checked By	Driller	Drilling Method
	1/26/2023	1/26/2023	0.15	NS	RST	Gravity	Power Grab

Mudline Elevation (m)	Vertical Datum	Drilling Equipment
-50.7	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (m)	Water Elevation (m)
1210819.86 / 560272.69	WA State Plane,North NAD83 (feet)	11:25:00 AM	57.20	6.5

Notes:

Elevation (meters)	Depth (meters)	FIELD DATA: Interval	Recovered (cm)	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		15		LY-31_0-10 CA		SP	Light gray fine to medium sand with shell hash		ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SS-31

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-5
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (m)	Logged By	Checked By	Driller	Drilling Method
	1/26/2023	1/26/2023	0.14	NS	RST	Gravity	Power Grab

Mudline Elevation (m)	Vertical Datum	Drilling Equipment
-48.9	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (m)	Water Elevation (m)
1211025.01 / 560262.89	WA State Plane,North NAD83 (feet)	9:40:00 AM	57.50	8.6

Notes:

Elevation (meters)	Depth (meters)	FIELD DATA: Interval	Recovered (cm)	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
-49	0		14		LY-32_0-10 CA		SP-SM	Gray fine to medium sand with silt and shell	NS	ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SS-32

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-6
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (m)	Logged By	Checked By	Driller	Drilling Method
	1/26/2023	1/26/2023	0.12	NS	RST	Gravity	Power Grab

Mudline Elevation (m)	Vertical Datum	Drilling Equipment
-43.8	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (m)	Water Elevation (m)
1211153.74 / 560238.65	WA State Plane,North NAD83 (feet)	10:50:00 AM	51.10	7.3

Notes:

Elevation (meters)	Depth (meters)	FIELD DATA: Interval	Recovered (cm)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		12		LY-33_0-10		SP	Gray fine to coarse sand with trace gravel and shell has	NS	ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SS-33

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-7
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate\LibTemplate\GEOENGINEERS8.GDT\GE18_ENVIRONMENTAL_STANDARD

Attachment 2
Subsurface Sediment Exploration Logs

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel / Dames & Moore (D&M)

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

GeoEngineers

Figure A-1

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/27/2023	1/27/2023	3	NS / RST	Gravity	Vibra-core

Mudline Elevation (ft)	Vertical Datum	Drilling Equipment
-39.2	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (ft)	Water Elevation (ft)
1210723.01 / 560196.23	WA State Plane,North NAD83 (feet)	9:40:00 AM	48.0	8.8

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		30		LY-28_0-1		SP	Dark gray fine to coarse sand with shell fragments and wood chips	SS	ND	
-40					LY-28_1-2						Organic sheen
					CA		SM	Light gray to gray silty fine sand with trace gravel	NS	ND	
					LY-28_2-3						
					CA		SM	Gray silty fine sand	NS	ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SC-28

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-2
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GE18_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/27/2023	1/27/2023	4.5	NS / RST	Gravity	Vibra-core

Mudline Elevation (ft)	Vertical Datum	Drilling Equipment
-37	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (ft)	Water Elevation (ft)
1210893.04 / 560184.26	WA State Plane,North NAD83 (feet)	1:55:00 PM	40.1	3.1

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		43.2		LY-29_0-1		SP	Dark gray to black fine to coarse sand with shell hash and trace wood chips	NS	10	
					LY-29_1-2 CA		SM	Gray silty fine to medium sand	NS	ND	
					LY-29_2-3						
-40					LY-29_3-4		SP	Gray fine sand with clay	NS	ND	

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SC-29

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-3
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate\LibTemplate\GEOENGINEERS8.GDT\GE18_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/27/2023	1/27/2023	3.21	NS / RST	Gravity	Vibra-core

Mudline Elevation (ft)	Vertical Datum	Drilling Equipment
-32.1	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (ft)	Water Elevation (ft)
1211052.45 / 560166.81	WA State Plane,North NAD83 (feet)	2:55:00 PM	34.8	2.7

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		36		LY-30_0-1		SP	Gray to light gray fine to medium sand with trace shell fragments	NS	ND	
					LY-30_1-2 CA						
					LY-30_2-3		SP	Light gray fine sand with clay lenses	NS	ND	
-35											

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SC-30

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-4
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate\LibTemplate\GEOENGINEERS8.GDT\GE18_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/27/2023	1/27/2023	4.5	NS / RST	Gravity	Vibra-core

Mudline Elevation (ft)	Vertical Datum	Drilling Equipment
-48.9	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (ft)	Water Elevation (ft)
1211050.11 / 560162.89	WA State Plane,North NAD83 (feet)	3:30:00 PM	51.4	2.5

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		48		LY-31_0-1		SP	Gray fine to coarse sand with shell fragments	NS	ND	
-50					CA LY-31_1-2		SP-SM	Gray fine sand with silt	NS	ND	
					LY-31_2-3						
					LY-31_3-4						

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SC-31

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-5
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/27/2023	1/27/2023	5	NS / RST	Gravity	Vibra-core

Mudline Elevation (ft)	Vertical Datum	Drilling Equipment
-48.8	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum	Surface Water Time Measured	Depth to Mudline (ft)	Water Elevation (ft)
1211028.23 / 560264.21	WA State Plane,North NAD83 (feet)	4:25:00 PM	51.3	2.5

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		57		LY-32_0-1		SP	Gray fine to coarse sand with shell fragments	NS	ND	
-50					LY-32_1-2		SM	Gray silty fine to medium sand with trace shell fragment pockets	NS	ND	
					LY-32_2-3						
					LY-32_3-4		SM	Gray silty fine sand	NS	ND	
					LY-32_4-5						
	5										

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SC-32

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-6
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	1/27/2023	1/27/2023	3.25	NS	RST	Gravity	Vibra-core

Mudline Elevation (ft)	Vertical Datum	Drilling Equipment
-42.55	MLLW	Research Vehicle Ingalls

Easting (X) / Northing (Y)	Horizontal Datum
1211149.56 / 560231.87	WA State Plane,North NAD83 (feet)

Notes:

Surface Water Time Measured	Depth to Mudline (ft)	Water Elevation (ft)
9:55:00 AM	51.3	8.7

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Wood Content (%)	REMARKS
	0		35.8		LY-33_0-1		SM	Gray silty fine to coarse sand with shell fragments	NS	ND	
					LY-33_1-2		SM	Gray silty fine to medium sand	NS	ND	
-45					LY-33_2-3						

Note: See Figure A-1 for explanation of symbols.

Log of Boring LY-SC-33

GeoEngineers

Project: Anacortes Port Log Yard
Project Location: Anacortes, Washington
Project Number: 5147-016-11

Figure A-7
Sheet 1 of 1

Seattle: Date:4/20/23 Path:C:\USERS\TNASH\ONEDRIVE - GEOENGINEERS, INC\DESKTOP\SED\5147016\10.GPJ DBTemplate/LibTemplate/GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Attachment 3
Laboratory Data Packages

Analytical Resources, LLC
Analytical Chemists and Consultants

22 February 2023

Robert Trahan
GeoEngineers
2101 4th Avenue, Suite 950
Seattle, WA 98121

RE: Anacortes Log Yard

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

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

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

Associated Work Order(s)	Associated SDG ID(s)
23A0626	N/A

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

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

Analytical Resources, LLC

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

Shelly Fishel, Project Manager

Cert# 100006-012

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 23A0626	Turn-around Requested: Standard	Date: 1/30/23	
ARI Client Company: **GeoEngineers**	Phone: **206-728-2674**	Page: 1 of 3	
Client Contact: **Robert Trahan**		No. of Coolers: 1	Cooler Temps: 1.3
Client Project Name: **Anacortes Port Log Yard - Additional Data Gap Sediment Investigating**			
Client Project #: **05147-016-11**	Samplers: **Nathan Solomon**		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	cPAHs (EPA 8270-SIM)	PCBs (EPA 8082)	Hold for Fallow-on Anaylsis									Notes/Comments
					Analysis Requested											
LY-28_0-10	1/26/2023	1300	Sediment	1	x	x										
LY-28_0-1	1/27/2023	1040	Sediment	1			x									
LY-28_1-2	1/27/2023	1045	Sediment	1	x	x										
LY-28_2-3	1/27/2023	1050	Sediment	1			x									
LY-28_0-10	1/26/2023	1125	Sediment	1		x										
LY-29_0-1	1/27/2023	1105	Sediment	1			x									
LY-29_1-2	1/27/2023	1110	Sediment	1		x										
LY-29_2-3	1/27/2023	1115	Sediment	1			x									
LY-29_3-4	1/27/2023	1120	Sediment	1			x									
LY-30_0-10	1/26/2023	1130	Sediment	1	x	x										

Comments/Special Instructions				
	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Nathan Solomon	Printed Name: Jacob Shelte	Printed Name:	Printed Name:
	Company: GeoEngineers Inc.	Company: ARI, LLC	Company:	Company:
	Date & Time: 1/30/2023 13:24	Date & Time: 01/30/23 1324	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 23A0626	Turn-around Requested: **SEE NOTES**	Date: **1/30/23**	
ARI Client Company: **GeoEngineers**	Phone: **206-728-2674**	Page: 2 of 3	
Client Contact: **Robert Trahan**		No. of Coolers: 1	Cooler Temps: 1.7
Client Project Name: **Anacortes Port Log Yard - Additional Data Gap Sediment Investigating**			
Client Project #: **05147-016-11**	Samplers: **Nathan Solomon**		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs (EPA 8270-SIM)	PCBs (EPA 8082)	Hold for Fallow-on Anaylsis									Notes/Comments
LY-30_0-1	1/27/2023	1125	Sediment	1												
LY-30_1-2	1/27/2023	1130	Sediment	1	x											
LY-30_2-3	1/27/2023	1135	Sediment	1			x									
LY-31_0-10	1/26/2023	1125	Sediment	1			x									
LY-31_0-1	1/27/2023	1135	Sediment	1			x									
LY-31_1-2	1/27/2023	1140	Sediment	1			x									
LY-31_2-3	1/27/2023	1145	Sediment	1			x									
LY-31_3-4	1/27/2023	1150	Sediment	1			x									
LY-32_0-10	1/26/2023	940	Sediment	1			x									
LY-32_0-1	1/27/2023	1205	Sediment	1			x									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Nathan Solomon	Printed Name: Jacob Smith	Printed Name:	Printed Name:
	Company: GeoEngineers Inc.	Company: ARI, LLC	Company:	Company:
	Date & Time: 1/30/2023 13:24	Date & Time: 01/30/23 1324	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 23A0626	Turn-around Requested: ***SEE NOTES***	Date: **1/30/23**	
ARI Client Company: **GeoEngineers**	Phone: **206-728-2674**	Page: 3 of 3	
Client Contact: **Robert Trahan**		No. of Coolers: 1	Cooler Temps: 1.3
Client Project Name: **Anacortes Port Log Yard - Additional Data Gap Sediment Investigating**			
Client Project #: **05147-016-11**	Samplers: **Nathan Solomon**		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs (EPA 8270-SIM)	PCBs (EPA 8082)	Hold for Fallow-on Anaylsis									Notes/Comments
LY-32_1-2	1/27/2023	1210	Sediment	1			x									
LY-32_2-3	1/27/2023	1215	Sediment	1			x									
LY-32_3-4	1/27/2023	1220	Sediment	1			x									
LY-32_4-5	1/27/2023	1225	Sediment	1			x									
LY-33_0-10	1/26/2023	1050	Sediment	1			x									
LY-33_0-1	1/27/2023	1230	Sediment	1			x									
LY-33_1-2	1/27/2023	1235	Sediment	1			x									
LY-33_2-3	1/27/2023	1240	Sediment	1			x									
LY-DUP_0-10	1/26/2023	1200	Sediment	1	x	x										
LY-DUP_1-2	1/27/2023	1200	Sediment	1			x									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Nathan Solomon	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: GeoEngineers Inc.	Company: AG, LLC	Company:	Company:
	Date & Time: 1/30/2023 1324	Date & Time: 01/30/23 1324	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: GeoEngineers
Project Name: Anacortes Port Log Yard Data Gap Investigation
COC No(s): _____ (NA)
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Assigned ARI Job No: 23A0626
Tracking No: _____ (NA)

Preliminary Examination Phase:

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

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

Time 1324 — 1.3

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 7a497a8

Cooler Accepted by: JS Date: 01/30/23 Time: 1324

Complete custody forms and attach all shipping documents

Log-In Phase:

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

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

Samples Logged by: JS Date: 01/30/23 Time: _____ Labels checked by: JS

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Client has 2 samples w/ ID "LY-28_0-1d" one sampled @ 1324, the other at 1125. The sample collected at 1125 is actually "LY-29_0-1d" sampled at 1245, will be logged according to sample label.

By: JS Date: 01/30/23

GeoEngineers	Project: Anacortes Log Yard	
2101 4th Avenue, Suite 950	Project Number: 05147-016-11	**Reported:**
Seattle, WA 98121	Project Manager: Robert Trahan	02/22/2023 16:00

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
23A0626-01	LY-28_0-10	Solid	01/26/23 13:00	01/30/23 13:24
23A0626-02	LY-28_0-1	Solid	01/27/23 10:40	01/30/23 13:24
23A0626-03	LY-28_1-2	Solid	01/27/23 10:45	01/30/23 13:24
23A0626-04	LY-28_2-3	Solid	01/27/23 10:50	01/30/23 13:24
23A0626-05	LY-29_0-10	Solid	01/26/23 11:25	01/30/23 13:24
23A0626-06	LY-29_0-1	Solid	01/27/23 11:05	01/30/23 13:24
23A0626-07	LY-29_1-2	Solid	01/27/23 11:10	01/30/23 13:24
23A0626-08	LY-29_2-3	Solid	01/27/23 11:15	01/30/23 13:24
23A0626-09	LY-29_3-4	Solid	01/27/23 11:20	01/30/23 13:24
23A0626-10	LY-30_0-10	Solid	01/26/23 11:30	01/30/23 13:24
23A0626-11	LY-30_0-1	Solid	01/27/23 11:25	01/30/23 13:24
23A0626-12	LY-30_1-2	Solid	01/27/23 11:30	01/30/23 13:24
23A0626-13	LY-30_2-3	Solid	01/27/23 11:35	01/30/23 13:24
23A0626-14	LY-31_0-10	Solid	01/26/23 11:25	01/30/23 13:24
23A0626-15	LY-31_0-1	Solid	01/27/23 11:35	01/30/23 13:24
23A0626-16	LY-31_1-2	Solid	01/27/23 11:40	01/30/23 13:24
23A0626-17	LY-31_2-3	Solid	01/27/23 11:45	01/30/23 13:24
23A0626-18	LY-31_3-4	Solid	01/27/23 11:50	01/30/23 13:24
23A0626-19	LY-32_0-10	Solid	01/26/23 09:40	01/30/23 13:24
23A0626-20	LY-32_0-1	Solid	01/27/23 12:05	01/30/23 13:24
23A0626-21	LY-32_1-2	Solid	01/27/23 12:10	01/30/23 13:24
23A0626-22	LY-32_2-3	Solid	01/27/23 12:15	01/30/23 13:24
23A0626-23	LY-32_3-4	Solid	01/27/23 12:20	01/30/23 13:24
23A0626-24	LY-32_4-5	Solid	01/27/23 12:25	01/30/23 13:24
23A0626-25	LY-33_0-10	Solid	01/26/23 10:50	01/30/23 13:24
23A0626-26	LY-33_0-1	Solid	01/27/23 12:30	01/30/23 13:24
23A0626-27	LY-33_1-2	Solid	01/27/23 12:35	01/30/23 13:24
23A0626-28	LY-33_2-3	Solid	01/27/23 12:40	01/30/23 13:24
23A0626-29	LY-DUP_0-10	Solid	01/26/23 12:00	01/30/23 13:24
23A0626-30	LY-DUP_1-2	Solid	01/27/23 12:00	01/30/23 13:24

GeoEngineers	Project: Anacortes Log Yard	
2101 4th Avenue, Suite 950	Project Number: 05147-016-11	**Reported:**
Seattle WA, 98121	Project Manager: Robert Trahan	22-Feb-2023 16:00

Case Narrative

Client: GeoEngineers
Project: Anacortes Log Yard
Project Number: 05147-016-11
Work Order: 23A0626

Sample receipt

Sample(s) as listed on the preceding page were received 30-Jan-2023 13:24 under ARI work order 23A0626. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except internal standard Hexabromobiphenyl which was out of control high in the continuing calibration verification on column zb-5. Data reported from passing column zb-35.

Internal standard areas were within limits except as explained above.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Aroclor 1260 percent recovery which was out of control high in the blank spike duplicate. The deviation has been flagged.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

The reference material (SRM) percent recoveries were within control limits.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Dibenzo(a,h)anthracene-d14 which was out of control high in samples 23A0626-01 and 23A0626-03 as well as the blank and blank spike which were out of control high. The deviations have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D1	Surrogate was not detected due to sample extract dilution
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Analytical Resources, LLC
Analytical Chemists and Consultants

LY-28_0-10

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23A0626-01 A	SDG:	23A0626
Sampled:	01/26/23 13:00	Prepared:	02/07/23 17:05	File ID:	N823021532.D
% Solids:	81.95	Preparation:	EPA 3546 (Microwave)	Analyzed:	02/16/23 01:39
Batch:	BLB0144	Sequence:	SLB0206	Initial/Final:	12.8 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	GPC, Silica Gel				

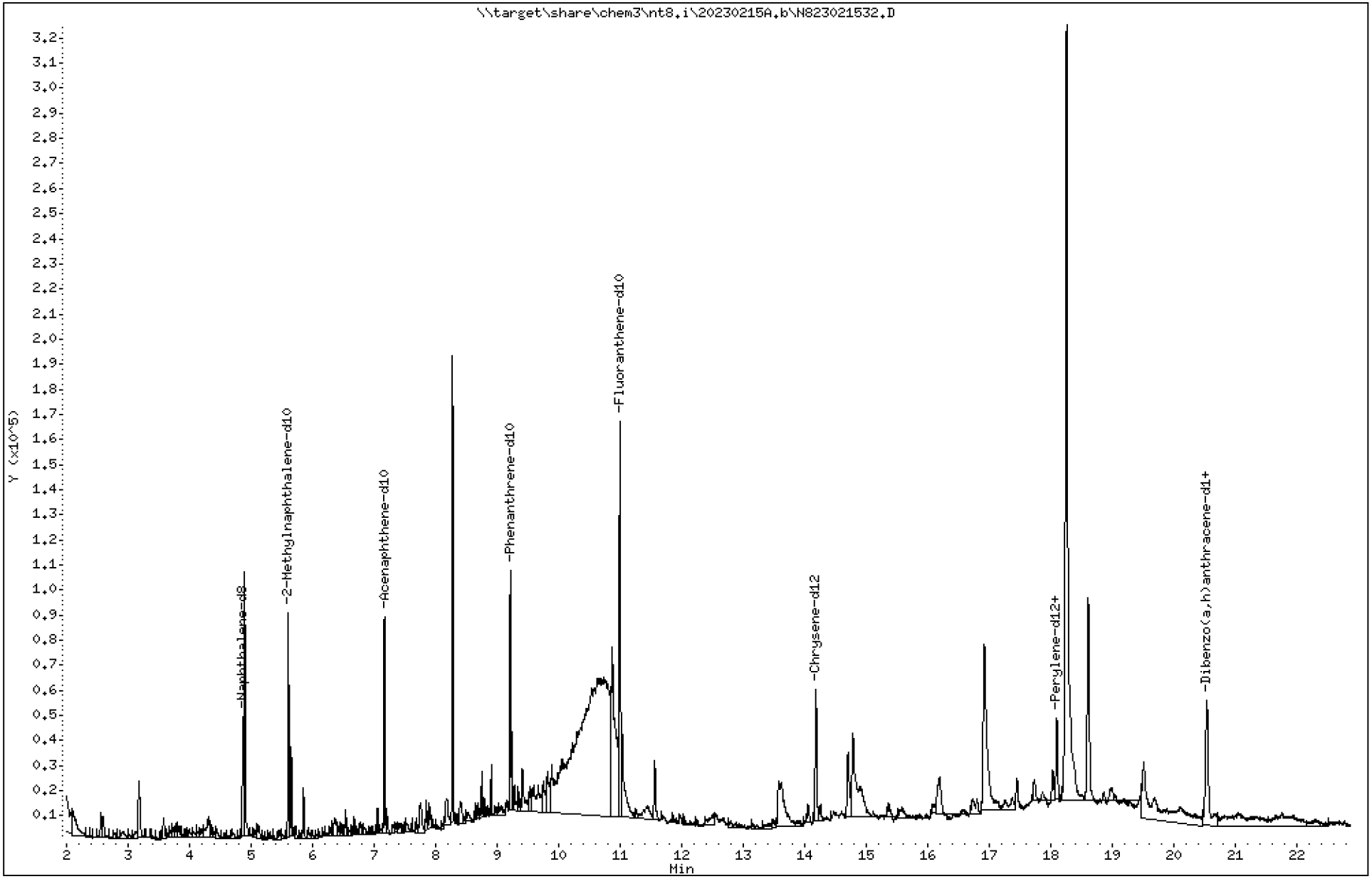
CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	11.2		0.79	4.77
218-01-9	Chrysene	1	11.9		1.00	4.77
205-99-2	Benzo(b)fluoranthene	1	9.33		1.31	4.77
207-08-9	Benzo(k)fluoranthene	1	4.12	J	0.72	4.77
50-32-8	Benzo(a)pyrene	1	11.4		0.59	4.77
193-39-5	Indeno(1,2,3-cd)pyrene	1	5.35		1.00	4.77
53-70-3	Dibenzo(a,h)anthracene	1	2.83	J	0.85	4.77
191-24-2	Benzo(g,h,i)perylene	1	9.15		1.02	4.77

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	143.00	140	98.2	32 - 120	
Dibenzo[a,h]anthracene-d14	143.00	223	156	21 - 133	*
Fluoranthene-d10	143.00	183	128	36 - 134	

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Date : 16-FEB-2023 01:39
Client ID:
Sample Info: 23A0626-01

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23A0626 02/22/2023 Page 10 of 1233

Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021532.D

Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

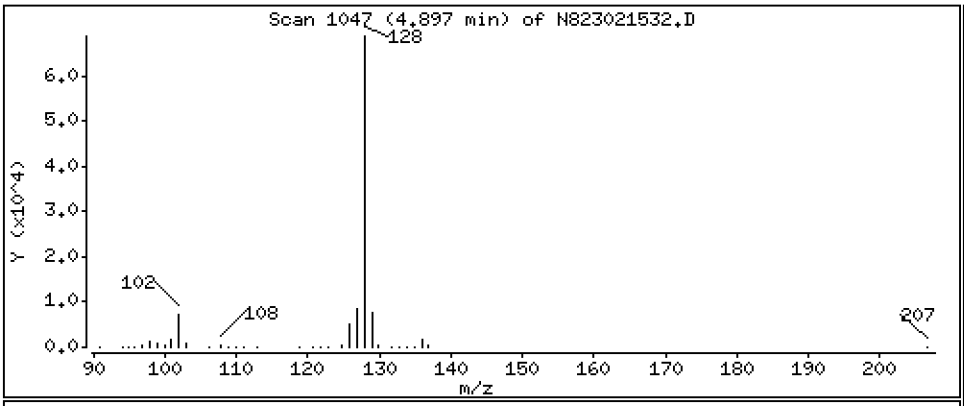
Operator: JZ

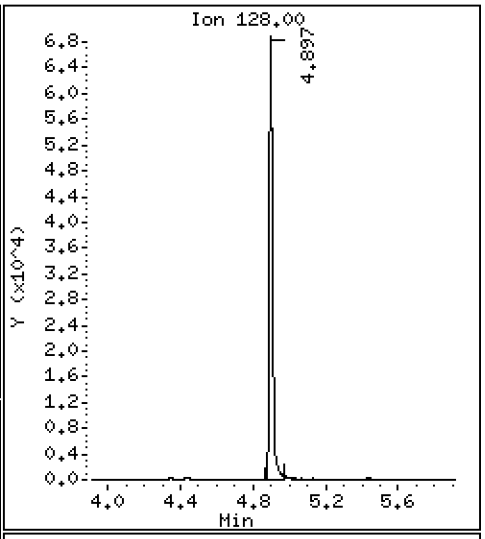
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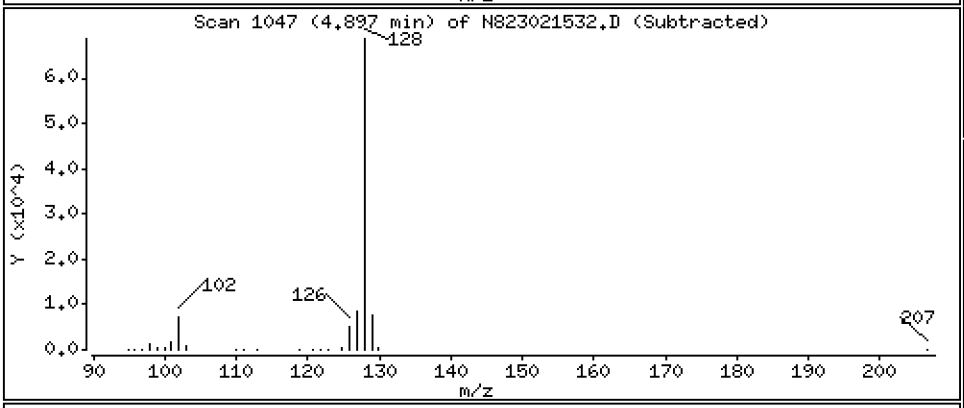
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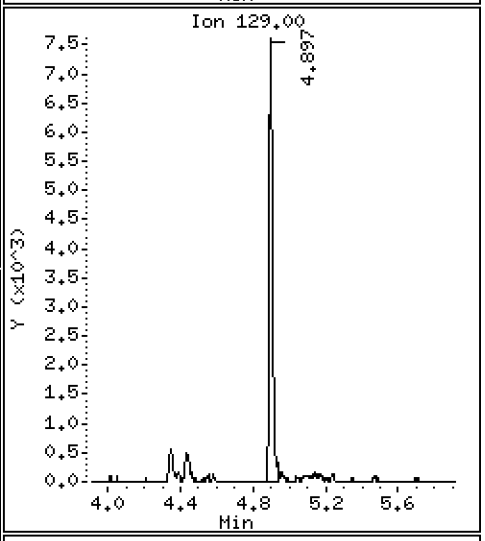
2 Naphthalene

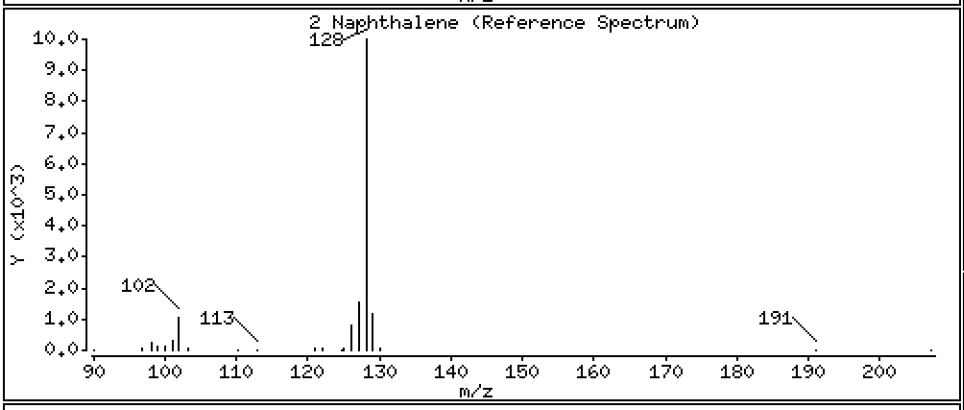
Concentration: 4.501 ug/mL

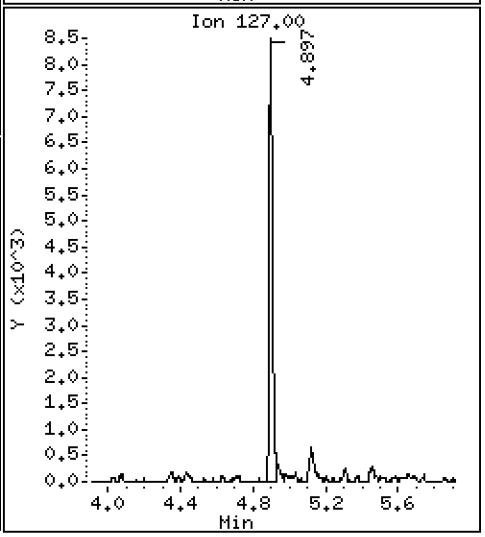


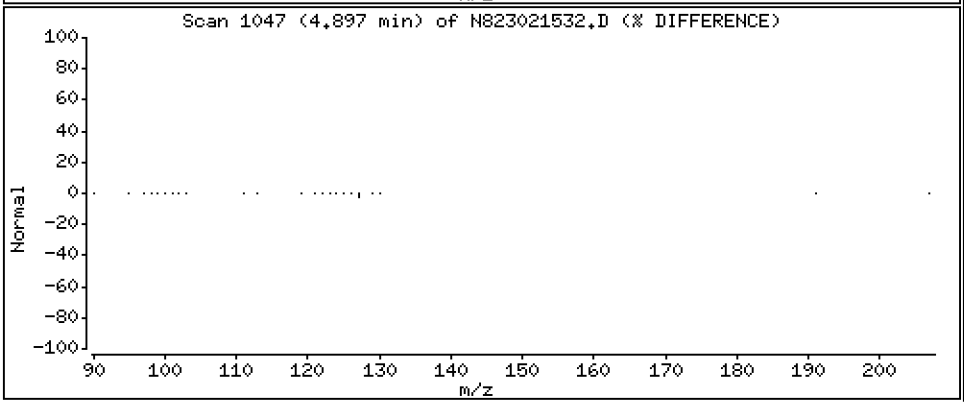












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021532.D

Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

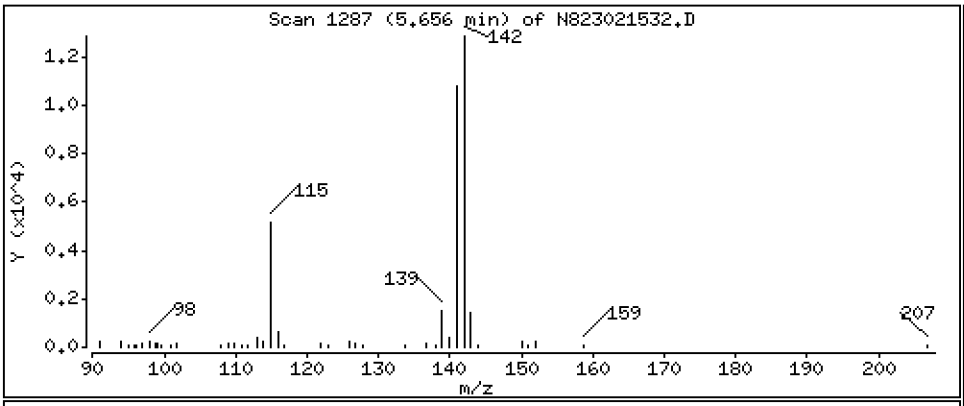
Operator: JZ

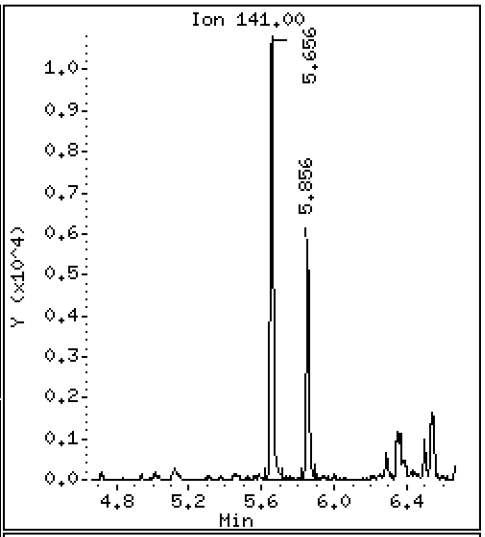
Column phase: Rxi-17sil

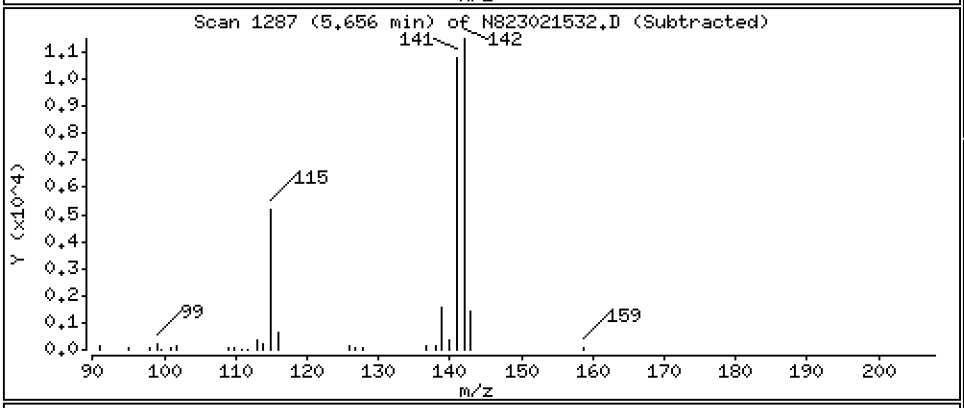
Column diameter: 0.25

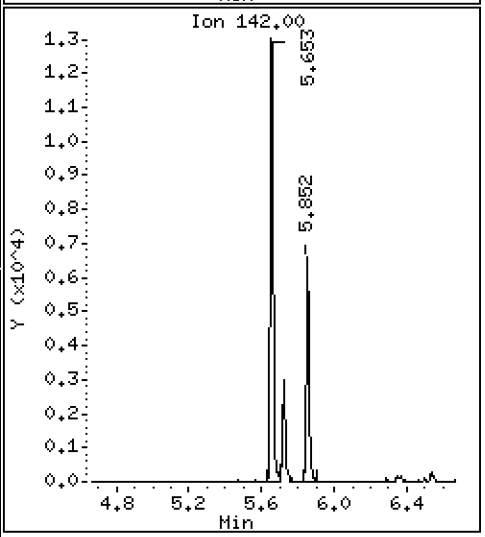
4 2-Methylnaphthalene

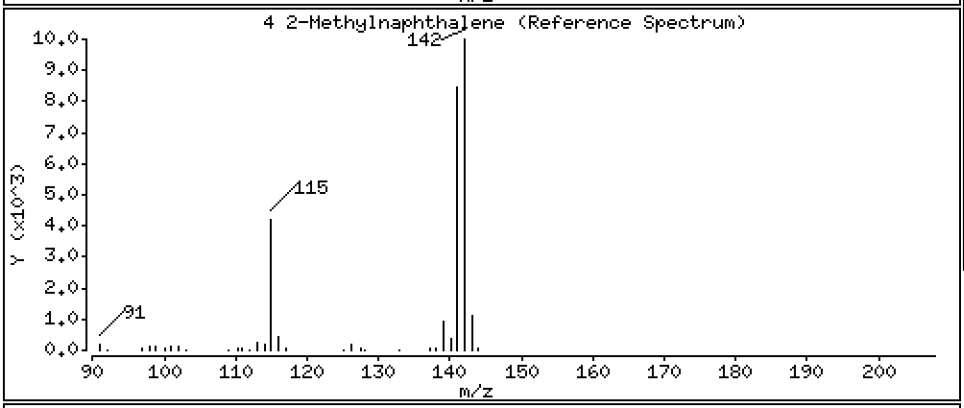
Concentration: 1.162 ug/mL

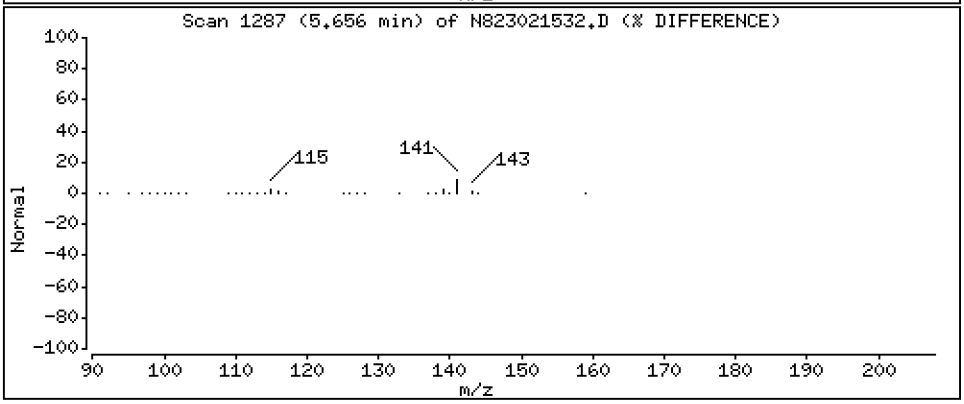












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Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

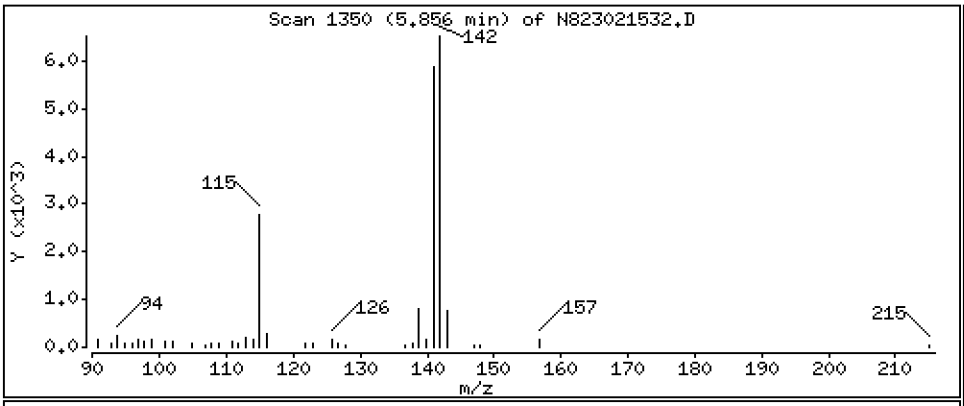
Operator: JZ

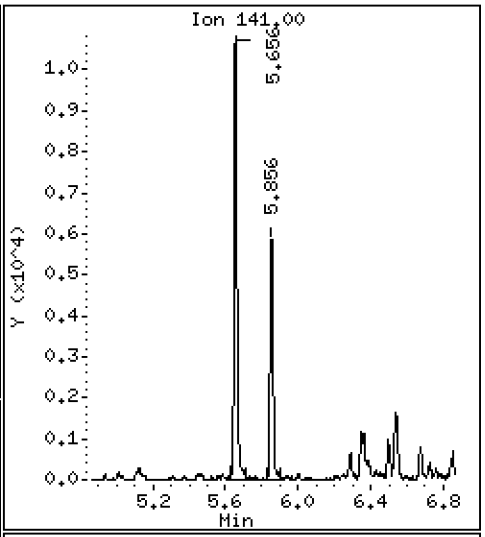
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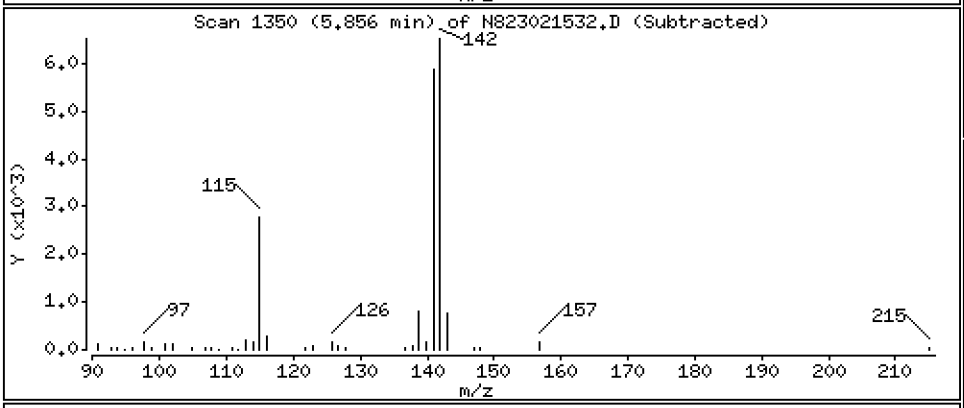
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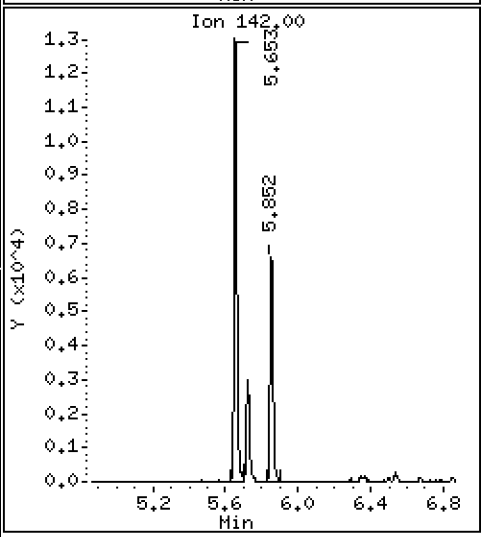
5 1-methylnaphthalene

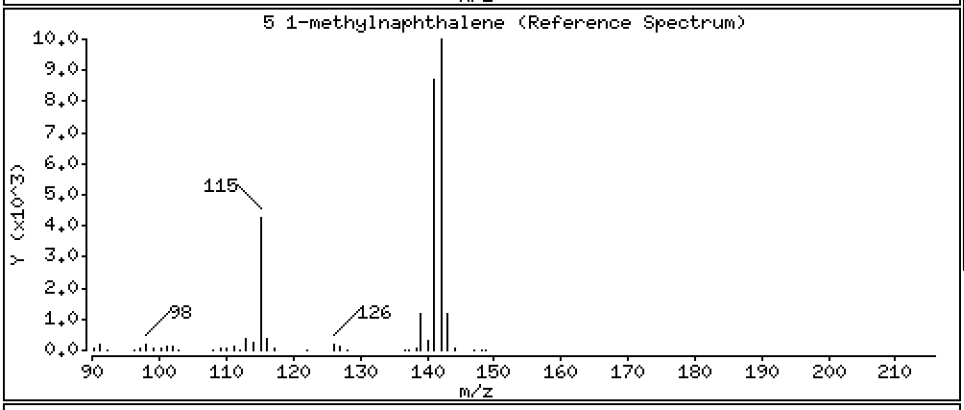
Concentration: 0.6204 ug/mL

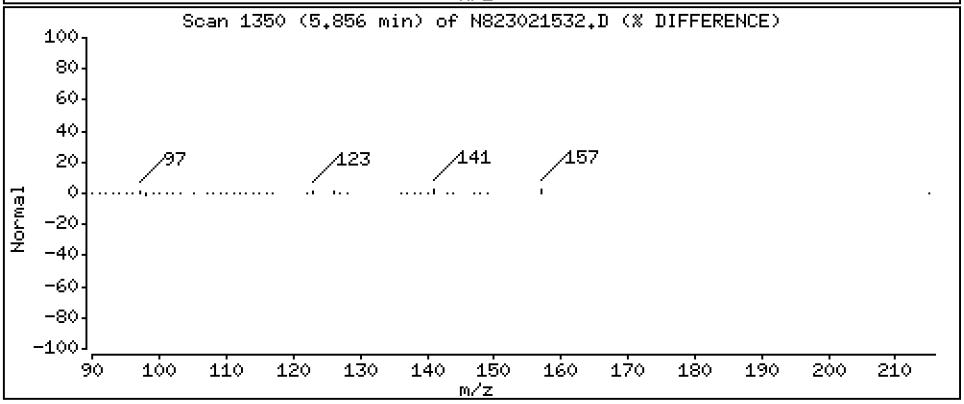












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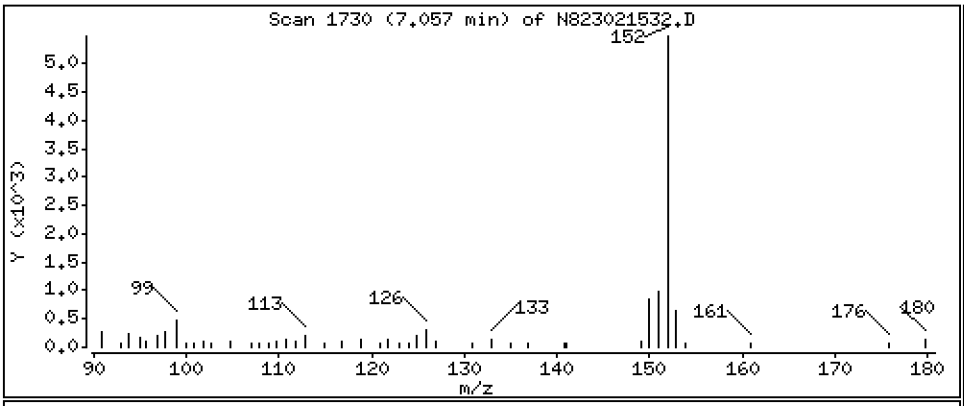
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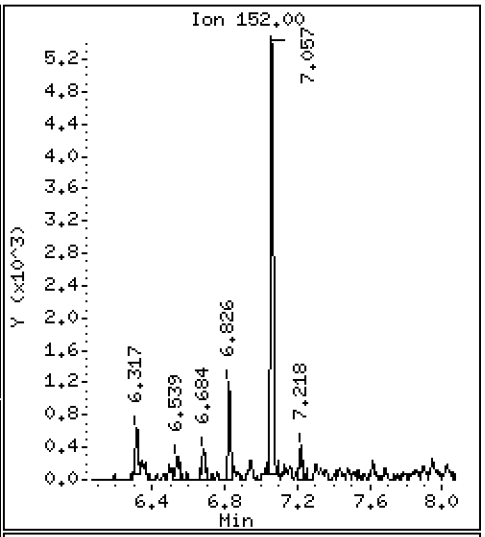
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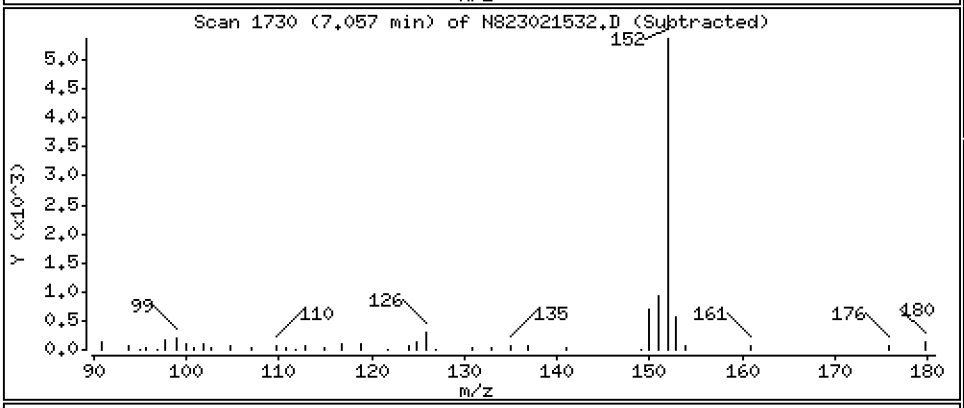
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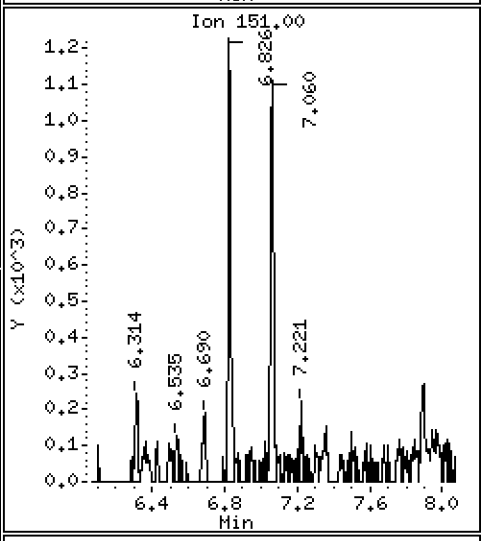
9 Acenaphthylene

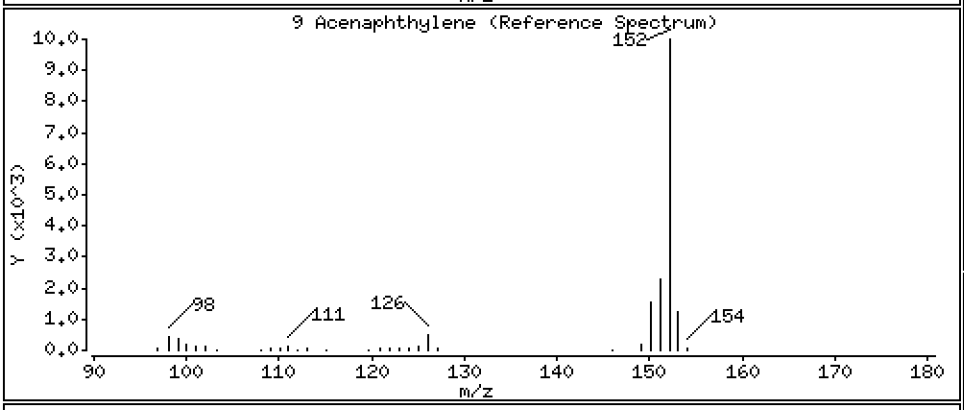
Concentration: 0.2926 ug/mL

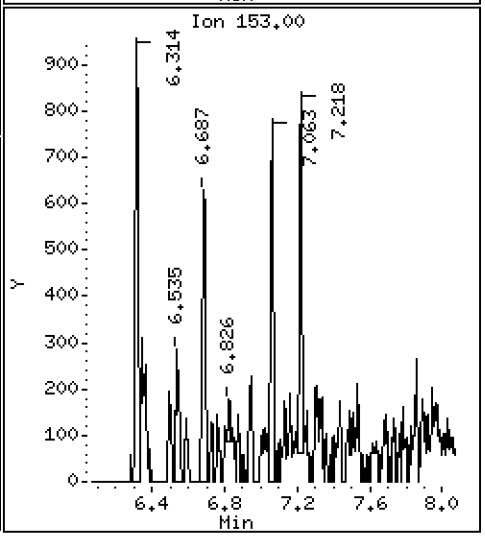


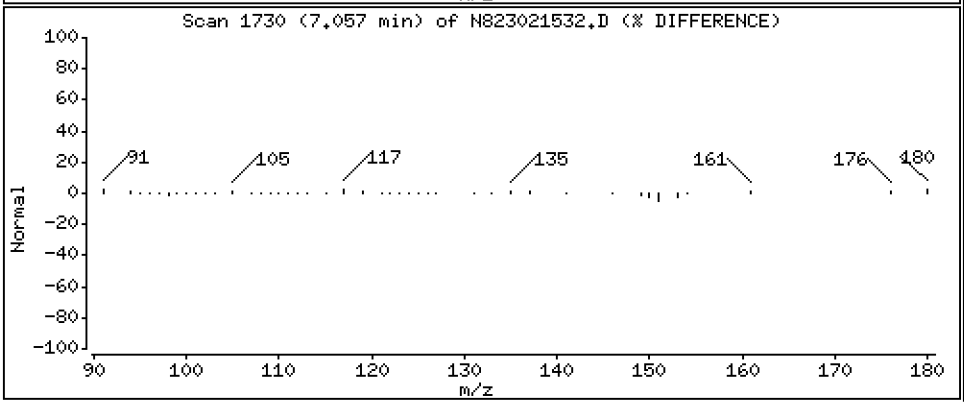












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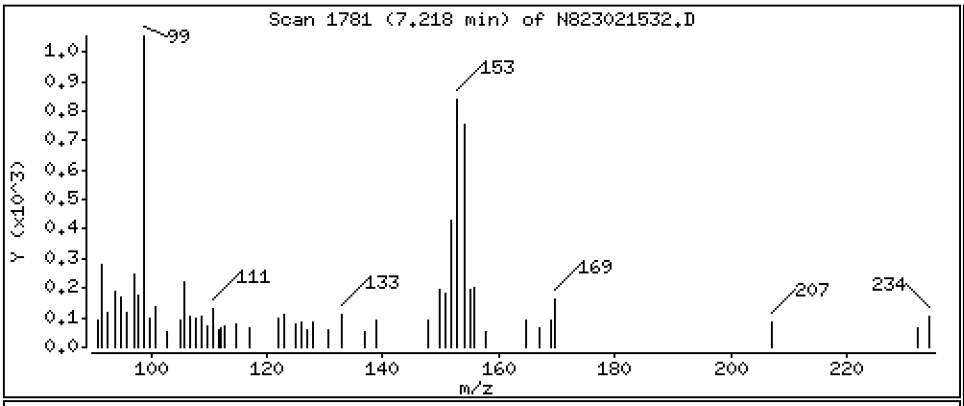
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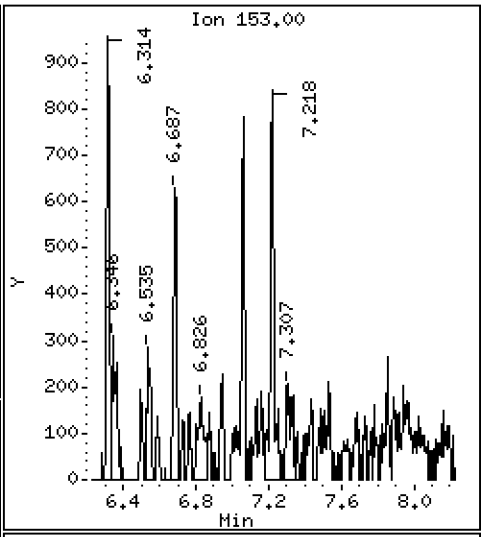
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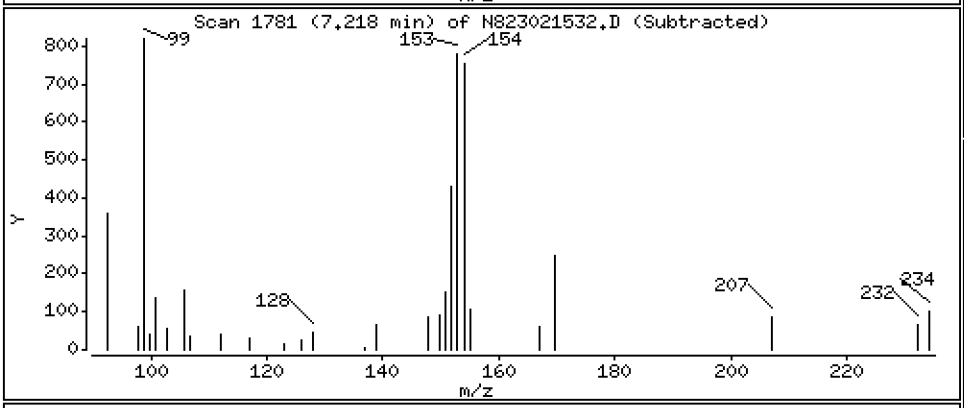
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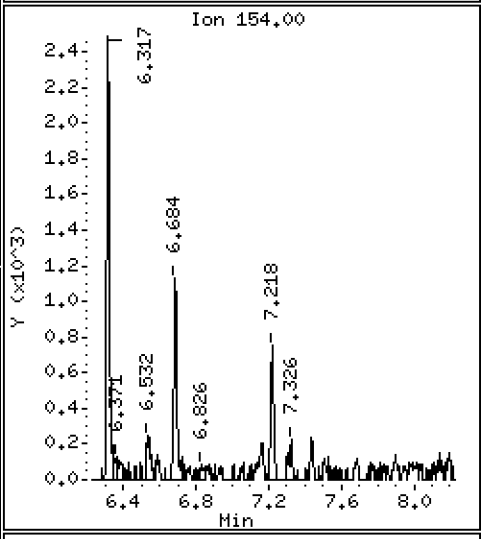
11 Acenaphthene

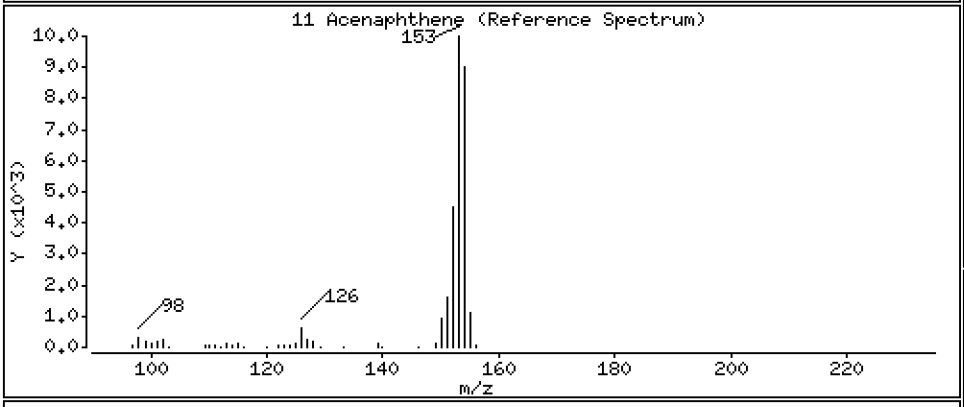
Concentration: 0.08747 ug/mL

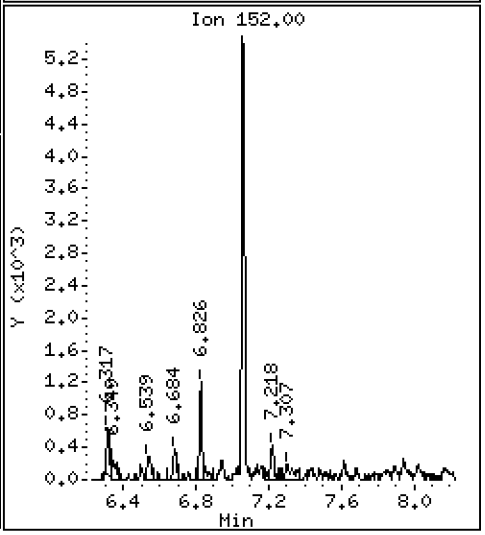


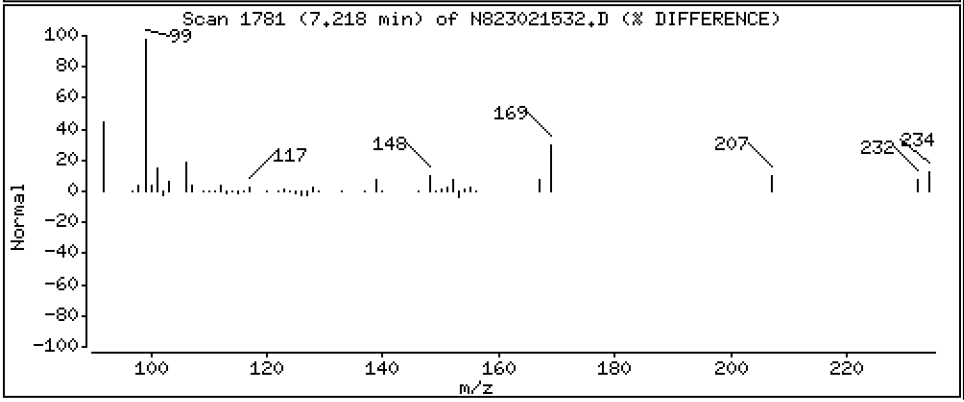












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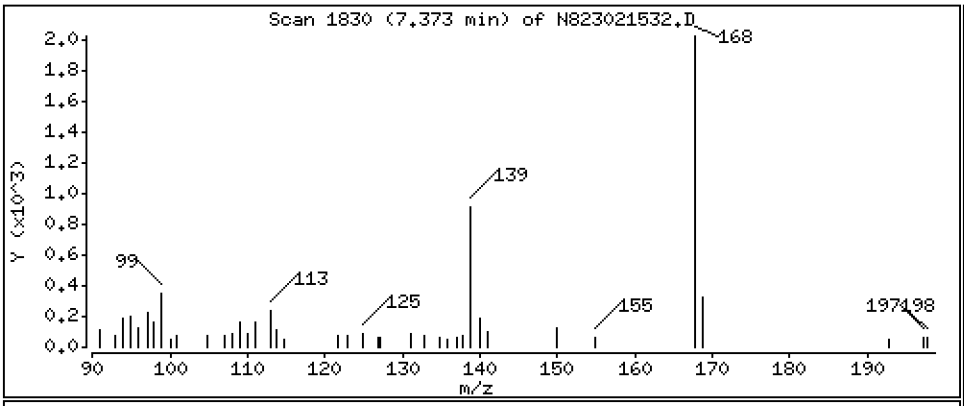
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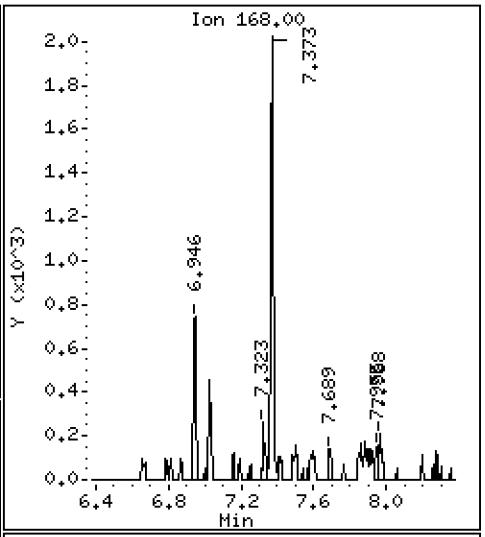
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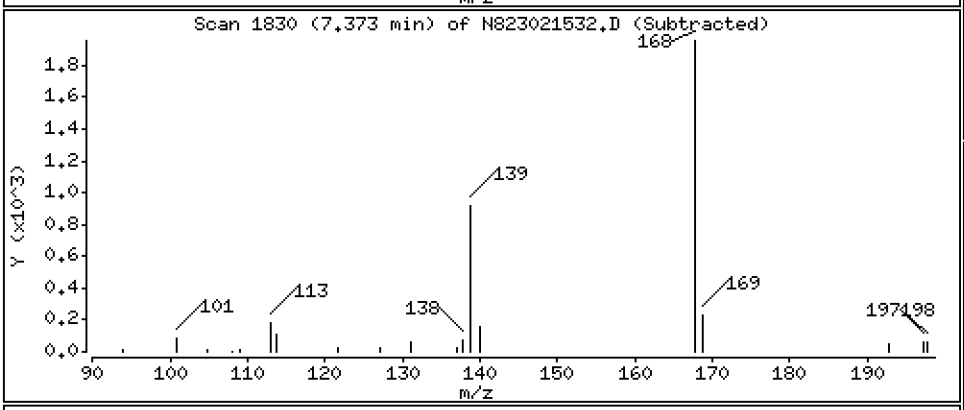
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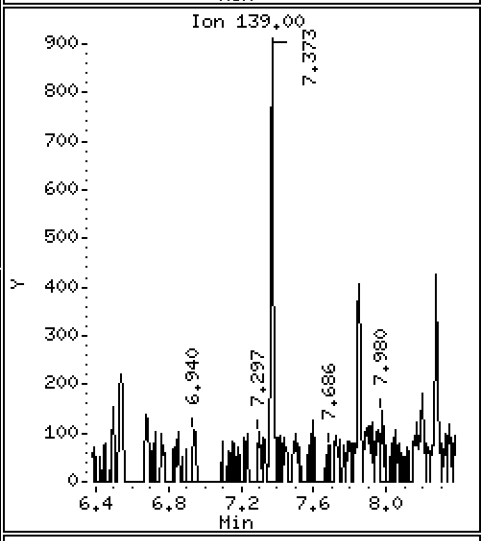
12 Dibenzofuran

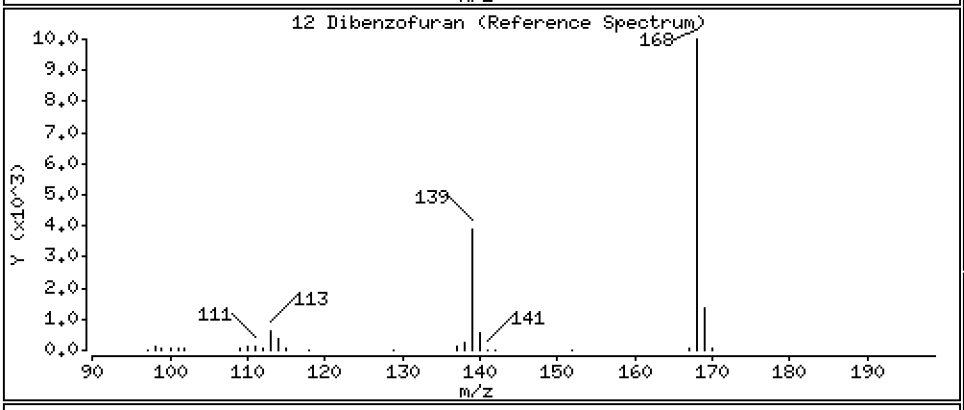
Concentration: 0.1136 ug/mL

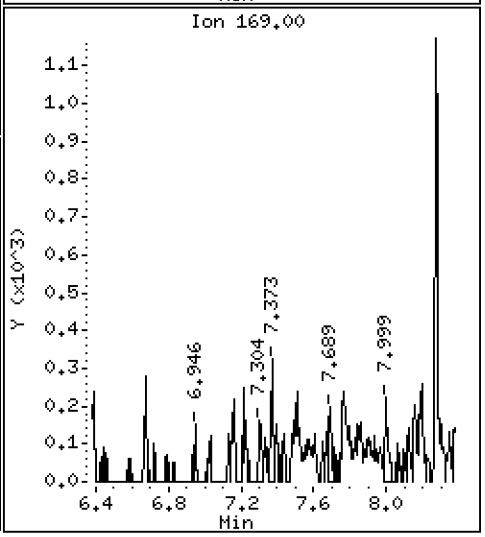


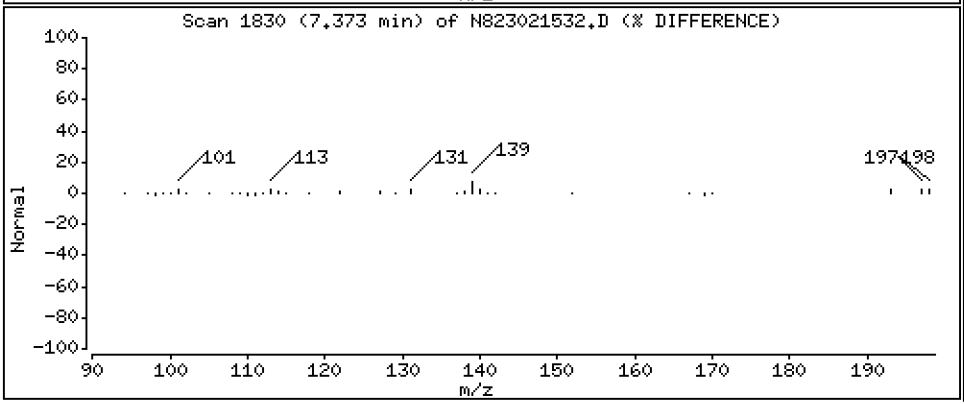












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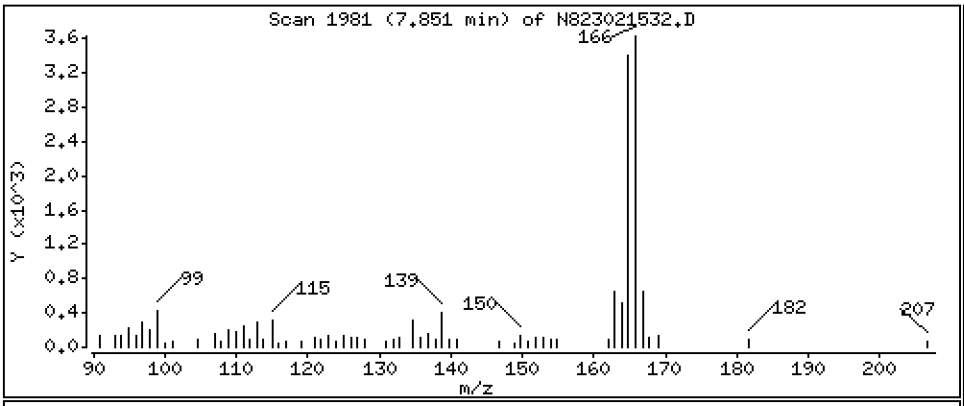
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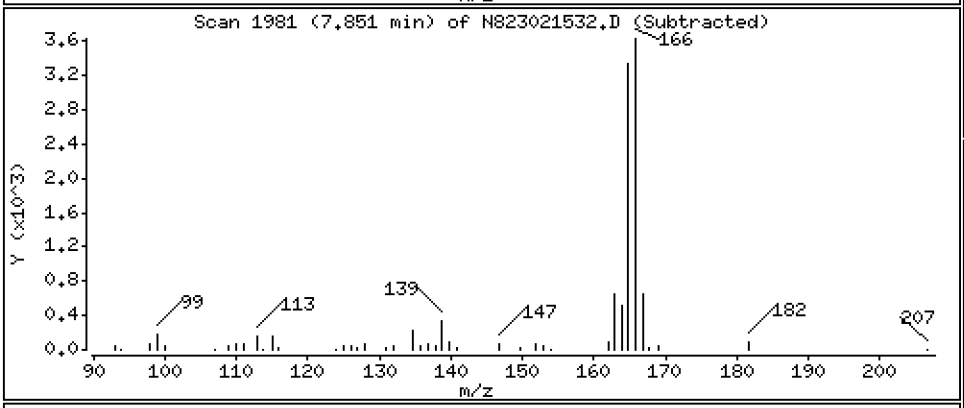
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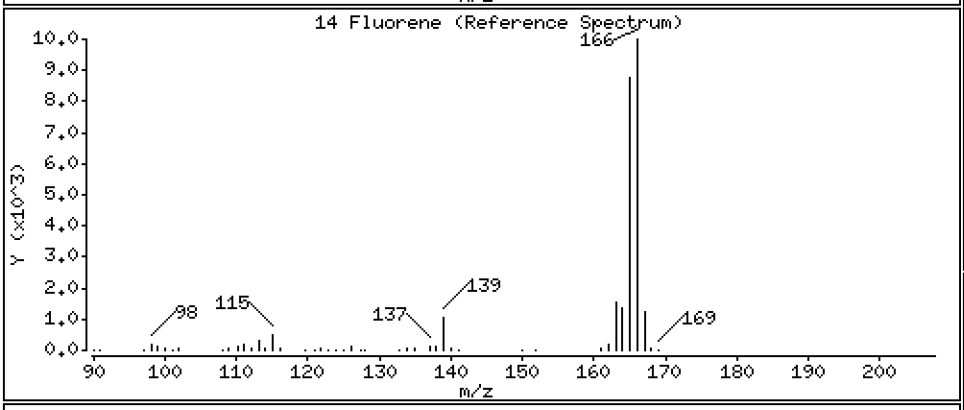
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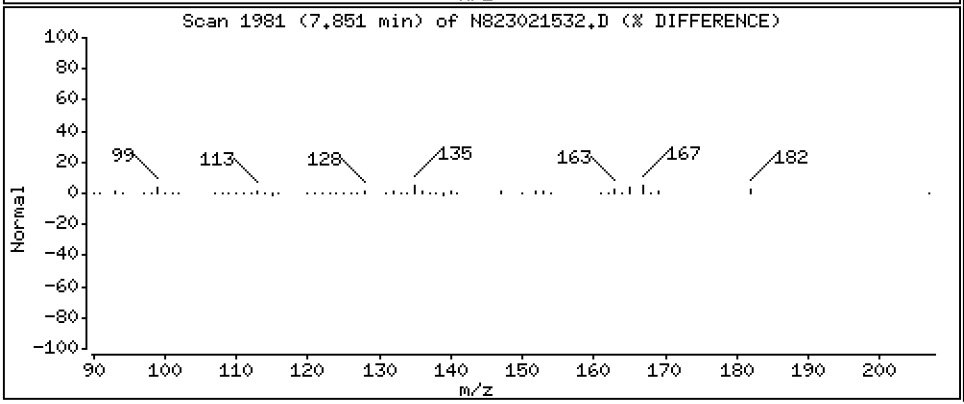
14 Fluorene

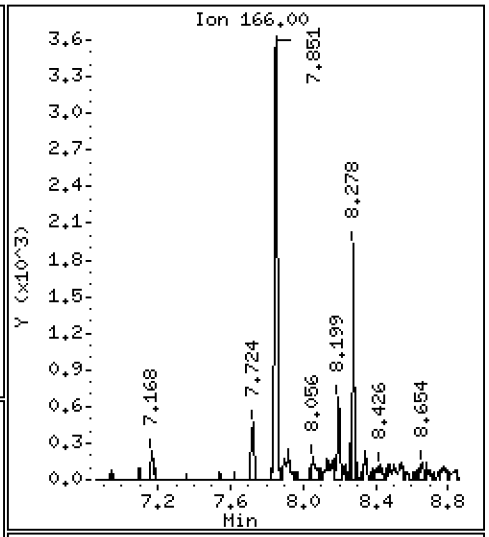
Concentration: 0.2476 ug/mL

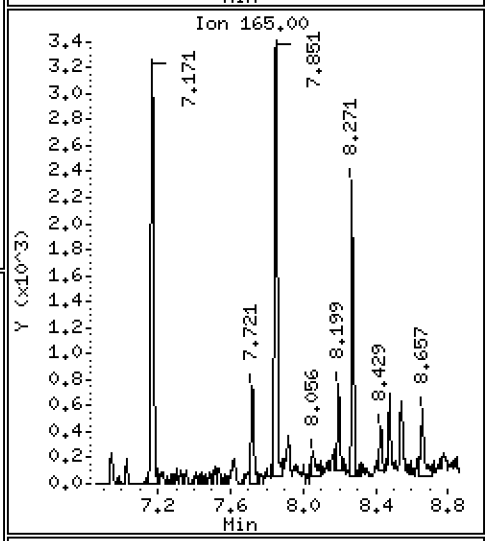


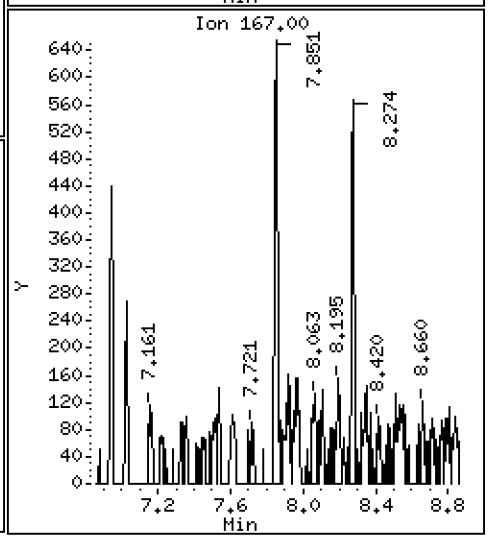












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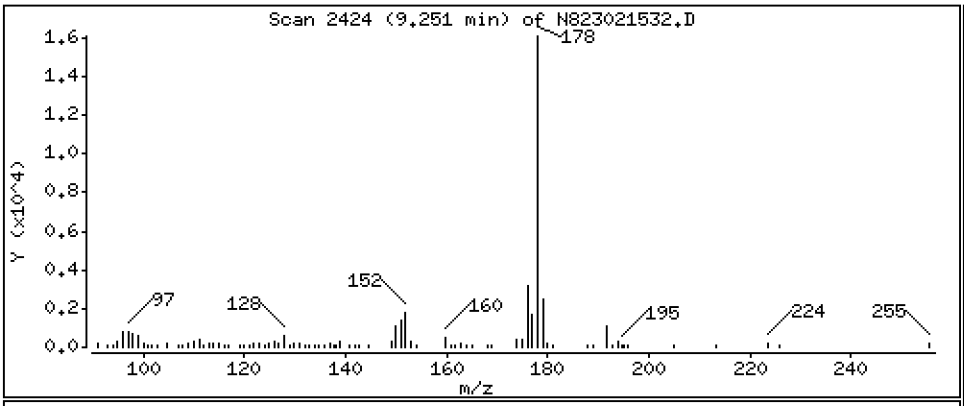
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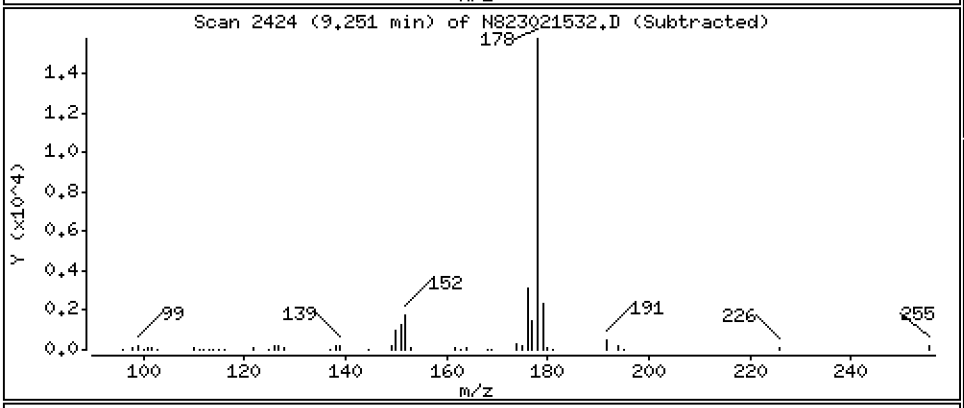
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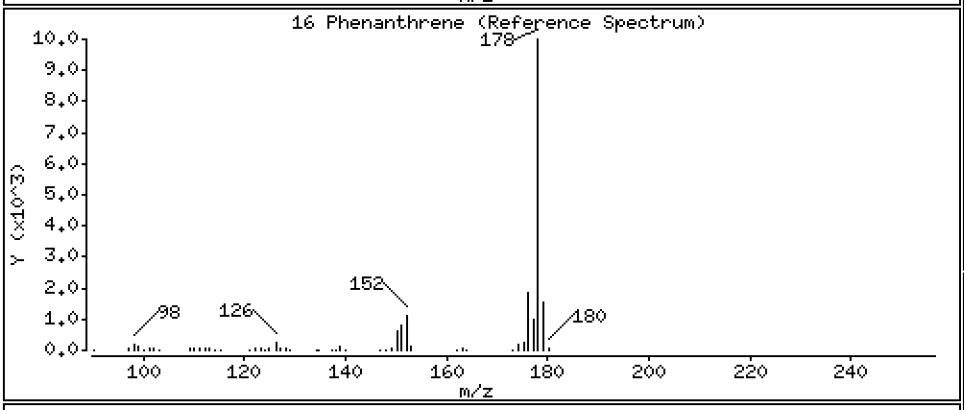
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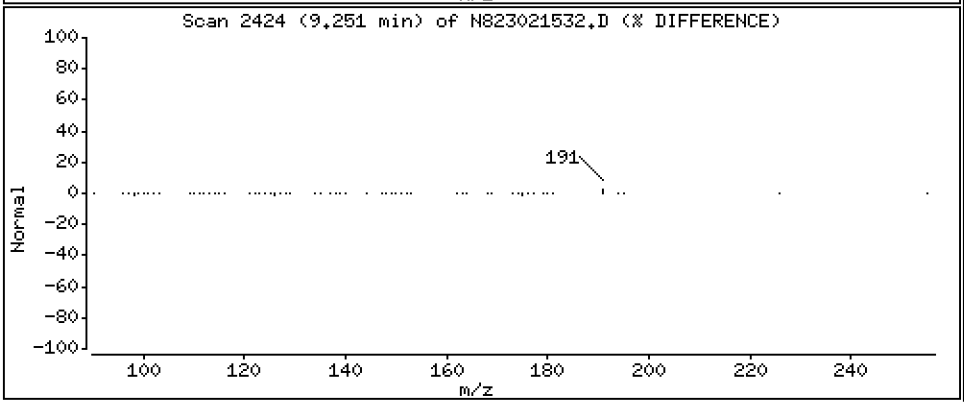
16 Phenanthrene

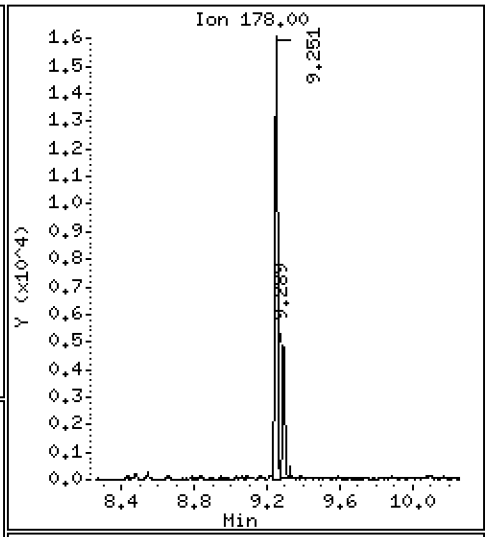
Concentration: 0.6795 ug/mL

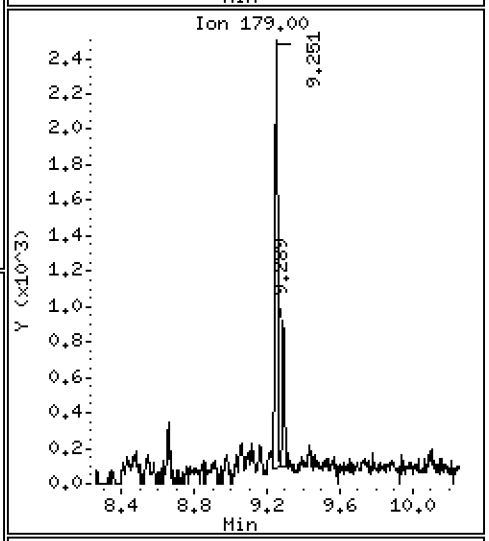


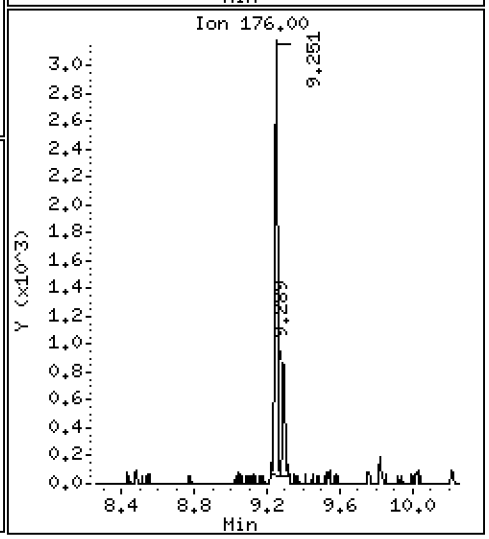












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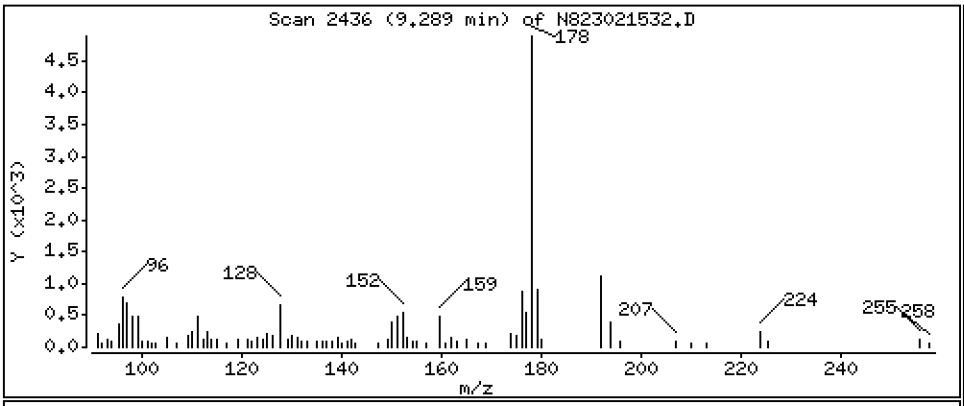
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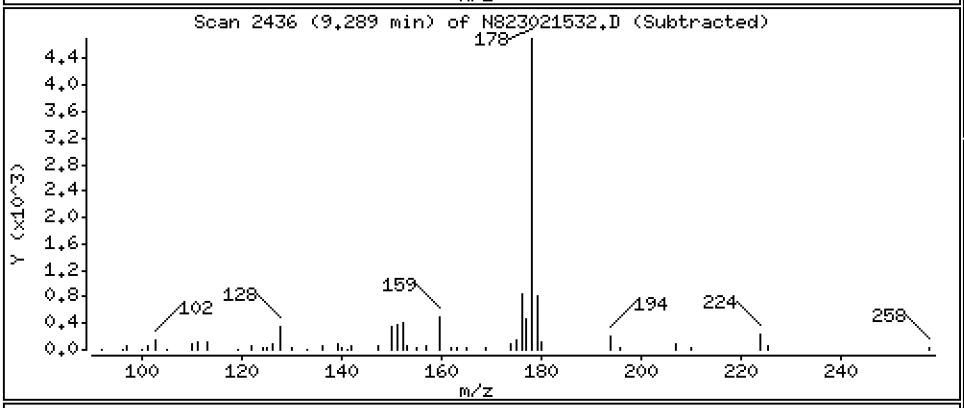
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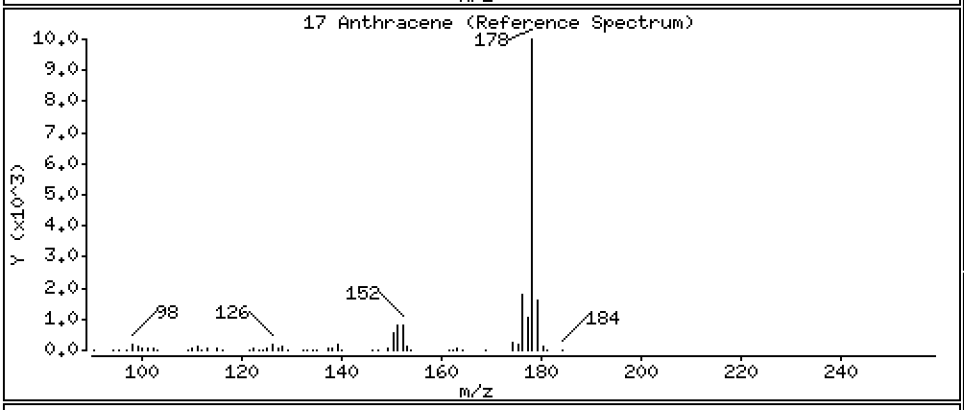
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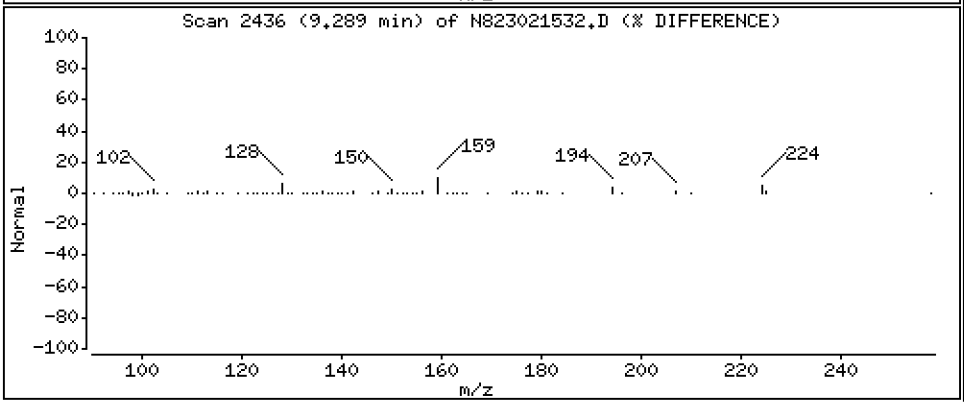
17 Anthracene

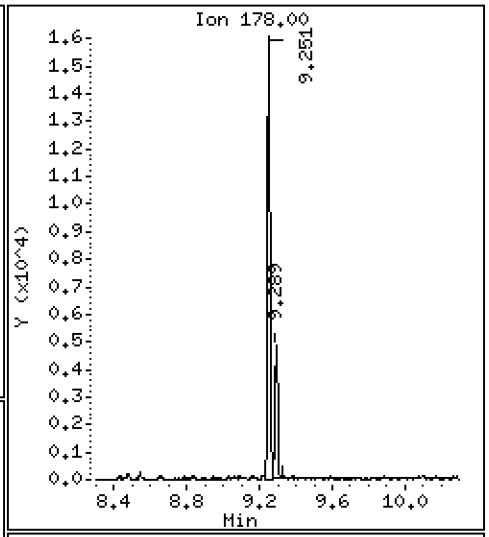
Concentration: 0.2417 ug/mL

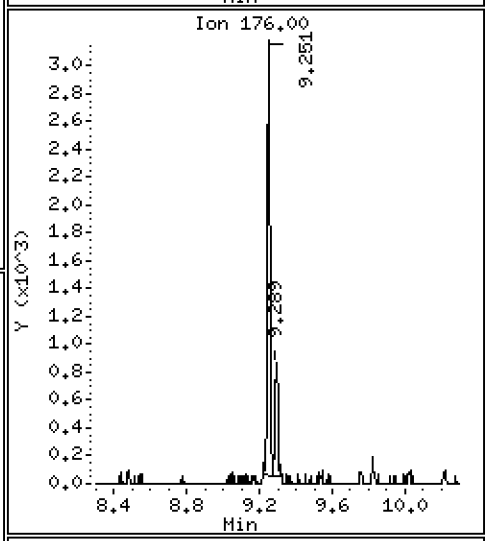


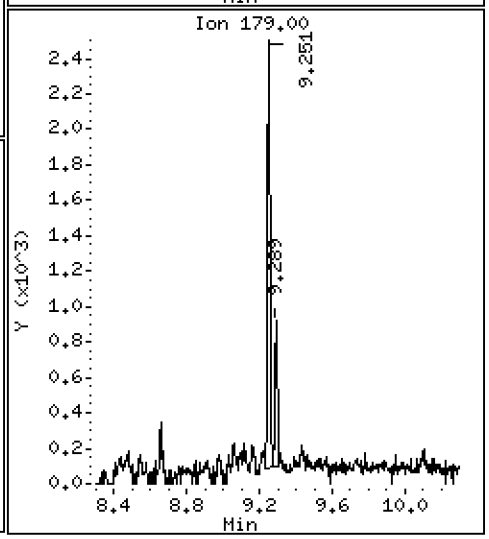












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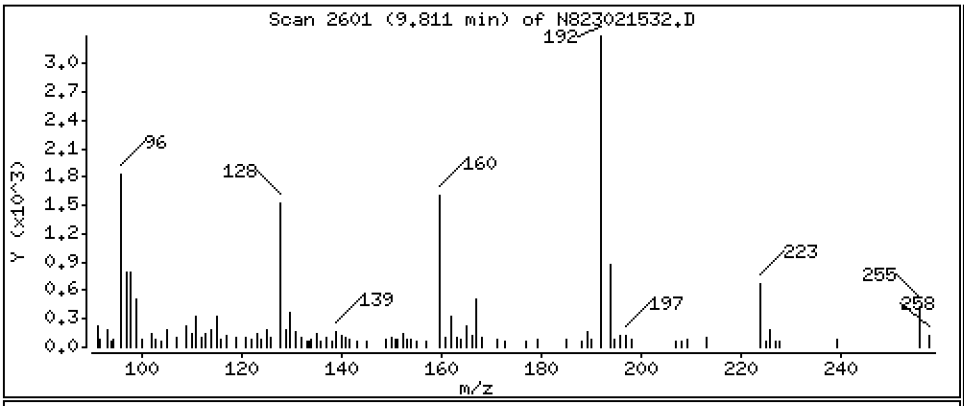
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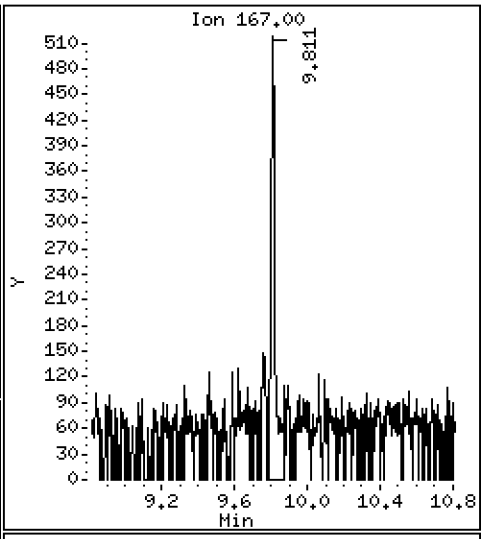
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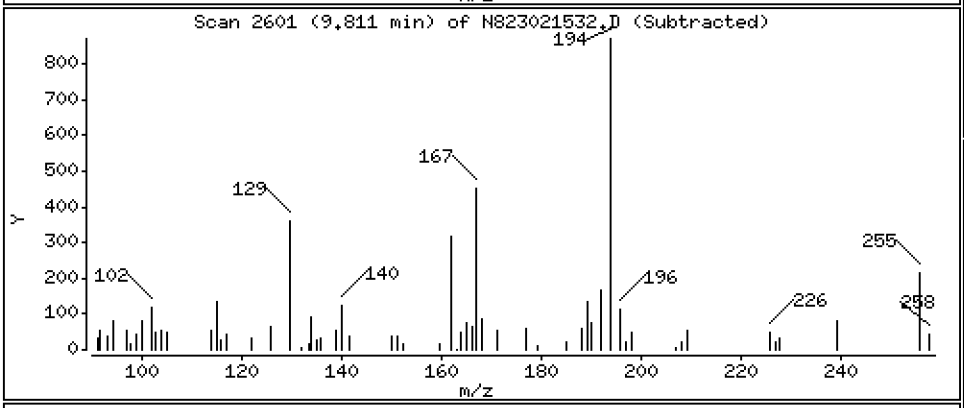
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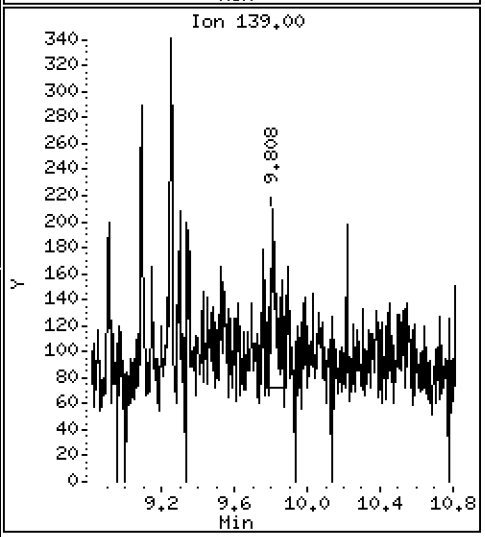
19 Carbazole

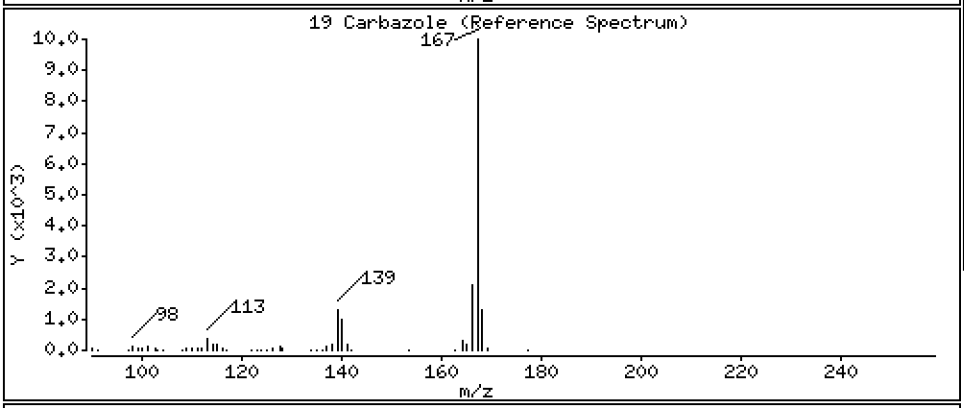
Concentration: 0.04419 ug/mL

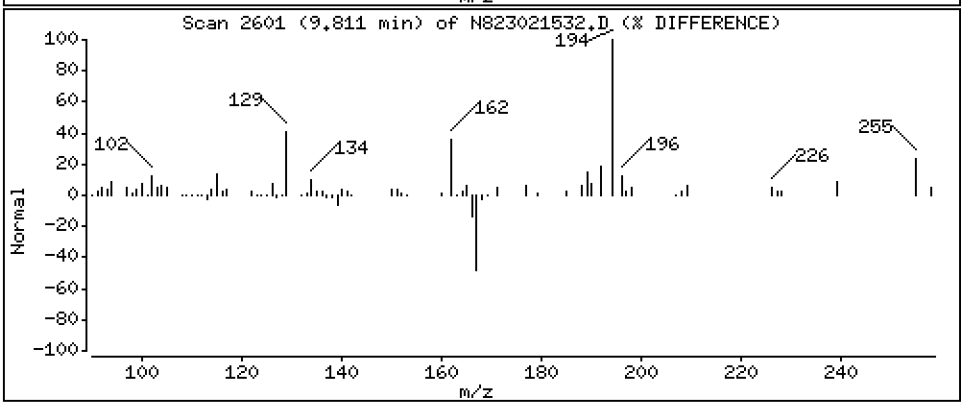












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Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

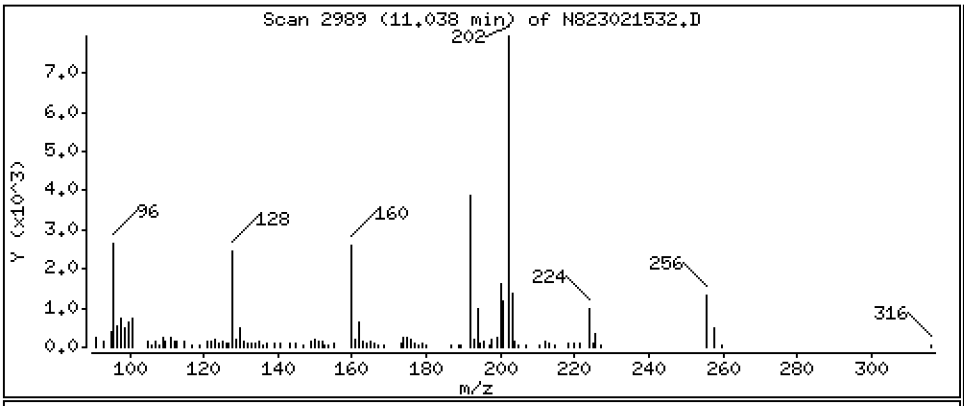
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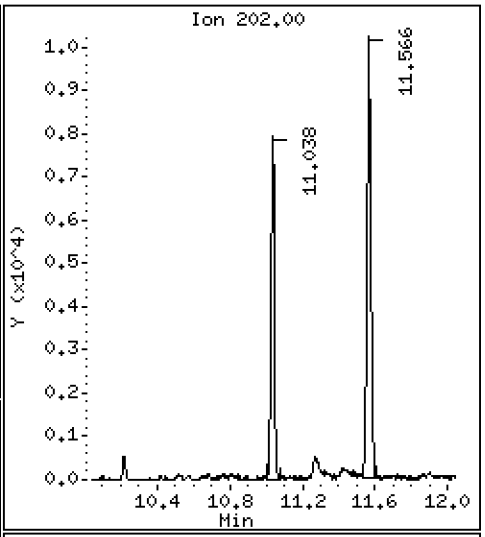
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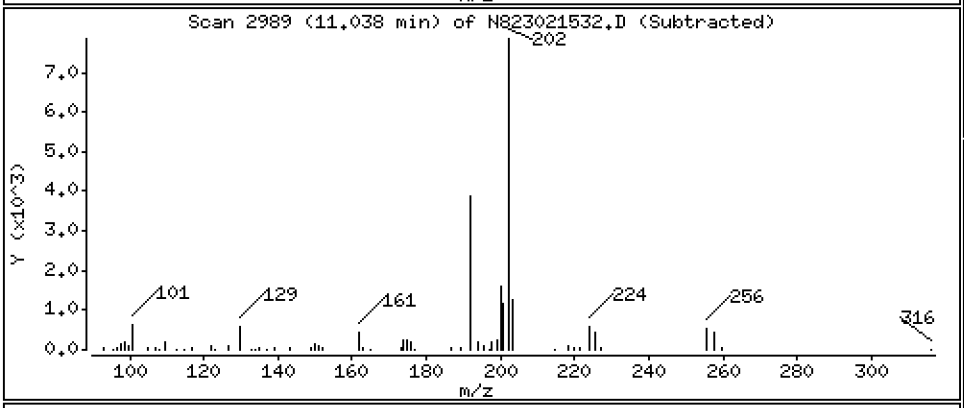
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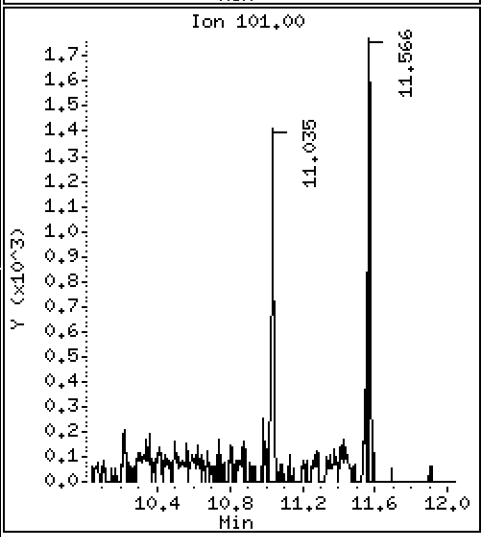
22 Fluoranthene

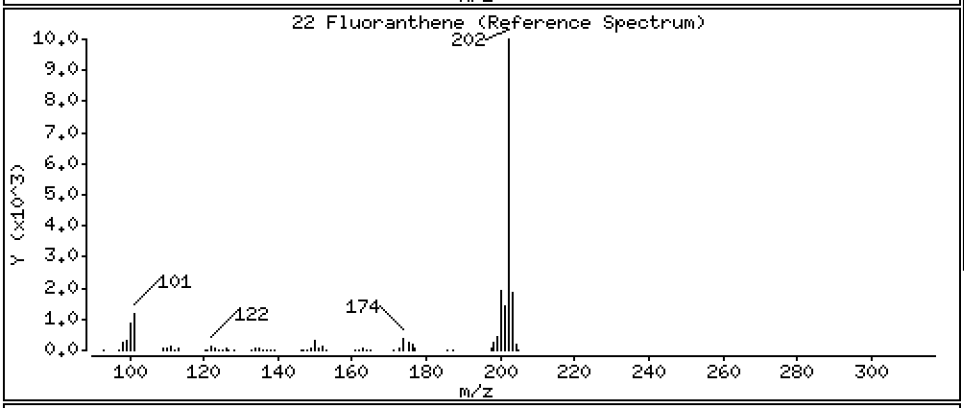
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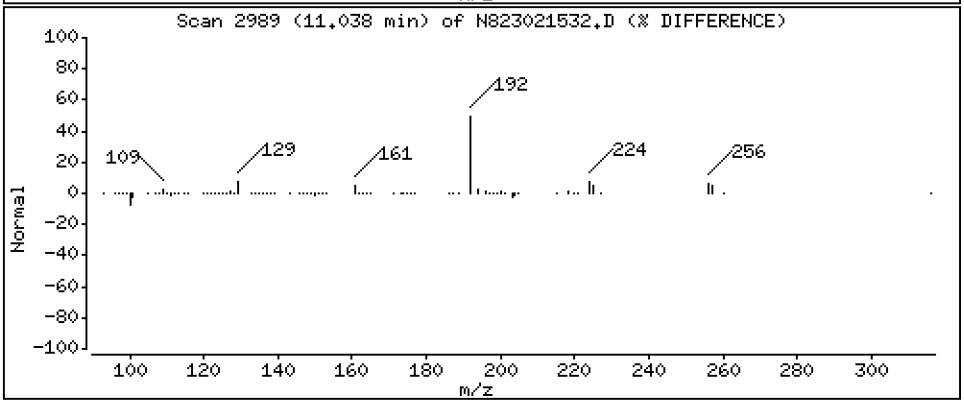












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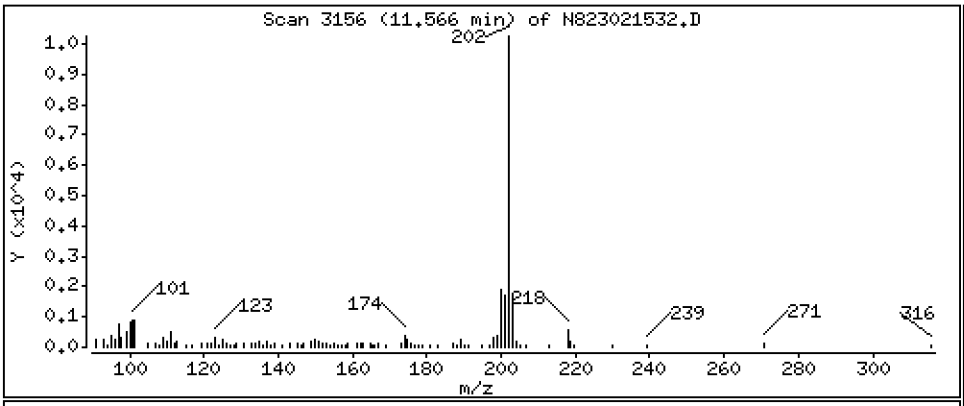
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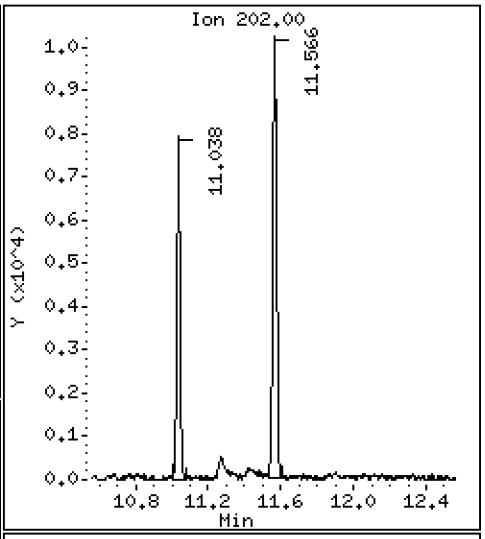
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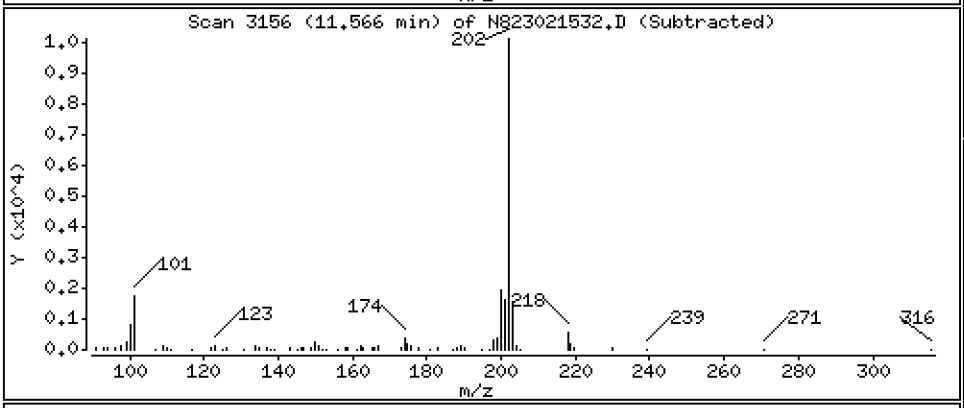
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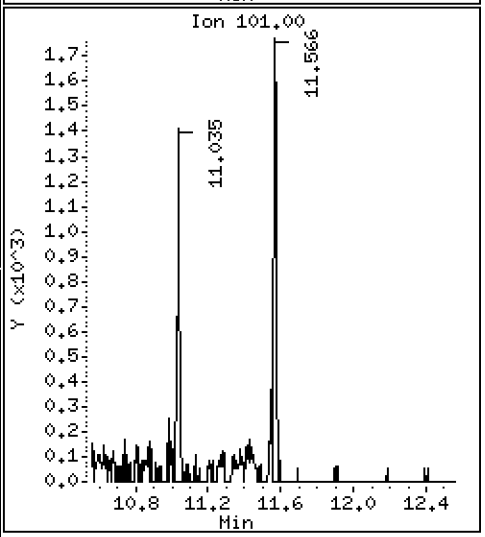
23 Pyrene

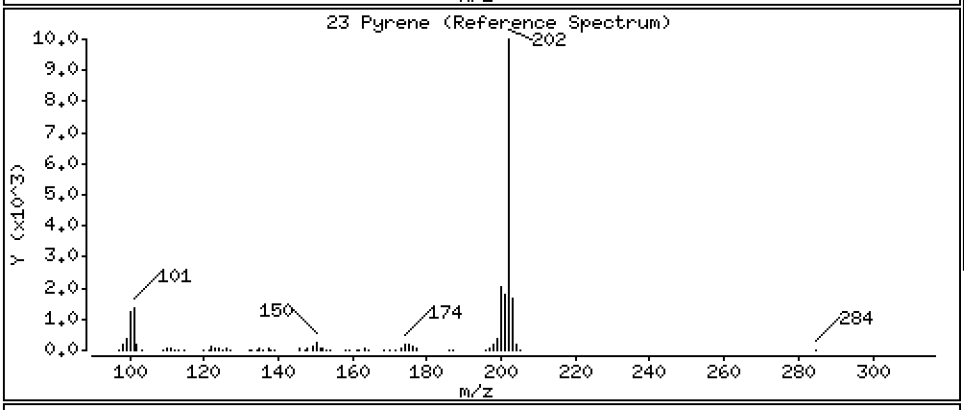
Concentration: 0.7667 ug/mL

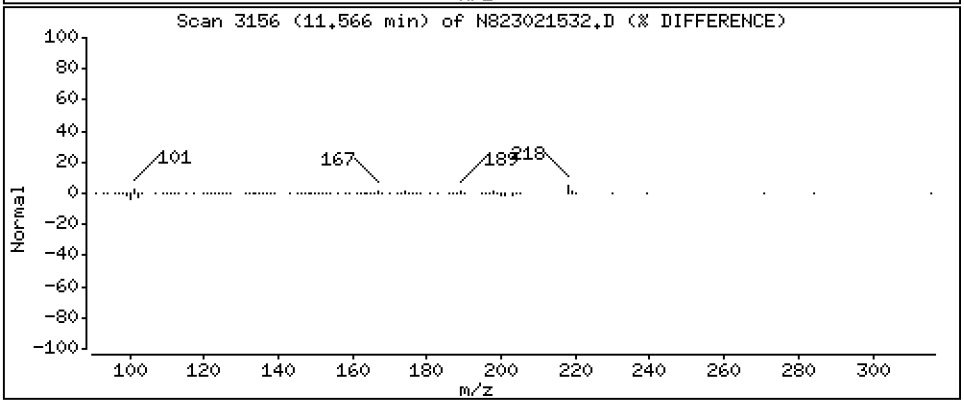












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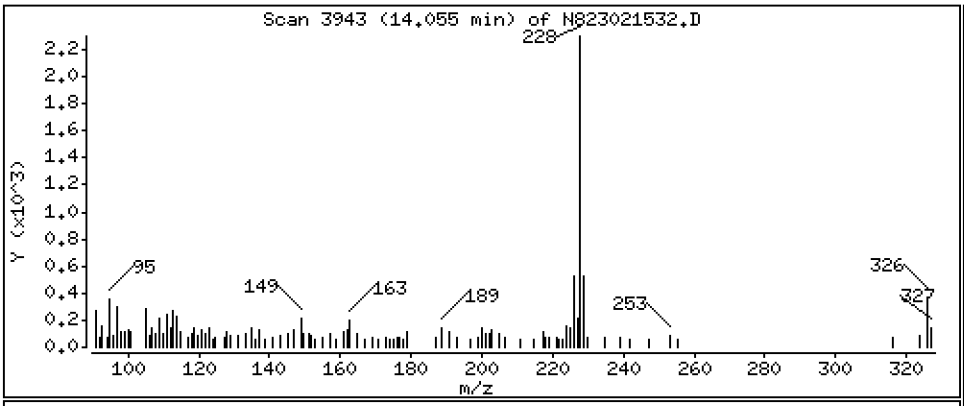
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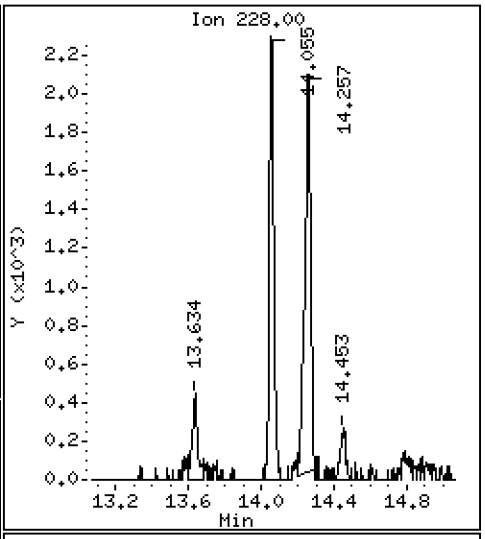
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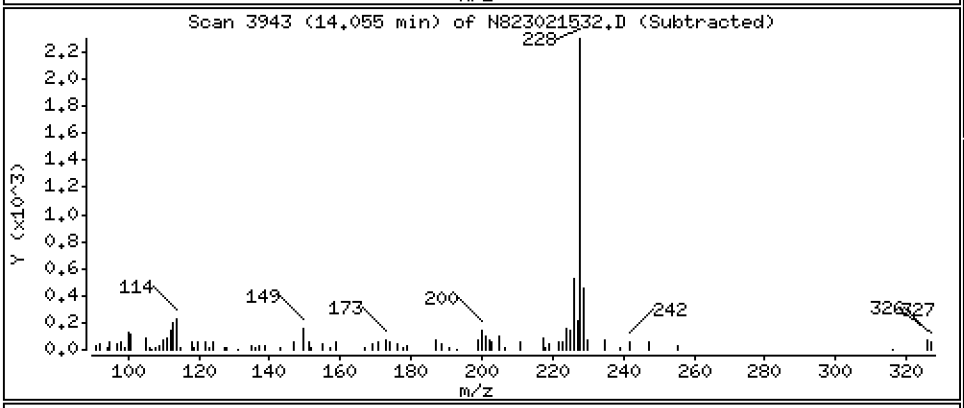
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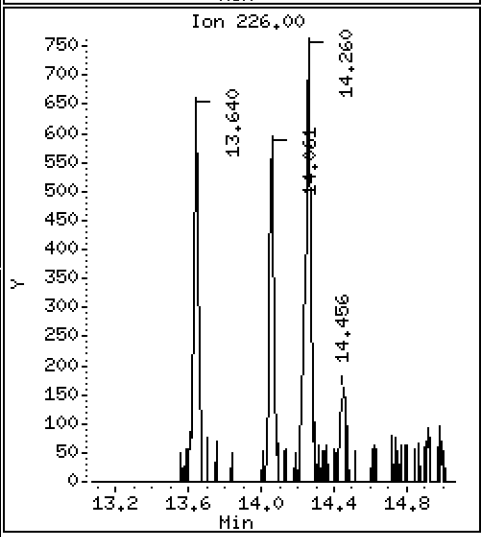
24 Benzo(a)anthracene

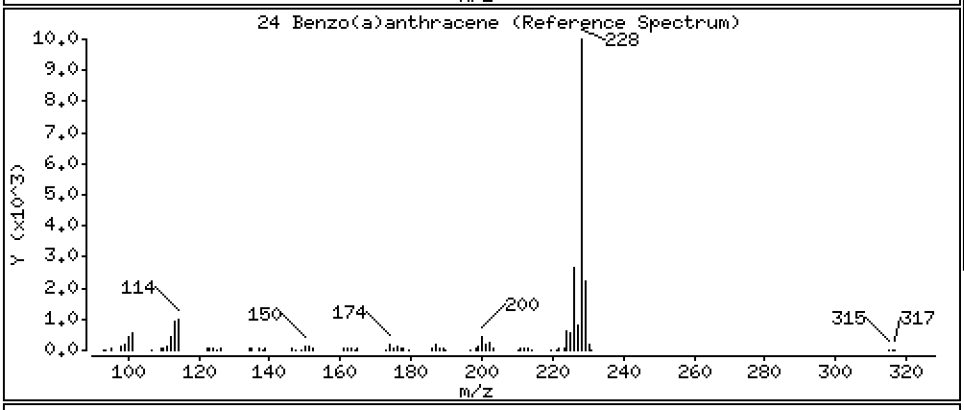
Concentration: 0.2351 ug/mL

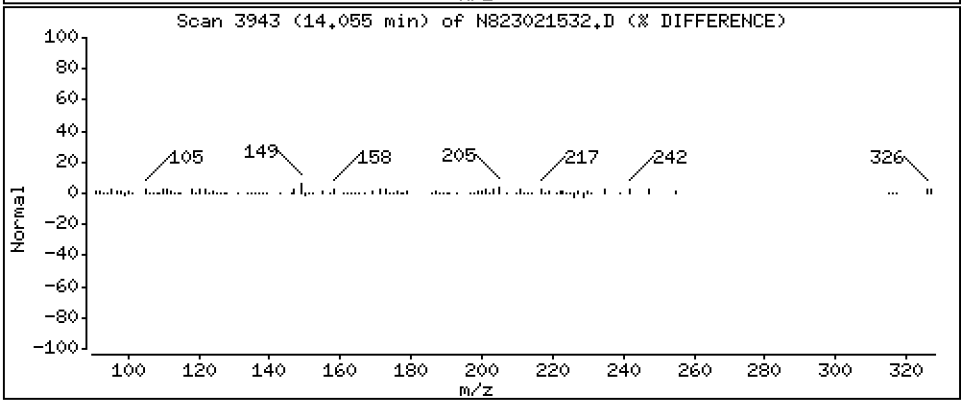












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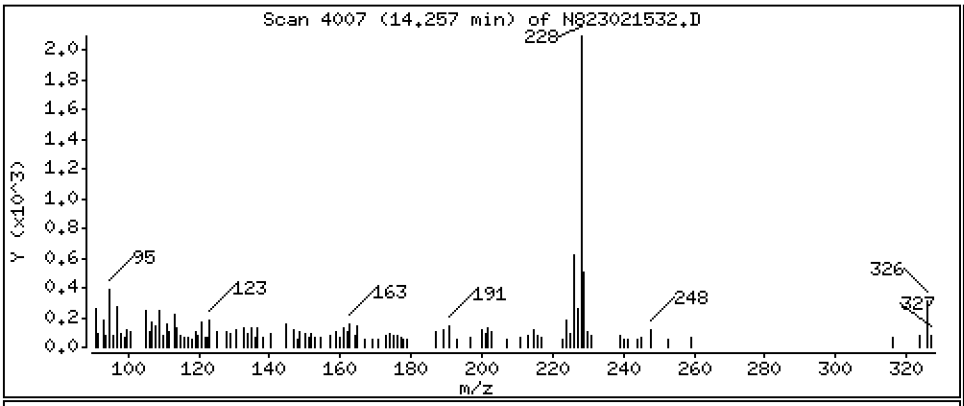
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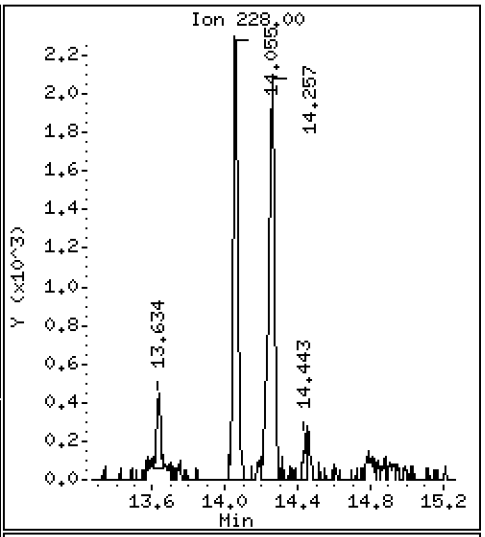
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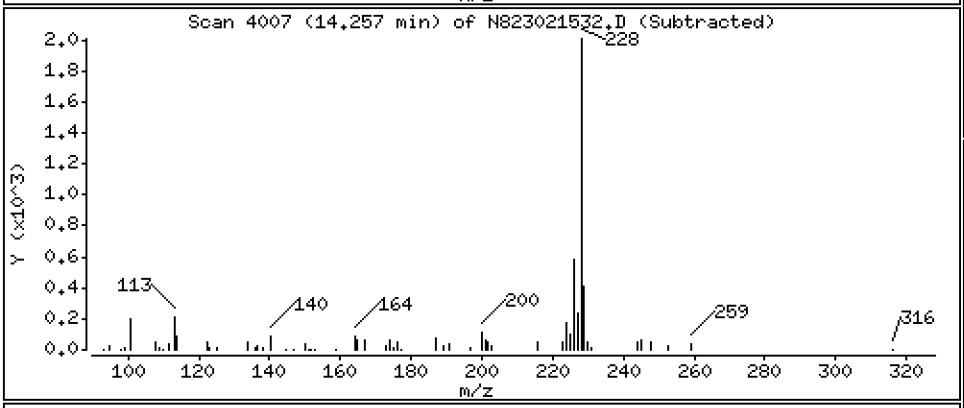
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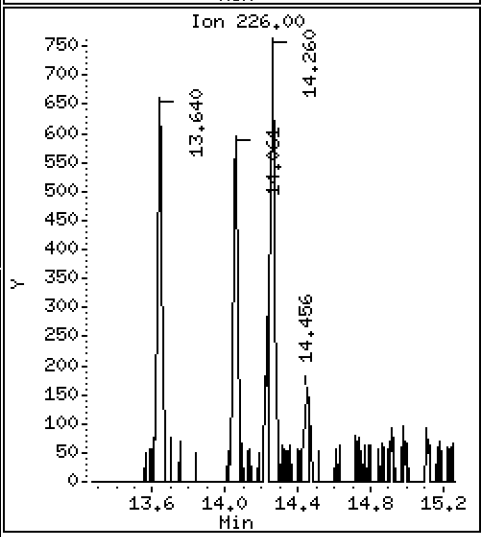
27 Chrysene

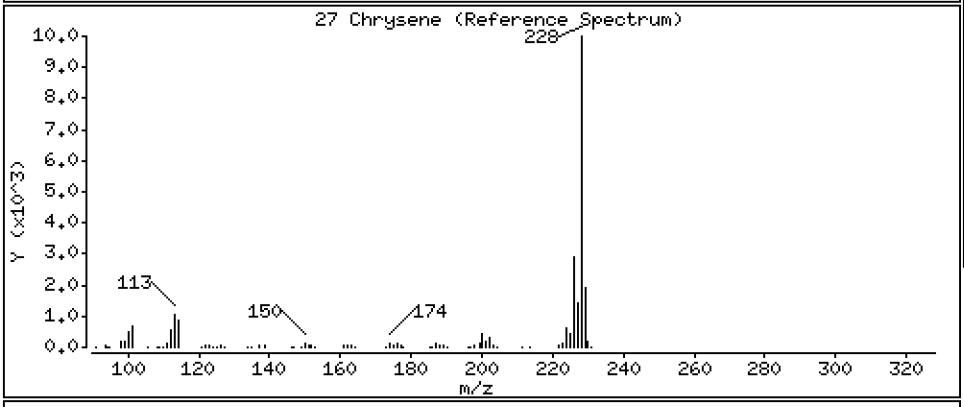
Concentration: 0.2501 ug/mL

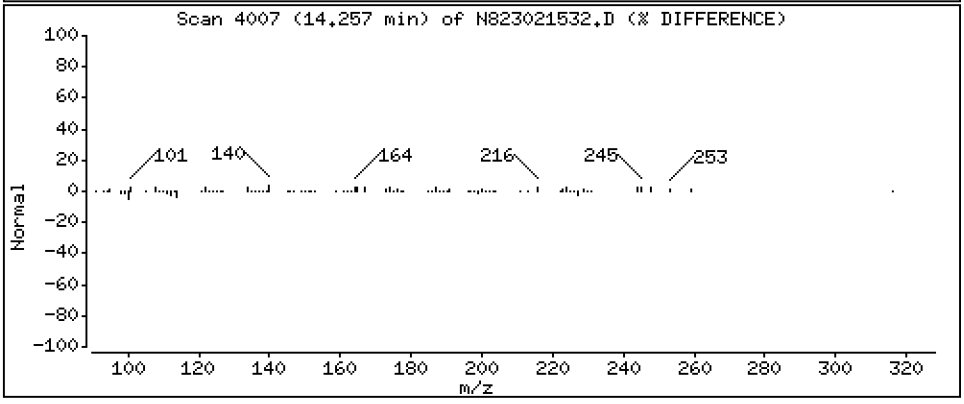












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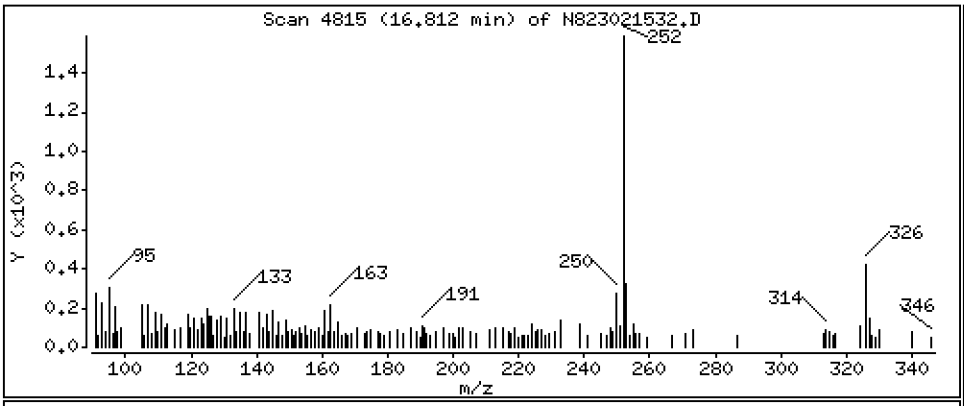
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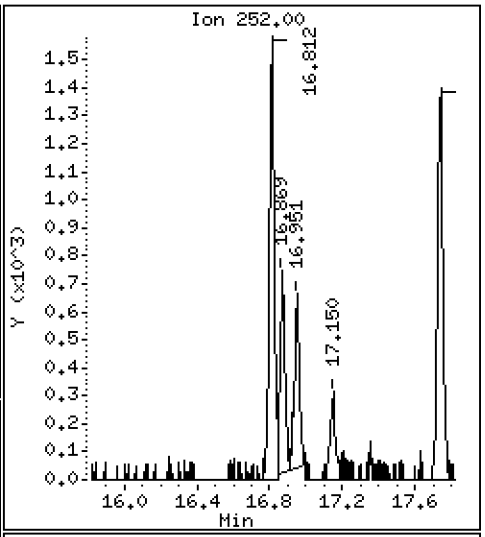
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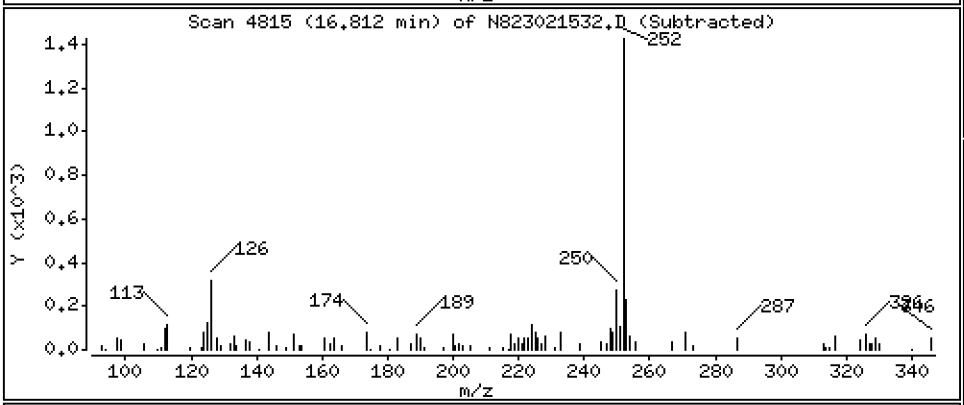
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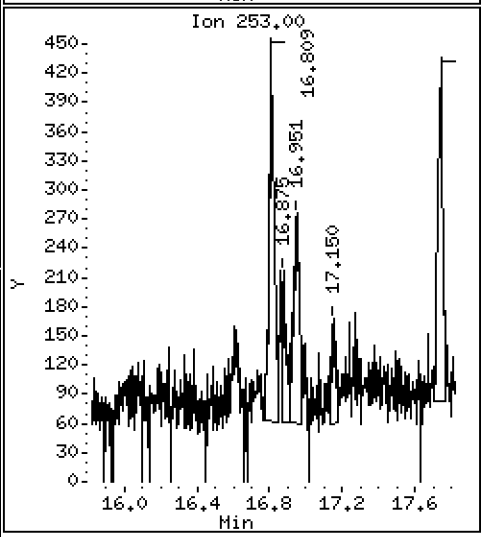
28 Benzo(b)fluoranthene

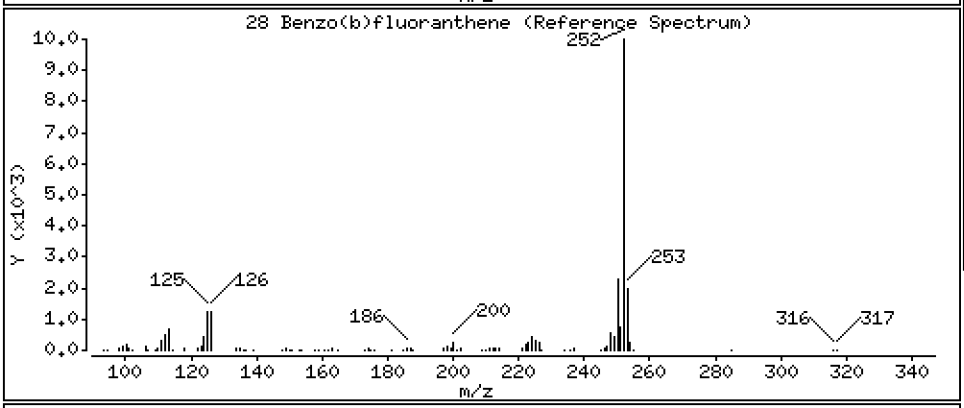
Concentration: 0.1957 ug/mL

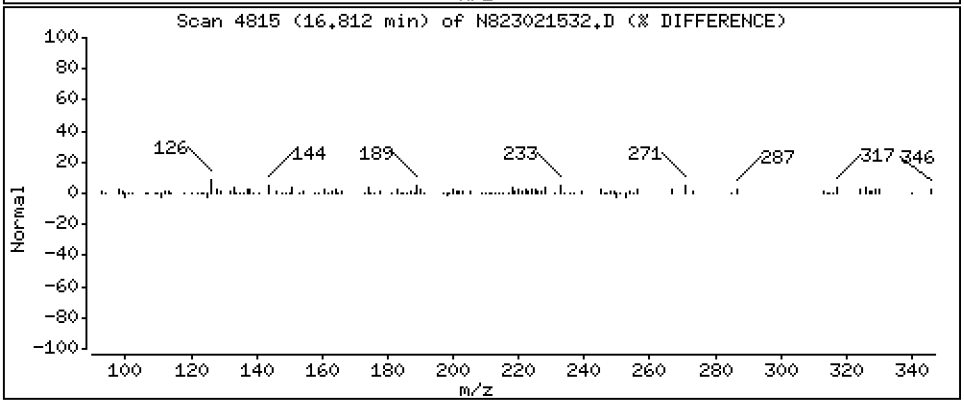












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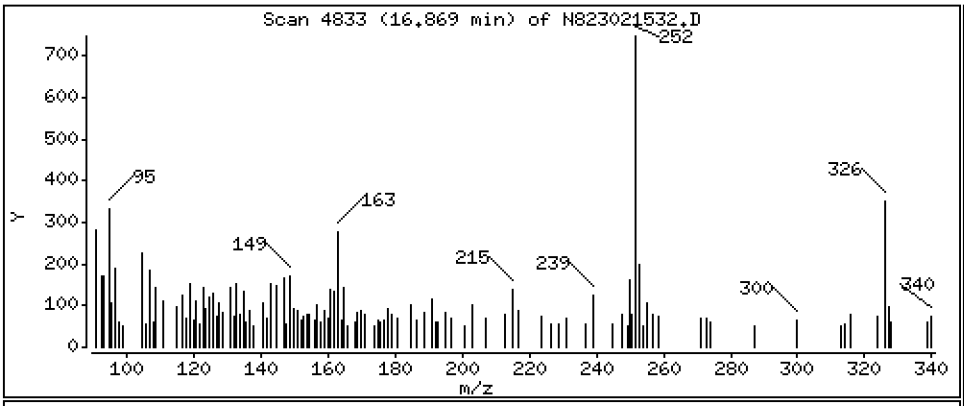
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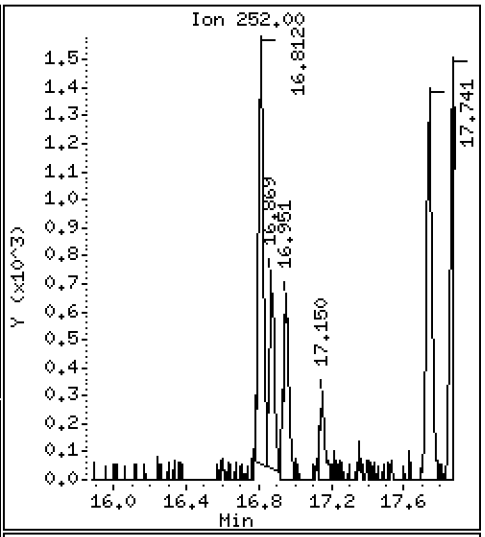
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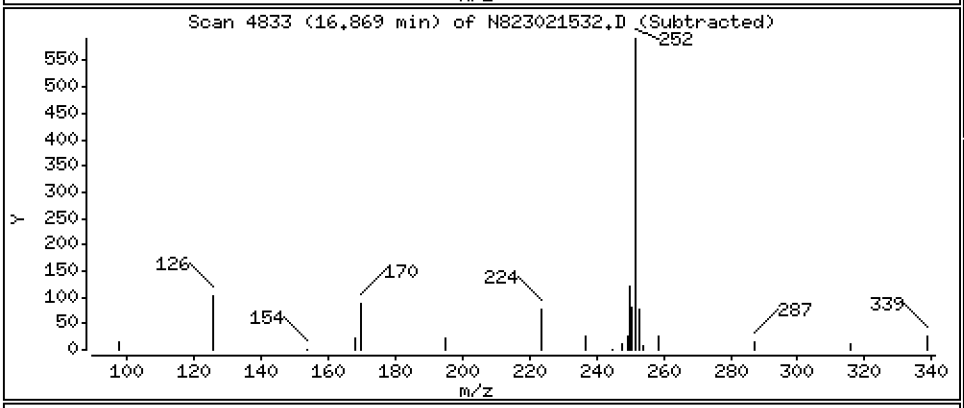
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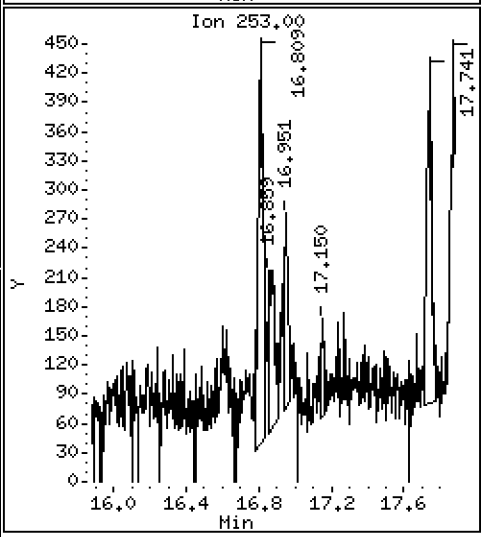
29 Benzo(k)fluoranthene

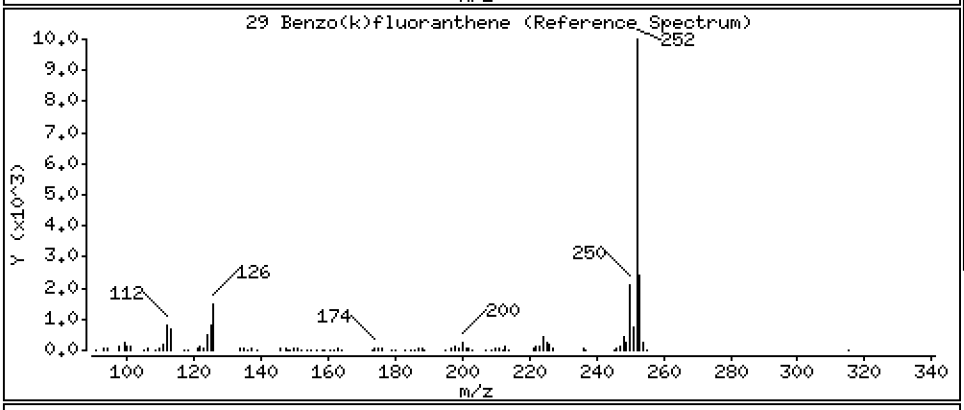
Concentration: 0.08647 ug/mL

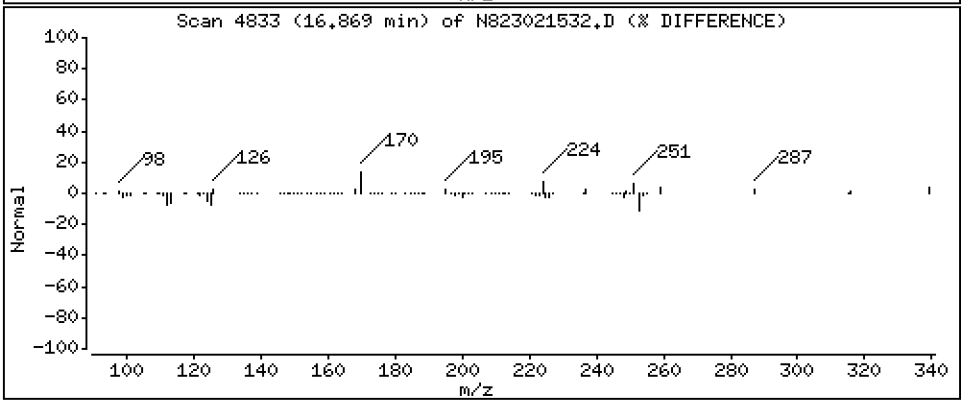












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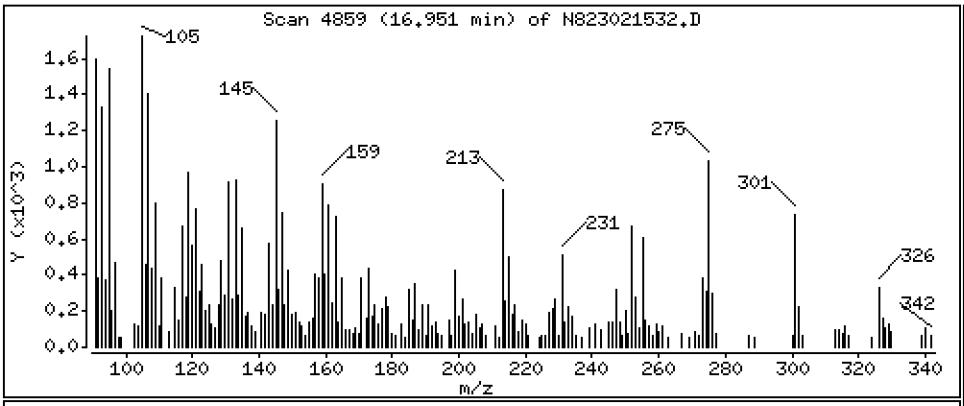
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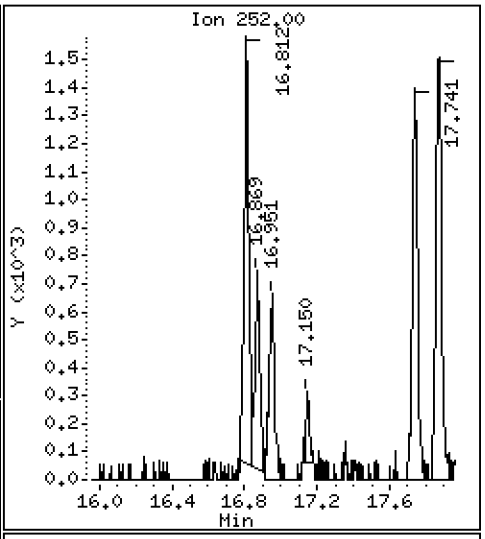
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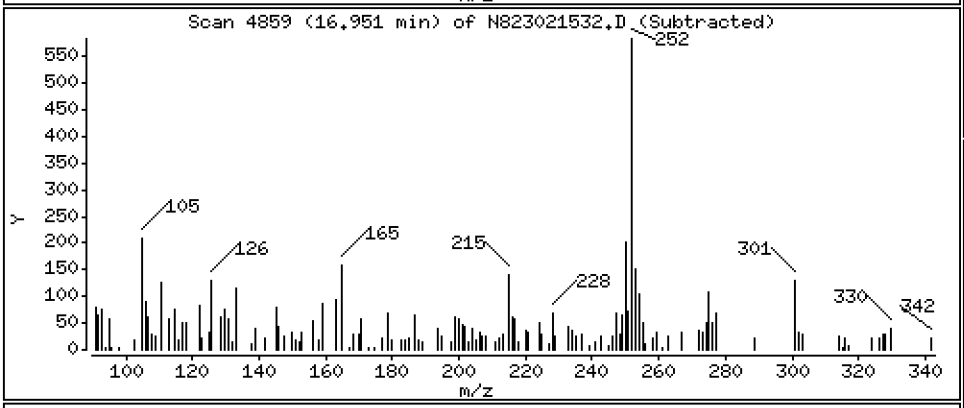
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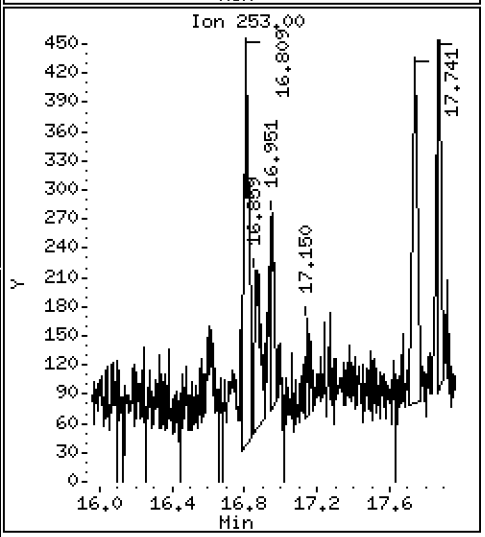
30 Benzo(j)fluoranthene

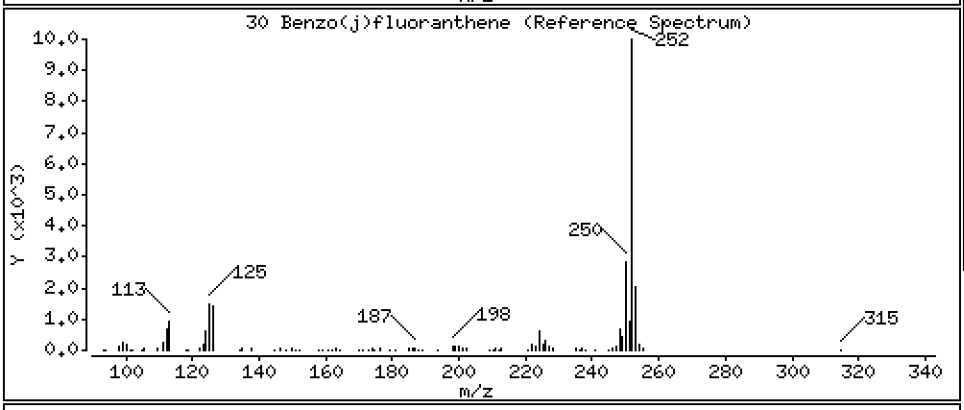
Concentration: 0.1005 ug/mL

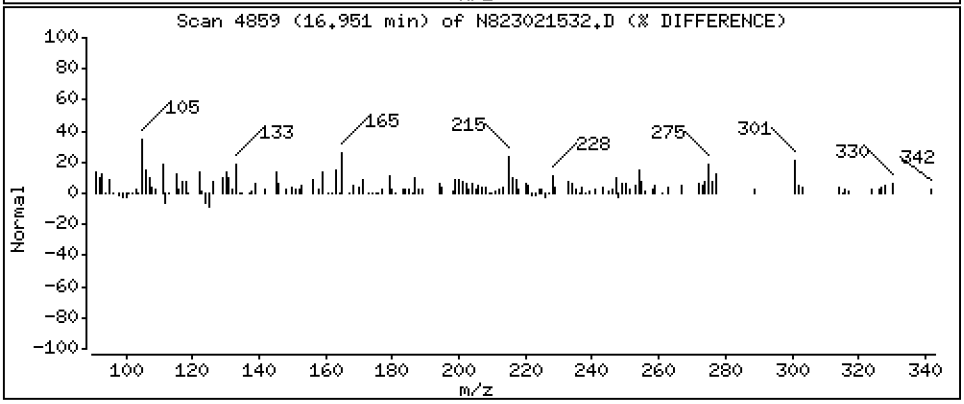












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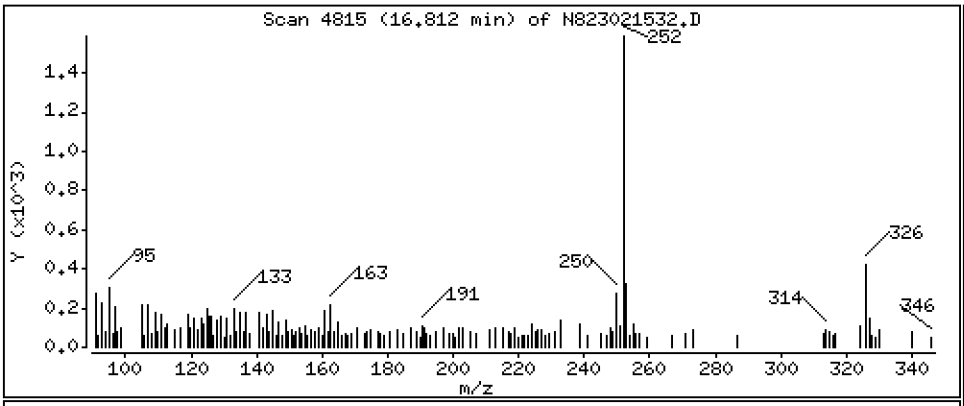
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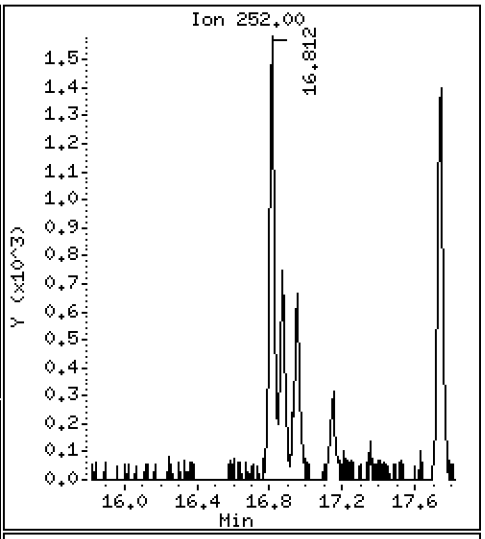
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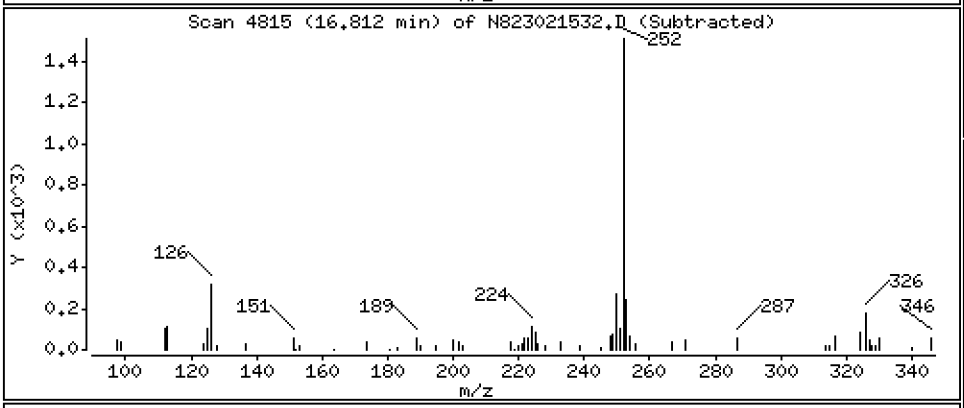
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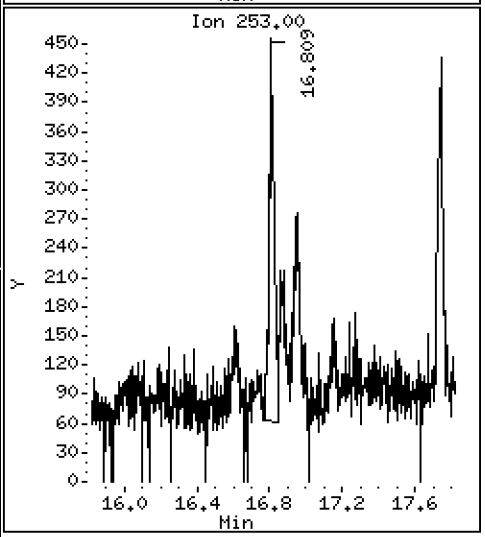
31 Total Benzofluoranthenes

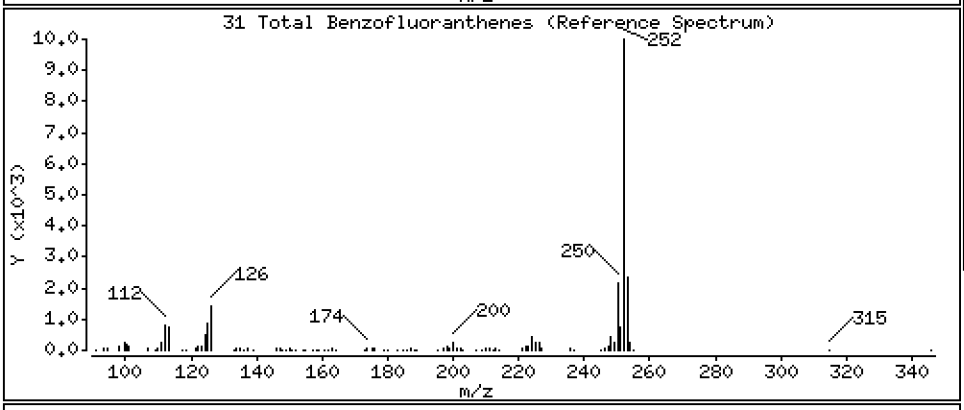
Concentration: 0.3957 ug/mL

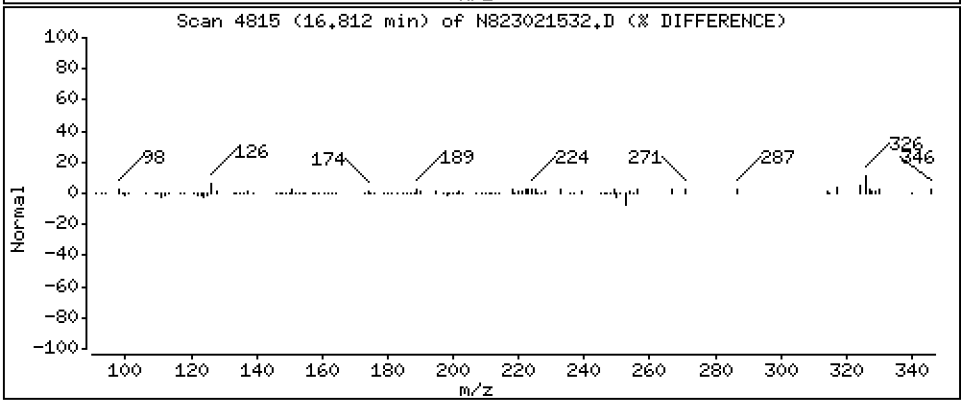












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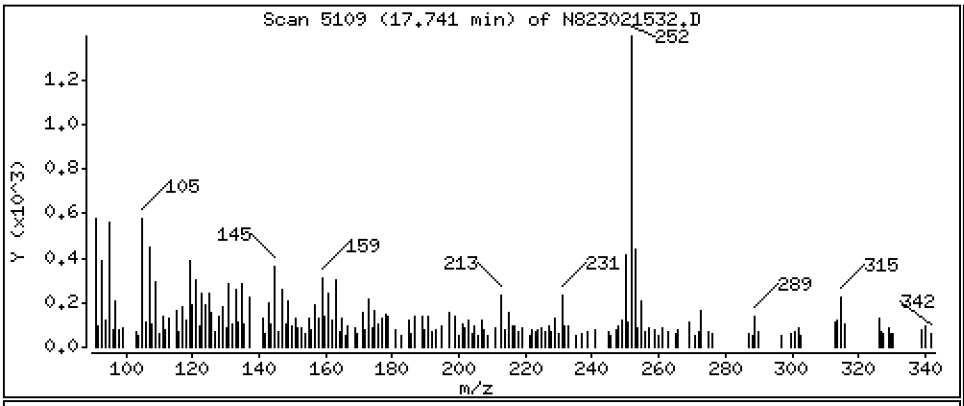
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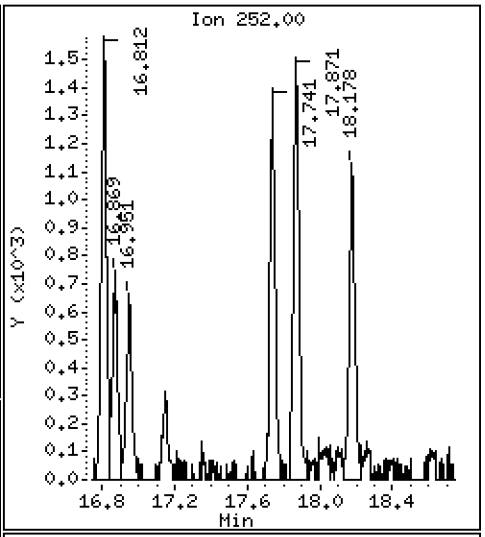
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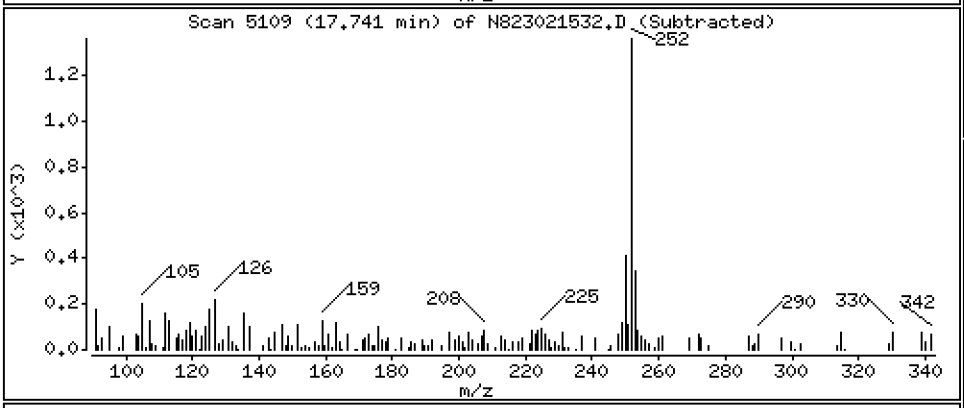
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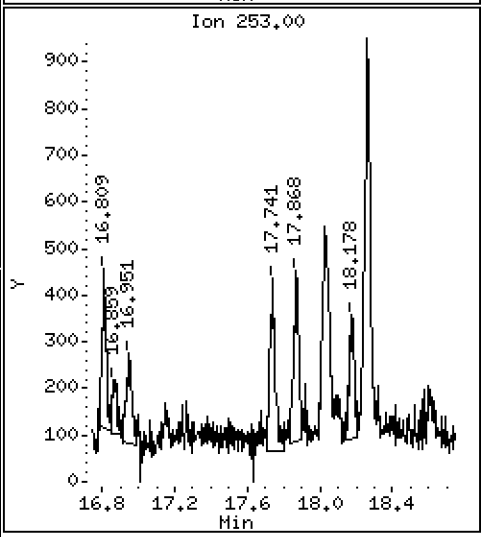
34 Benzo(e)pyrene

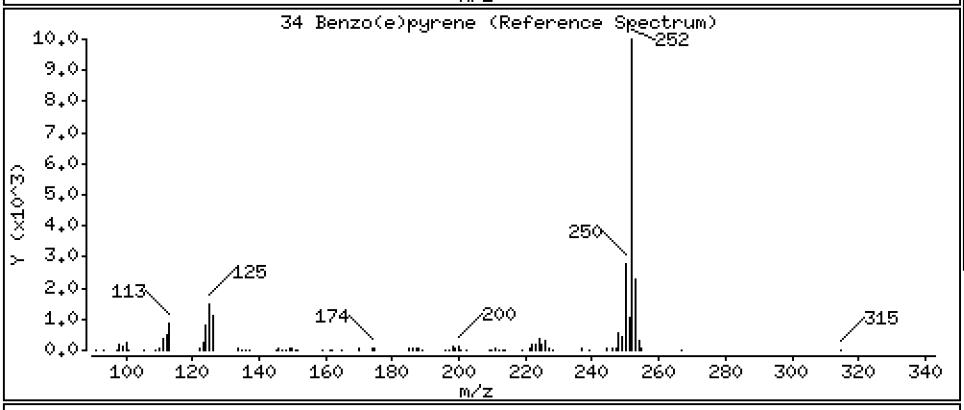
Concentration: 0.1835 ug/mL

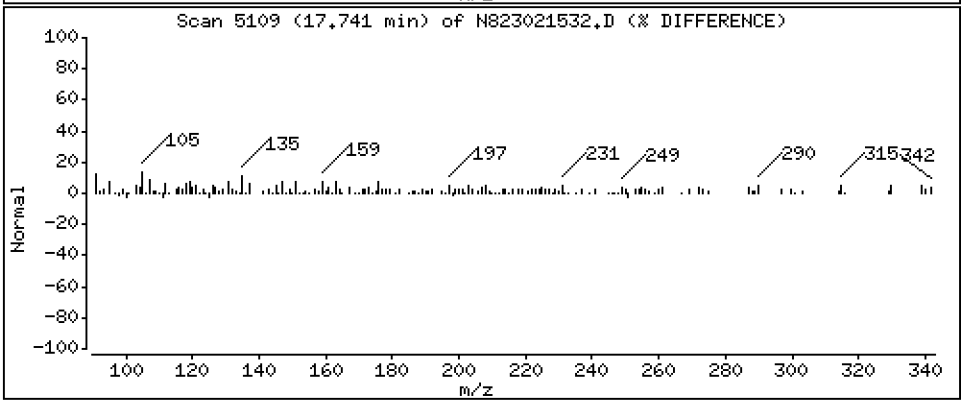












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021532.D

Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

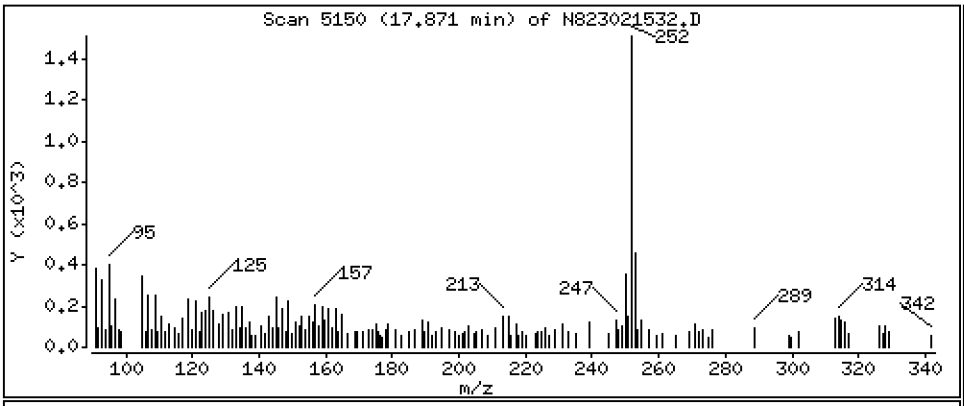
Operator: JZ

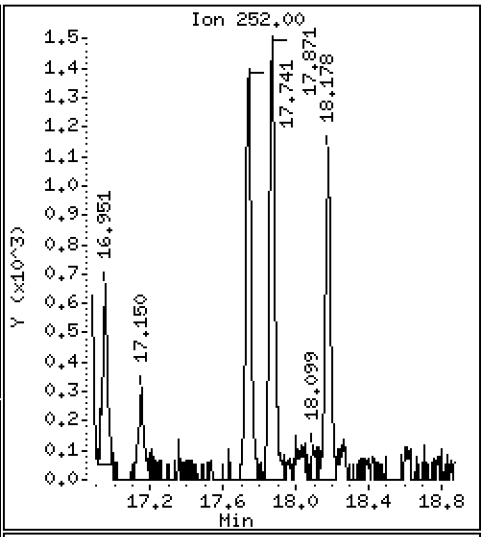
Column phase: Rxi-17sil

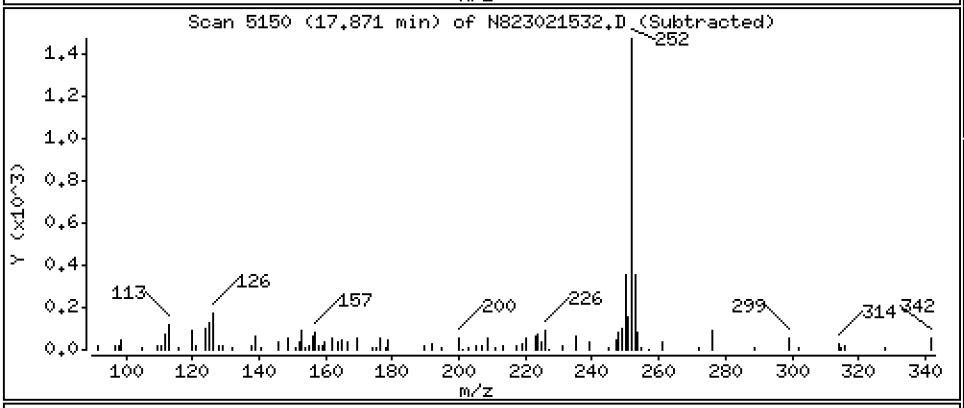
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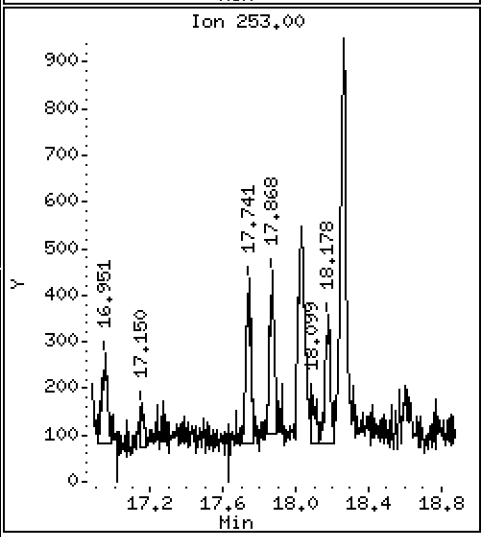
32 Benzo(a)pyrene

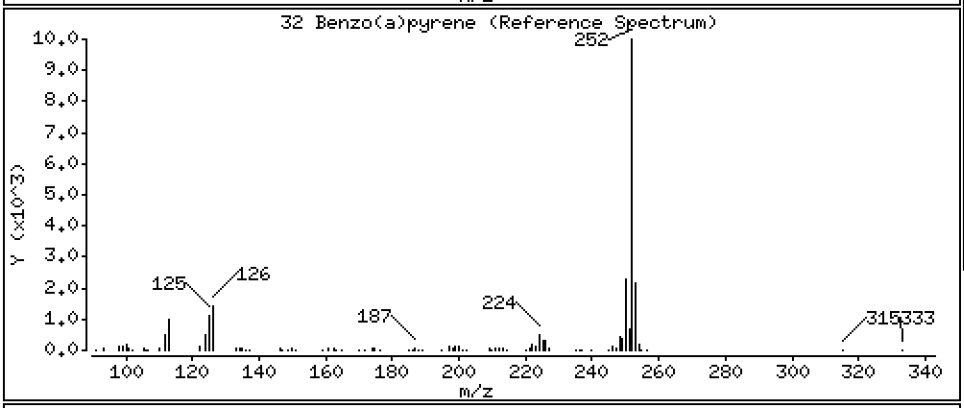
Concentration: 0.2392 ug/mL

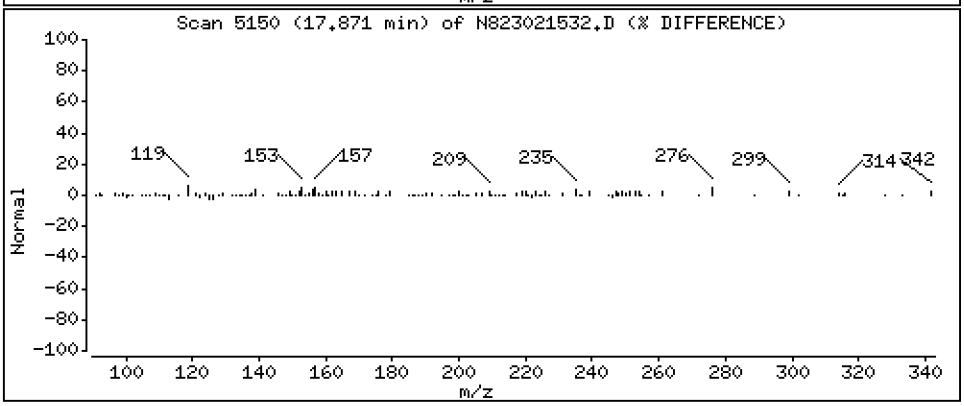












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021532.D

Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

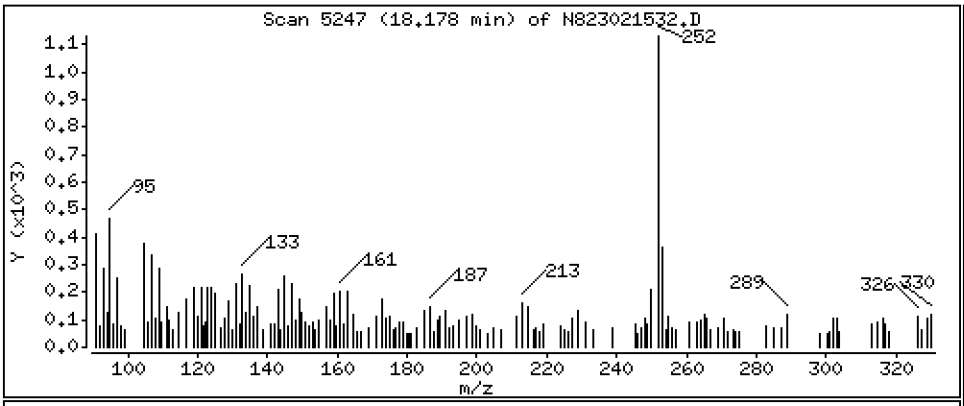
Operator: JZ

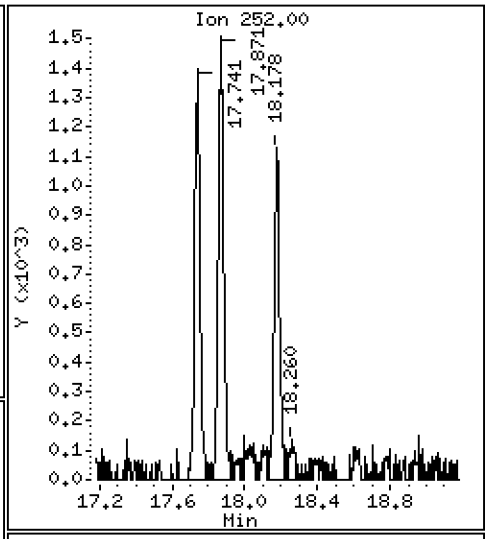
Column phase: Rxi-17sil

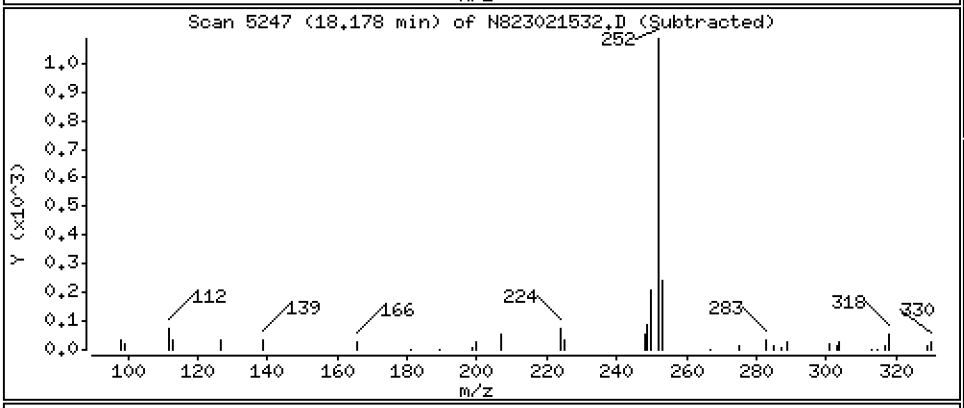
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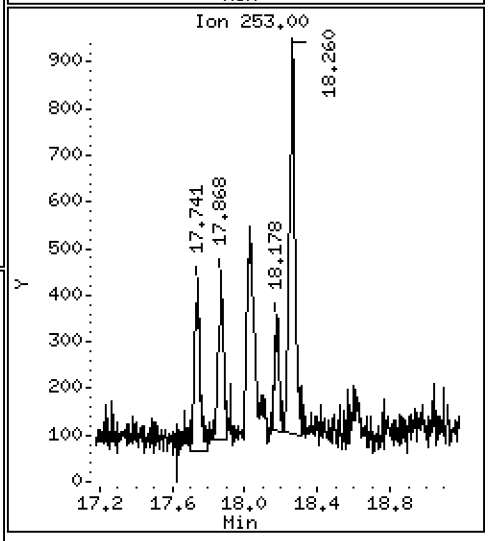
35 Perylene

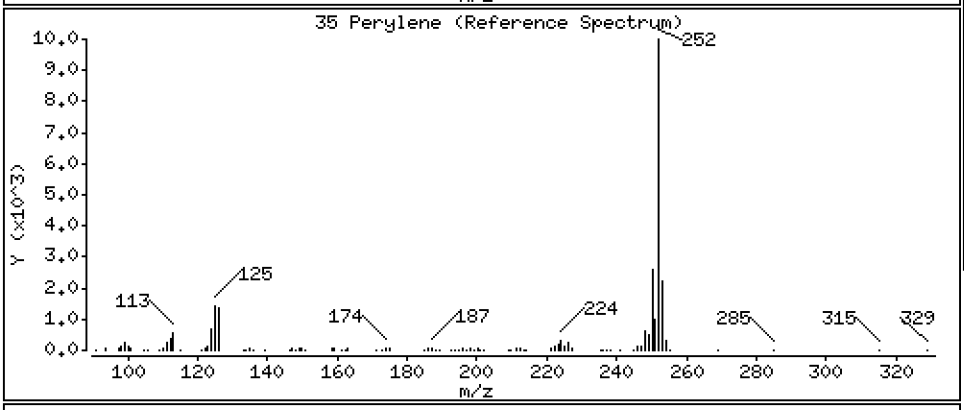
Concentration: 0.1596 ug/mL

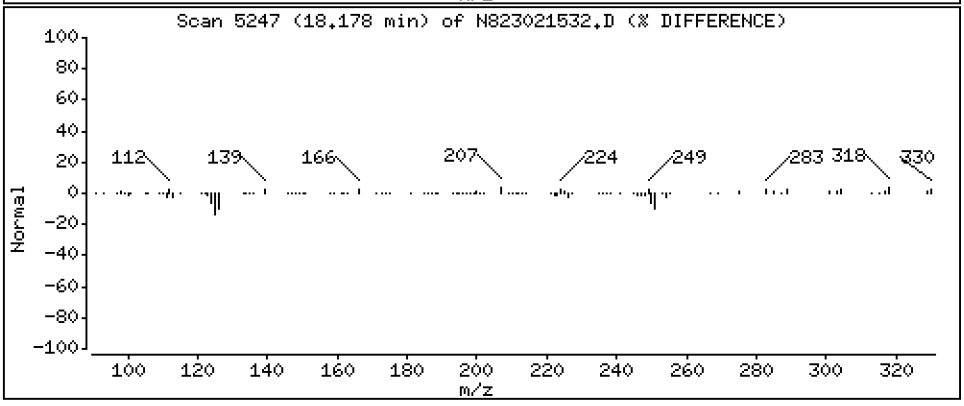












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021532.D

Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

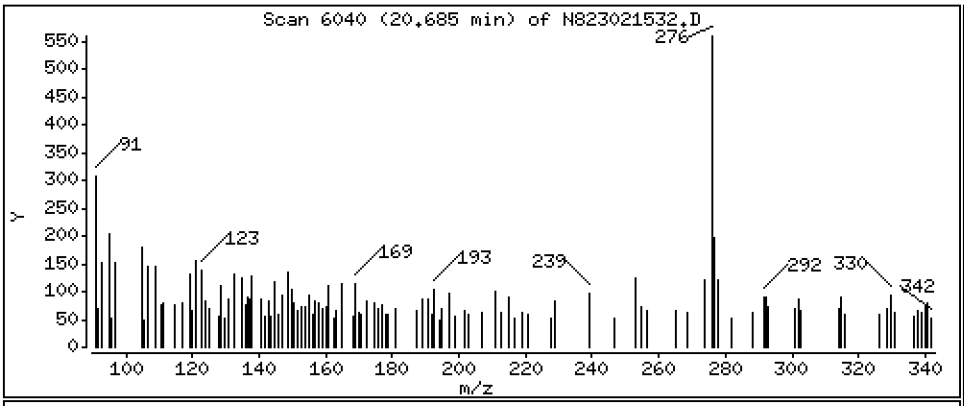
Operator: JZ

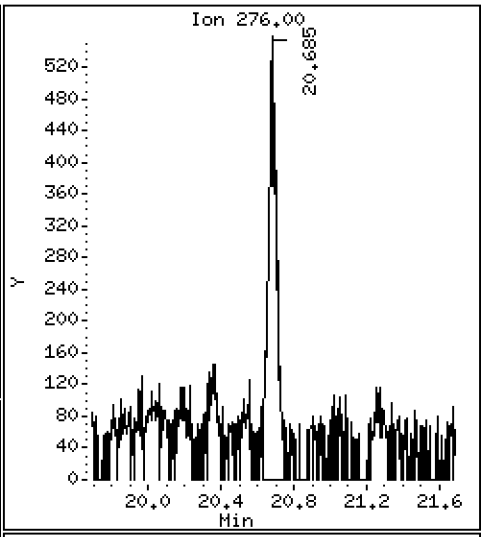
Column phase: Rxi-17sil

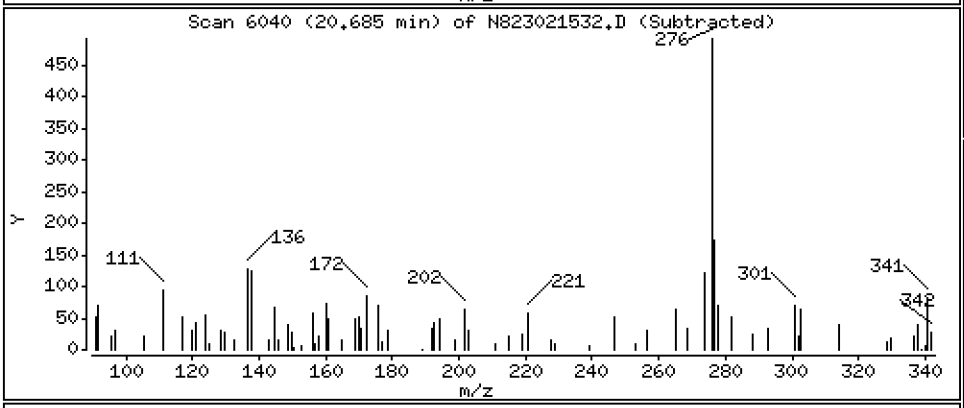
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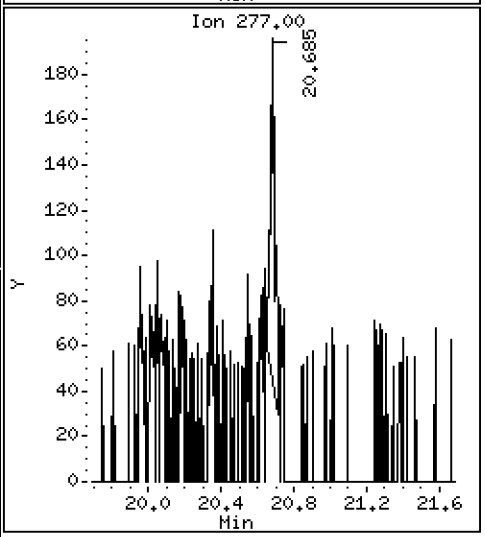
37 Indeno(1,2,3-cd)pyrene

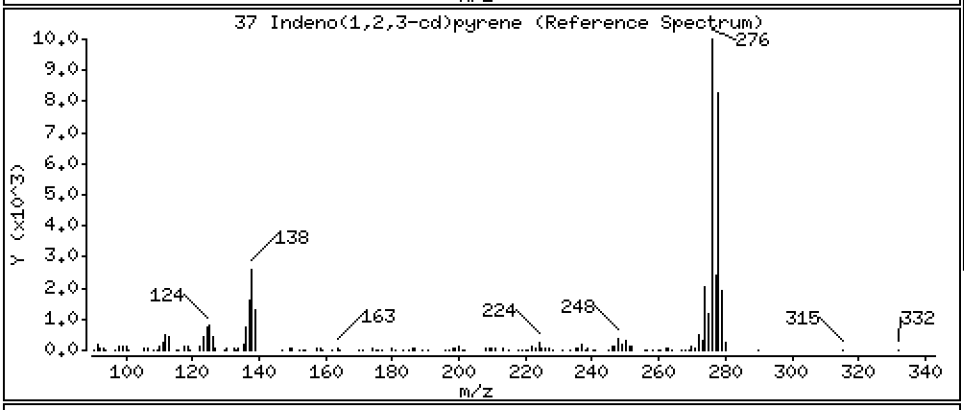
Concentration: 0.1122 ug/mL

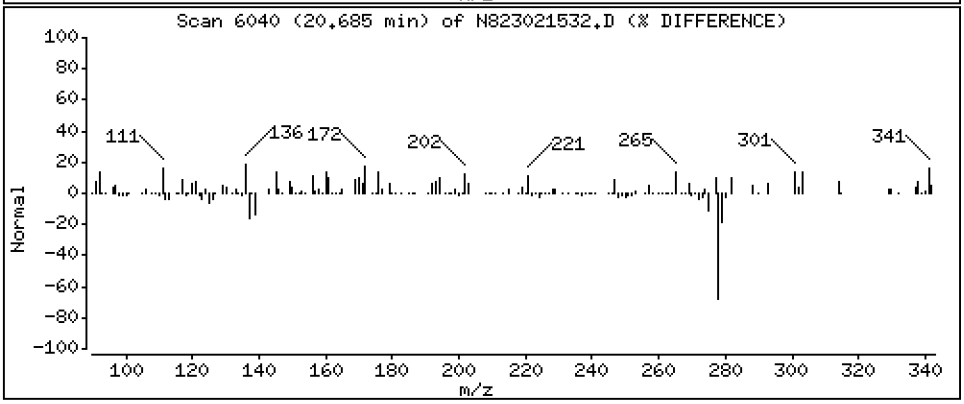












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021532.D

Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

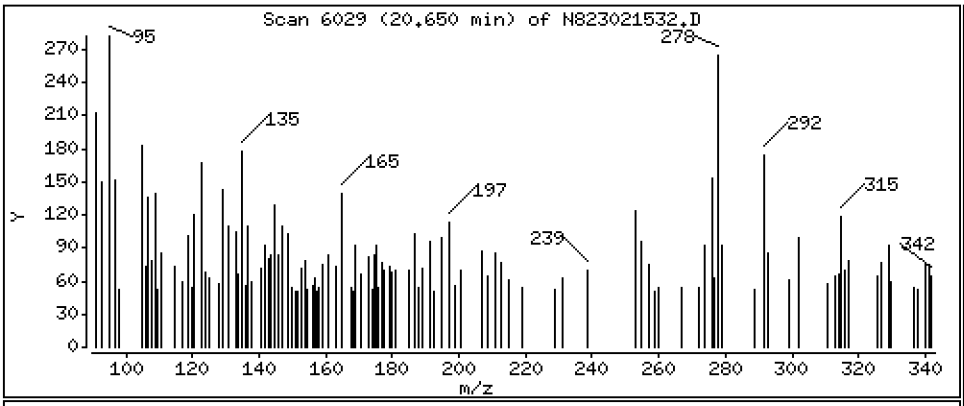
Operator: JZ

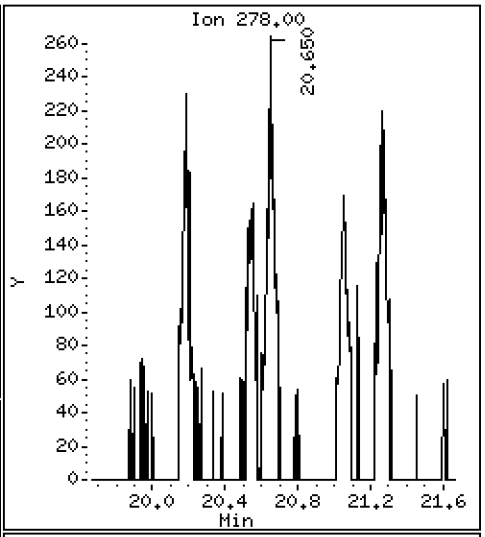
Column phase: Rxi-17sil

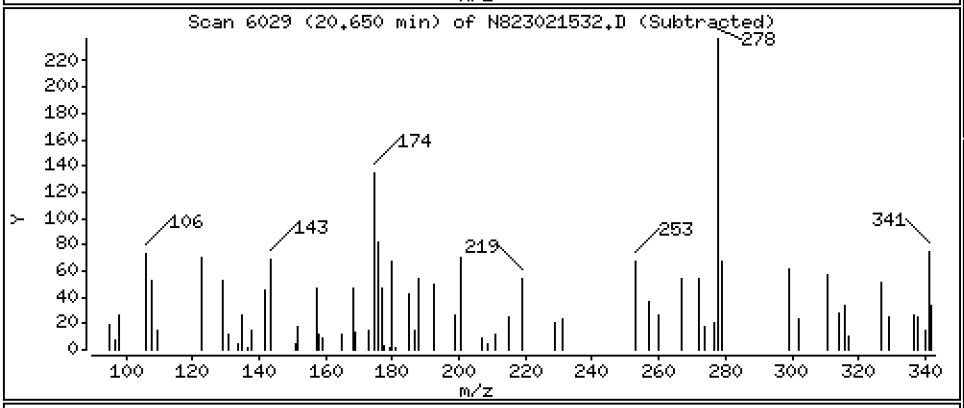
Column diameter: 0.25

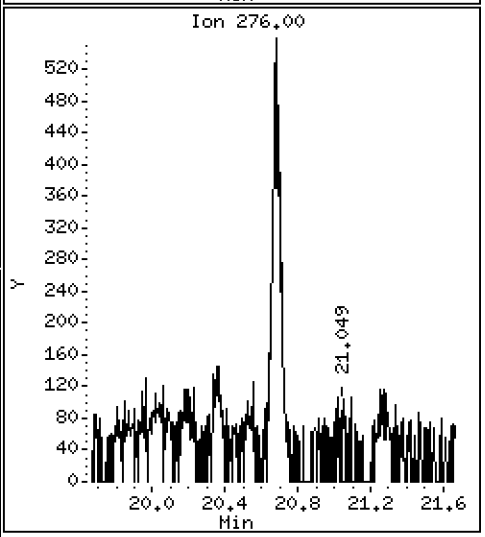
38 Dibenzo(a,h)anthracene

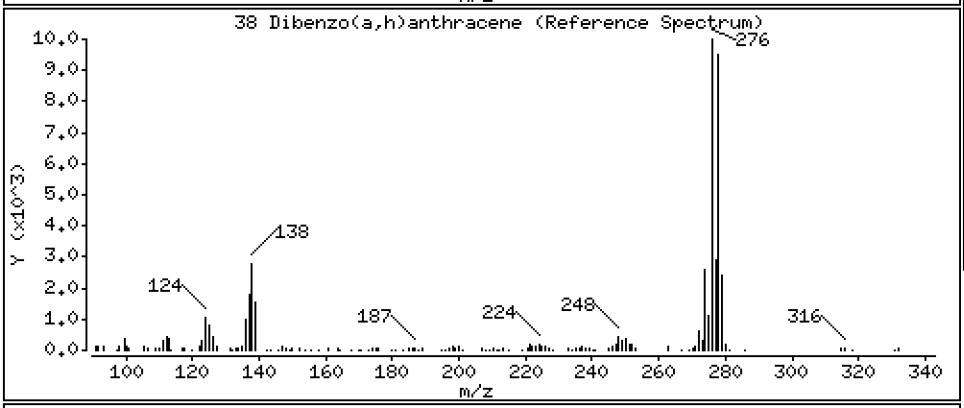
Concentration: 0.05944 ug/mL

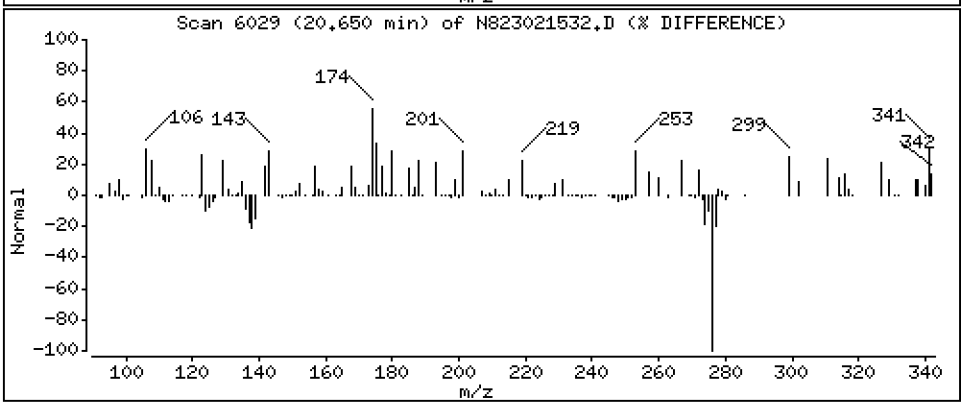












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021532.D

Date : 16-FEB-2023 01:39

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-01

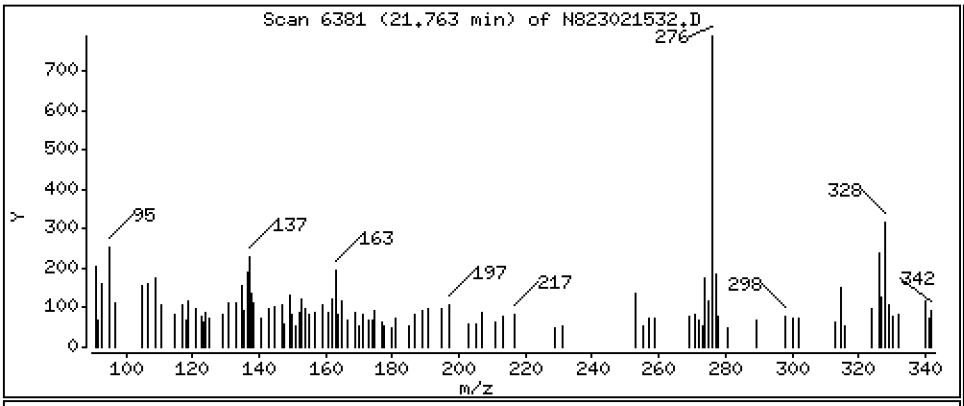
Operator: JZ

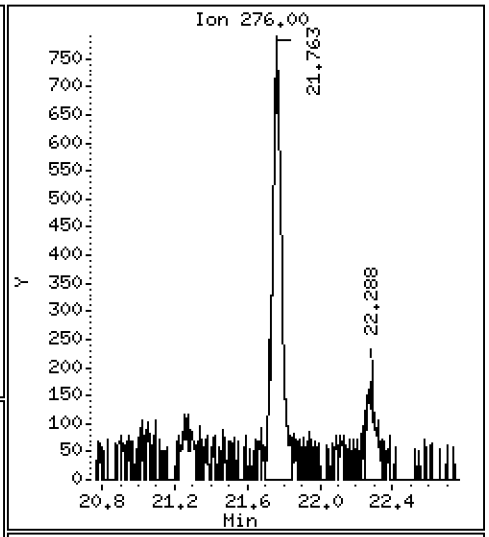
Column phase: Rxi-17sil

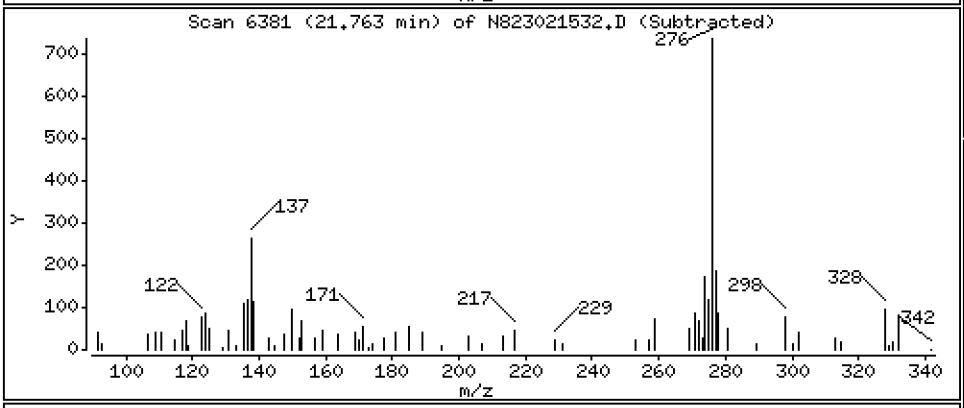
Column diameter: 0.25

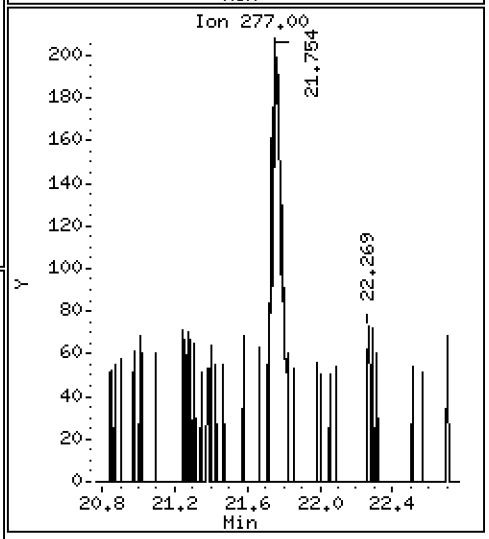
39 Benzo(g,h,i)perylene

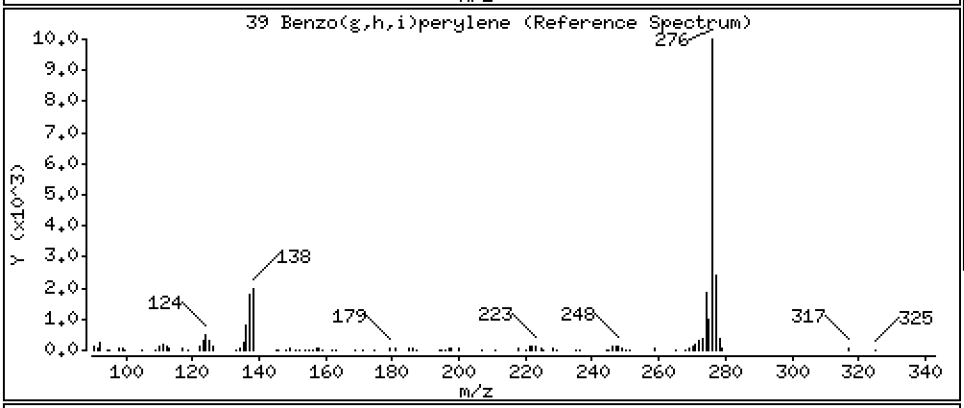
Concentration: 0.1920 ug/mL

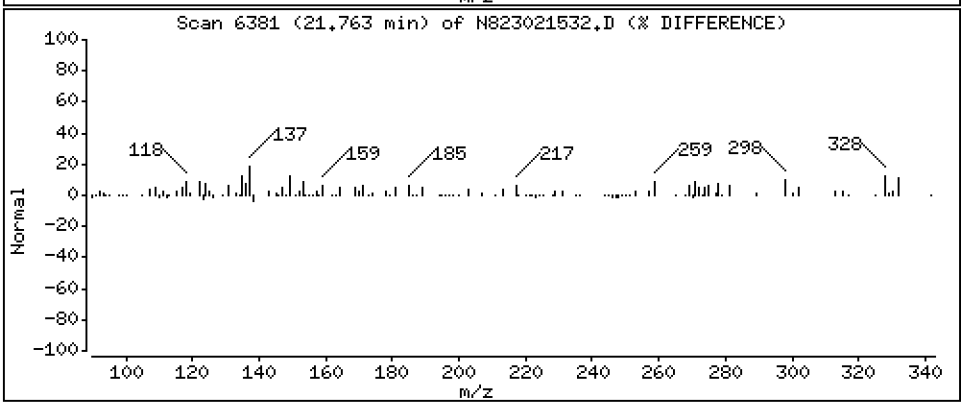












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230215A.b\N823021532.D
Lab Smp Id: 23A0626-01
Inj Date : 16-FEB-2023 01:39
Operator : JZ Inst ID: nt8.i
Smp Info : 23A0626-01
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 14:27 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

			QUANT SIG					CONCENTRATIONS ON-COLUMN	CONCENTRATIONS FINAL
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)
*	1	Naphthalene-d8	136	4.868	4.884	(1.000)	40486	2.00000	
	2	Naphthalene	128	4.897	4.913	(1.006)	84730	4.50109	4.501
$	3	2-Methylnaphthalene-d10	152	5.608	5.618	(1.152)	32513	2.94461	2.945
	4	2-Methylnaphthalene	141	5.656	5.665	(1.162)	12031	1.16193	1.162
	5	1-methylnaphthalene	141	5.855	5.865	(1.203)	6520	0.62043	0.6204
	9	Acenaphthylene	152	7.057	7.069	(0.984)	5556	0.29257	0.2926
*	10	Acenaphthene-d10	164	7.170	7.180	(1.000)	25148	2.00000	
	11	Acenaphthene	153	7.218	7.227	(1.007)	1113	0.08747	0.08747
	12	Dibenzofuran	168	7.373	7.379	(1.028)	2196	0.11363	0.1136
	14	Fluorene	166	7.850	7.860	(1.095)	3717	0.24764	0.2476
*	15	Phenanthrene-d10	188	9.216	9.223	(1.000)	45339	2.00000	
	16	Phenanthrene	178	9.251	9.257	(1.004)	15049	0.67950	0.6795
	17	Anthracene	178	9.289	9.298	(1.008)	4862	0.24166	0.2417
	19	Carbazole	167	9.811	9.814	(1.064)	815	0.04419	0.04419(M)
	22	Fluoranthene	202	11.037	11.041	(1.198)	9853	0.40871	0.4087
$	21	Fluoranthene-d10	212	11.000	11.003	(1.193)	76827	3.84070	3.841
	23	Pyrene	202	11.566	11.559	(0.815)	14859	0.76667	0.7667
	24	Benzo(a)anthracene	228	14.054	14.067	(0.991)	4130	0.23510	0.2351
*	25	Chrysene-d12	240	14.184	14.196	(1.000)	31261	2.00000	
	27	Chrysene	228	14.256	14.266	(1.005)	4678	0.25015	0.2501
	28	Benzo(b)fluoranthene	252	16.811	16.821	(0.929)	3045	0.19567	0.1957
	29	Benzo(k)fluoranthene	252	16.868	16.881	(0.932)	1318	0.08647	0.08647
	30	Benzo(j)fluoranthene	252	16.950	16.960	(0.936)	1379	0.10049	0.1005
	31	Total Benzofluoranthenes	252	16.811	16.821	(0.929)	5832	0.39571	0.3957(M)
	34	Benzo(e)pyrene	252	17.741	17.744	(0.980)	2847	0.18346	0.1835
	32	Benzo(a)pyrene	252	17.871	17.877	(0.987)	3276	0.23922	0.2392
*	33	Perylene-d12	264	18.105	18.108	(1.000)	26720	2.00000	
	35	Perylene	252	18.177	18.180	(1.004)	2346	0.15964	0.1596
$	36	Dibenzo(a,h)anthracene-d14	292	20.546	20.546	(1.135)	49053	4.68534	4.685
	37	Indeno(1,2,3-cd)pyrene	276	20.685	20.688	(1.143)	1751	0.11224	0.1122(M)
	38	Dibenzo(a,h)anthracene	278	20.650	20.666	(1.141)	798	0.05944	0.05944(M)
	39	Benzo(g,h,i)perylene	276	21.763	21.766	(1.202)	2714	0.19201	0.1920

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021532.D
Lab Smp Id: 23A0626-01
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 17:35
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	42744	21372	85488	40486	-5.28
10 Acenaphthene-d10	25236	12618	50472	25148	-0.35
15 Phenanthrene-d10	47809	23905	95618	45339	-5.17
25 Chrysene-d12	40868	20434	81736	31261	-23.51
33 Perylene-d12	43096	21548	86192	26720	-38.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.87	-0.32
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.22	-0.07
25 Chrysene-d12	14.20	13.70	14.70	14.18	-0.09
33 Perylene-d12	18.11	17.61	18.61	18.11	-0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021532.D

Lab ID: 23A0626-01
nt8.i, 20230215A.b\FSIMPNA230119.m,   16-FEB-2023 01:39

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

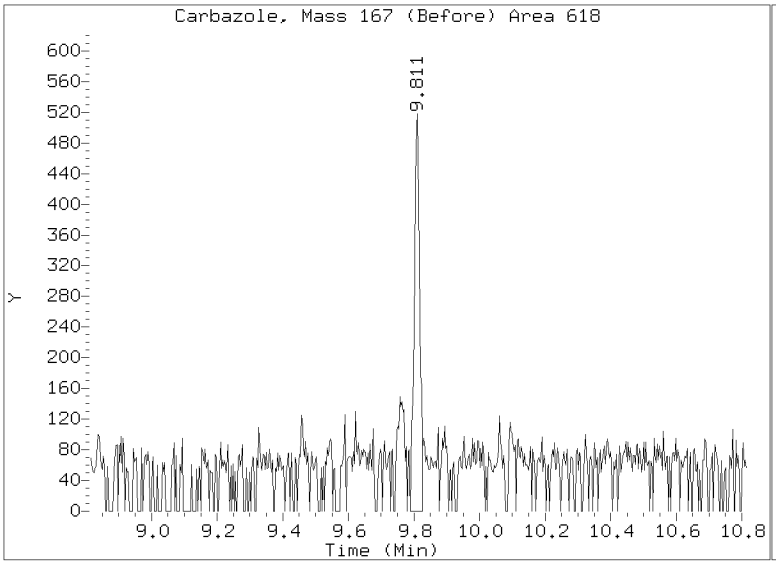
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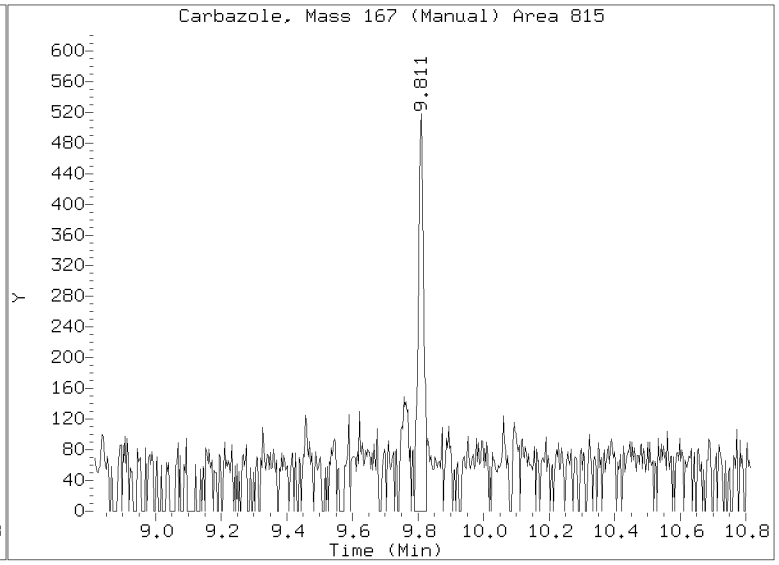
Exception: Benzo(e)pyrene 0.0800

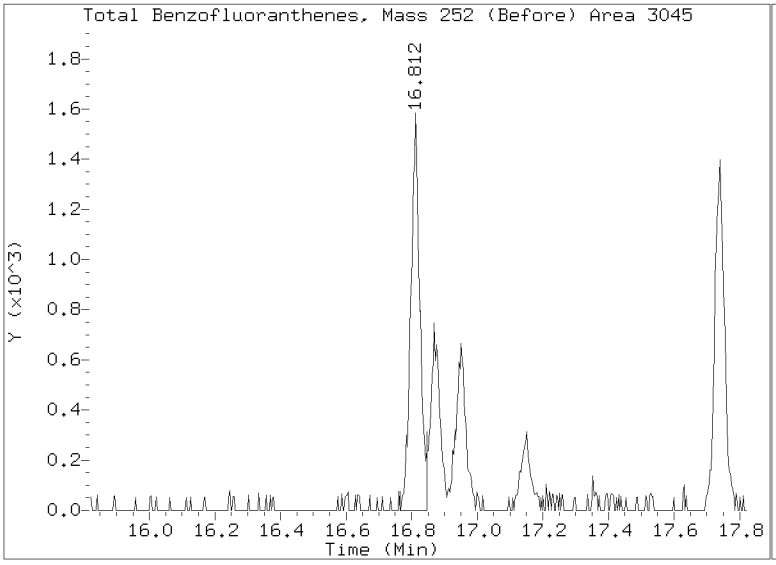
* Only compounds listed in the work order have been verified by the analyst *

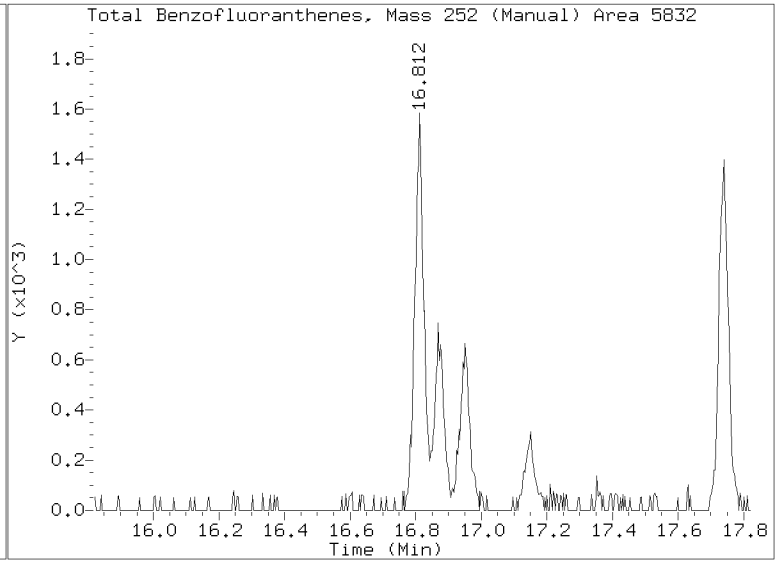
Quant Ion Manual Peak Adjustment Report

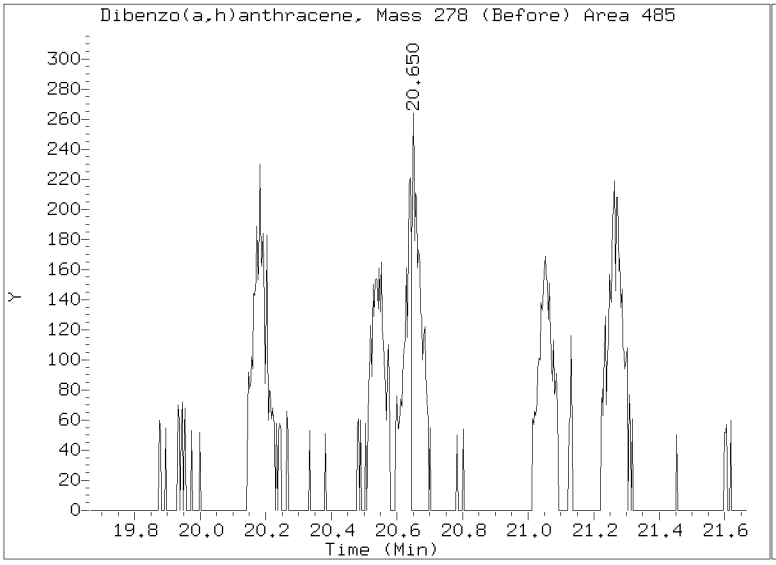
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Injection Date: 16-FEB-2023 01:39
Lab ID:23A0626-01 Client ID:
Report Date: 02/19/2023 16:24

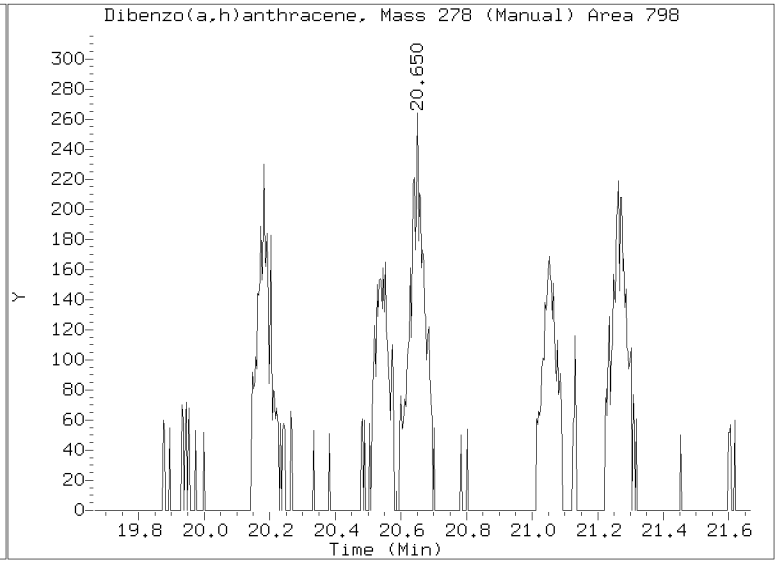






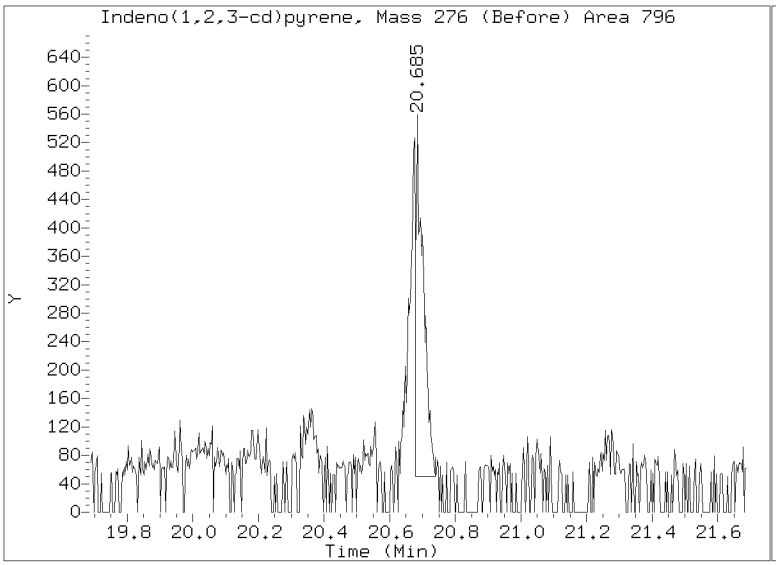


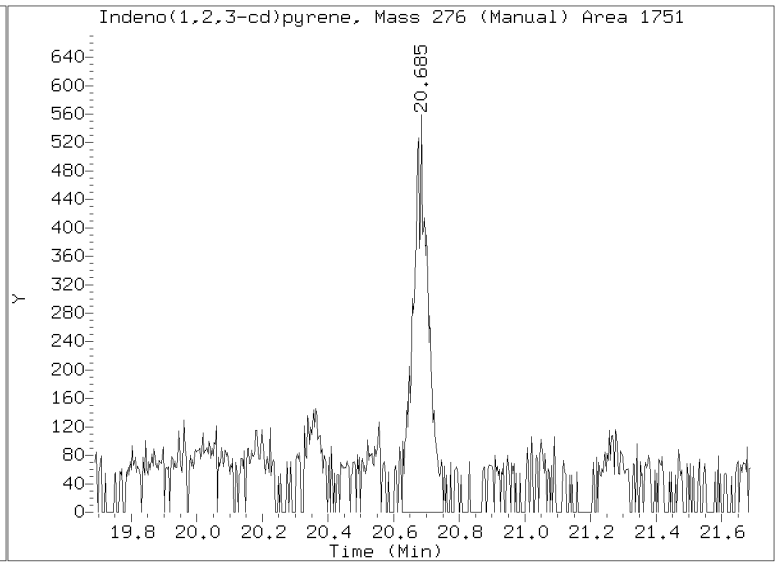




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230215A.b/N823021532.D
Injection Date: 16-FEB-2023 01:39
Lab ID:23A0626-01 Client ID:
Report Date: 02/19/2023 16:24





LY-28_1-2

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23A0626-03 A	SDG:	23A0626
Sampled:	01/27/23 10:45	Prepared:	02/07/23 17:05	File ID:	N823021533.D
% Solids:	57.54	Preparation:	EPA 3546 (Microwave)	Analyzed:	02/16/23 02:06
Batch:	BLB0144	Sequence:	SLB0206	Initial/Final:	17.55 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	GPC, Silica Gel				

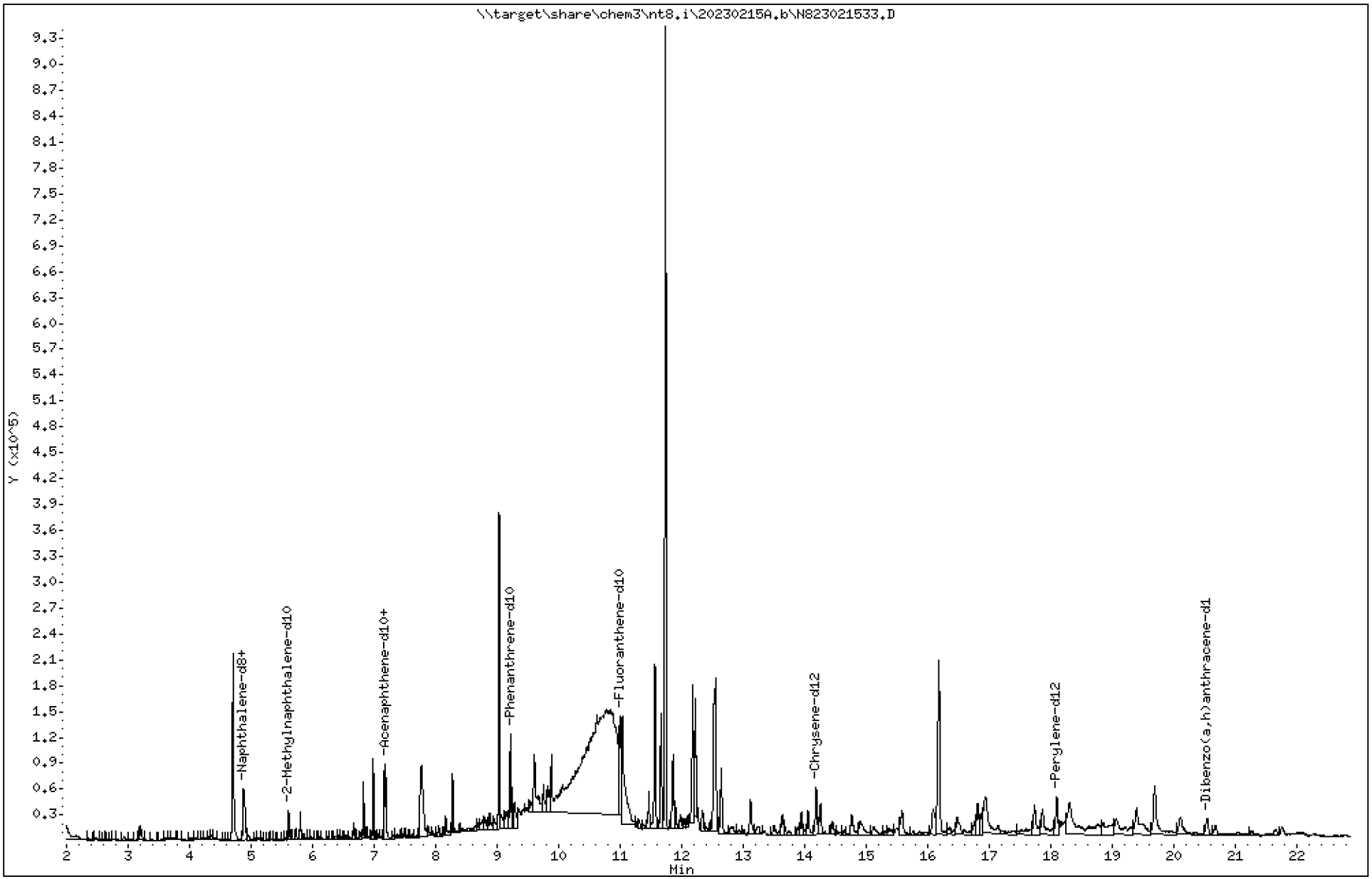
CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	3	136	D	2.45	14.9
218-01-9	Chrysene	3	212	D	3.13	14.9
205-99-2	Benzo(b)fluoranthene	3	215	D	4.08	14.9
207-08-9	Benzo(k)fluoranthene	3	118	D	2.26	14.9
50-32-8	Benzo(a)pyrene	3	204	D	1.82	14.9
193-39-5	Indeno(1,2,3-cd)pyrene	3	106	D	3.12	14.9
53-70-3	Dibenzo(a,h)anthracene	3	32.2	D	2.65	14.9
191-24-2	Benzo(g,h,i)perylene	3	118	D	3.16	14.9

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	148.54	147	98.7	32 - 120	
Dibenzo[a,h]anthracene-d14	148.54	224	151	21 - 133	*
Fluoranthene-d10	148.54	191	129	36 - 134	

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Date : 16-FEB-2023 02:06
Client ID:
Sample Info: 23A0626-03,3

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23A0626 02/22/2023 Page 42 of 1233

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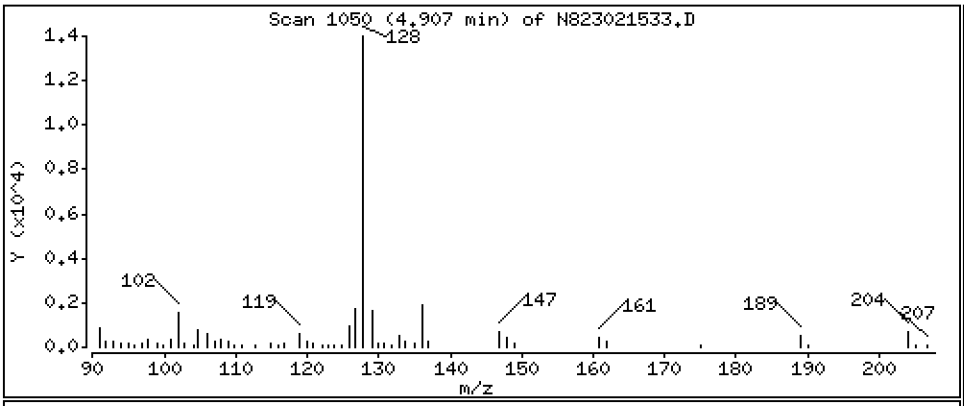
Operator: JZ

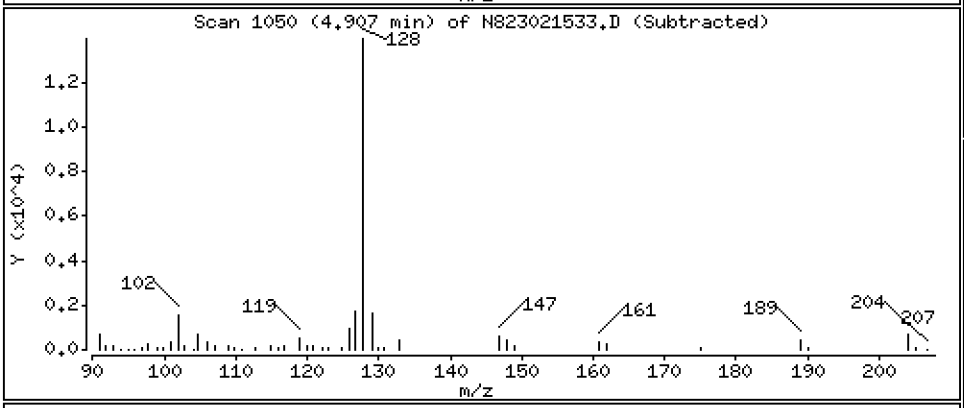
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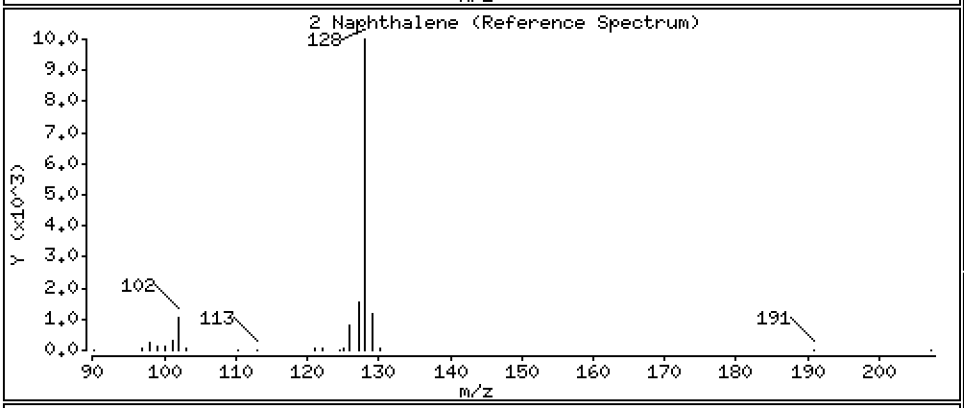
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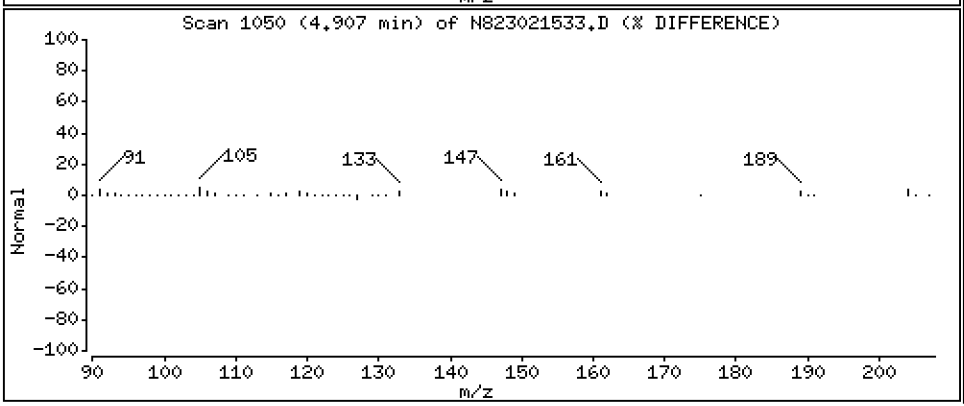
2 Naphthalene

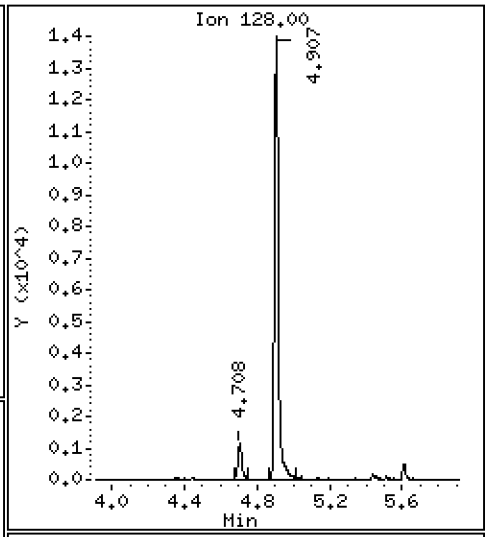
Concentration: 3.171 ug/mL

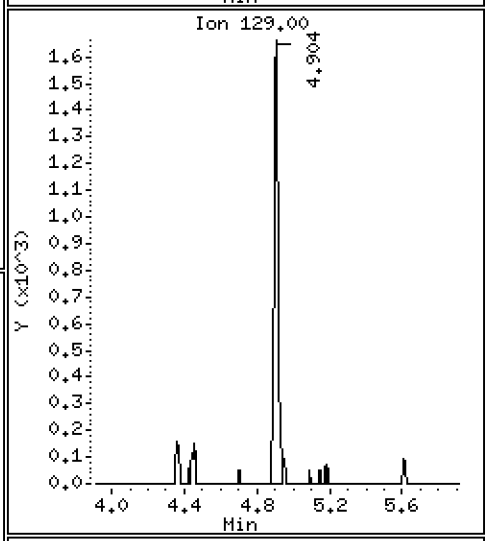


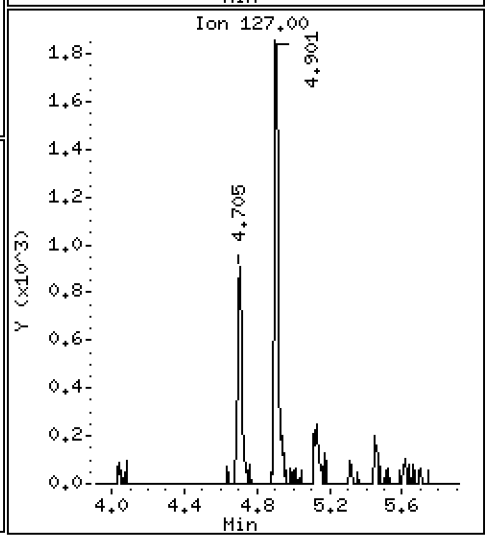












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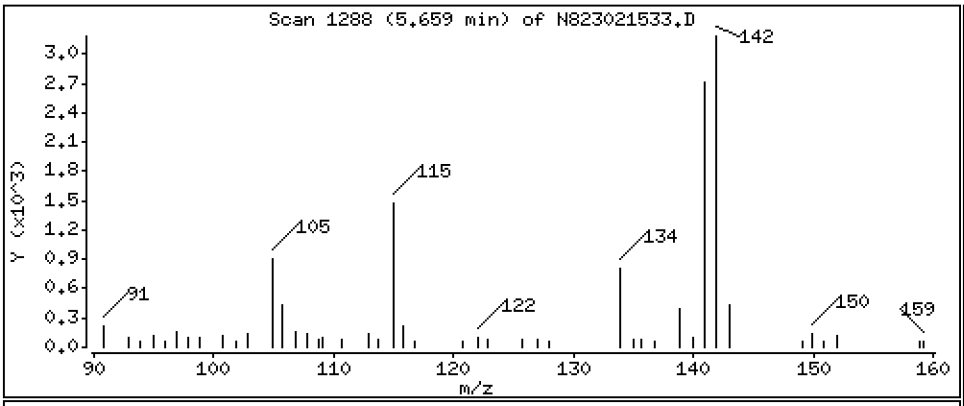
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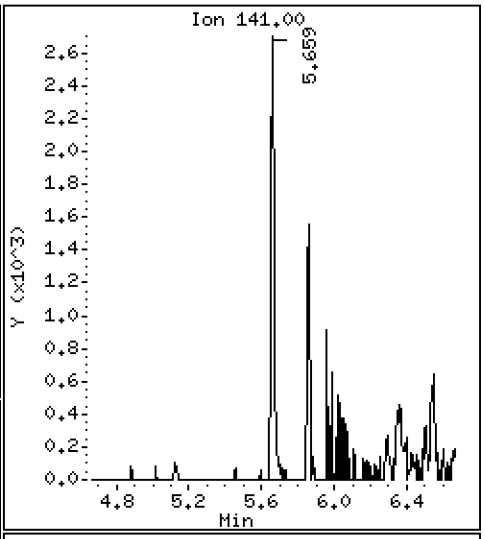
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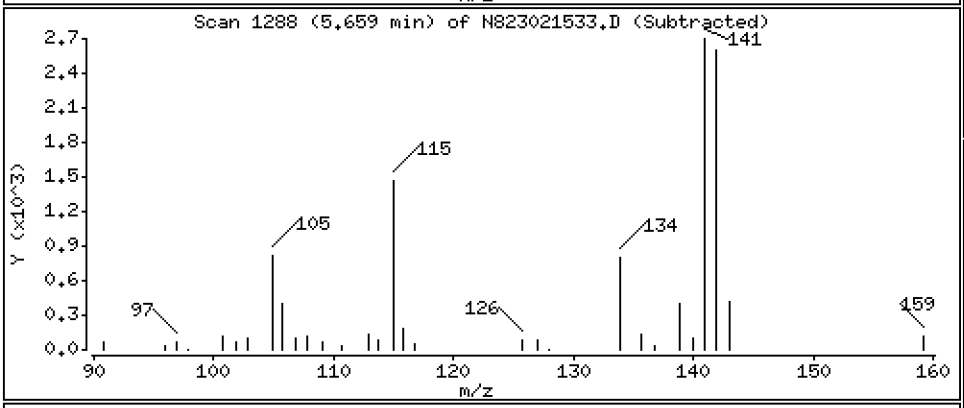
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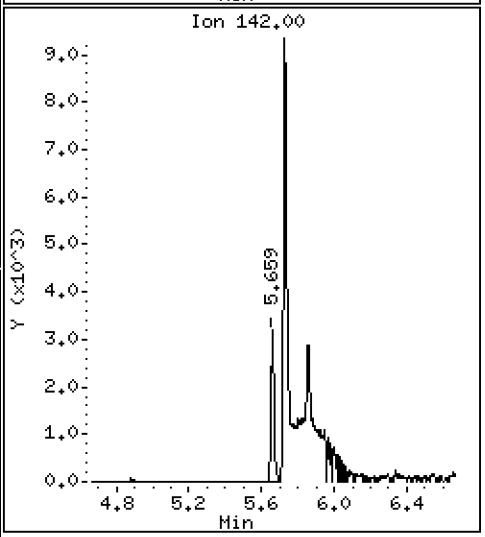
4 2-Methylnaphthalene

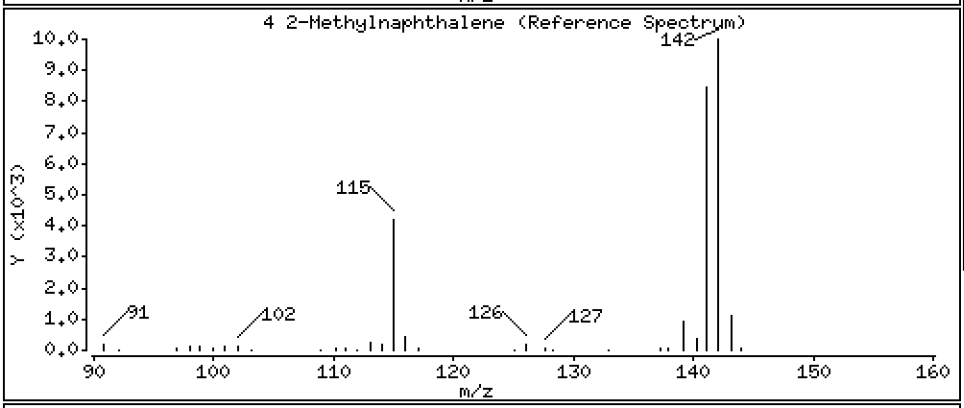
Concentration: 0.8959 ug/mL

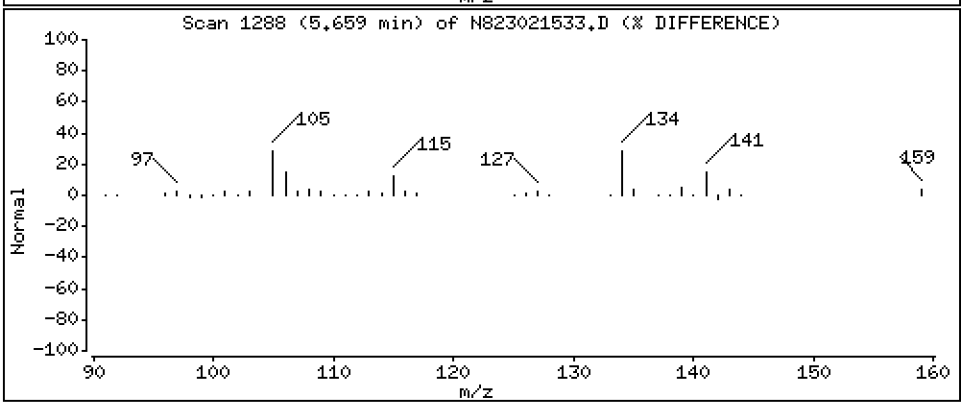












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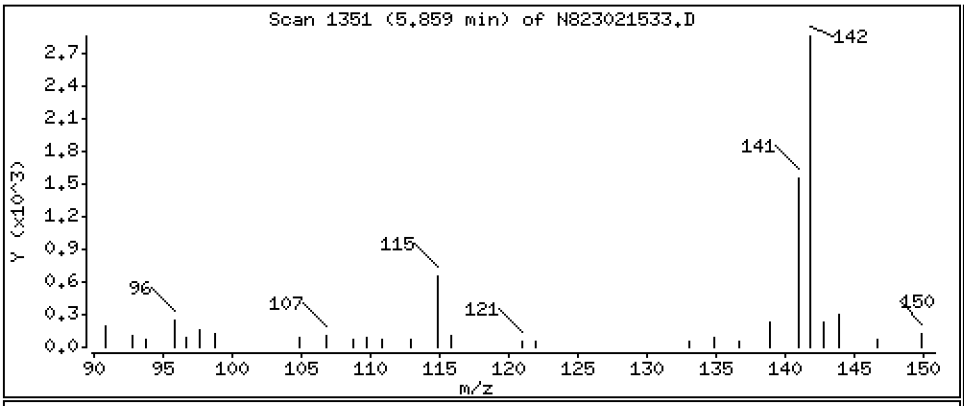
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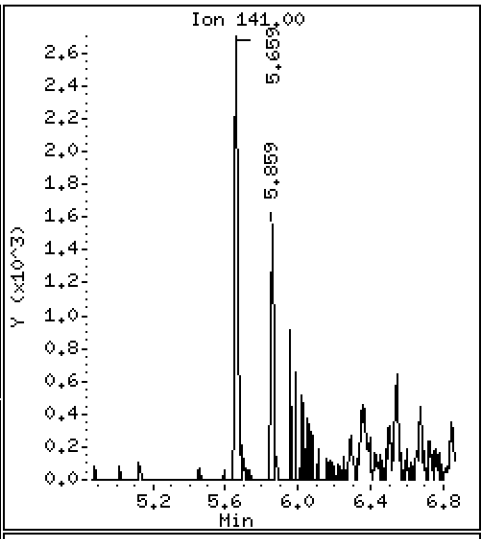
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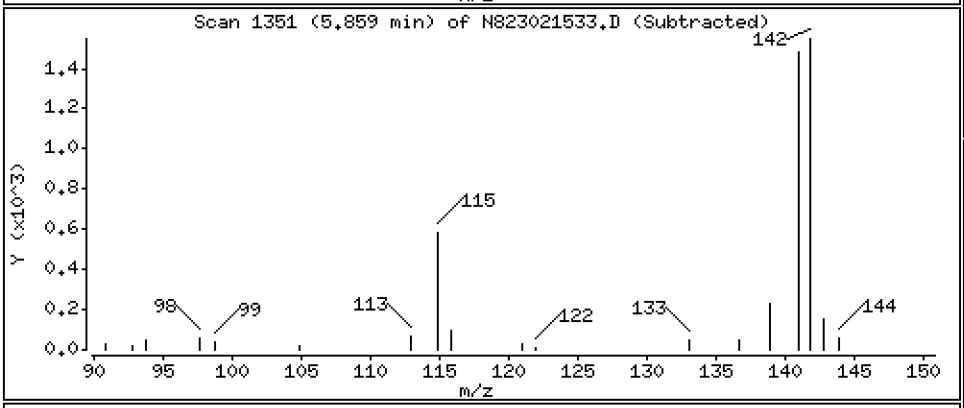
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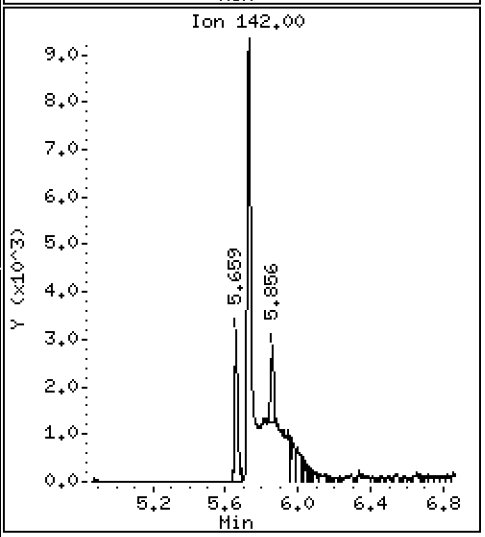
5 1-methylnaphthalene

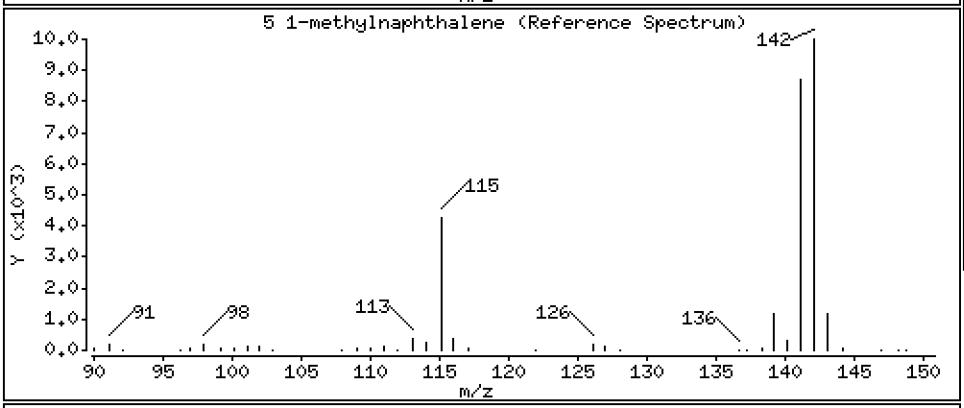
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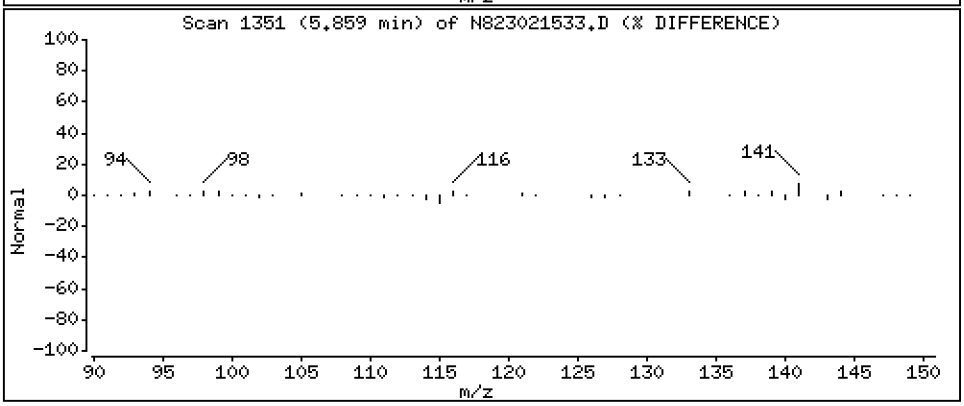












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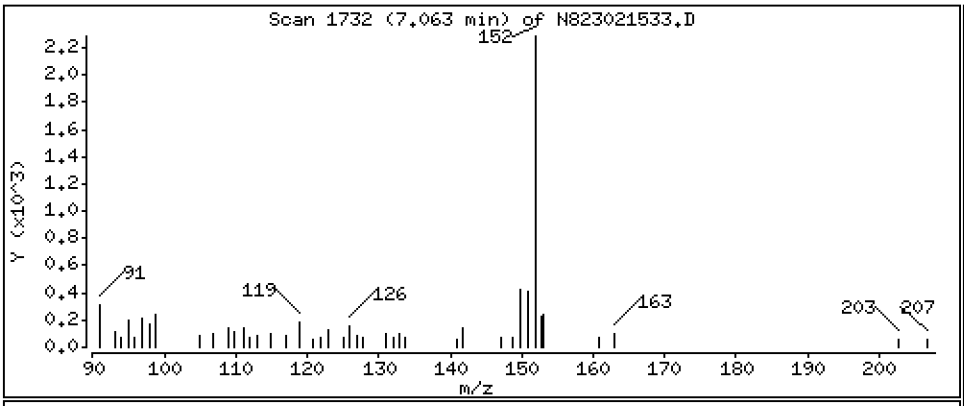
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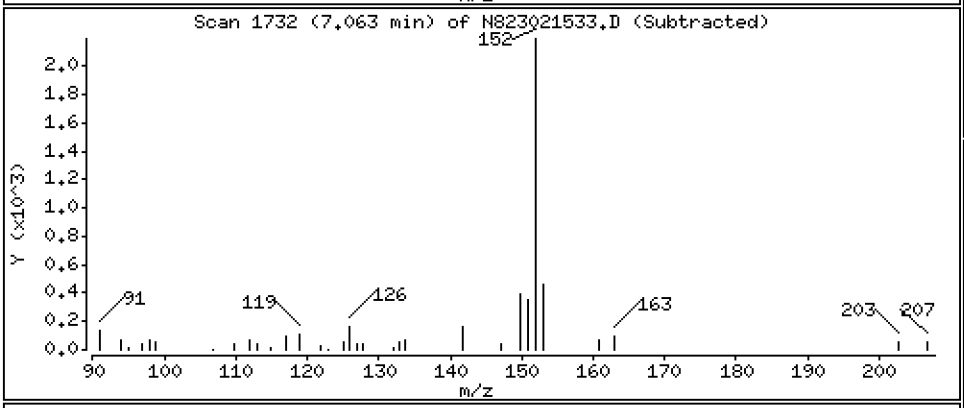
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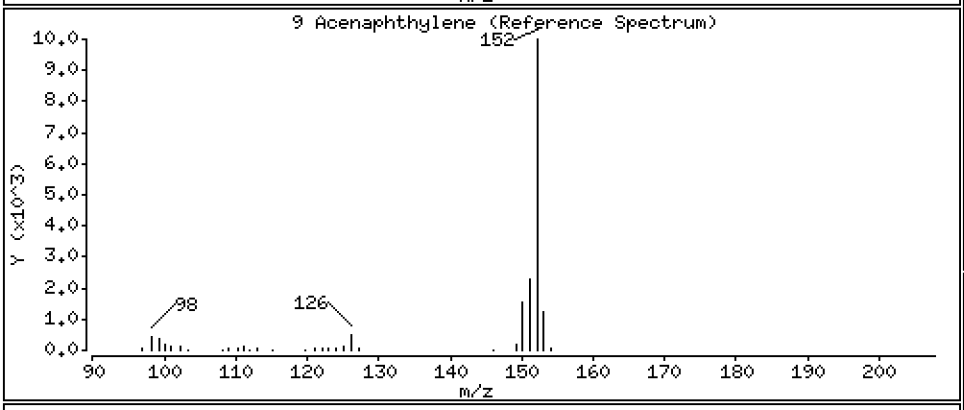
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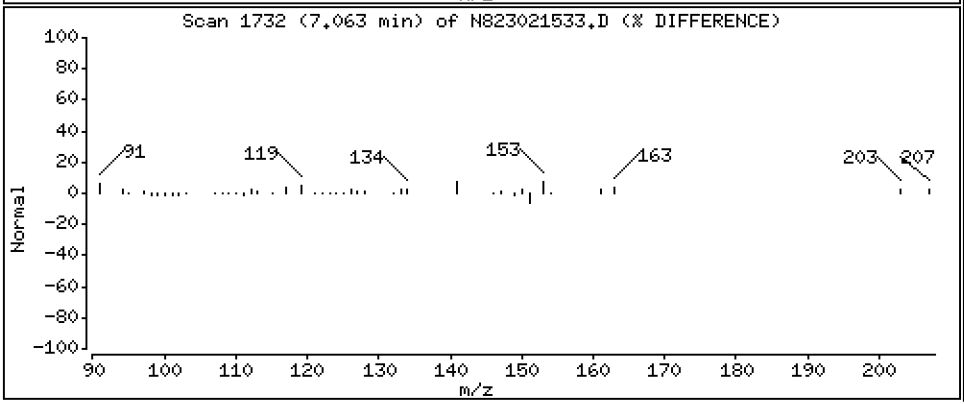
9 Acenaphthylene

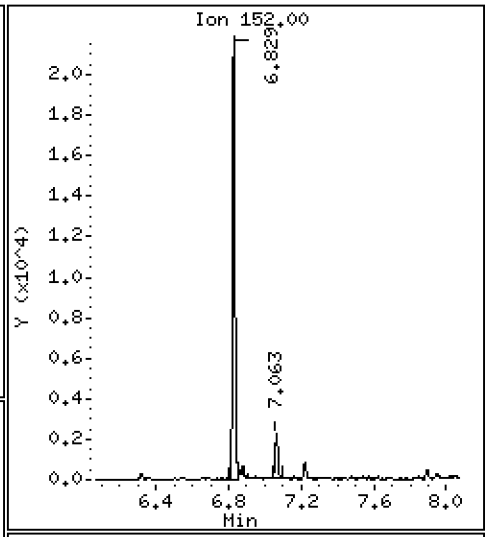
Concentration: 0.3623 ug/mL

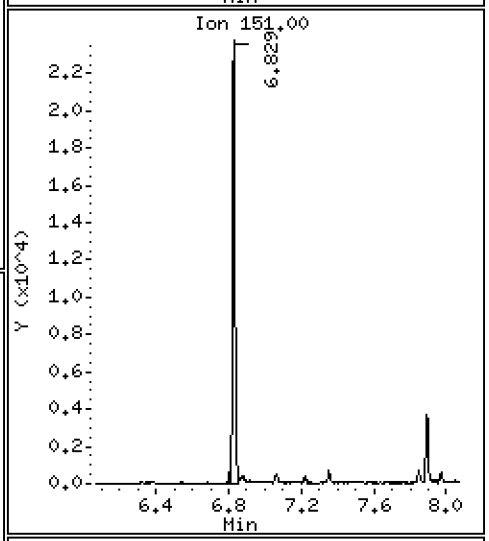


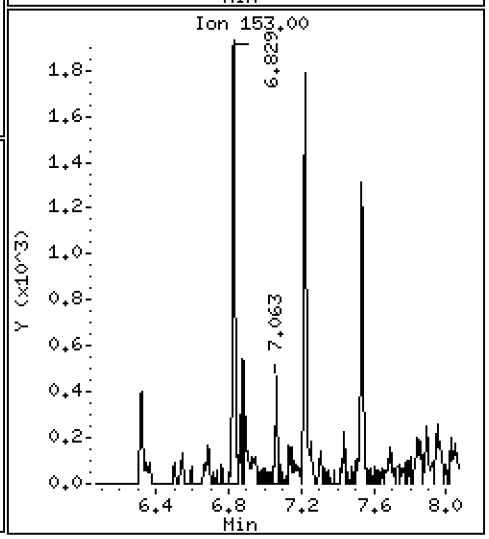












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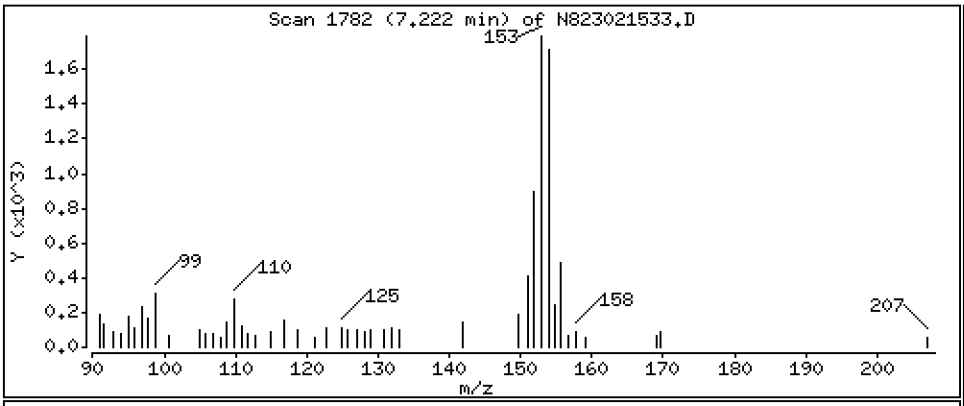
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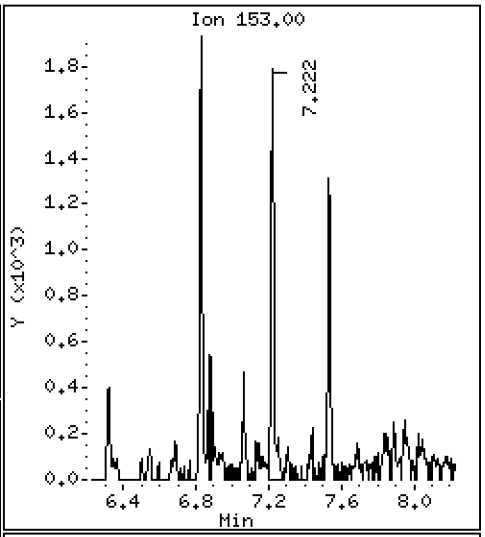
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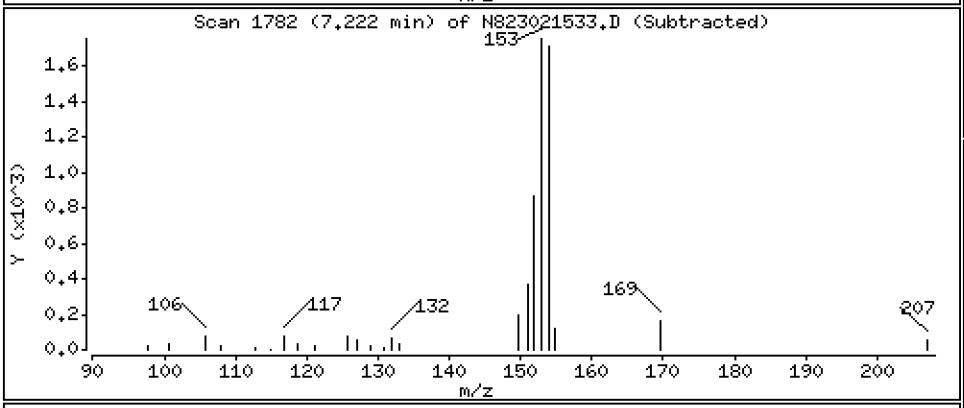
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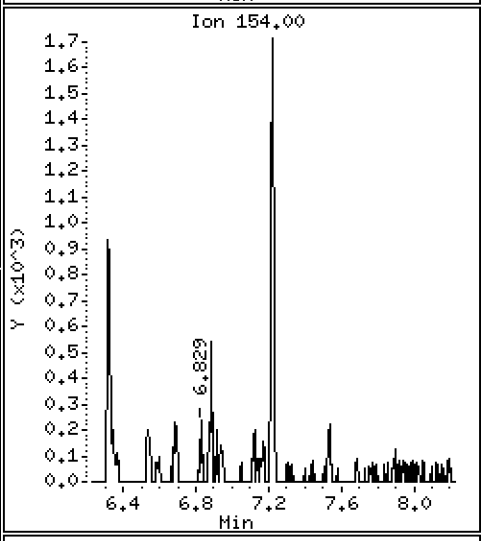
11 Acenaphthene

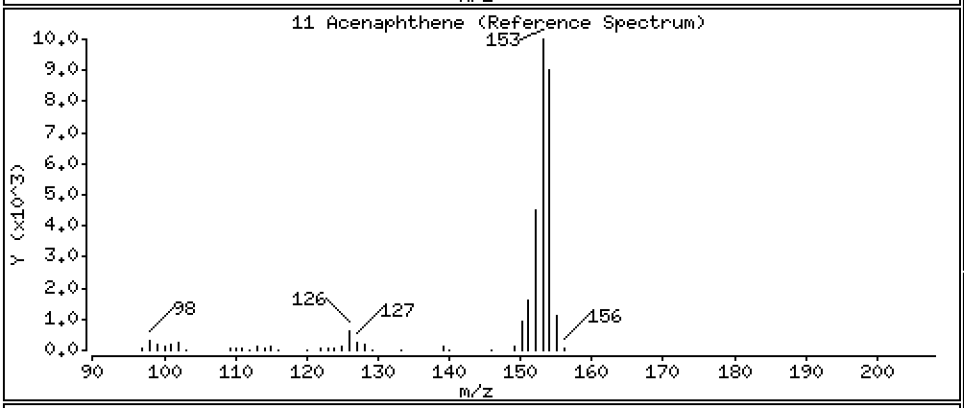
Concentration: 0.4748 ug/mL

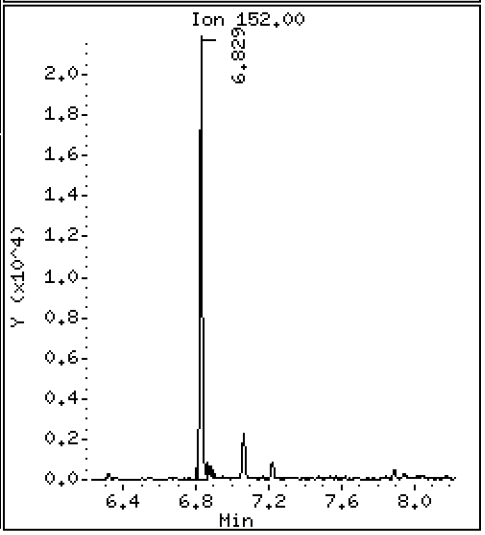


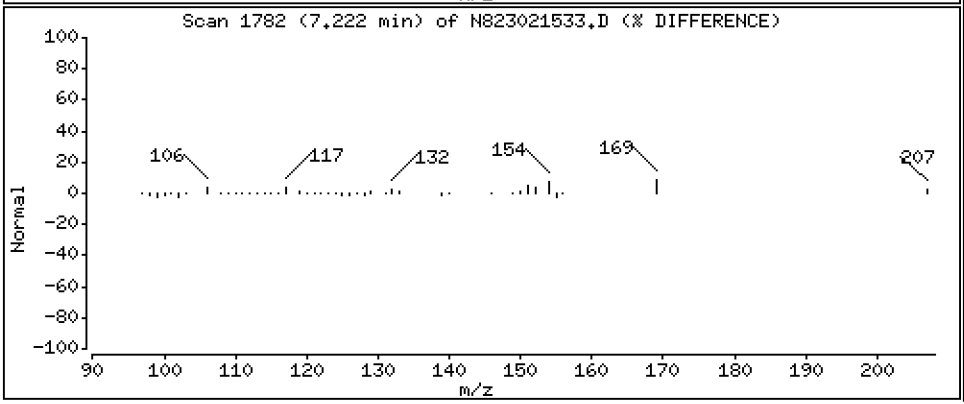












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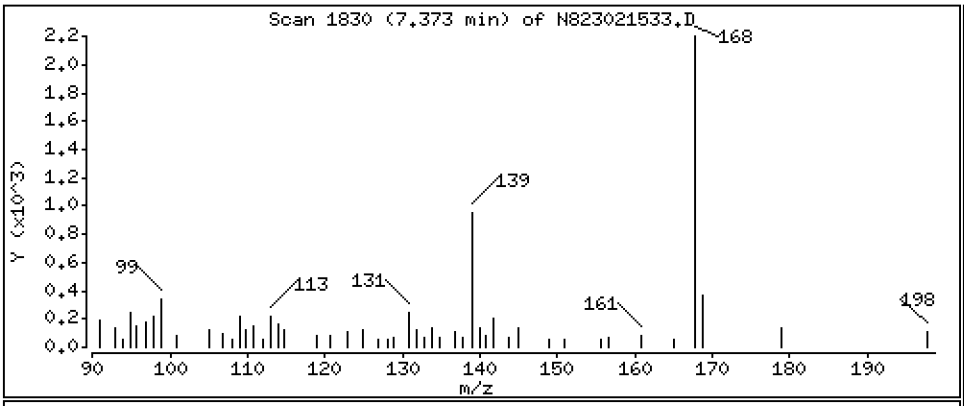
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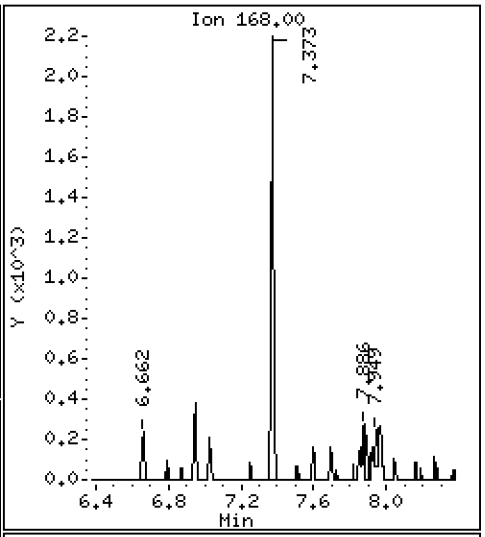
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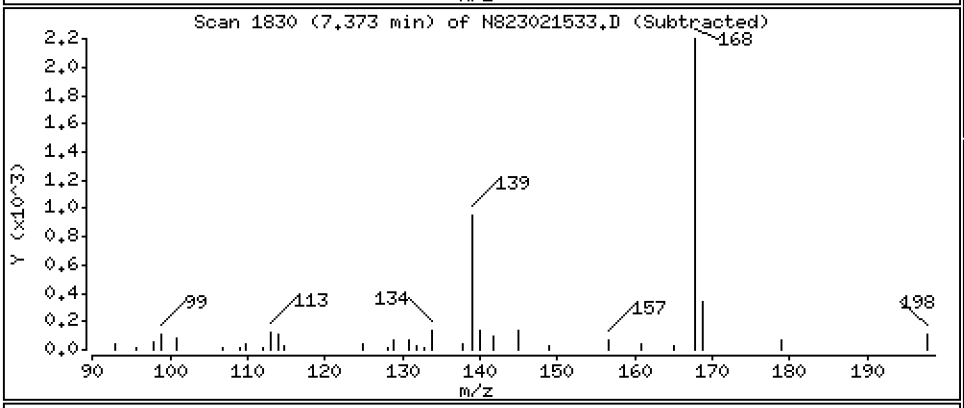
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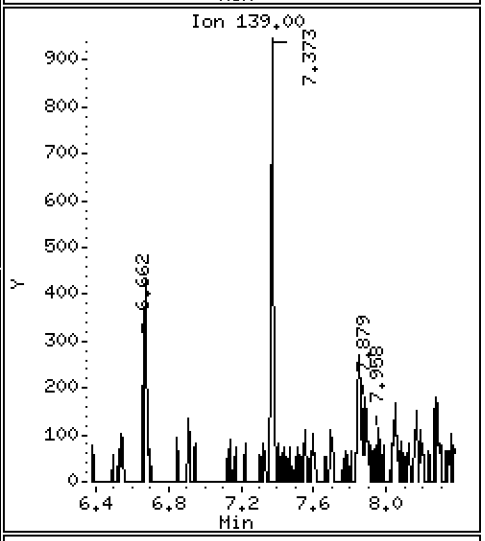
12 Dibenzofuran

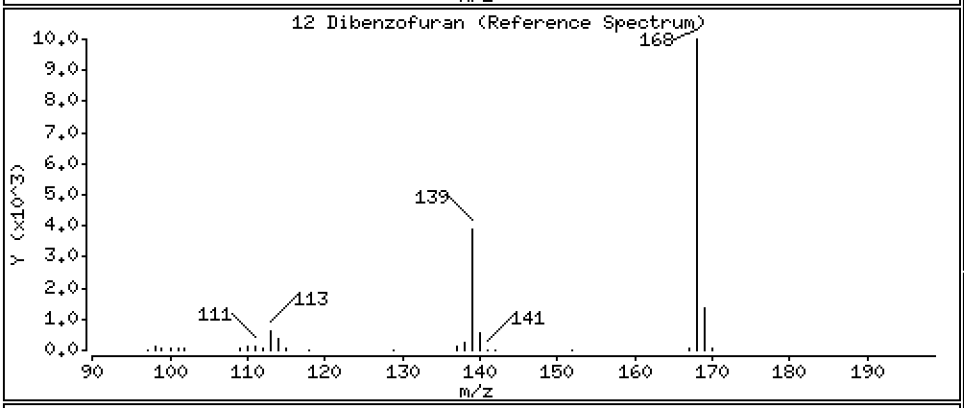
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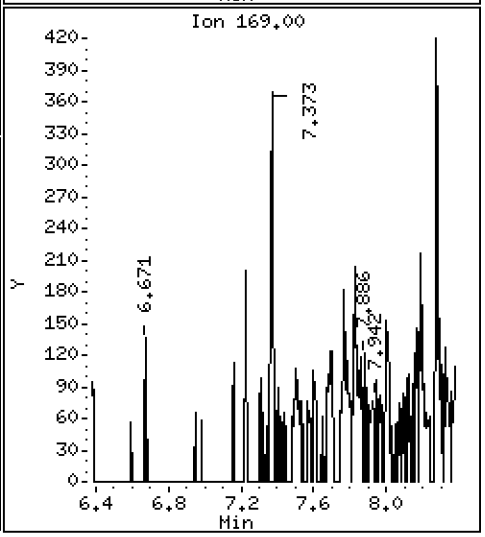


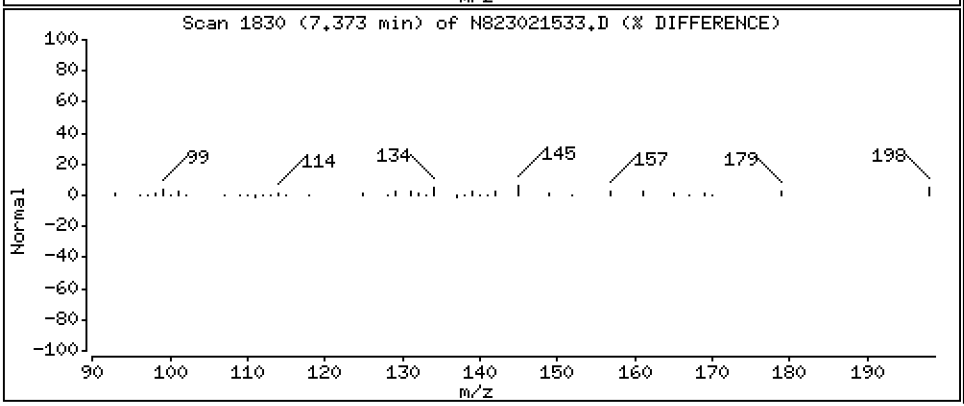












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

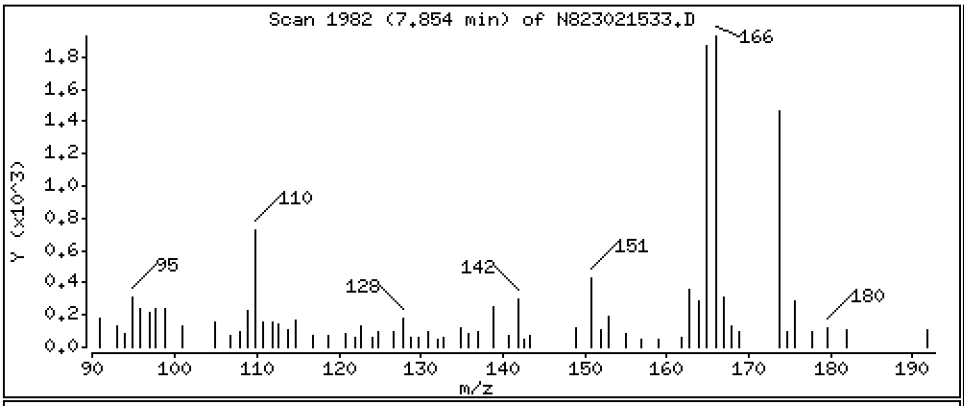
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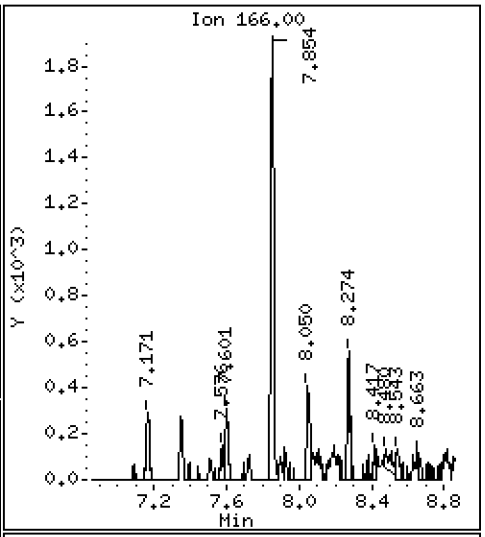
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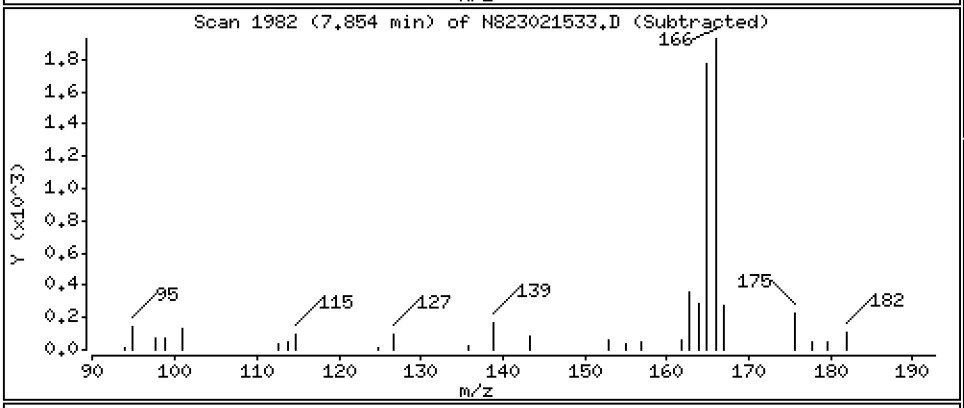
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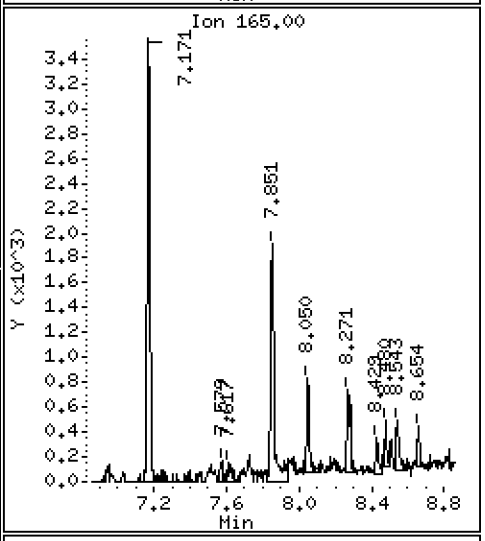
14 Fluorene

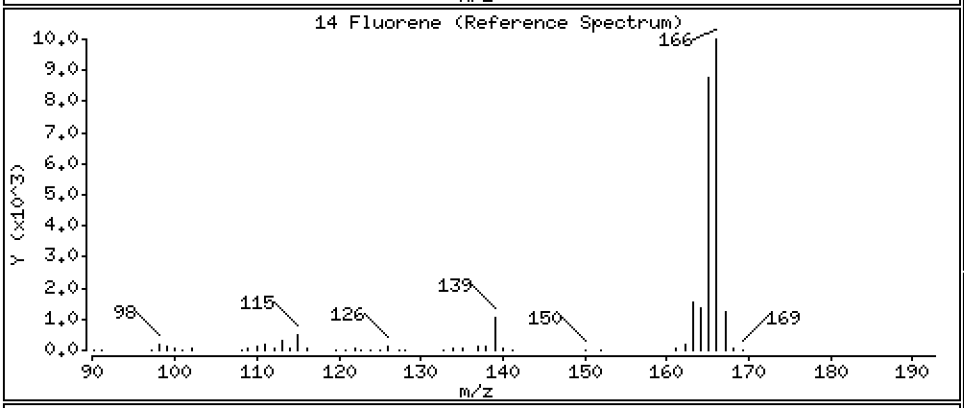
Concentration: 0.4236 ug/mL

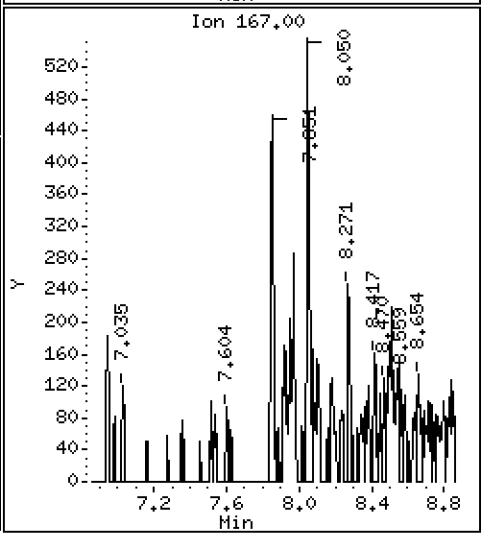


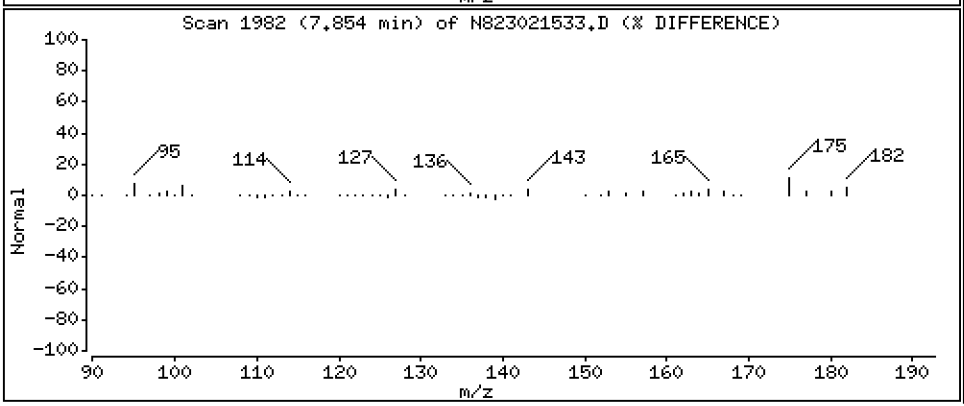












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021533.D

Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

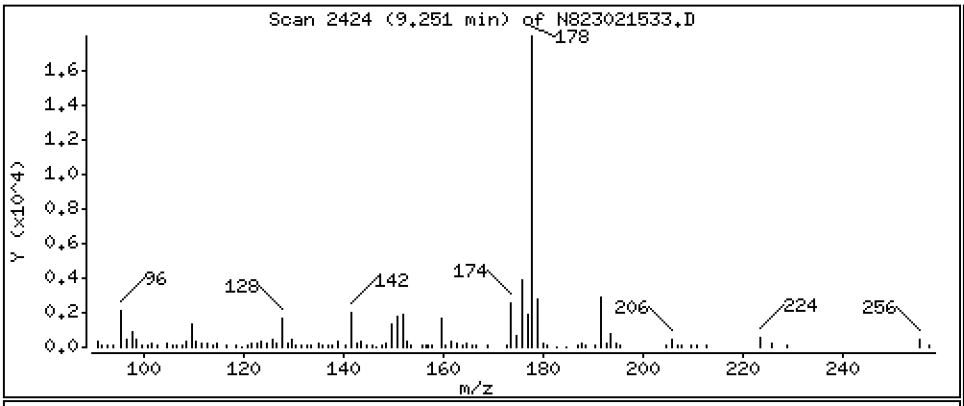
Operator: JZ

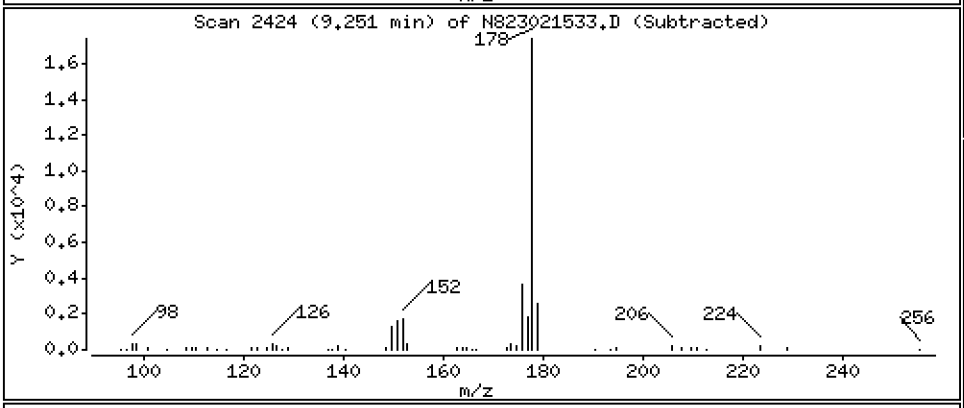
Column phase: Rxi-17sil

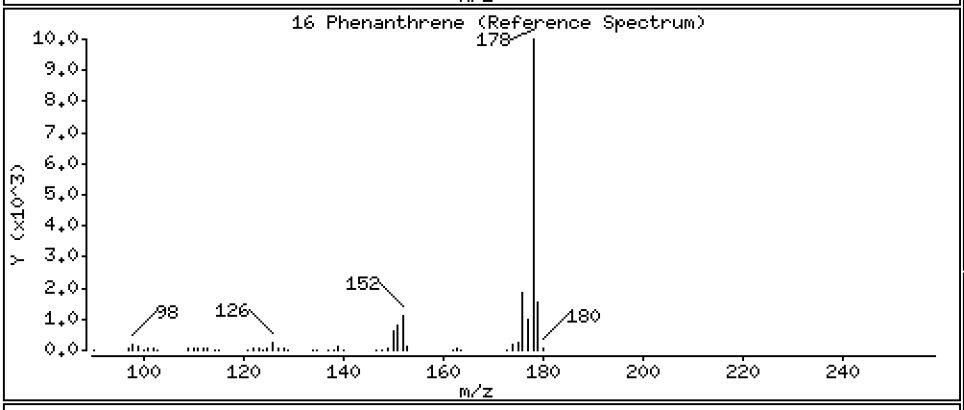
Column diameter: 0.25

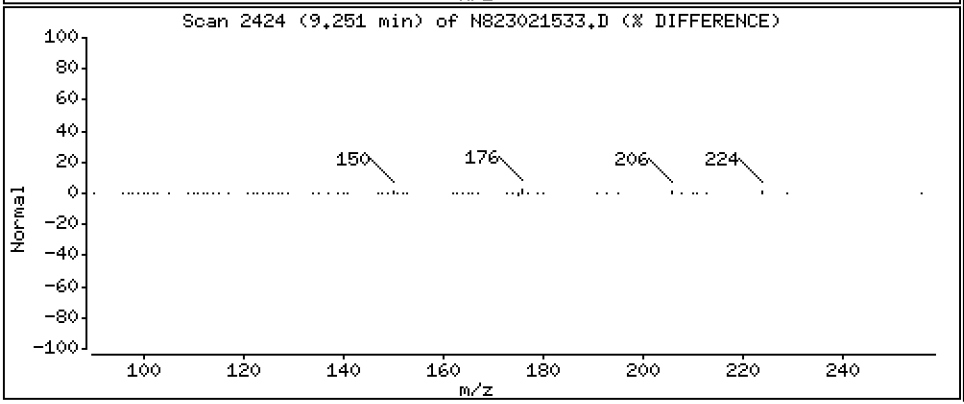
16 Phenanthrene

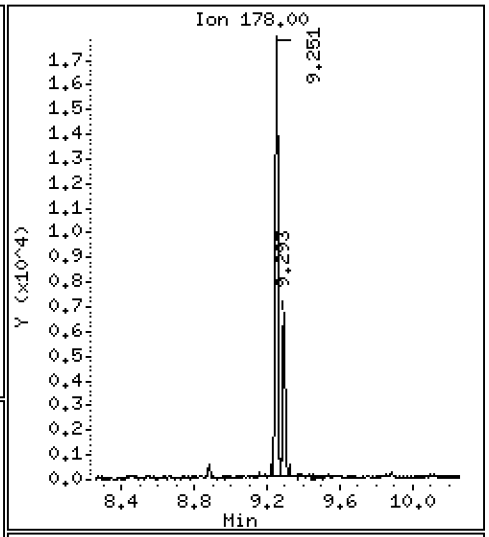
Concentration: 2.333 ug/mL

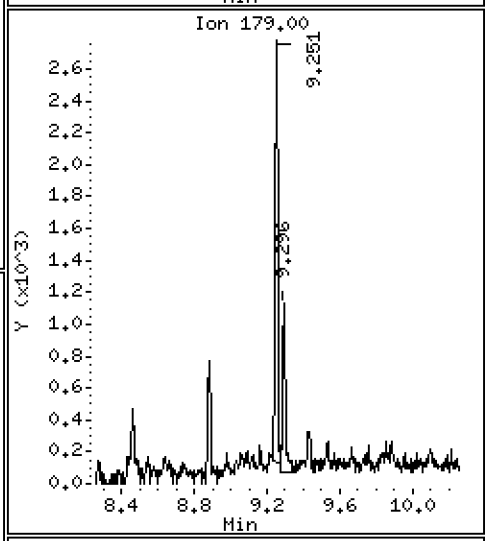


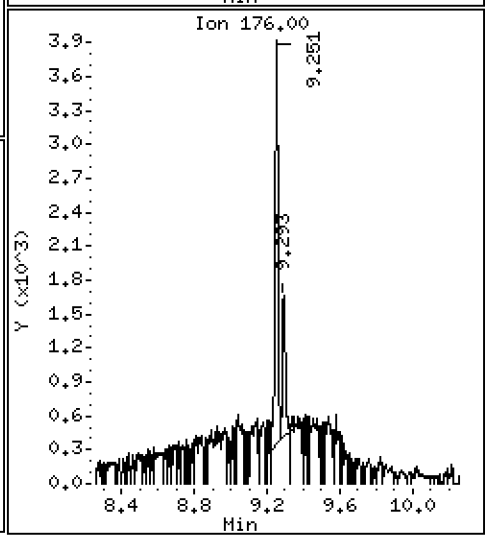












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

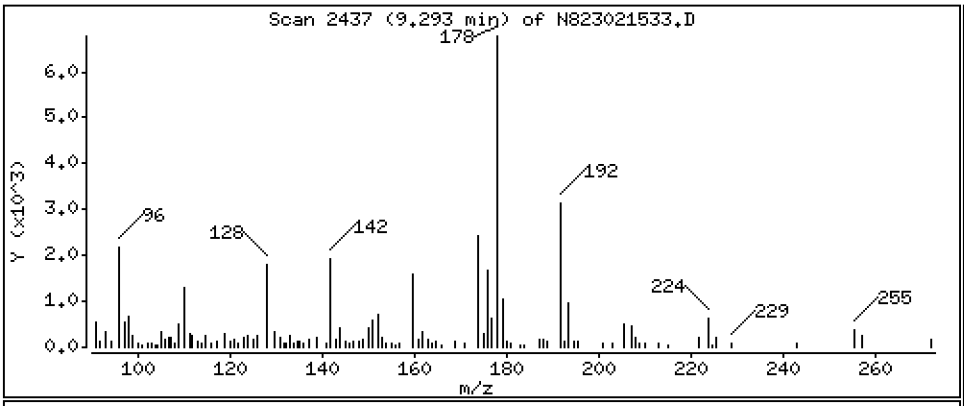
Operator: JZ

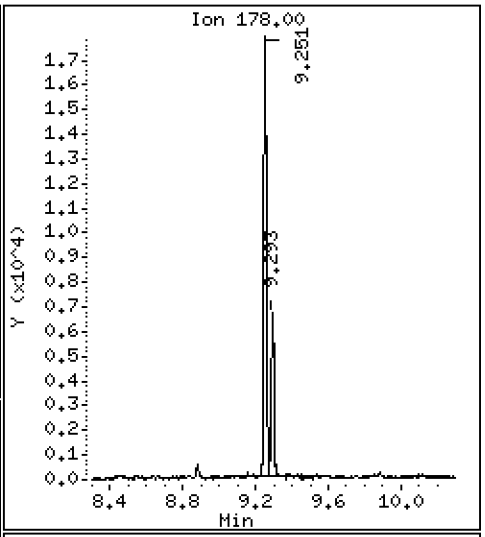
Column phase: Rxi-17sil

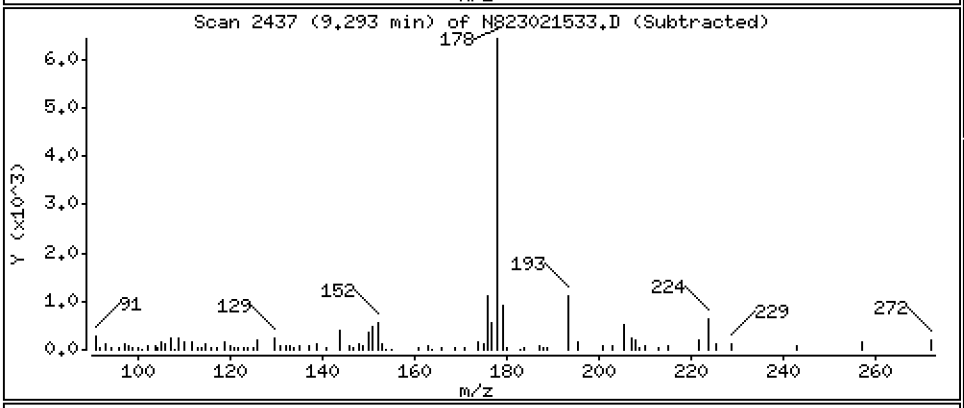
Column diameter: 0.25

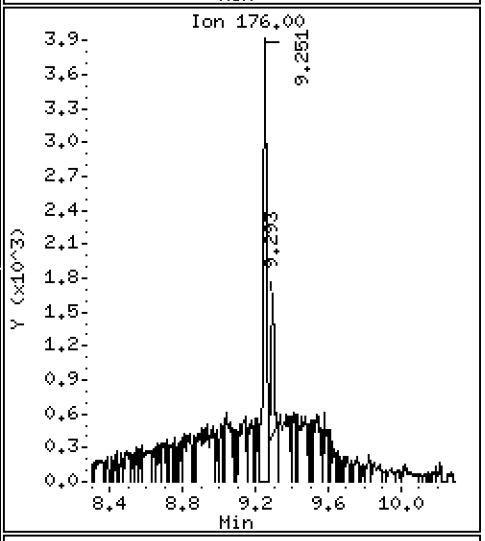
17 Anthracene

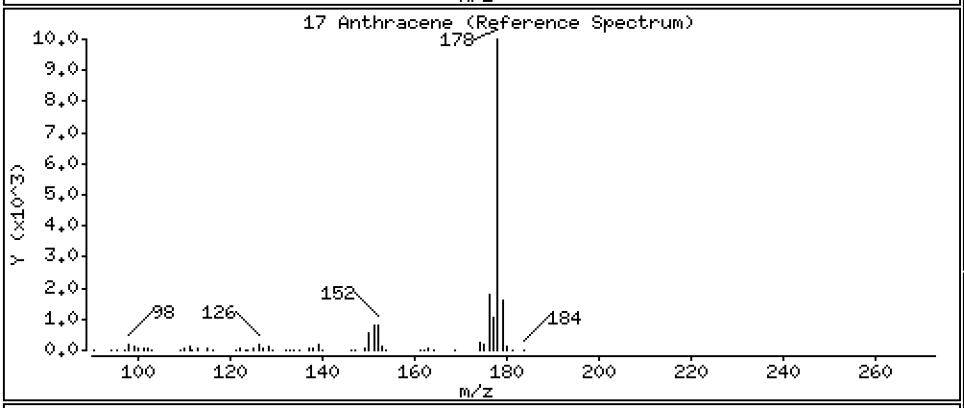
Concentration: 0.9720 ug/mL

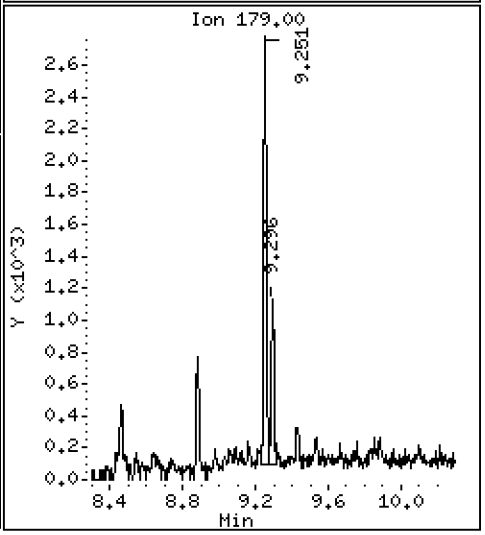


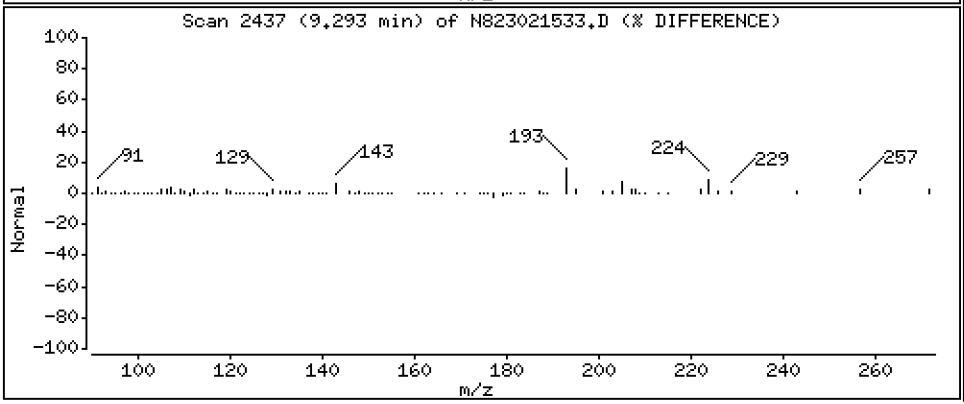












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

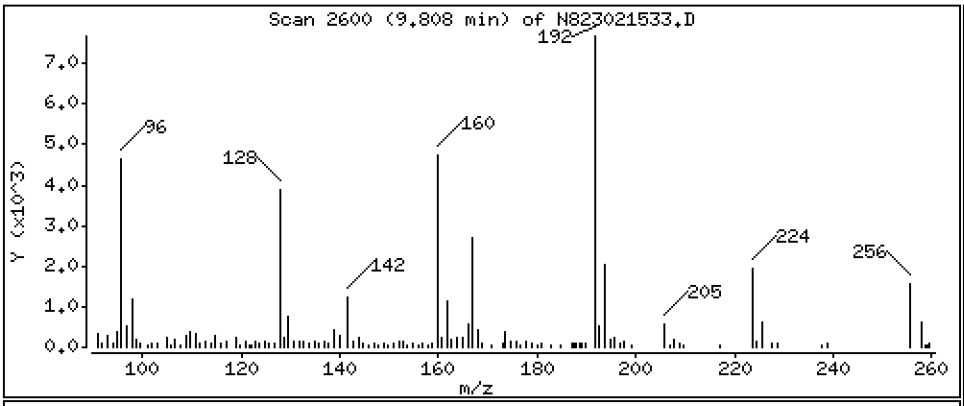
Operator: JZ

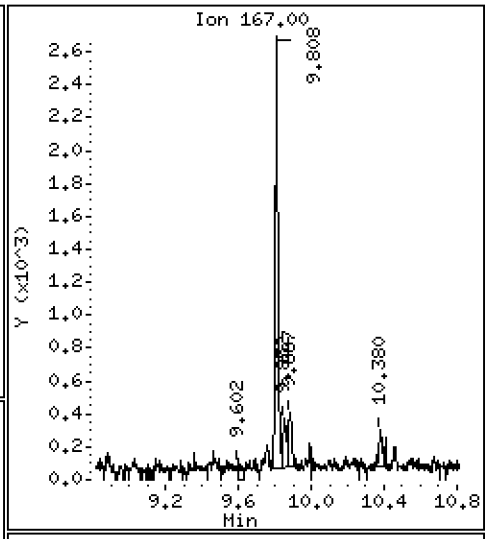
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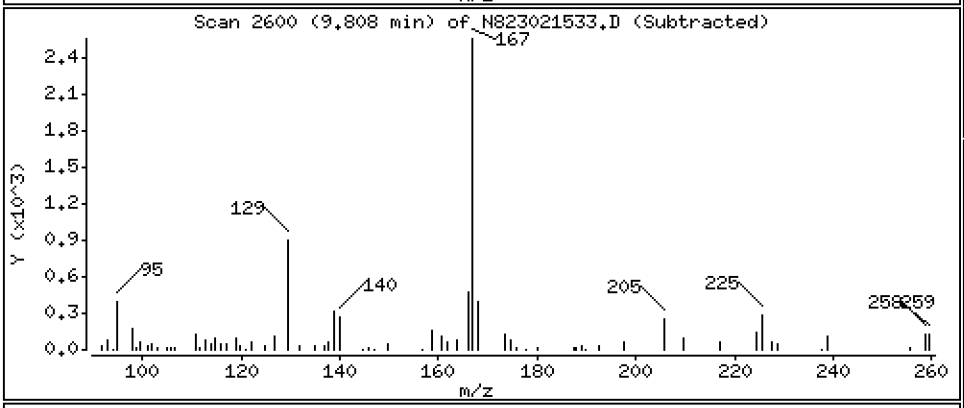
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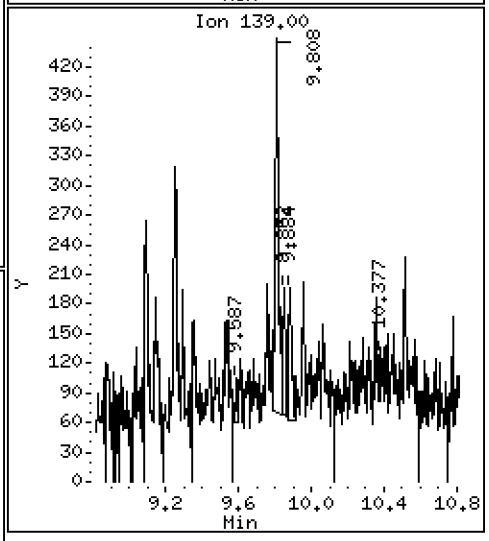
19 Carbazole

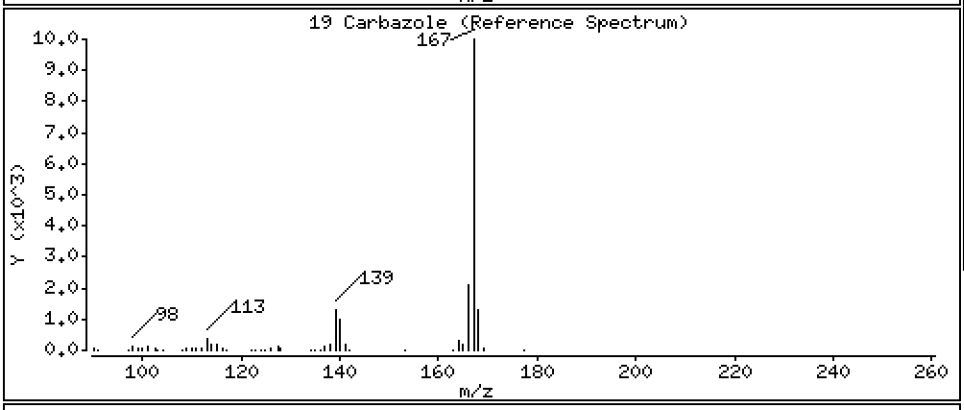
Concentration: 0.4461 ug/mL

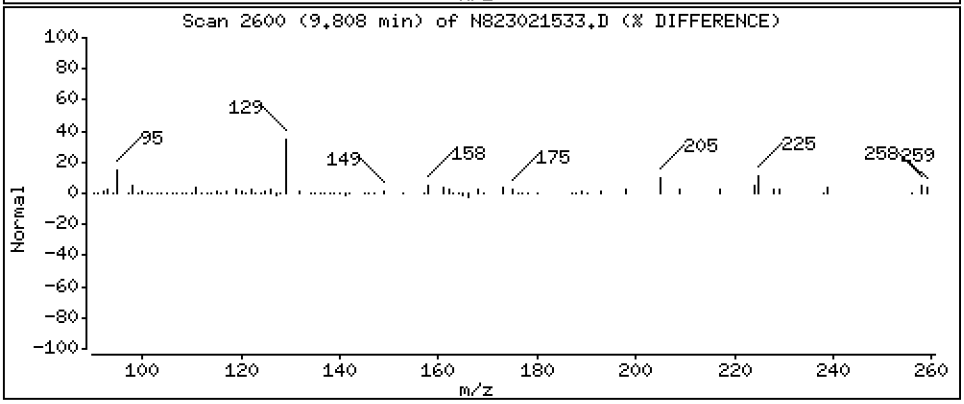












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Sample Info: 23A0626-03,3

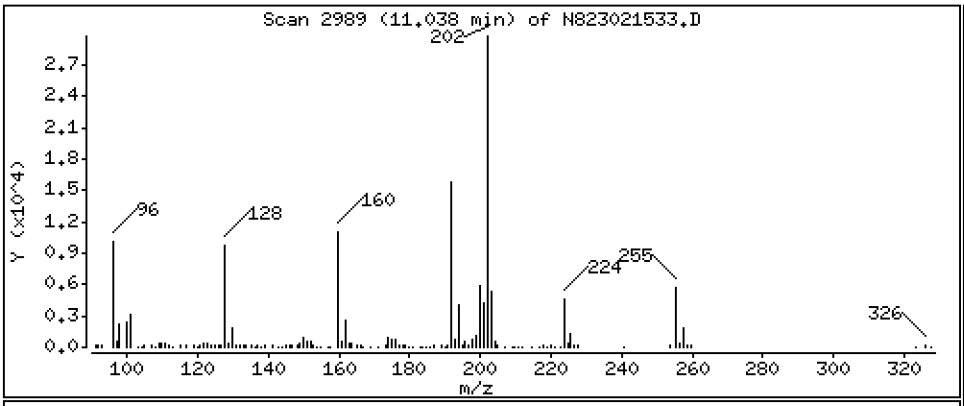
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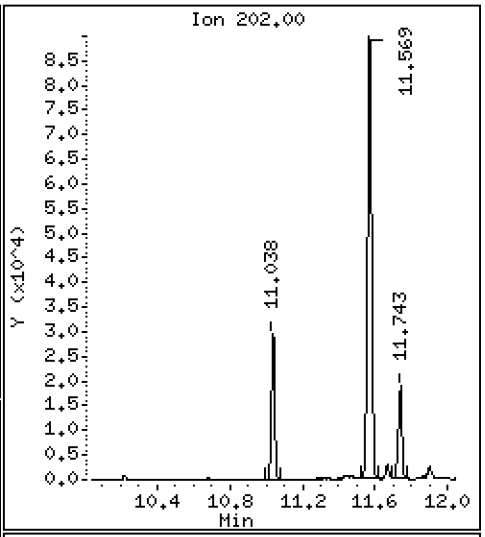
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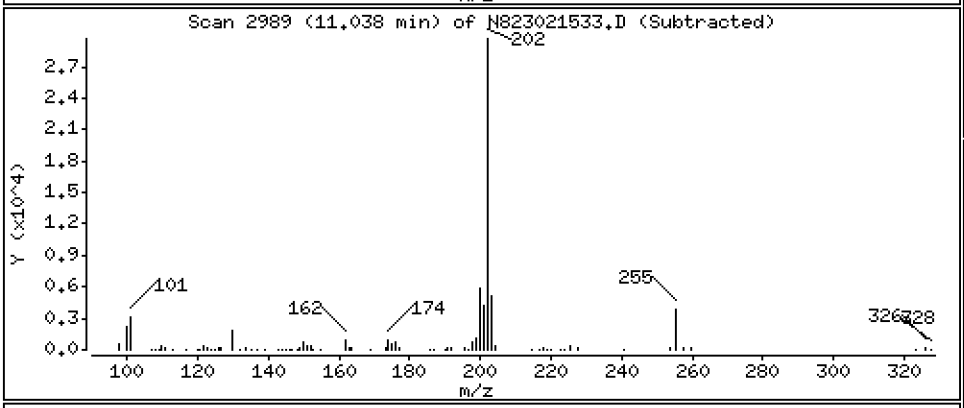
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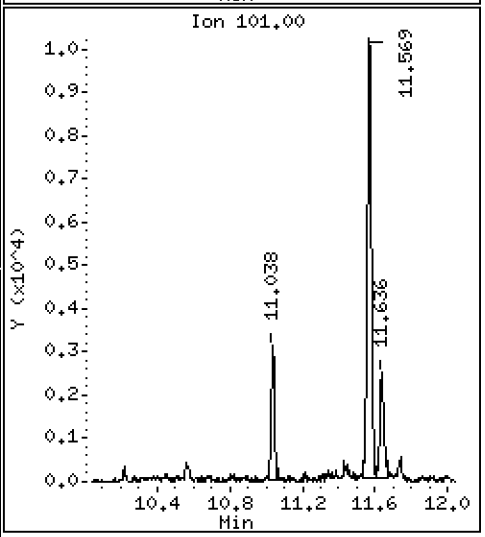
22 Fluoranthene

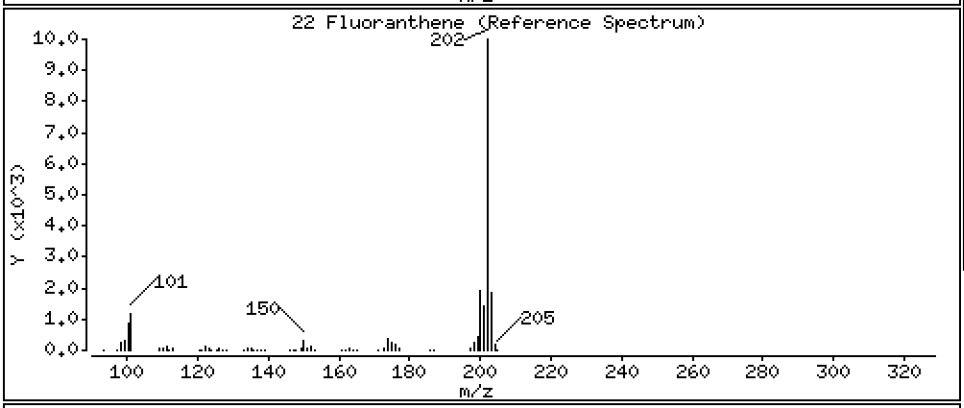
Concentration: 4.703 ug/mL

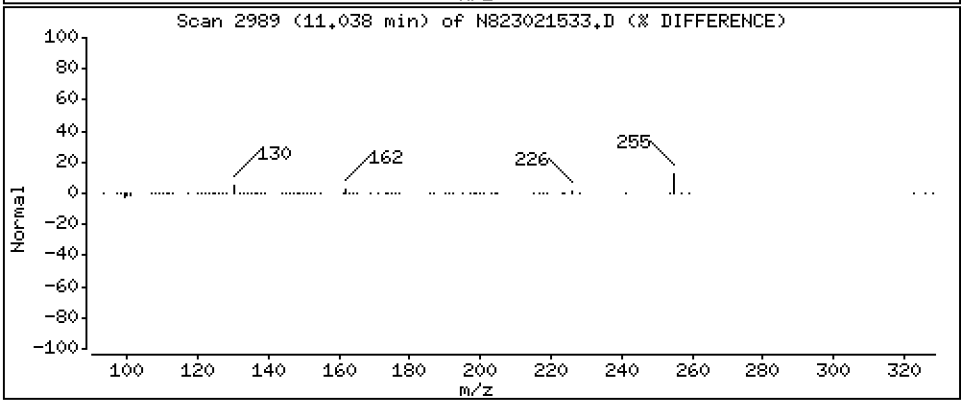












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Sample Info: 23A0626-03,3

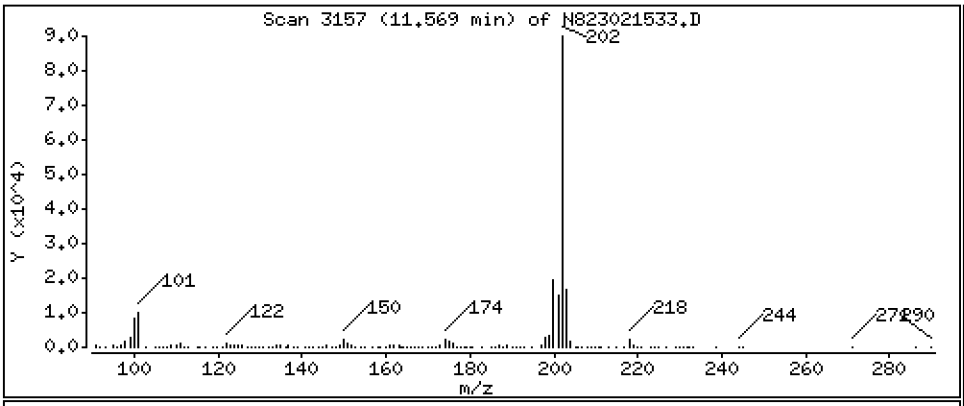
Operator: JZ

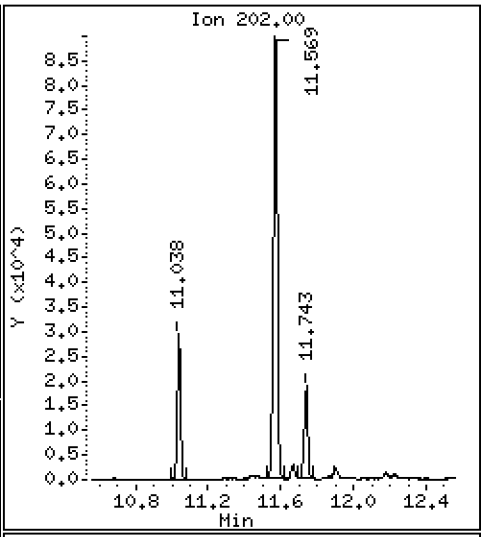
Column phase: Rxi-17sil

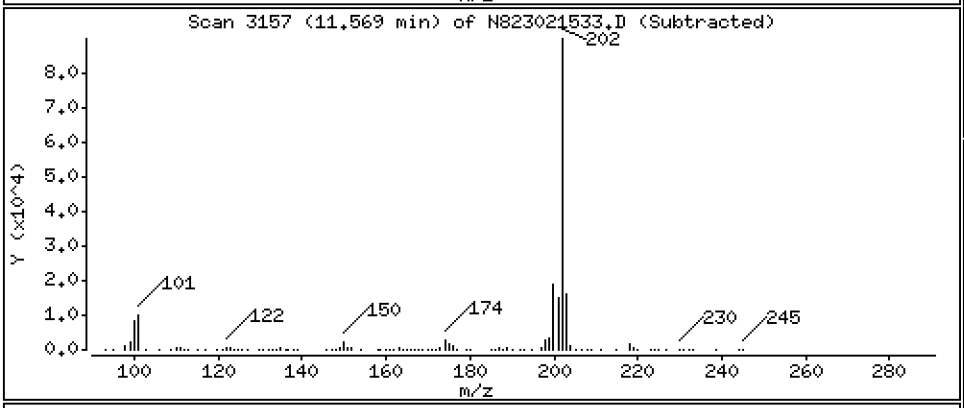
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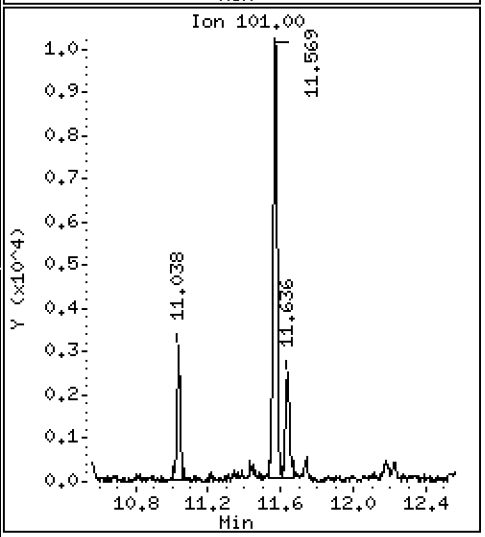
23 Pyrene

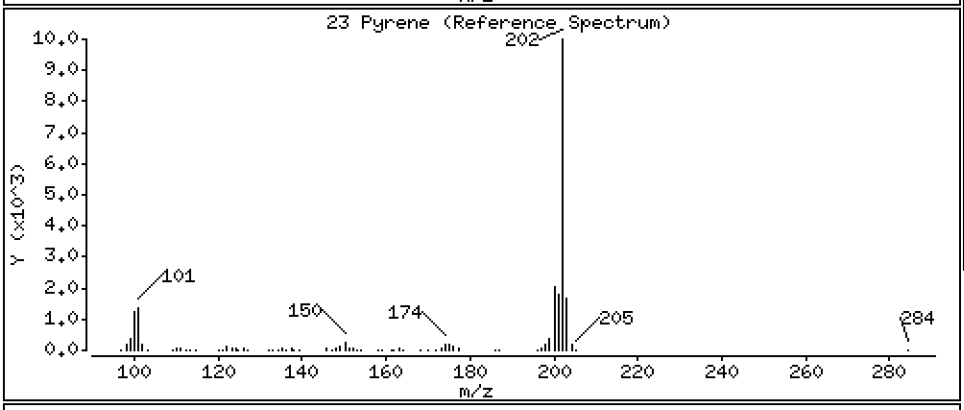
Concentration: 20.36 ug/mL

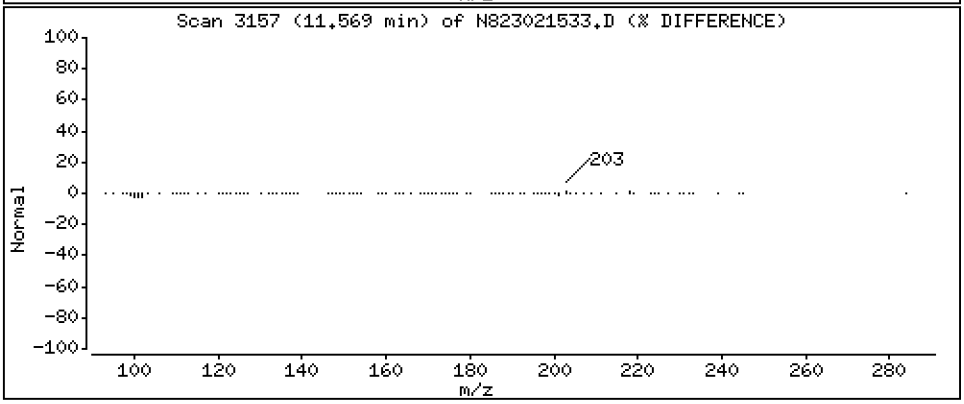












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Sample Info: 23A0626-03,3

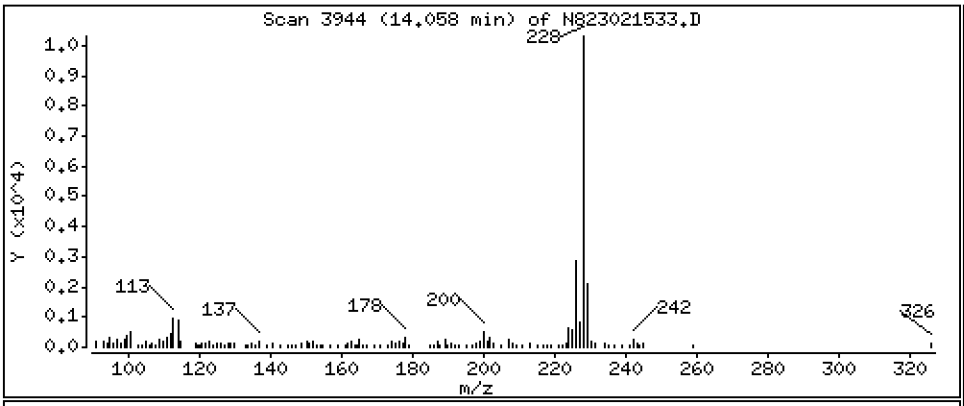
Operator: JZ

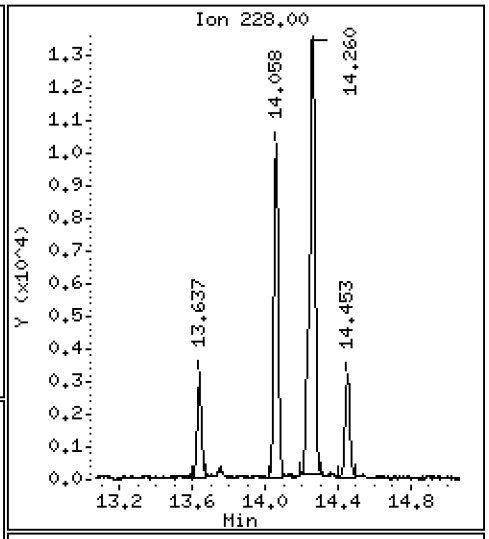
Column phase: Rxi-17sil

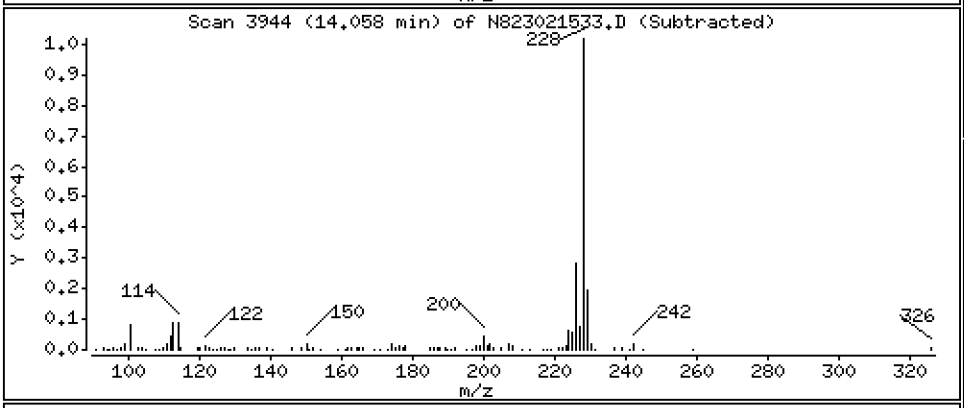
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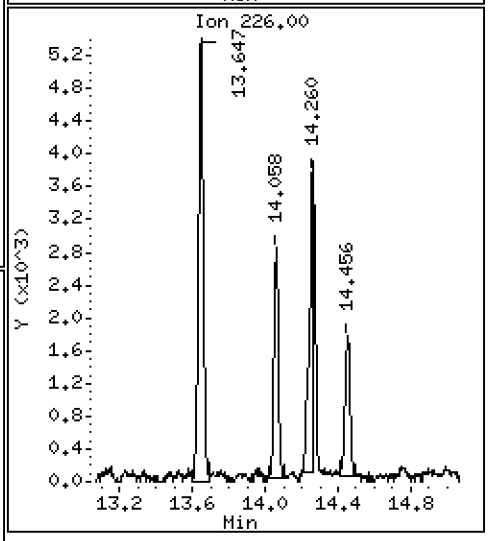
24 Benzo(a)anthracene

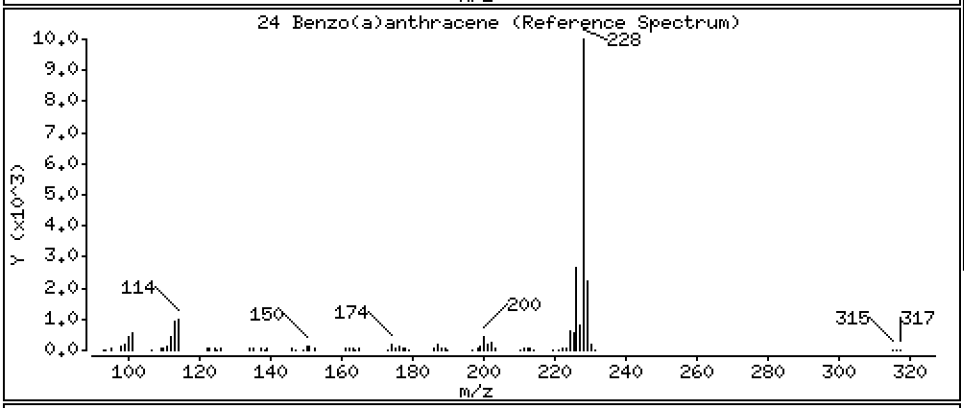
Concentration: 2.748 ug/mL

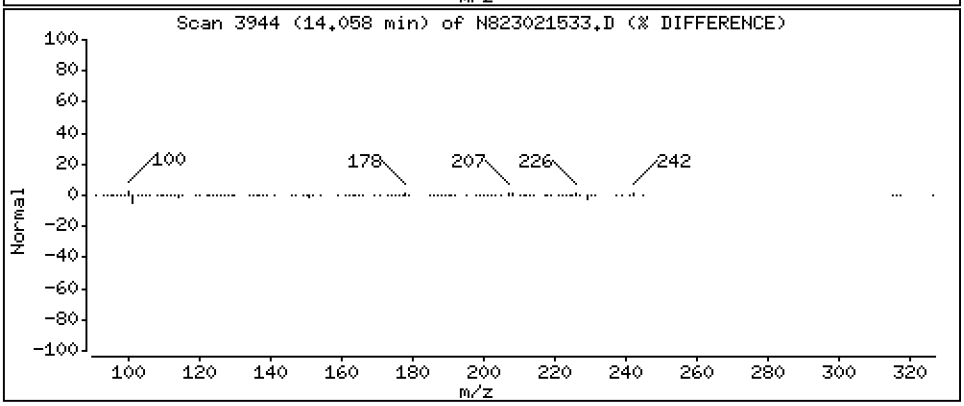












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Sample Info: 23A0626-03,3

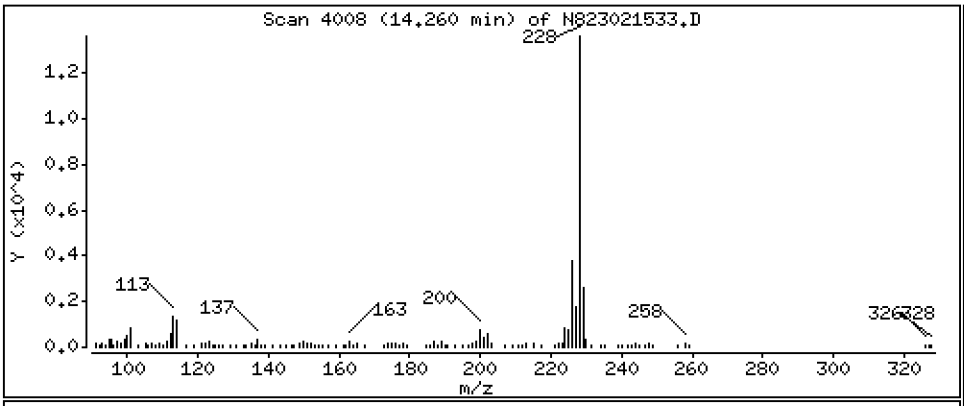
Operator: JZ

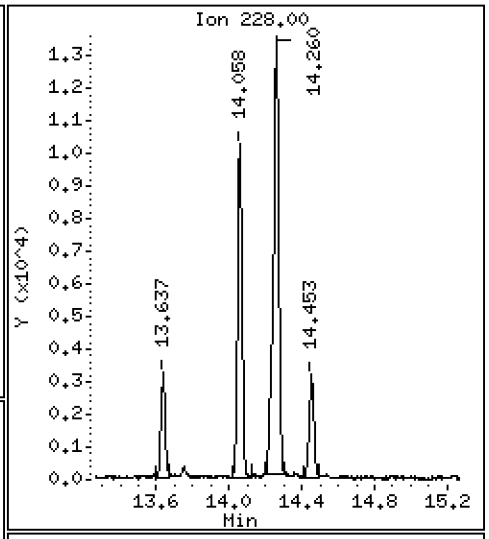
Column phase: Rxi-17sil

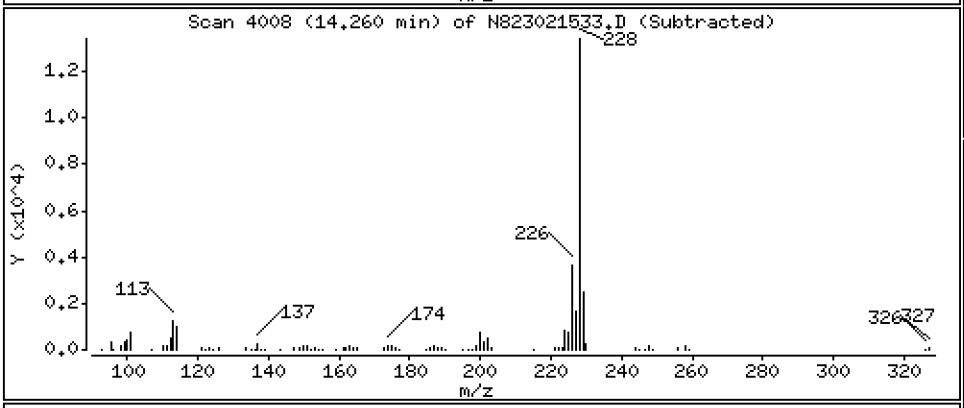
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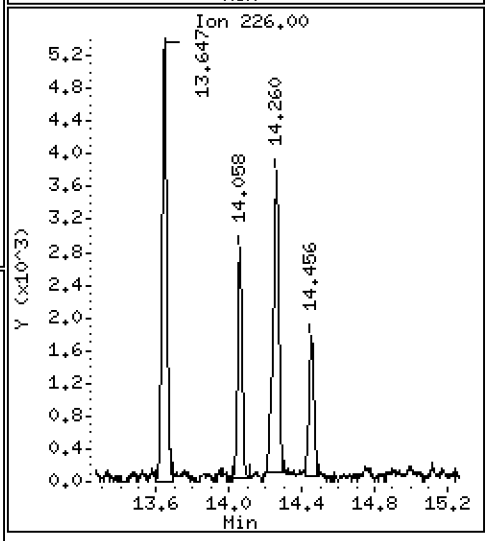
27 Chrysene

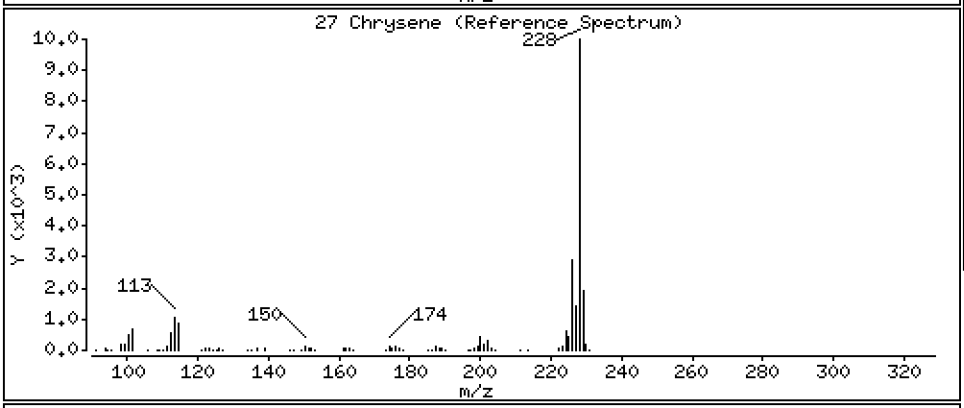
Concentration: 4.283 ug/mL

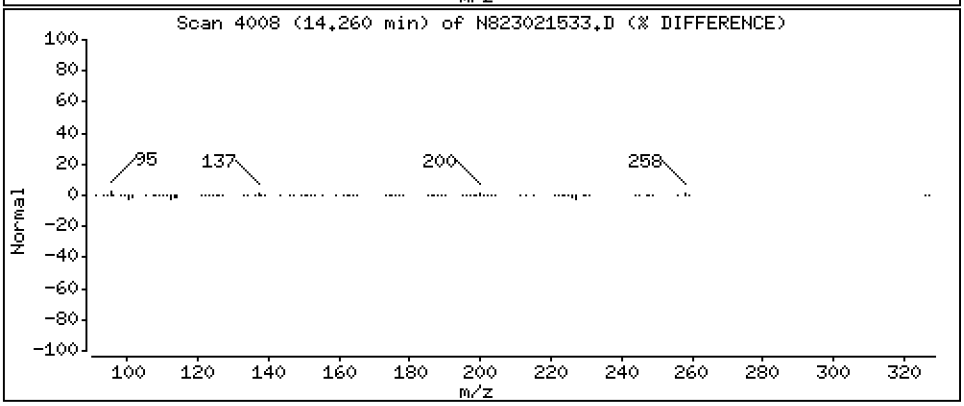












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Date : 16-FEB-2023 02:06

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Instrument: nt8.i

Sample Info: 23A0626-03,3

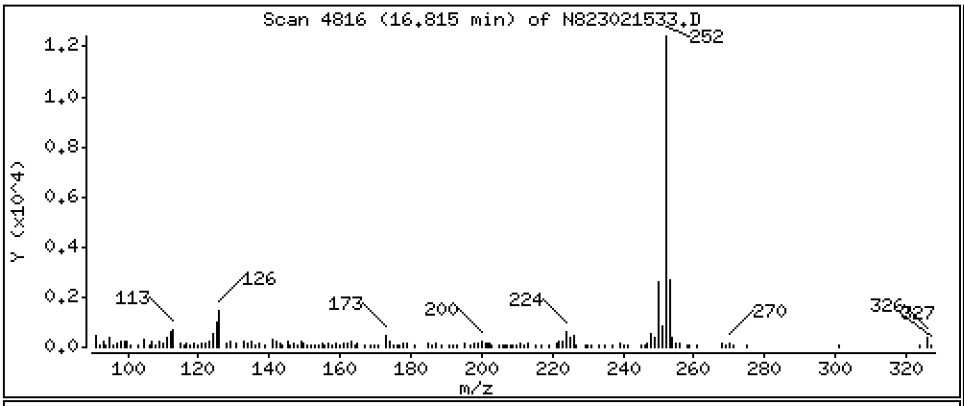
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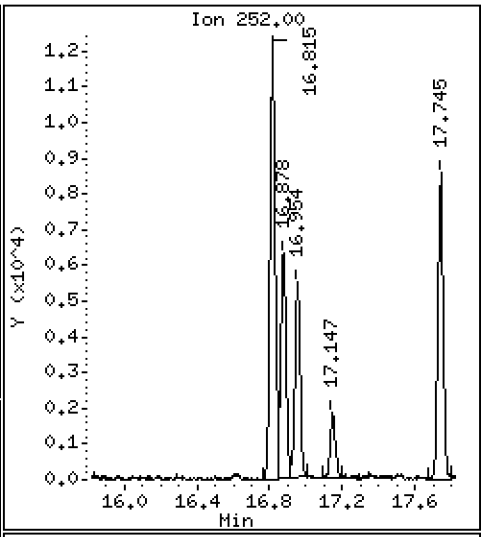
Column phase: Rxi-17sil

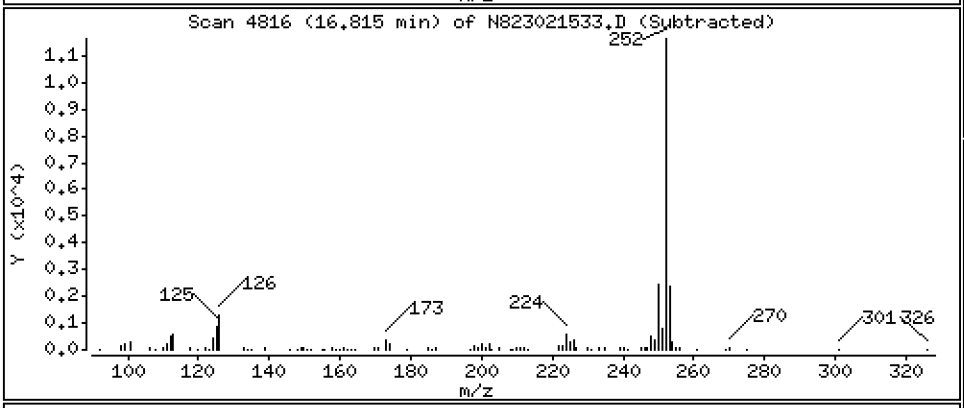
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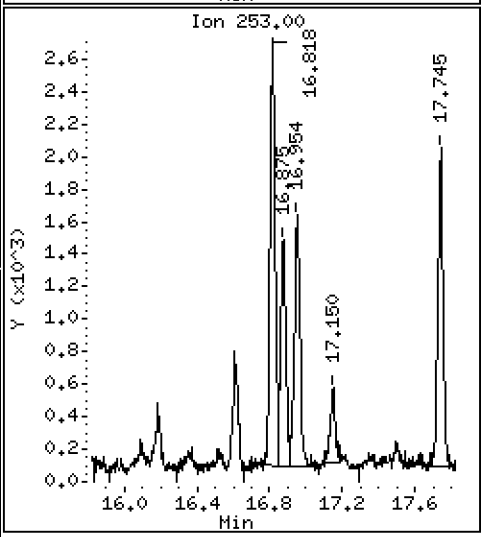
28 Benzo(b)fluoranthene

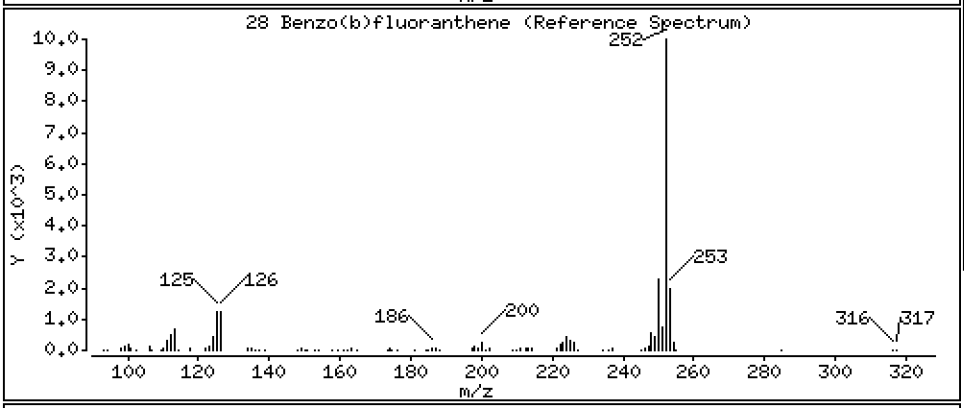
Concentration: 4.345 ug/mL

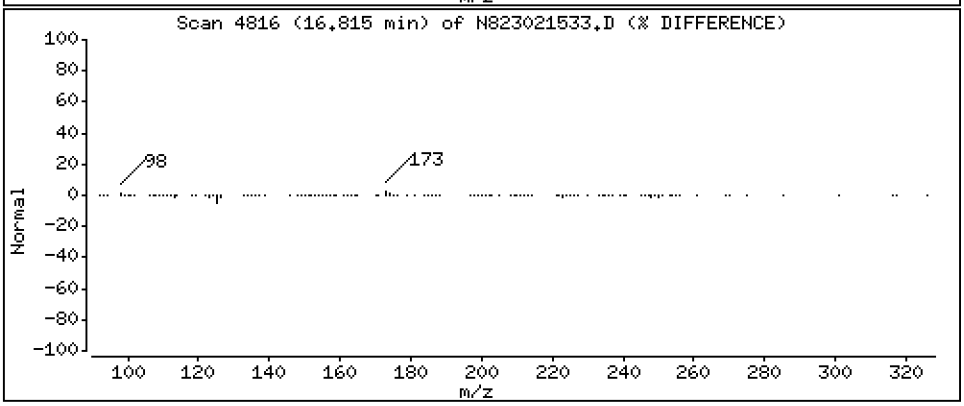












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Date : 16-FEB-2023 02:06

Client ID:

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Sample Info: 23A0626-03,3

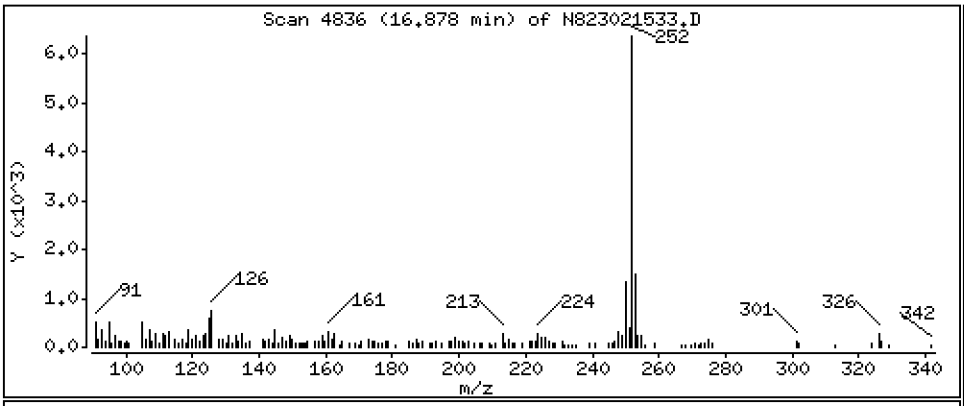
Operator: JZ

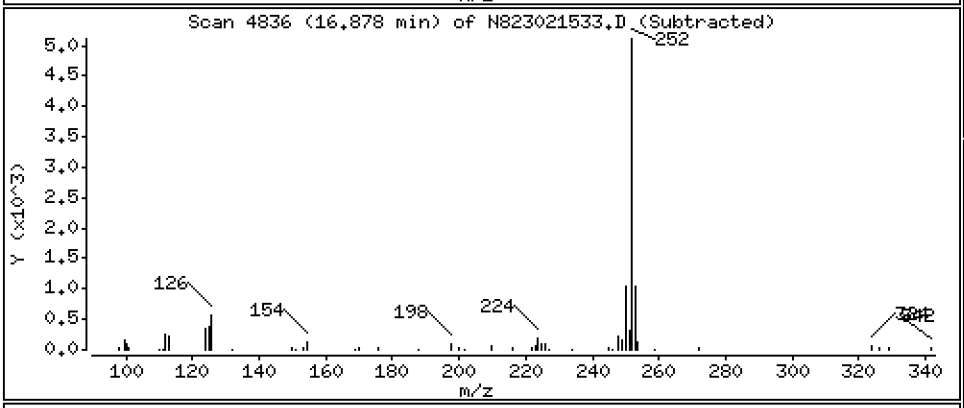
Column phase: Rxi-17sil

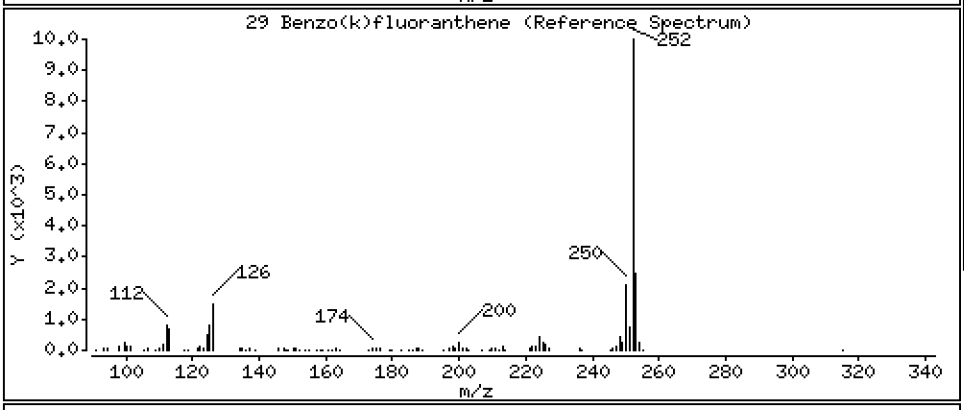
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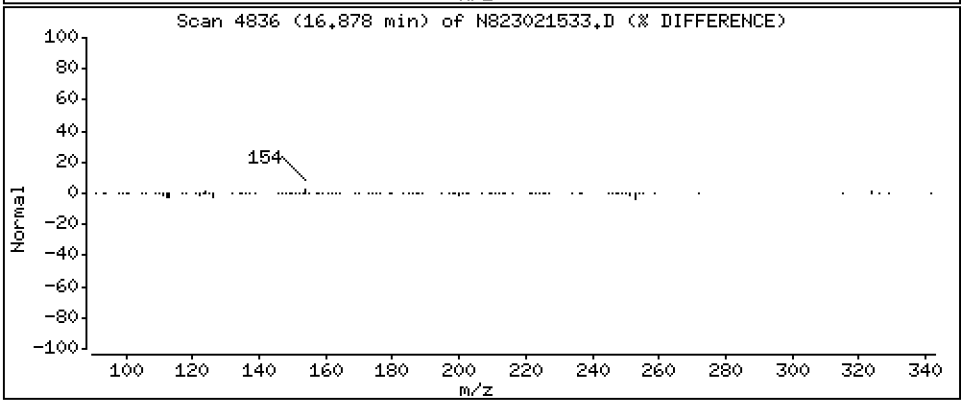
29 Benzo(k)fluoranthene

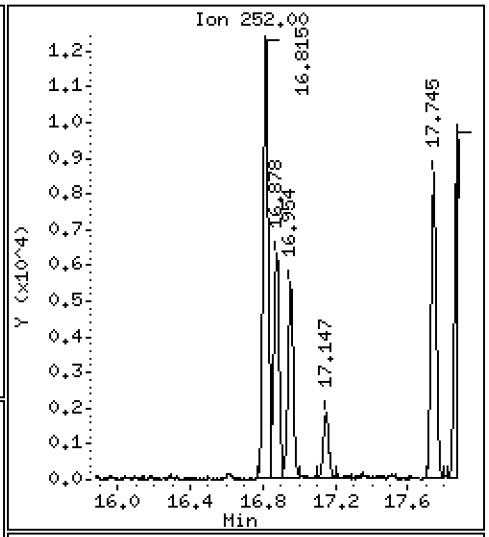
Concentration: 2.385 ug/mL

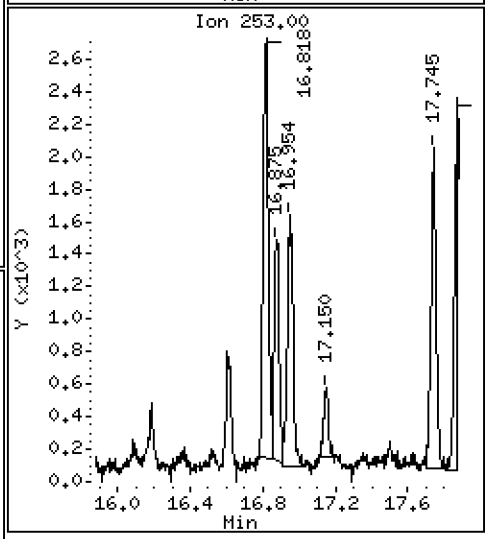












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021533.D

Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

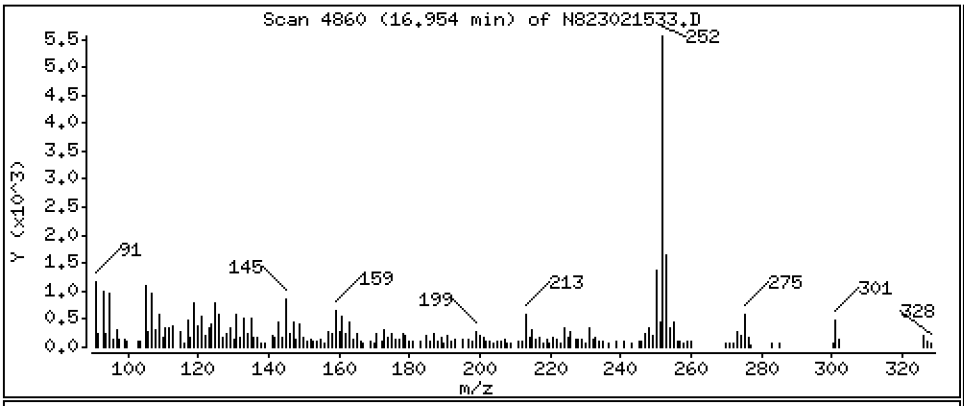
Operator: JZ

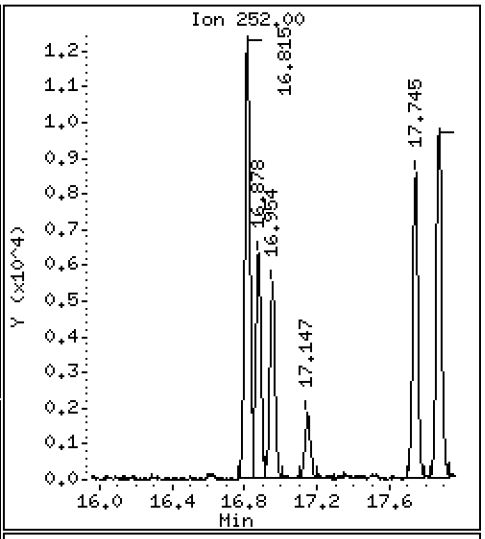
Column phase: Rxi-17sil

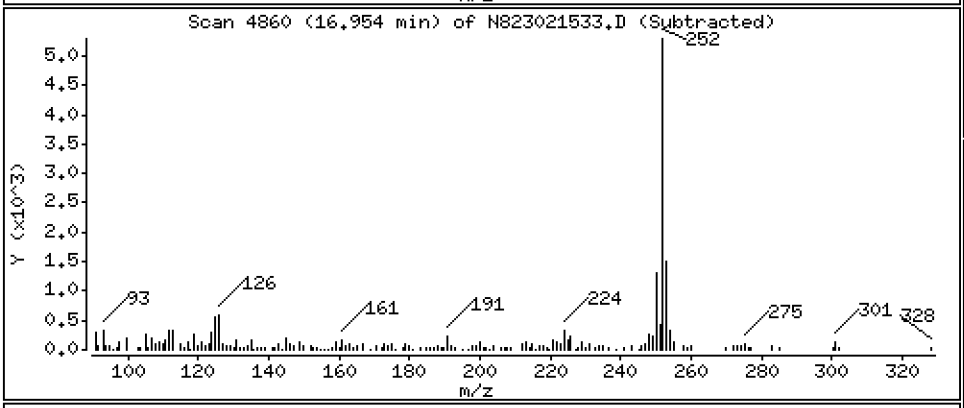
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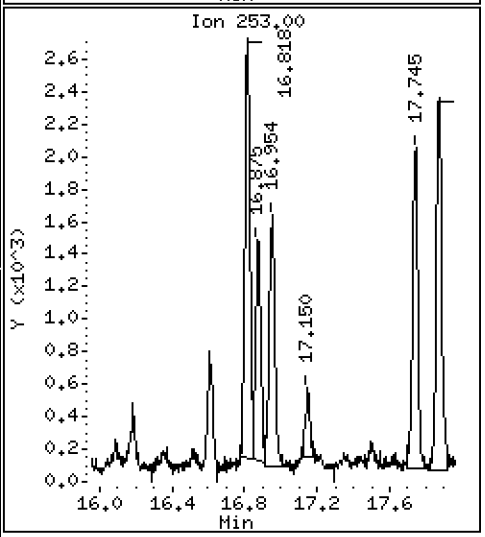
30 Benzo(j)fluoranthene

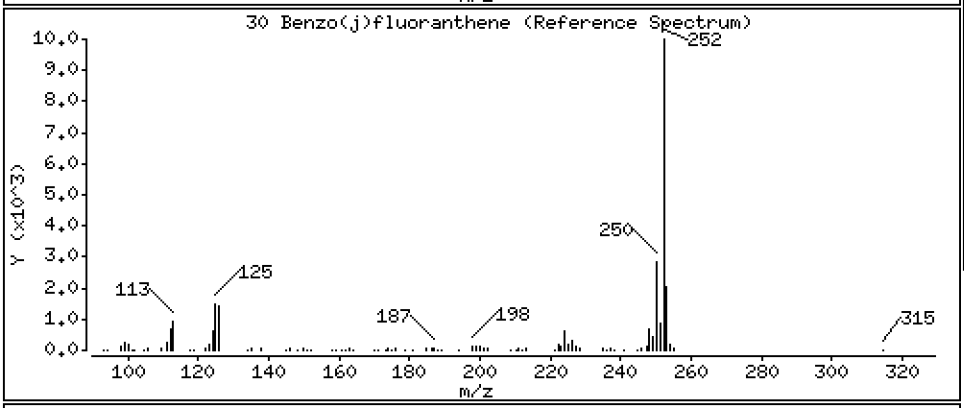
Concentration: 2.196 ug/mL

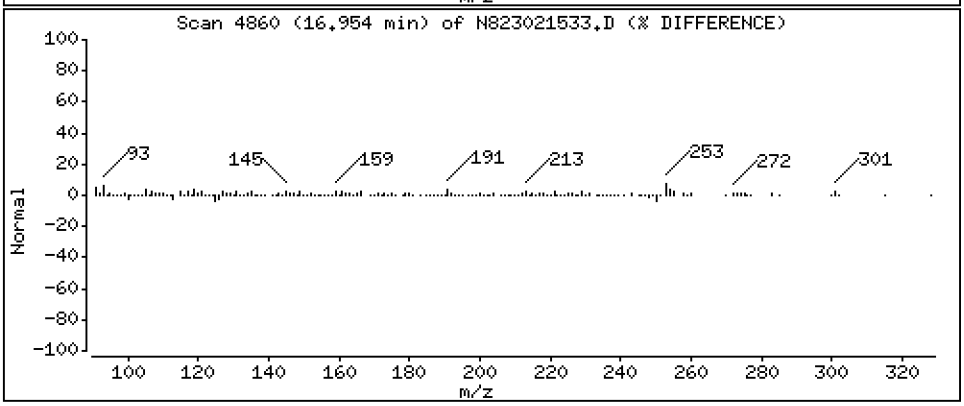












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

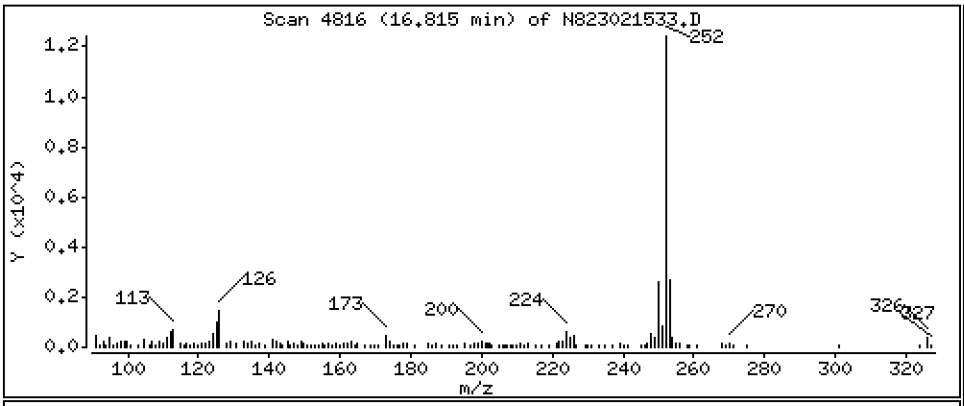
Operator: JZ

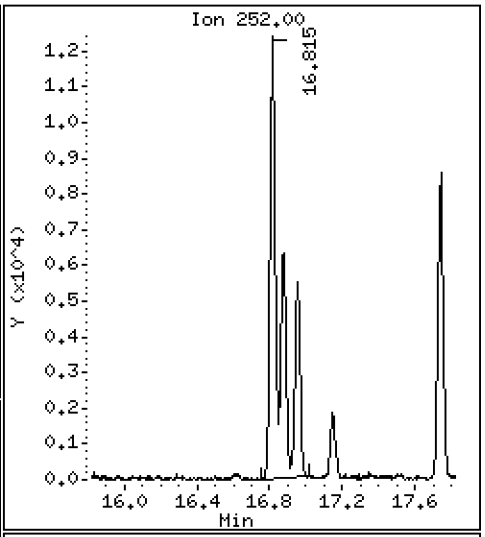
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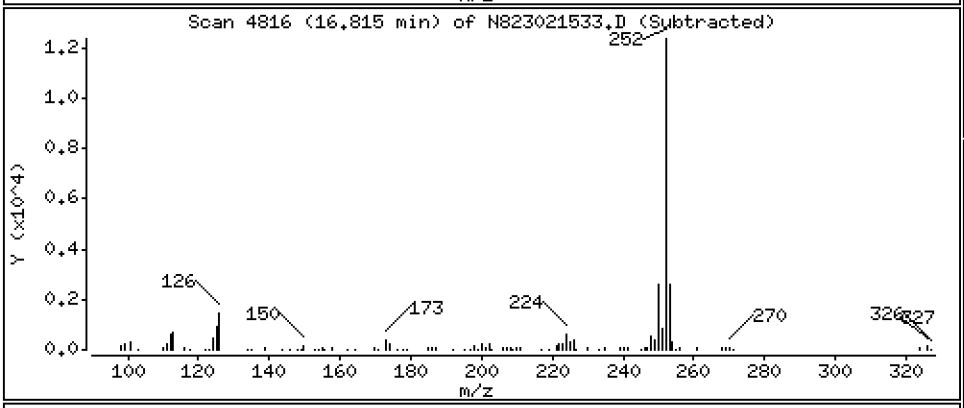
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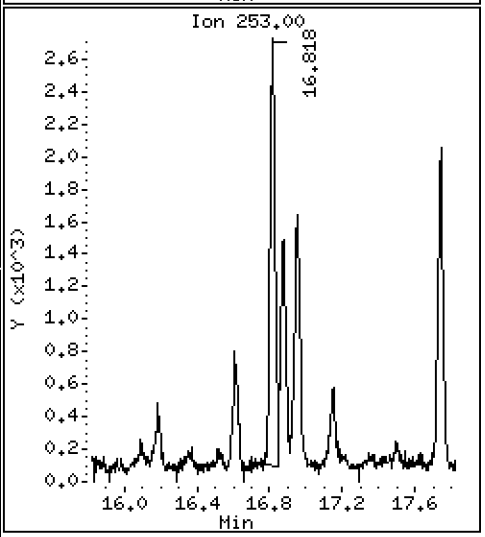
31 Total Benzofluoranthenes

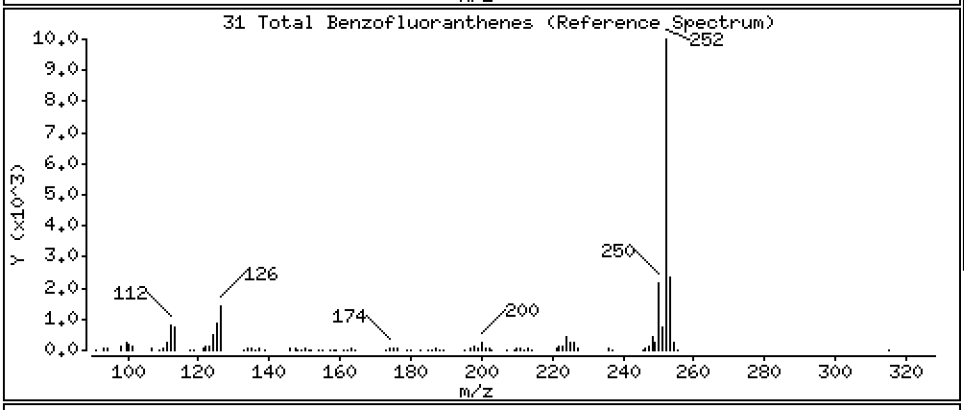
Concentration: 9.023 ug/mL

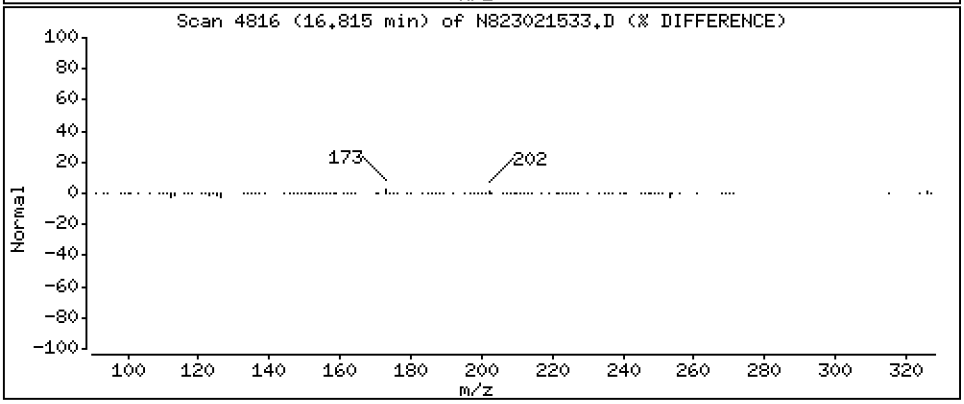












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Date : 16-FEB-2023 02:06

Client ID:

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Sample Info: 23A0626-03,3

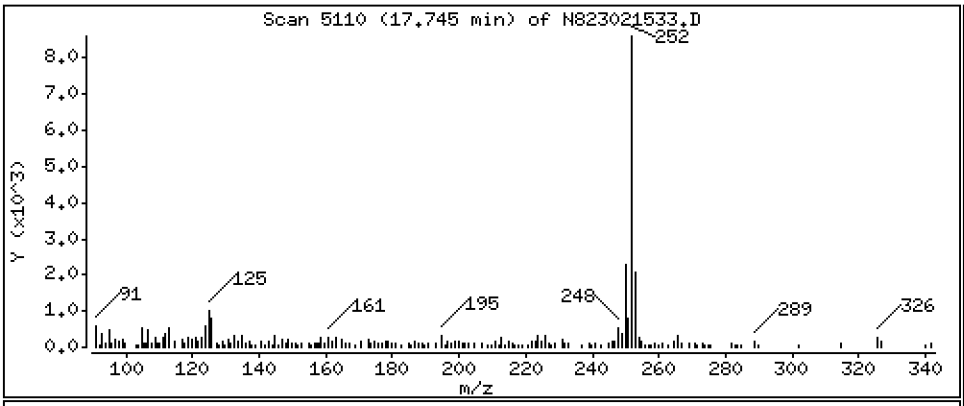
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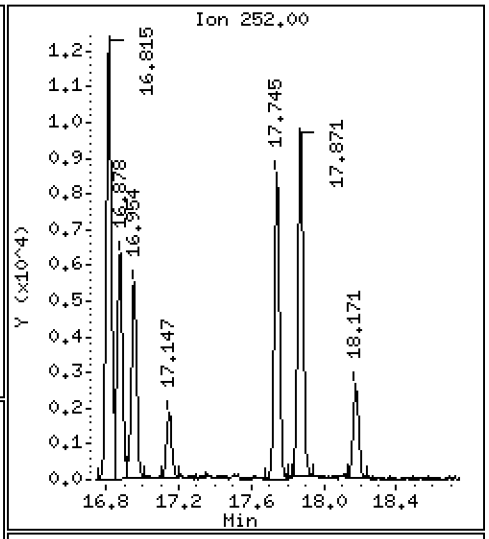
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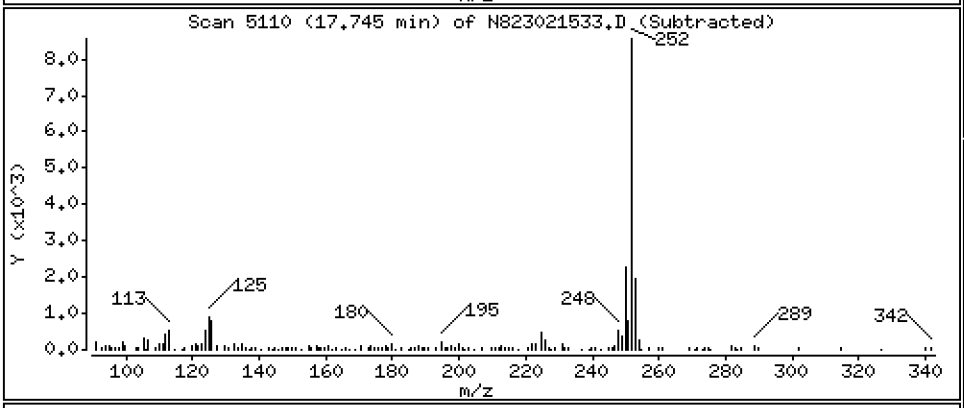
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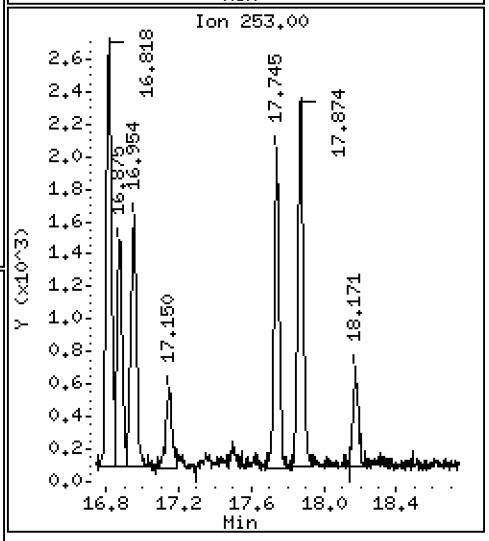
34 Benzo(e)pyrene

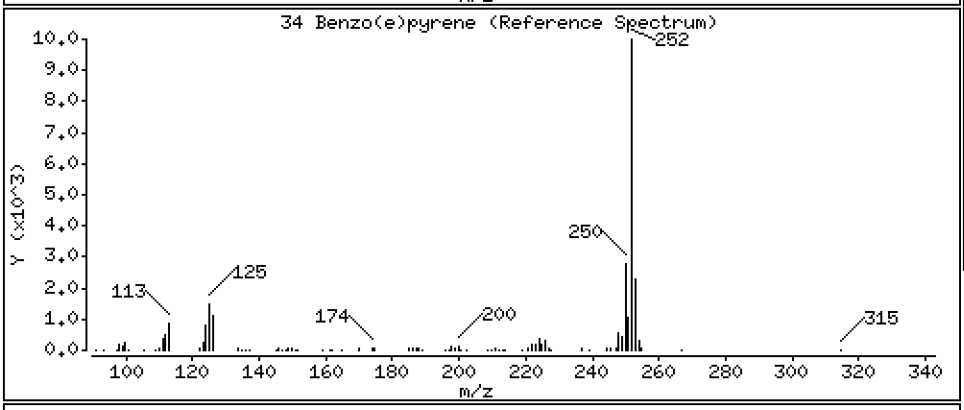
Concentration: 3.110 ug/mL

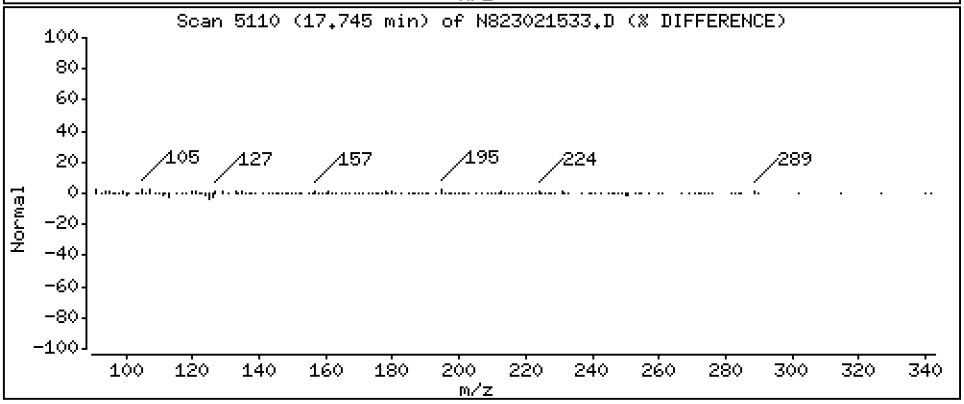












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

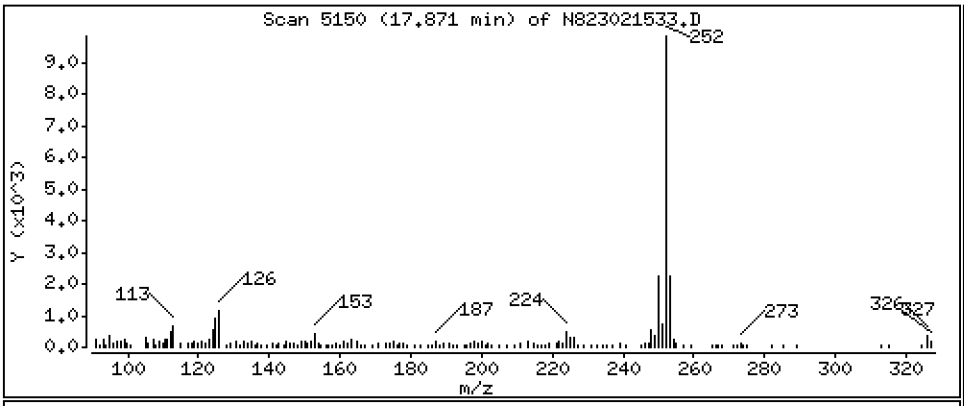
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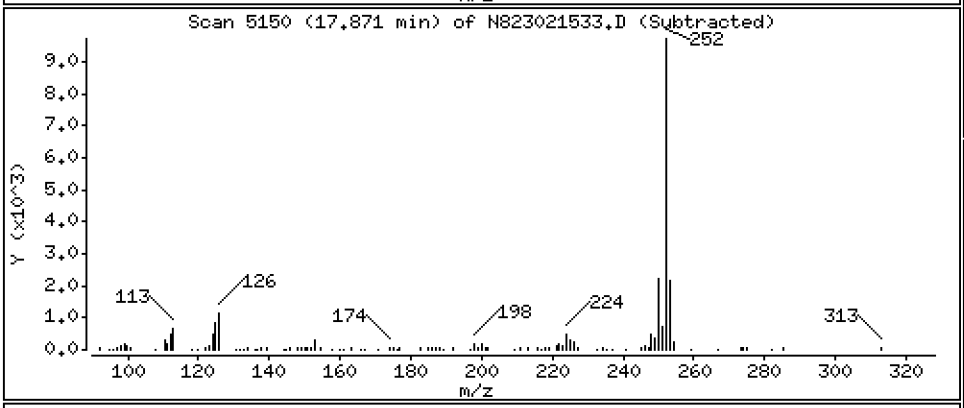
Column phase: Rxi-17sil

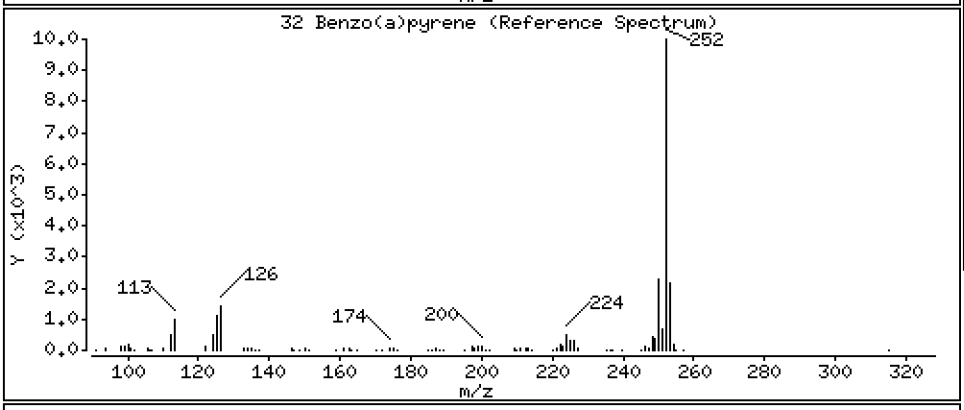
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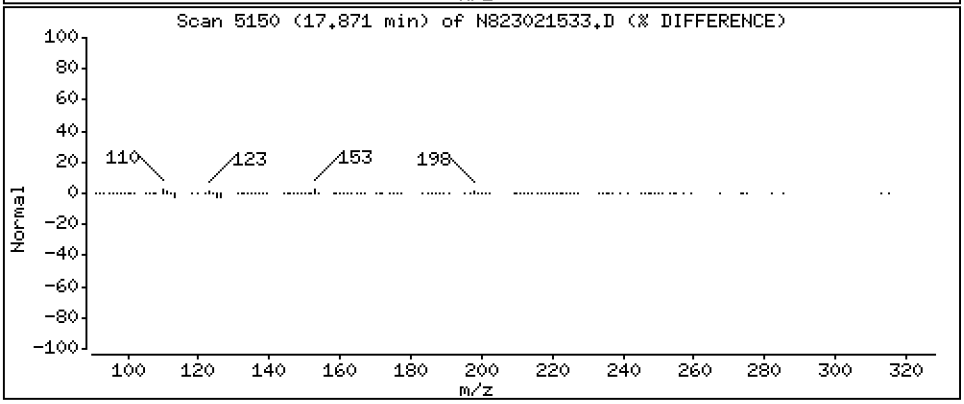
32 Benzo(a)pyrene

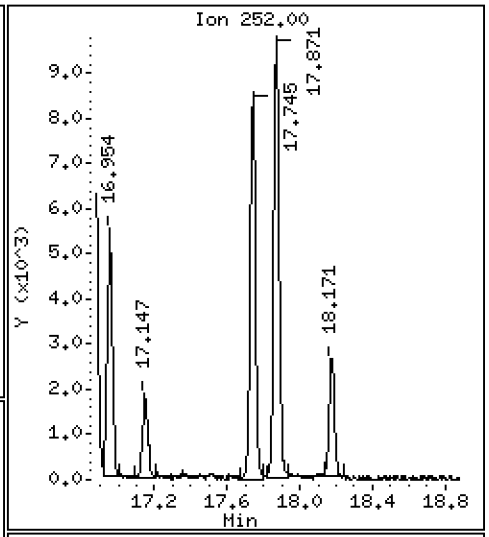
Concentration: 4.120 ug/mL

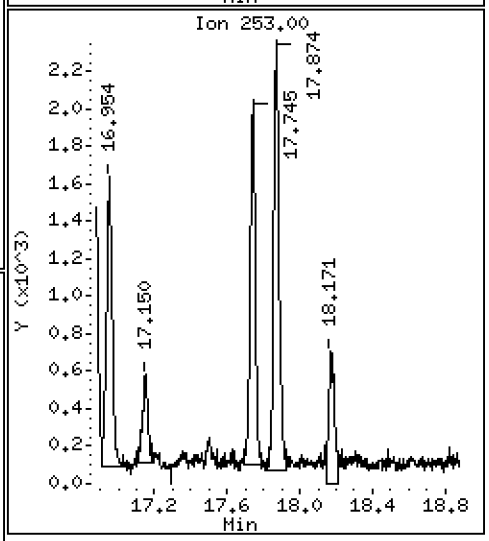












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Date : 16-FEB-2023 02:06

Client ID:

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Sample Info: 23A0626-03,3

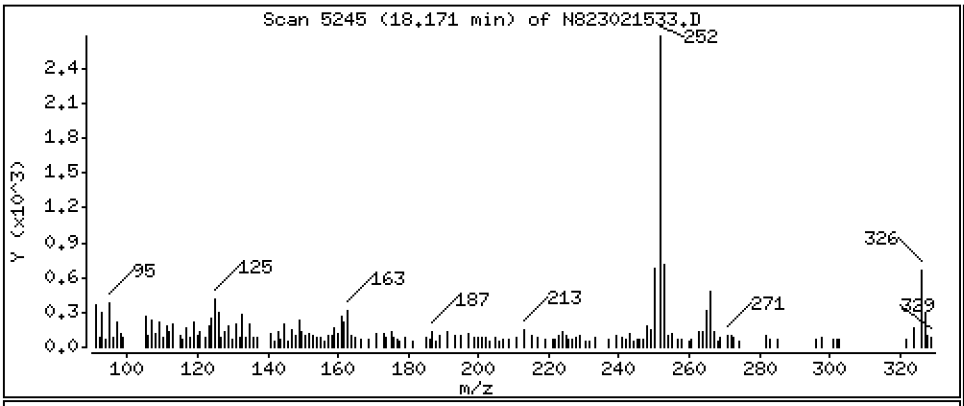
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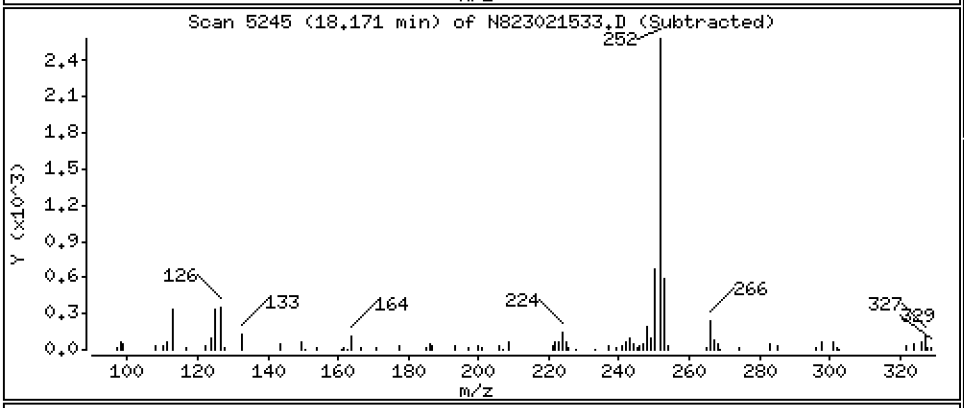
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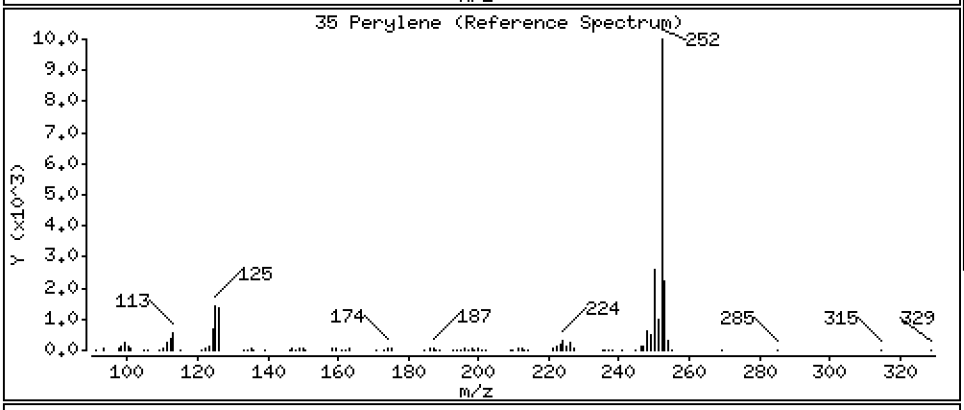
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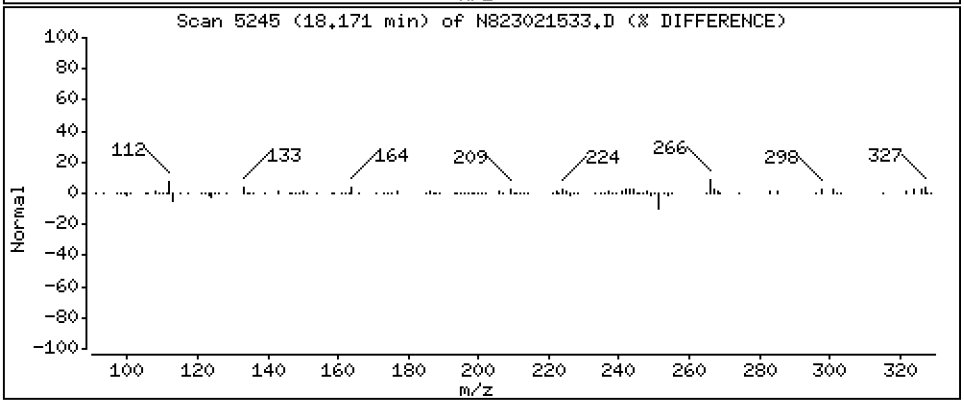
35 Perylene

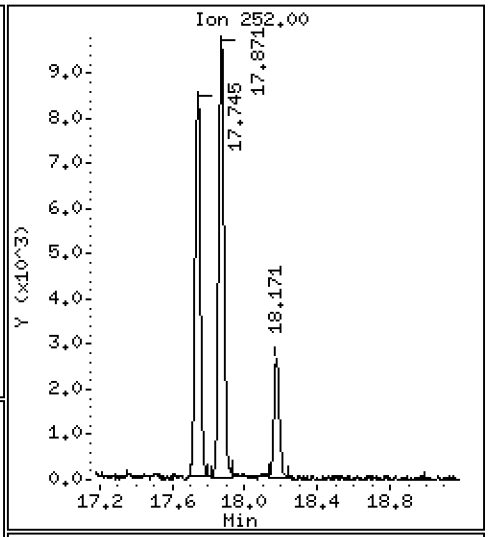
Concentration: 1.041 ug/mL

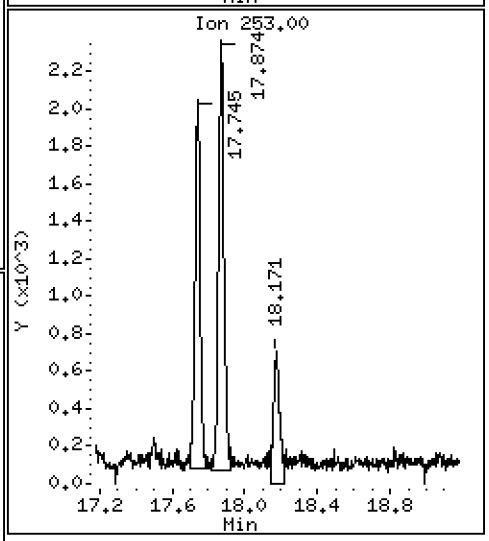












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

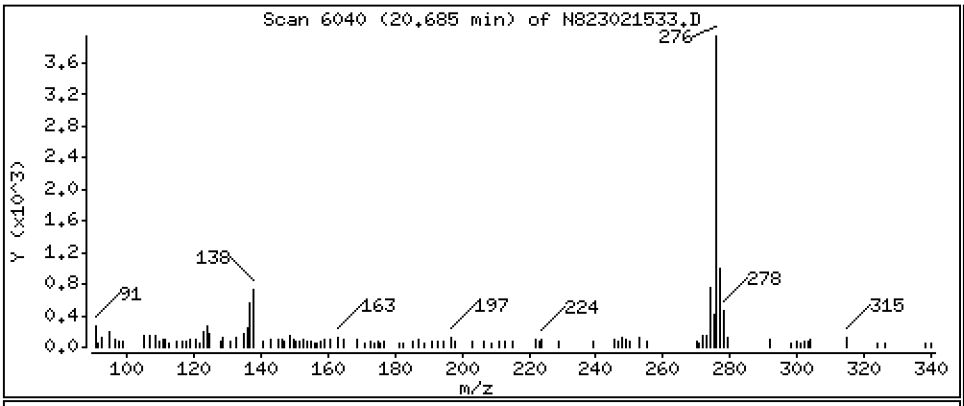
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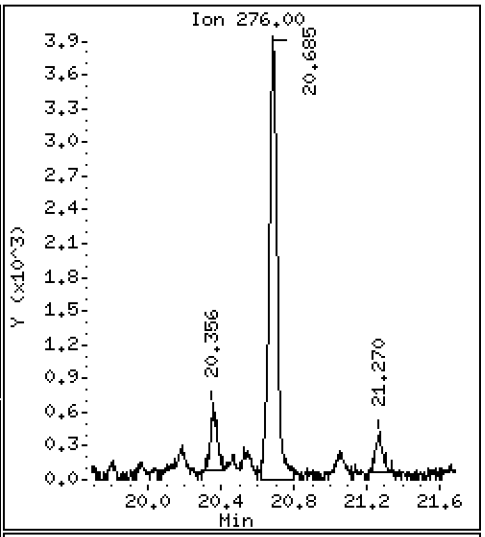
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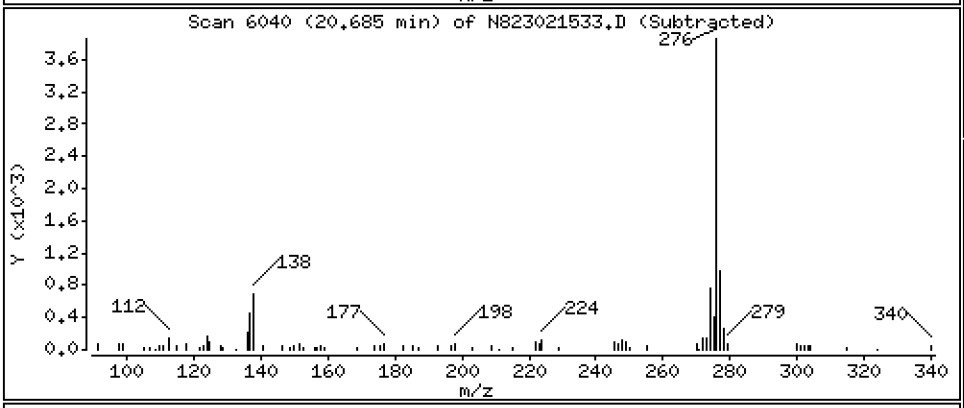
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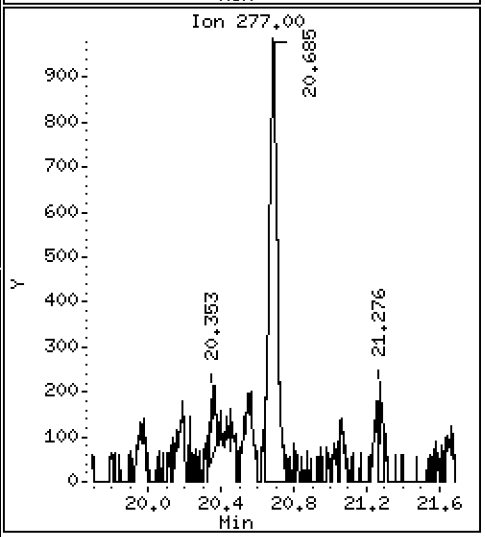
37 Indeno(1,2,3-cd)pyrene

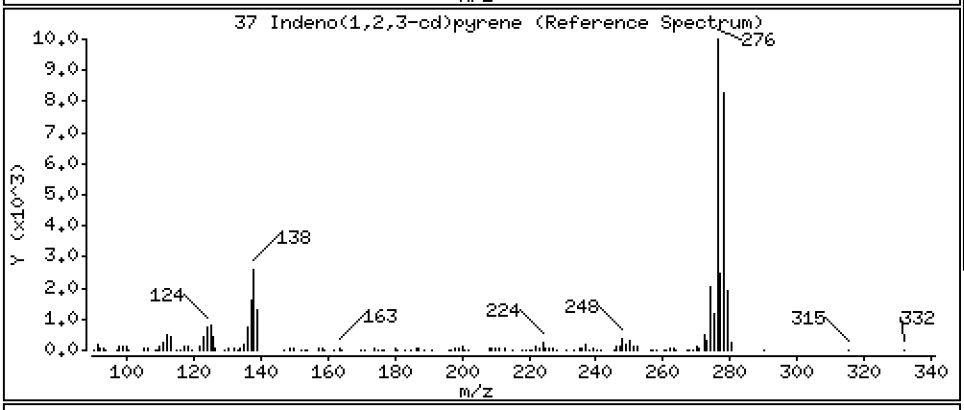
Concentration: 2.148 ug/mL

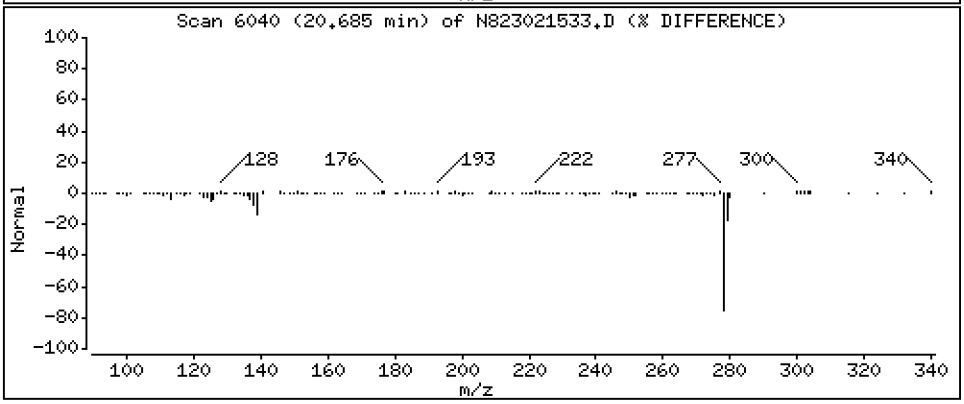












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

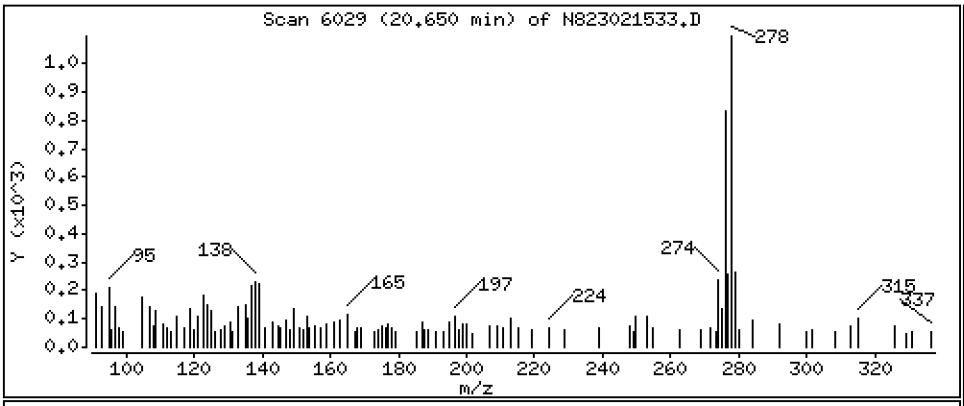
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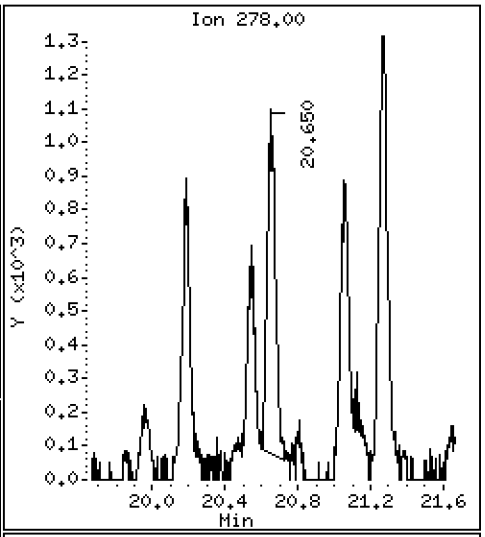
Column phase: Rxi-17sil

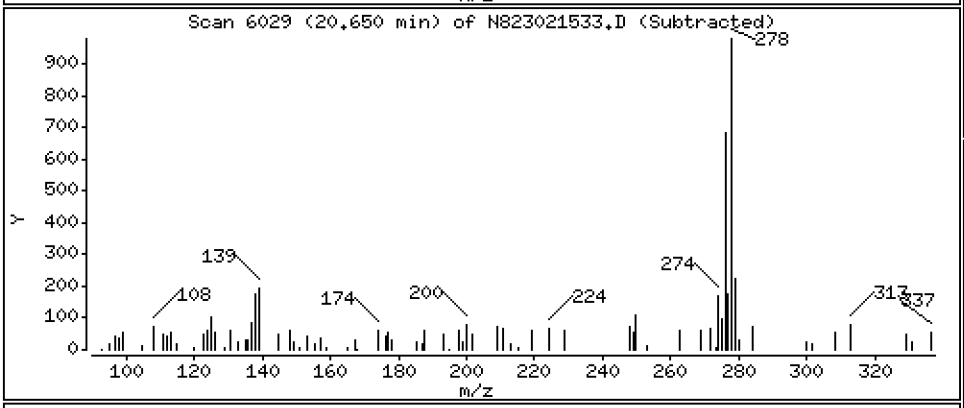
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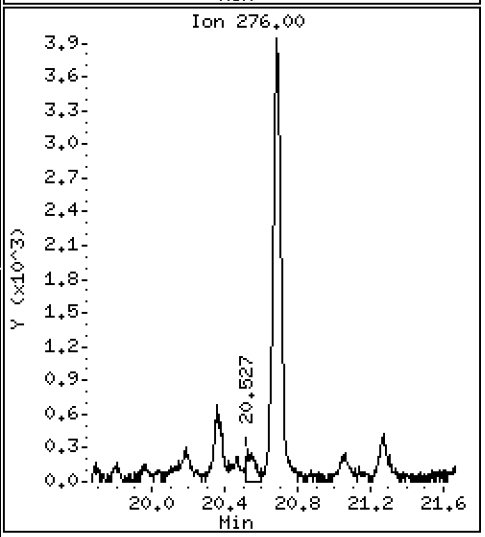
38 Dibenzo(a,h)anthracene

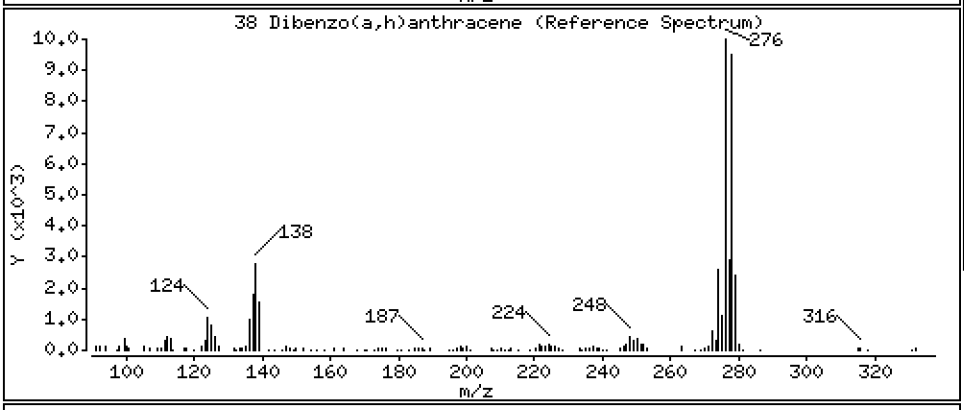
Concentration: 0.6508 ug/mL

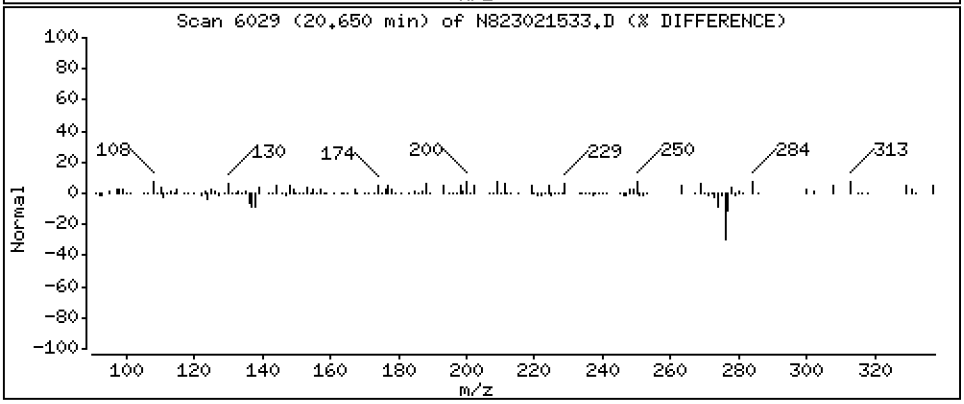












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Date : 16-FEB-2023 02:06

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-03,3

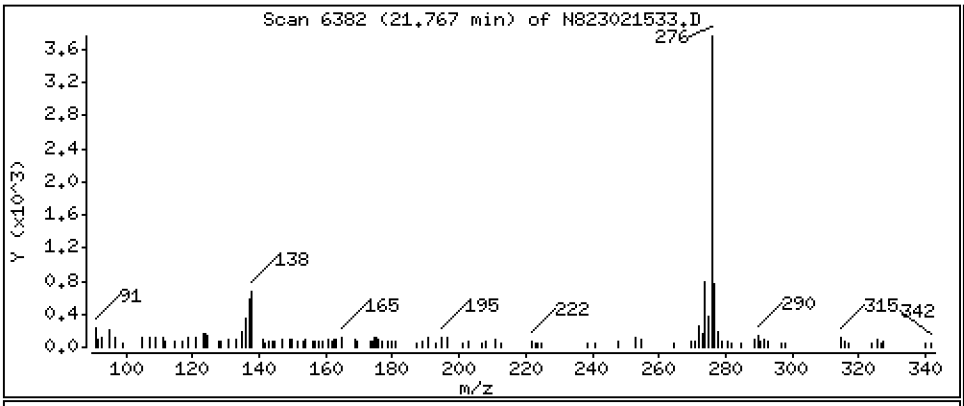
Operator: JZ

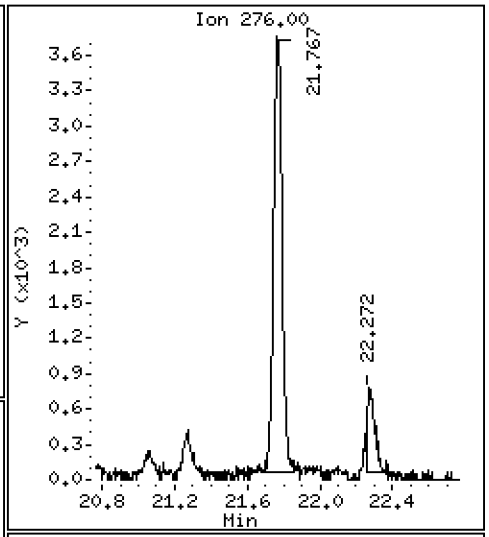
Column phase: Rxi-17sil

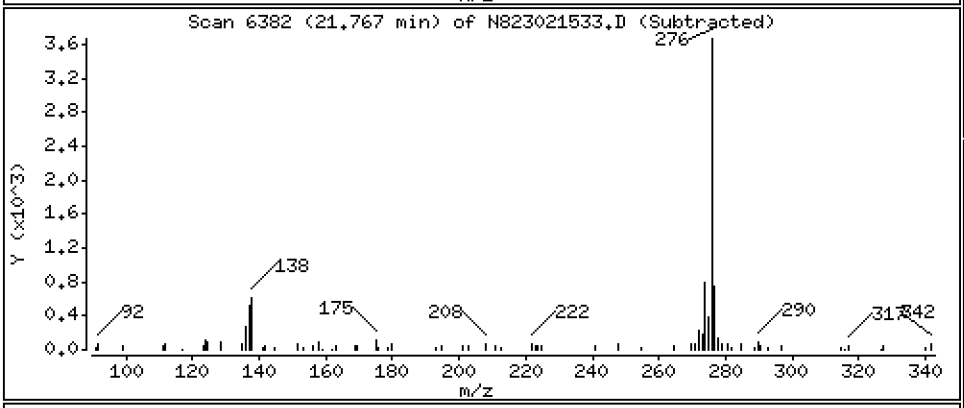
Column diameter: 0.25

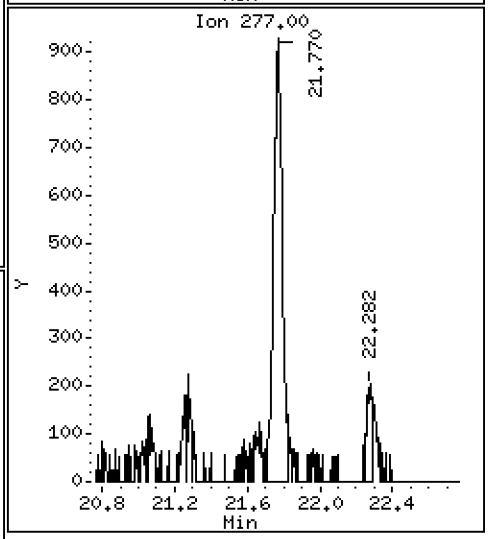
39 Benzo(g,h,i)perylene

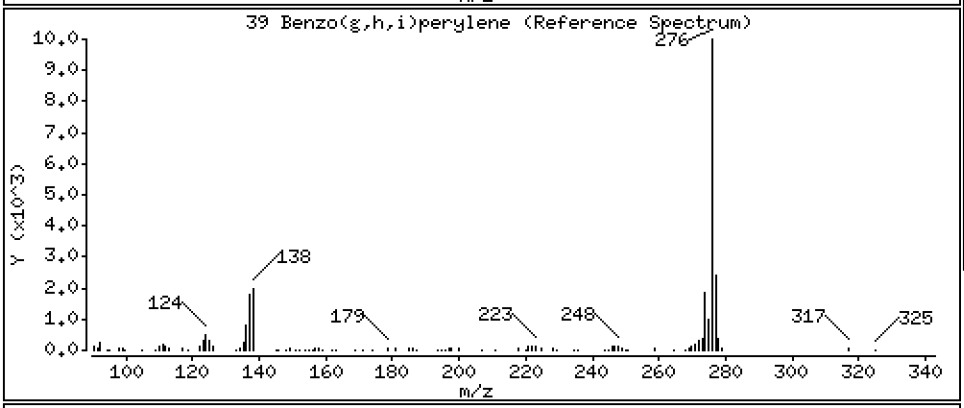
Concentration: 2.389 ug/mL

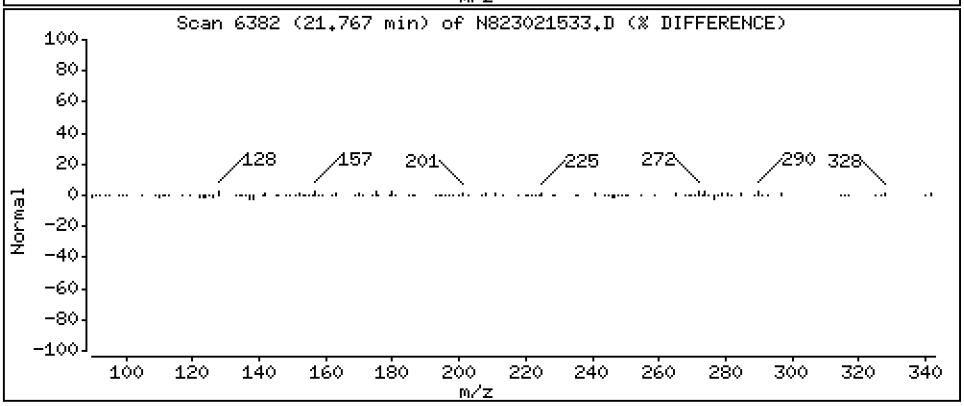












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230215A.b\N823021533.D
Lab Smp Id: 23A0626-03
Inj Date : 16-FEB-2023 02:06
Operator : JZ Inst ID: nt8.i
Smp Info : 23A0626-03,3
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 14:27 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 20
Dil Factor: 3.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

							CONCENTRATIONS	
		QUANT SIG					ON-COLUMN	FINAL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)
*	1 Naphthalene-d8	136	4.875	4.884	(1.000)	42043	2.00000	
	2 Naphthalene	128	4.906	4.913	(1.006)	20663	1.05702	3.171
$	3 2-Methylnaphthalene-d10	152	5.612	5.618	(1.151)	11322	0.98743	2.962
	4 2-Methylnaphthalene	141	5.659	5.665	(1.161)	3211	0.29863	0.8959
	5 1-methylnaphthalene	141	5.858	5.865	(1.202)	1628	0.14918	0.4475
	9 Acenaphthylene	152	7.063	7.069	(0.985)	2302	0.12078	0.3623
*	10 Acenaphthene-d10	164	7.170	7.180	(1.000)	25241	2.00000	
	11 Acenaphthene	153	7.221	7.227	(1.007)	2021	0.15825	0.4748(M)
	12 Dibenzofuran	168	7.373	7.379	(1.028)	2105	0.10852	0.3256
	14 Fluorene	166	7.853	7.860	(1.095)	2127	0.14118	0.4236
*	15 Phenanthrene-d10	188	9.216	9.223	(1.000)	45794	2.00000	
	16 Phenanthrene	178	9.251	9.257	(1.004)	17396	0.77767	2.333
	17 Anthracene	178	9.292	9.298	(1.008)	6584	0.32400	0.9720
	19 Carbazole	167	9.808	9.814	(1.064)	2770	0.14869	0.4461
	22 Fluoranthene	202	11.038	11.041	(1.198)	38171	1.56765	4.703
$	21 Fluoranthene-d10	212	11.000	11.003	(1.193)	26018	1.28776	3.863
	23 Pyrene	202	11.569	11.559	(0.815)	141780	6.78544	20.36
	24 Benzo(a)anthracene	228	14.057	14.067	(0.991)	17347	0.91596	2.748
*	25 Chrysene-d12	240	14.187	14.196	(1.000)	33702	2.00000	
	27 Chrysene	228	14.260	14.266	(1.005)	28785	1.42775	4.283
	28 Benzo(b)fluoranthene	252	16.814	16.821	(0.929)	24500	1.44839	4.345
	29 Benzo(k)fluoranthene	252	16.878	16.881	(0.932)	13173	0.79505	2.385
	30 Benzo(j)fluoranthene	252	16.954	16.960	(0.936)	10919	0.73205	2.196
	31 Total Benzofluoranthenes	252	16.814	16.821	(0.929)	48180	3.00754	9.023(M)
	34 Benzo(e)pyrene	252	17.744	17.744	(0.980)	17488	1.03676	3.110
	32 Benzo(a)pyrene	252	17.871	17.877	(0.987)	20441	1.37322	4.120
*	33 Perylene-d12	264	18.105	18.108	(1.000)	29044	2.00000	
	35 Perylene	252	18.171	18.180	(1.004)	5544	0.34707	1.041
$	36 Dibenzo(a,h)anthracene-d14	292	20.542	20.546	(1.135)	17162	1.50808	4.524
	37 Indeno(1,2,3-cd)pyrene	276	20.685	20.688	(1.143)	12144	0.71612	2.148
	38 Dibenzo(a,h)anthracene	278	20.650	20.666	(1.141)	3166	0.21694	0.6508(M)
	39 Benzo(g,h,i)perylene	276	21.766	21.766	(1.202)	12233	0.79619	2.389

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021533.D
Lab Smp Id: 23A0626-03
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 17:35
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	42744	21372	85488	42043	-1.64
10 Acenaphthene-d10	25236	12618	50472	25241	0.02
15 Phenanthrene-d10	47809	23905	95618	45794	-4.21
25 Chrysene-d12	40868	20434	81736	33702	-17.53
33 Perylene-d12	43096	21548	86192	29044	-32.61

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	-0.19
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.22	-0.07
25 Chrysene-d12	14.20	13.70	14.70	14.19	-0.07
33 Perylene-d12	18.11	17.61	18.61	18.11	-0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021533.D

Lab ID: 23A0626-03
nt8.i, 20230215A.b\FSIMPNA230119.m,   16-FEB-2023 02:06

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

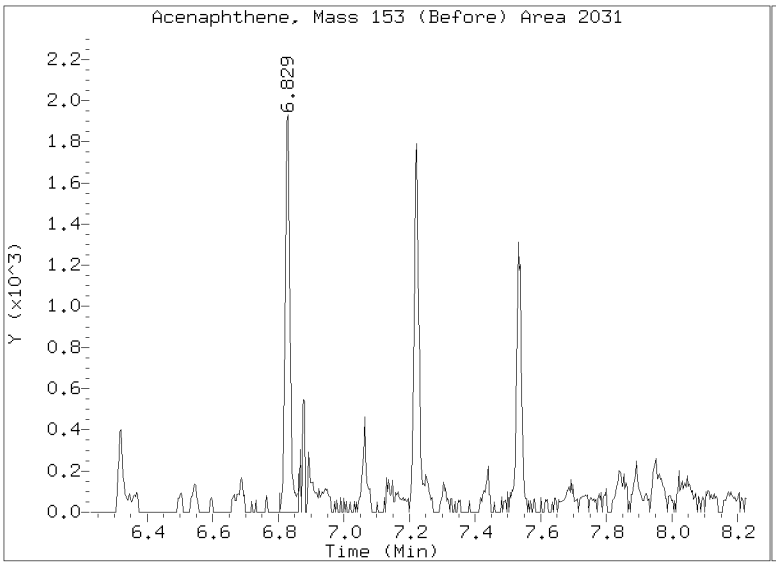
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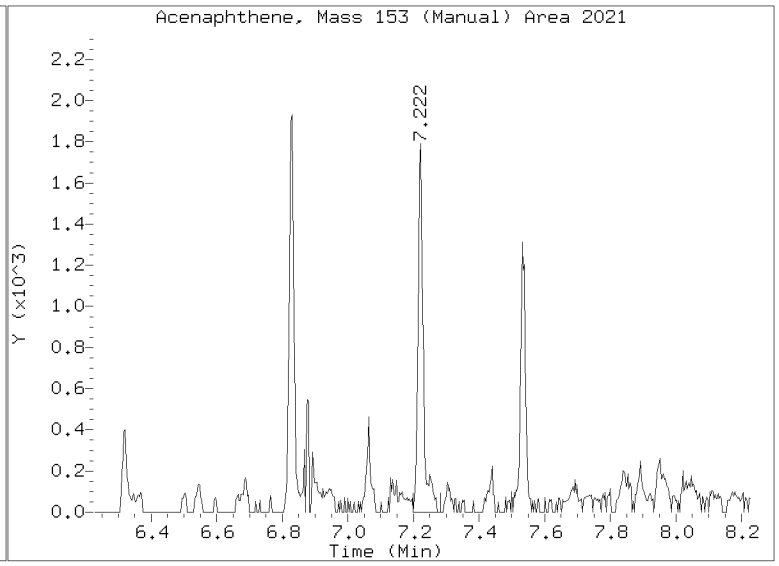
Exception: Benzo(e)pyrene 0.0800

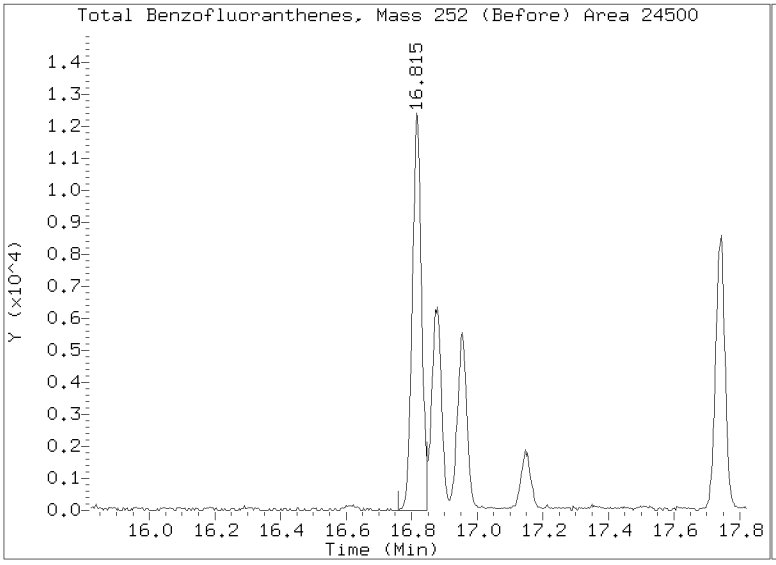
* Only compounds listed in the work order have been verified by the analyst *

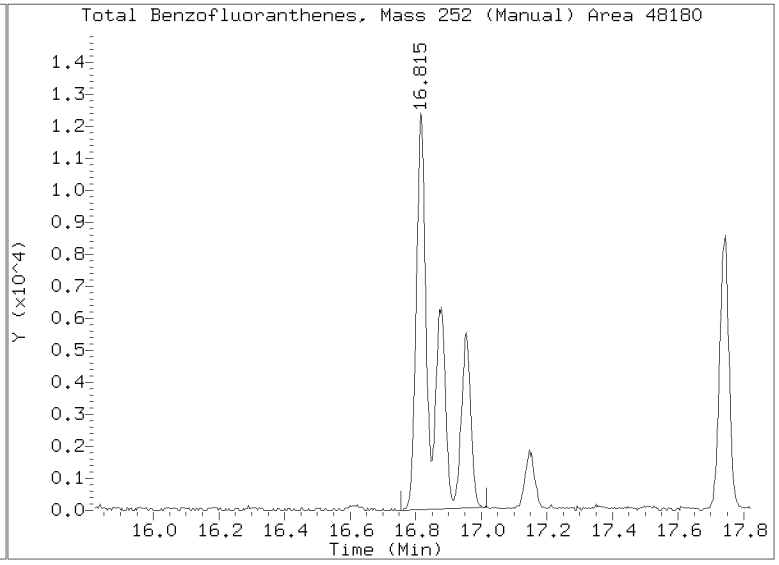
Quant Ion Manual Peak Adjustment Report

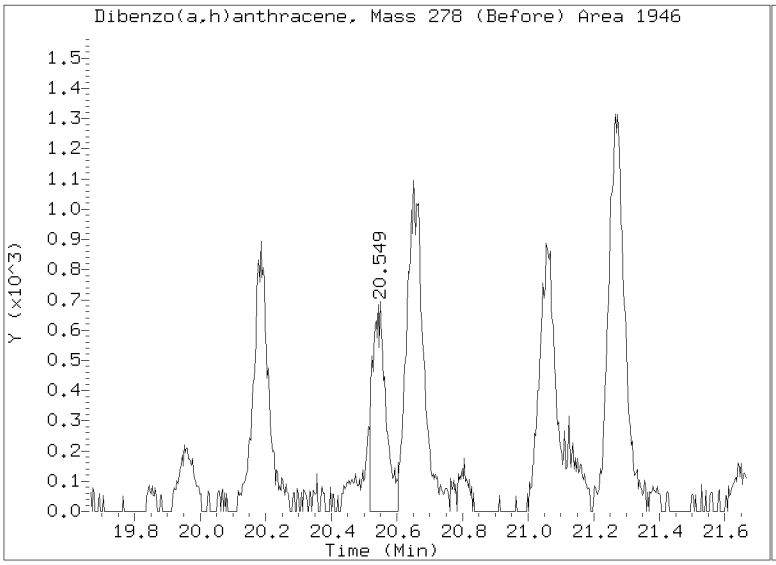
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Lab ID:23A0626-03 Client ID:
Report Date: 02/19/2023 16:24

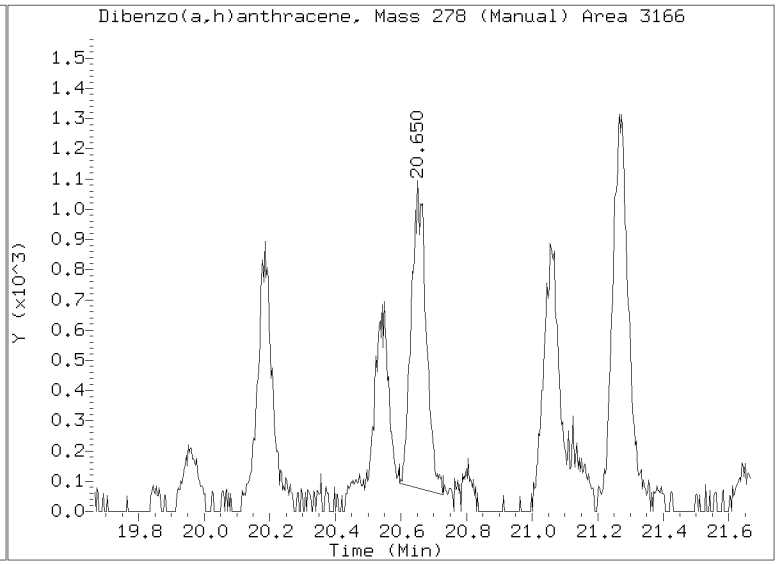












Analytical Resources, LLC
Analytical Chemists and Consultants

LY-30_0-10

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23A0626-10 A	SDG:	23A0626
Sampled:	01/26/23 11:30	Prepared:	02/07/23 17:05	File ID:	N823021534.D
% Solids:	80.16	Preparation:	EPA 3546 (Microwave)	Analyzed:	02/16/23 02:33
Batch:	BLB0144	Sequence:	SLB0206	Initial/Final:	12.86 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	GPC, Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	9.31		0.80	4.85
218-01-9	Chrysene	1	25.0		1.02	4.85
205-99-2	Benzo(b)fluoranthene	1	7.29		1.33	4.85
207-08-9	Benzo(k)fluoranthene	1	3.17	J	0.74	4.85
50-32-8	Benzo(a)pyrene	1	11.8		0.60	4.85
193-39-5	Indeno(1,2,3-cd)pyrene	1	3.77	J	1.02	4.85
53-70-3	Dibenzo(a,h)anthracene	1	2.90	J	0.86	4.85
191-24-2	Benzo(g,h,i)perylene	1	9.28		1.03	4.85

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	145.51	122	83.7	32 - 120	
Dibenzo[a,h]anthracene-d14	145.51	170	117	21 - 133	
Fluoranthene-d10	145.51	147	101	36 - 134	

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Page 1

Date : 16-FEB-2023 02:33

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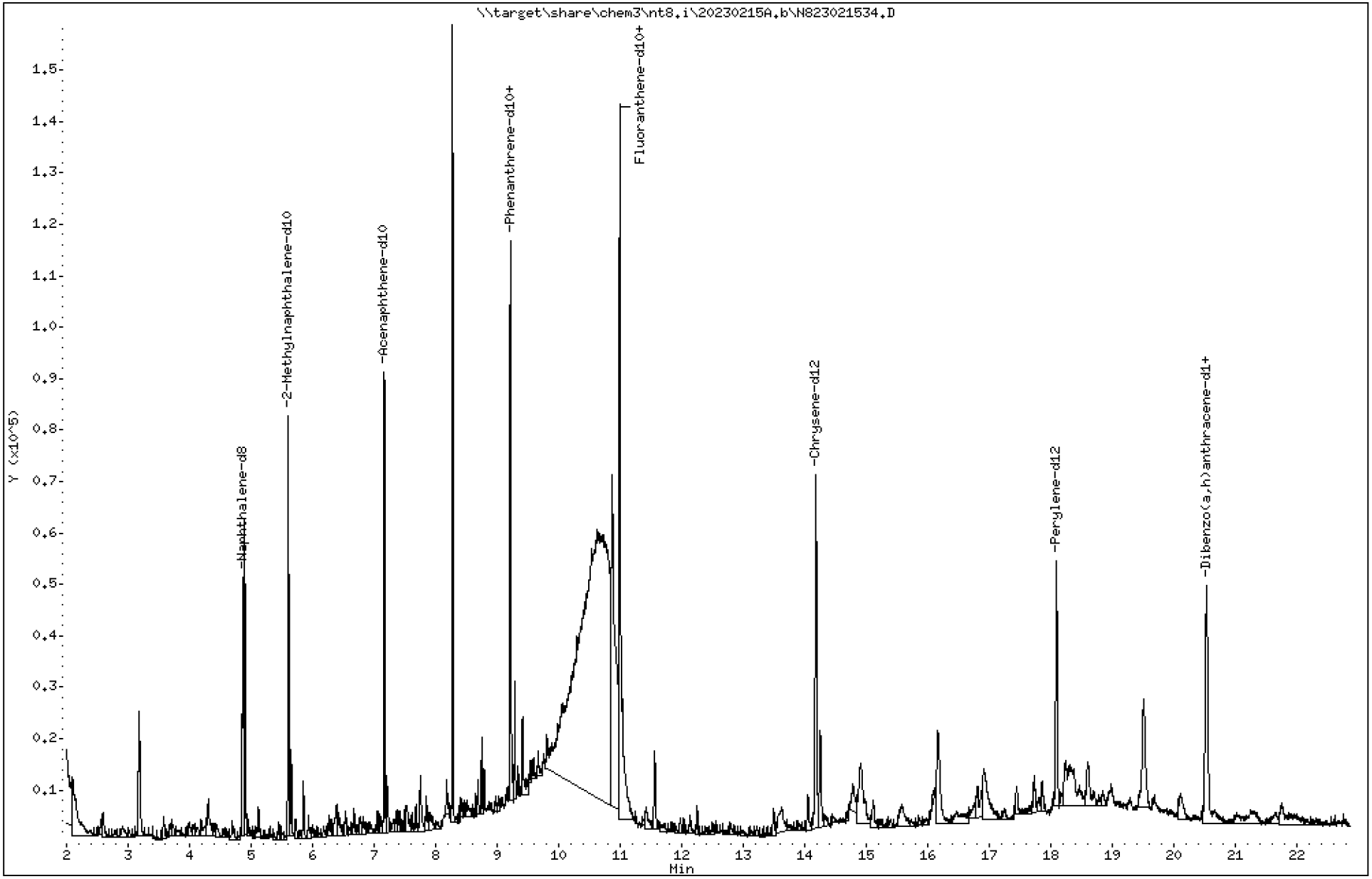
Instrument: nt8.i

Sample Info: 23A0626-10

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 73 of 1233

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Date : 16-FEB-2023 02:33

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Instrument: nt8.i

Sample Info: 23A0626-10

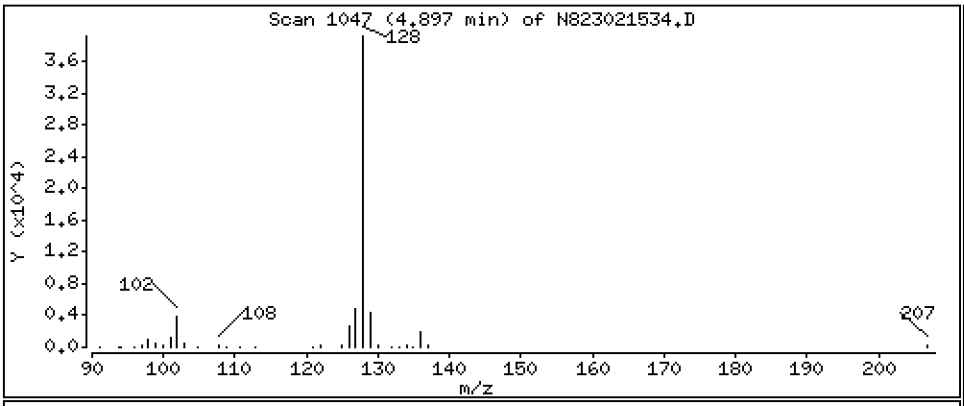
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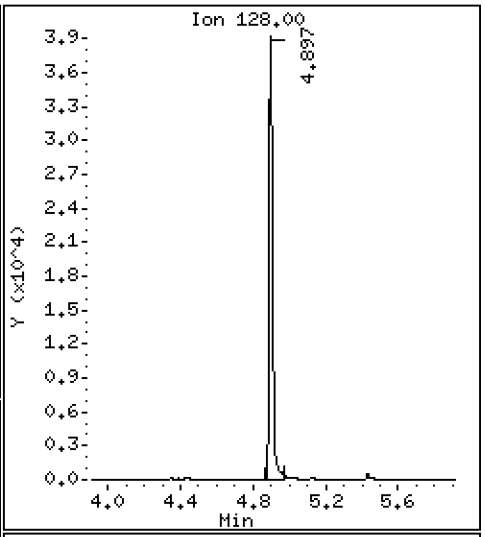
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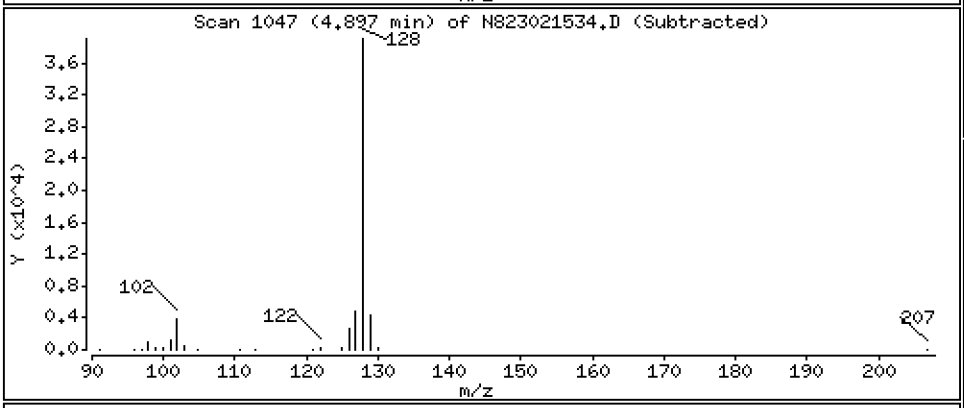
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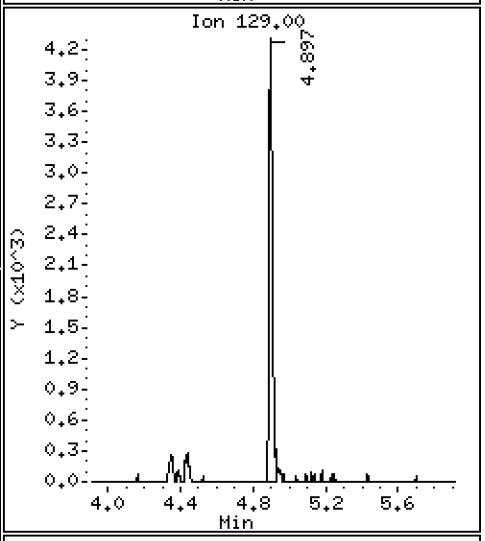
2 Naphthalene

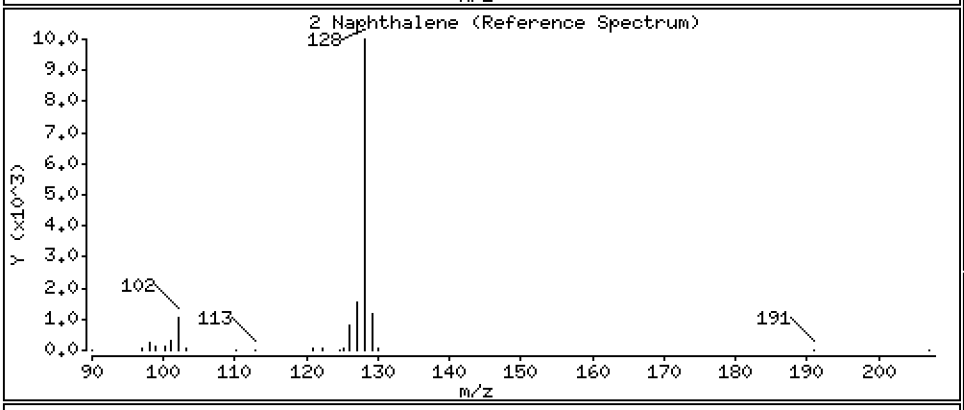
Concentration: 2.532 ug/mL

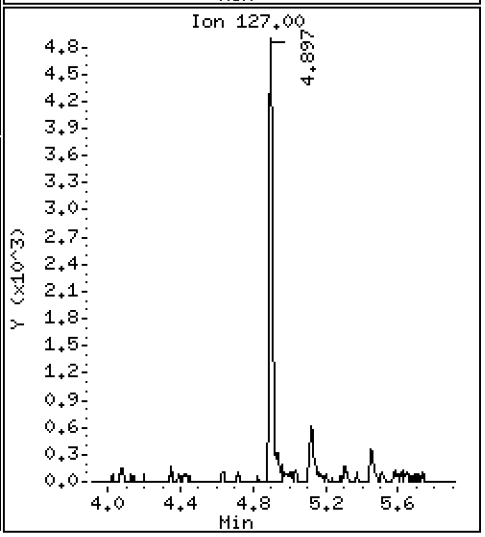


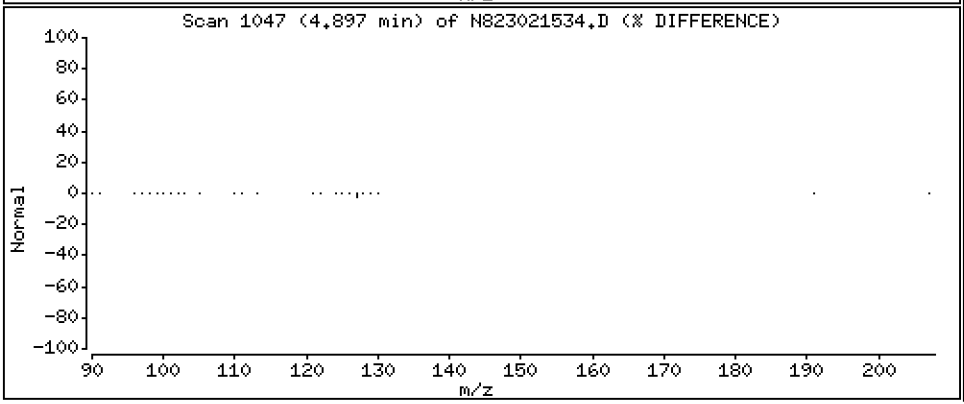












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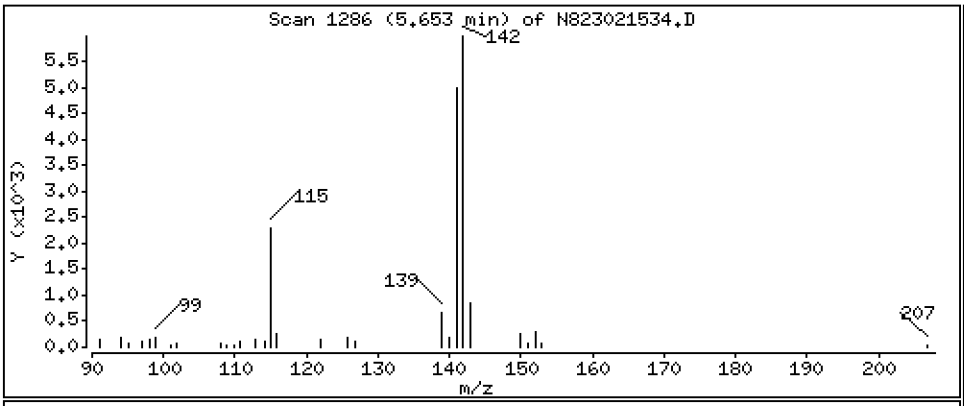
Operator: JZ

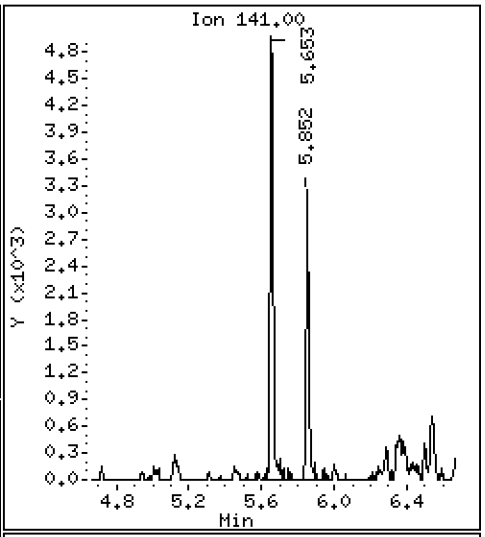
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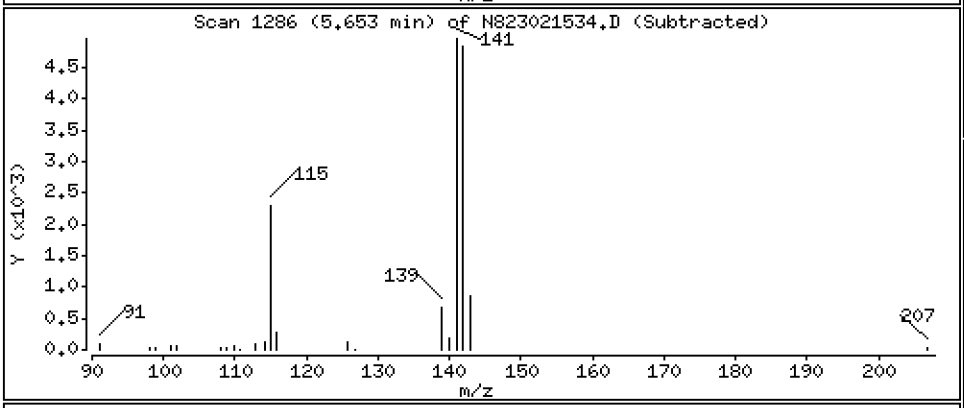
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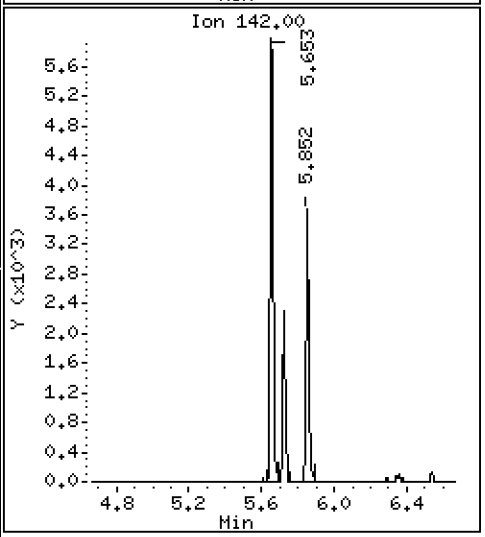
4 2-Methylnaphthalene

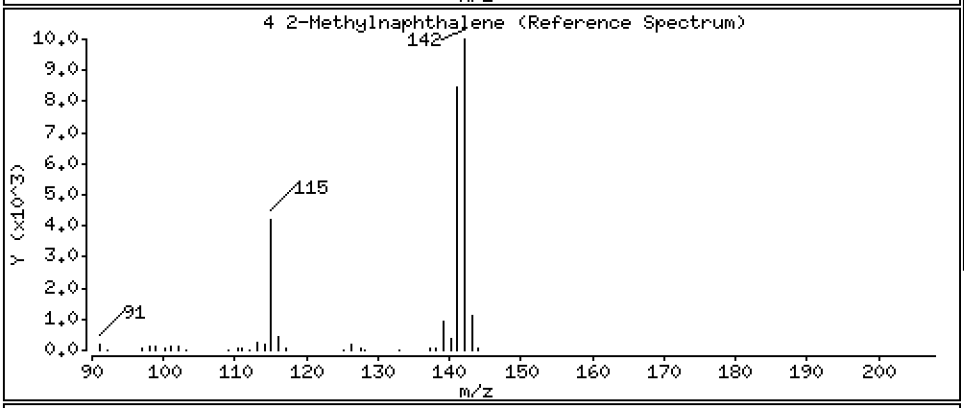
Concentration: 0.5162 ug/mL

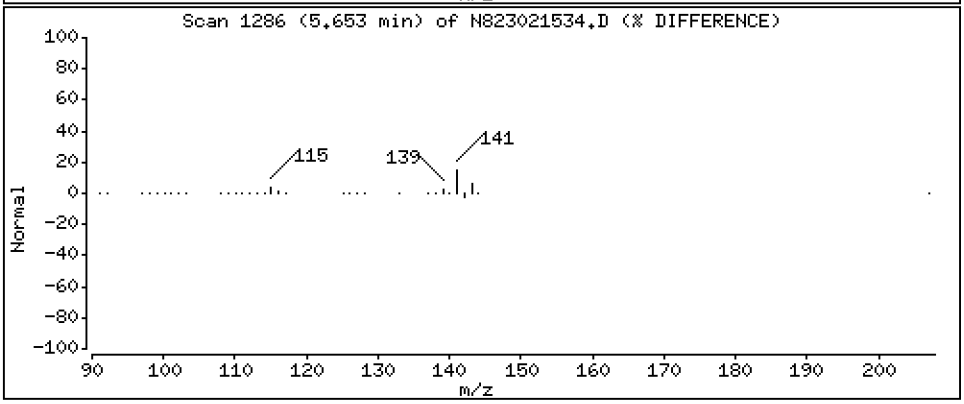












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Date : 16-FEB-2023 02:33

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Sample Info: 23A0626-10

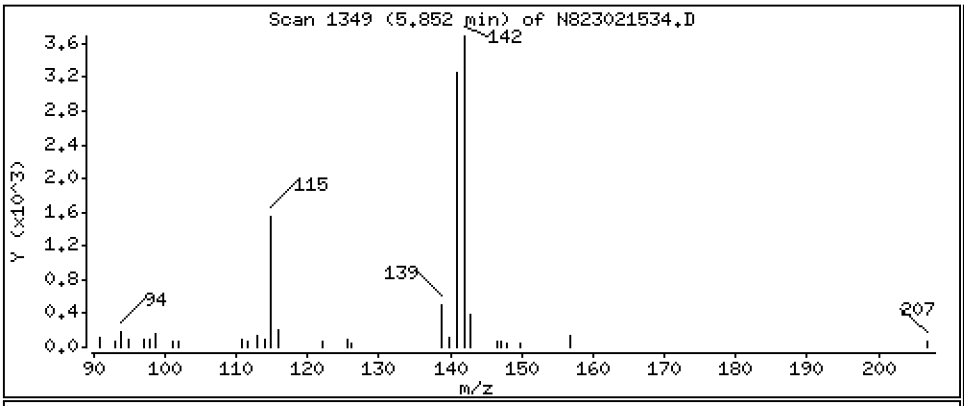
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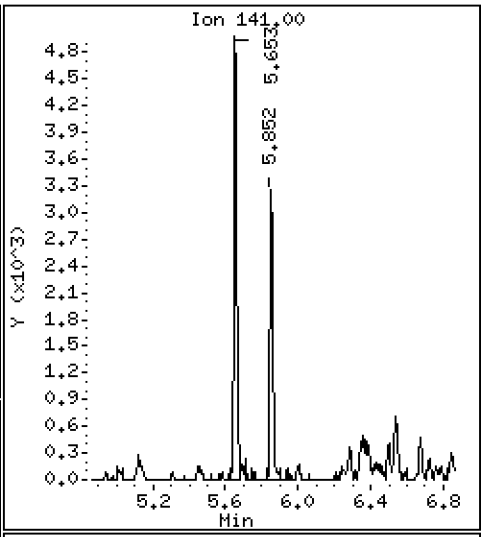
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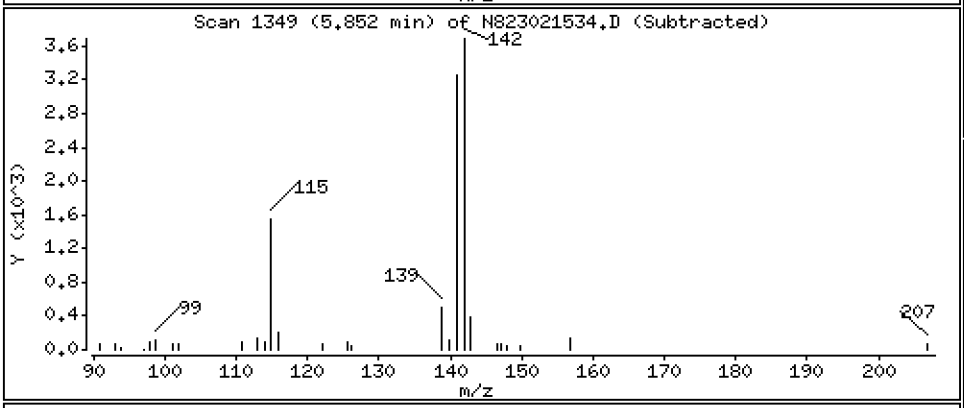
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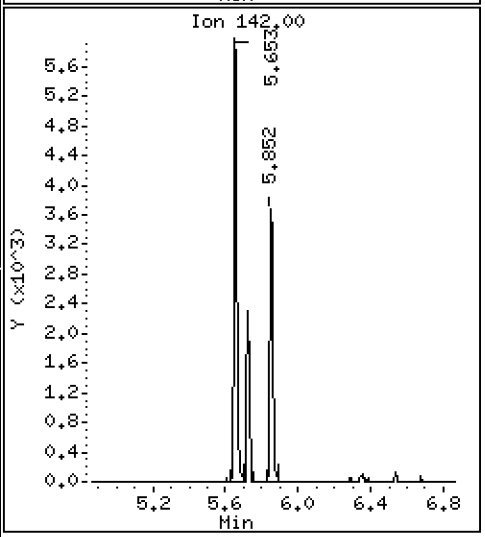
5 1-methylnaphthalene

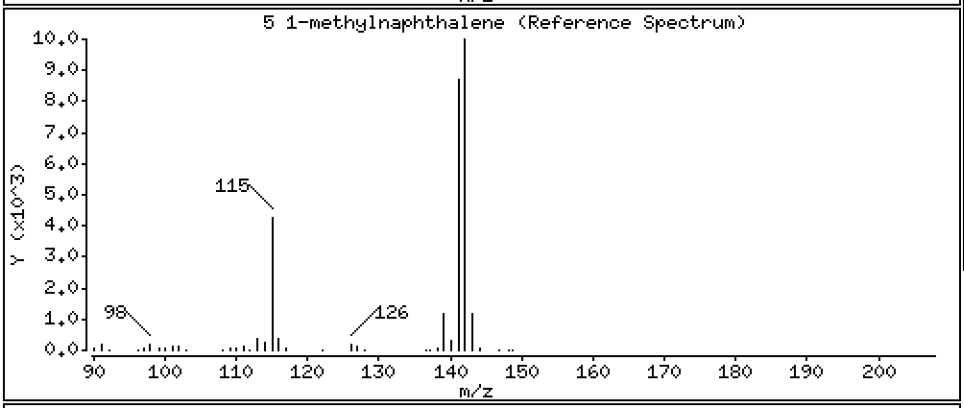
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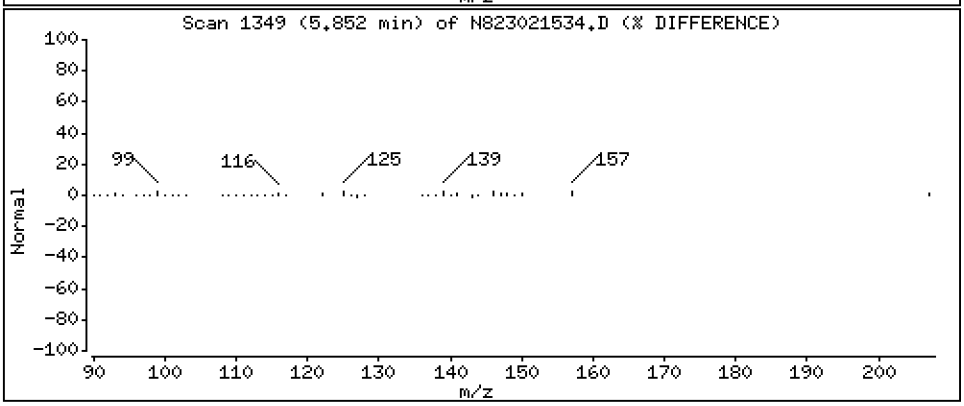












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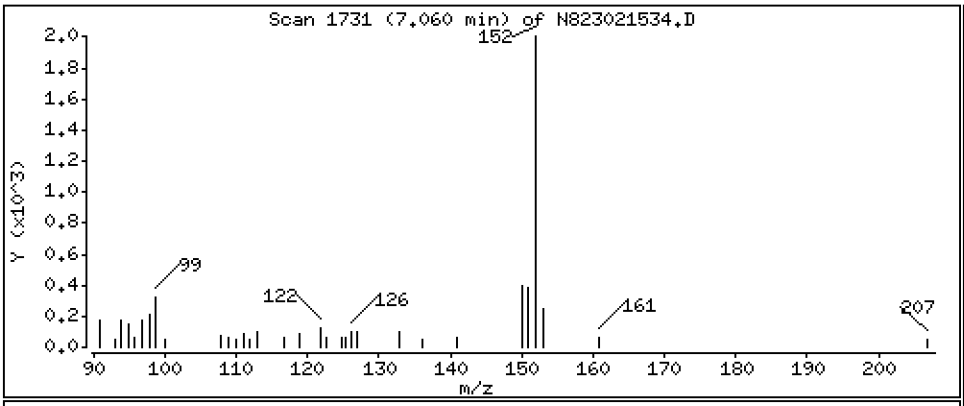
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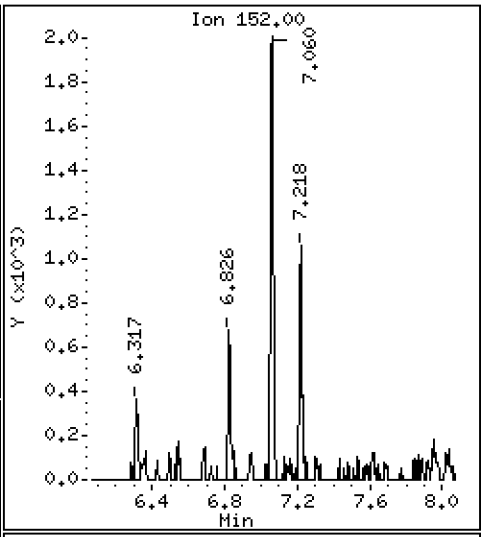
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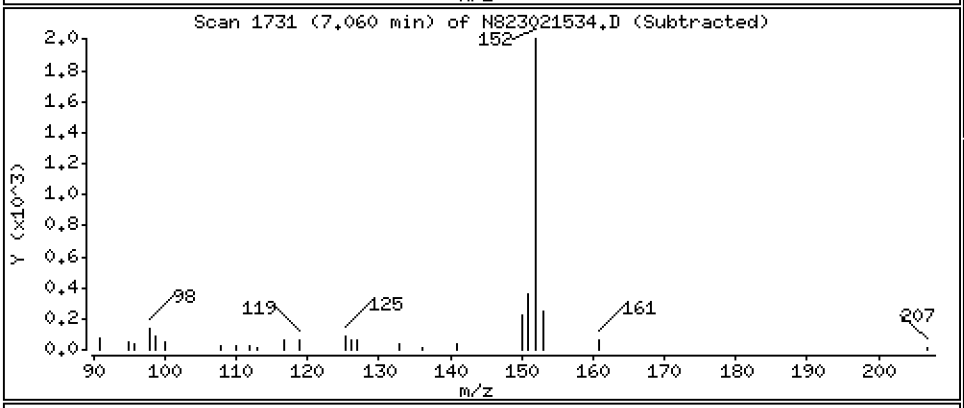
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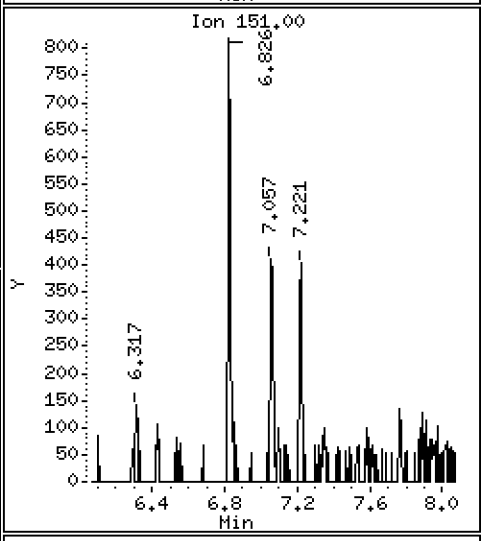
9 Acenaphthylene

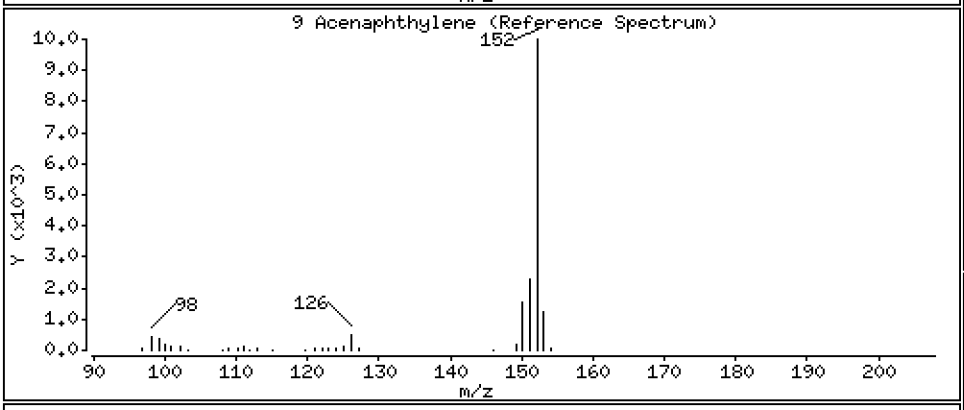
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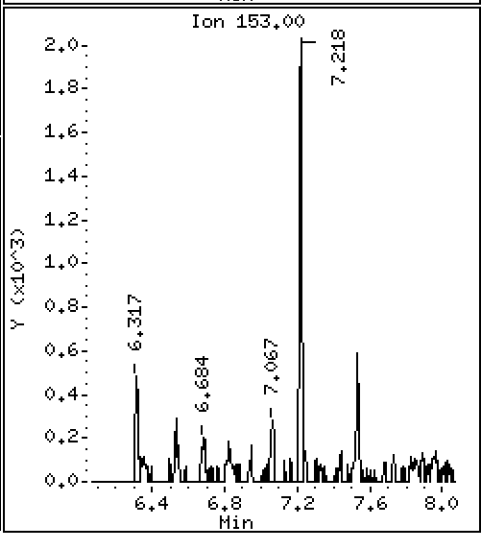


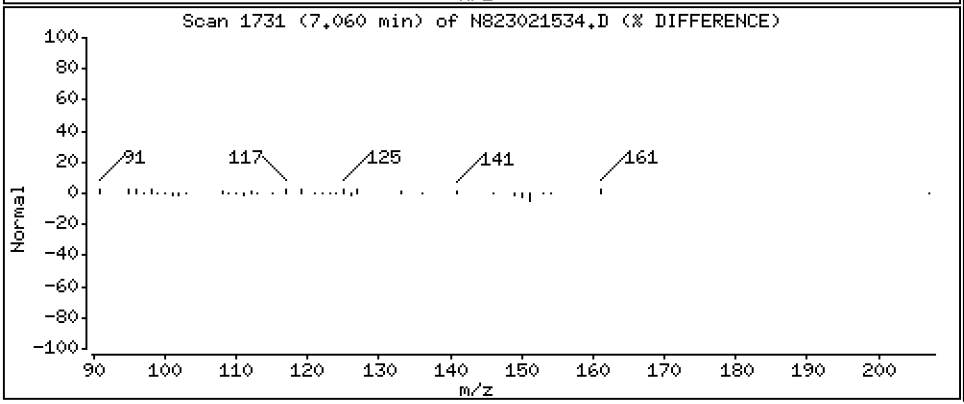












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Sample Info: 23A0626-10

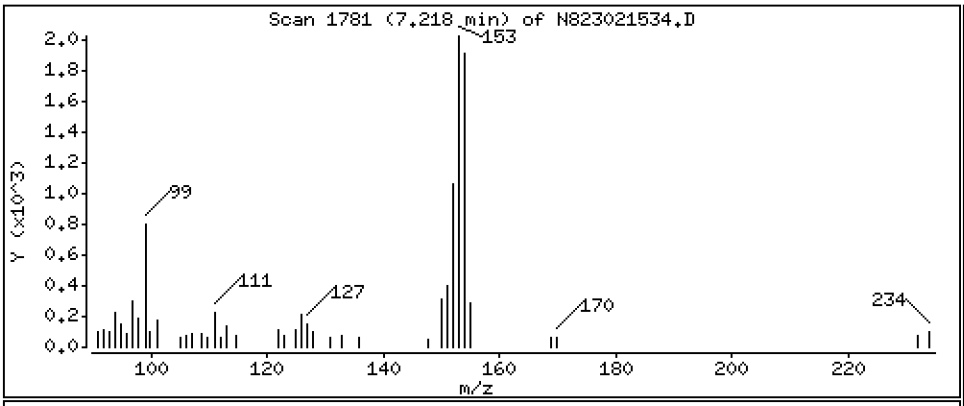
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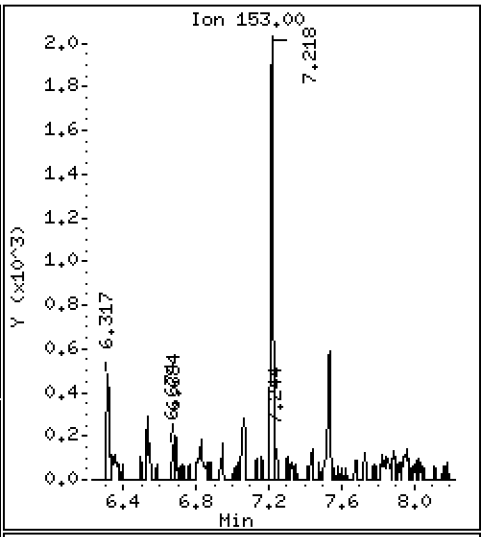
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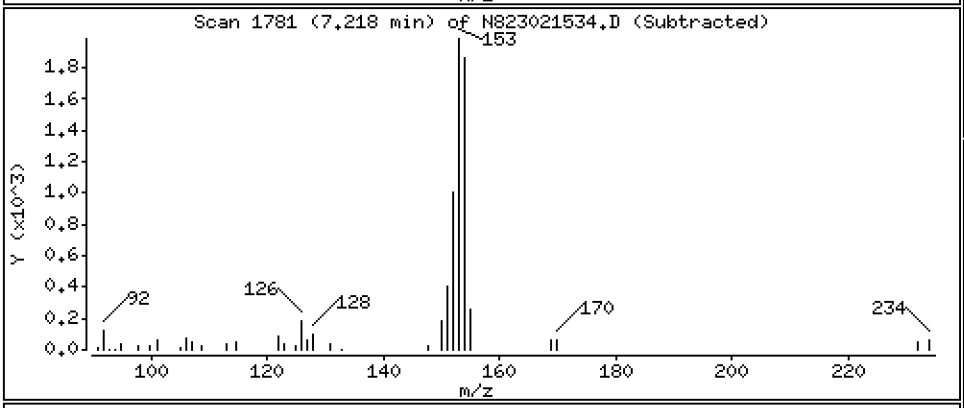
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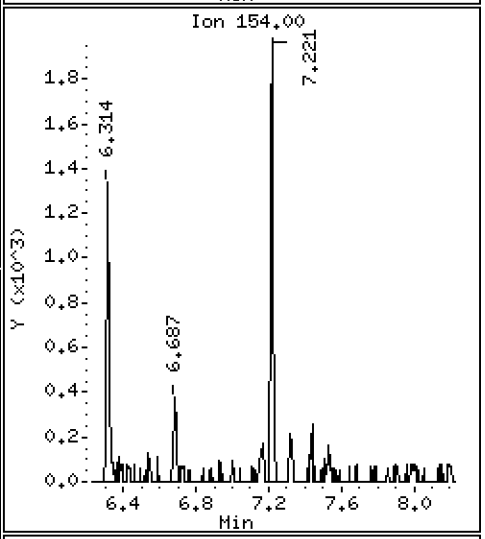
11 Acenaphthene

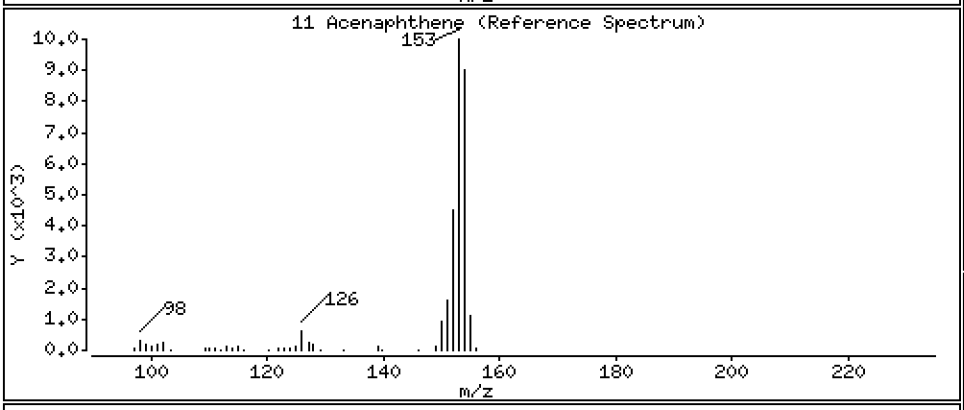
Concentration: 0.1489 ug/mL

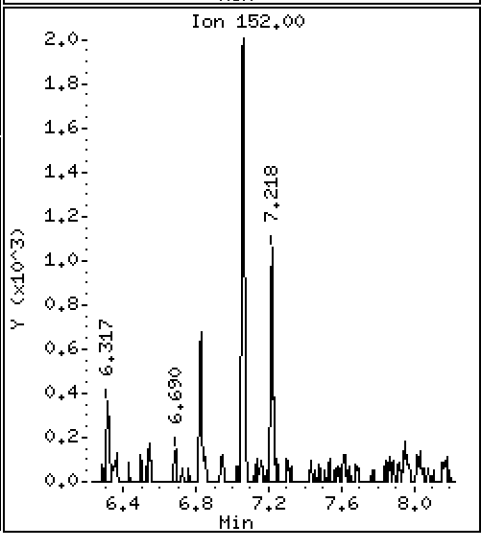


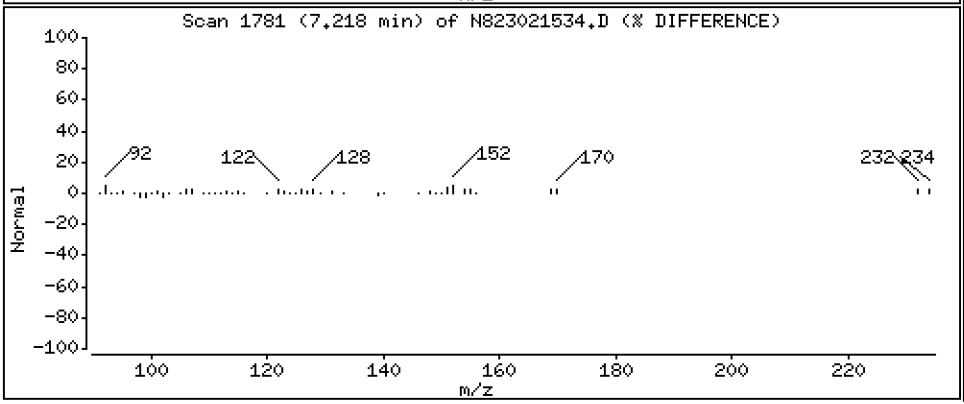












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Date : 16-FEB-2023 02:33

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-10

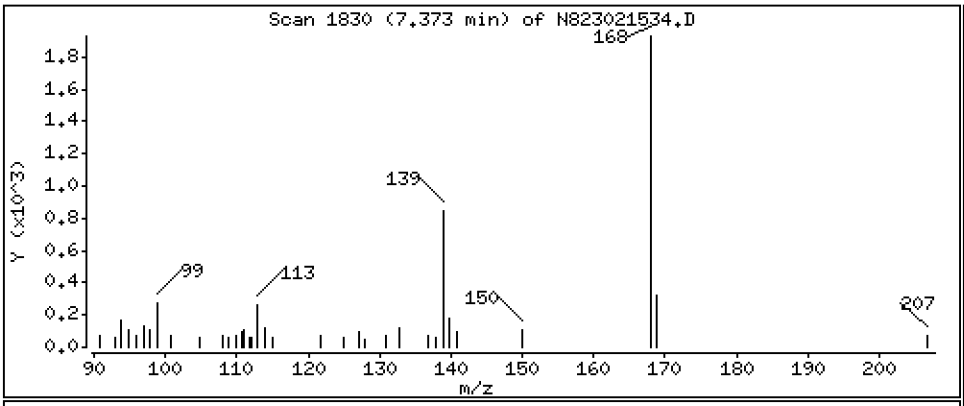
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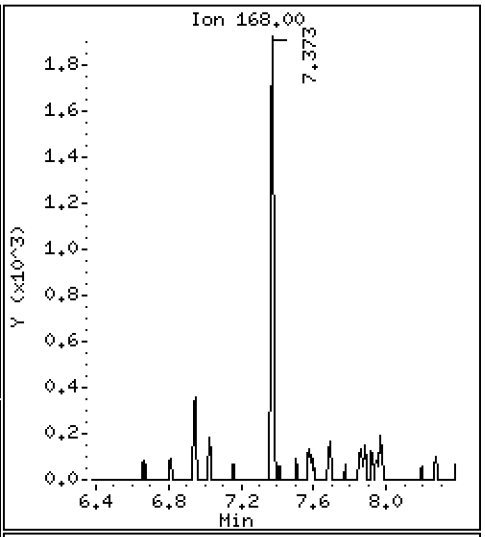
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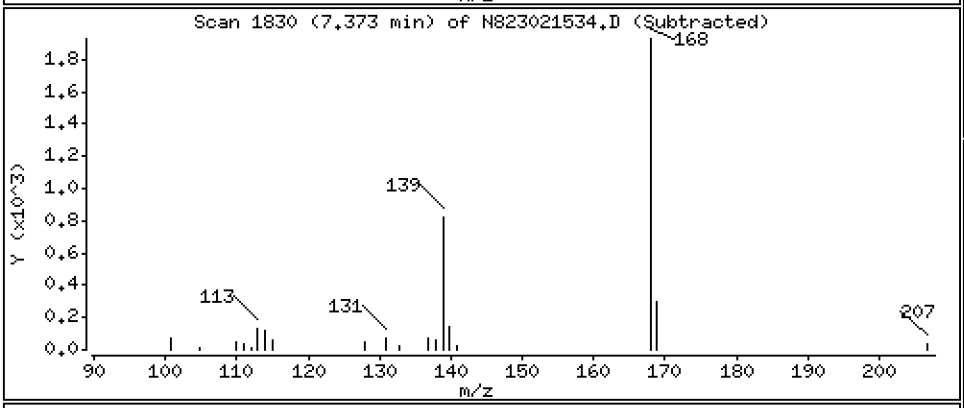
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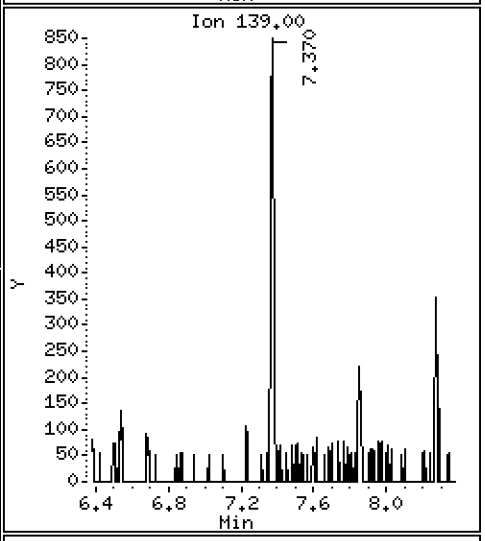
12 Dibenzofuran

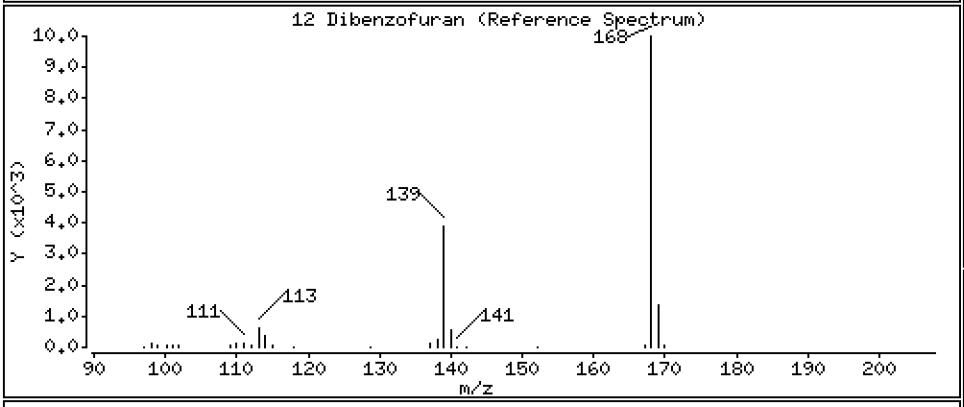
Concentration: 0.09776 ug/mL

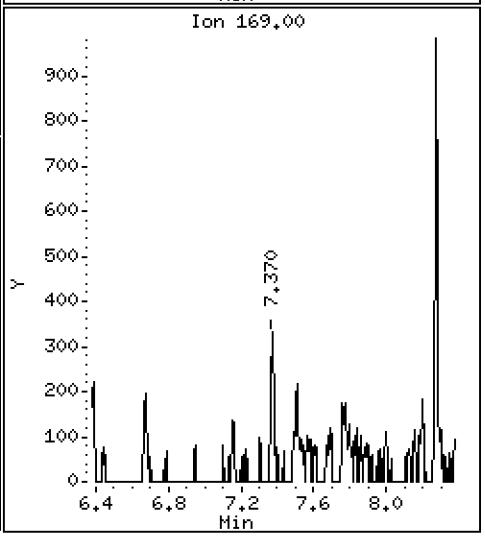


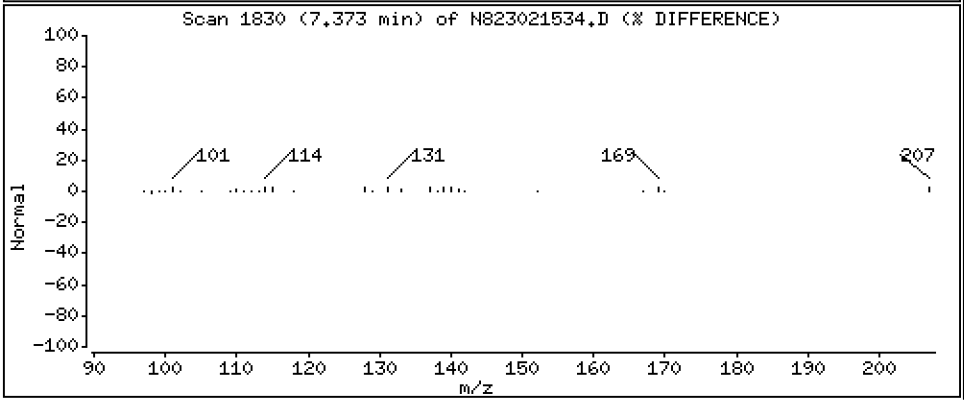












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Date : 16-FEB-2023 02:33

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Sample Info: 23A0626-10

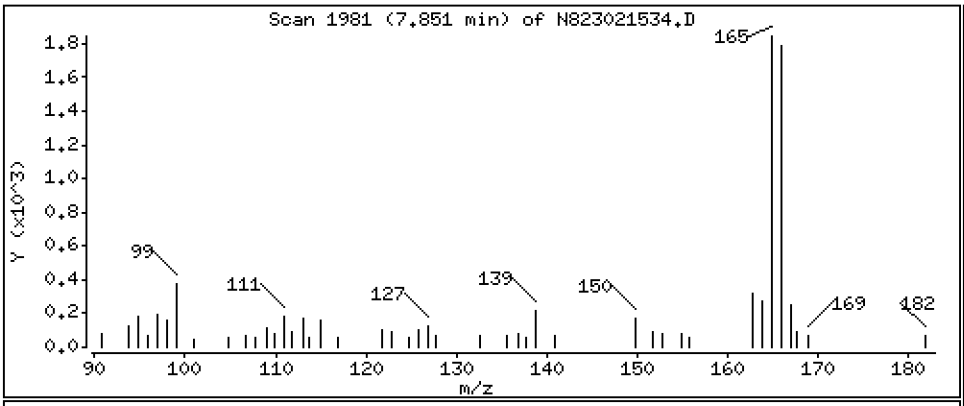
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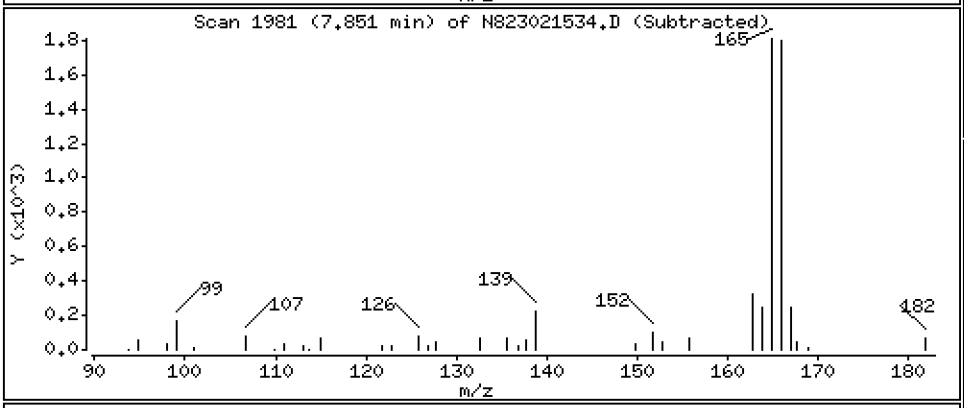
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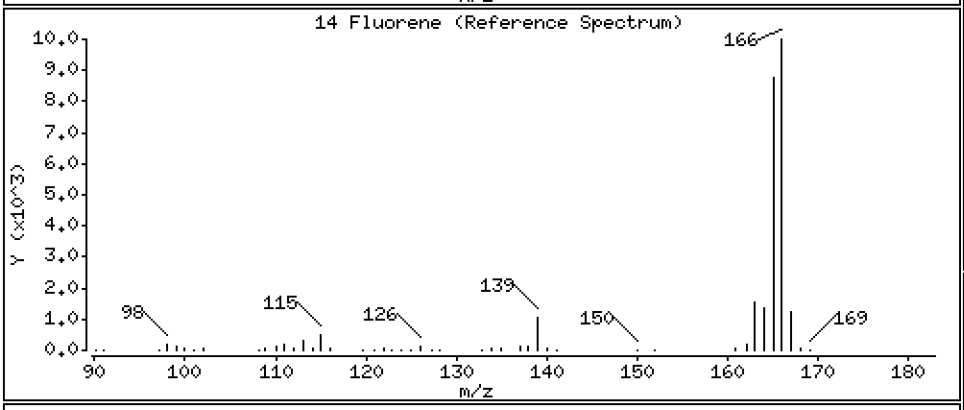
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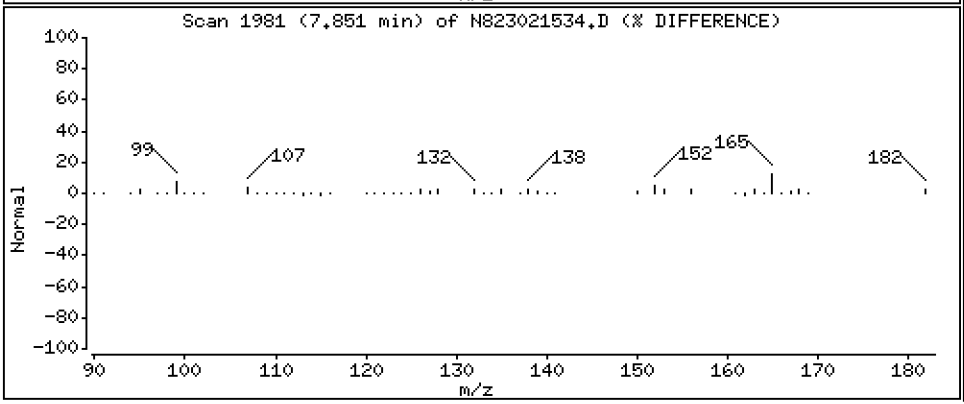
14 Fluorene

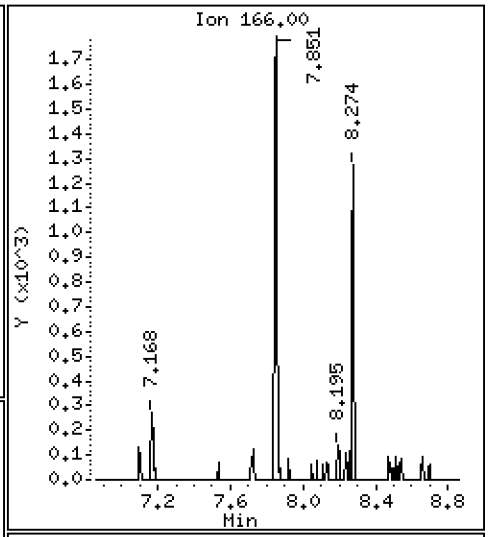
Concentration: 0.1123 ug/mL

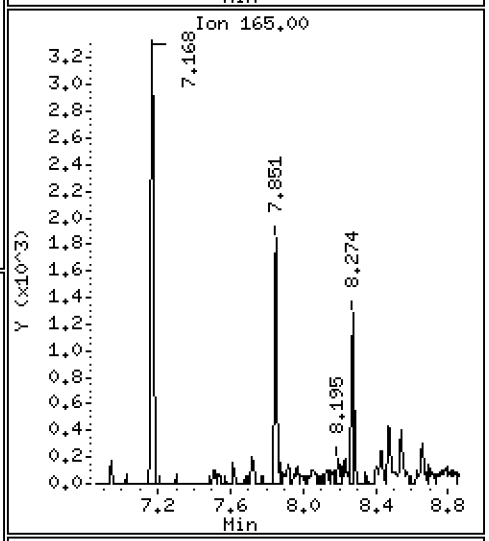


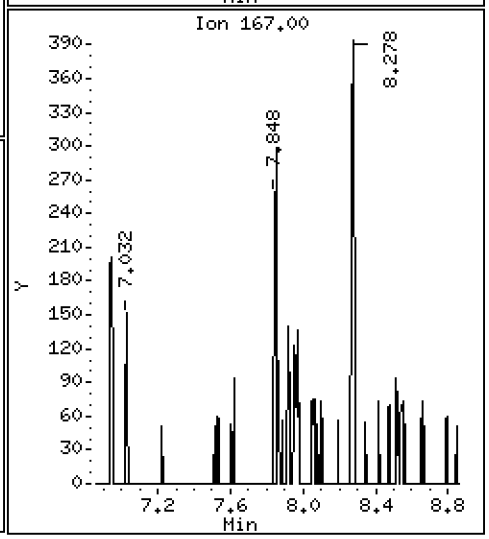












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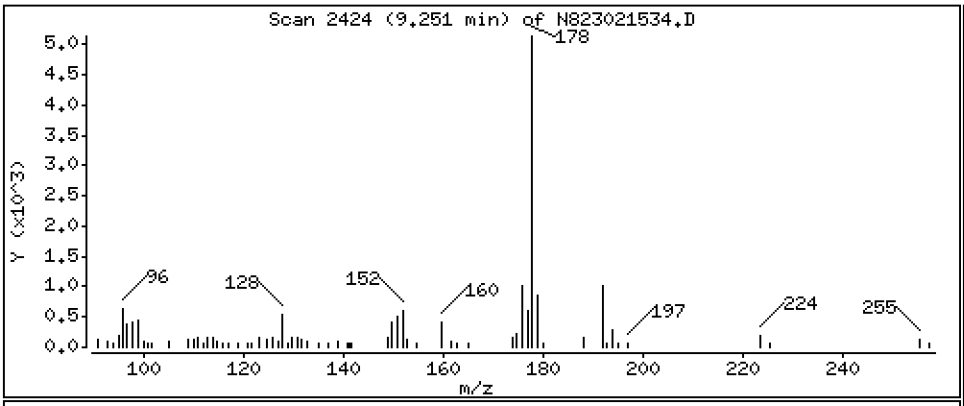
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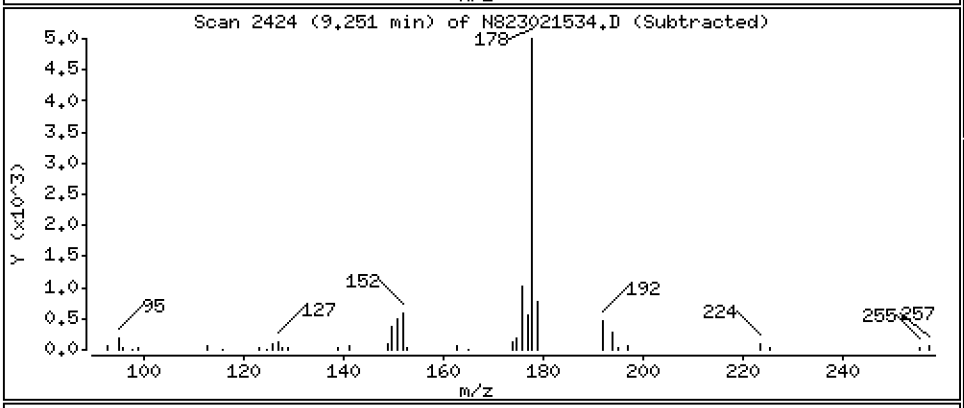
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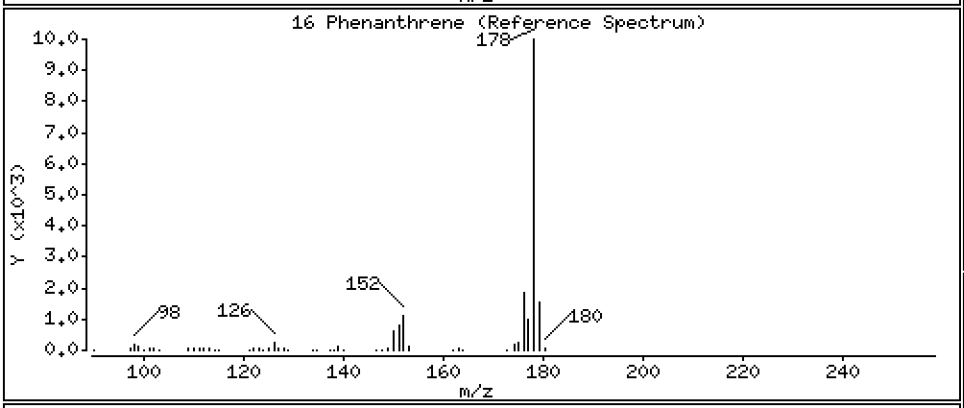
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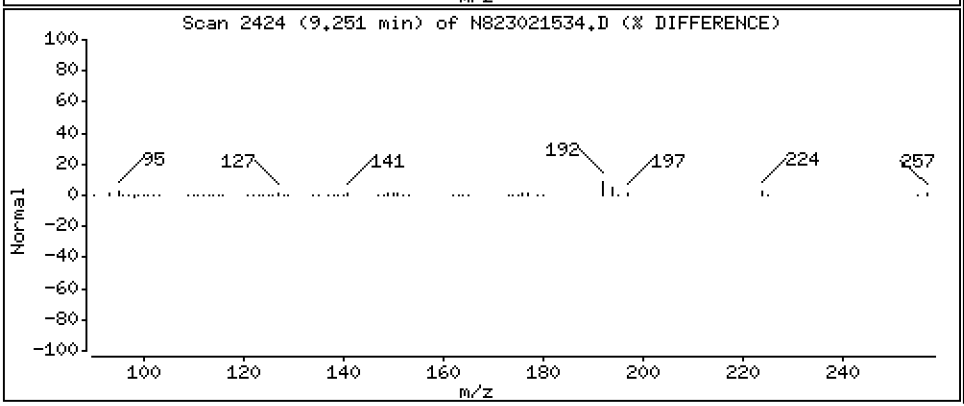
16 Phenanthrene

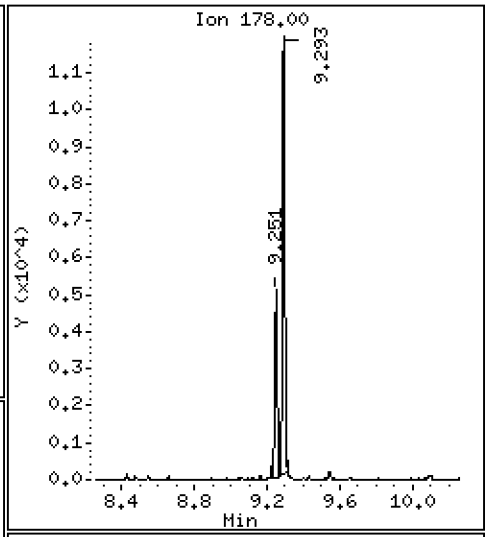
Concentration: 0.2106 ug/mL

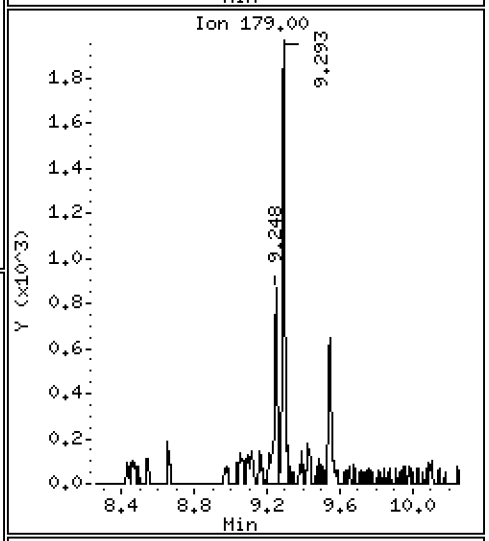


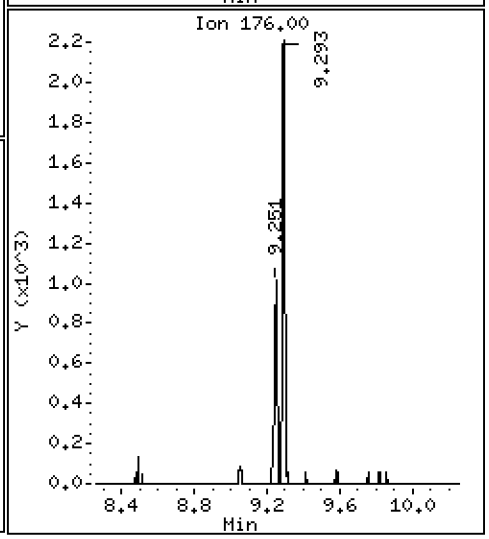












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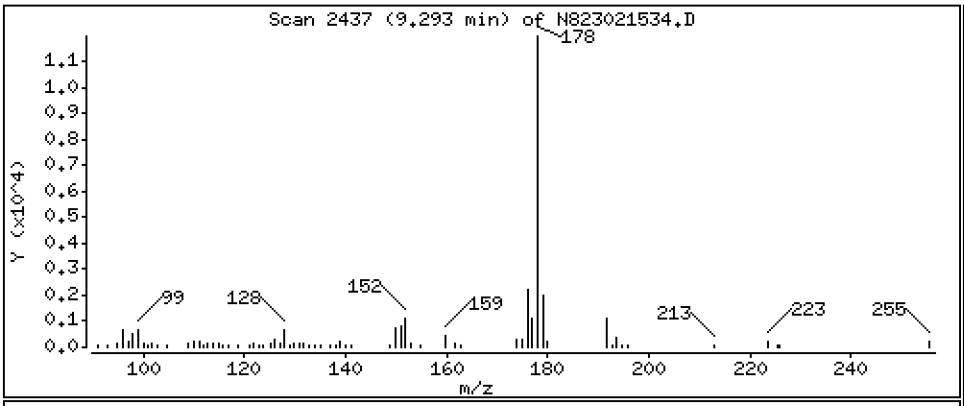
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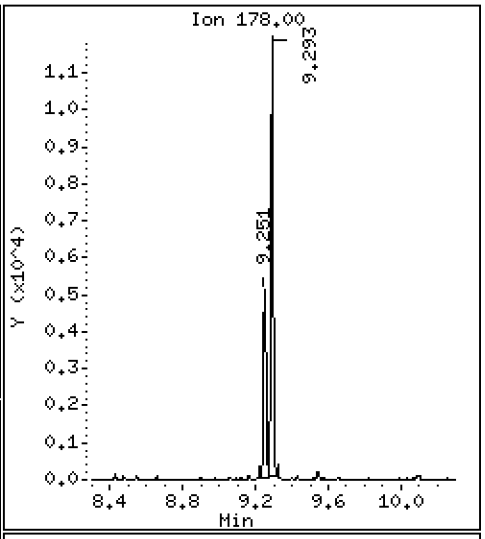
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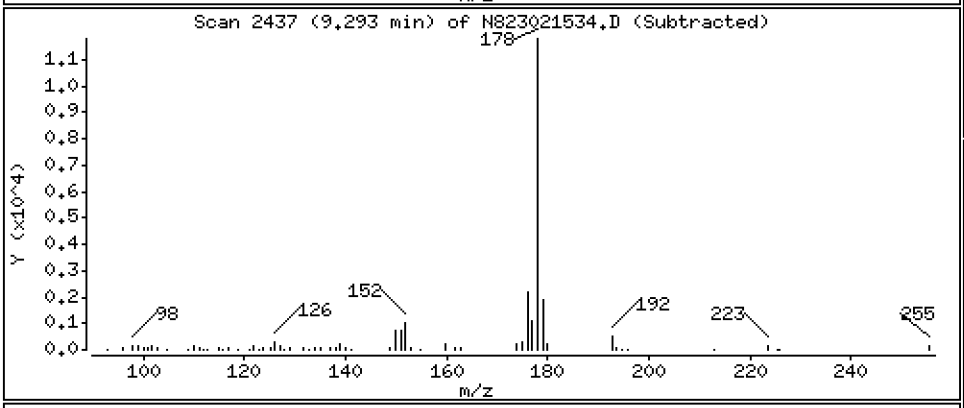
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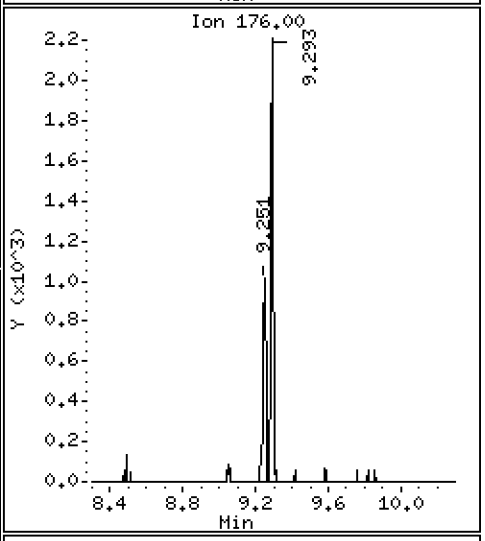
17 Anthracene

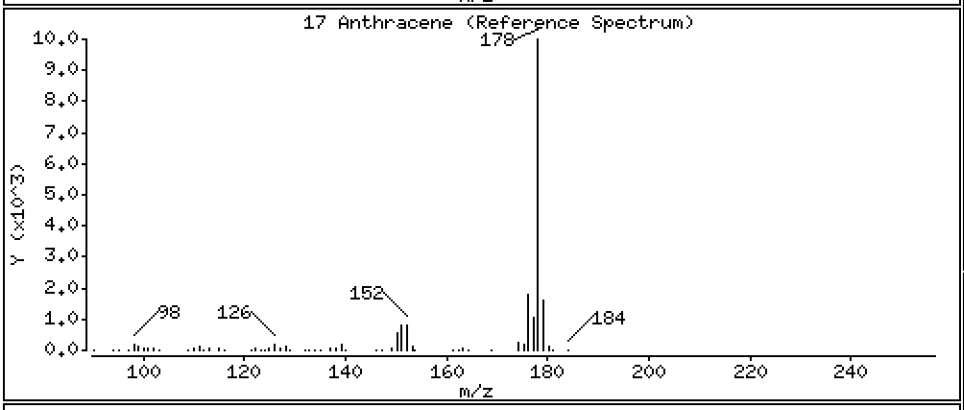
Concentration: 0.5045 ug/mL

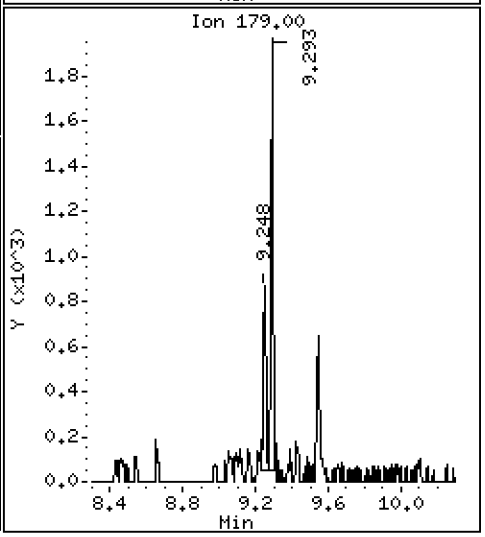


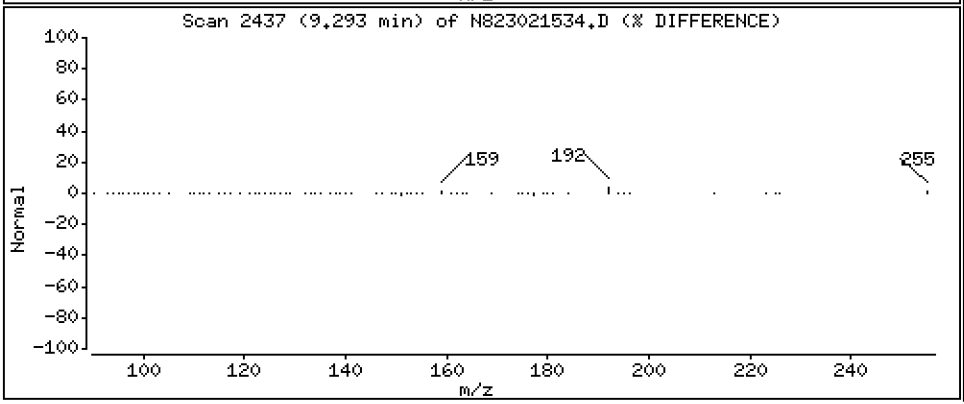












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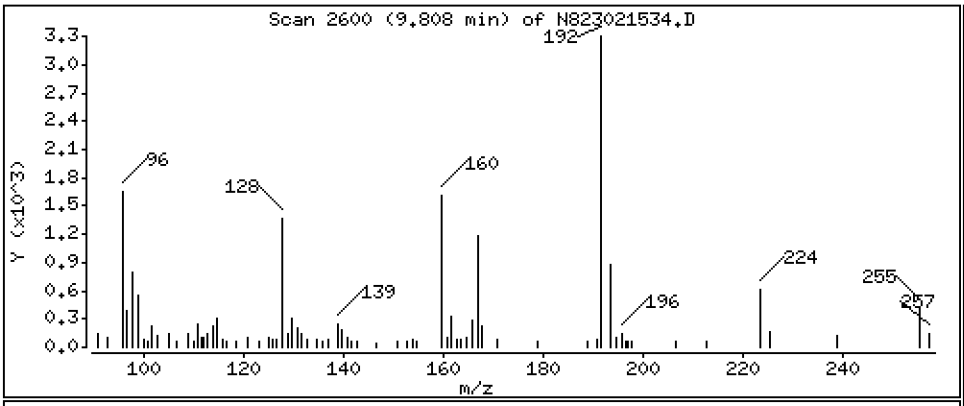
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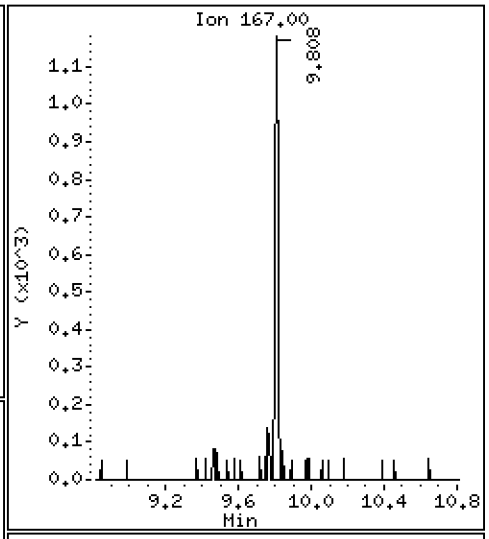
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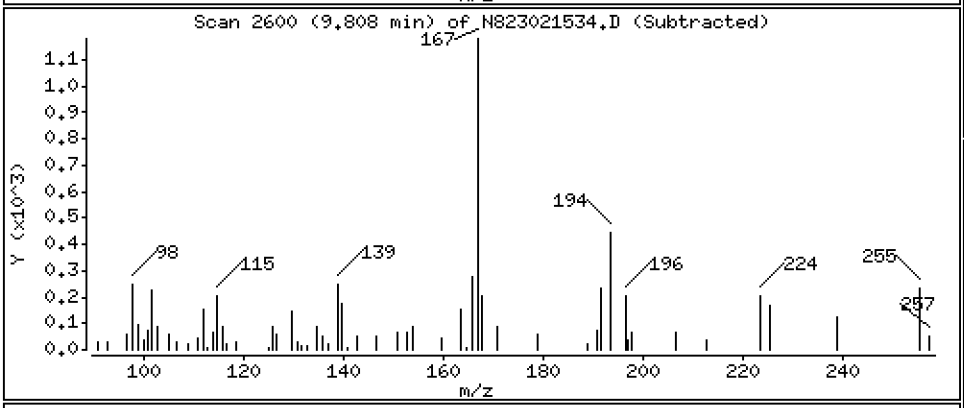
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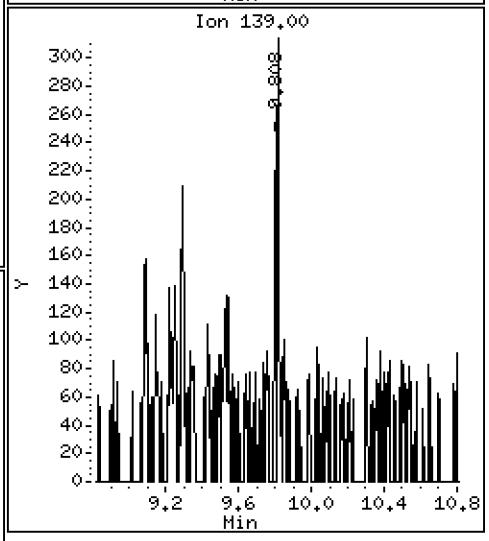
19 Carbazole

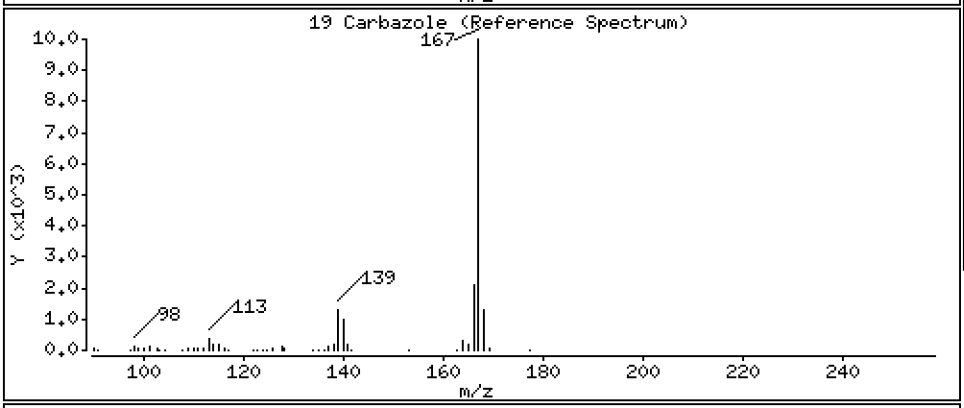
Concentration: 0.06317 ug/mL

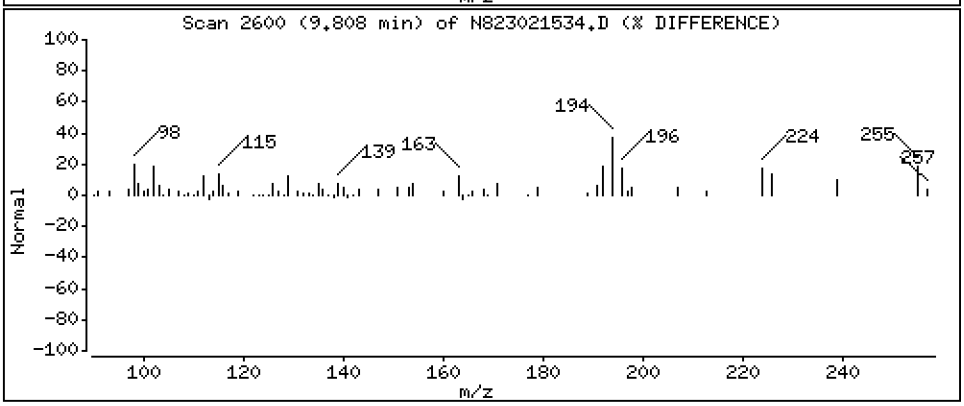












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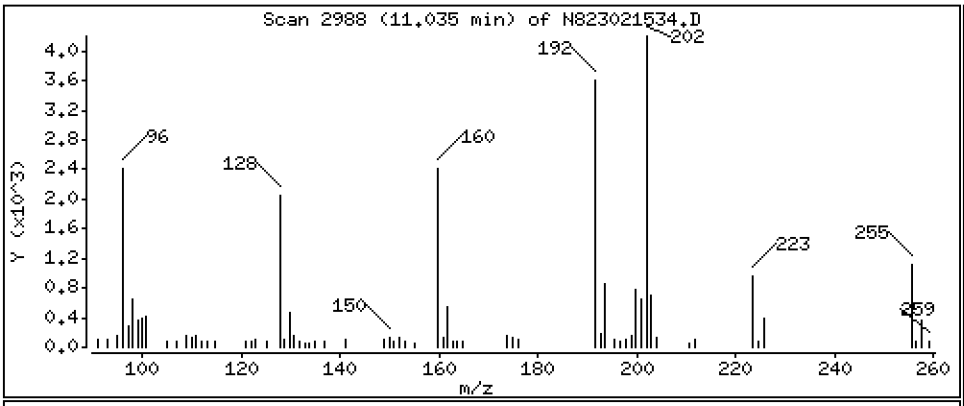
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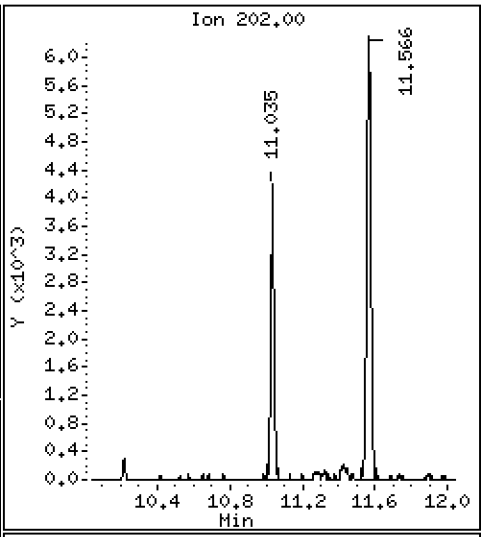
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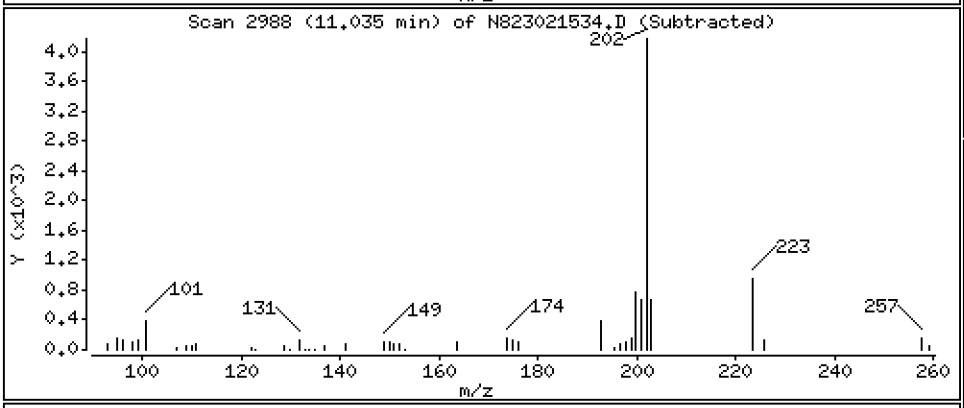
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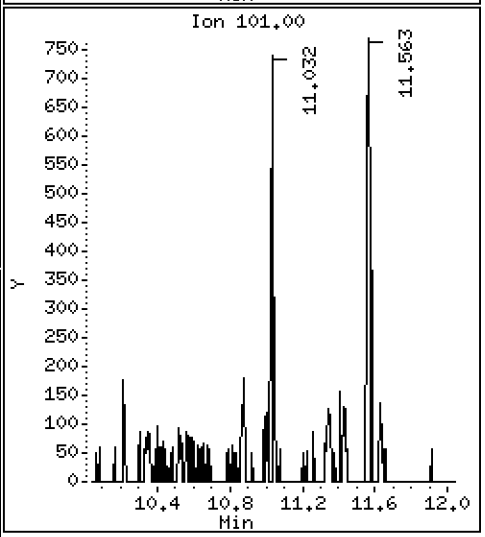
22 Fluoranthene

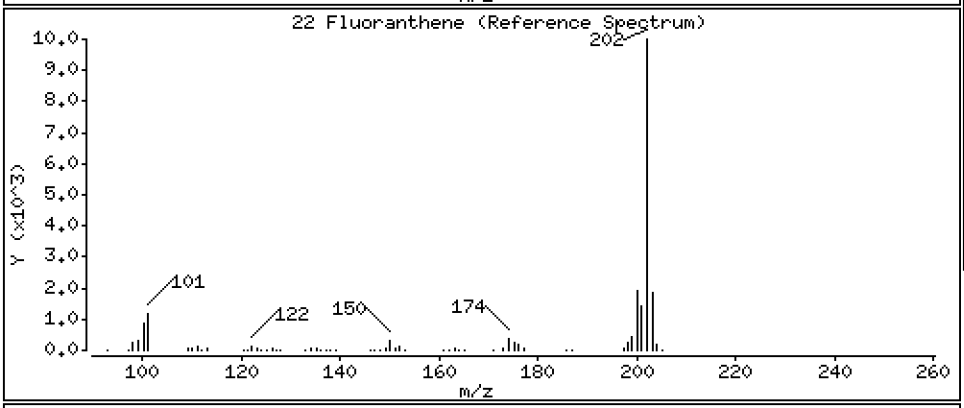
Concentration: 0.1957 ug/mL

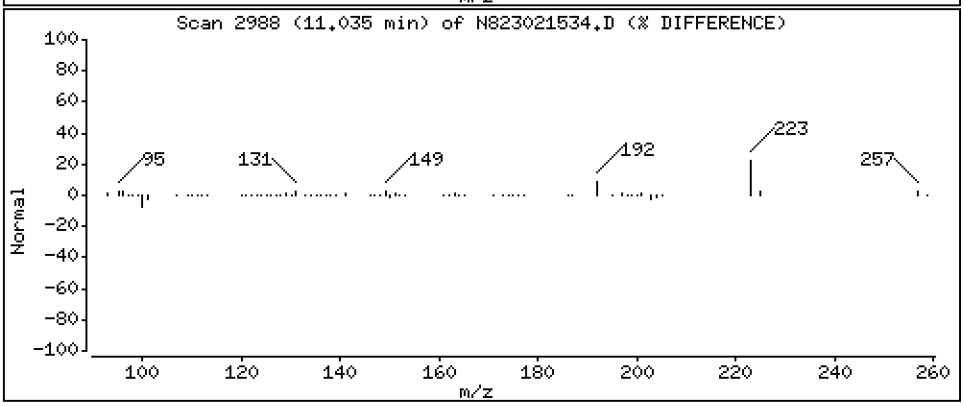












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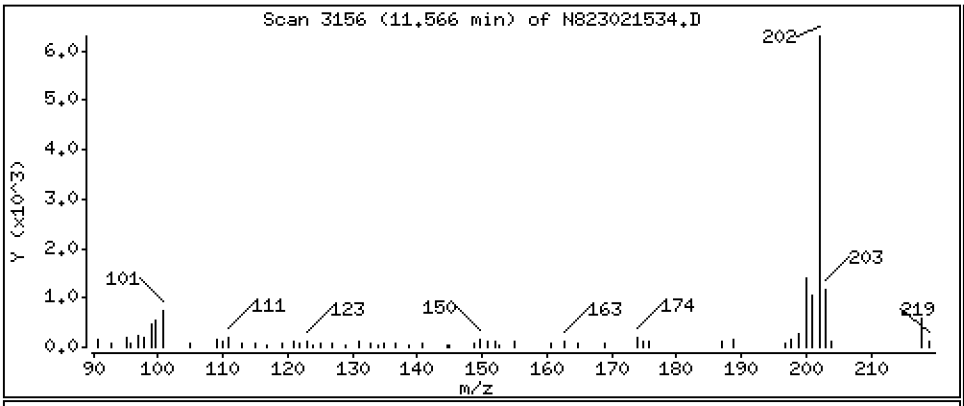
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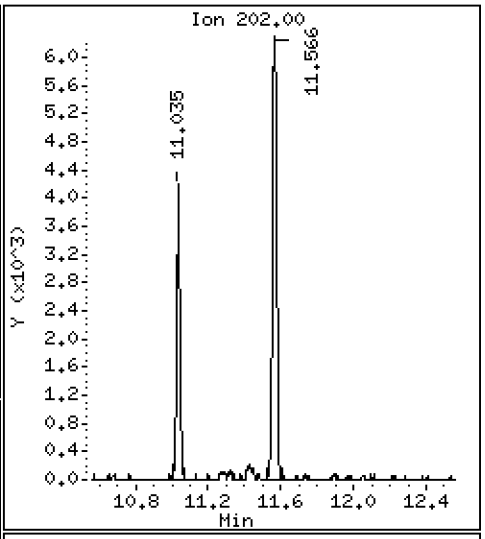
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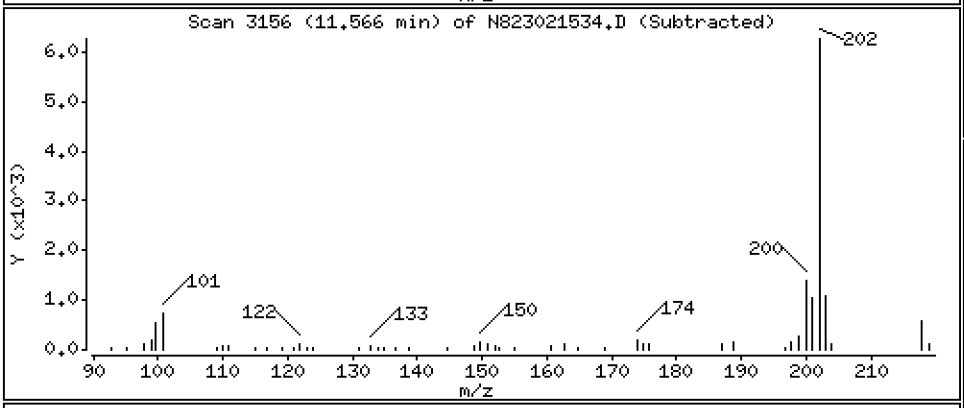
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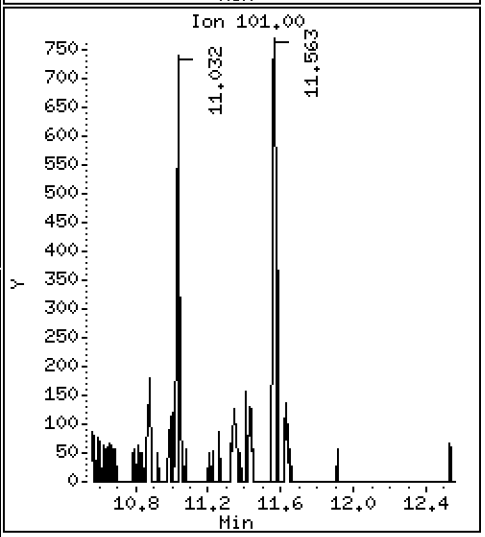
23 Pyrene

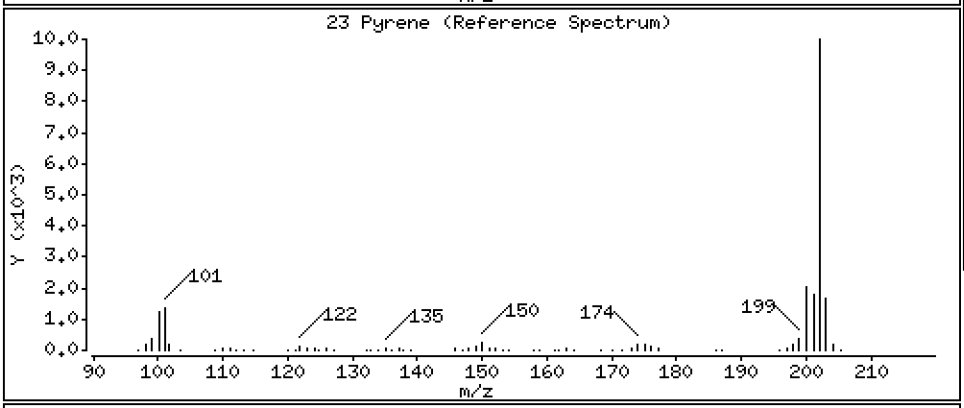
Concentration: 0.3907 ug/mL

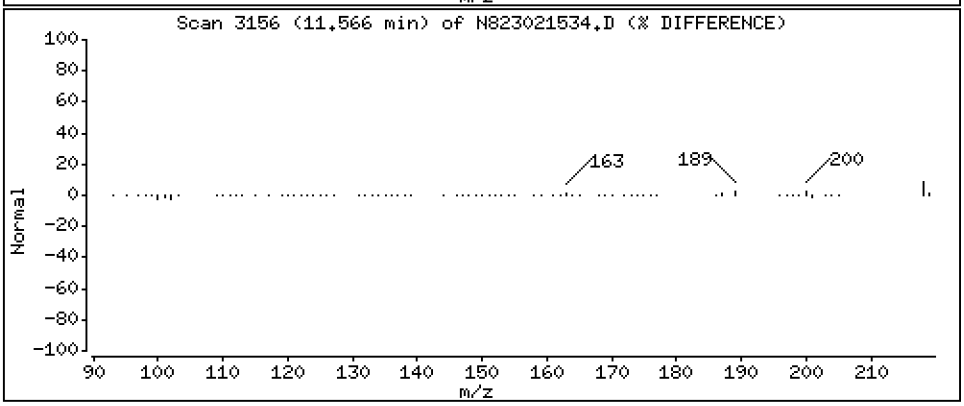












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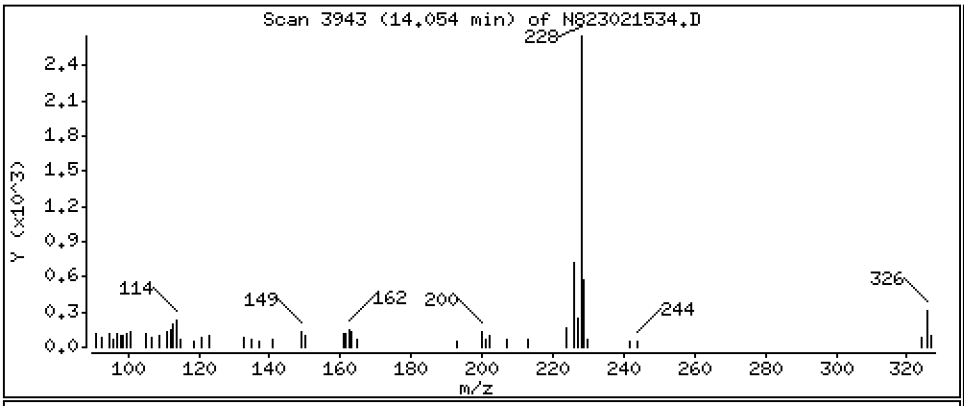
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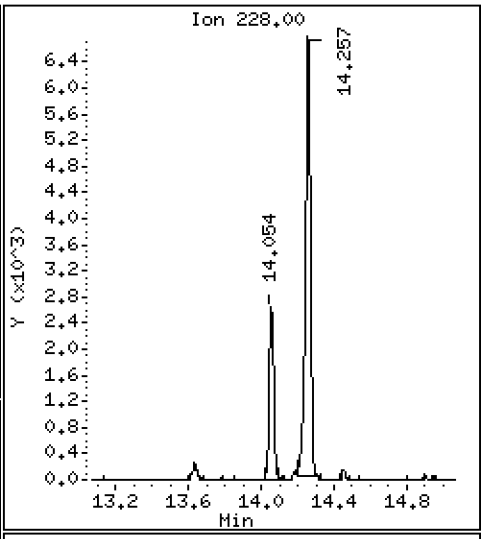
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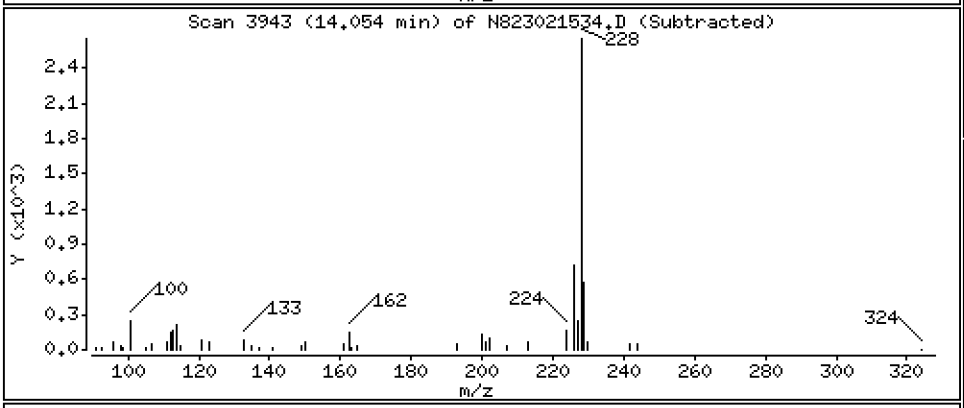
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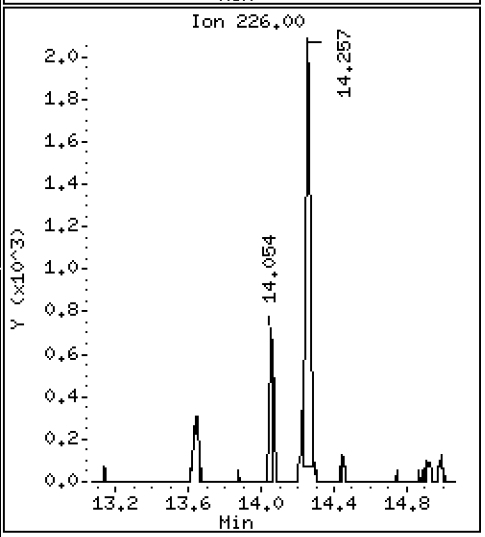
24 Benzo(a)anthracene

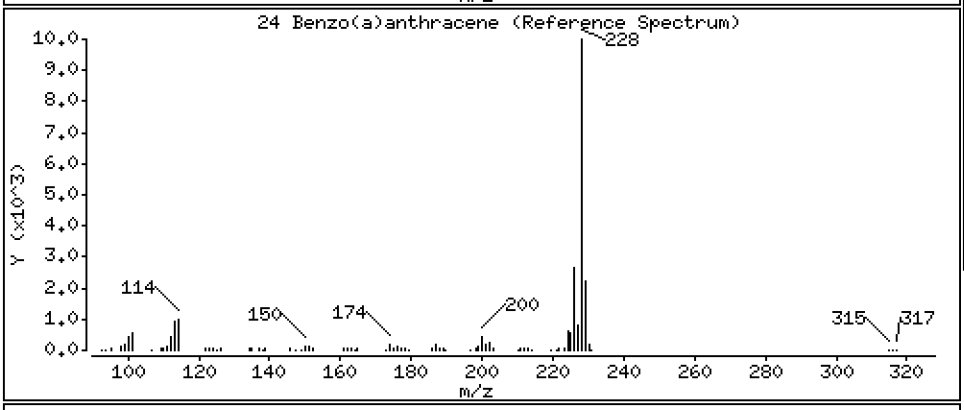
Concentration: 0.1920 ug/mL

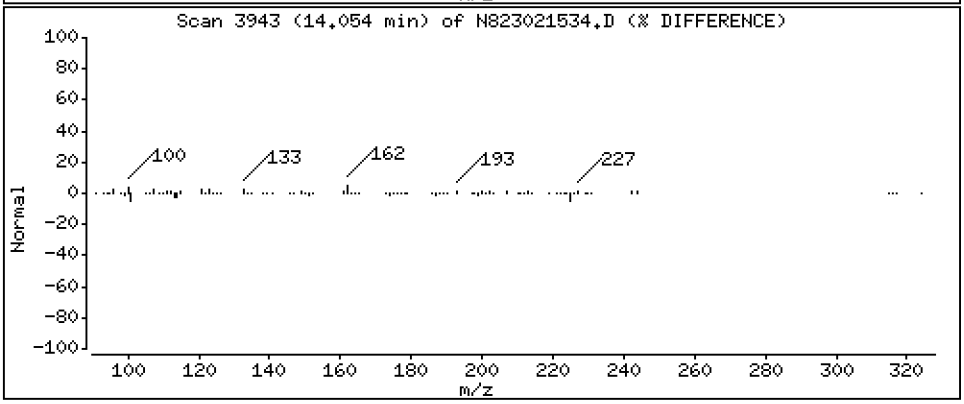












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Date : 16-FEB-2023 02:33

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-10

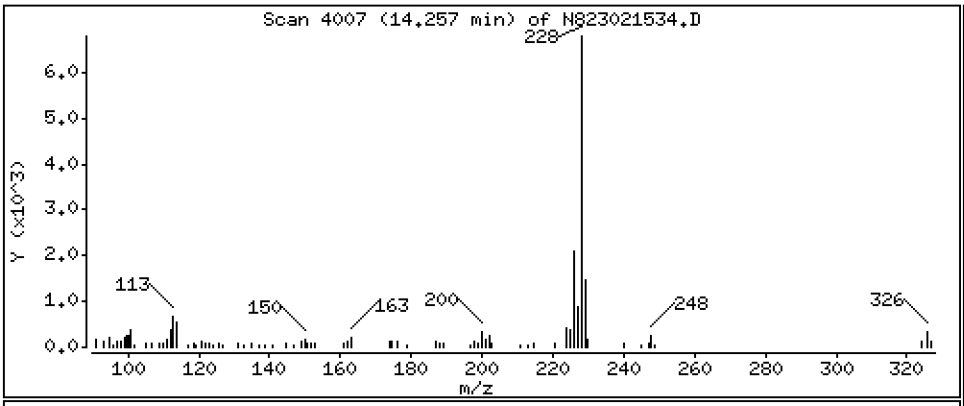
Operator: JZ

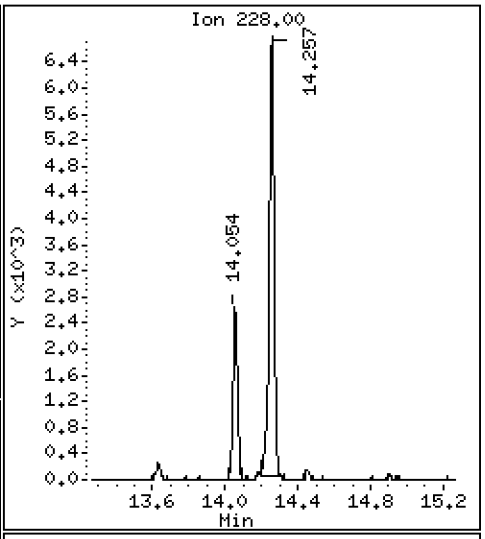
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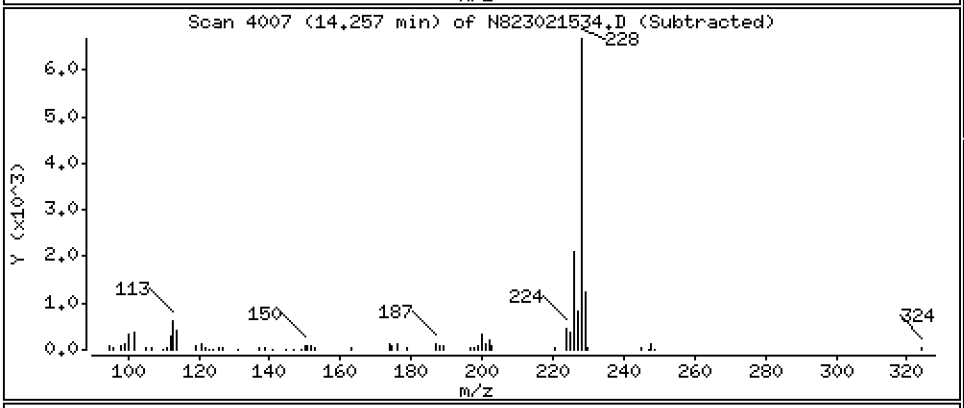
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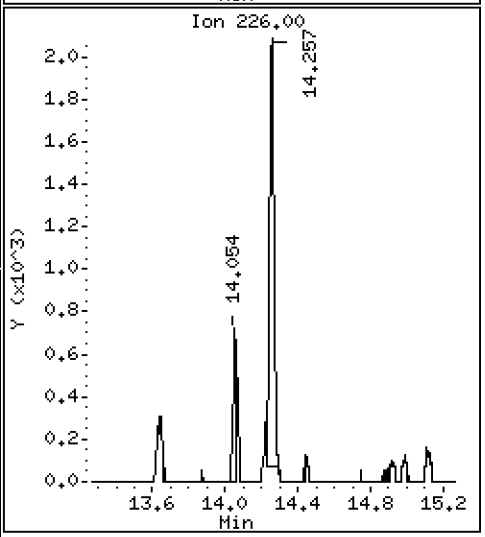
27 Chrysene

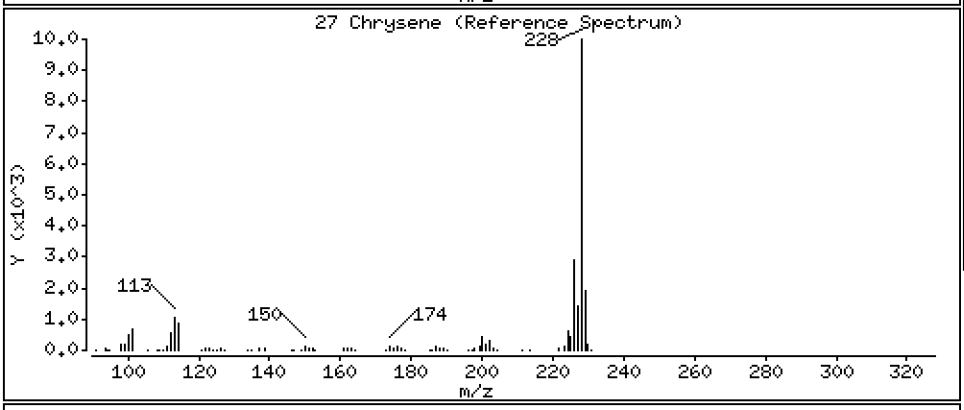
Concentration: 0.5153 ug/mL

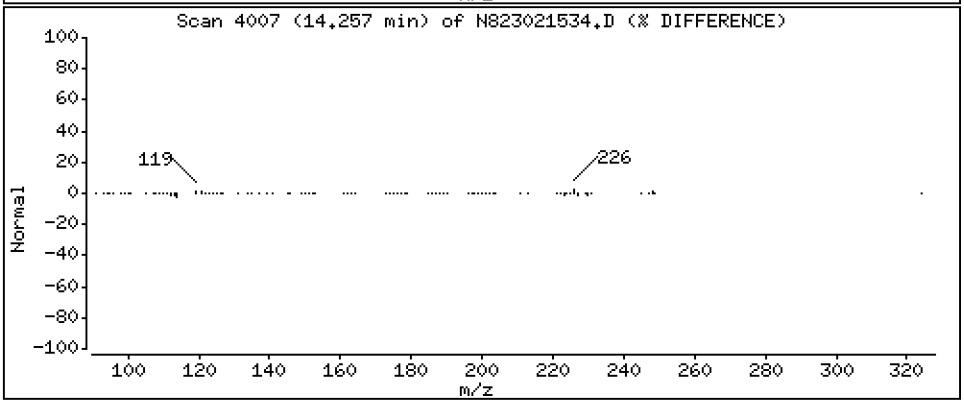












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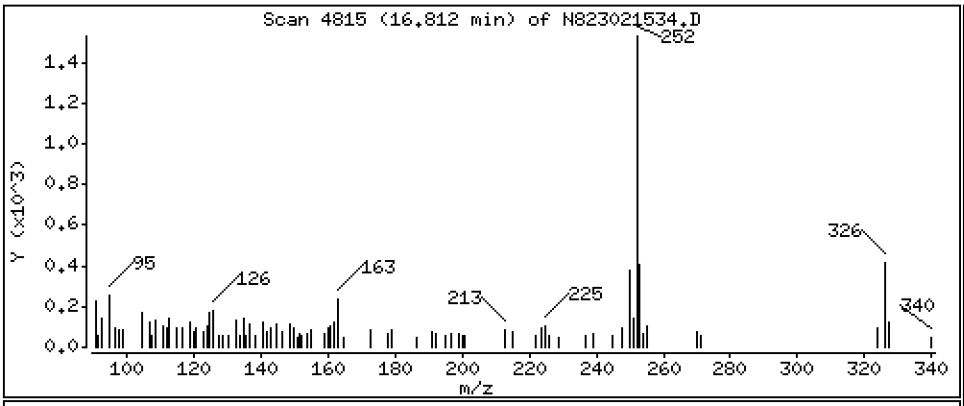
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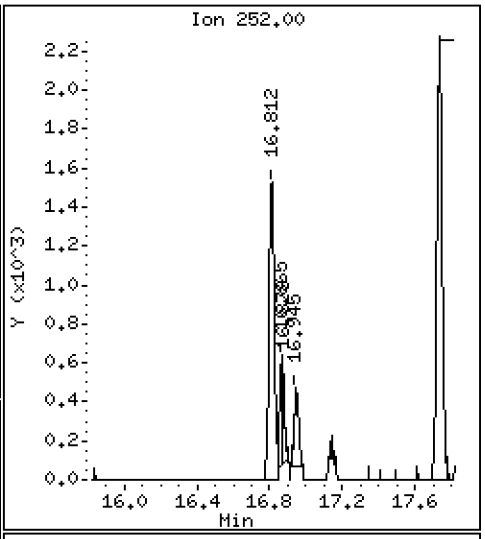
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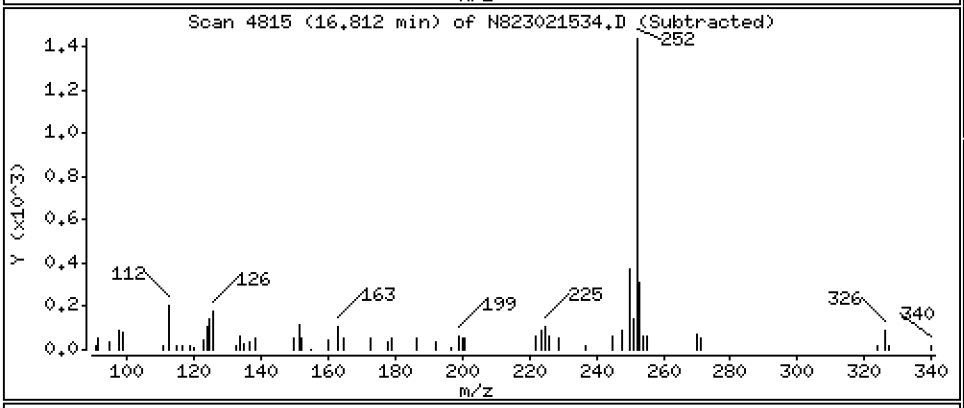
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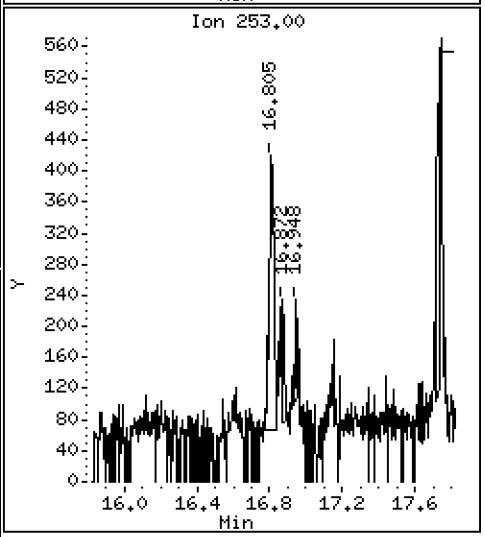
28 Benzo(b)fluoranthene

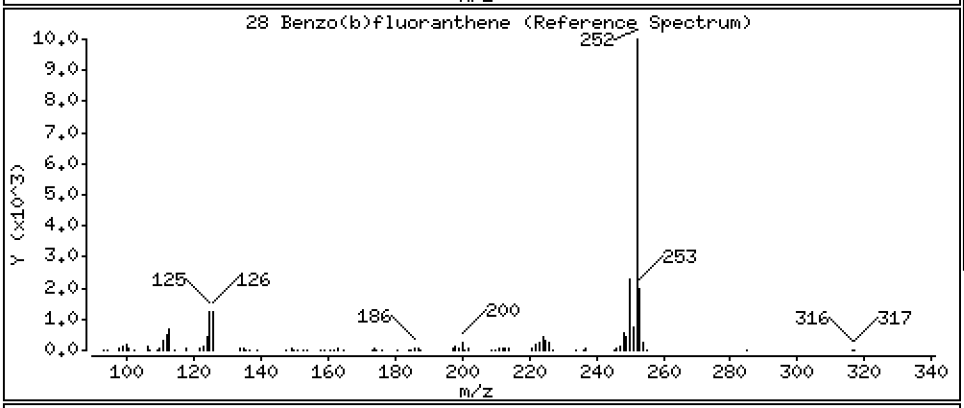
Concentration: 0.1503 ug/mL

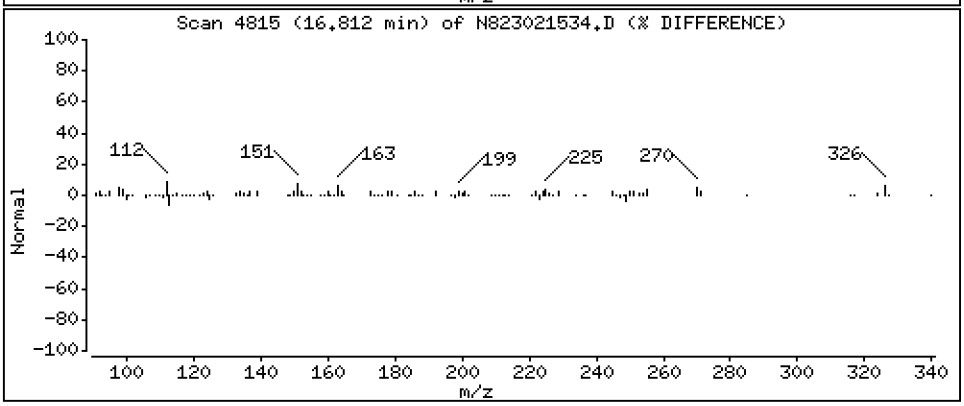












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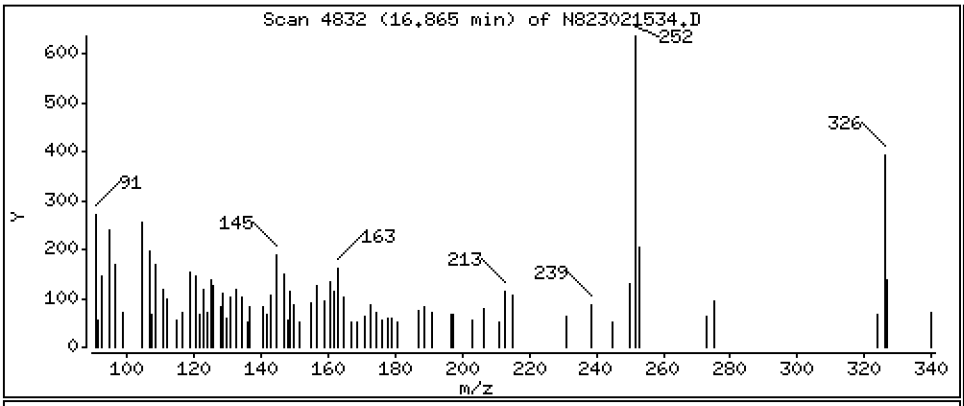
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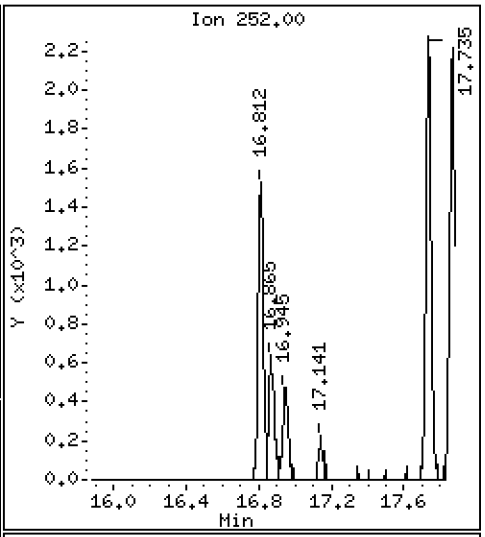
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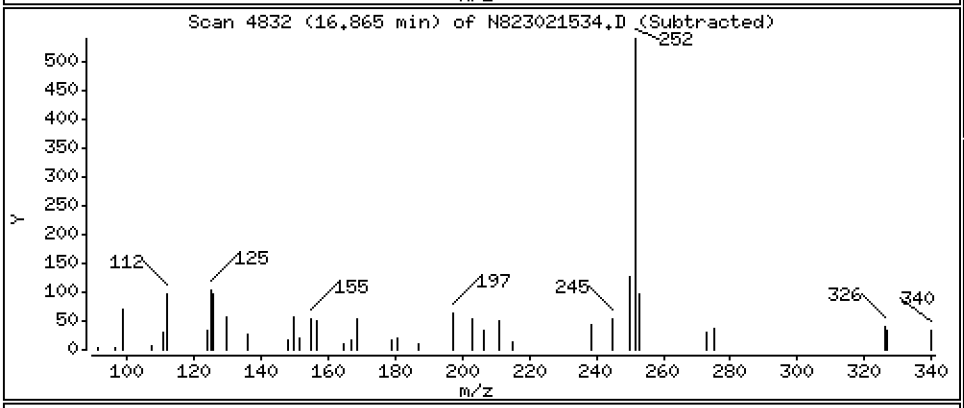
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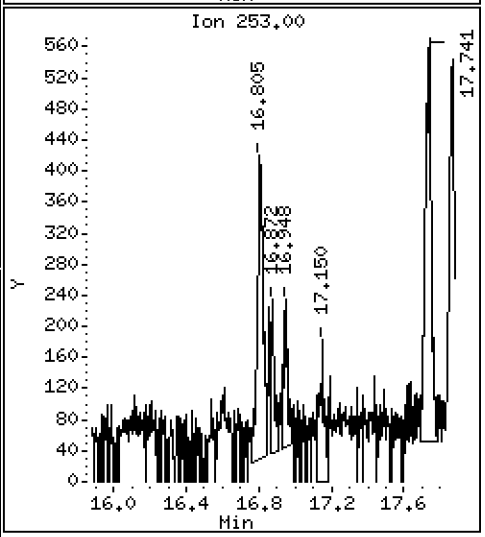
29 Benzo(k)fluoranthene

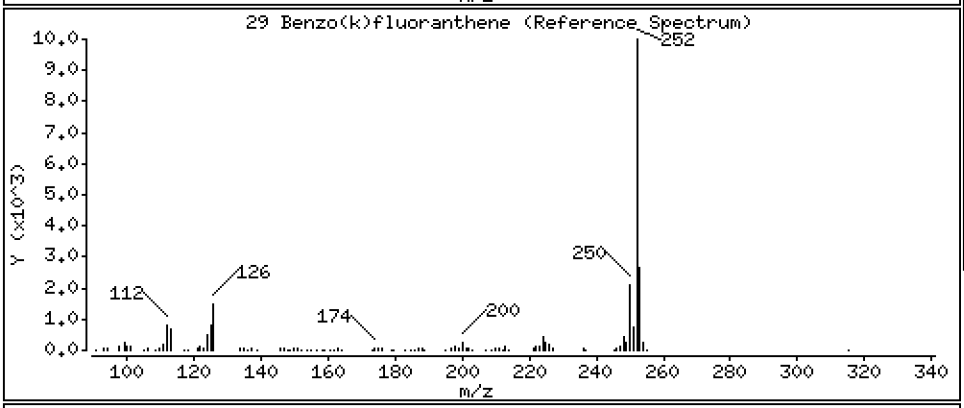
Concentration: 0.06526 ug/mL

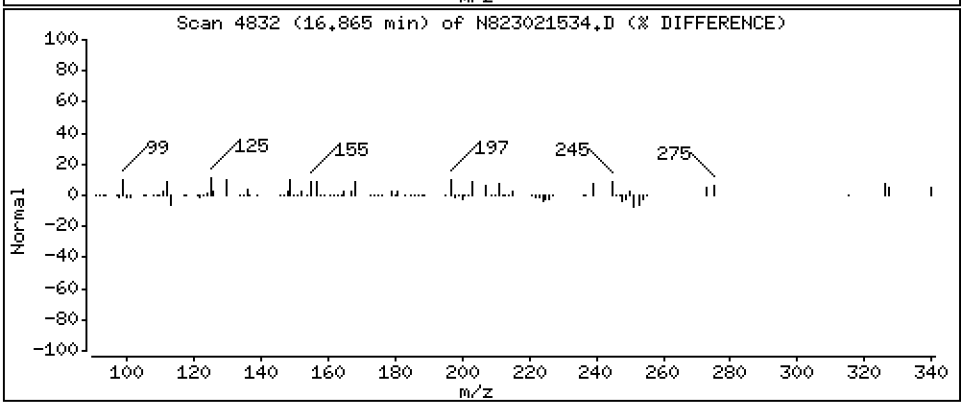












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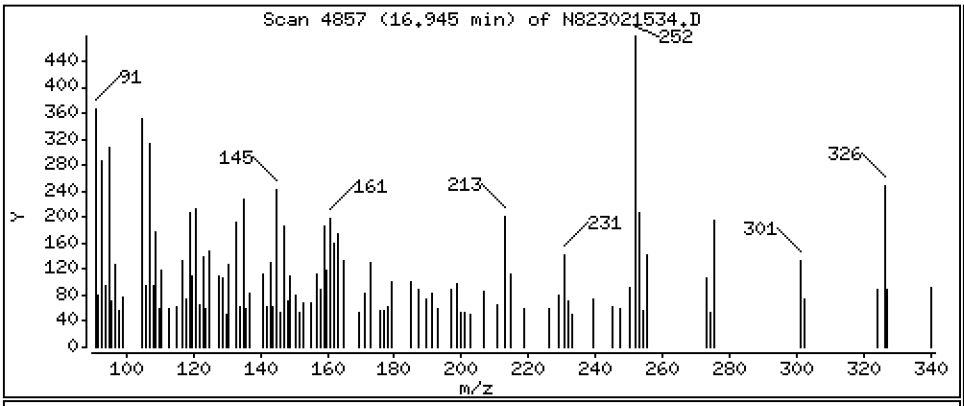
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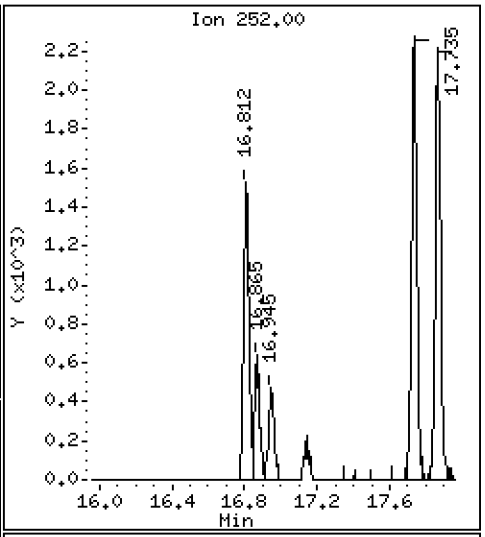
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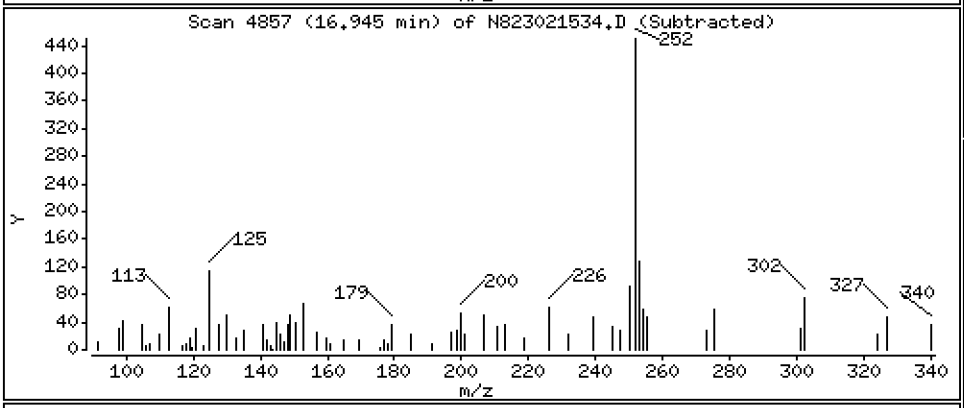
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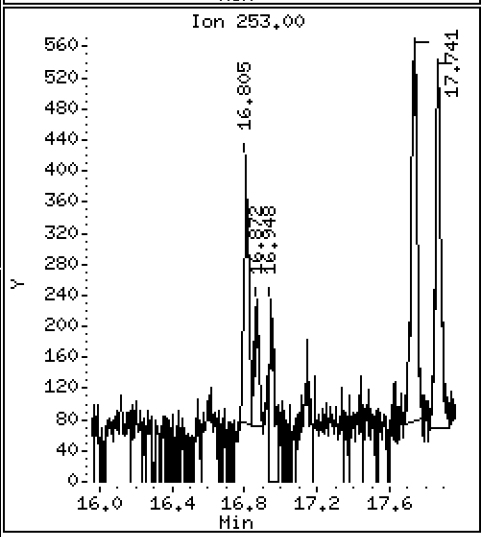
30 Benzo(j)fluoranthene

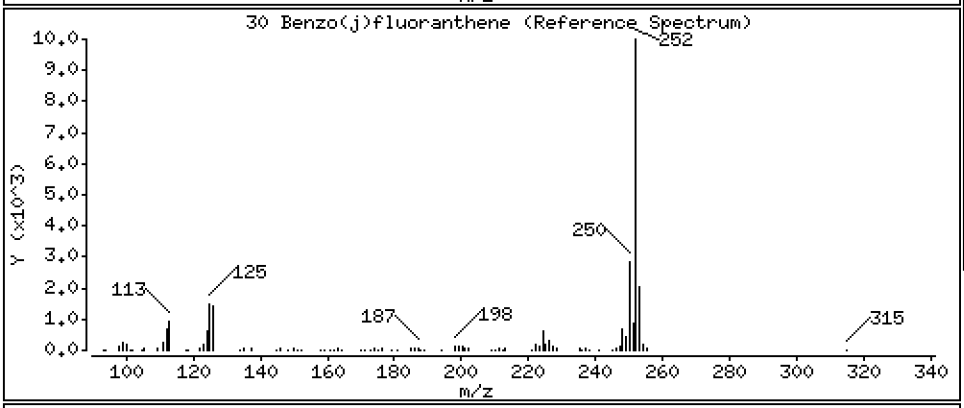
Concentration: 0.05534 ug/mL

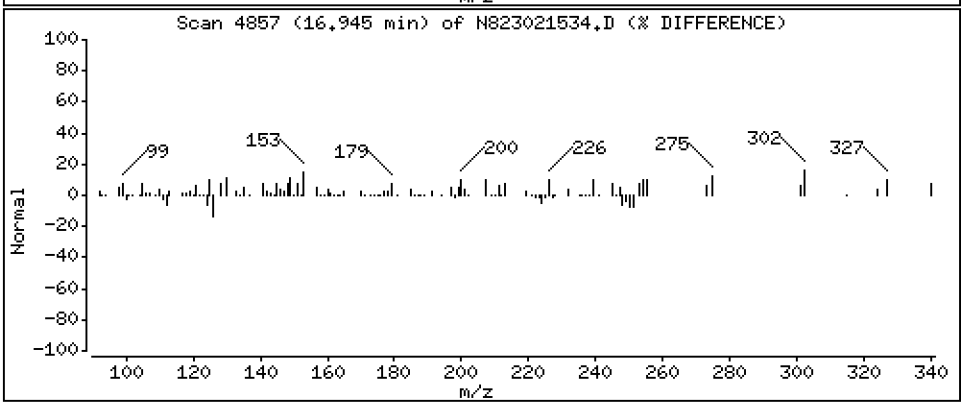












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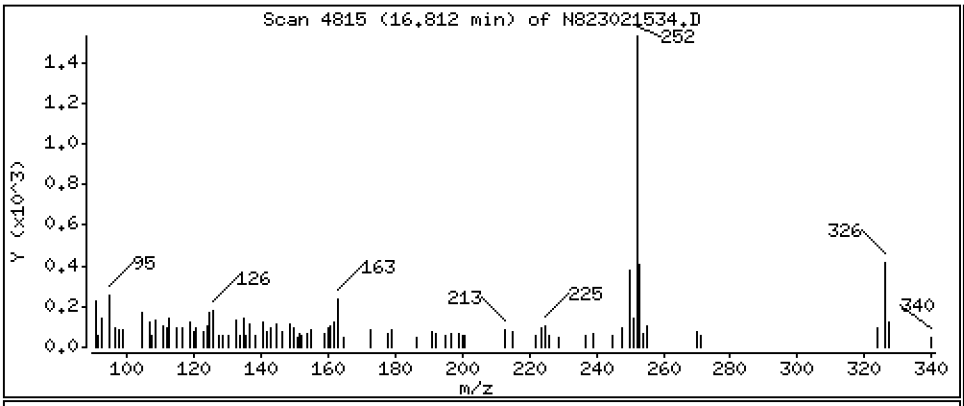
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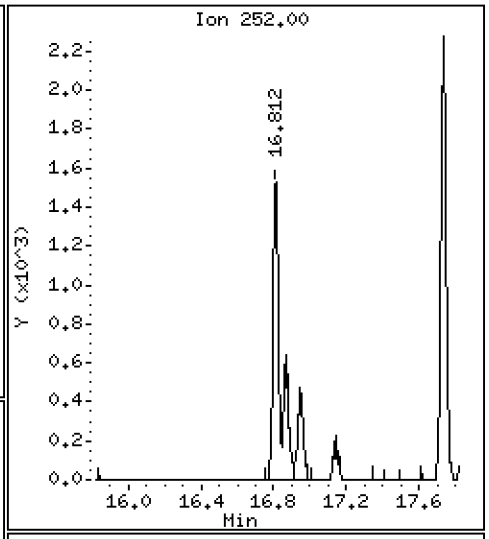
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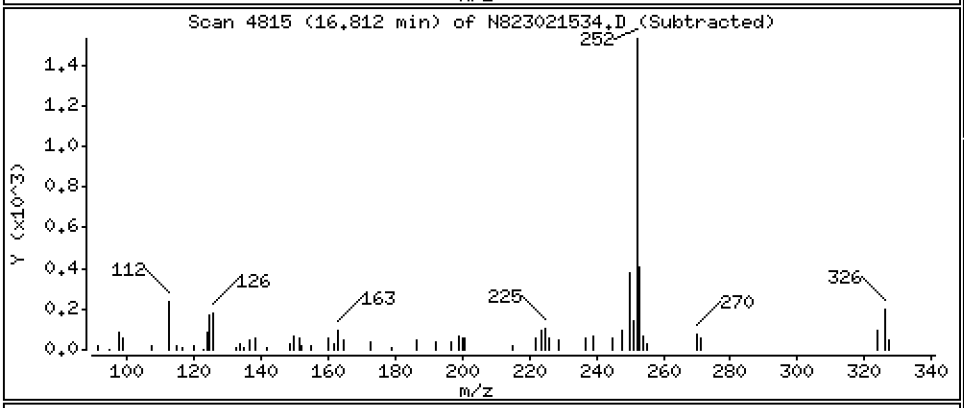
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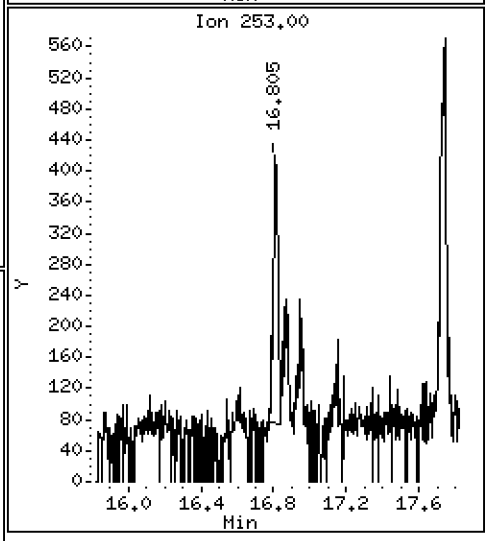
31 Total Benzofluoranthenes

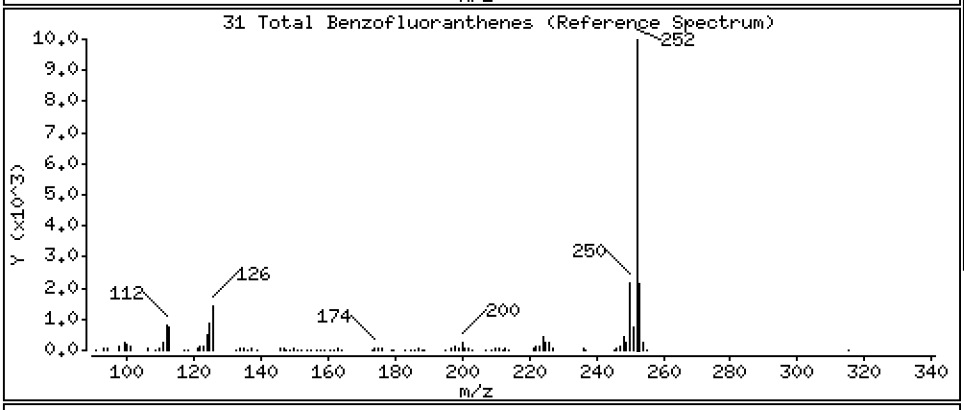
Concentration: 0.2762 ug/mL

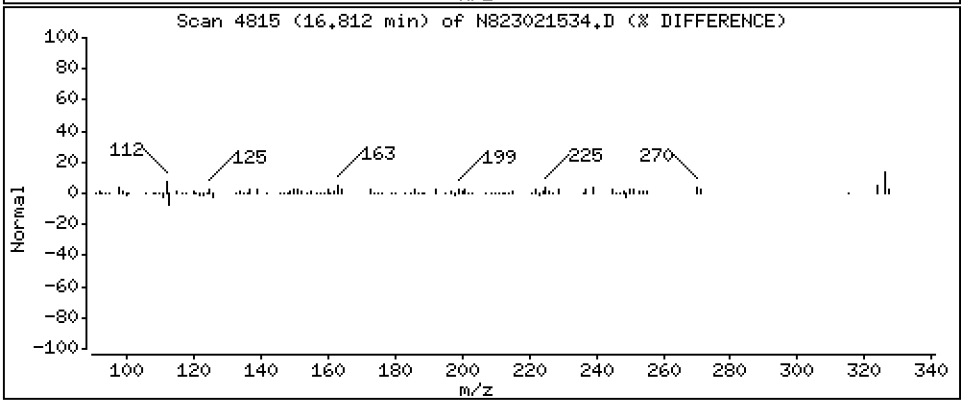












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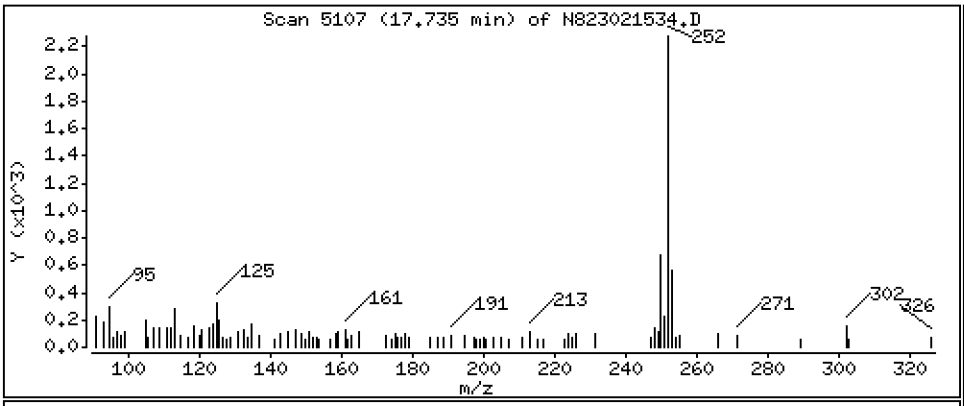
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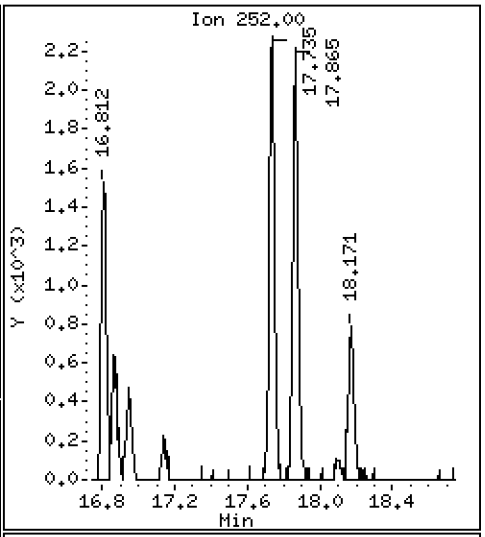
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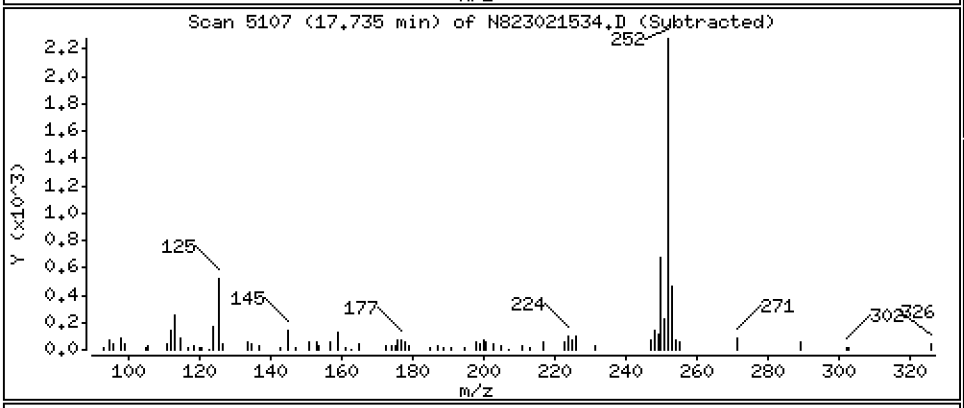
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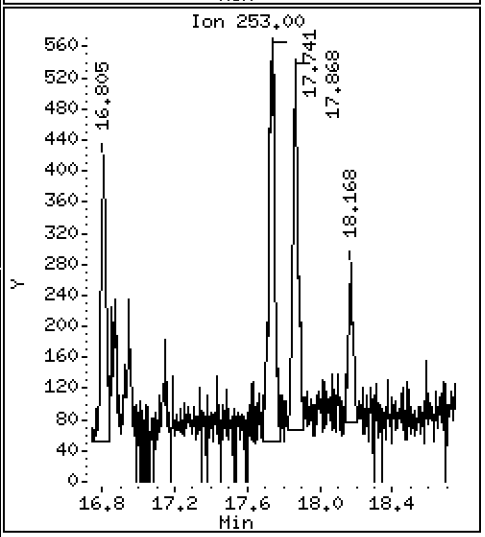
34 Benzo(e)pyrene

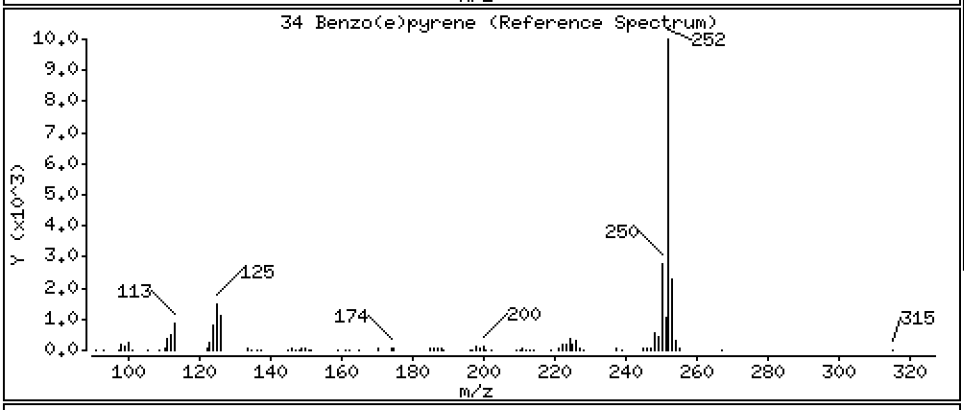
Concentration: 0.2194 ug/mL

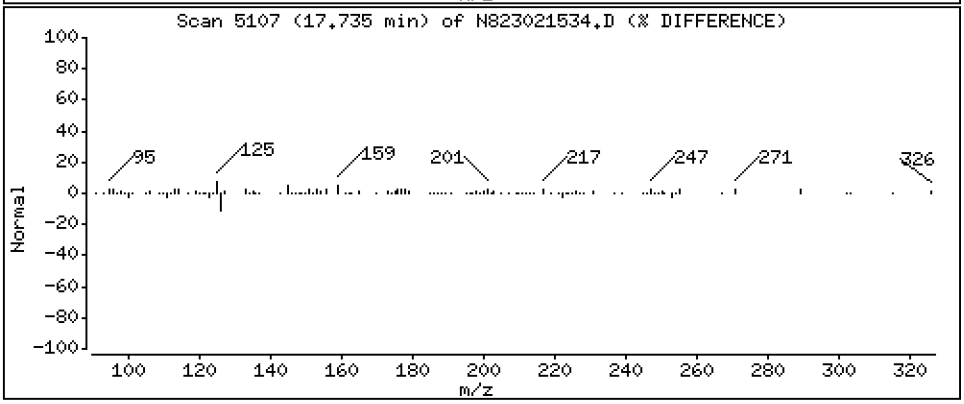












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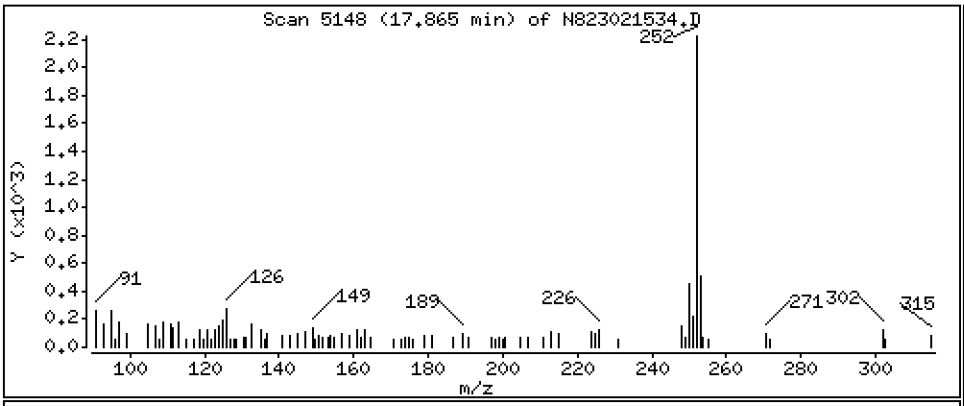
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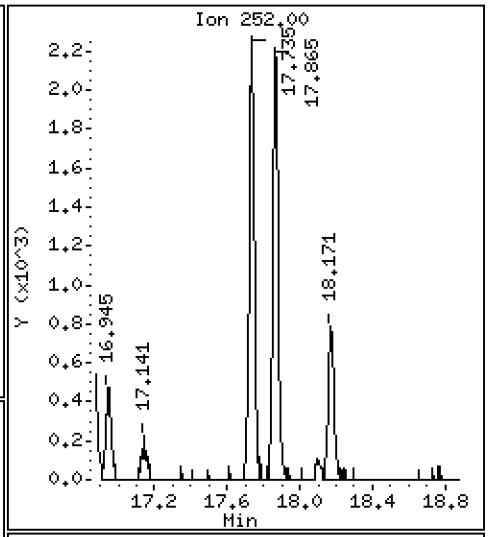
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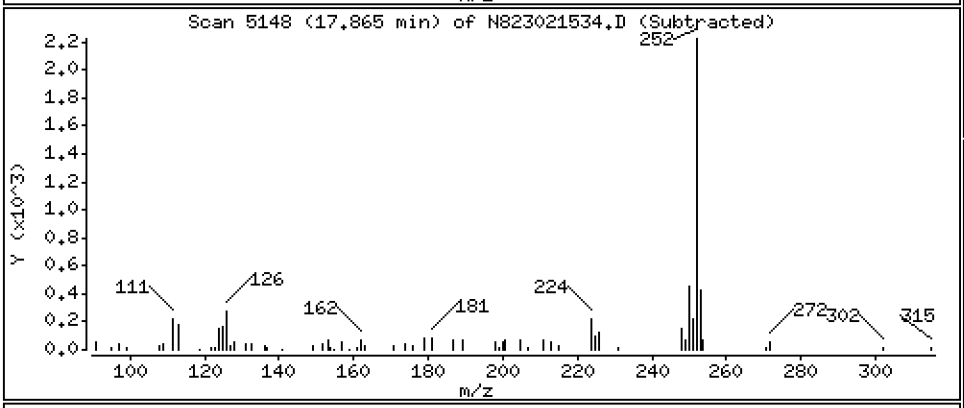
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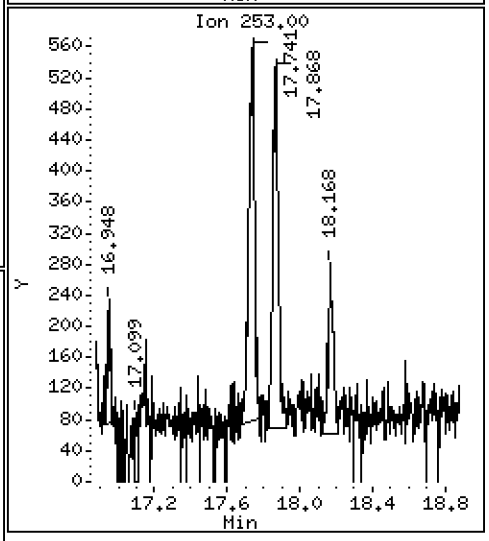
32 Benzo(a)pyrene

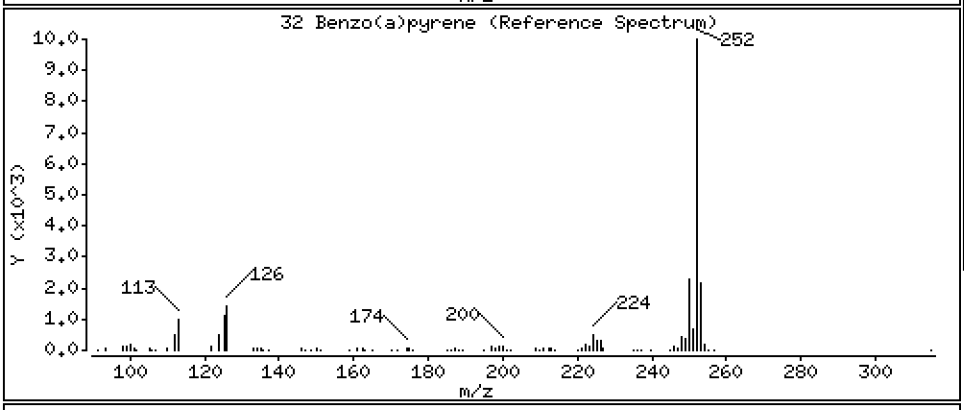
Concentration: 0.2442 ug/mL

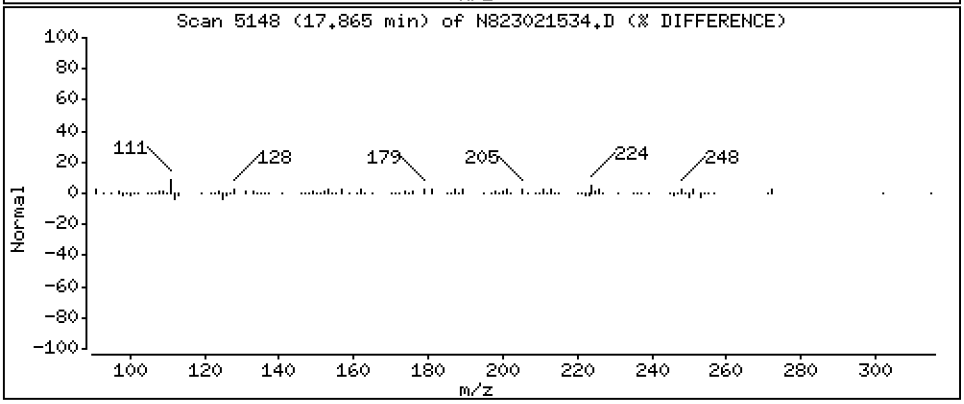












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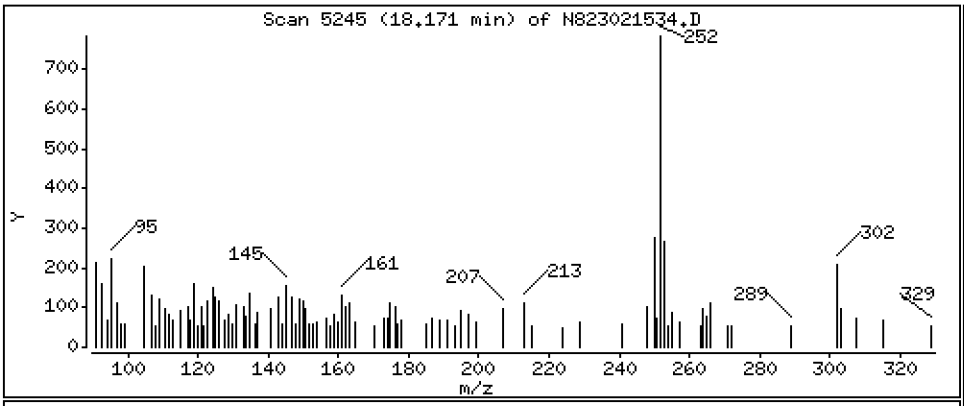
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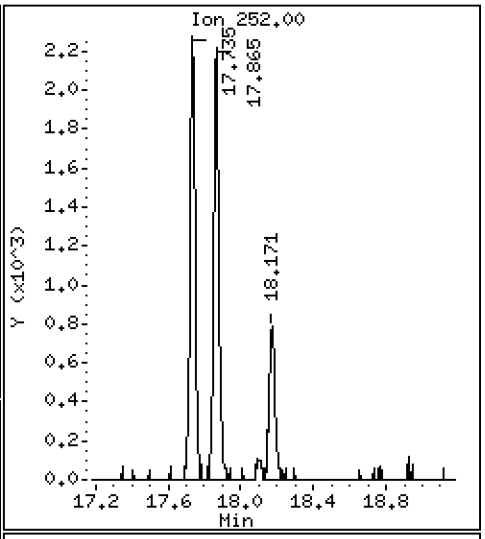
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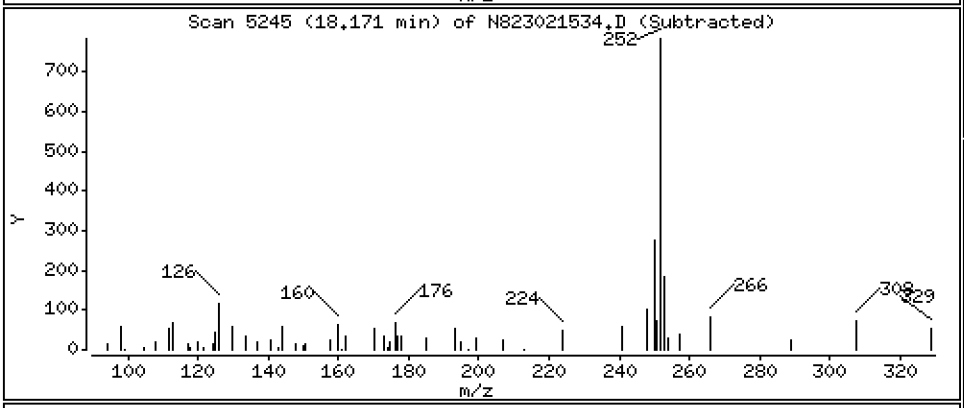
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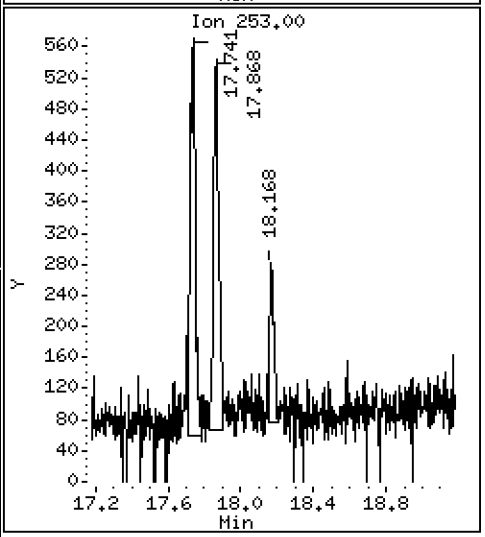
35 Perylene

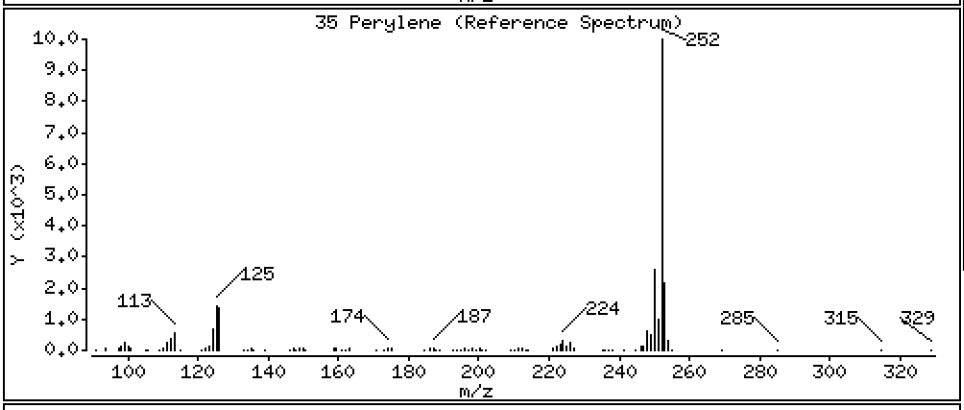
Concentration: 0.08953 ug/mL

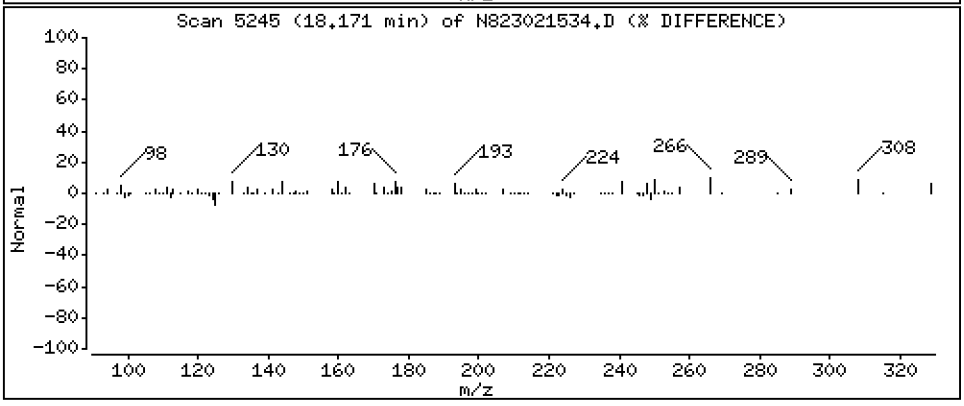












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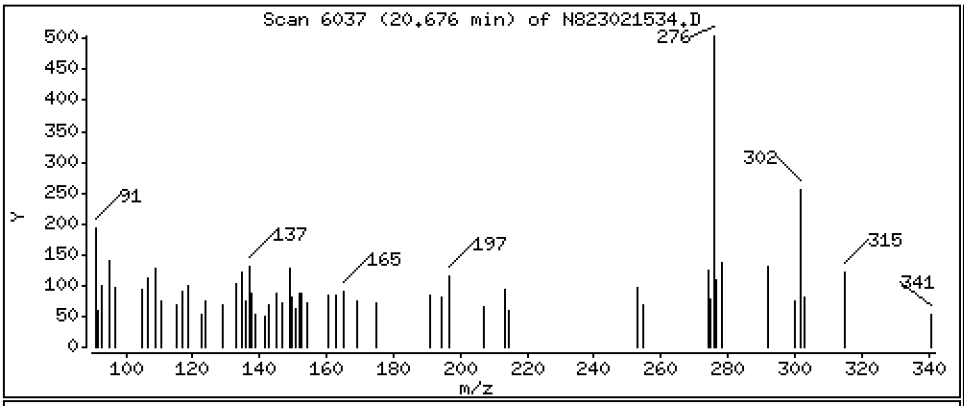
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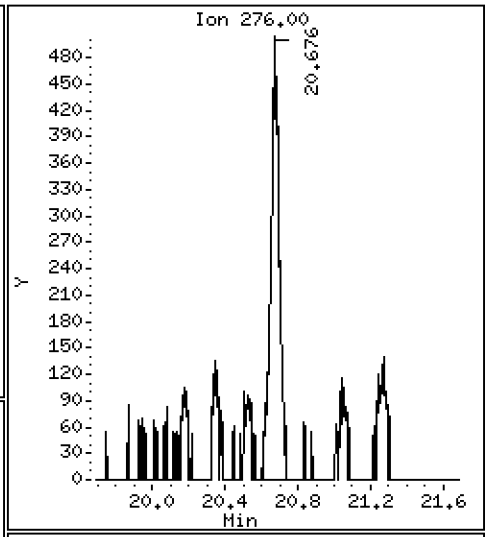
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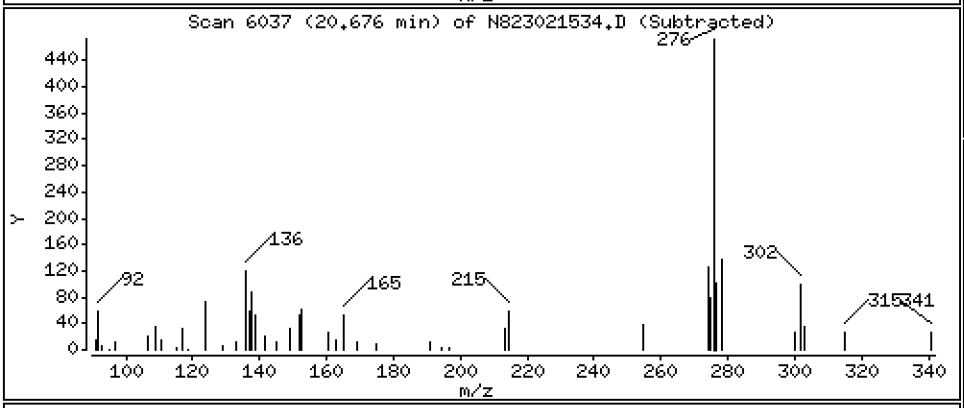
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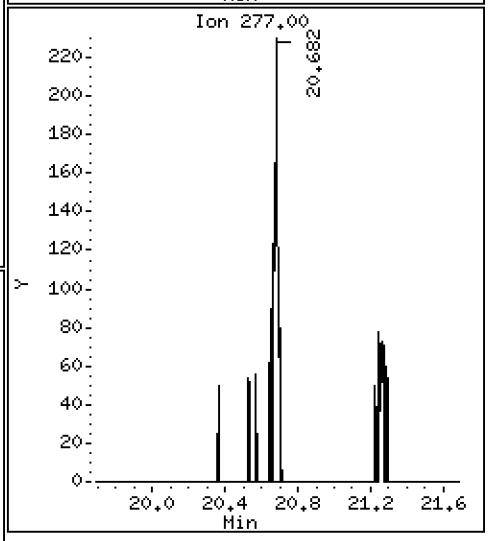
37 Indeno(1,2,3-cd)pyrene

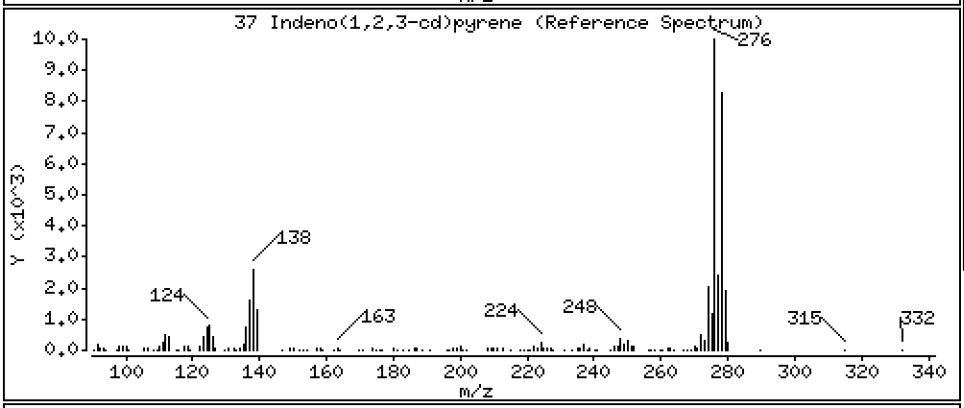
Concentration: 0.07769 ug/mL

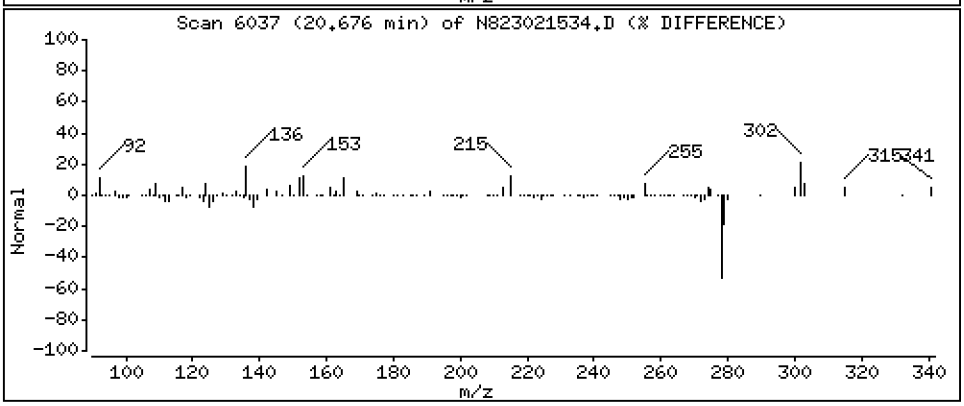












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021534.D

Date : 16-FEB-2023 02:33

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-10

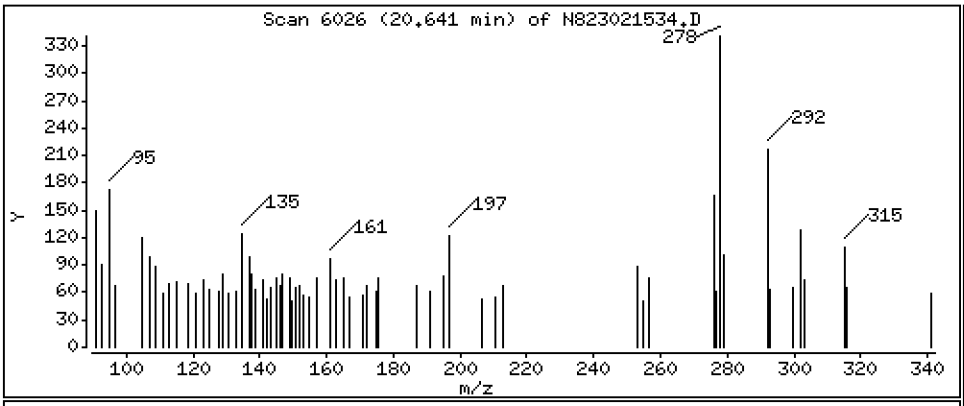
Operator: JZ

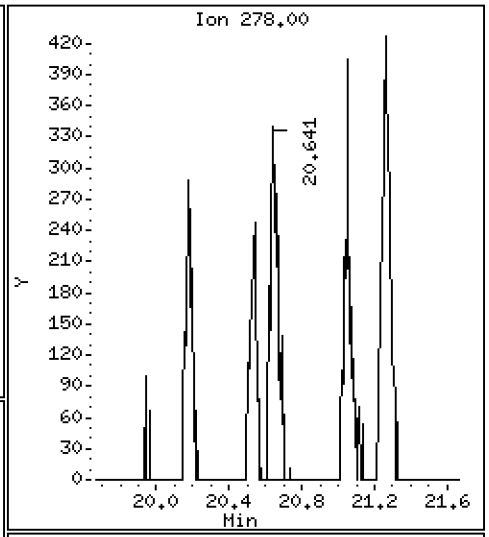
Column phase: Rxi-17sil

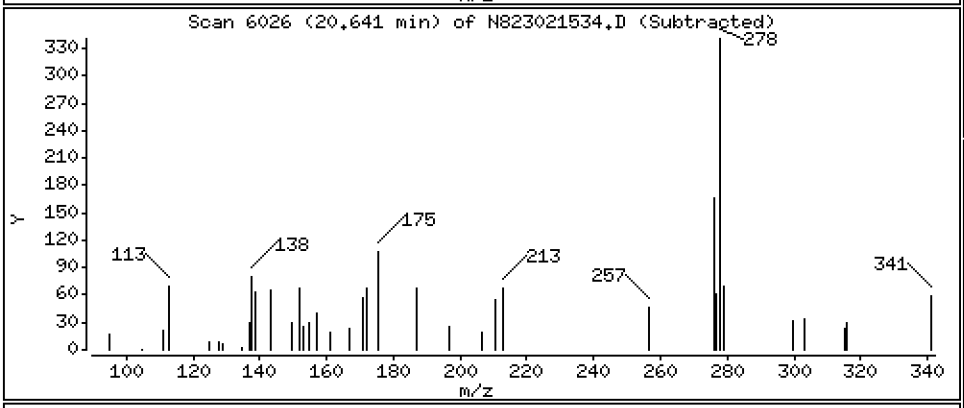
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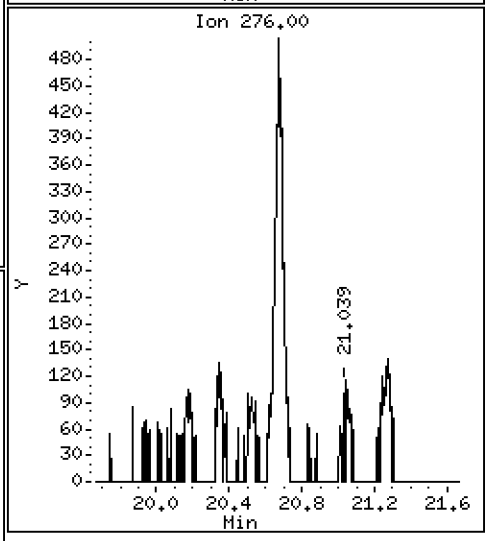
38 Dibenzo(a,h)anthracene

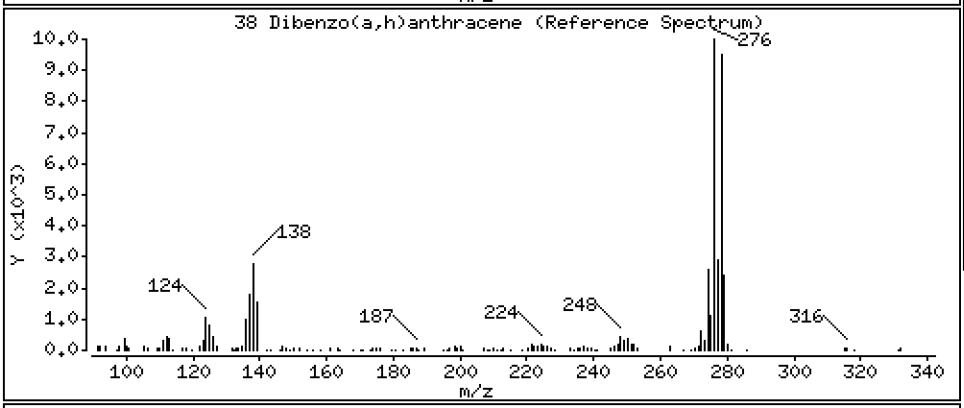
Concentration: 0.05977 ug/mL

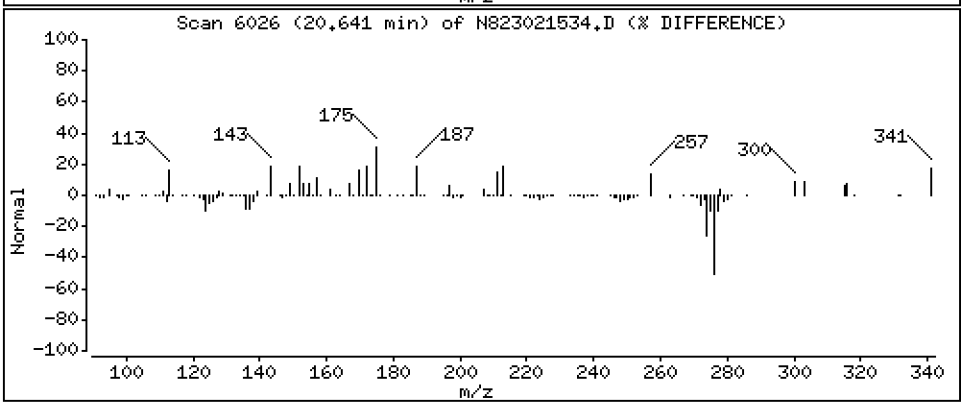












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021534.D

Date : 16-FEB-2023 02:33

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-10

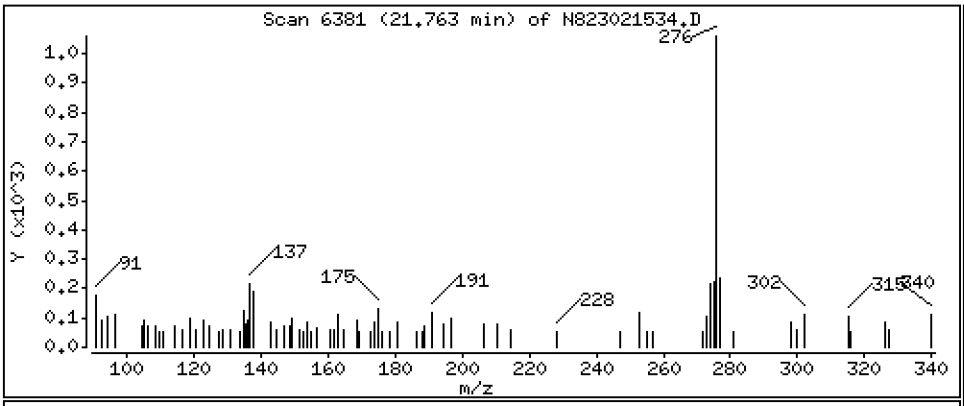
Operator: JZ

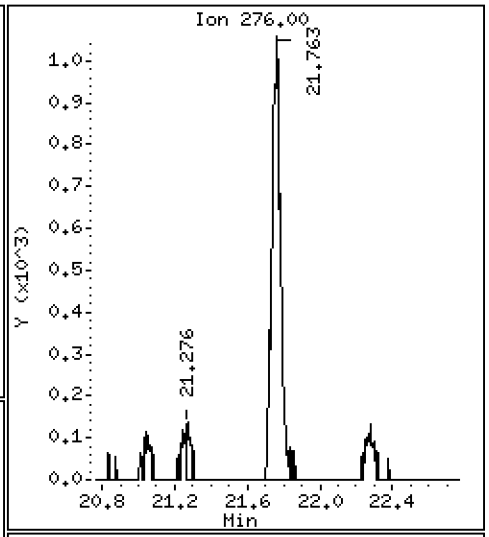
Column phase: Rxi-17sil

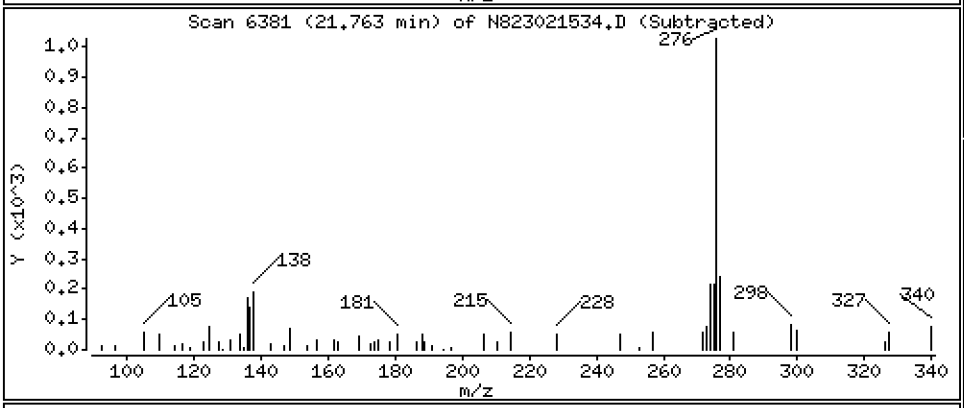
Column diameter: 0.25

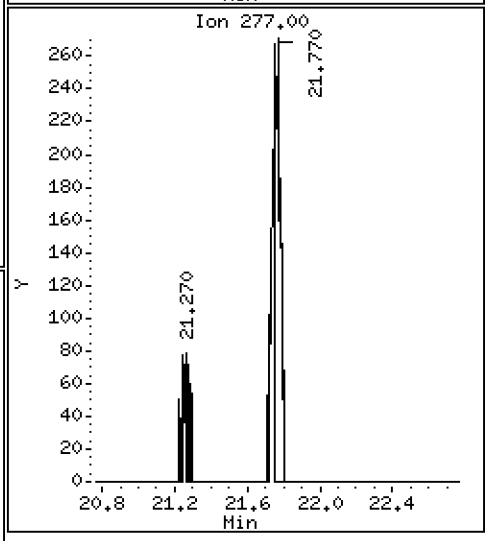
39 Benzo(g,h,i)perylene

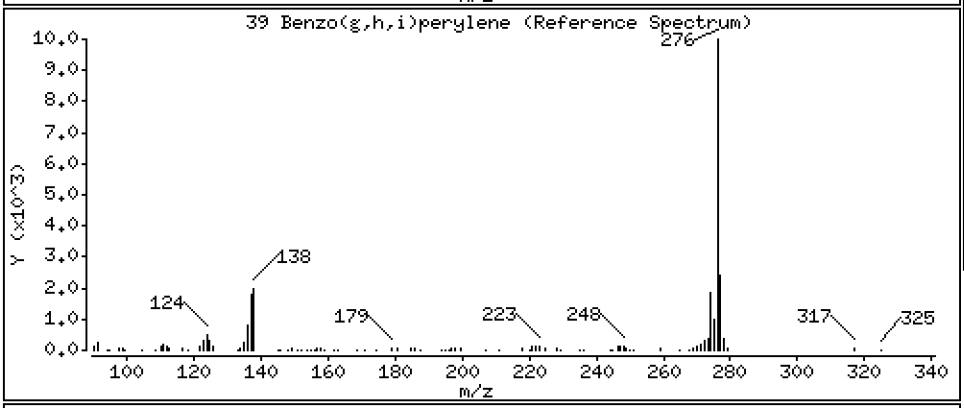
Concentration: 0.1913 ug/mL

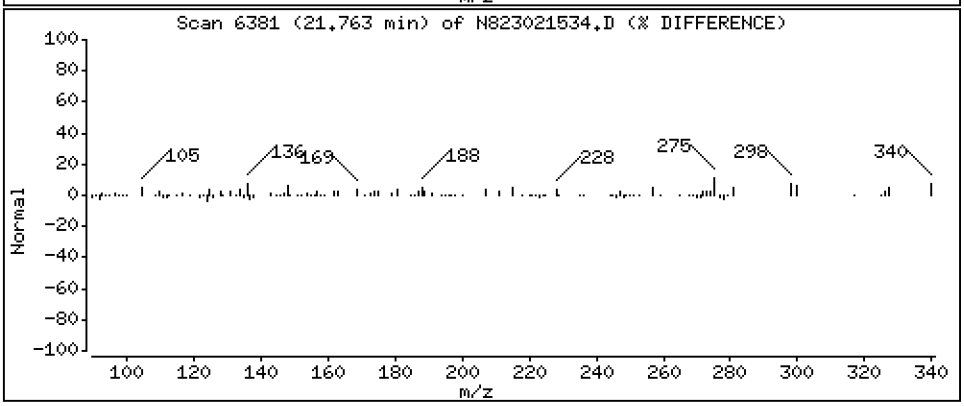












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230215A.b\N823021534.D
Lab Smp Id: 23A0626-10
Inj Date : 16-FEB-2023 02:33
Operator : JZ Inst ID: nt8.i
Smp Info : 23A0626-10
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 14:27 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.865	4.884	(1.000)	43211	2.00000	
	2 Naphthalene	128	4.897	4.913	(1.006)	50870	2.53194	2.532
$	3 2-Methylnaphthalene-d10	152	5.605	5.618	(1.152)	29583	2.51028	2.510
	4 2-Methylnaphthalene	141	5.653	5.665	(1.162)	5705	0.51623	0.5162
	5 1-methylnaphthalene	141	5.852	5.865	(1.203)	3563	0.31767	0.3177
	9 Acenaphthylene	152	7.060	7.069	(0.985)	2108	0.10507	0.1051
*	10 Acenaphthene-d10	164	7.167	7.180	(1.000)	26569	2.00000	
	11 Acenaphthene	153	7.218	7.227	(1.007)	2002	0.14893	0.1489
	12 Dibenzofuran	168	7.373	7.379	(1.029)	1996	0.09776	0.09776
	14 Fluorene	166	7.850	7.860	(1.095)	1781	0.11231	0.1123
*	15 Phenanthrene-d10	188	9.216	9.223	(1.000)	50002	2.00000	
	16 Phenanthrene	178	9.251	9.257	(1.004)	5144	0.21060	0.2106
	17 Anthracene	178	9.292	9.298	(1.008)	11193	0.50446	0.5045
	19 Carbazole	167	9.807	9.814	(1.064)	1285	0.06317	0.06317
	22 Fluoranthene	202	11.034	11.041	(1.197)	5202	0.19566	0.1957
$	21 Fluoranthene-d10	212	10.996	11.003	(1.193)	66747	3.02561	3.026
	23 Pyrene	202	11.565	11.559	(0.815)	10161	0.39065	0.3907
	24 Benzo(a)anthracene	228	14.054	14.067	(0.991)	4527	0.19202	0.1920
*	25 Chrysene-d12	240	14.184	14.196	(1.000)	41953	2.00000	
	27 Chrysene	228	14.256	14.266	(1.005)	12933	0.51532	0.5153
	28 Benzo(b)fluoranthene	252	16.811	16.821	(0.929)	3090	0.15032	0.1503
	29 Benzo(k)fluoranthene	252	16.865	16.881	(0.932)	1314	0.06526	0.06526
	30 Benzo(j)fluoranthene	252	16.944	16.960	(0.936)	1003	0.05534	0.05534
	31 Total Benzofluoranthenes	252	16.811	16.821	(0.929)	5376	0.27615	0.2762(M)
	34 Benzo(e)pyrene	252	17.734	17.744	(0.980)	4497	0.21938	0.2194
	32 Benzo(a)pyrene	252	17.864	17.877	(0.987)	4417	0.24418	0.2442
*	33 Perylene-d12	264	18.098	18.108	(1.000)	35295	2.00000	
	35 Perylene	252	18.171	18.180	(1.004)	1738	0.08953	0.08953
$	36 Dibenzo(a,h)anthracene-d14	292	20.539	20.546	(1.135)	48466	3.50458	3.505
	37 Indeno(1,2,3-cd)pyrene	276	20.675	20.688	(1.142)	1601	0.07769	0.07769(M)
	38 Dibenzo(a,h)anthracene	278	20.640	20.666	(1.140)	1060	0.05977	0.05977(M)
	39 Benzo(g,h,i)perylene	276	21.763	21.766	(1.202)	3572	0.19131	0.1913

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021534.D
Lab Smp Id: 23A0626-10
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 17:35
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	42744	21372	85488	43211	1.09
10 Acenaphthene-d10	25236	12618	50472	26569	5.28
15 Phenanthrene-d10	47809	23905	95618	50002	4.59
25 Chrysene-d12	40868	20434	81736	41953	2.65
33 Perylene-d12	43096	21548	86192	35295	-18.10

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.87	-0.39
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.18
15 Phenanthrene-d10	9.22	8.72	9.72	9.22	-0.07
25 Chrysene-d12	14.20	13.70	14.70	14.18	-0.09
33 Perylene-d12	18.11	17.61	18.61	18.10	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021534.D

Lab ID: 23A0626-10
nt8.i, 20230215A.b\FSIMPNA230119.m,   16-FEB-2023 02:33

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

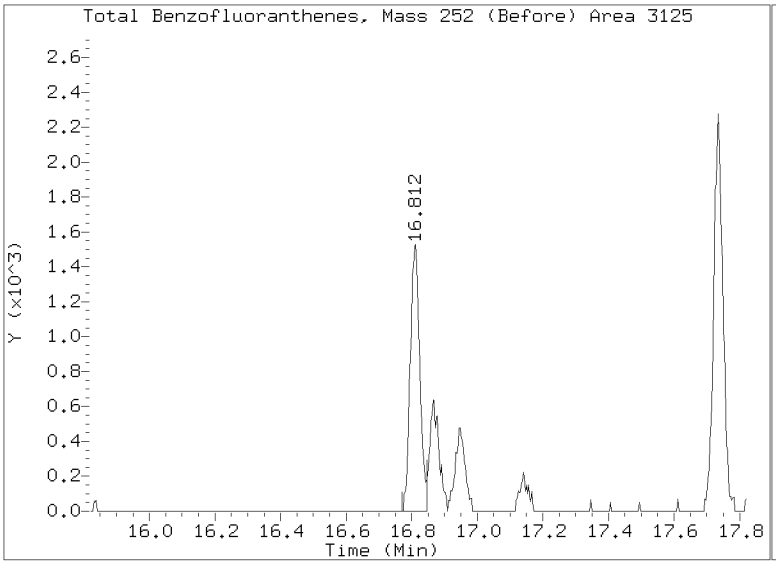
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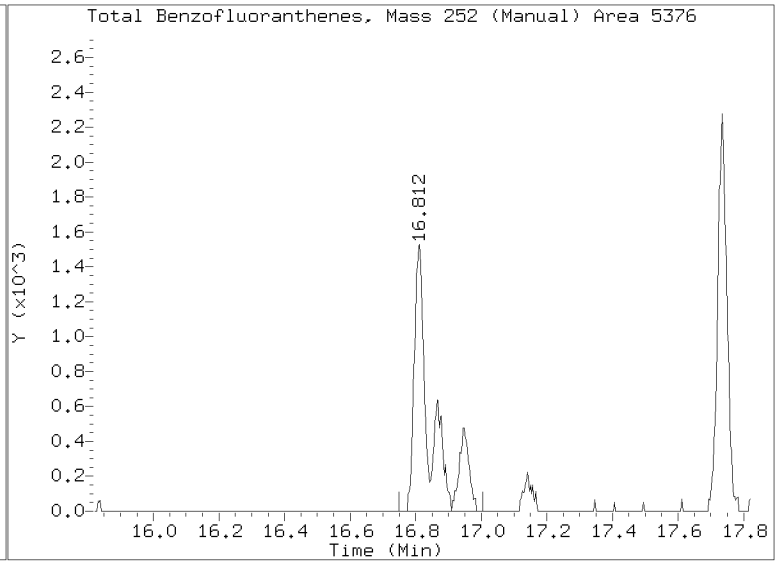
Exception: Benzo(e)pyrene 0.0800

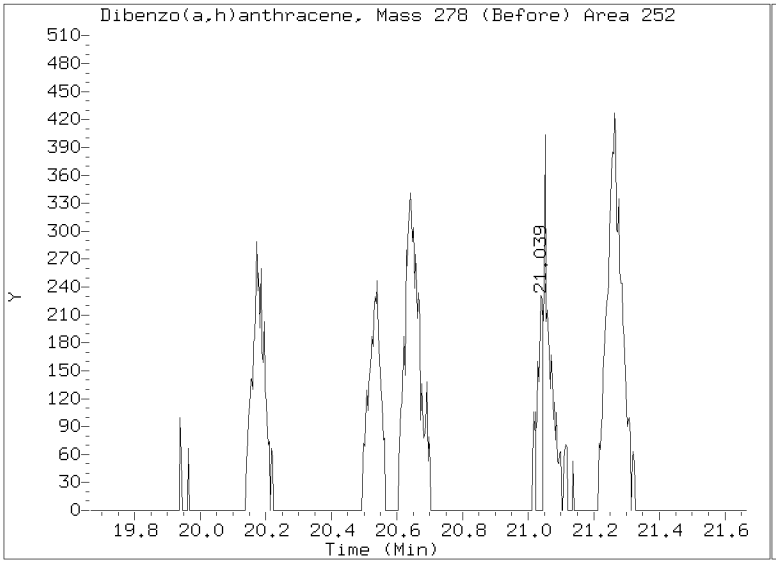
* Only compounds listed in the work order have been verified by the analyst *

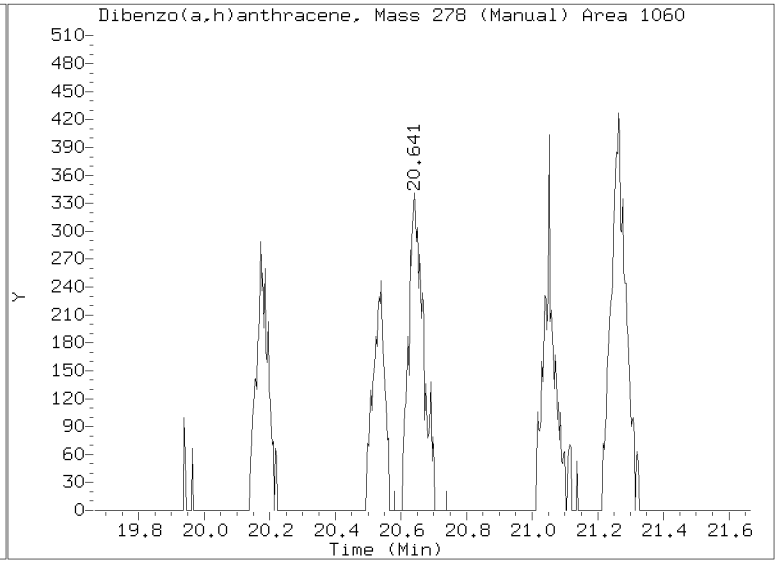
Quant Ion Manual Peak Adjustment Report

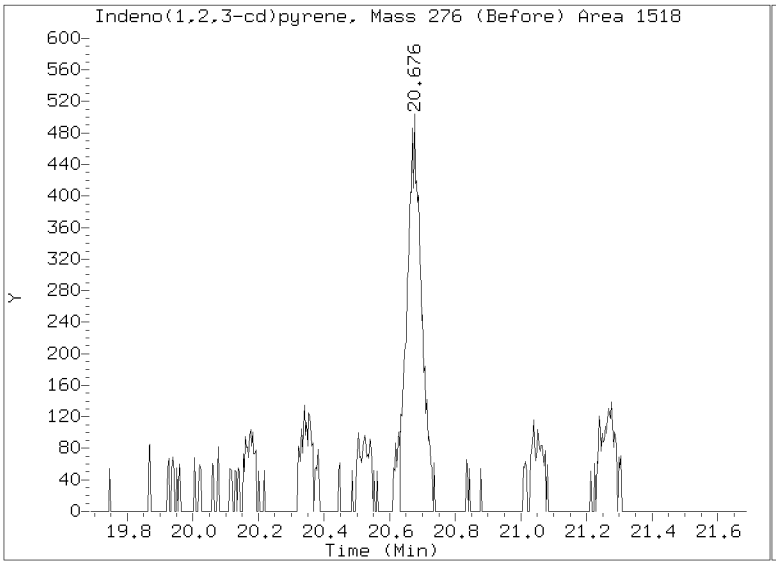
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Injection Date: 16-FEB-2023 02:33
Lab ID:23A0626-10 Client ID:
Report Date: 02/19/2023 16:25

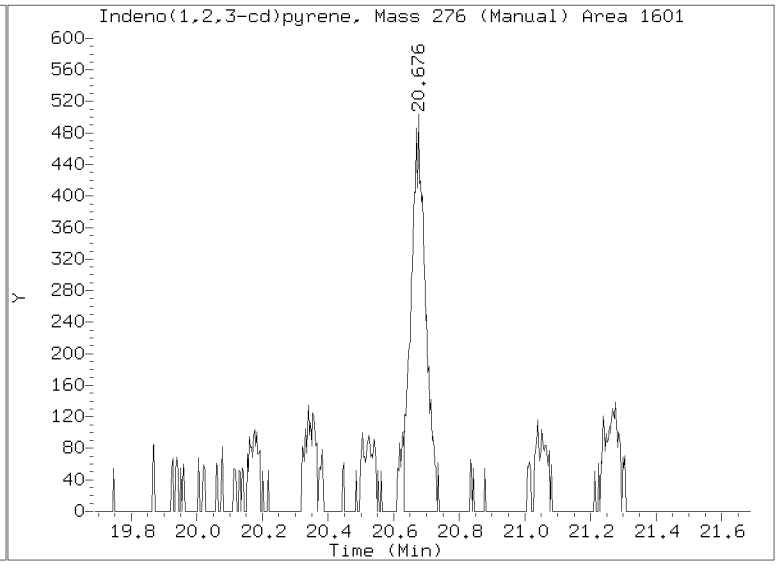












Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23A0626-12 A	SDG:	23A0626
Sampled:	01/27/23 11:30	Prepared:	02/07/23 17:05	File ID:	N823021535.D
% Solids:	81.27	Preparation:	EPA 3546 (Microwave)	Analyzed:	02/16/23 03:00
Batch:	BLB0144	Sequence:	SLB0206	Initial/Final:	12.44 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	GPC, Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	1.57	J	0.82	4.95
218-01-9	Chrysene	1	2.73	J	1.04	4.95
205-99-2	Benzo(b)fluoranthene	1	4.88	J	1.36	4.95
207-08-9	Benzo(k)fluoranthene	1	2.49	J	0.75	4.95
50-32-8	Benzo(a)pyrene	1	3.41	J	0.61	4.95
193-39-5	Indeno(1,2,3-cd)pyrene	1	1.31	J	1.04	4.95
53-70-3	Dibenzo(a,h)anthracene	1	4.95	U	0.88	4.95
191-24-2	Benzo(g,h,i)perylene	1	1.62	J	1.05	4.95

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	148.37	124	83.5	32 - 120	
Dibenzo[a,h]anthracene-d14	148.37	177	119	21 - 133	
Fluoranthene-d10	148.37	160	108	36 - 134	

Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021535.D

Date : 16-FEB-2023 03:00

Client ID:

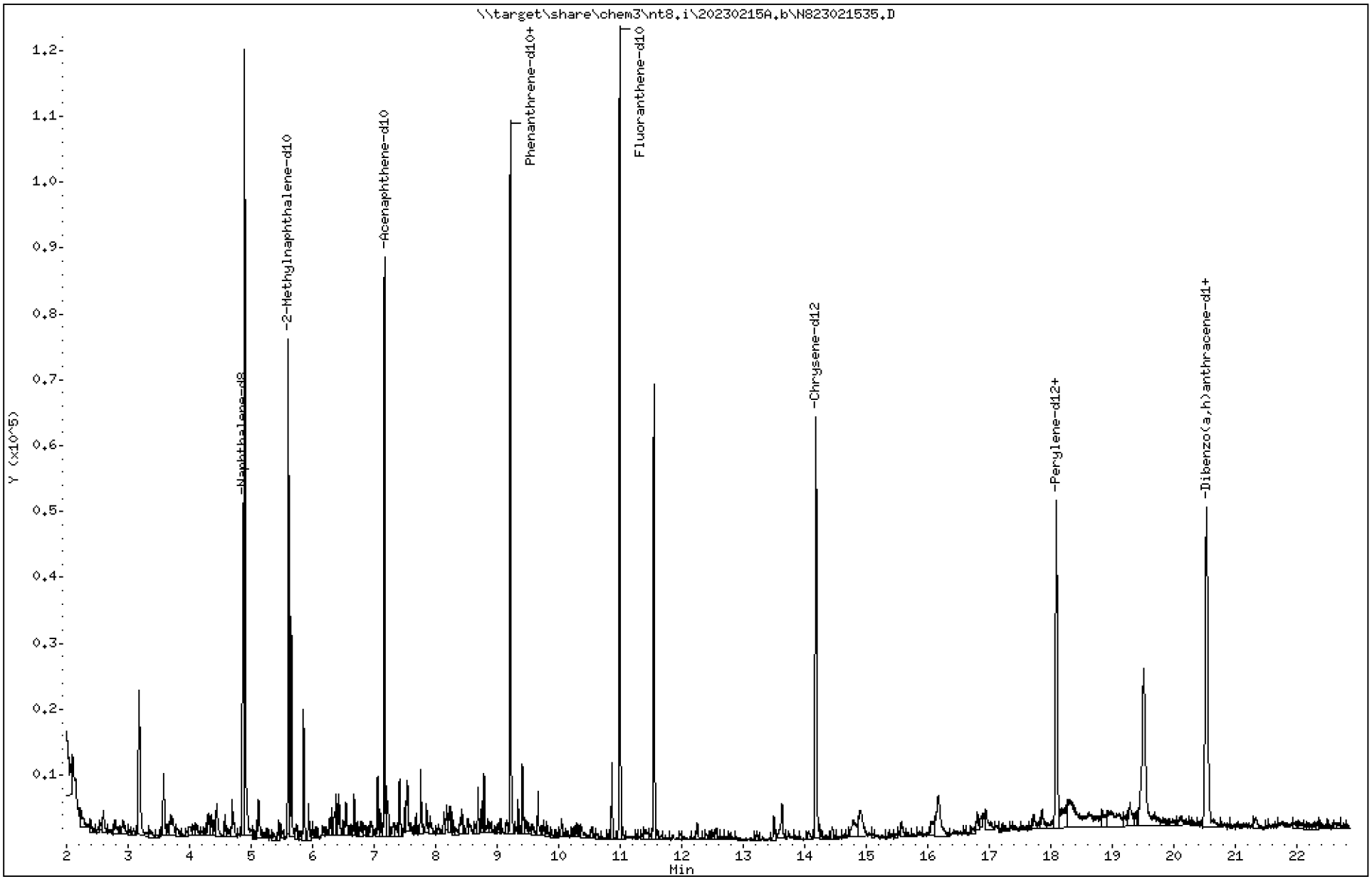
Instrument: nt8.i

Sample Info: 23A0626-12

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 104 of 1233

Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021535.D

Date : 16-FEB-2023 03:00

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-12

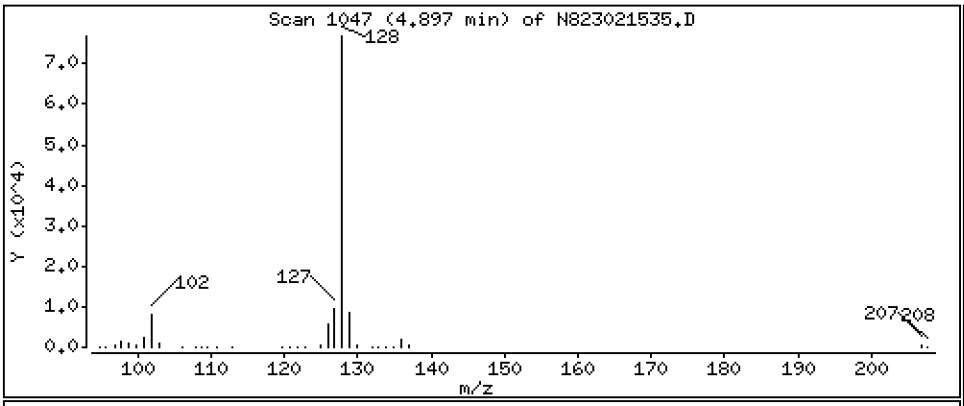
Operator: JZ

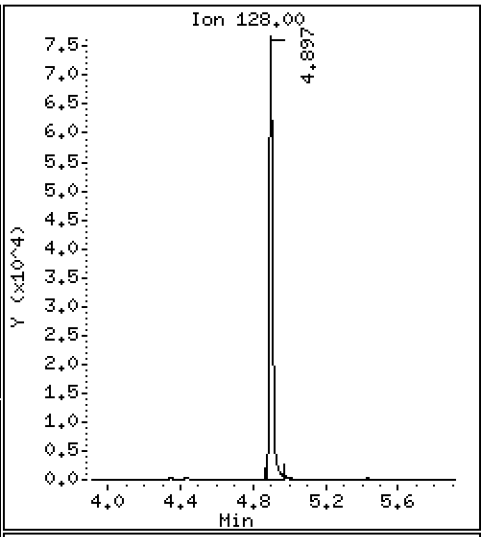
Column phase: Rxi-17sil

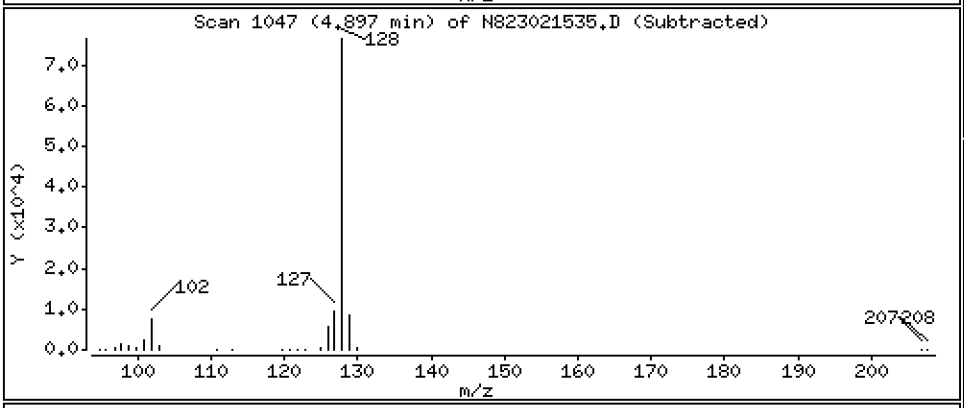
Column diameter: 0.25

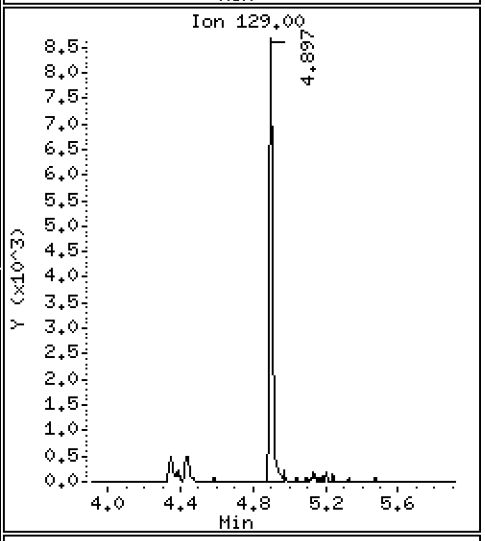
2 Naphthalene

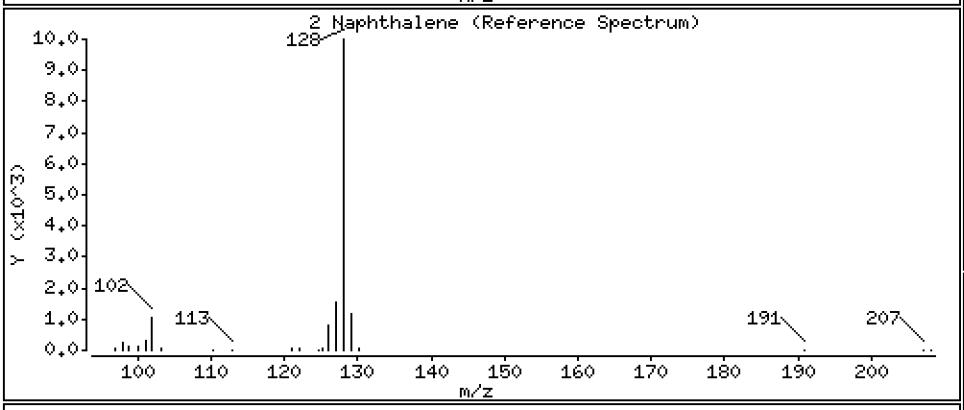
Concentration: 4.899 ug/mL

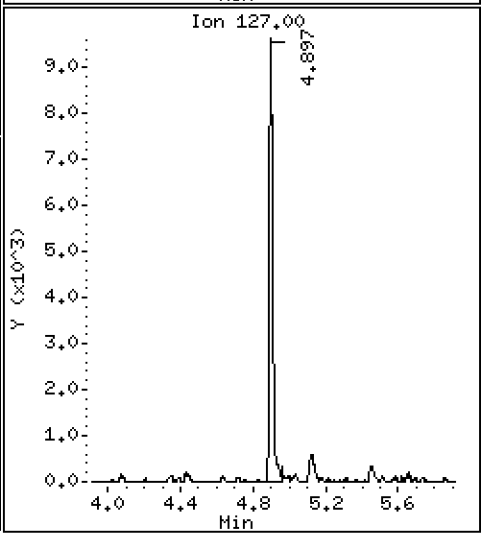


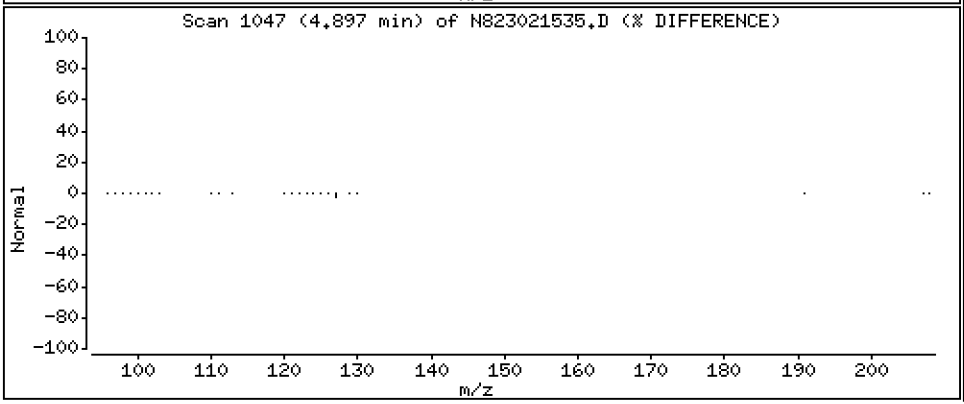












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Date : 16-FEB-2023 03:00

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-12

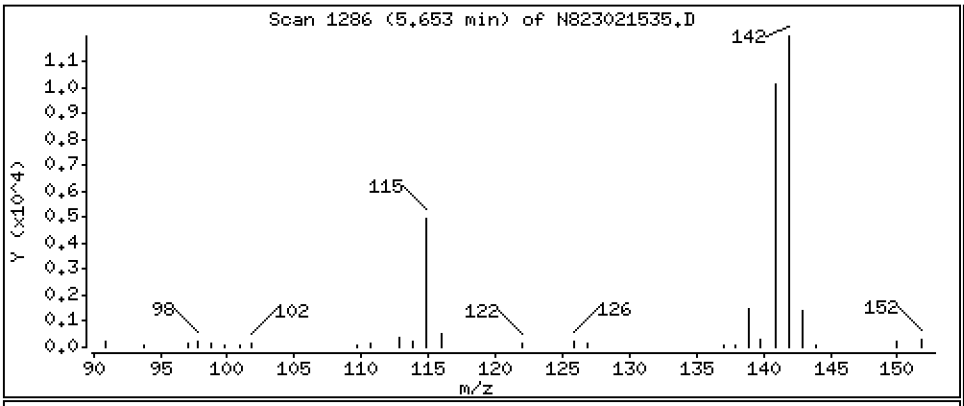
Operator: JZ

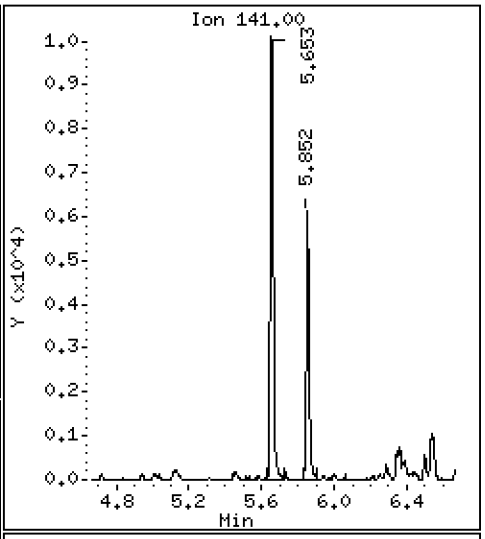
Column phase: Rxi-17sil

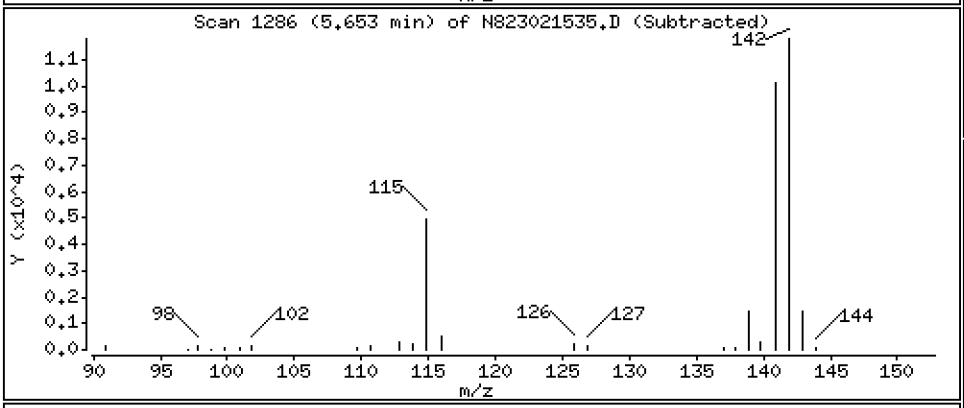
Column diameter: 0.25

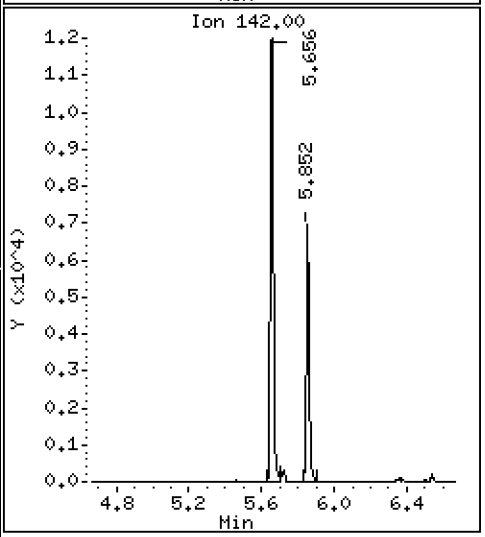
4 2-Methylnaphthalene

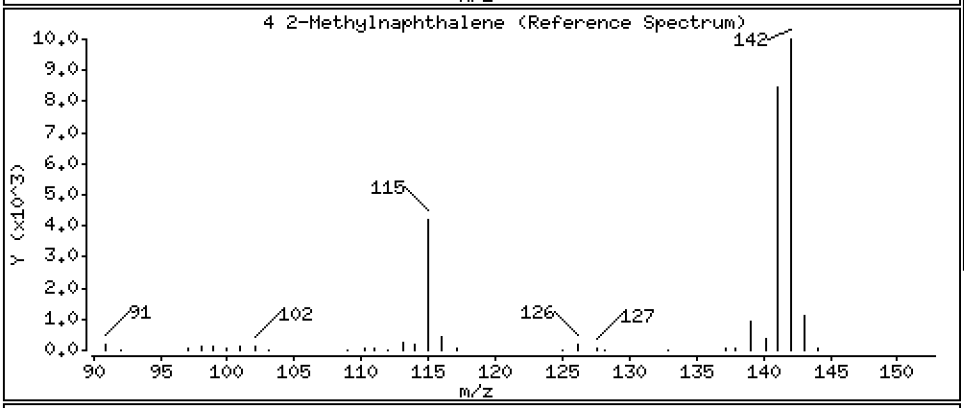
Concentration: 1.089 ug/mL

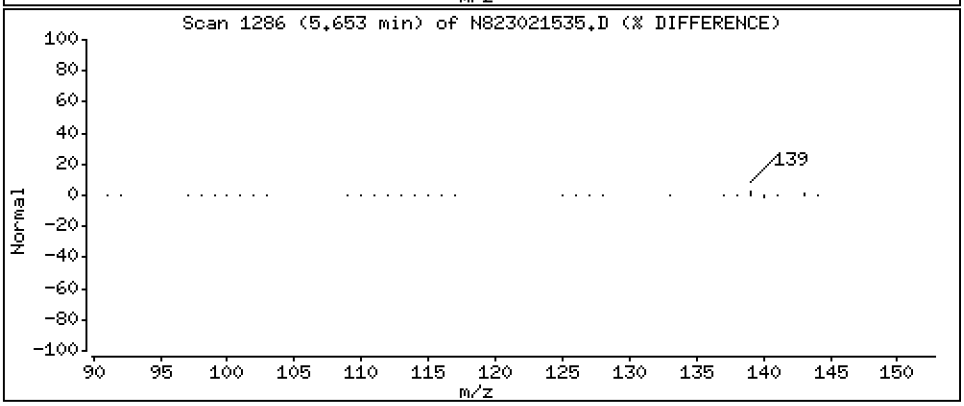












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Date : 16-FEB-2023 03:00

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-12

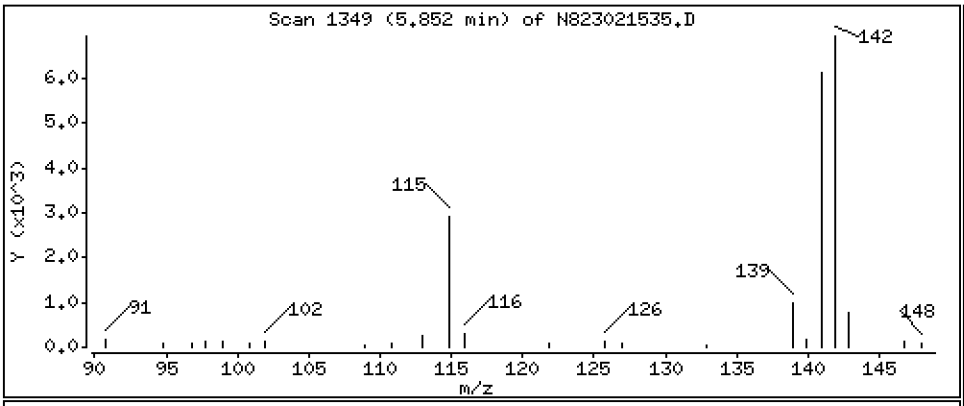
Operator: JZ

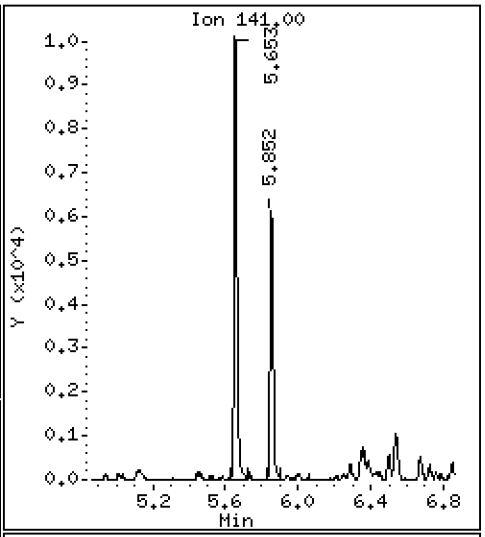
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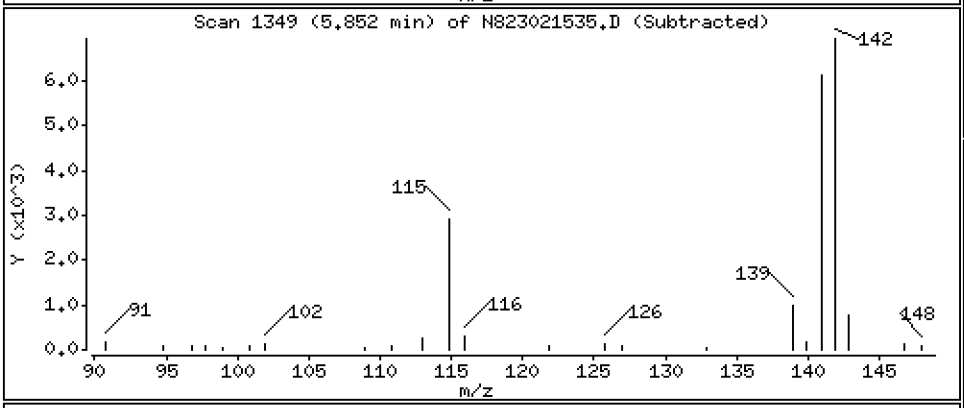
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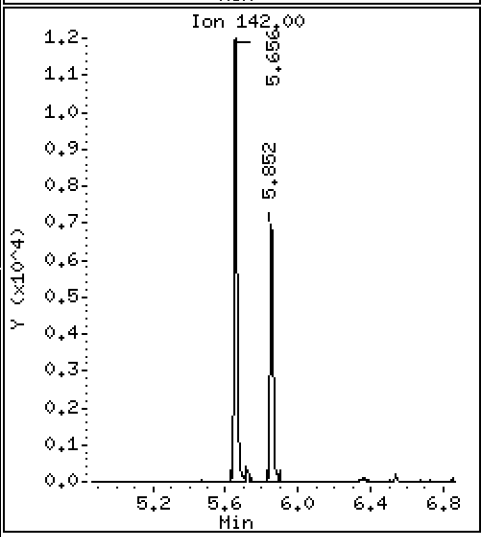
5 1-methylnaphthalene

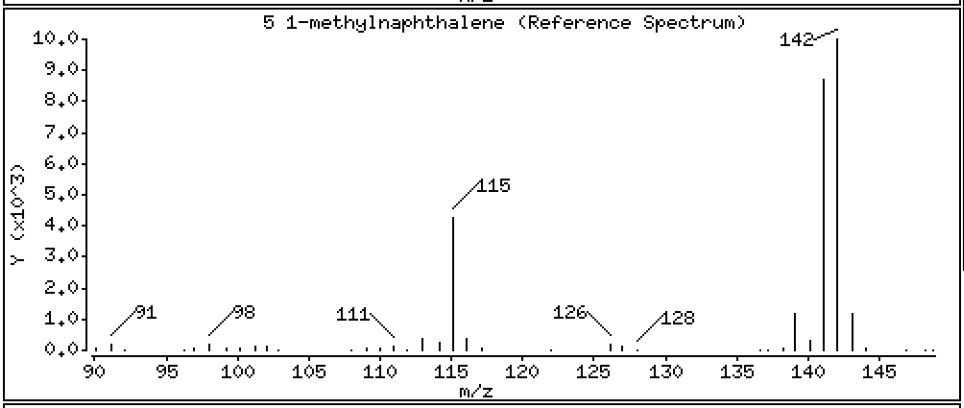
Concentration: 0.6293 ug/mL

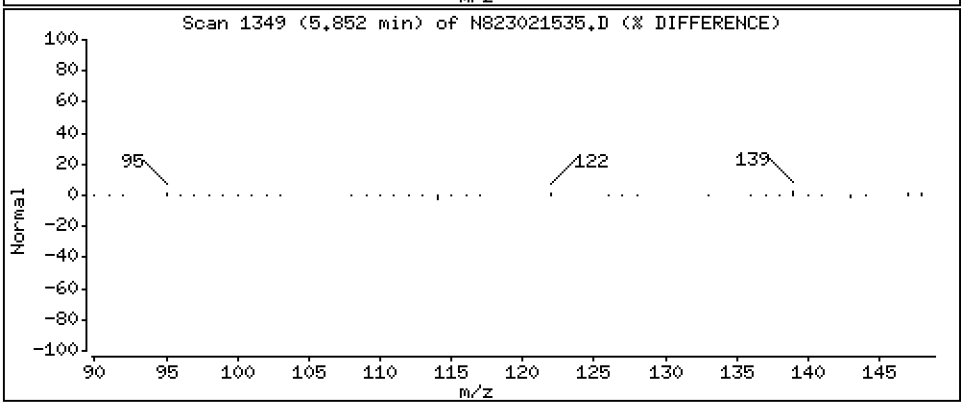












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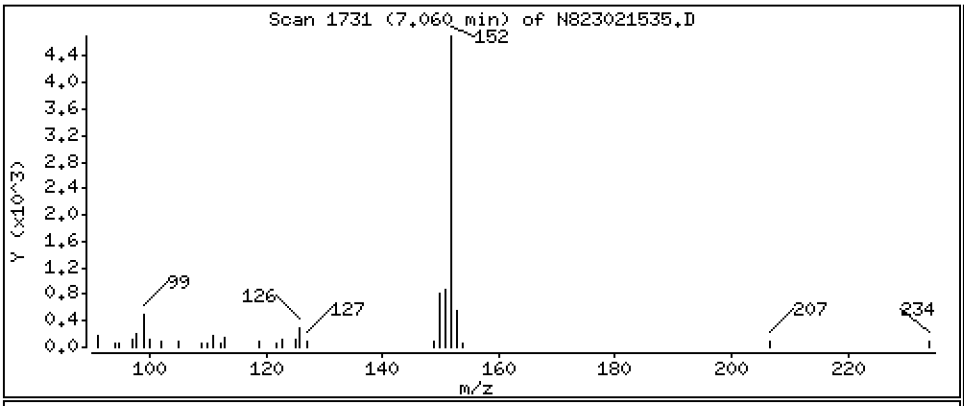
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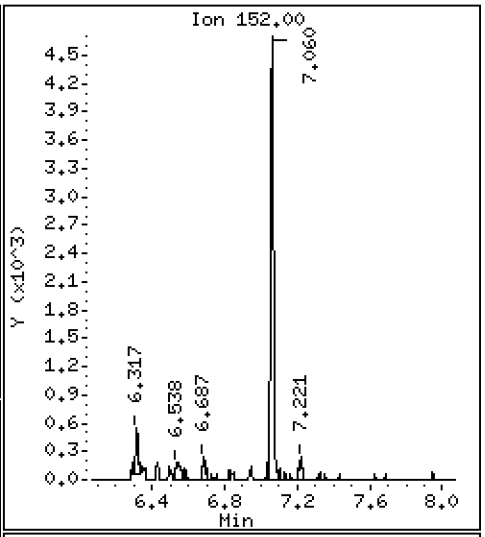
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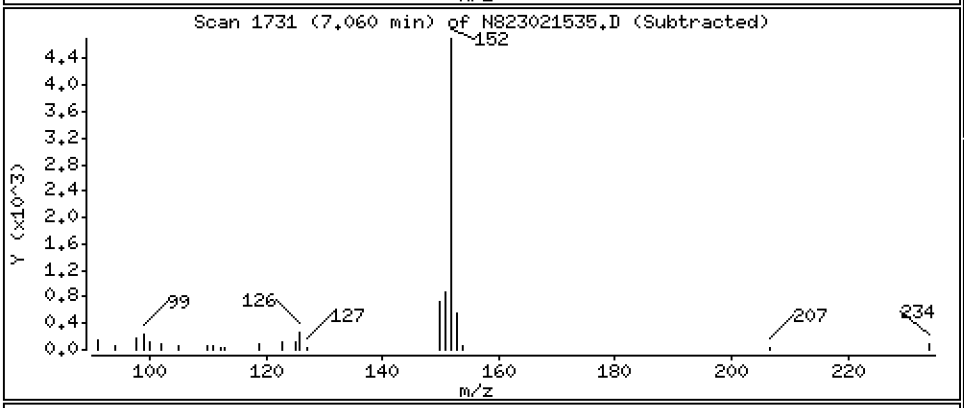
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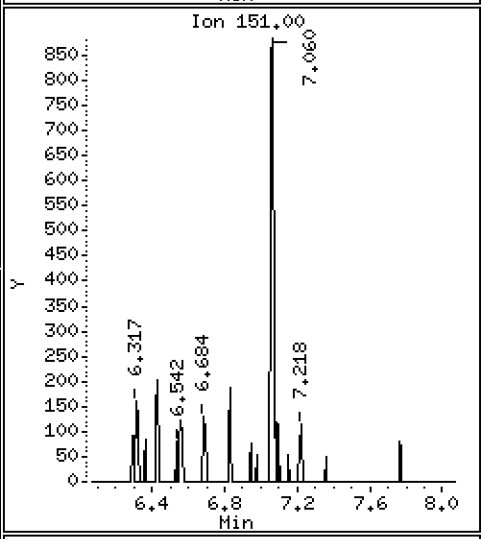
9 Acenaphthylene

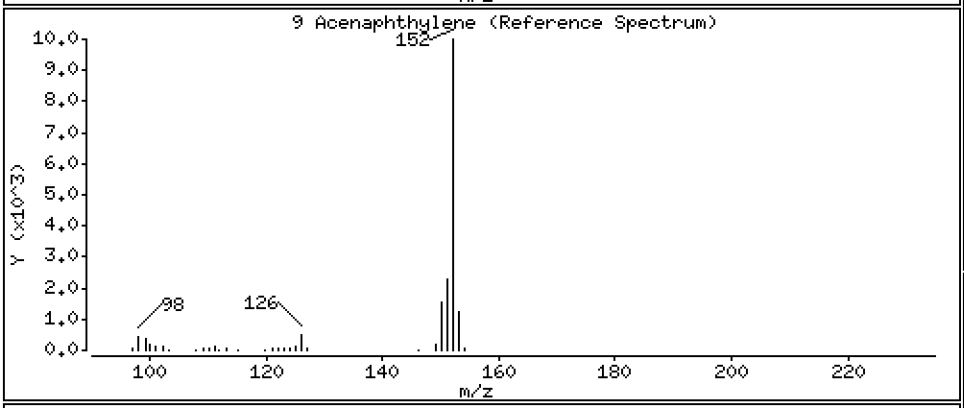
Concentration: 0.2496 ug/mL

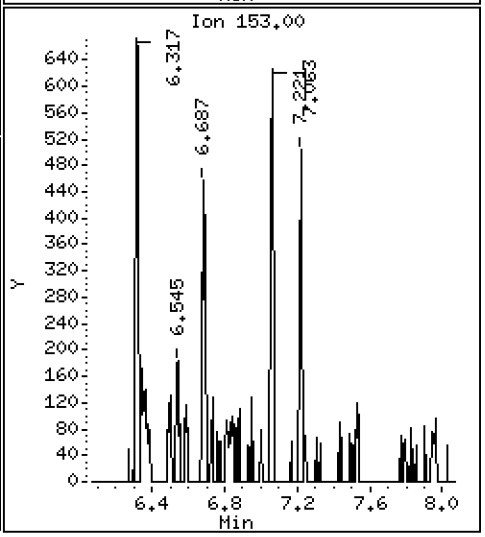


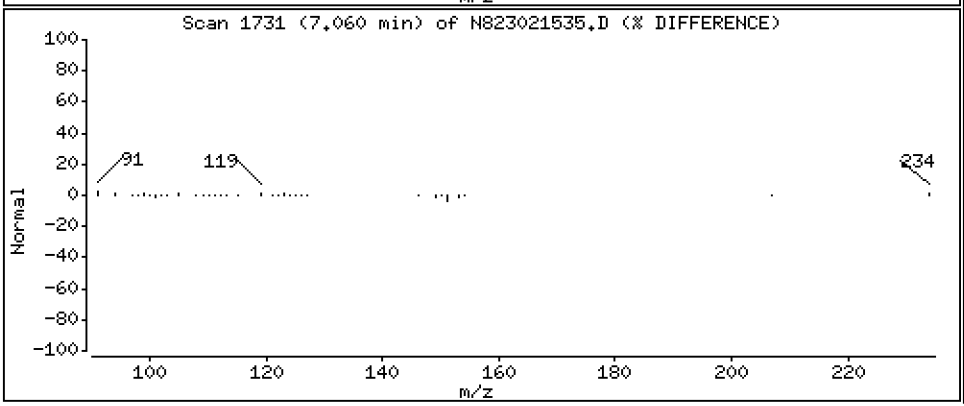












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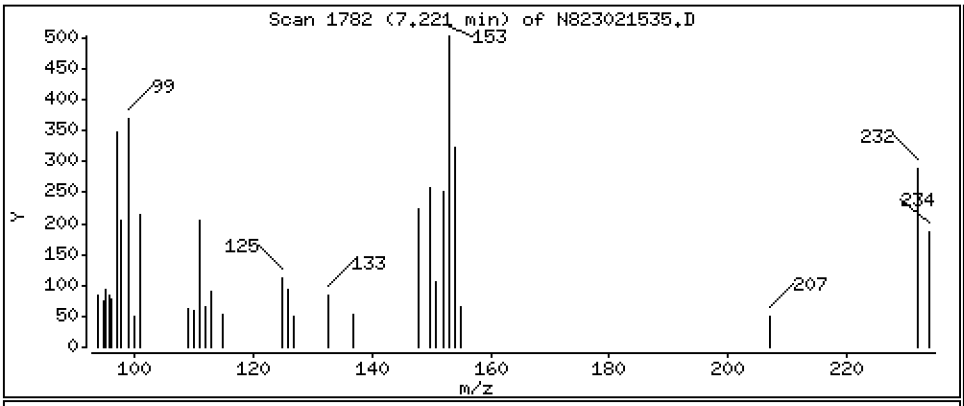
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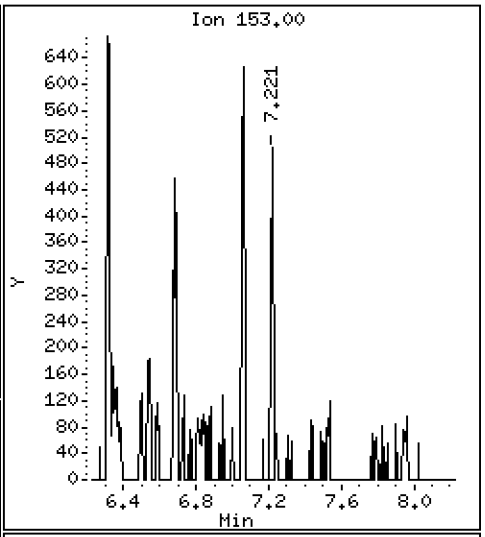
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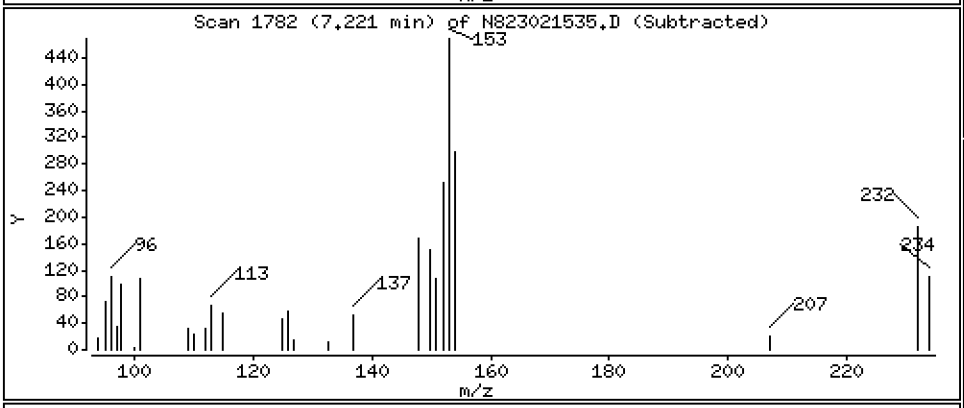
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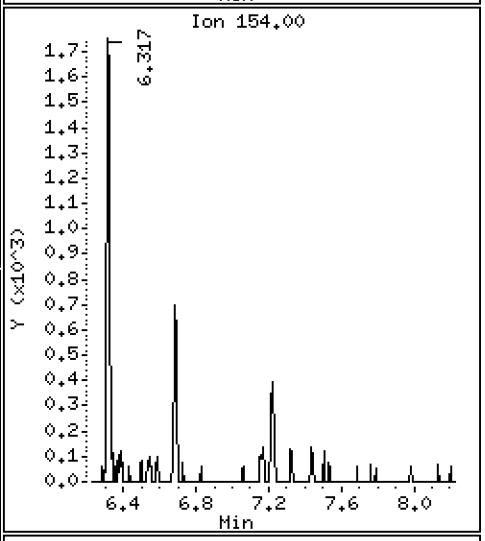
11 Acenaphthene

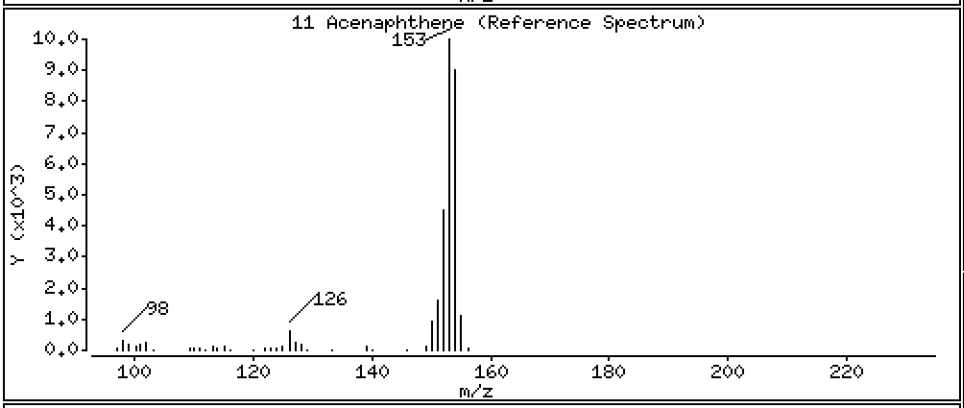
Concentration: 0.03543 ug/mL

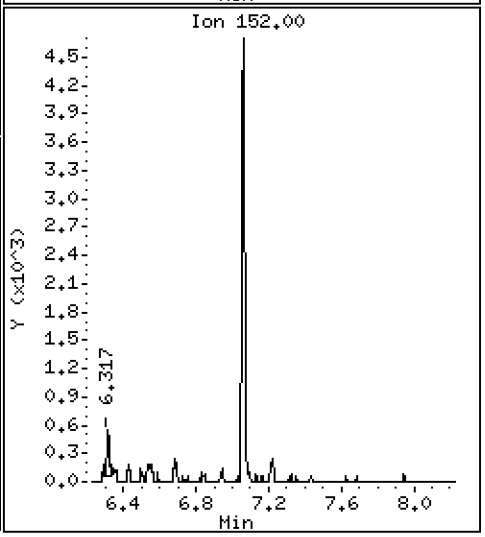


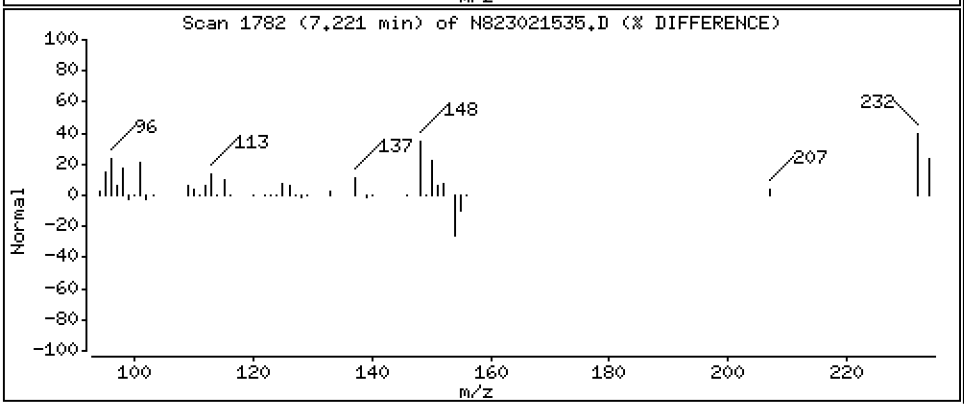












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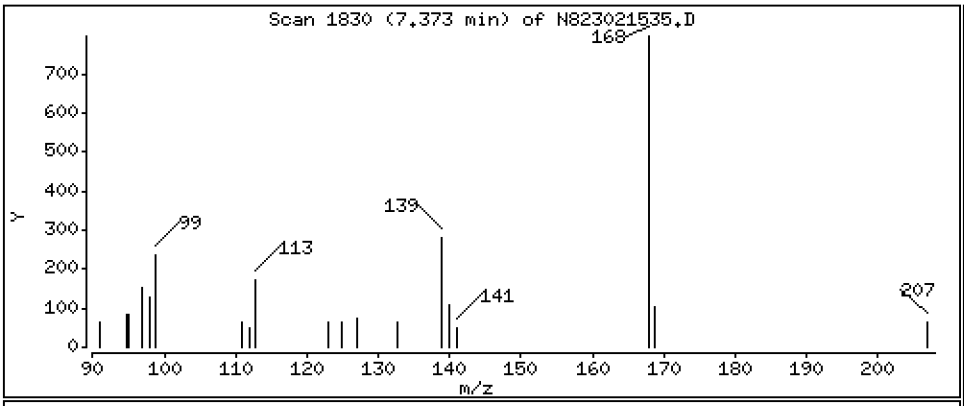
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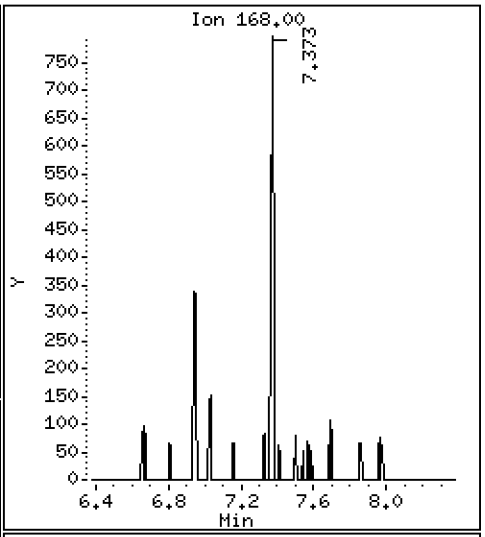
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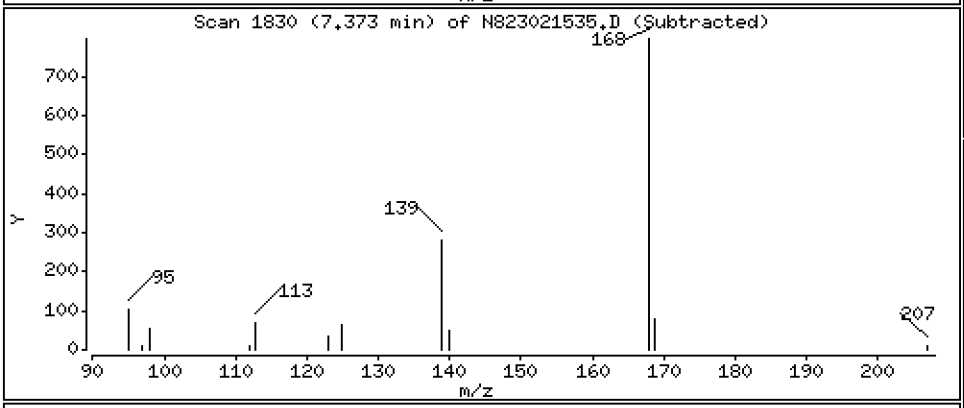
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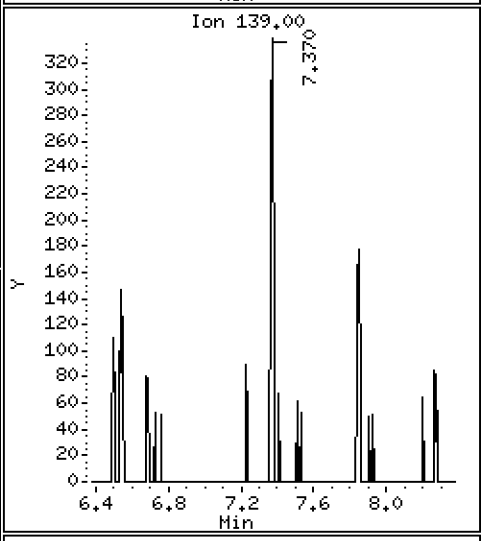
12 Dibenzofuran

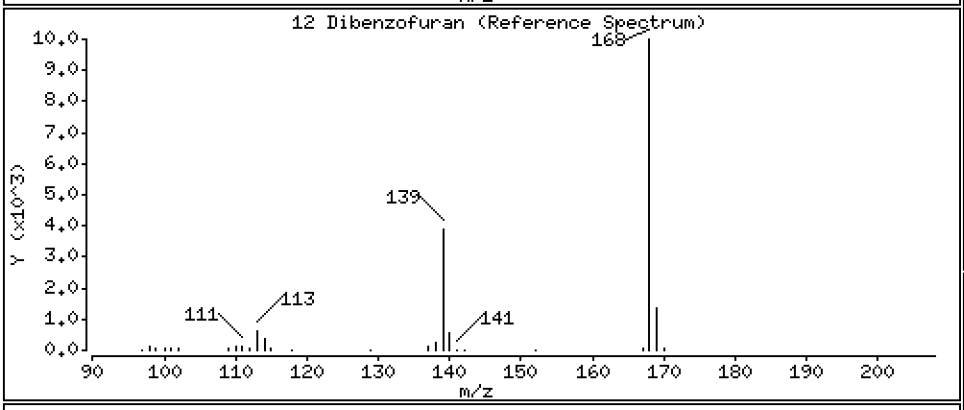
Concentration: 0.03885 ug/mL

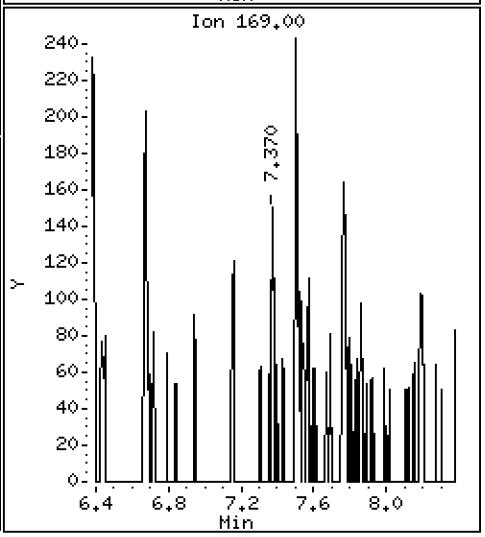


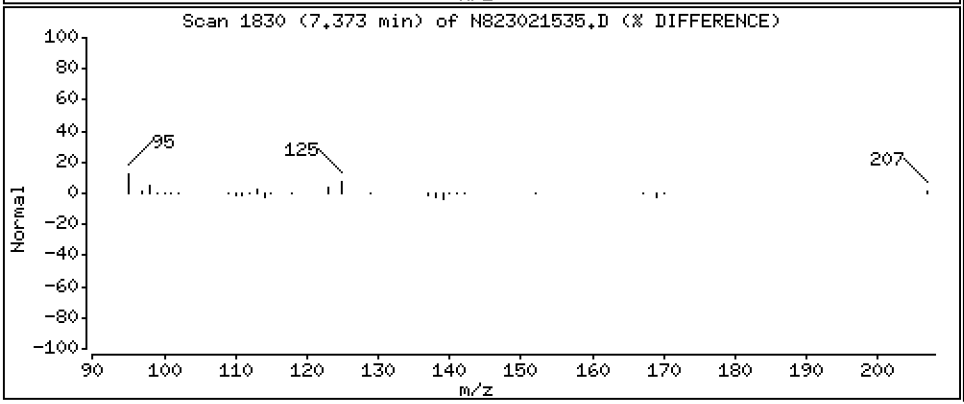












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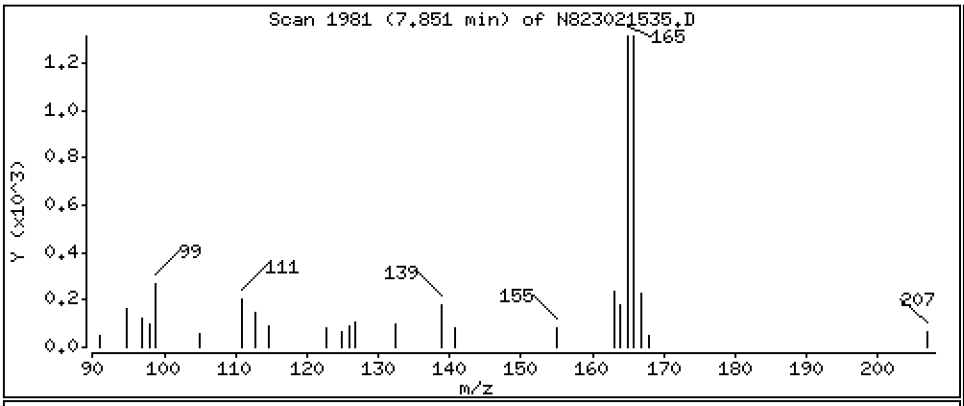
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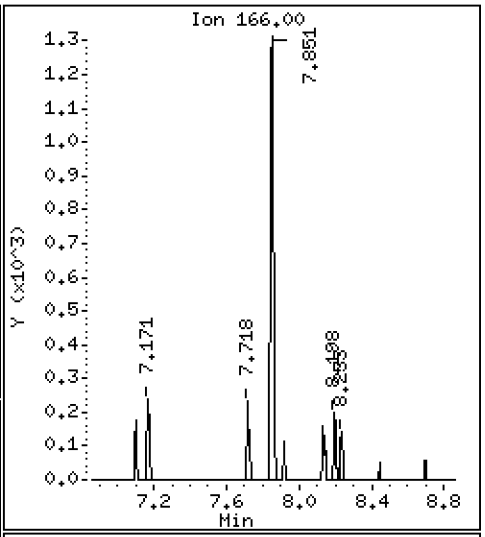
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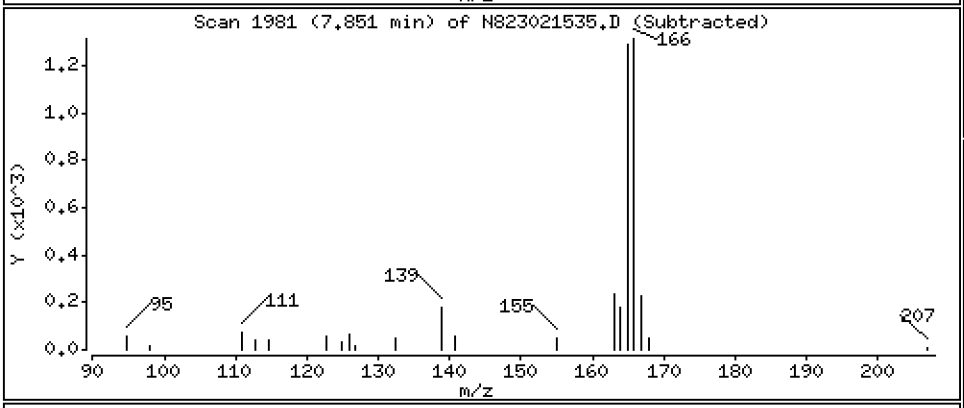
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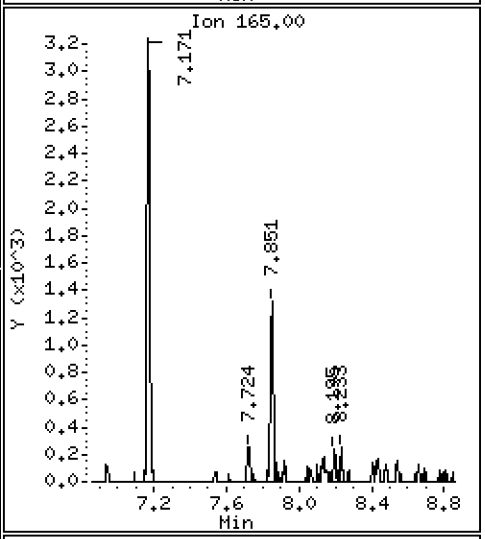
14 Fluorene

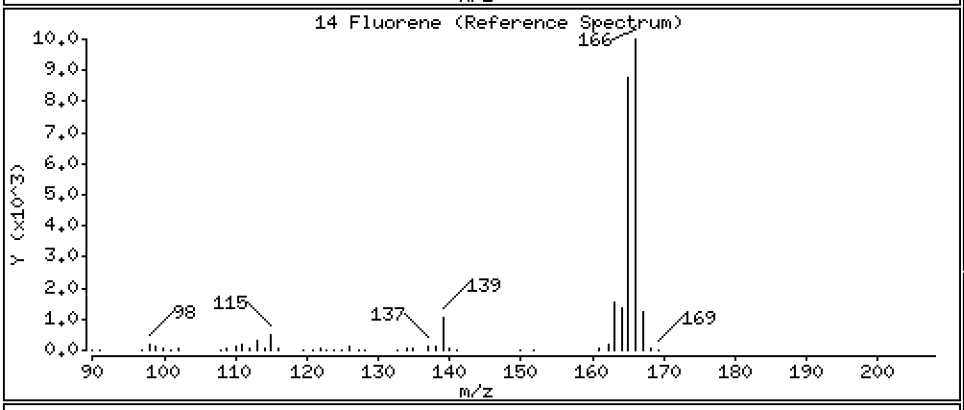
Concentration: 0.09101 ug/mL

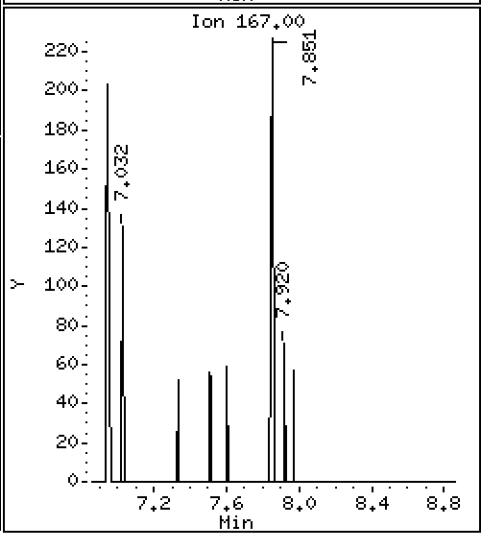


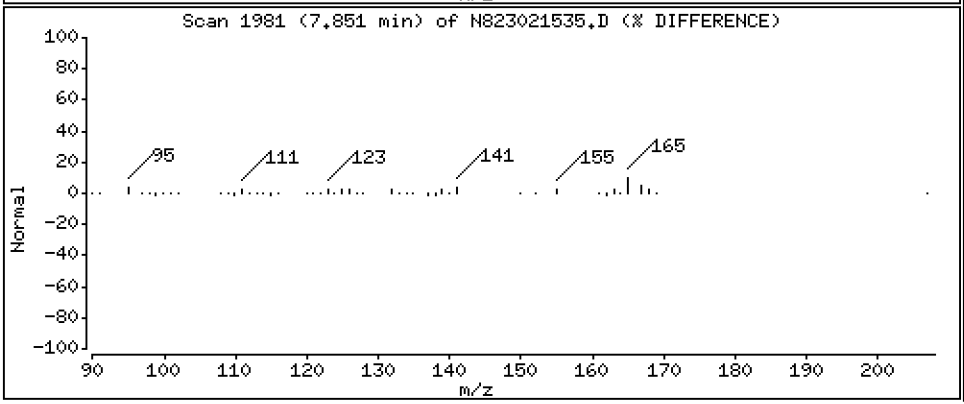












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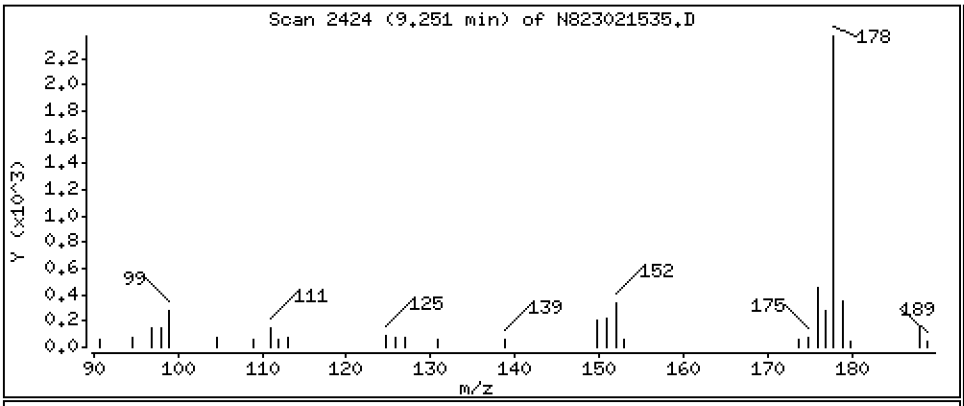
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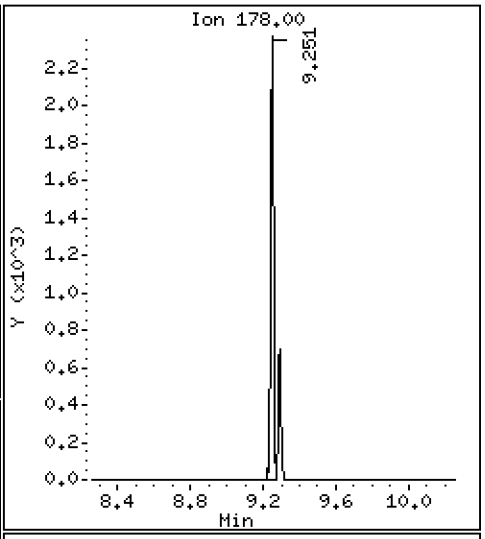
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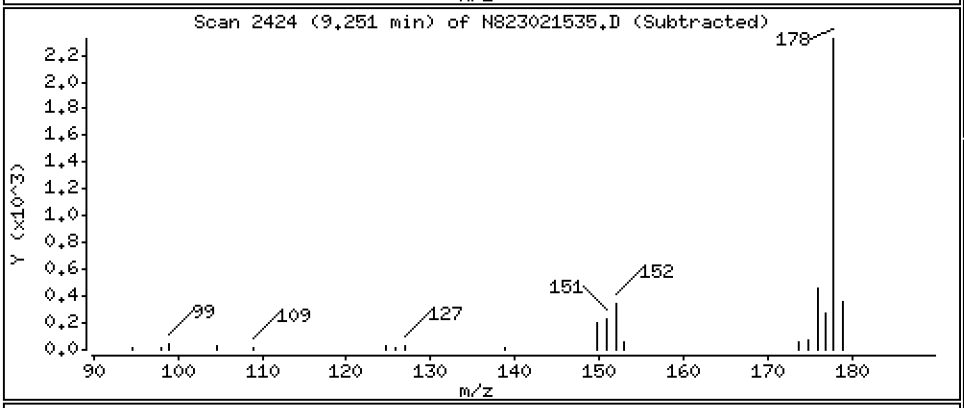
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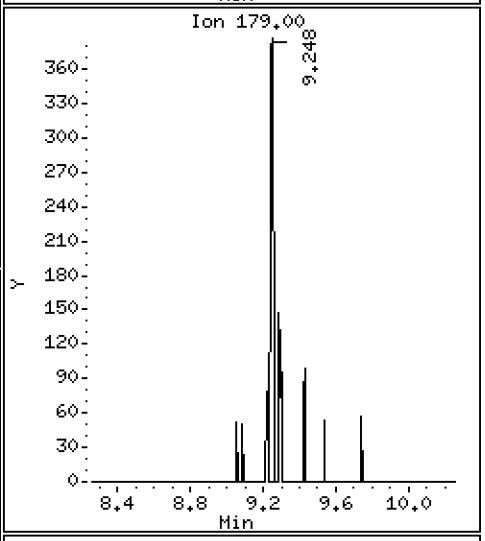
16 Phenanthrene

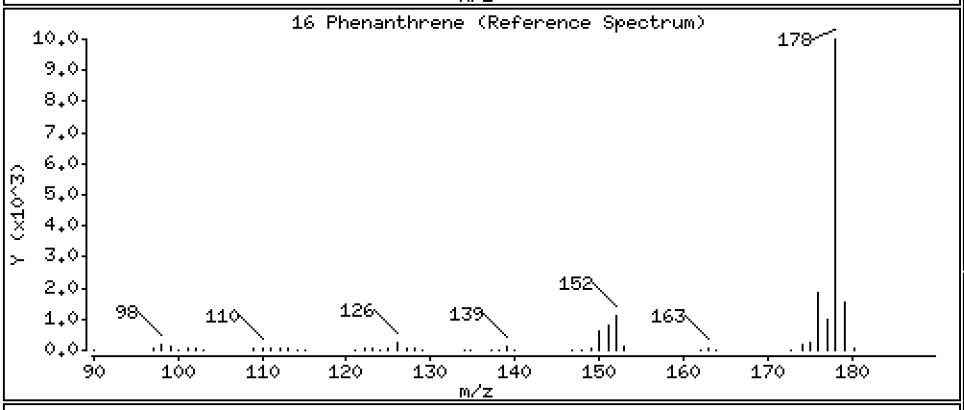
Concentration: 0.1009 ug/mL

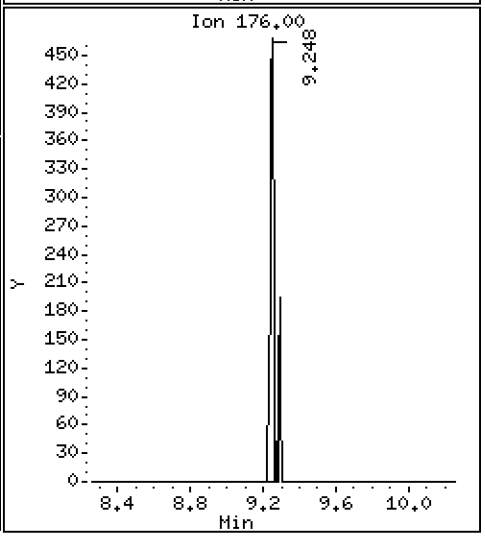


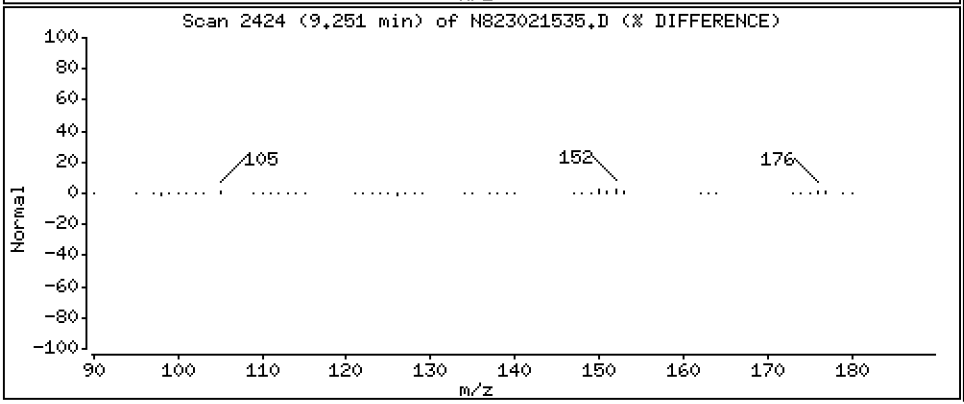












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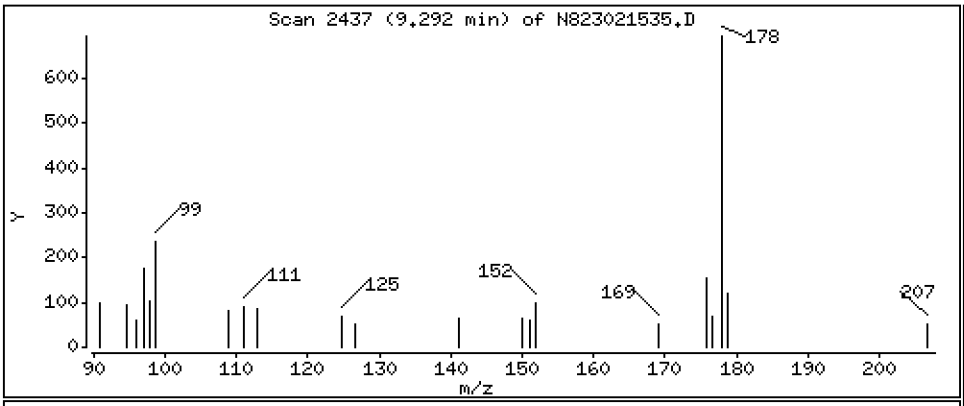
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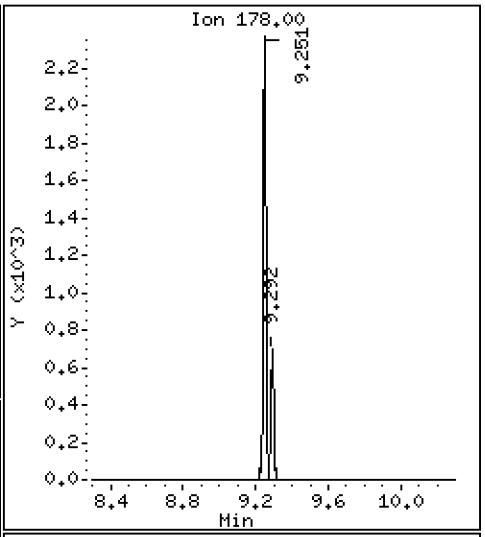
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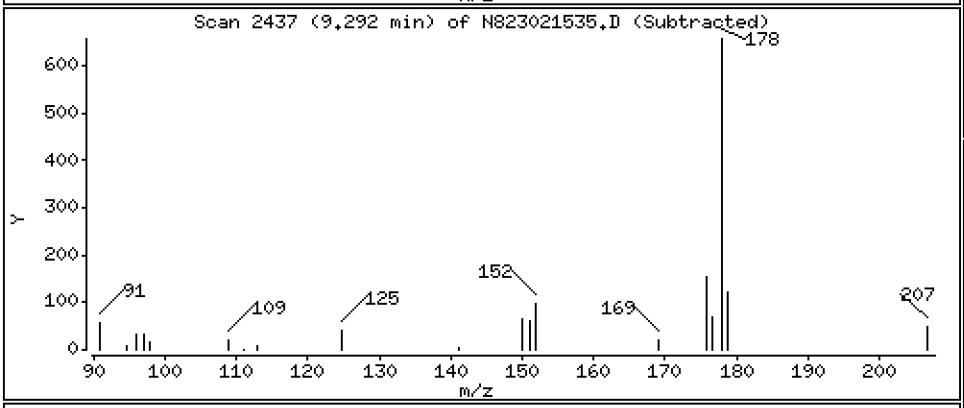
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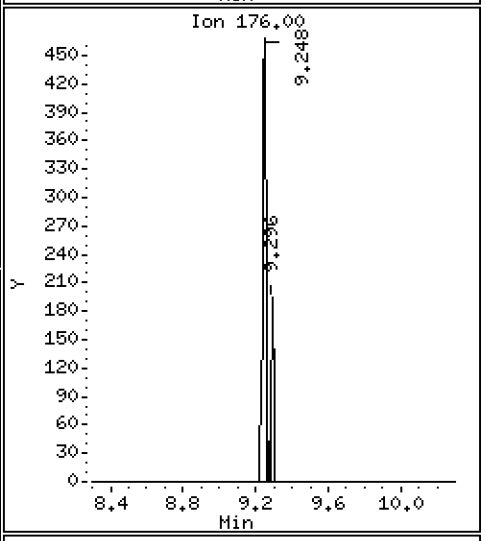
17 Anthracene

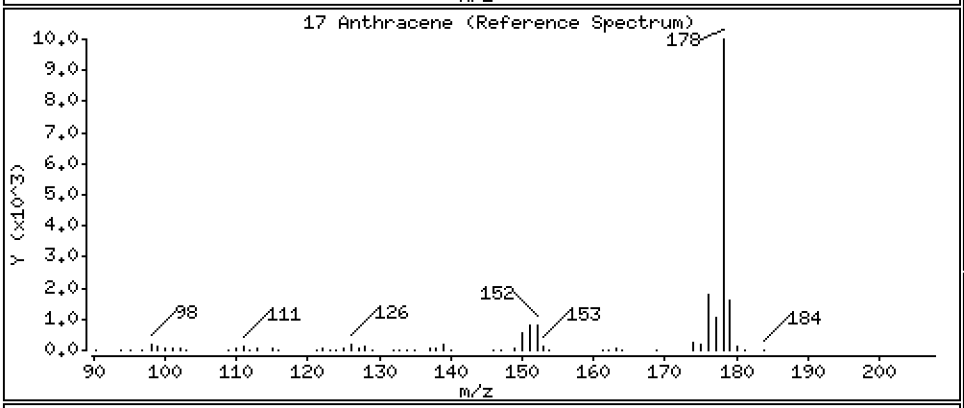
Concentration: 0.03496 ug/mL

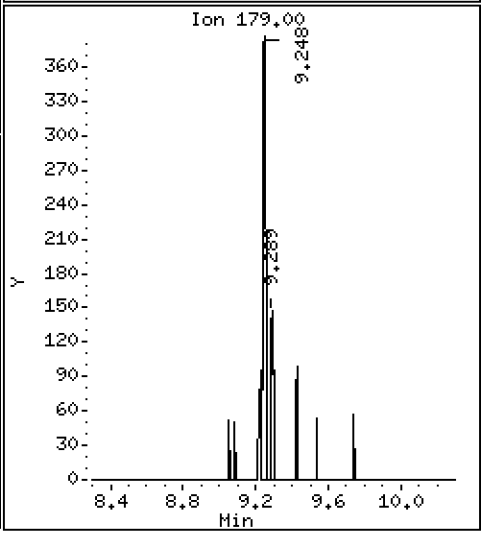


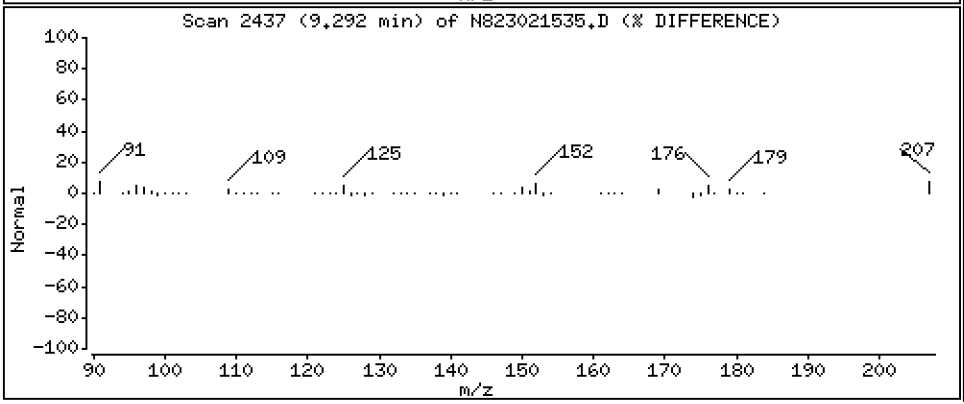












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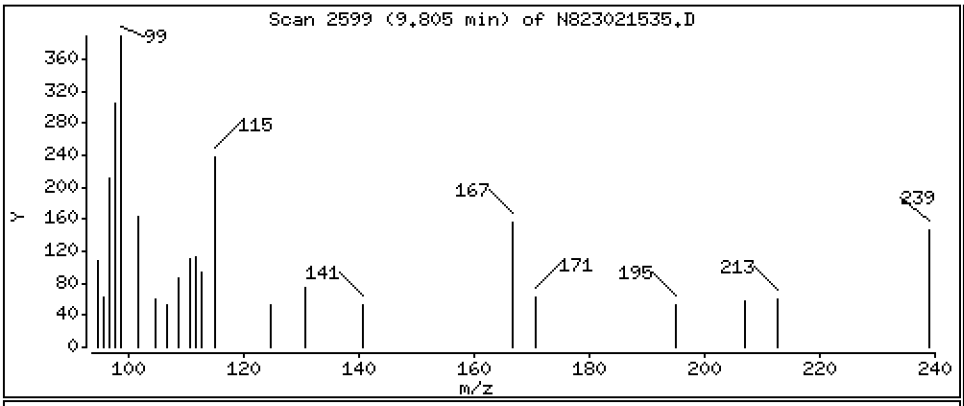
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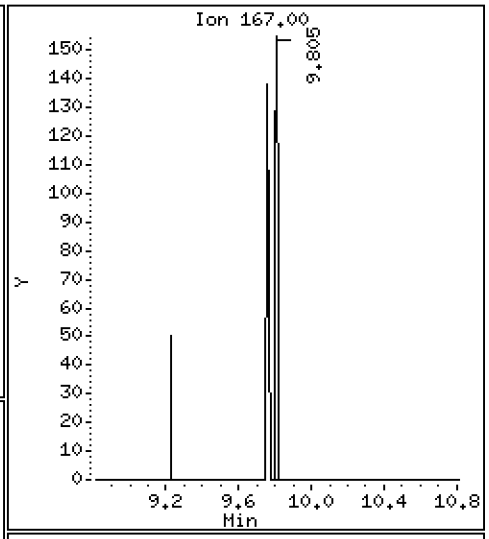
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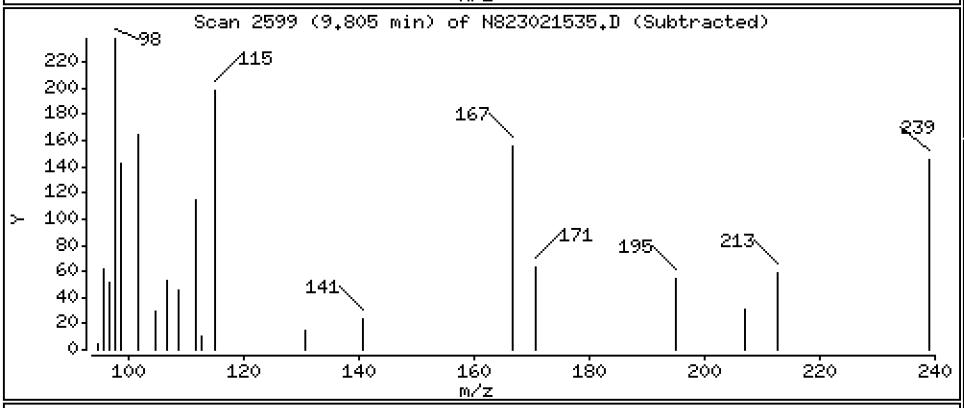
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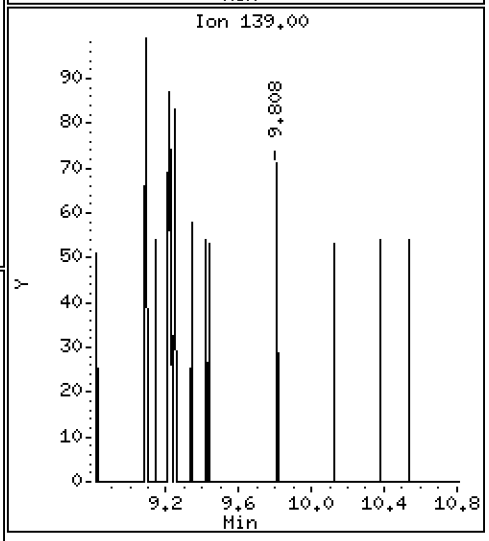
19 Carbazole

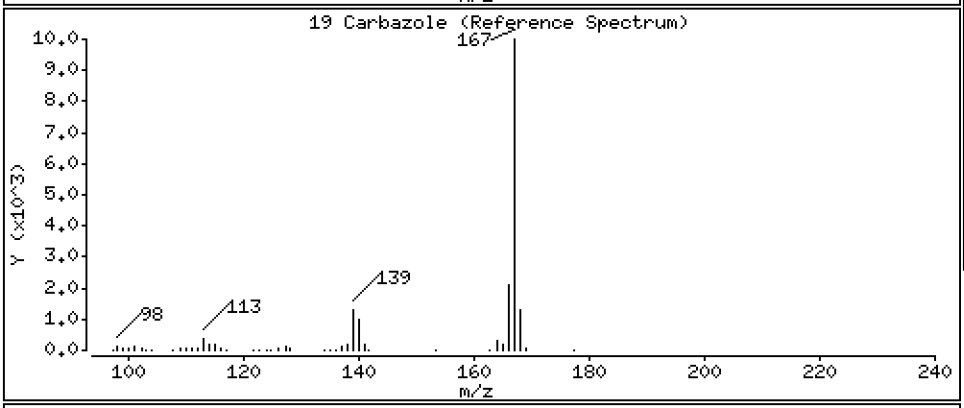
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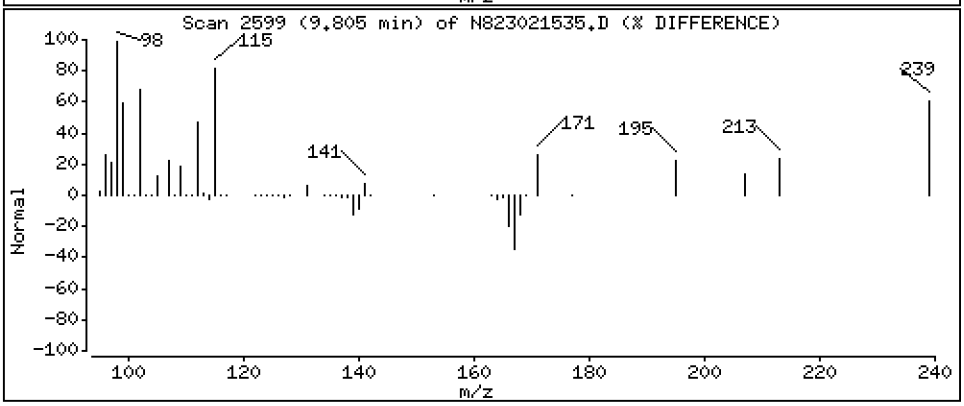












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Date : 16-FEB-2023 03:00

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-12

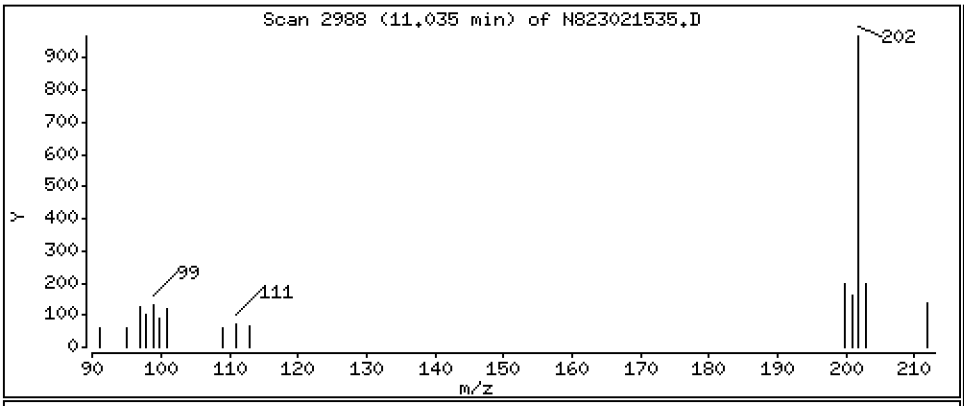
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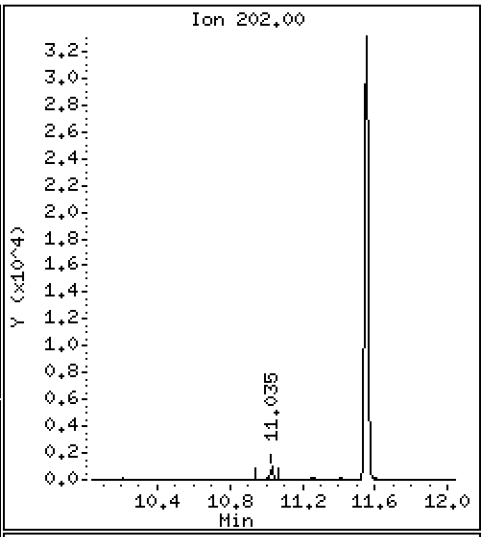
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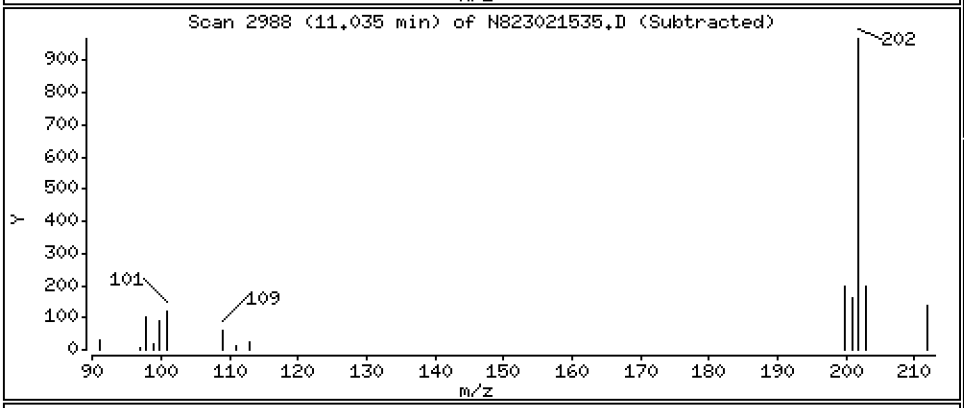
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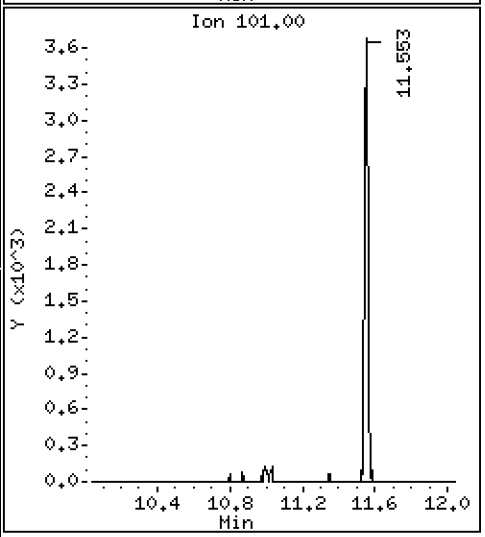
22 Fluoranthene

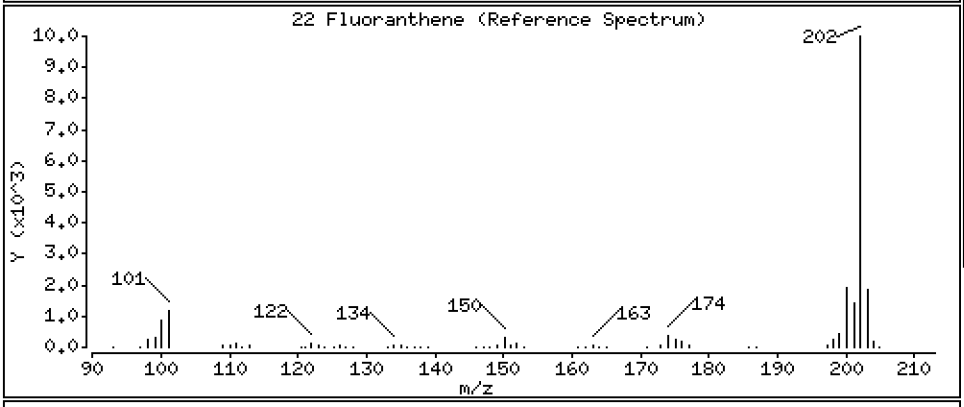
Concentration: 0.04915 ug/mL

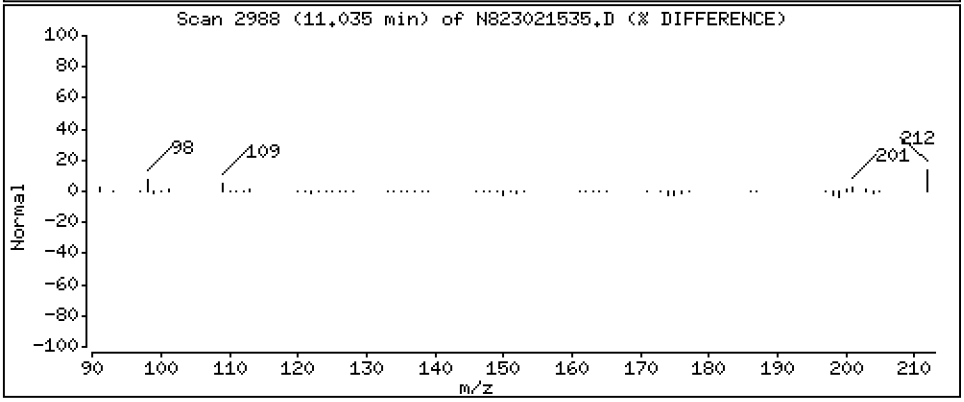












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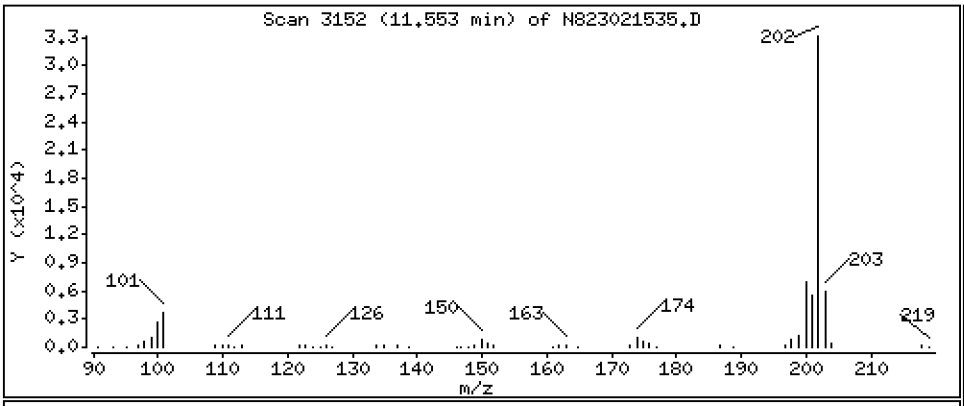
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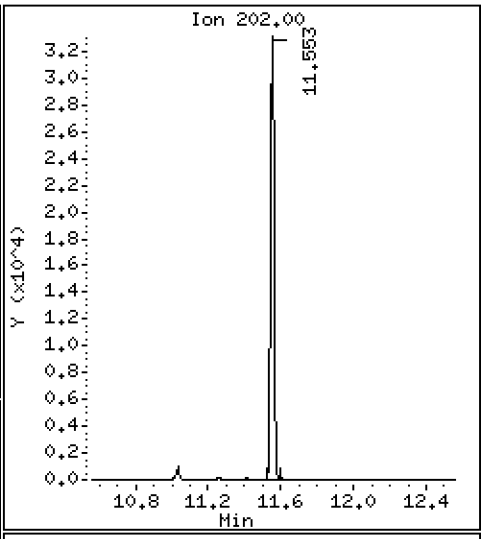
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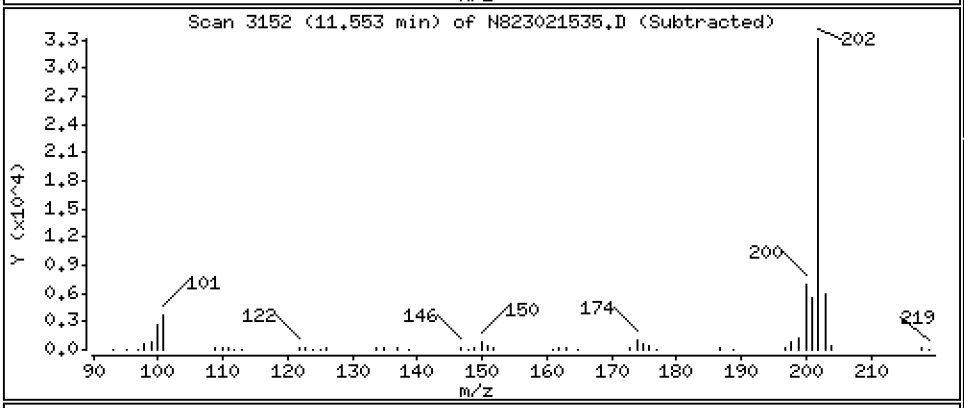
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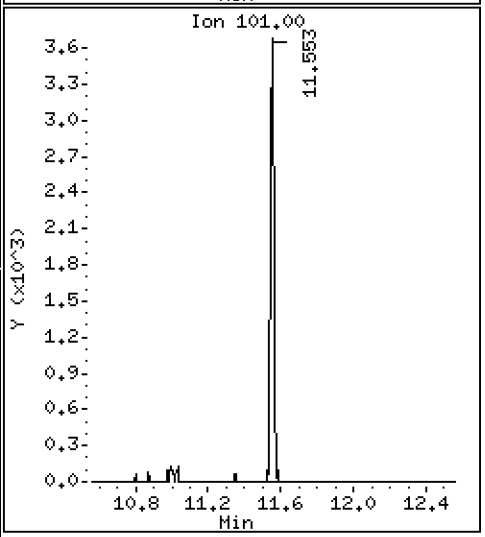
23 Pyrene

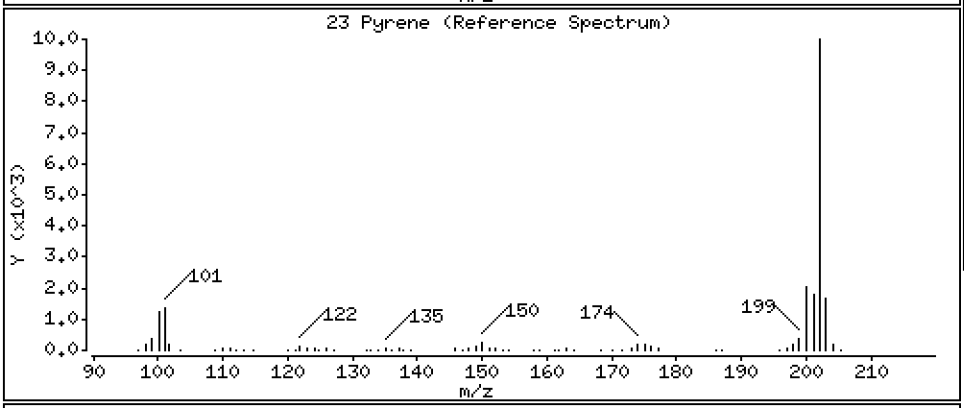
Concentration: 1.649 ug/mL

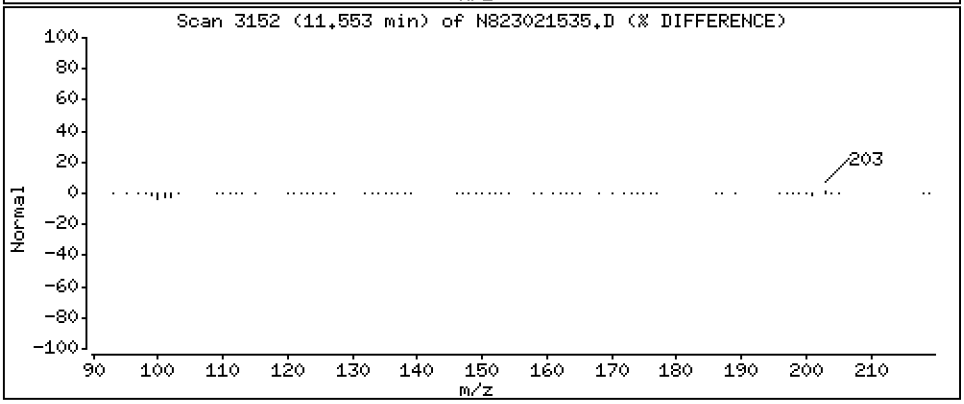












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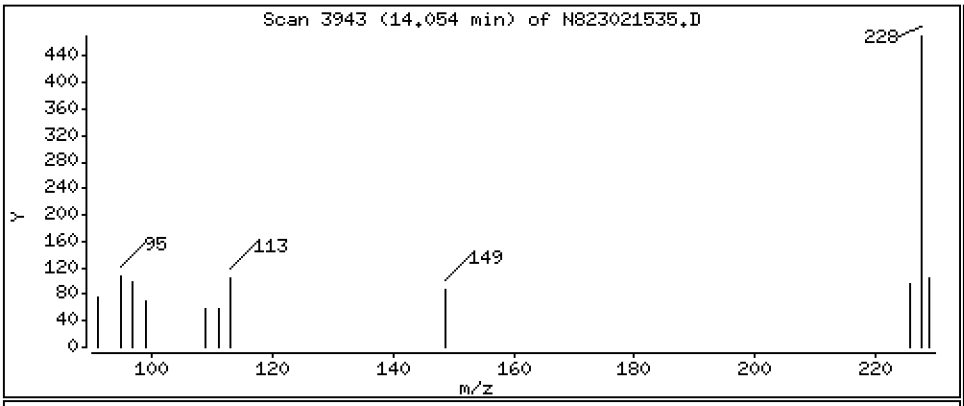
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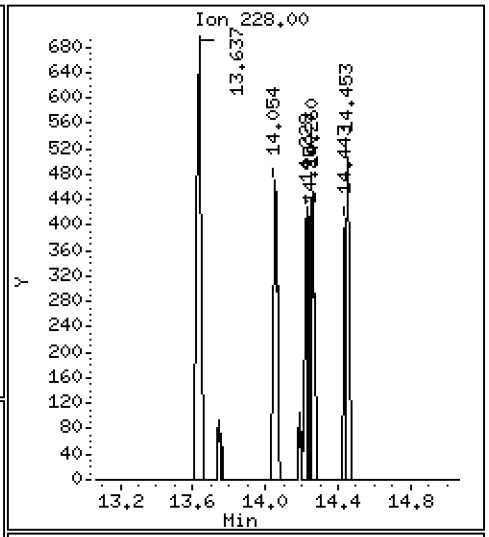
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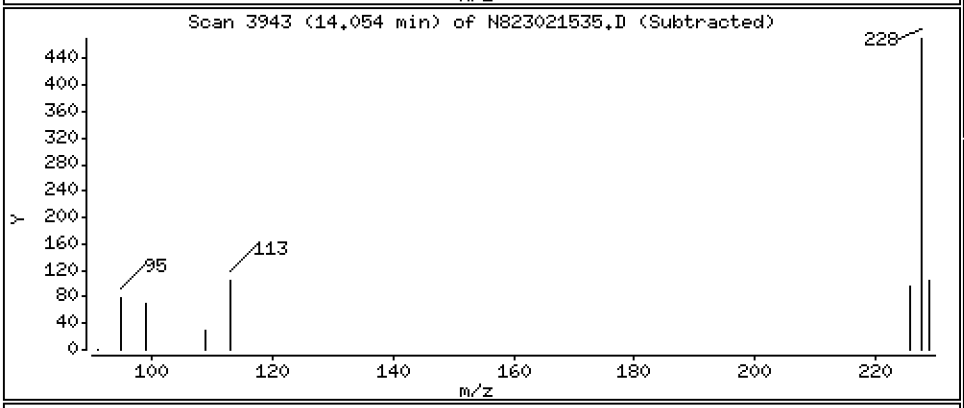
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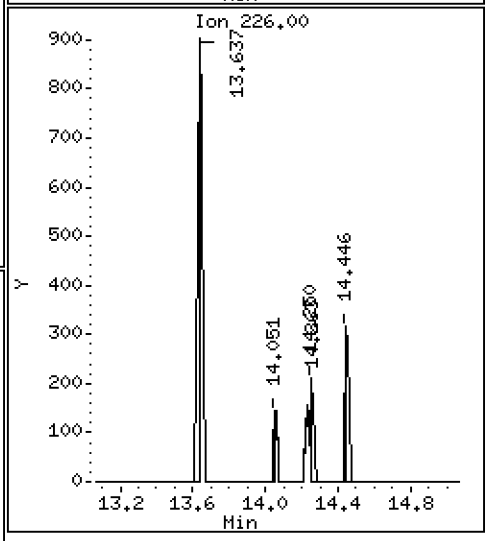
24 Benzo(a)anthracene

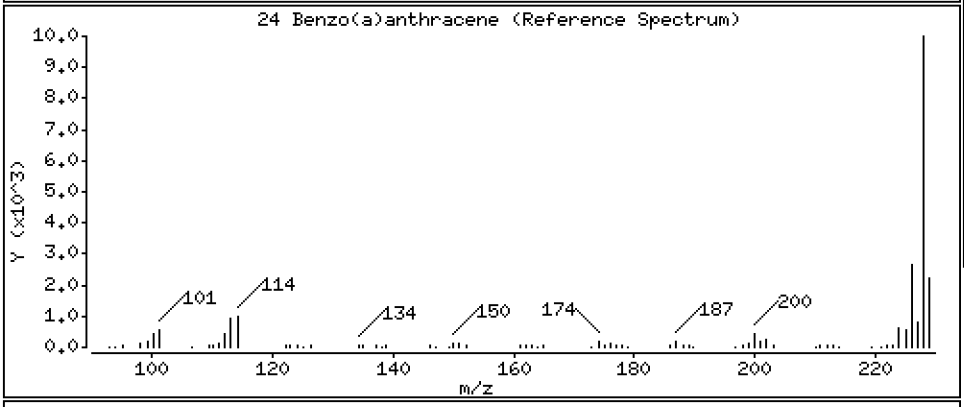
Concentration: 0.03175 ug/mL

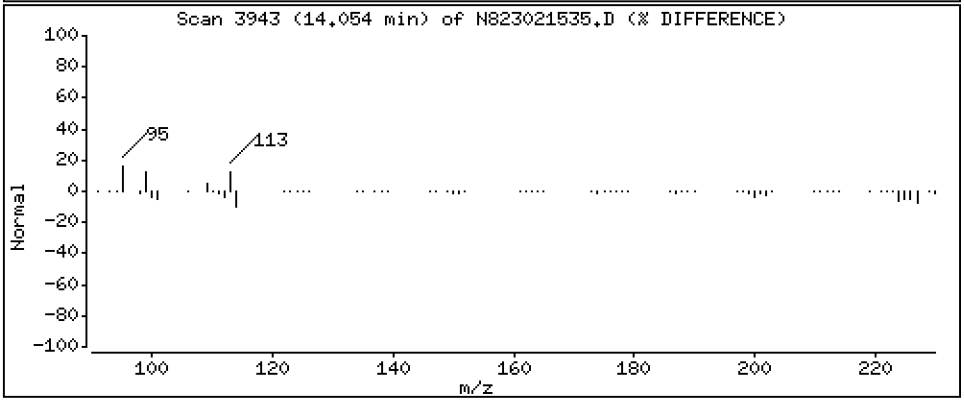












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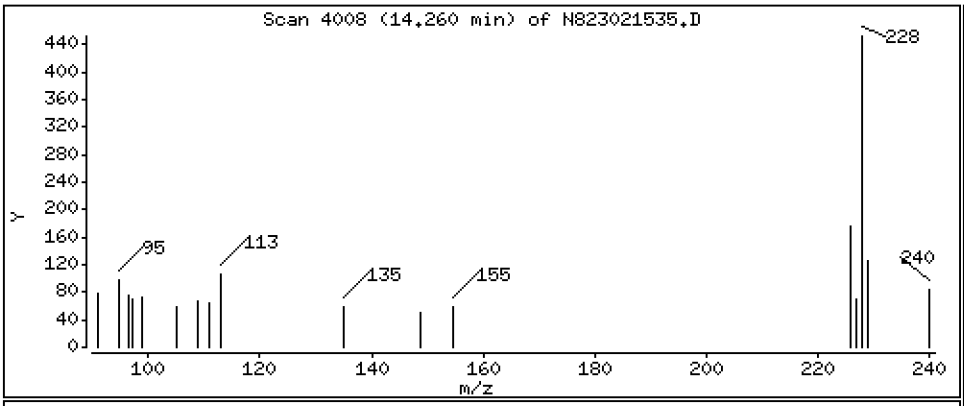
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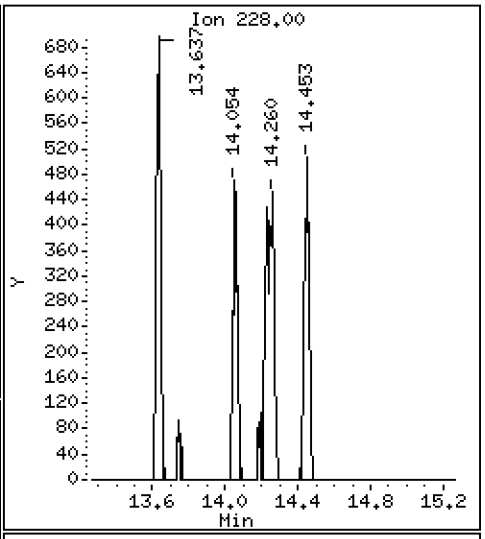
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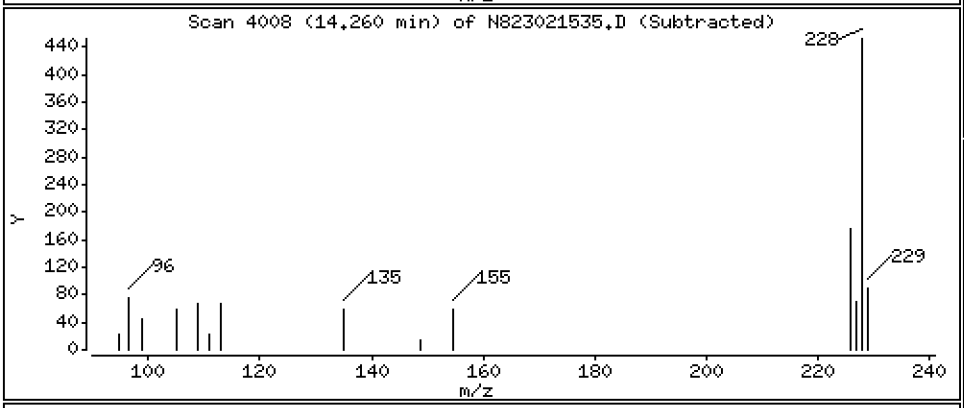
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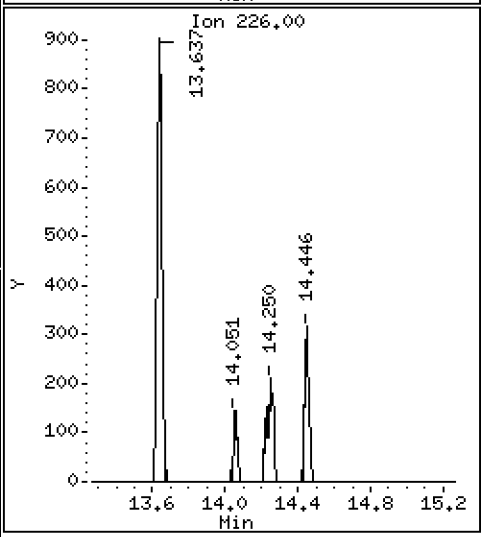
27 Chrysene

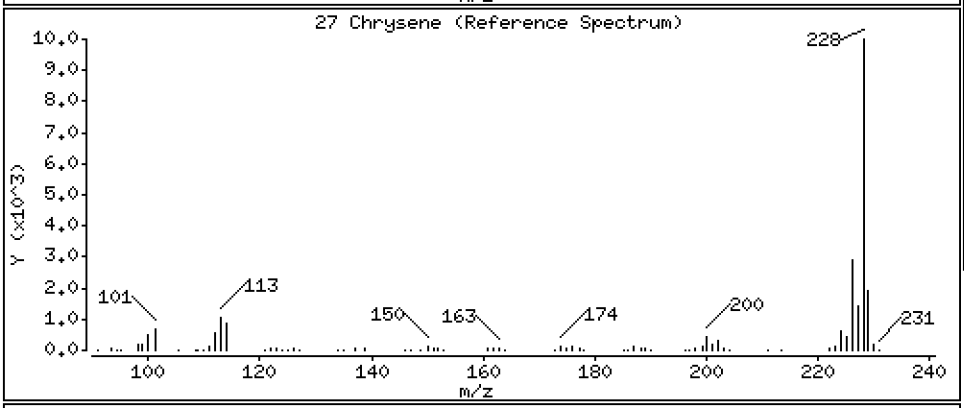
Concentration: 0.05516 ug/mL

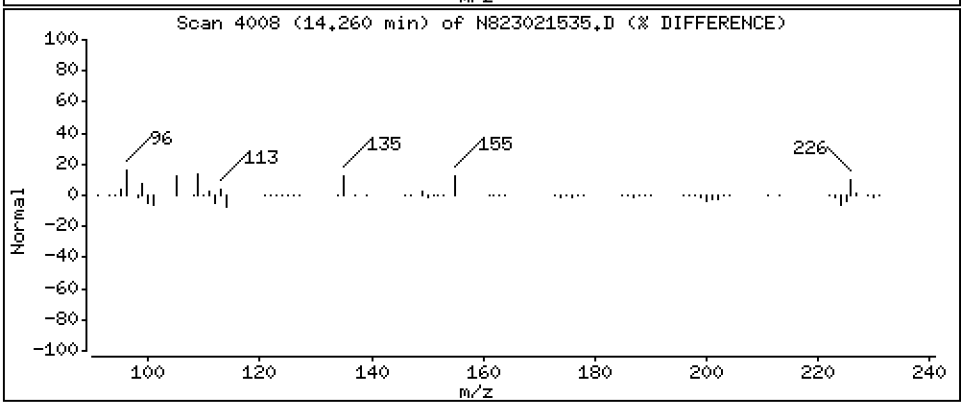












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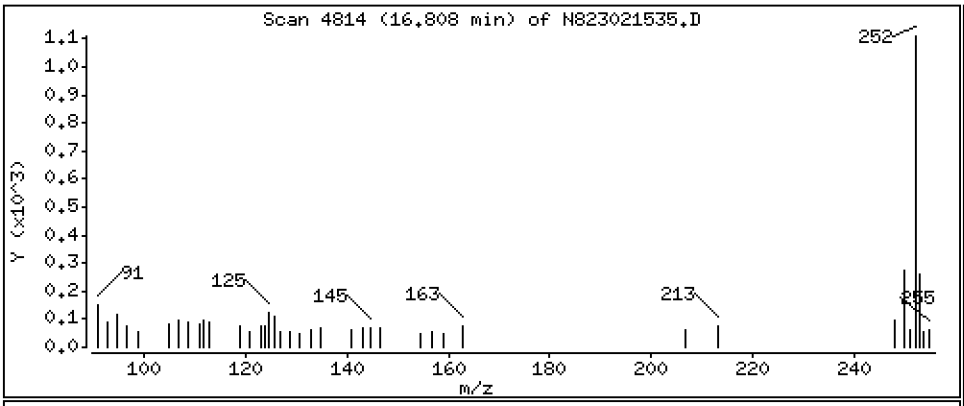
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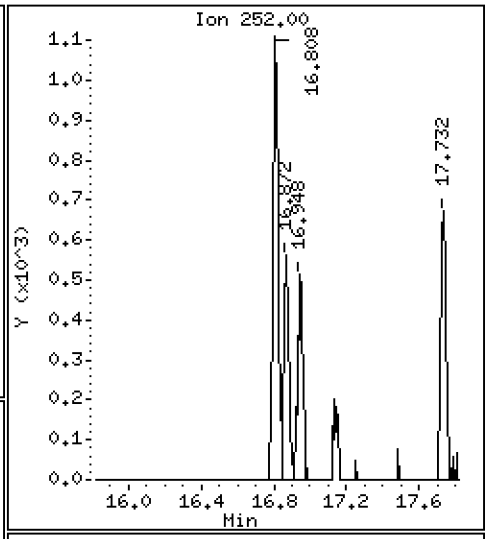
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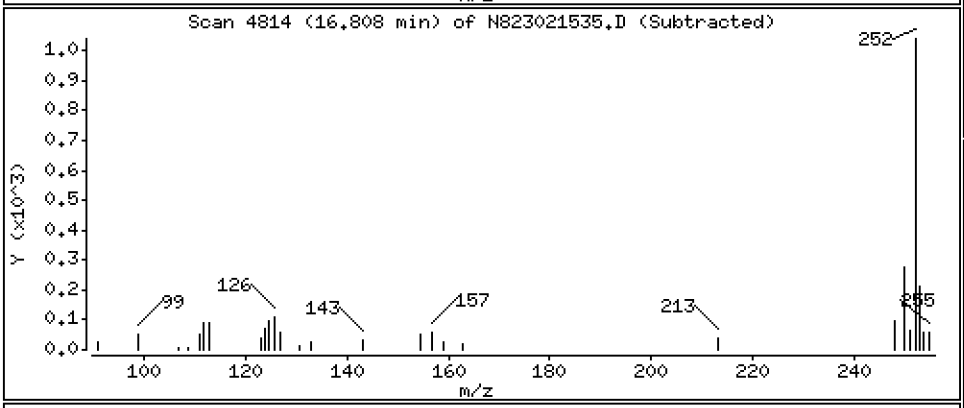
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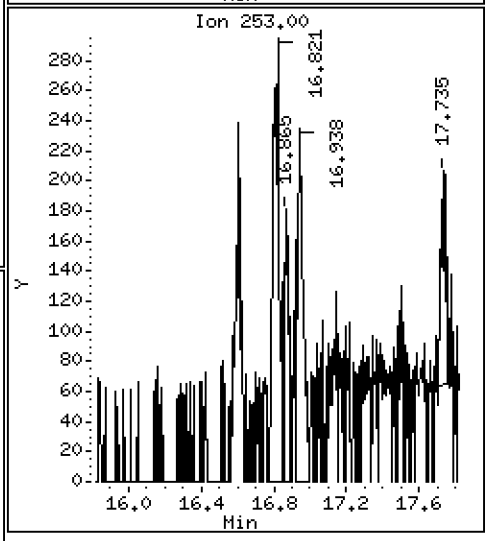
28 Benzo(b)fluoranthene

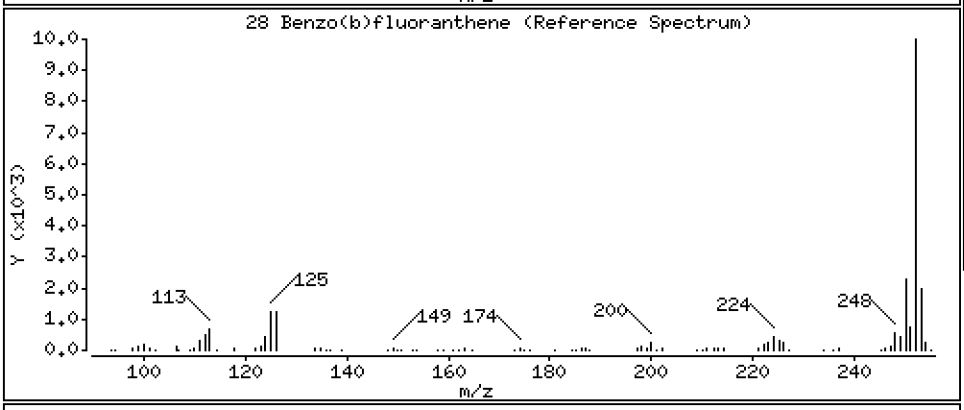
Concentration: 0.09860 ug/mL

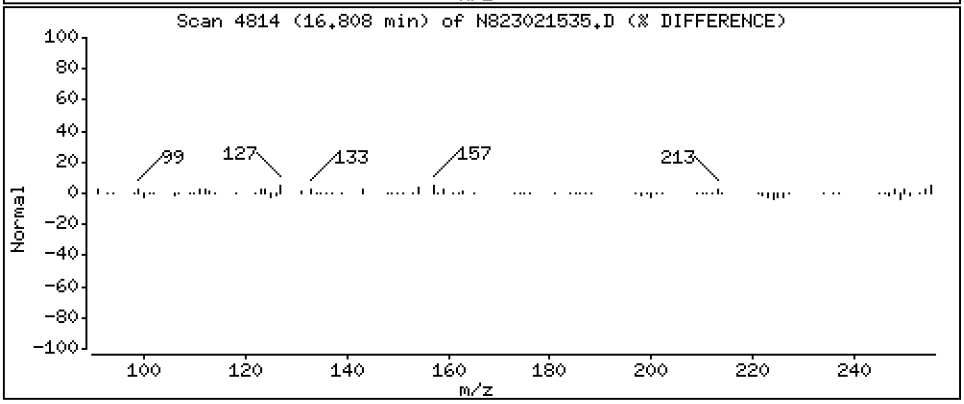












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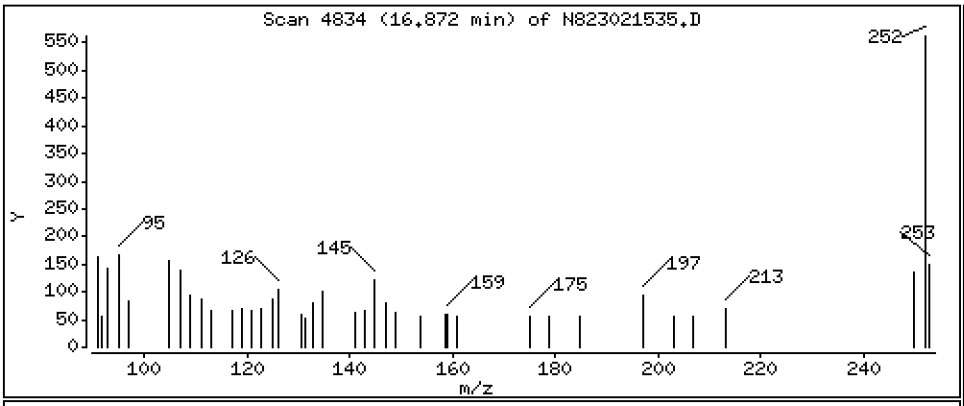
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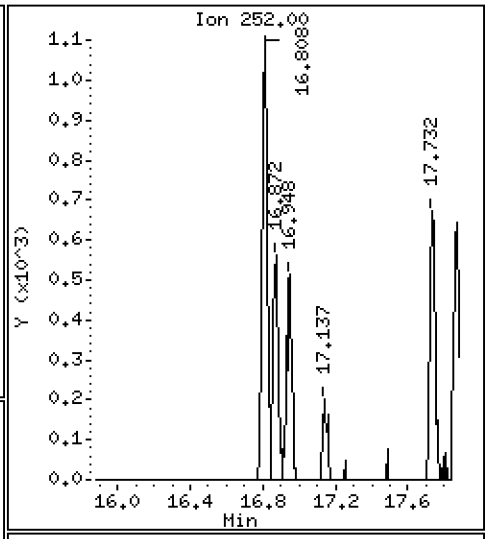
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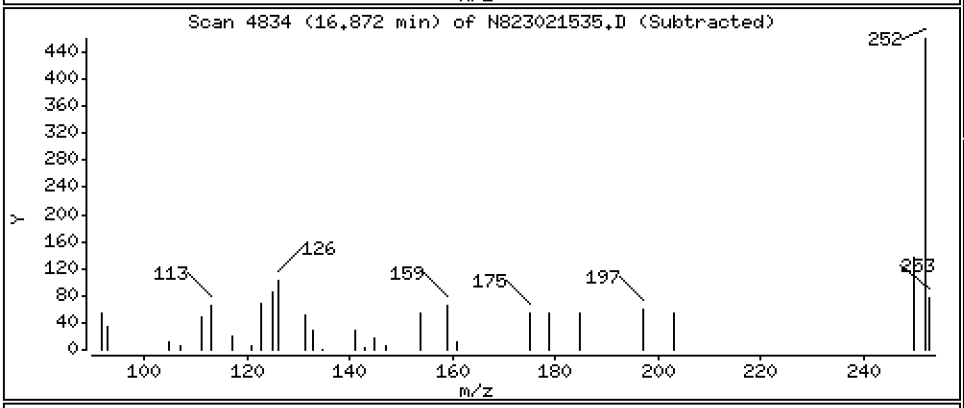
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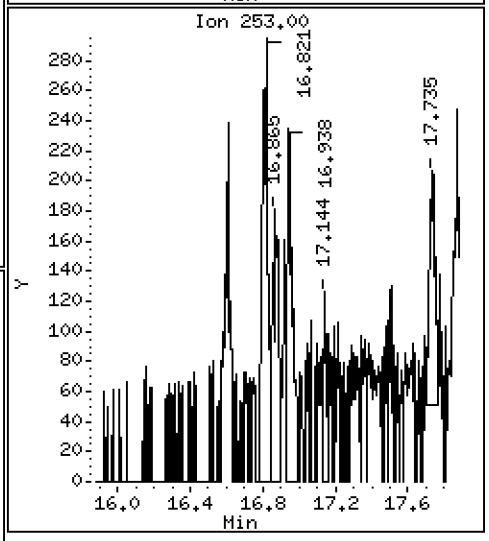
29 Benzo(k)fluoranthene

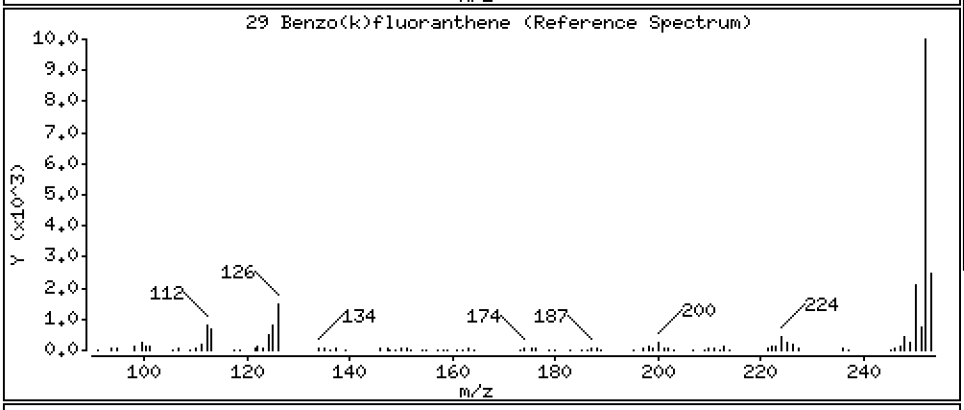
Concentration: 0.05040 ug/mL

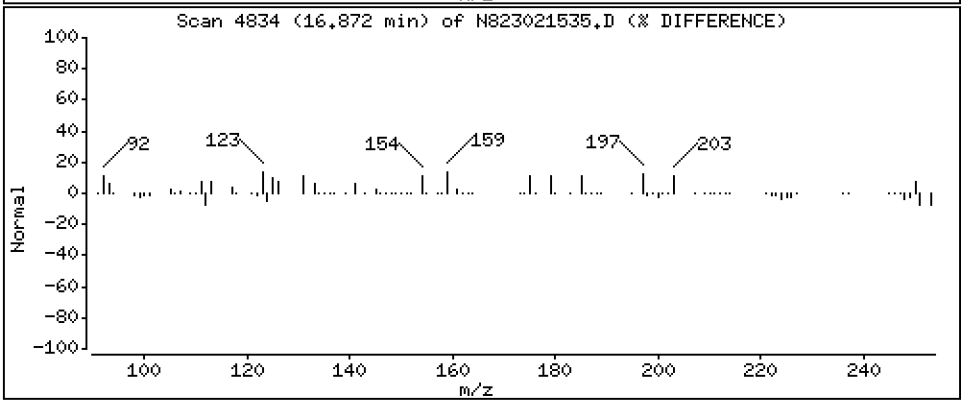












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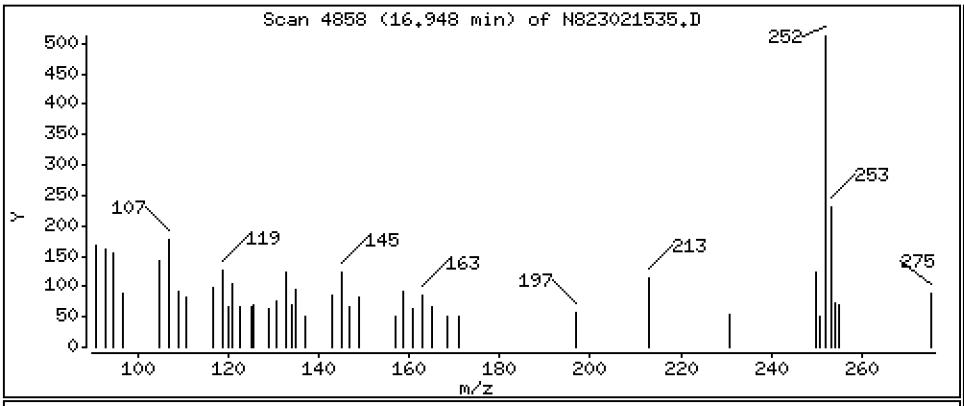
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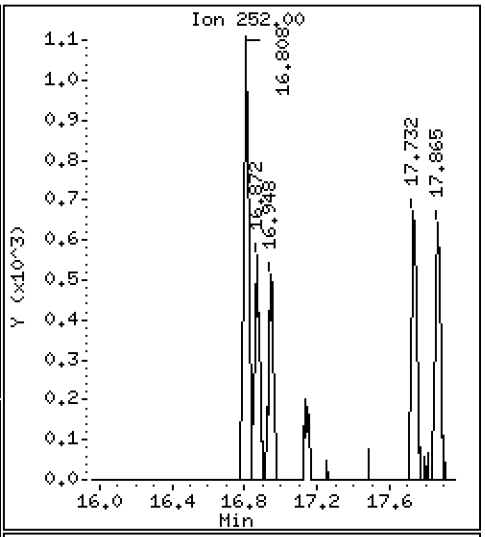
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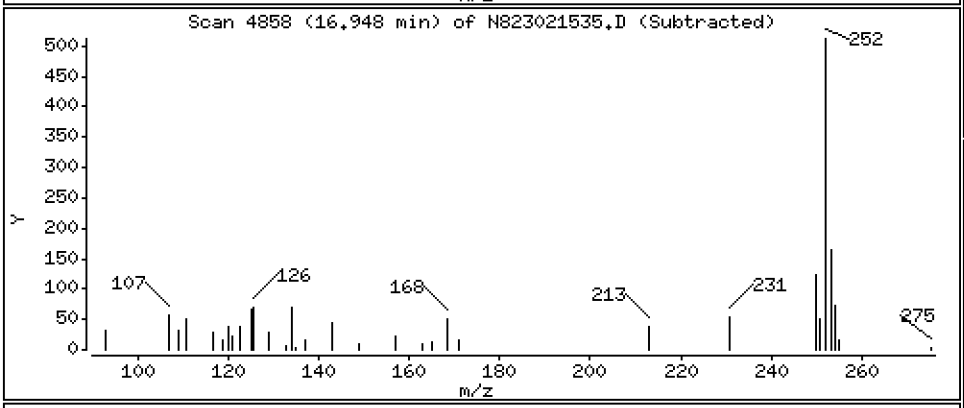
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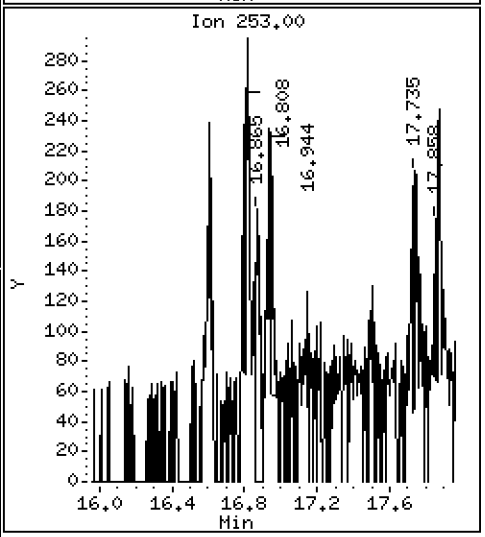
30 Benzo(j)fluoranthene

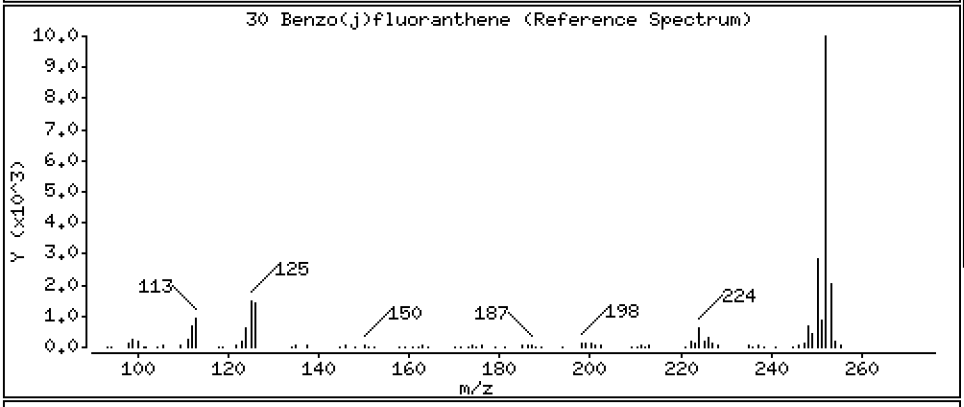
Concentration: 0.05232 ug/mL

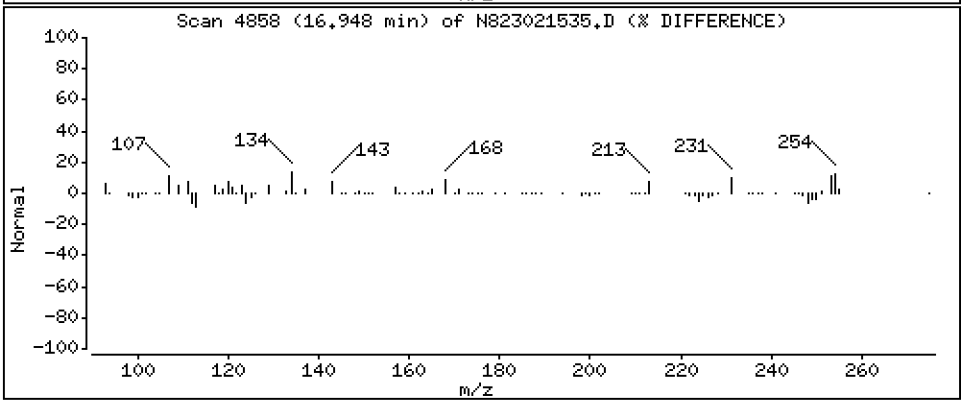












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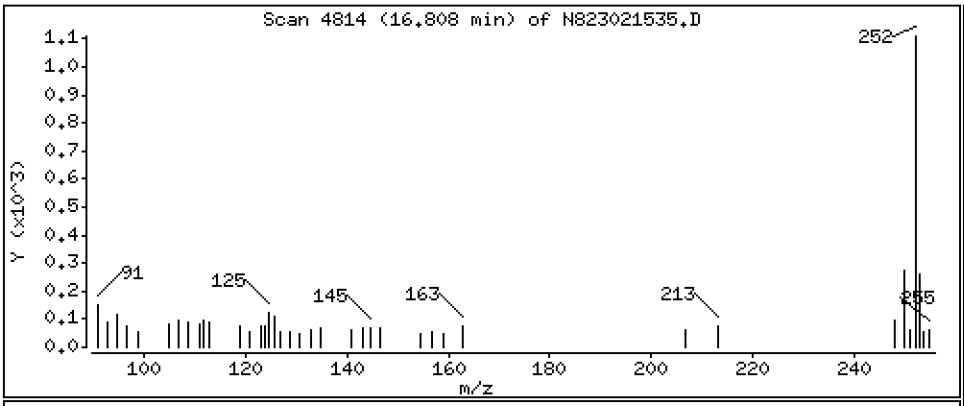
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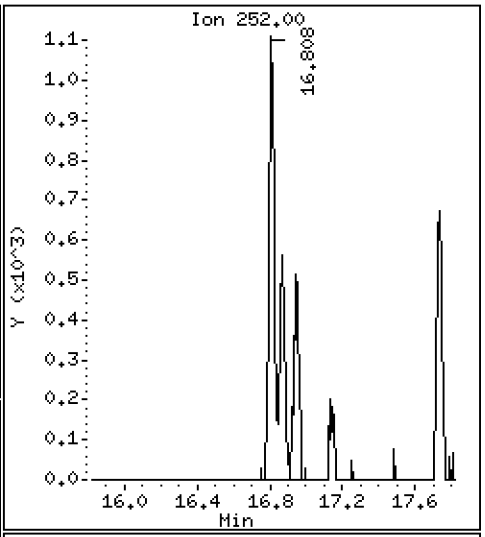
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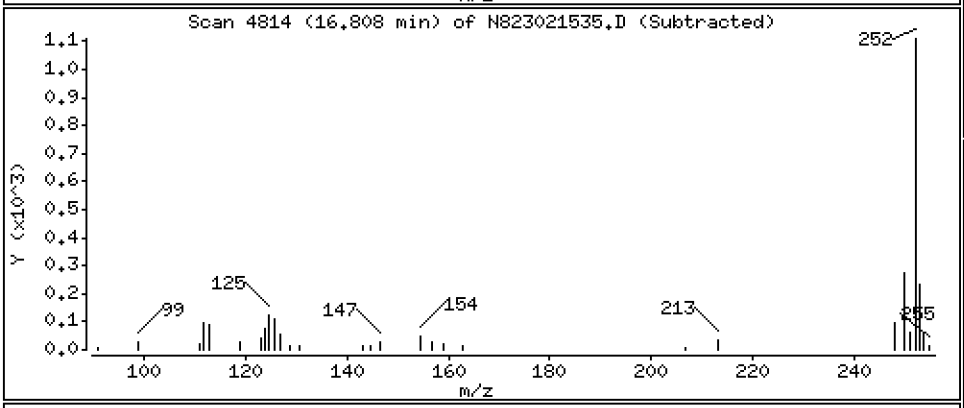
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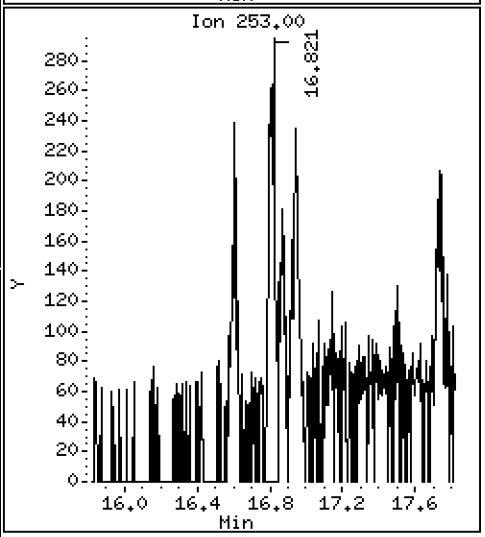
31 Total Benzofluoranthenes

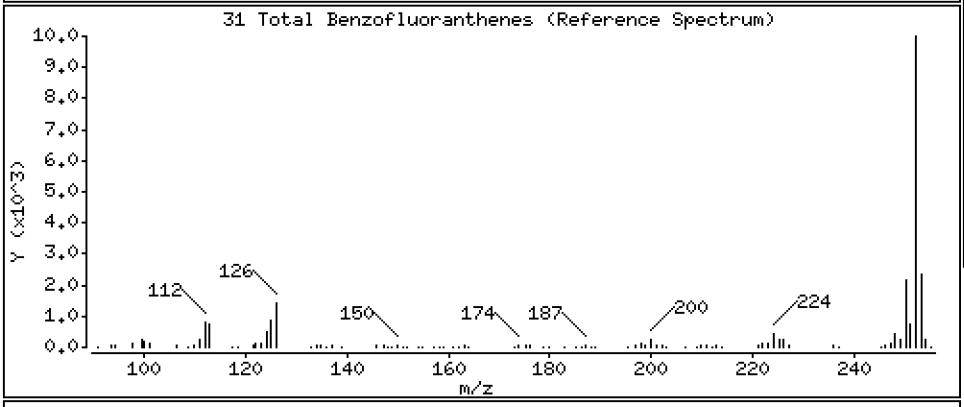
Concentration: 0.2050 ug/mL

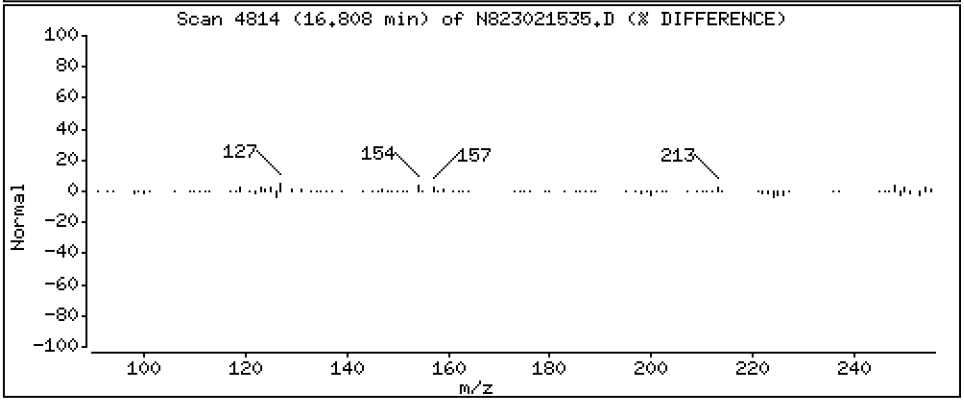












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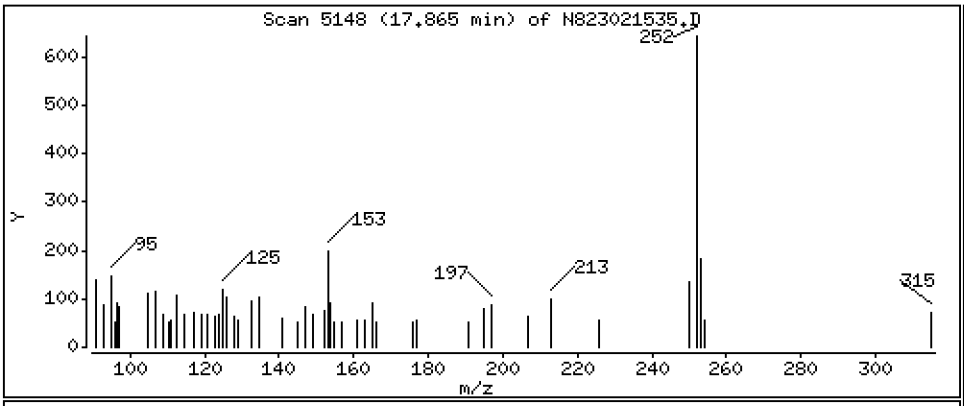
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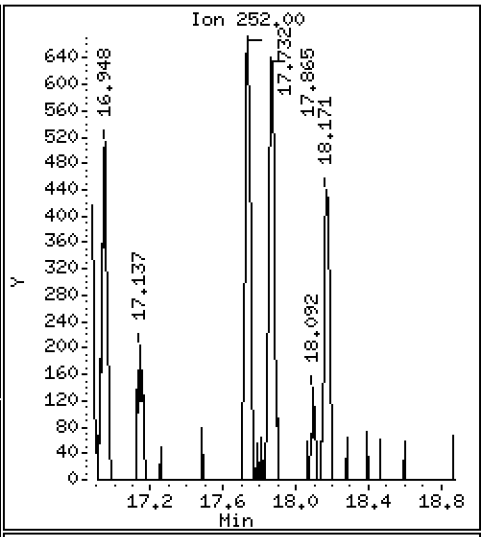
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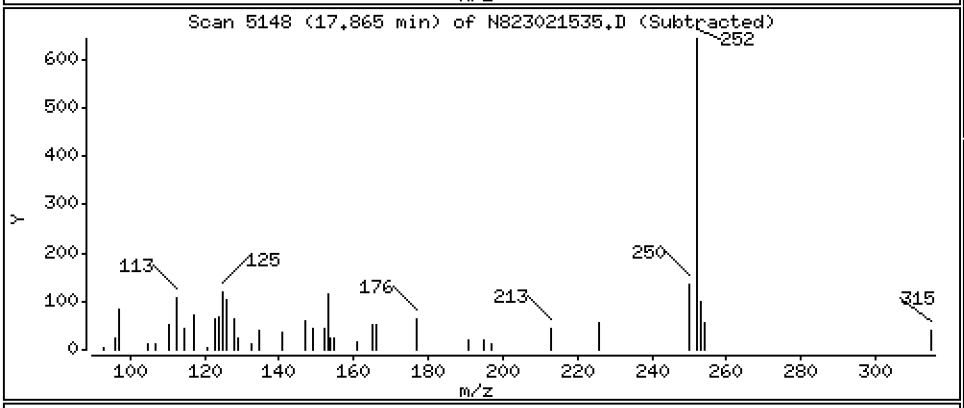
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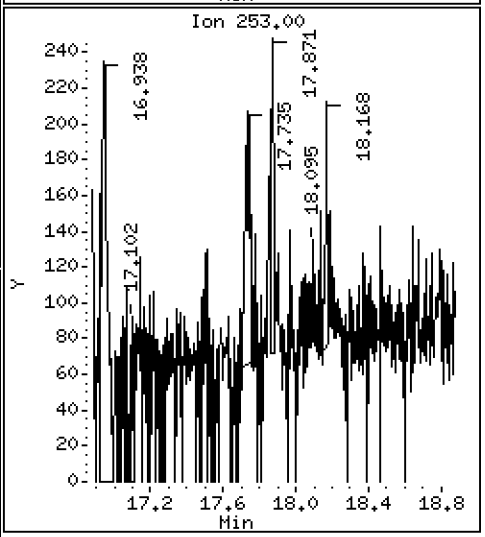
32 Benzo(a)pyrene

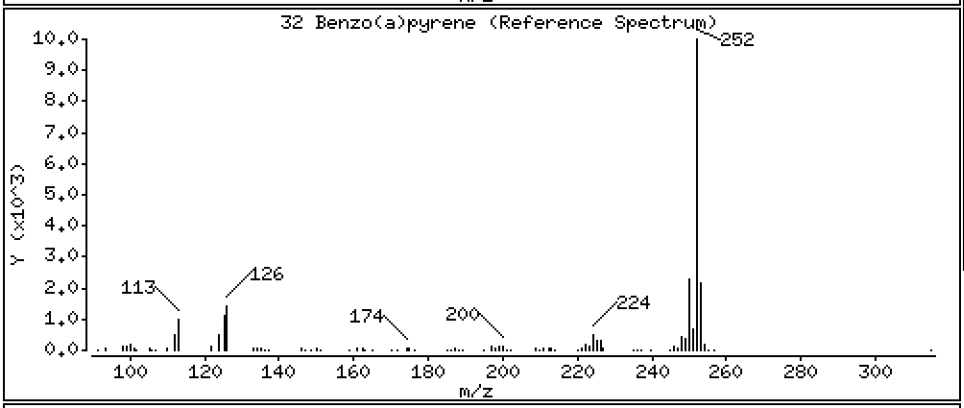
Concentration: 0.06893 ug/mL

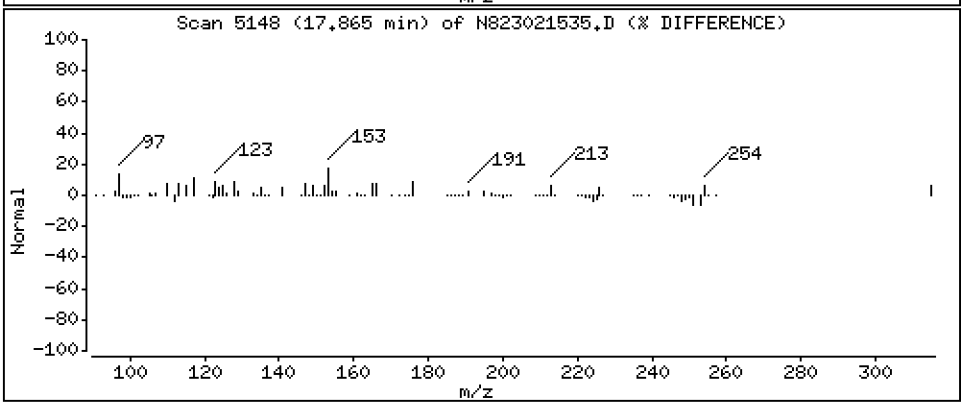












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Date : 16-FEB-2023 03:00

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-12

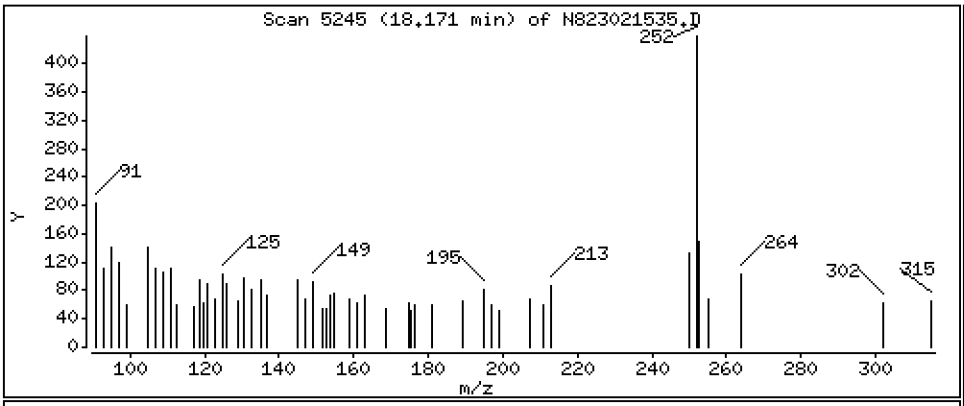
Operator: JZ

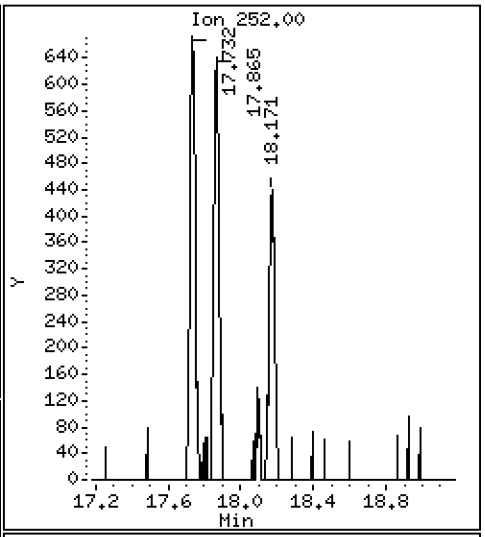
Column phase: Rxi-17sil

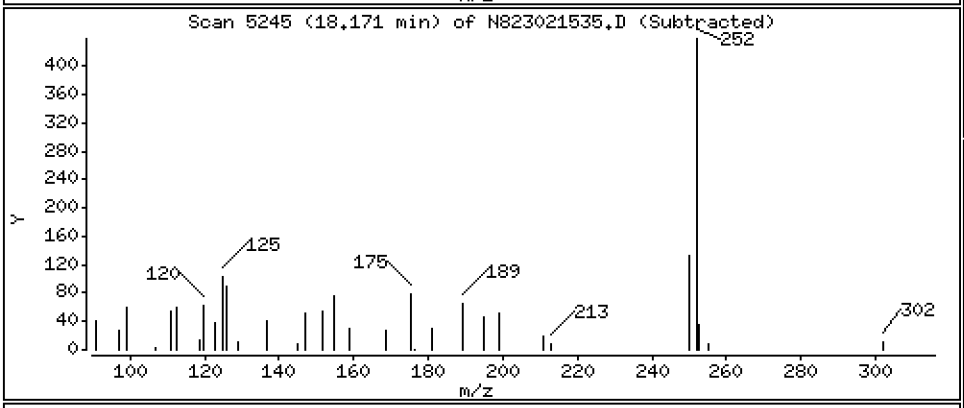
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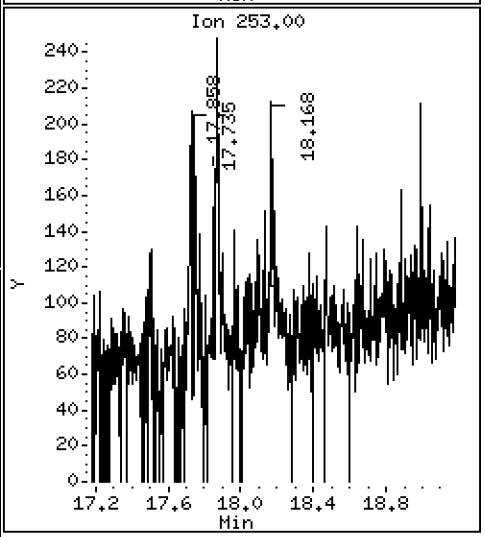
35 Perylene

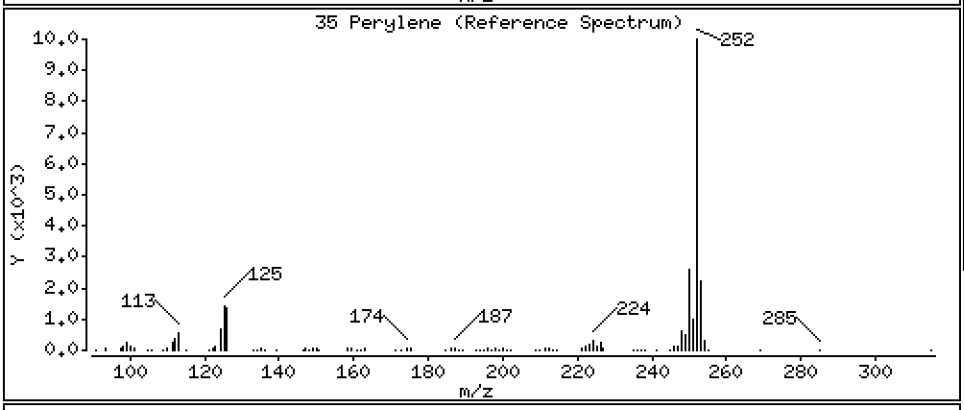
Concentration: 0.04476 ug/mL

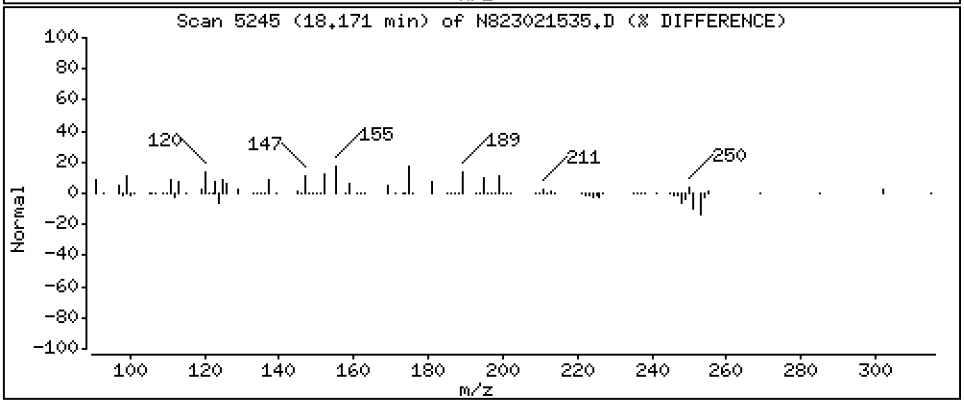












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Date : 16-FEB-2023 03:00

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-12

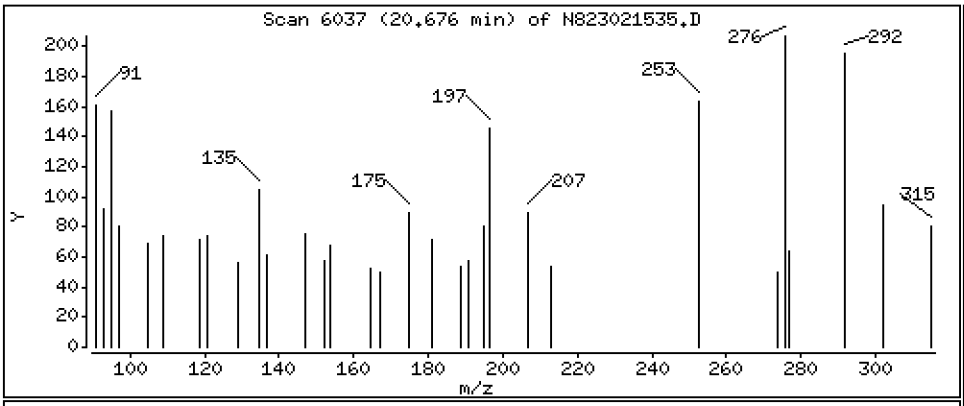
Operator: JZ

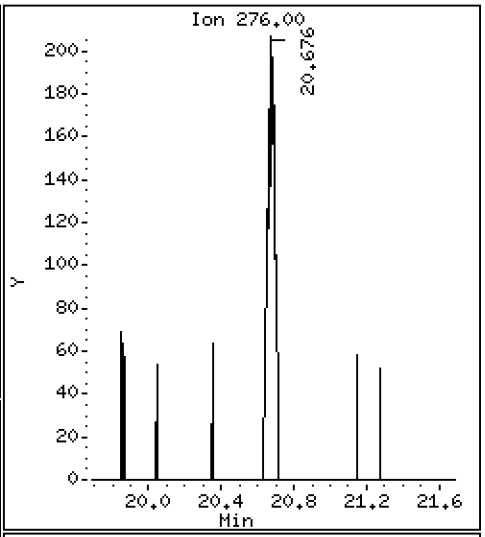
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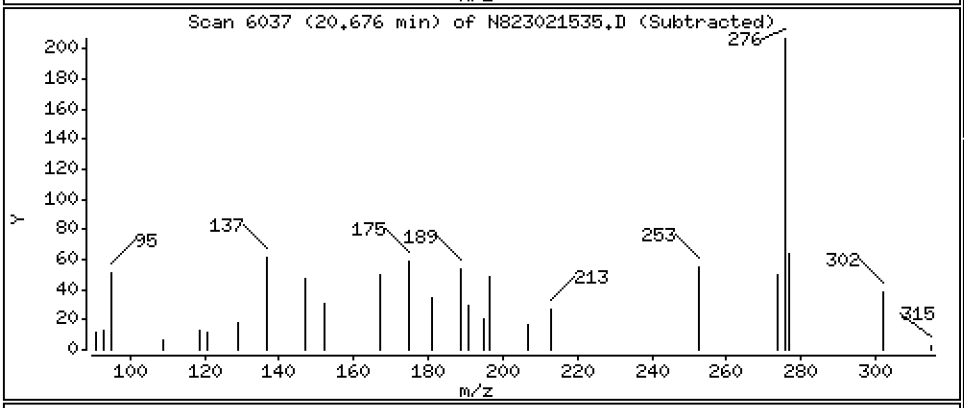
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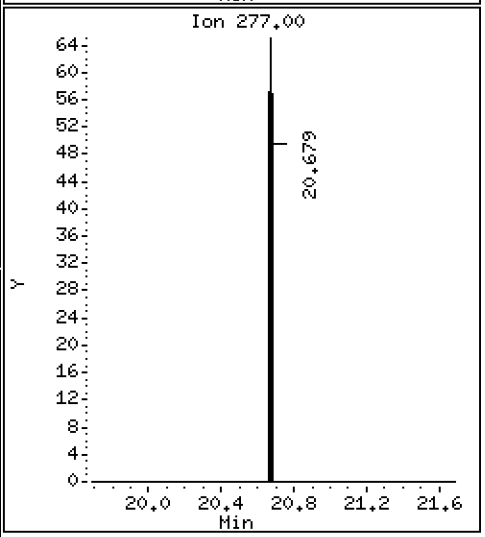
37 Indeno(1,2,3-cd)pyrene

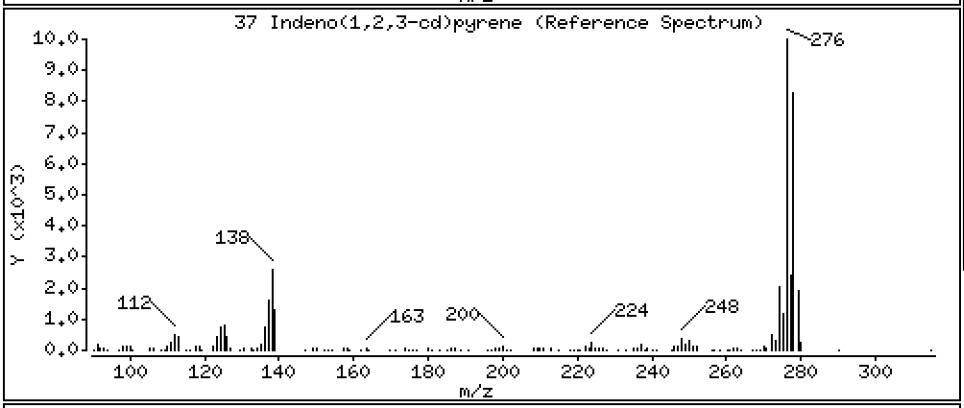
Concentration: 0.02655 ug/mL

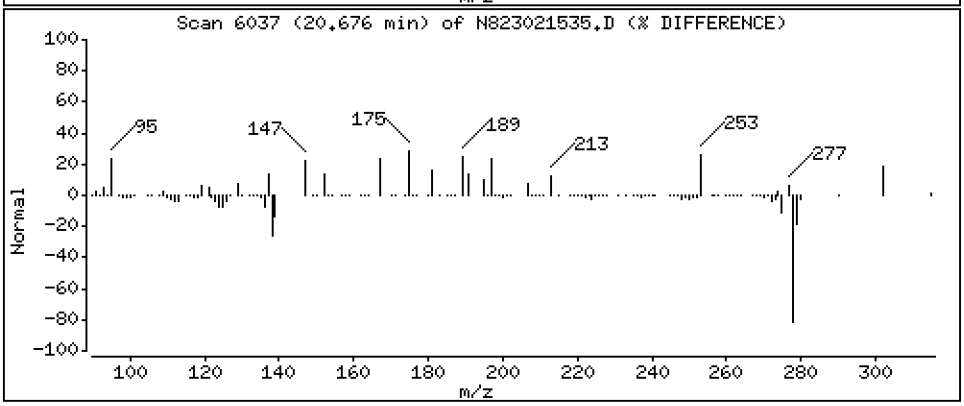












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021535.D

Date : 16-FEB-2023 03:00

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-12

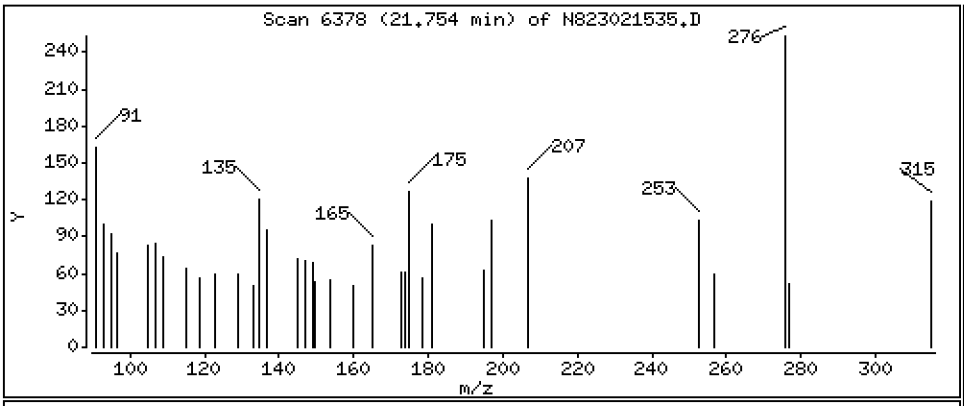
Operator: JZ

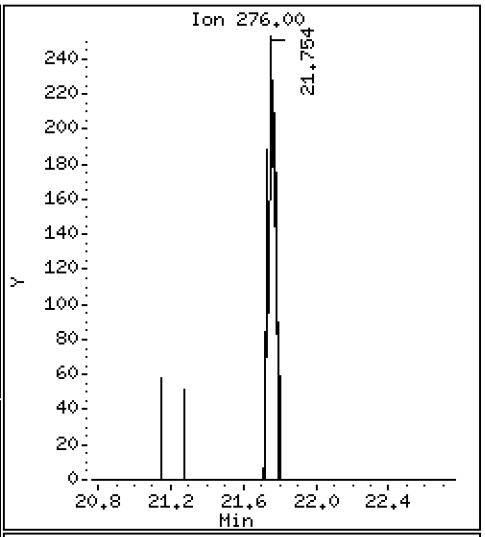
Column phase: Rxi-17sil

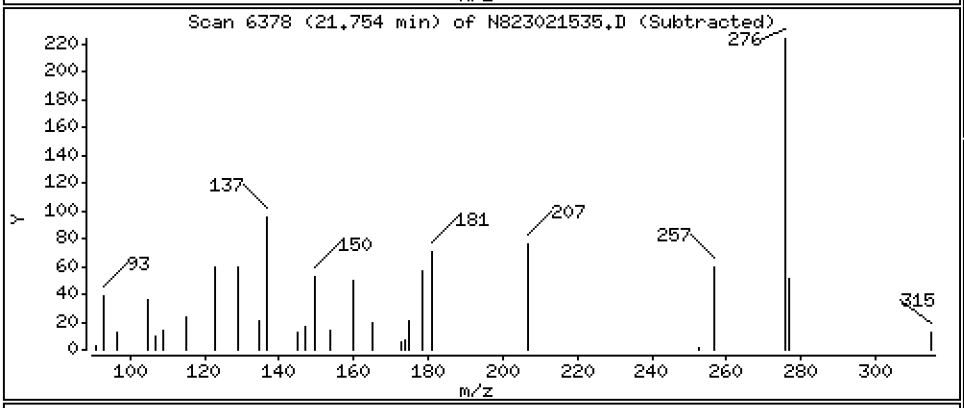
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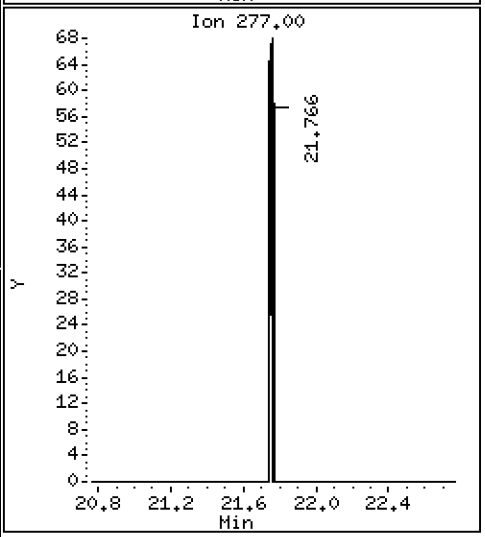
39 Benzo(g,h,i)perylene

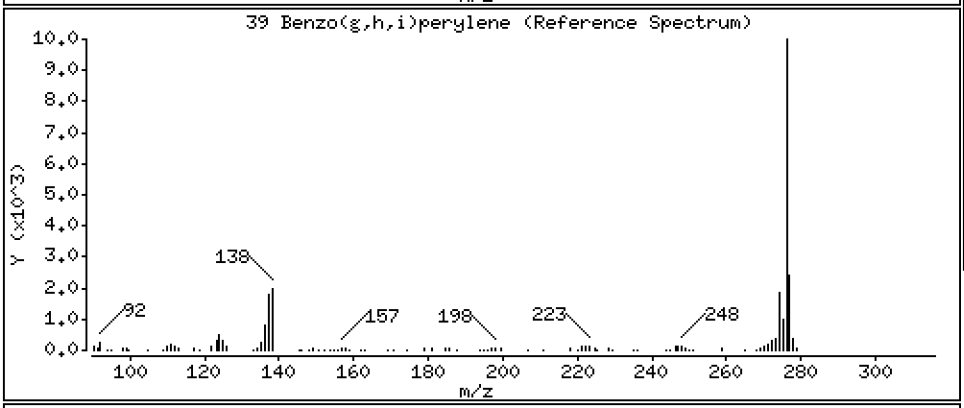
Concentration: 0.03271 ug/mL

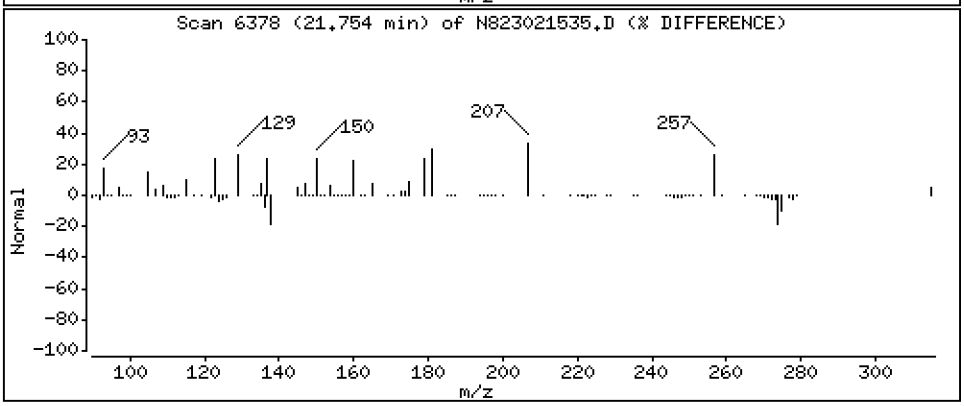












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230215A.b\N823021535.D
Lab Smp Id: 23A0626-12
Inj Date : 16-FEB-2023 03:00
Operator : JZ Inst ID: nt8.i
Smp Info : 23A0626-12
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 14:27 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.868	4.884	(1.000)	41700	2.00000	
	2 Naphthalene	128	4.897	4.913	(1.006)	94992	4.89933	4.899
$	3 2-Methylnaphthalene-d10	152	5.608	5.618	(1.152)	28484	2.50461	2.505
	4 2-Methylnaphthalene	141	5.652	5.665	(1.161)	11619	1.08947	1.089
	5 1-methylnaphthalene	141	5.852	5.865	(1.202)	6811	0.62926	0.6293
	9 Acenaphthylene	152	7.060	7.069	(0.985)	4868	0.24961	0.2496
*	10 Acenaphthene-d10	164	7.170	7.180	(1.000)	25827	2.00000	
	11 Acenaphthene	153	7.221	7.227	(1.007)	463	0.03543	0.03543(M)
	12 Dibenzofuran	168	7.373	7.379	(1.028)	771	0.03885	0.03885
	14 Fluorene	166	7.850	7.860	(1.095)	1403	0.09101	0.09101
*	15 Phenanthrene-d10	188	9.213	9.223	(1.000)	49249	2.00000	
	16 Phenanthrene	178	9.251	9.257	(1.004)	2427	0.10089	0.1009
	17 Anthracene	178	9.292	9.298	(1.009)	764	0.03496	0.03496
	19 Carbazole	167	9.804	9.814	(1.064)	166	0.00829	0.008286
	22 Fluoranthene	202	11.034	11.041	(1.198)	1287	0.04915	0.04915(M)
$	21 Fluoranthene-d10	212	10.996	11.003	(1.194)	70166	3.22922	3.229
	23 Pyrene	202	11.553	11.559	(0.815)	43494	1.64888	1.649
	24 Benzo(a)anthracene	228	14.054	14.067	(0.991)	759	0.03175	0.03175
*	25 Chrysene-d12	240	14.183	14.196	(1.000)	42546	2.00000	
	27 Chrysene	228	14.259	14.266	(1.005)	1404	0.05516	0.05516
	28 Benzo(b)fluoranthene	252	16.808	16.821	(0.929)	2167	0.09860	0.09860
	29 Benzo(k)fluoranthene	252	16.871	16.881	(0.932)	1085	0.05040	0.05040
	30 Benzo(j)fluoranthene	252	16.947	16.960	(0.937)	1014	0.05232	0.05232
	31 Total Benzofluoranthenes	252	16.808	16.821	(0.929)	4266	0.20496	0.2050(M)
	34 Benzo(e)pyrene	252	Compound Not Detected.					
	32 Benzo(a)pyrene	252	17.864	17.877	(0.987)	1333	0.06893	0.06893
*	33 Perylene-d12	264	18.095	18.108	(1.000)	37735	2.00000	
	35 Perylene	252	18.171	18.180	(1.004)	929	0.04476	0.04476
$	36 Dibenzo(a,h)anthracene-d14	292	20.536	20.546	(1.135)	52869	3.57576	3.576
	37 Indeno(1,2,3-cd)pyrene	276	20.675	20.688	(1.143)	585	0.02655	0.02655
	38 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	39 Benzo(g,h,i)perylene	276	21.753	21.766	(1.202)	653	0.03271	0.03271(M)

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021535.D
Lab Smp Id: 23A0626-12
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 17:35
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	42744	21372	85488	41700	-2.44
10 Acenaphthene-d10	25236	12618	50472	25827	2.34
15 Phenanthrene-d10	47809	23905	95618	49249	3.01
25 Chrysene-d12	40868	20434	81736	42546	4.11
33 Perylene-d12	43096	21548	86192	37735	-12.44

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.87	-0.33
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.21	-0.10
25 Chrysene-d12	14.20	13.70	14.70	14.18	-0.09
33 Perylene-d12	18.11	17.61	18.61	18.10	-0.07

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021535.D

Lab ID: 23A0626-12
nt8.i, 20230215A.b\FSIMPNA230119.m,   16-FEB-2023 03:00

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

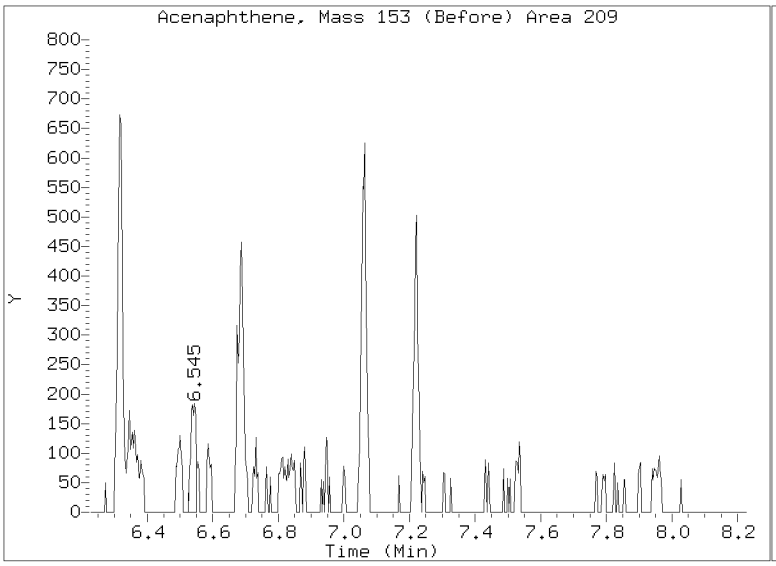
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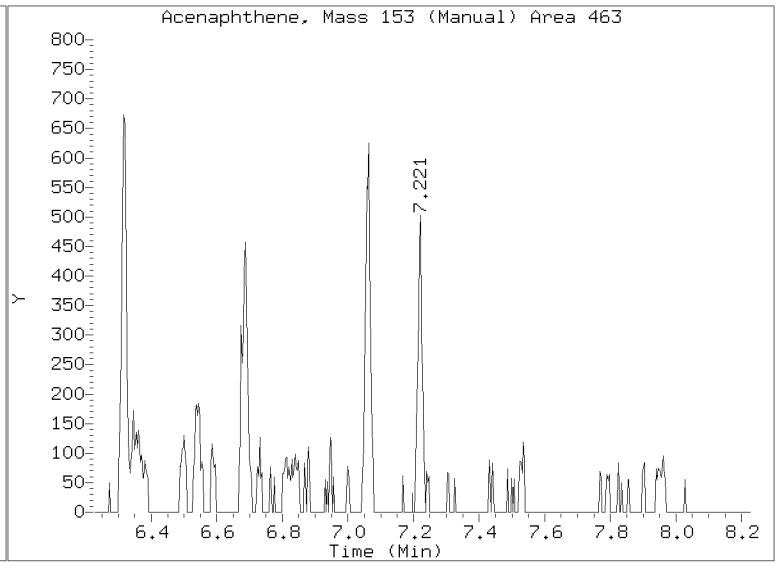
Exception: Benzo(e)pyrene 0.0800

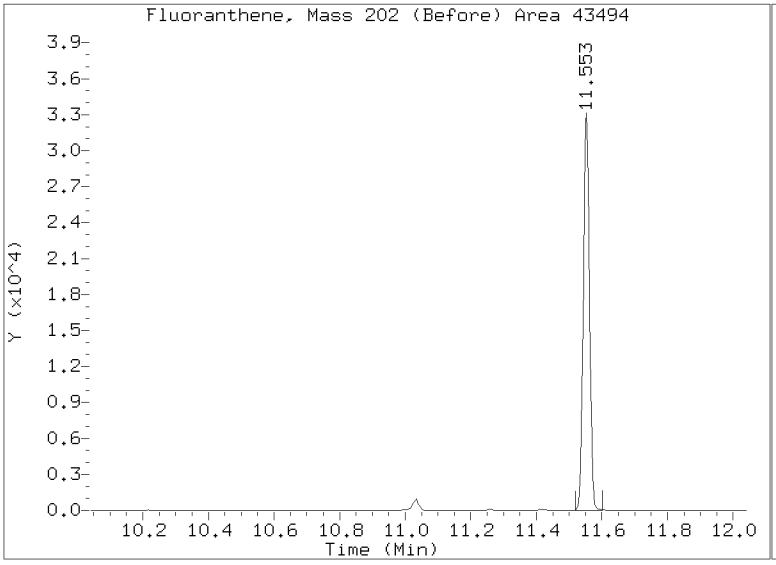
* Only compounds listed in the work order have been verified by the analyst *

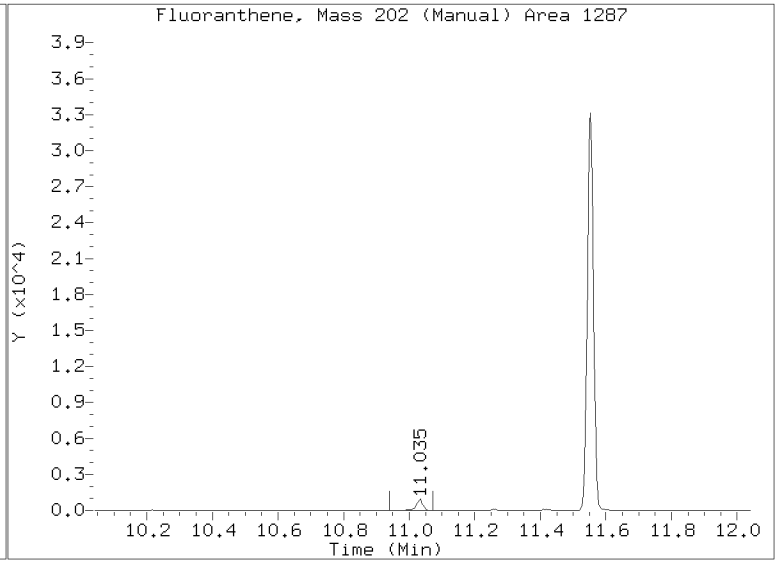
Quant Ion Manual Peak Adjustment Report

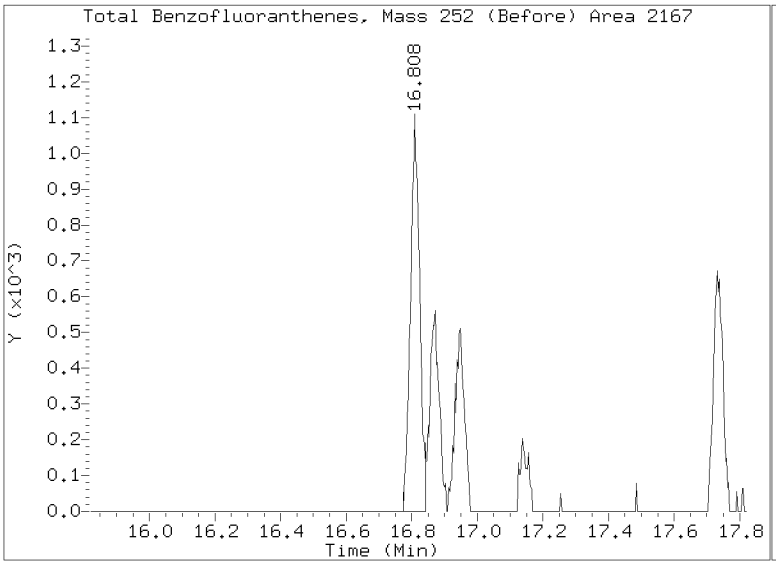
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Injection Date: 16-FEB-2023 03:00
Lab ID:23A0626-12 Client ID:
Report Date: 02/19/2023 16:25

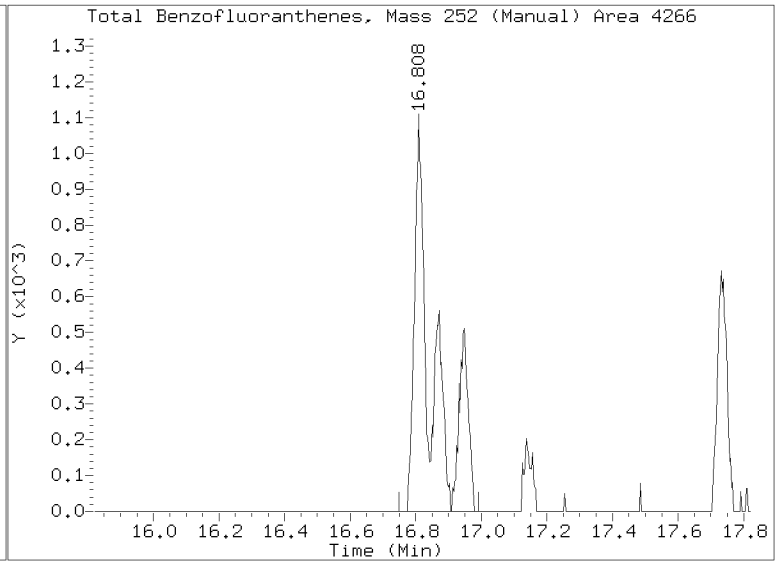






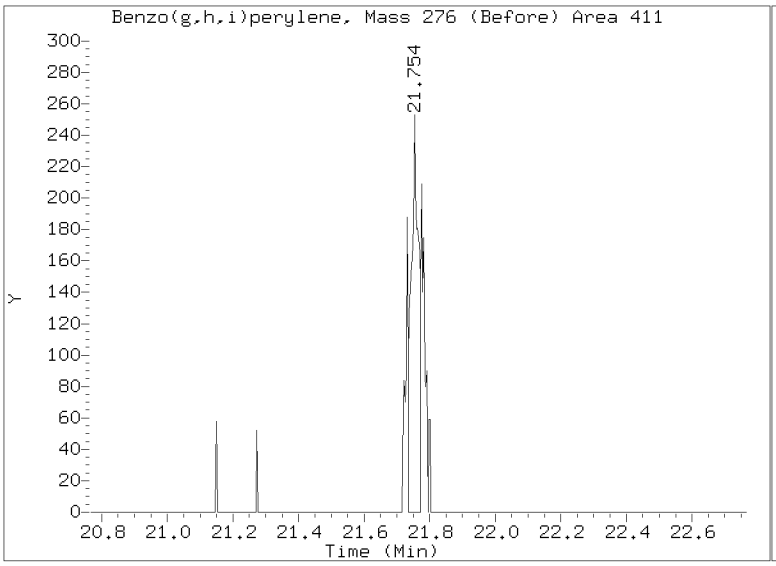


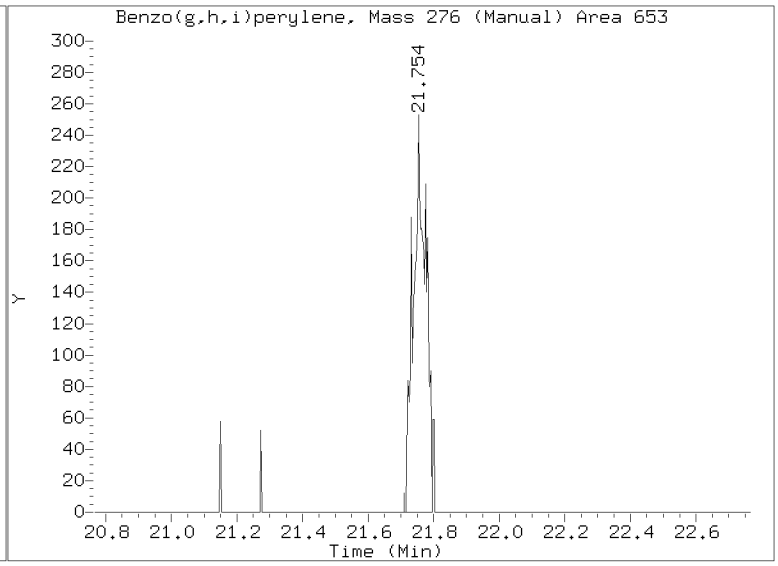




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230215A.b/N823021535.D
Injection Date: 16-FEB-2023 03:00
Lab ID:23A0626-12 Client ID:
Report Date: 02/19/2023 16:25





Analytical Resources, LLC
Analytical Chemists and Consultants

LY-DUP_0-10

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23A0626-29 A	SDG:	23A0626
Sampled:	01/26/23 12:00	Prepared:	02/07/23 17:05	File ID:	N823021536.D
% Solids:	80.63	Preparation:	EPA 3546 (Microwave)	Analyzed:	02/16/23 03:27
Batch:	BLB0144	Sequence:	SLB0206	Initial/Final:	12.54 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	GPC, Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	28.7		0.81	4.95
218-01-9	Chrysene	1	62.7		1.04	4.95
205-99-2	Benzo(b)fluoranthene	1	52.8		1.36	4.95
207-08-9	Benzo(k)fluoranthene	1	26.7		0.75	4.95
50-32-8	Benzo(a)pyrene	1	29.2		0.61	4.95
193-39-5	Indeno(1,2,3-cd)pyrene	1	13.1		1.04	4.95
53-70-3	Dibenzo(a,h)anthracene	1	4.06	J	0.88	4.95
191-24-2	Benzo(g,h,i)perylene	1	13.9		1.05	4.95

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	148.35	117	79.0	32 - 120	
Dibenzo[a,h]anthracene-d14	148.35	195	132	21 - 133	
Fluoranthene-d10	148.35	166	112	36 - 134	

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Date : 16-FEB-2023 03:27

Client ID:

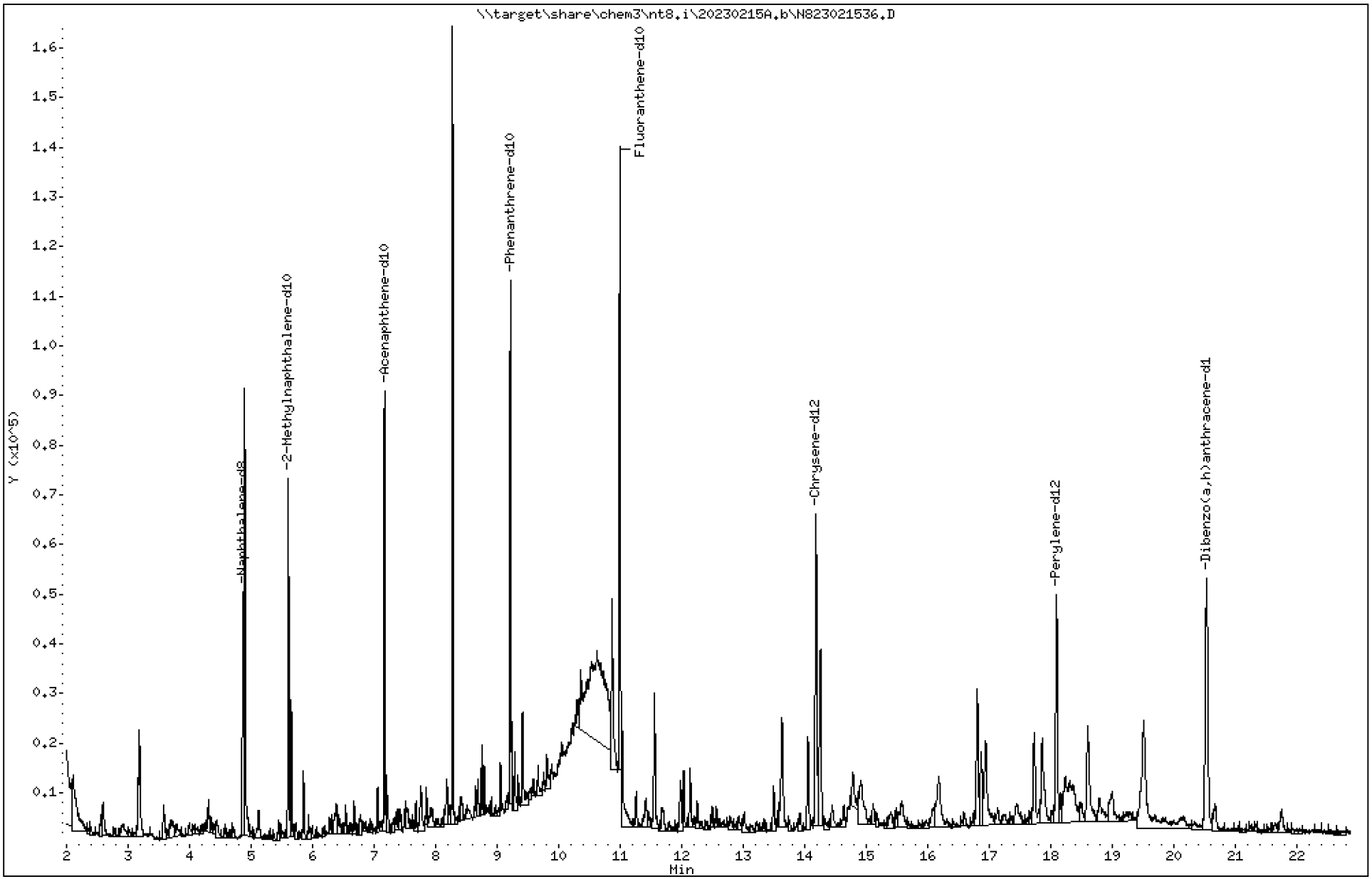
Instrument: nt8.i

Sample Info: 23A0626-29

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 134 of 1233

Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021536.D

Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

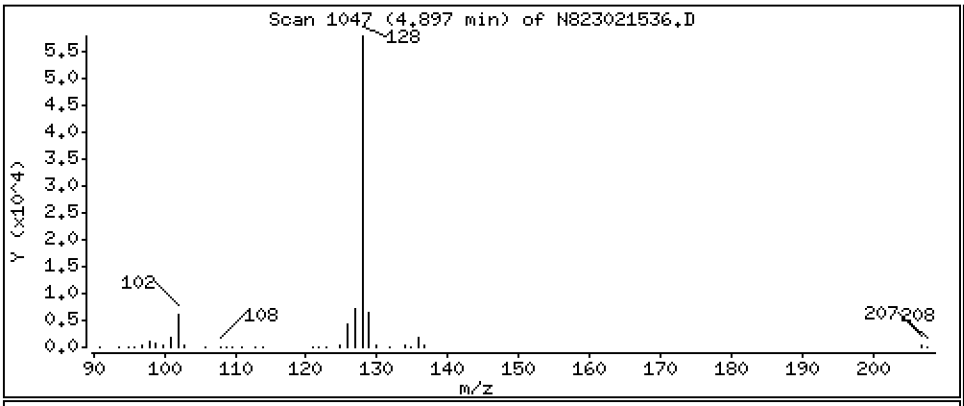
Operator: JZ

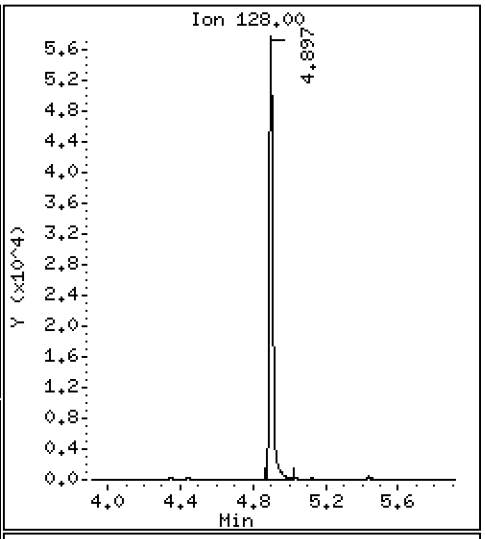
Column phase: Rxi-17sil

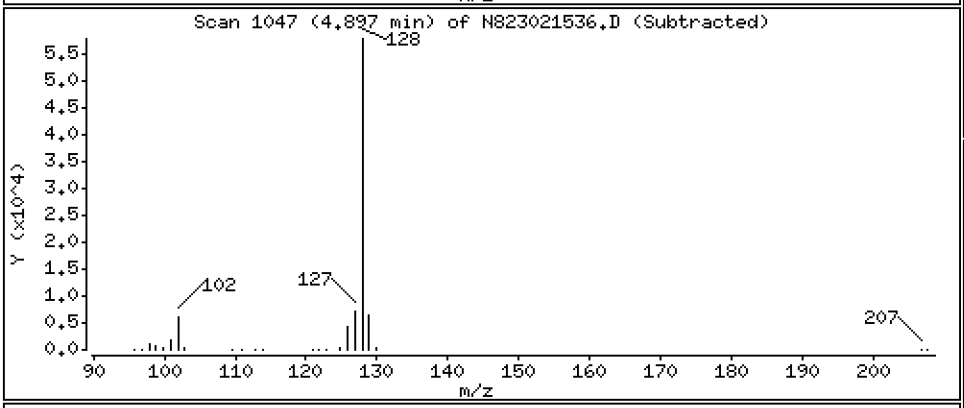
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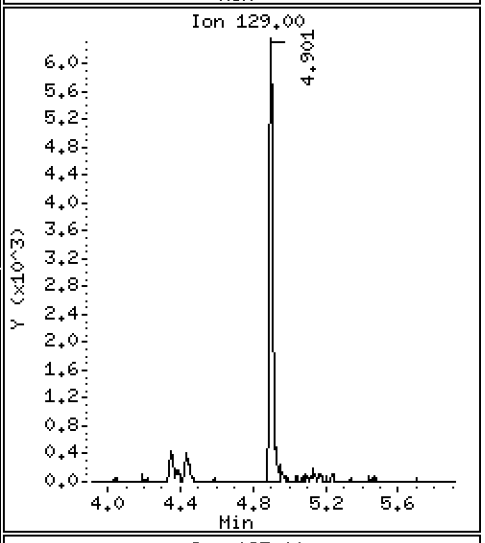
2 Naphthalene

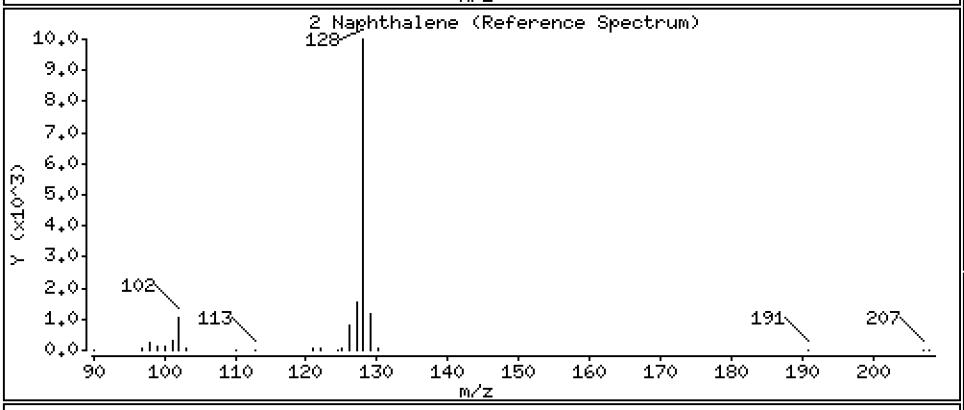
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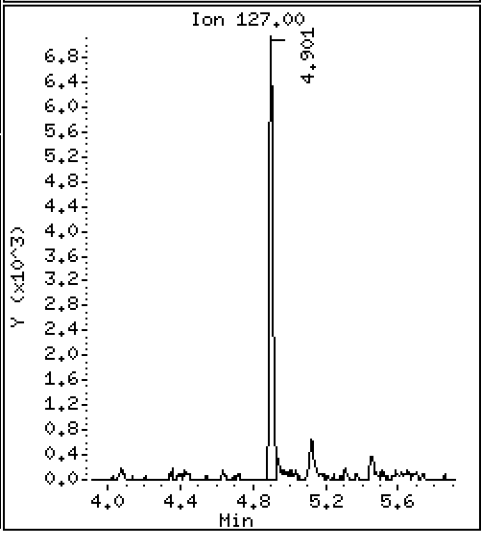


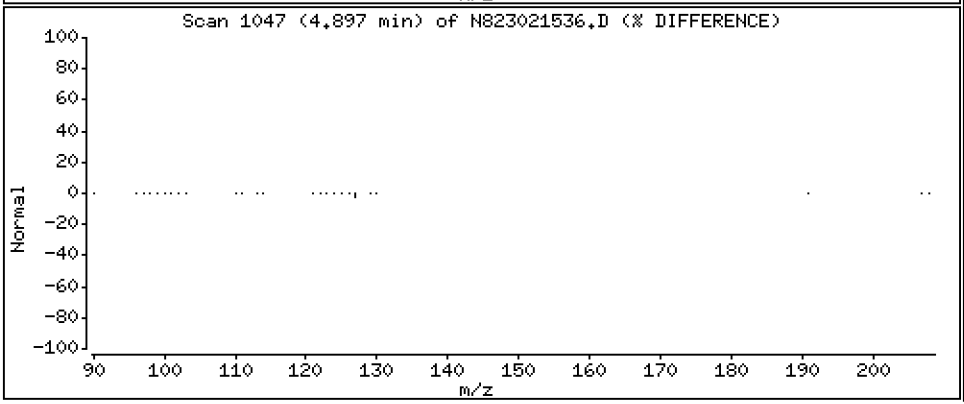












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Sample Info: 23A0626-29

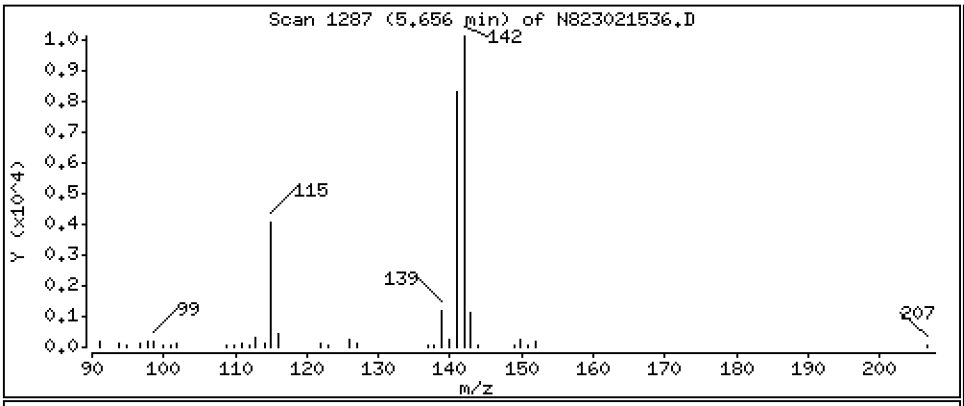
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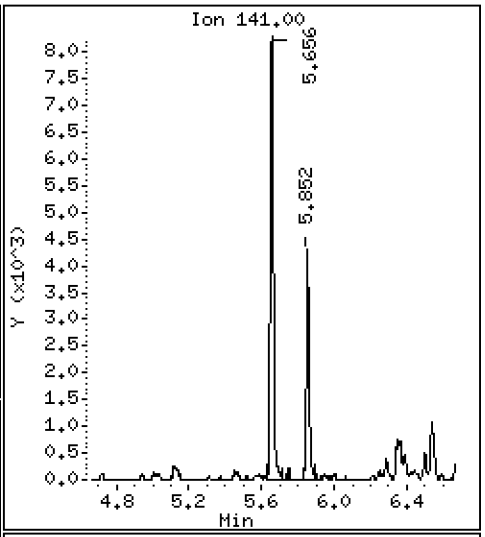
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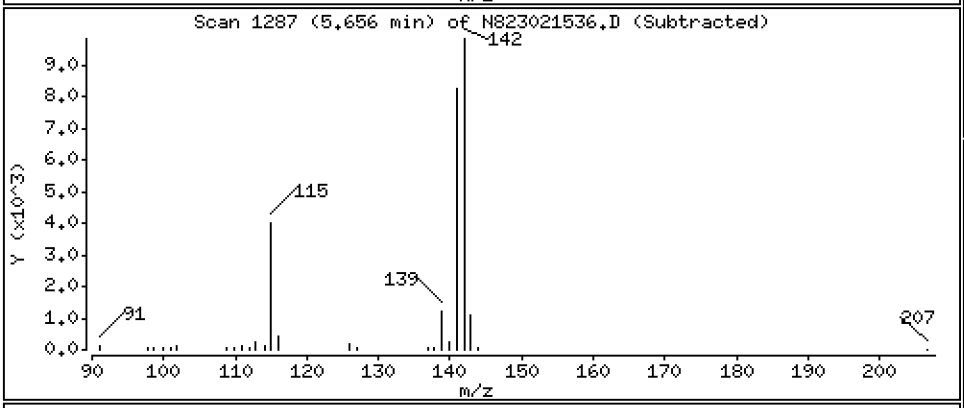
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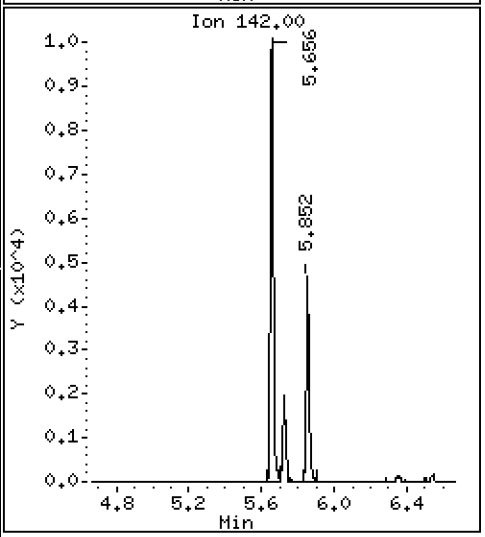
4 2-Methylnaphthalene

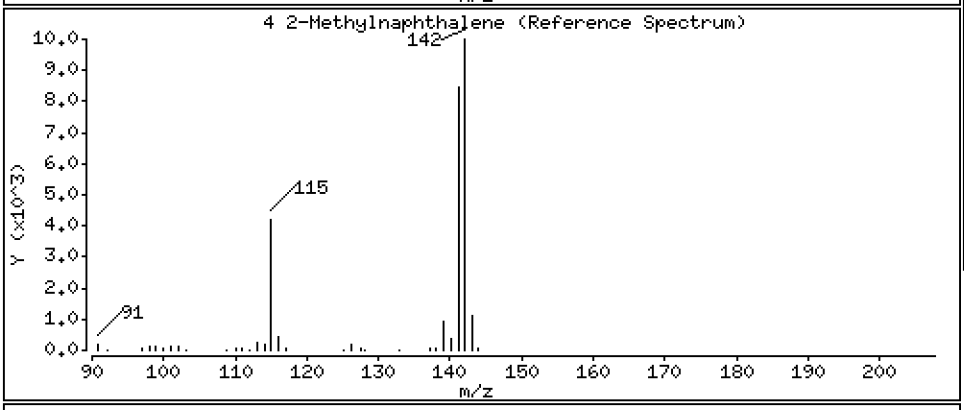
Concentration: 0.8732 ug/mL

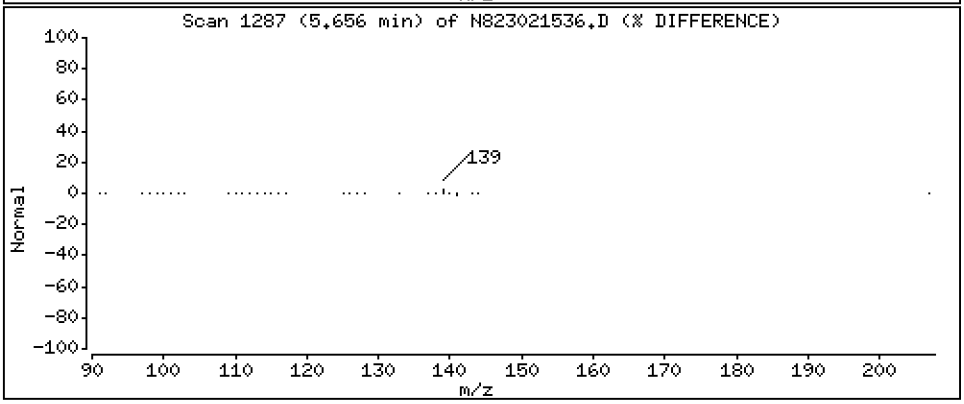












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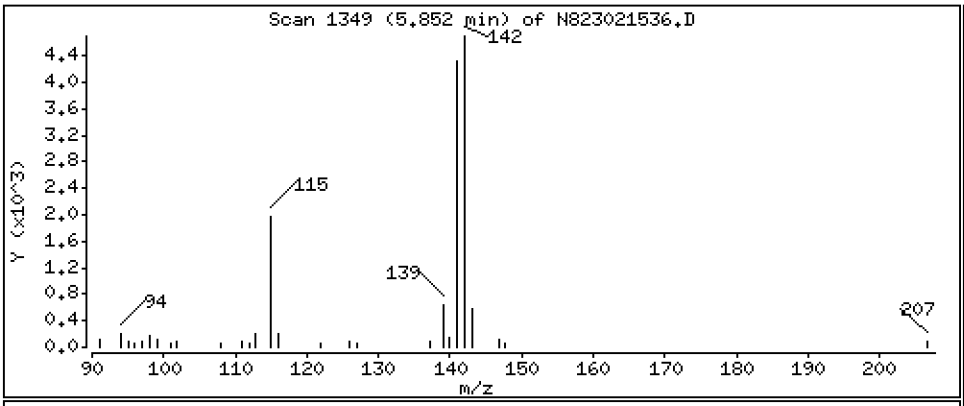
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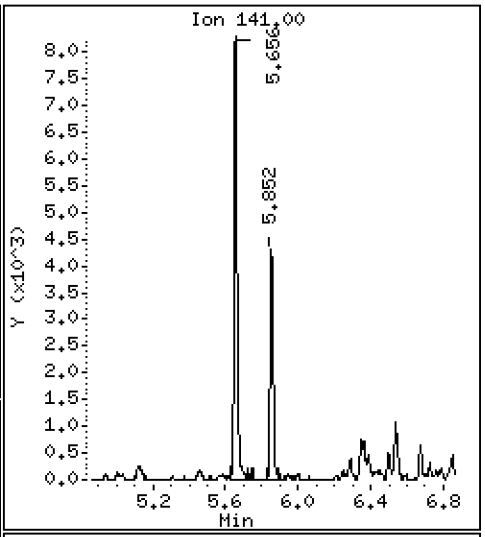
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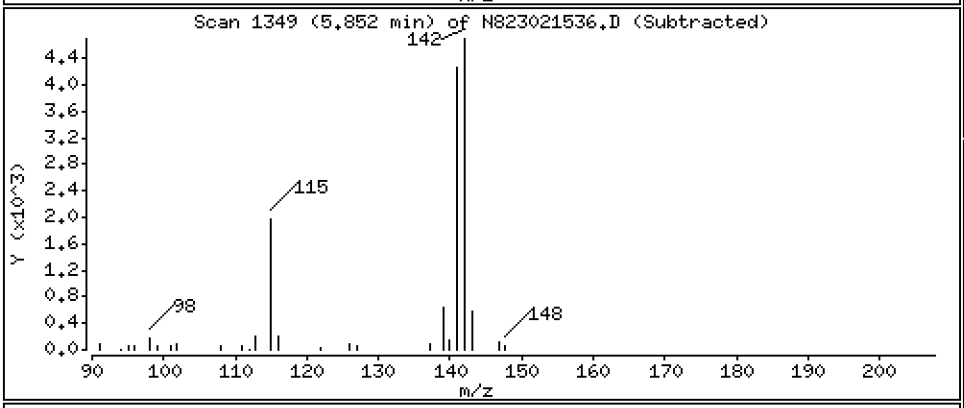
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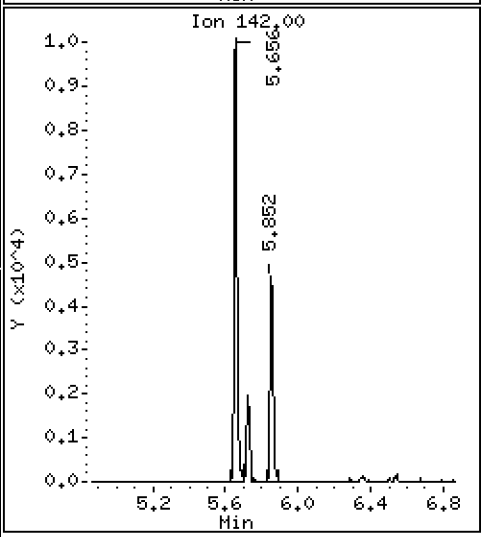
5 1-methylnaphthalene

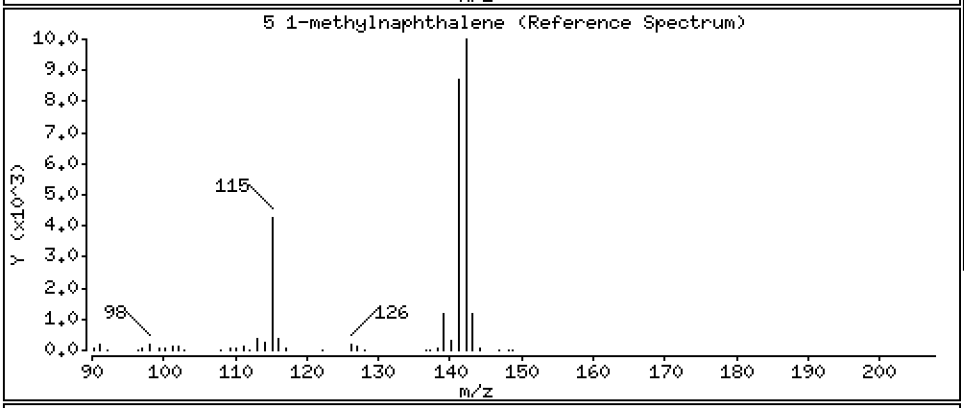
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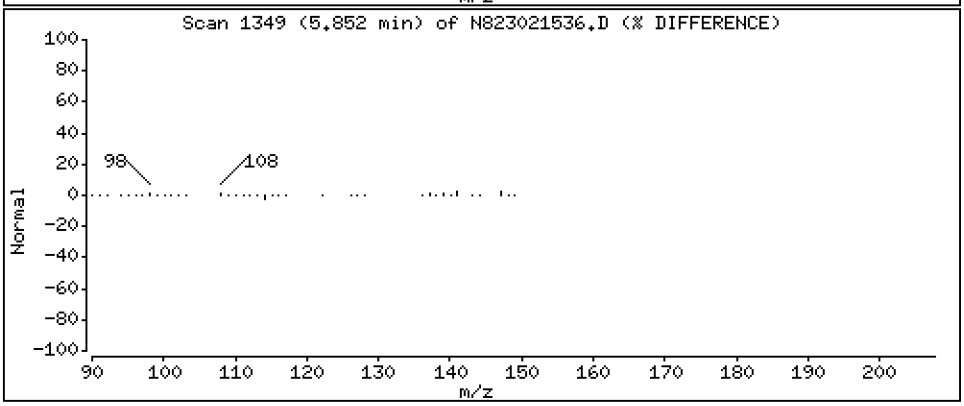












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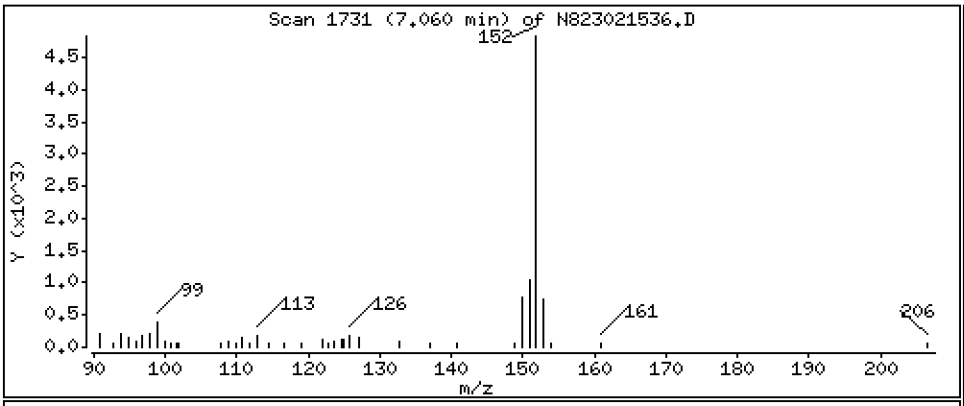
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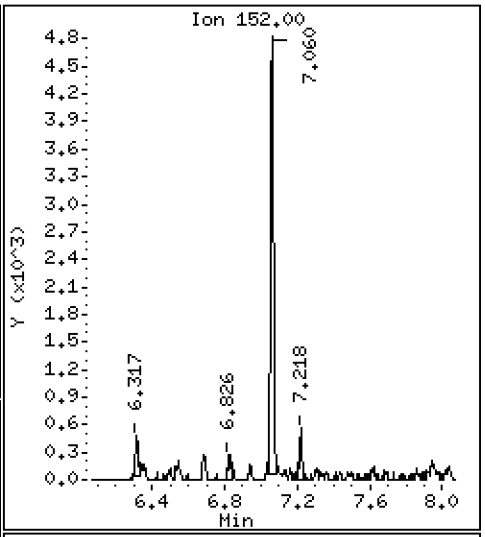
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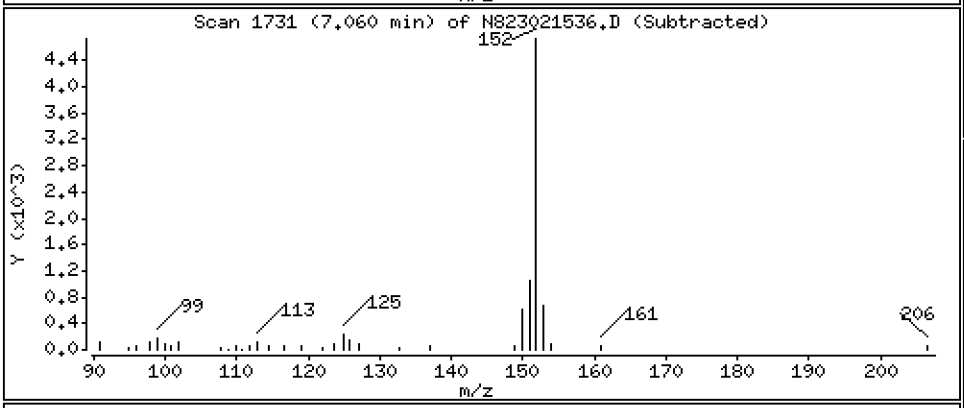
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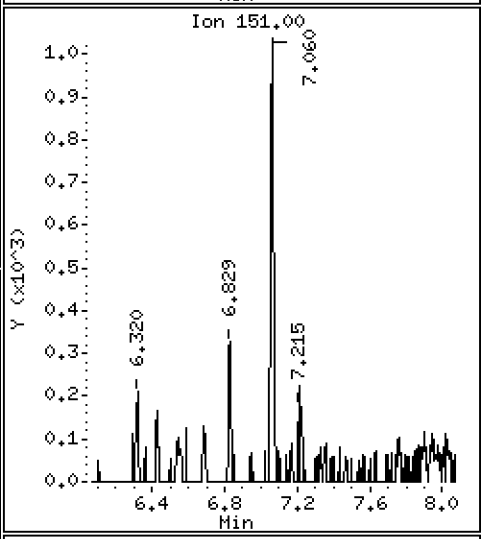
9 Acenaphthylene

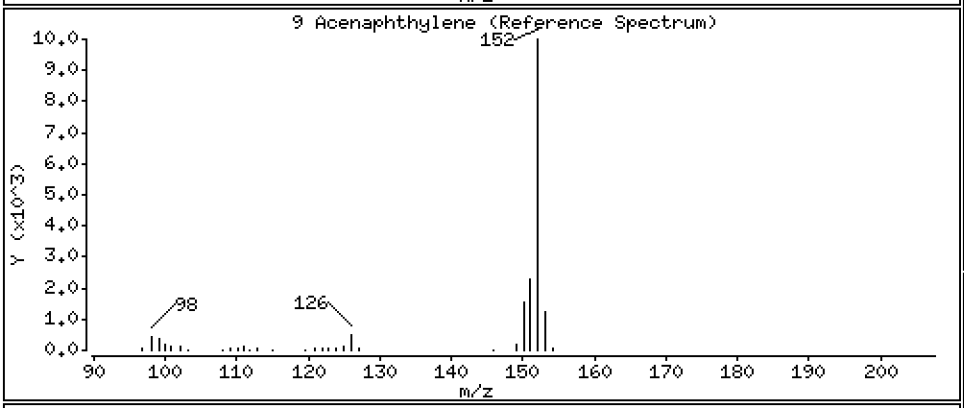
Concentration: 0.2488 ug/mL

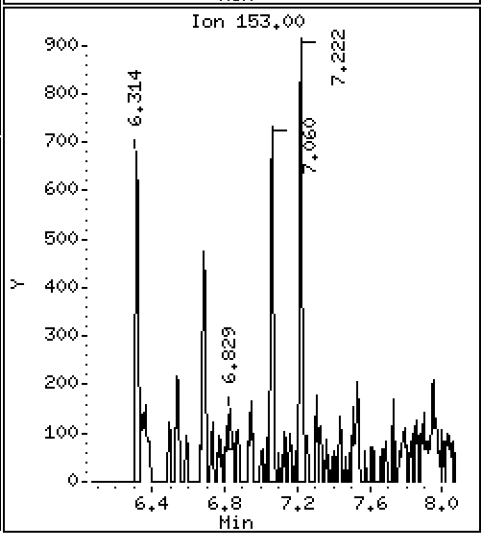


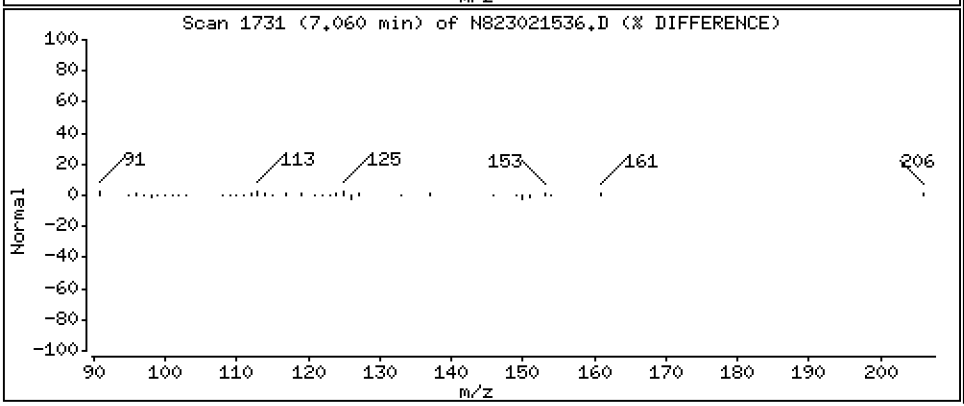












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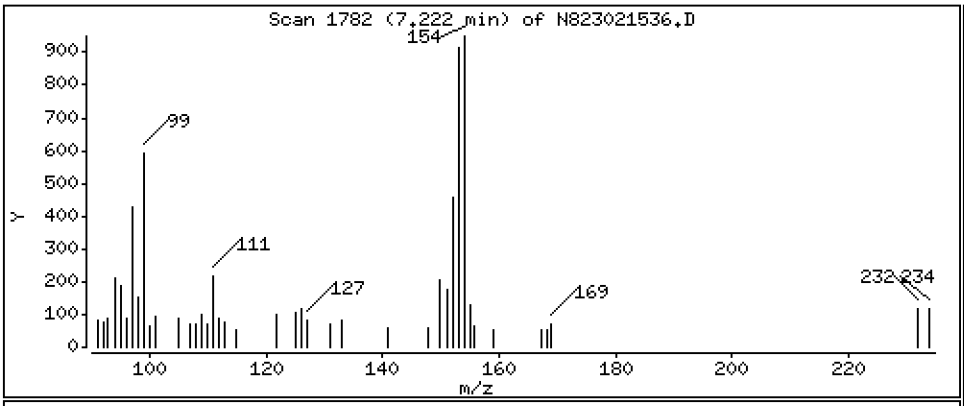
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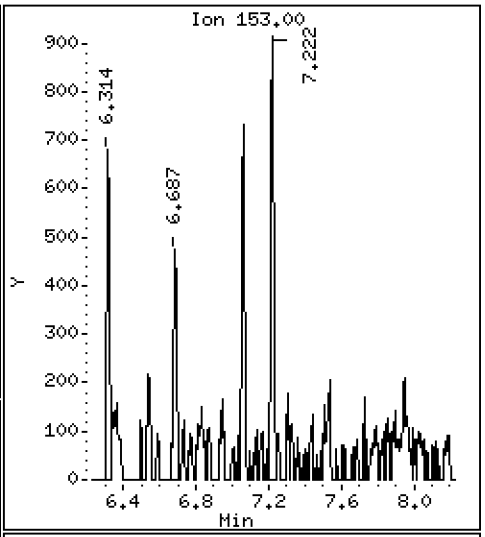
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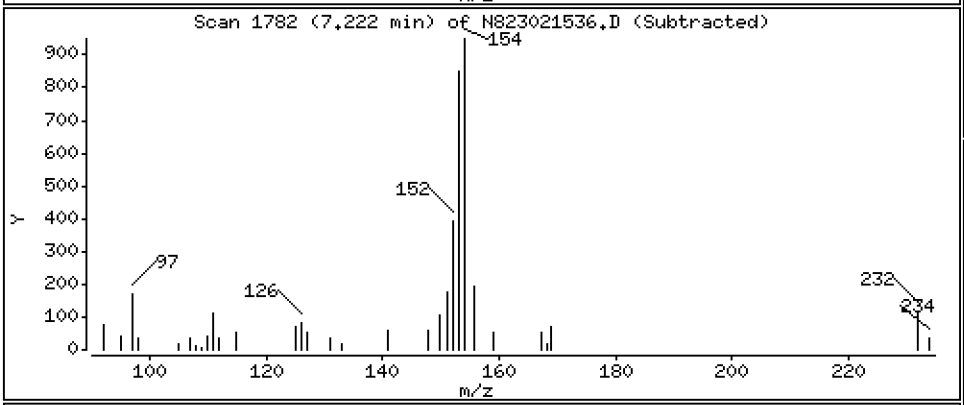
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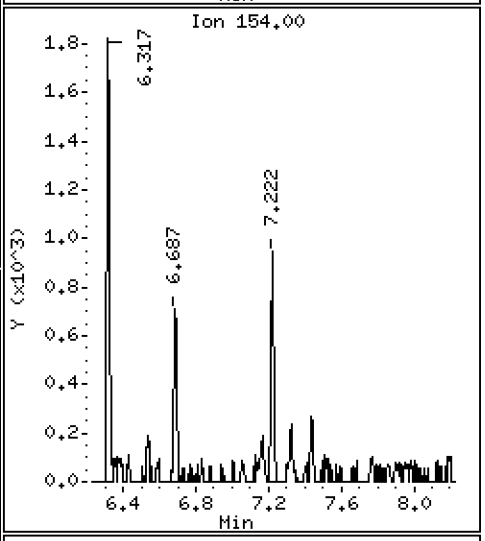
11 Acenaphthene

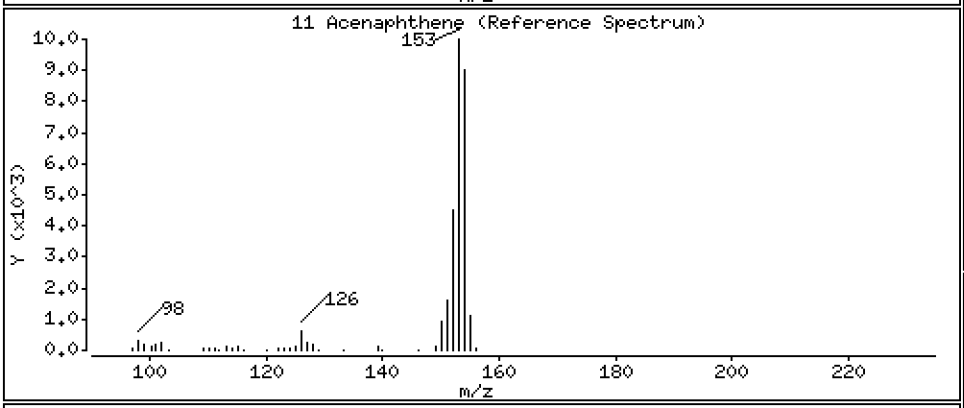
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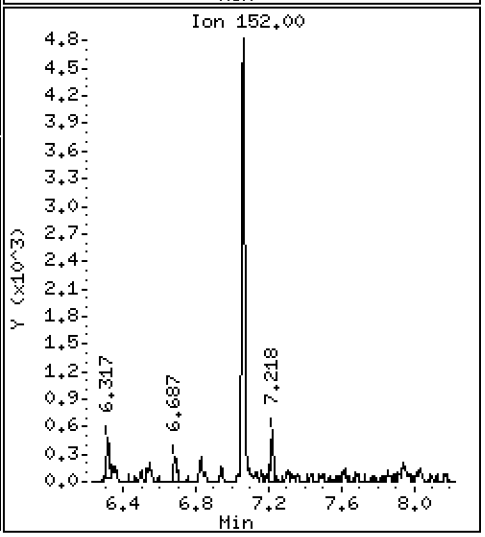


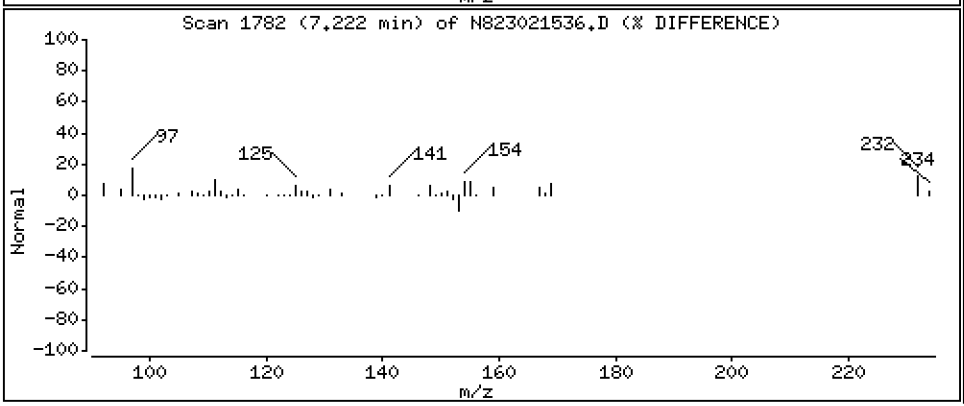












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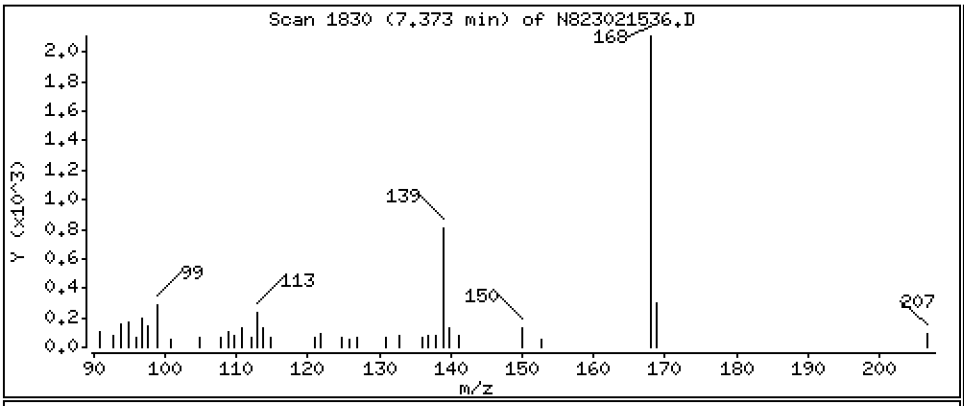
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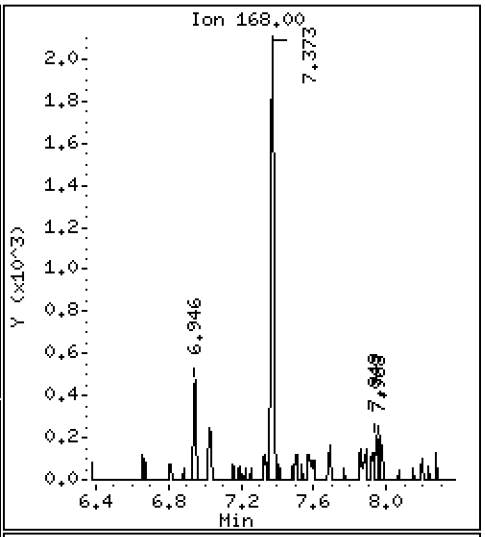
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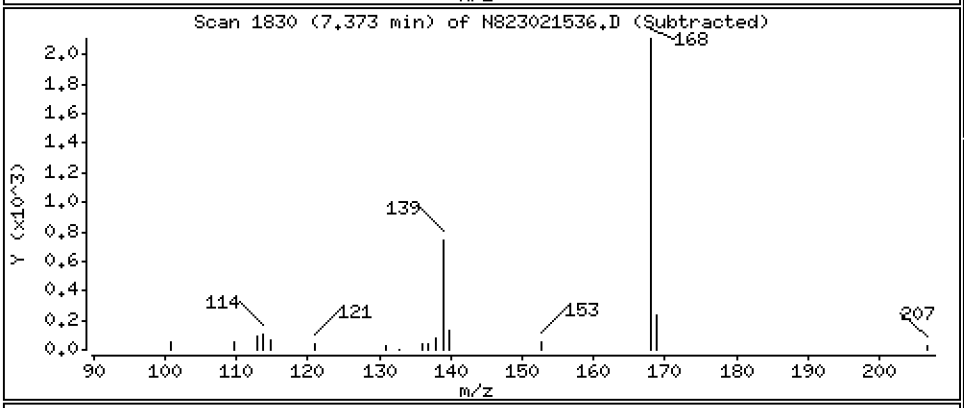
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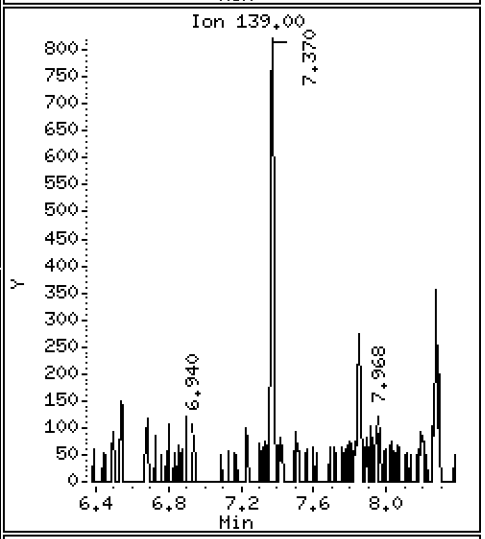
12 Dibenzofuran

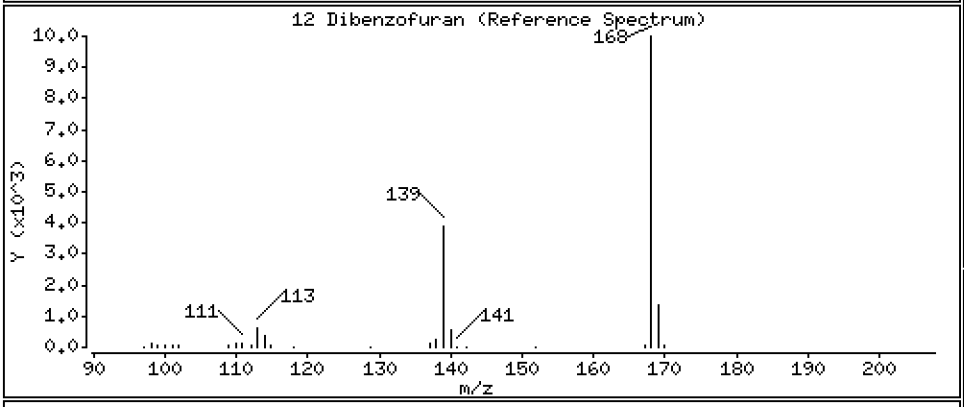
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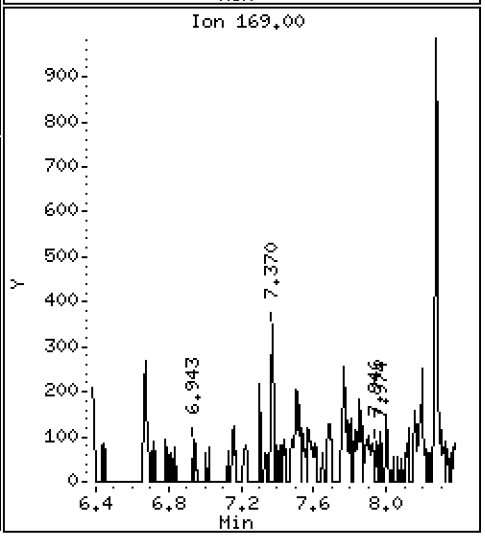


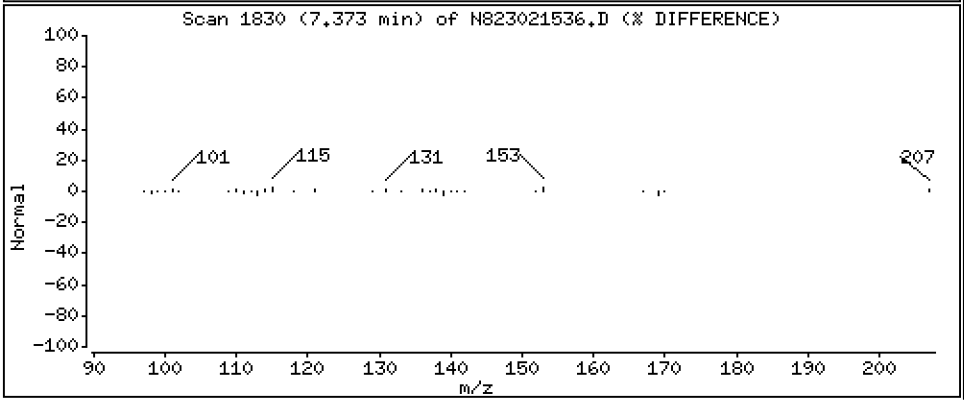












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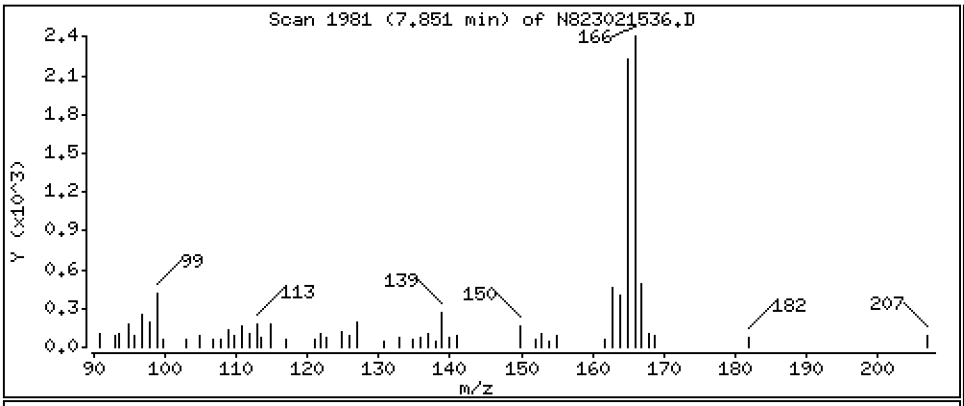
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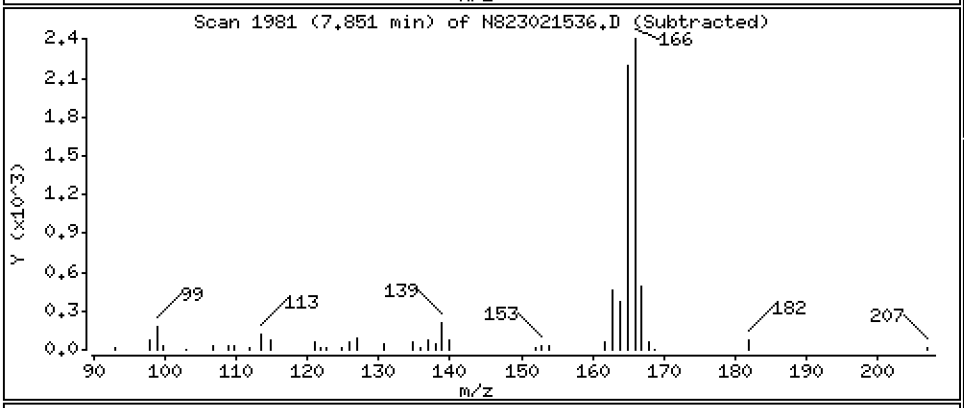
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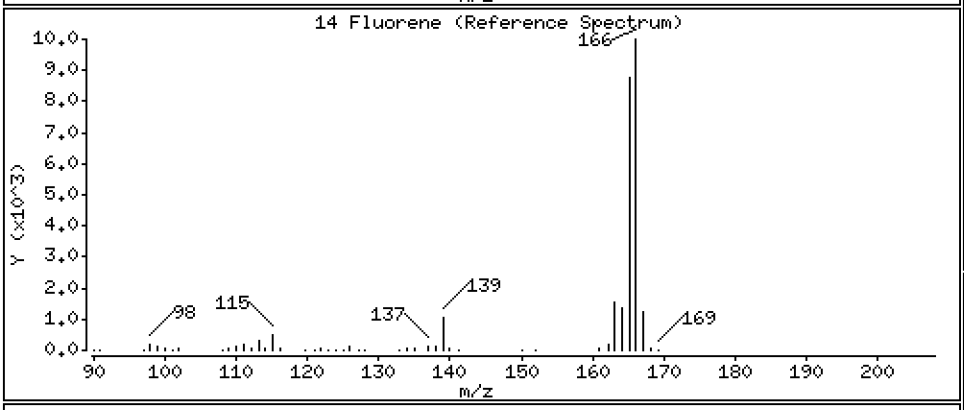
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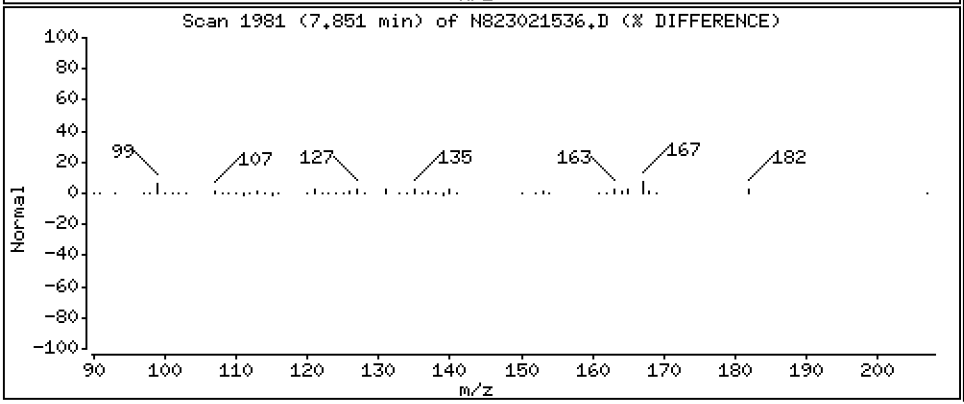
14 Fluorene

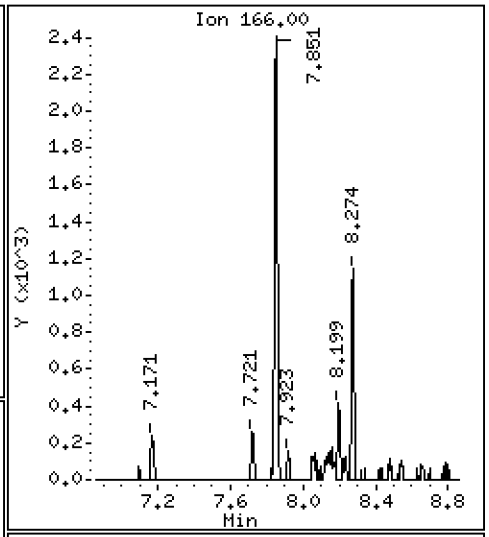
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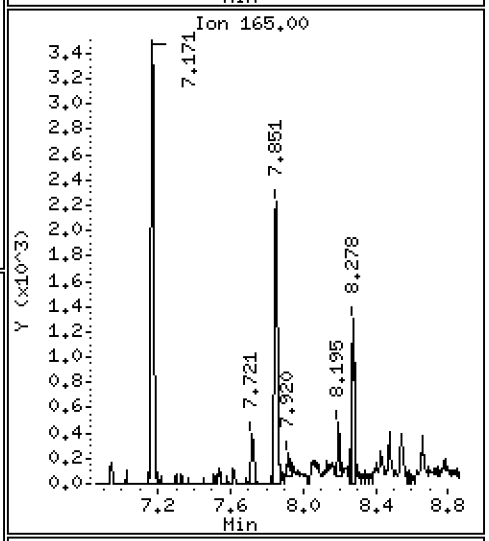


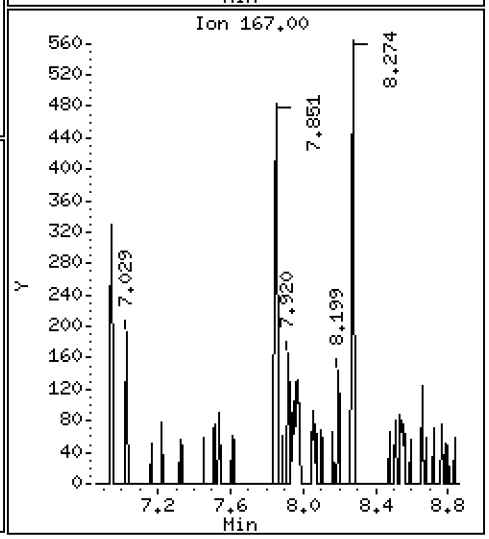












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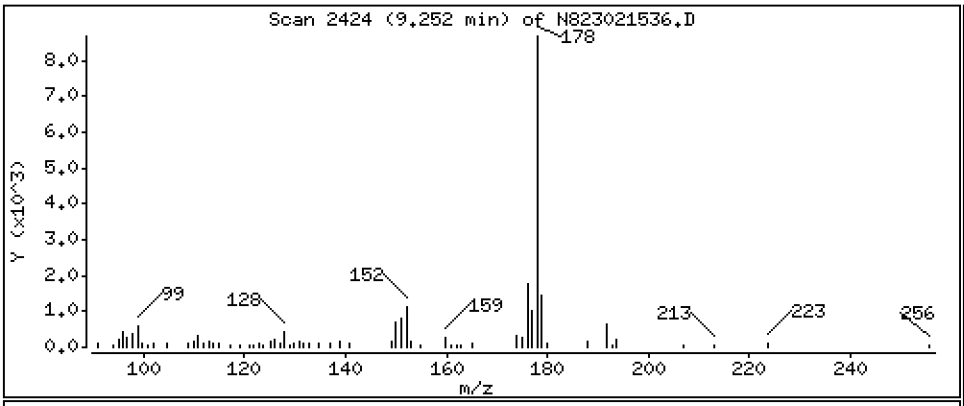
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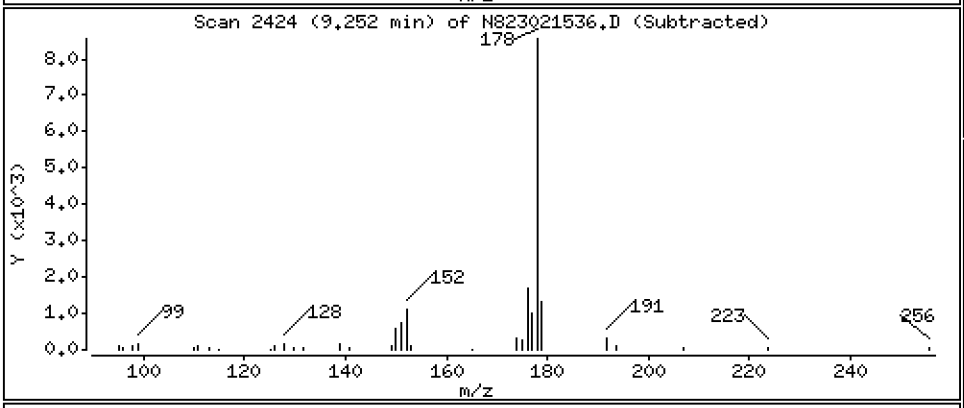
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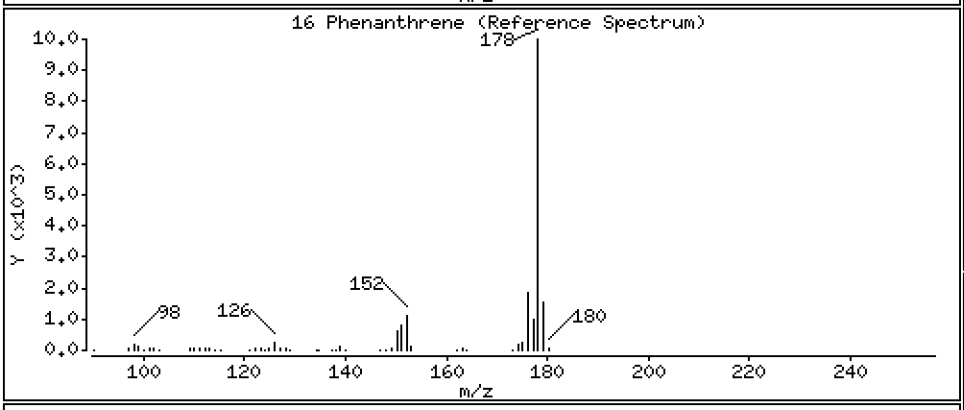
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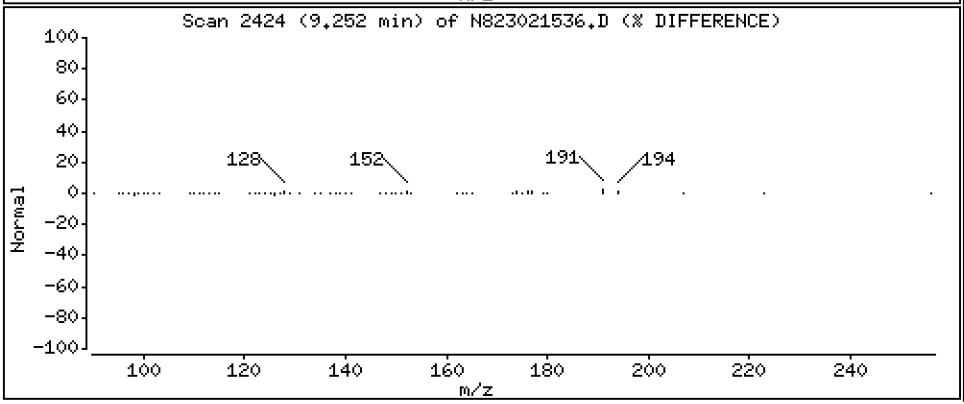
16 Phenanthrene

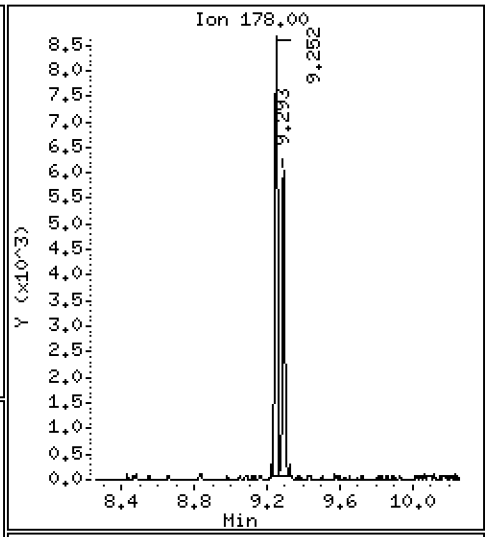
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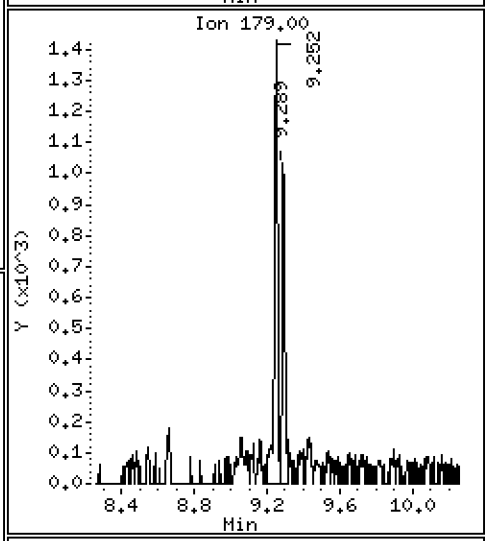


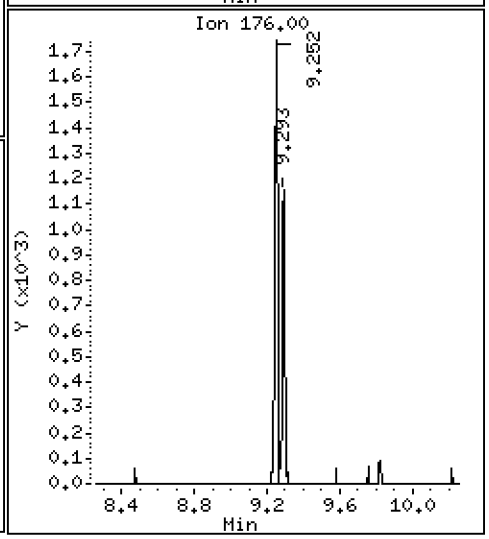












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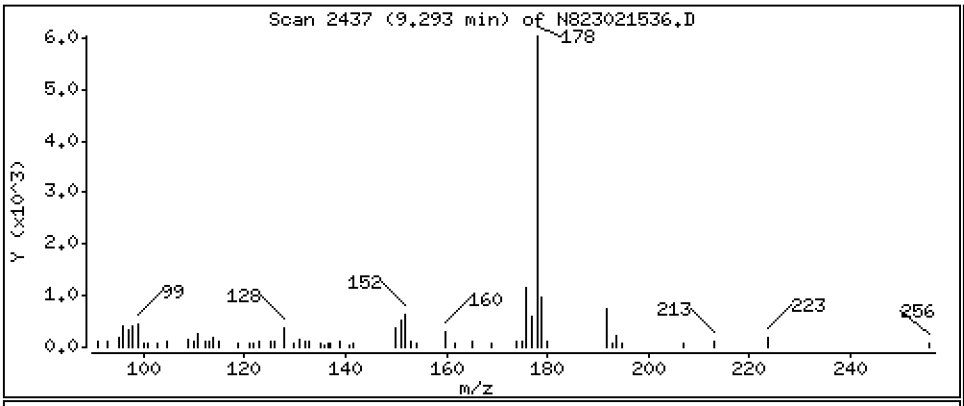
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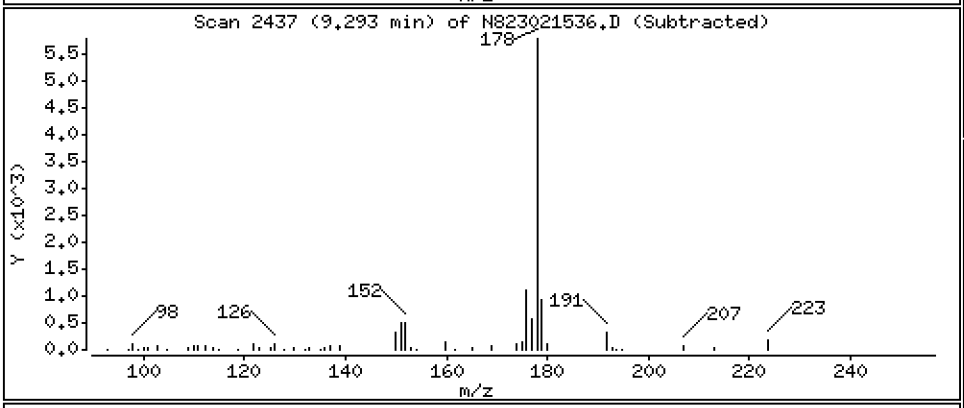
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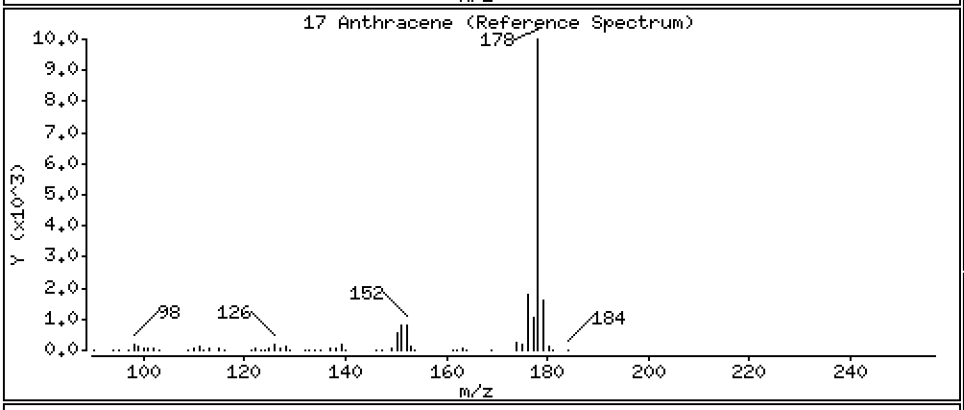
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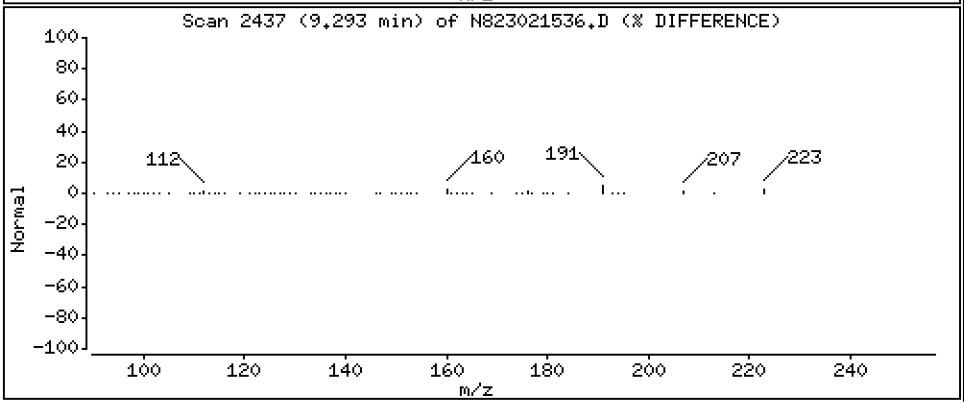
17 Anthracene

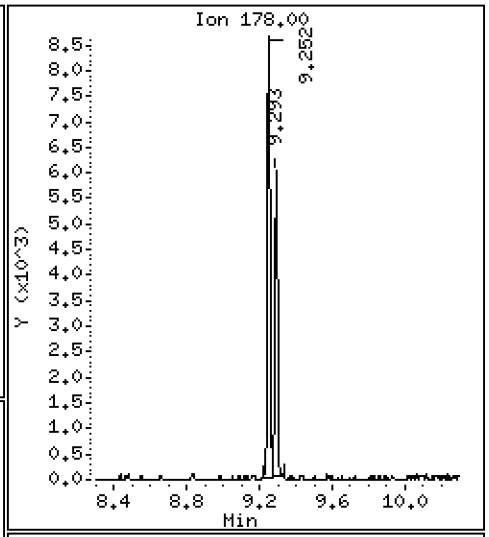
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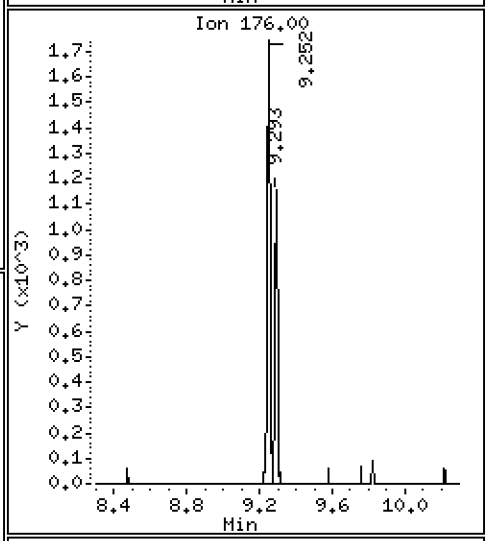


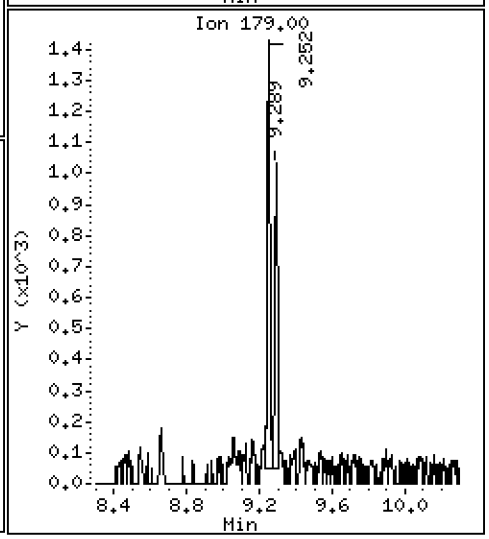












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Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

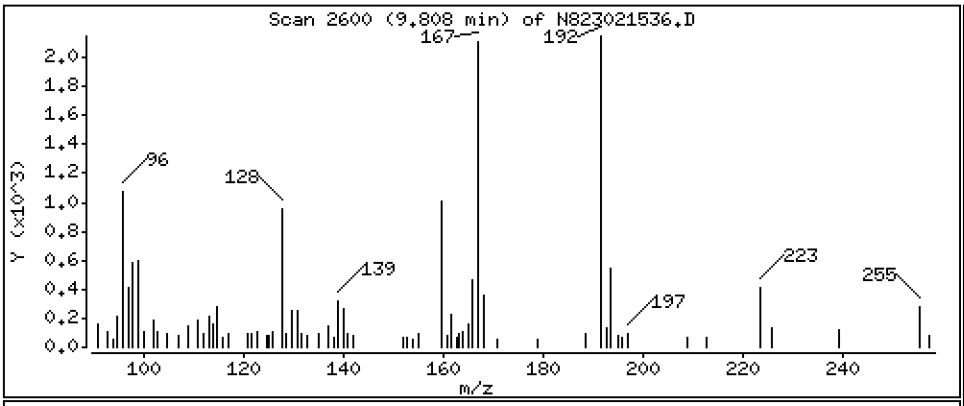
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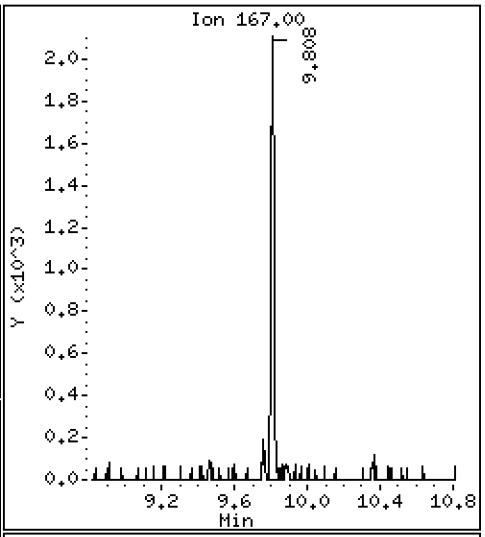
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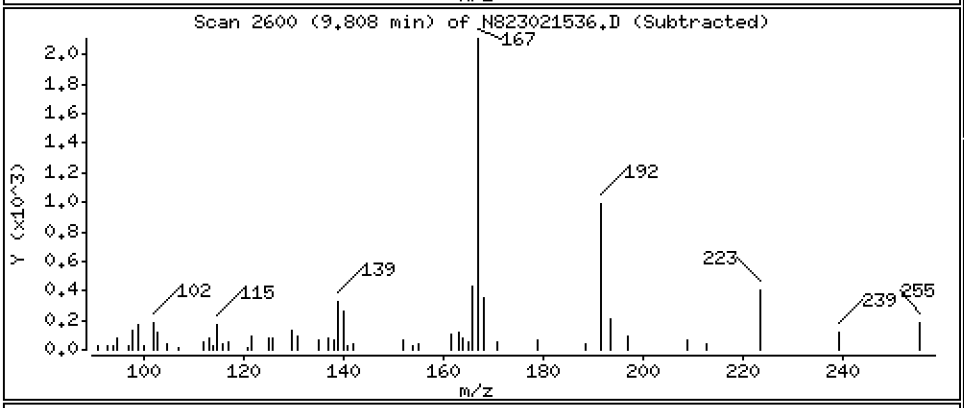
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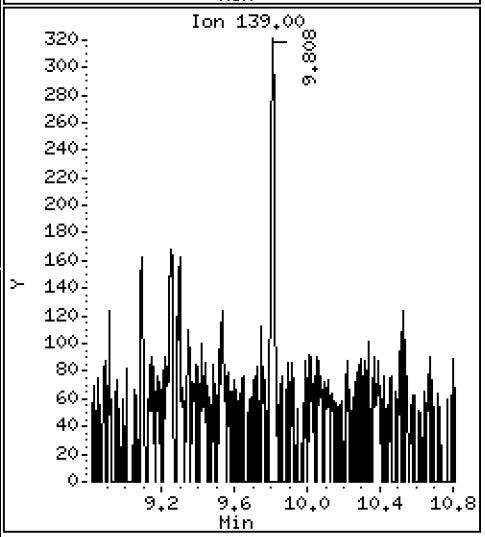
19 Carbazole

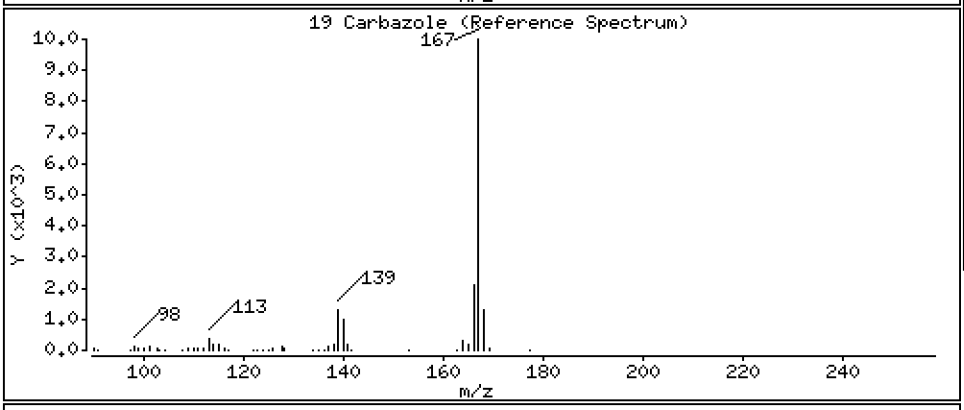
Concentration: 0.1150 ug/mL

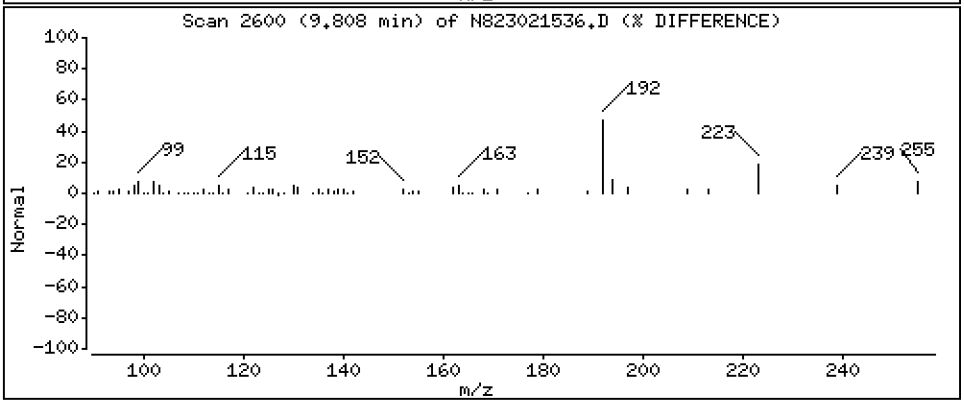












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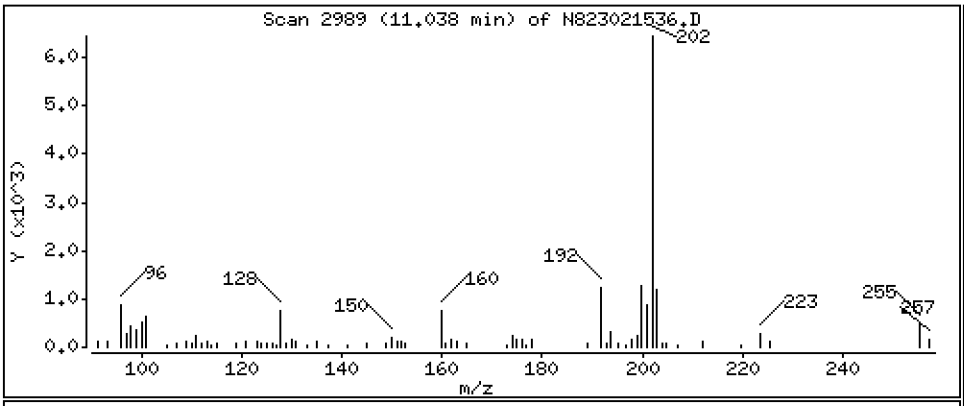
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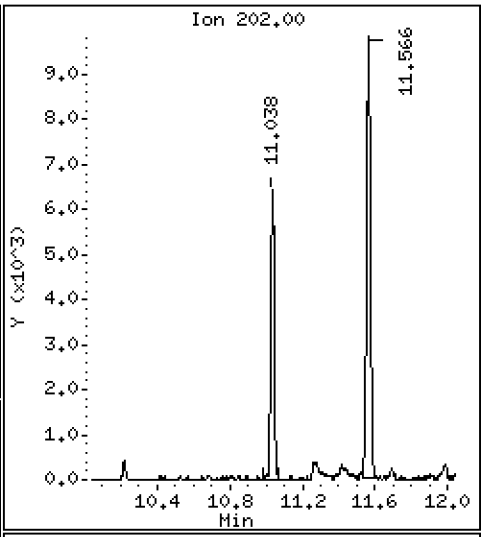
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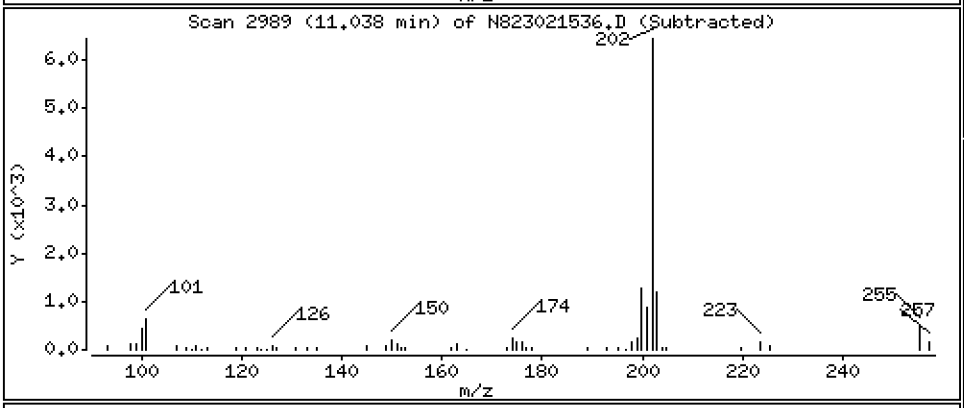
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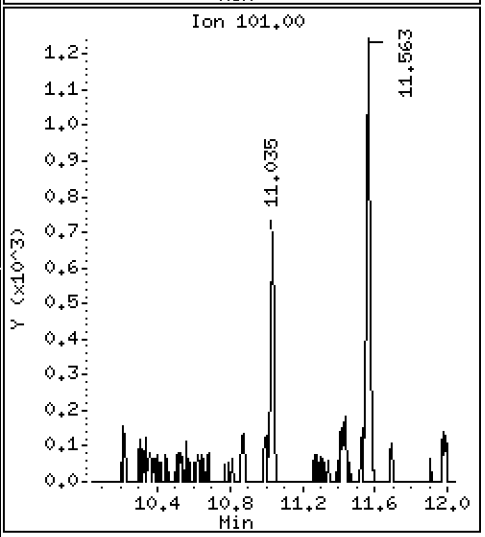
22 Fluoranthene

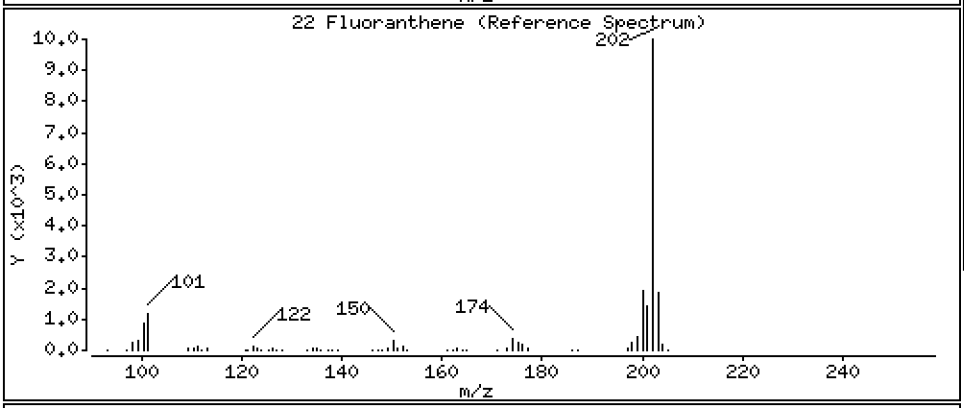
Concentration: 0.3212 ug/mL

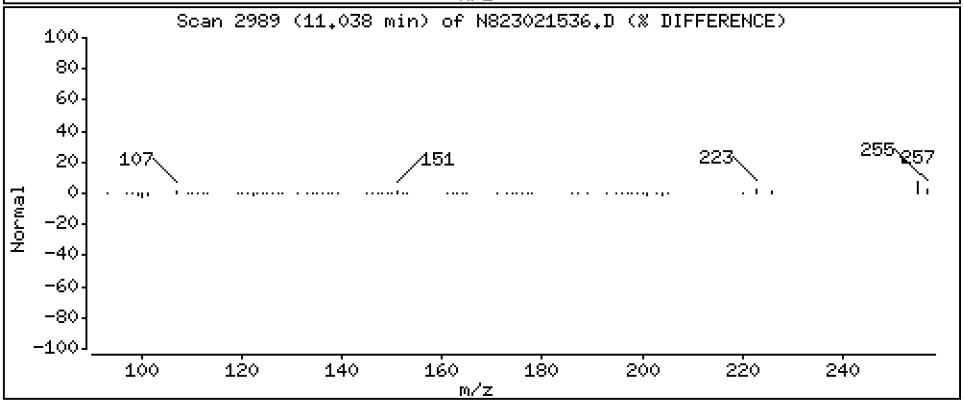












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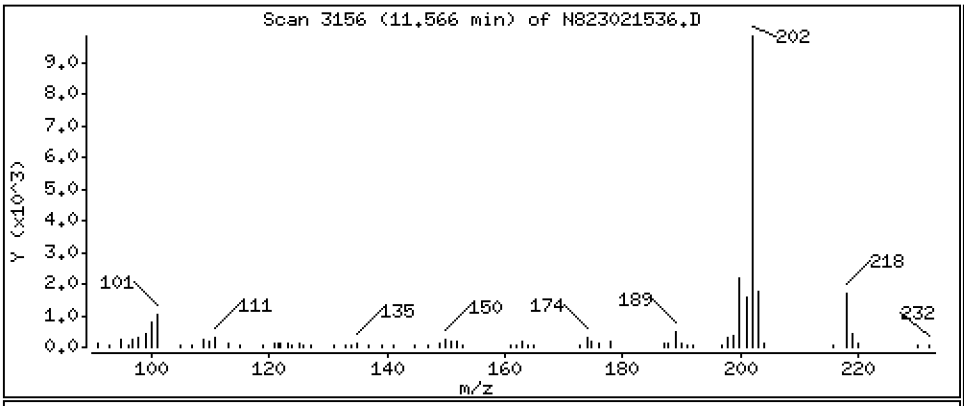
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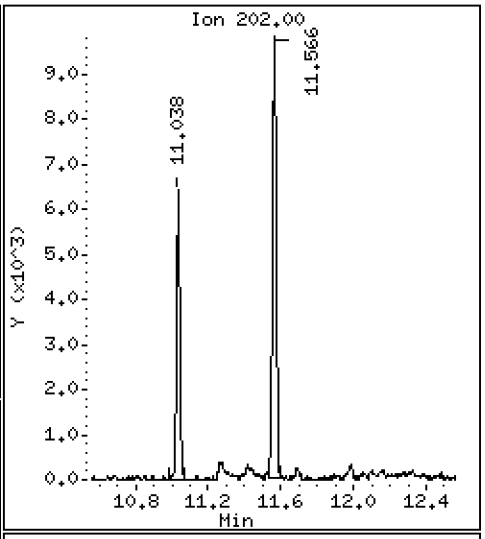
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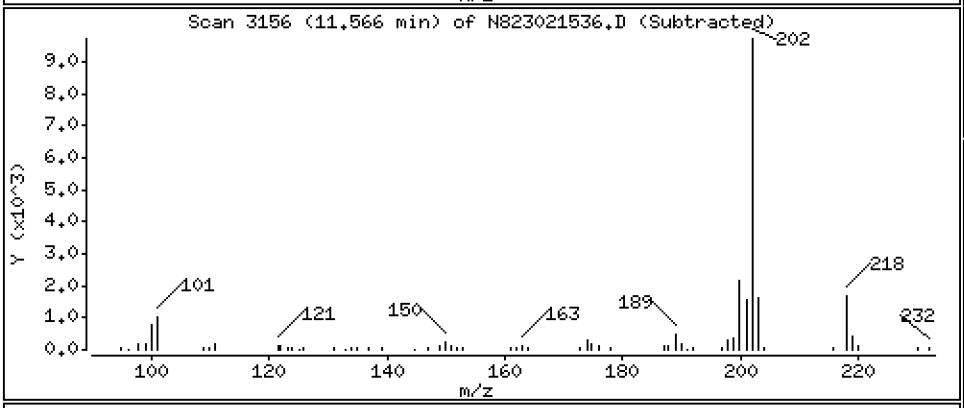
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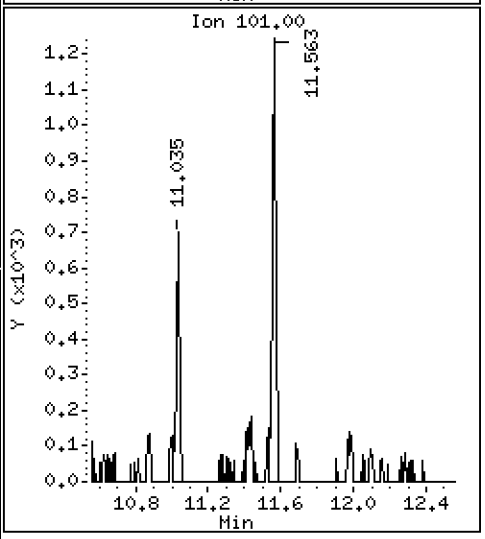
23 Pyrene

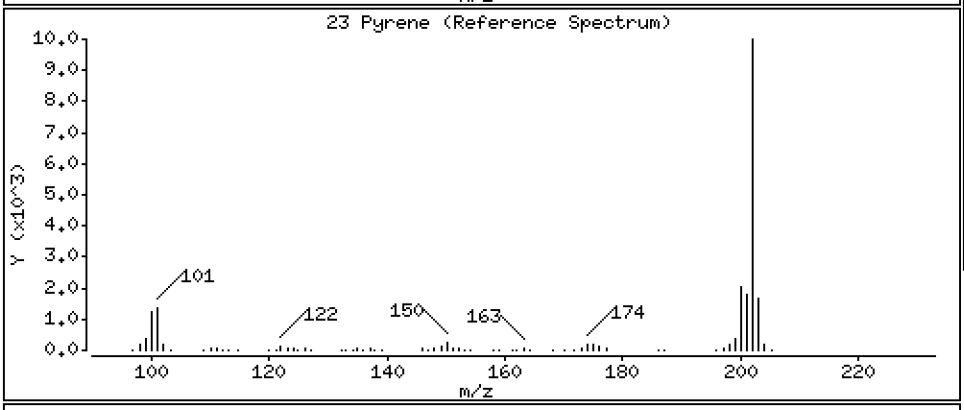
Concentration: 0.5728 ug/mL

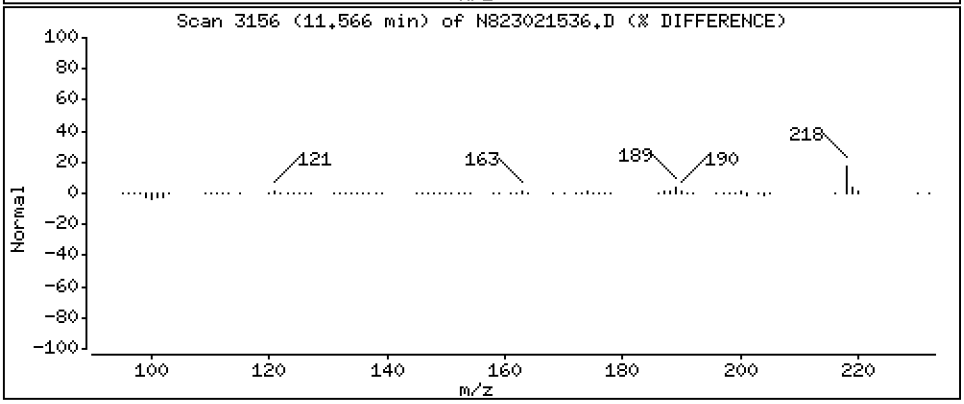












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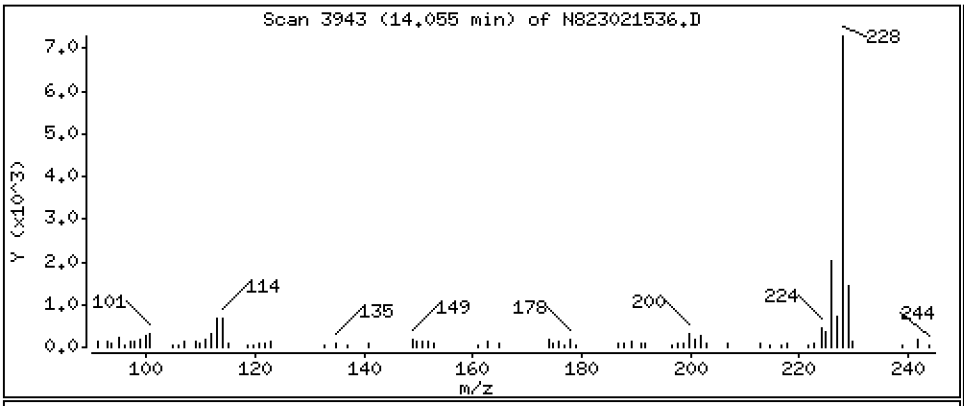
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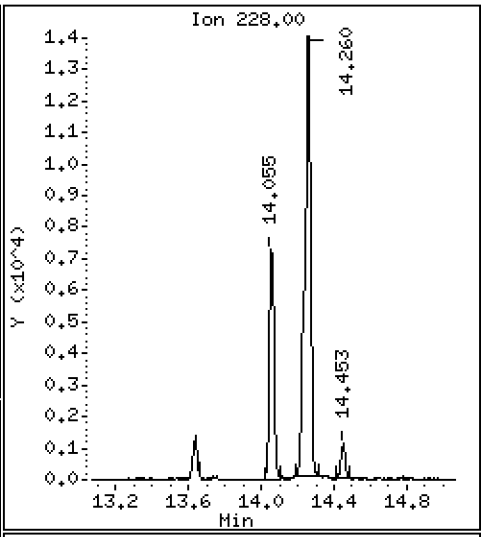
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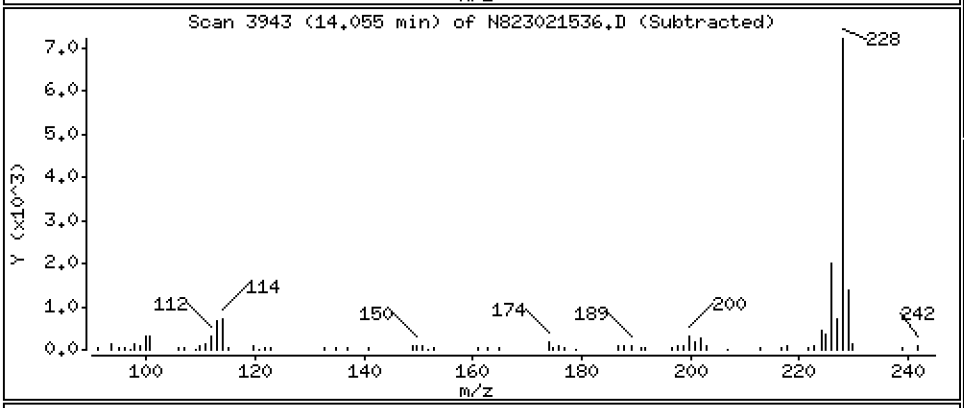
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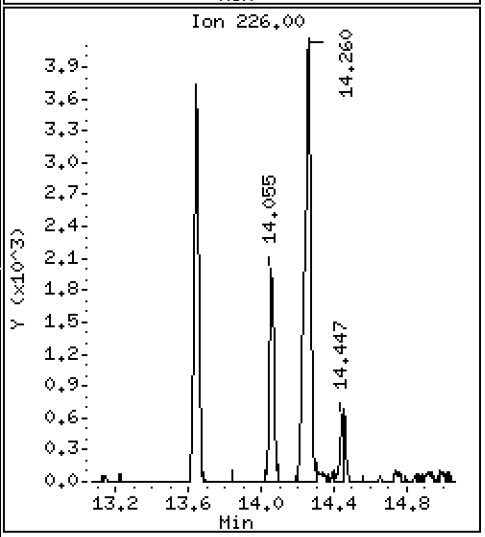
24 Benzo(a)anthracene

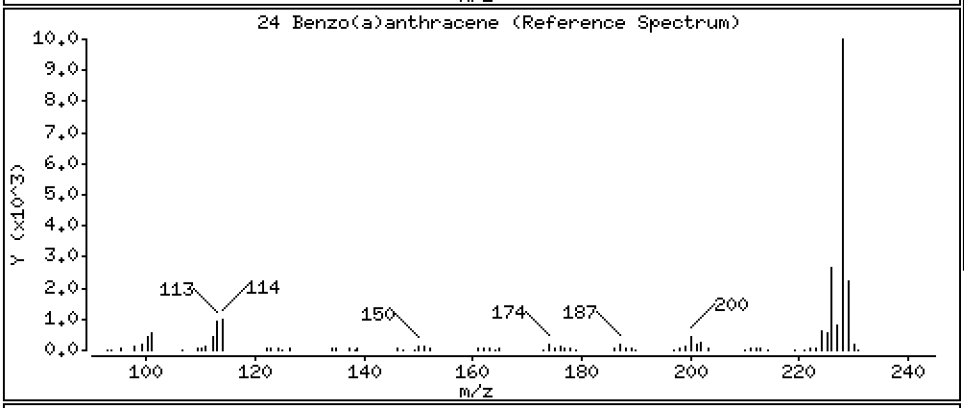
Concentration: 0.5808 ug/mL

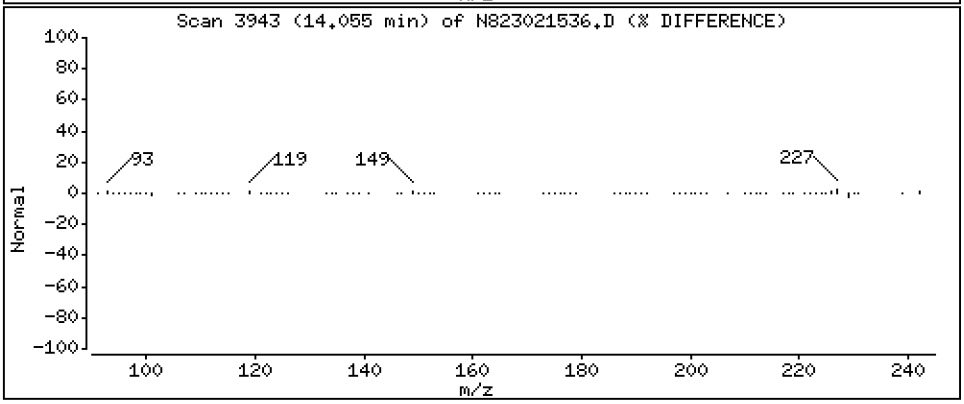












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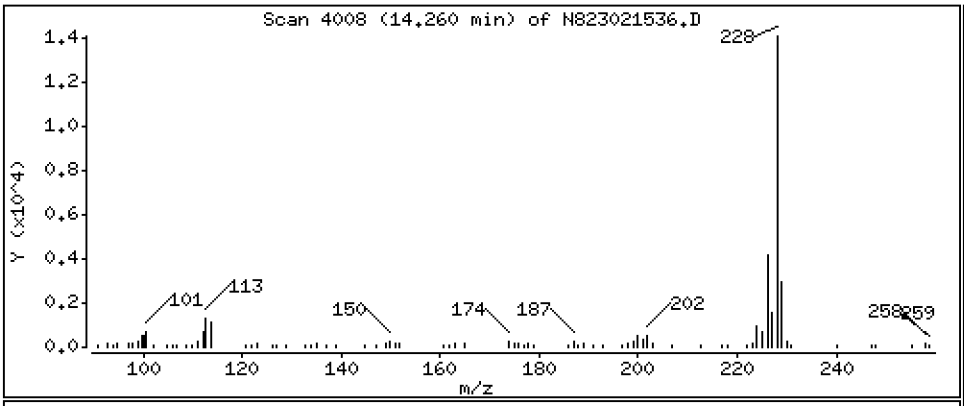
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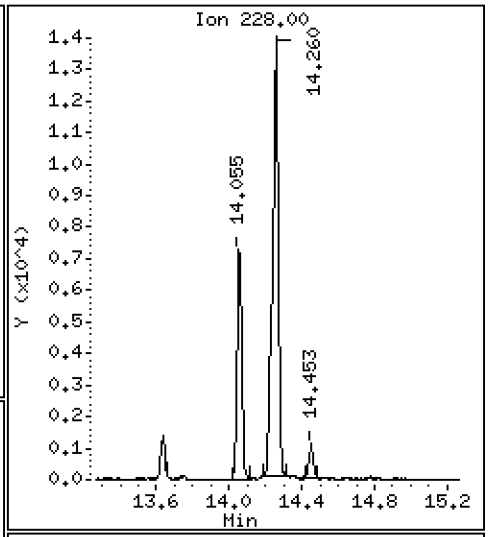
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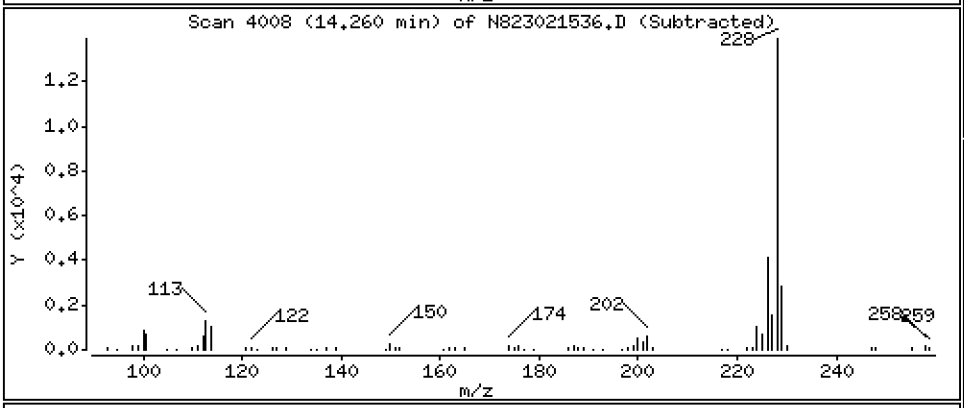
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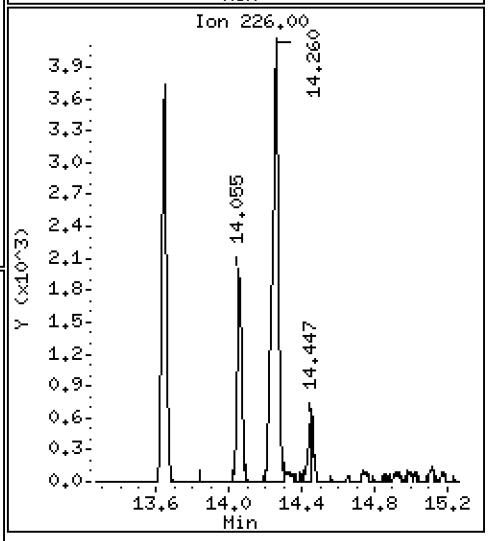
27 Chrysene

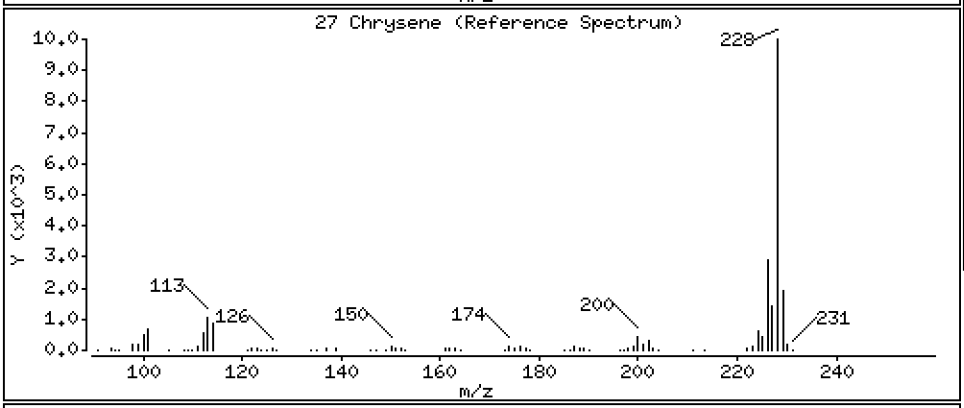
Concentration: 1.267 ug/mL

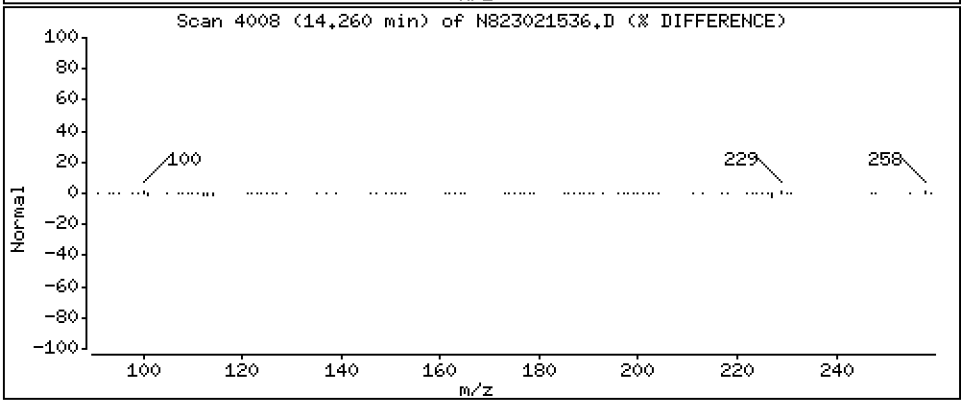












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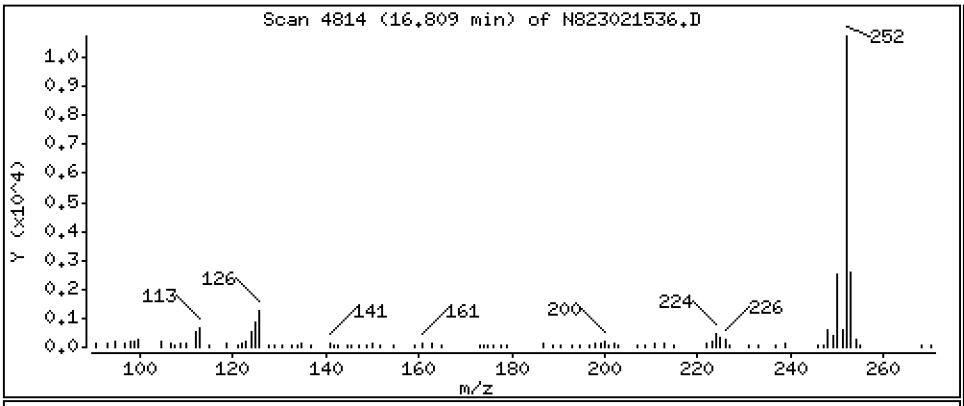
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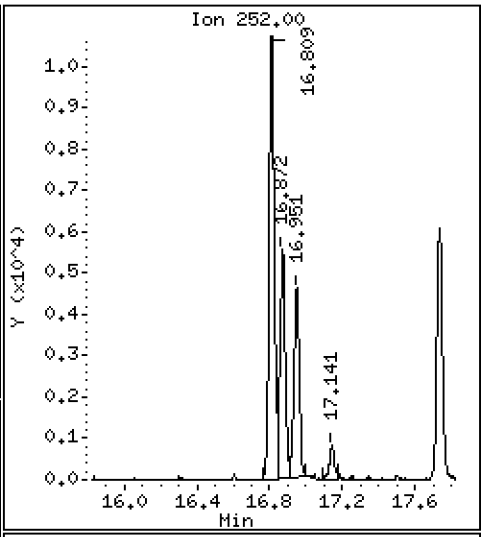
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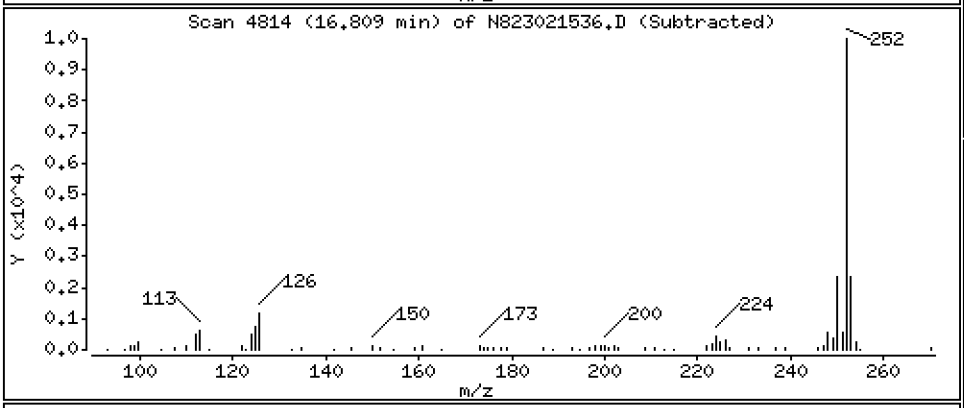
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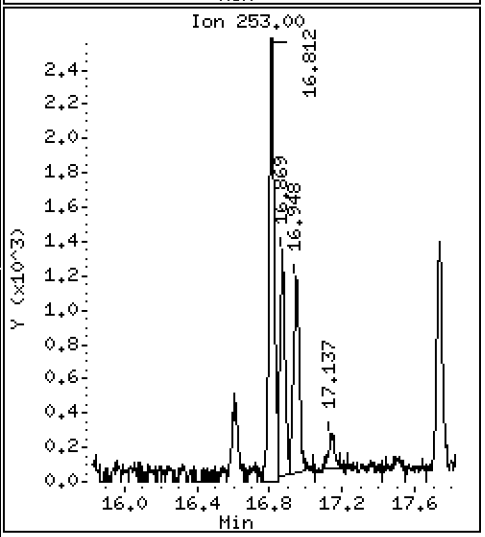
28 Benzo(b)fluoranthene

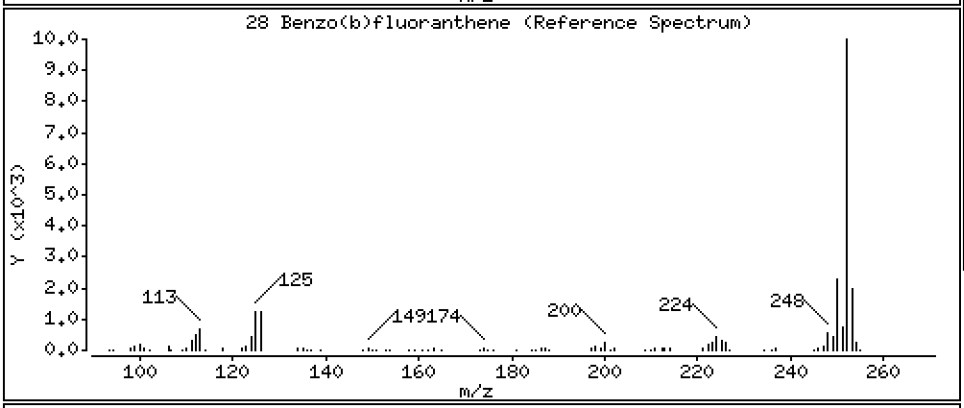
Concentration: 1.068 ug/mL

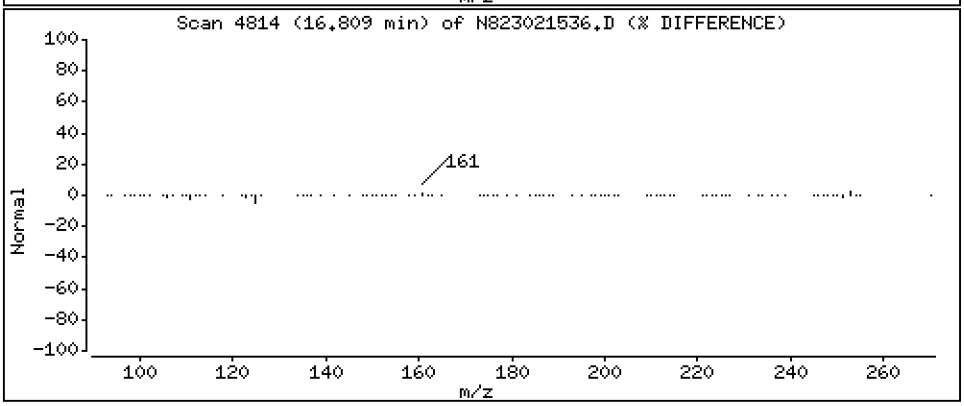












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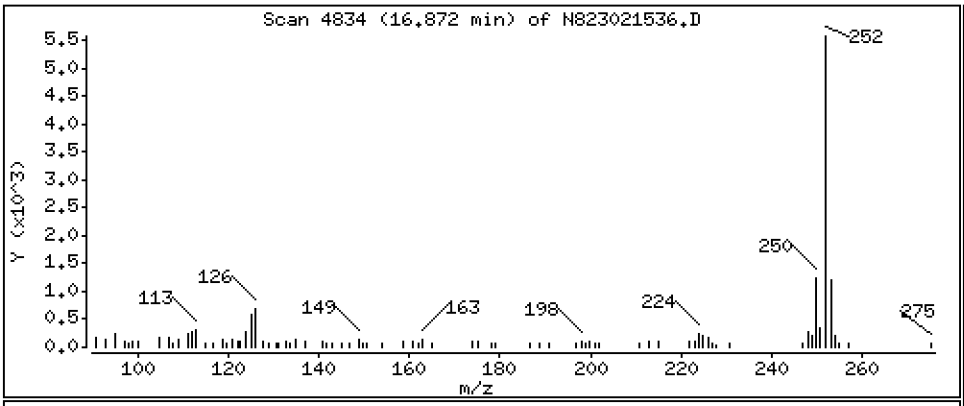
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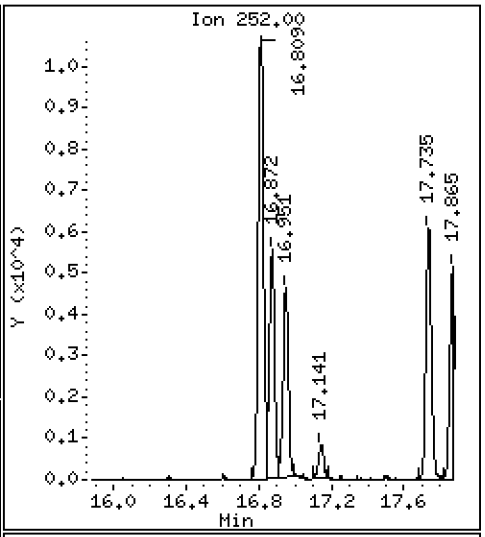
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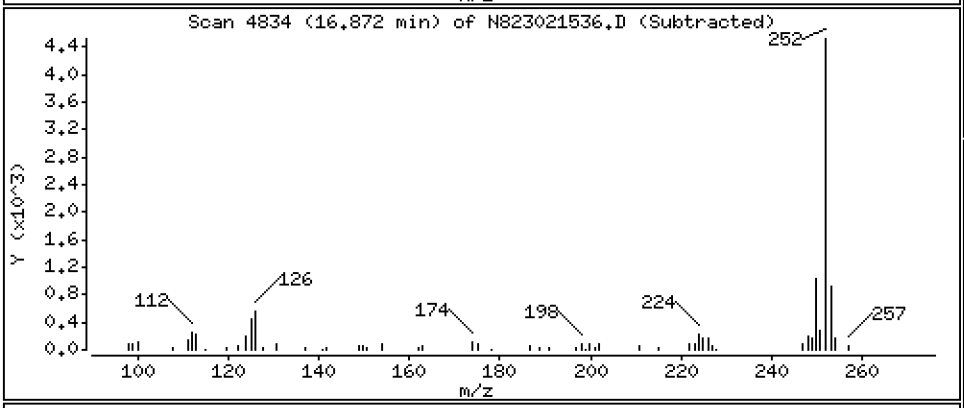
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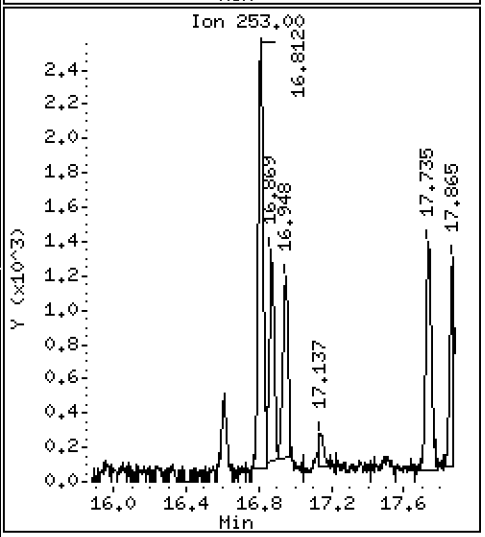
29 Benzo(k)fluoranthene

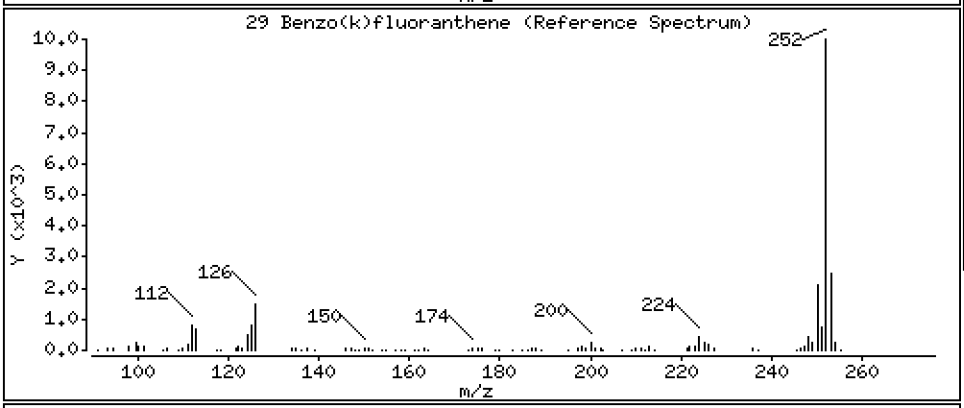
Concentration: 0.5391 ug/mL

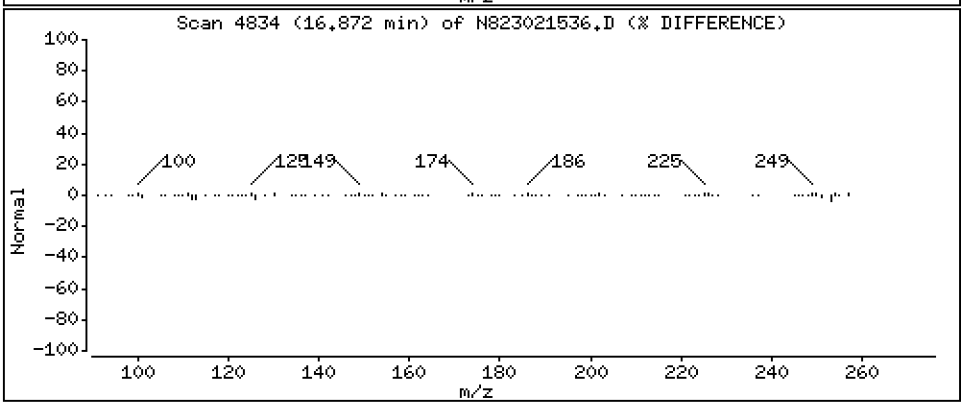












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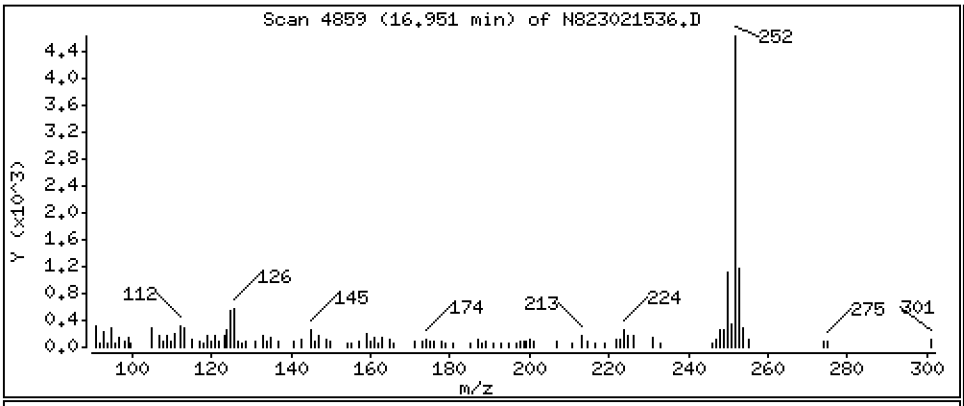
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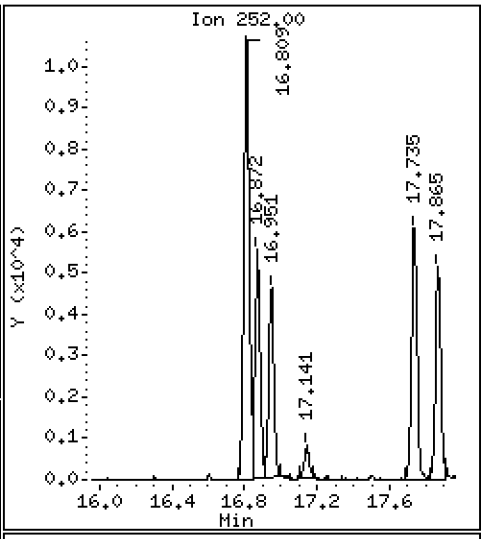
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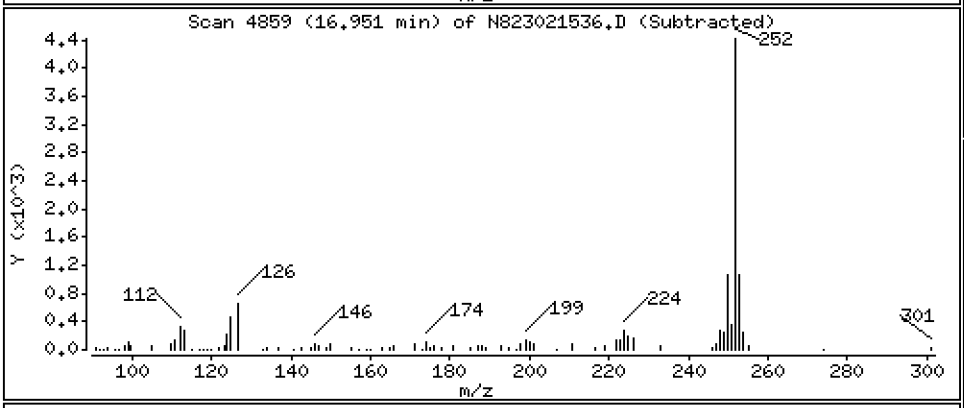
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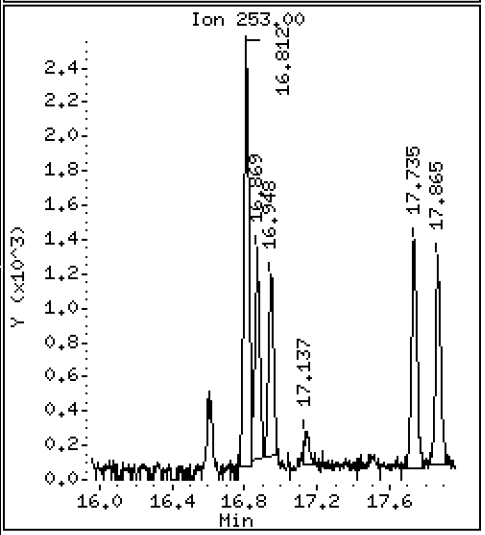
30 Benzo(j)fluoranthene

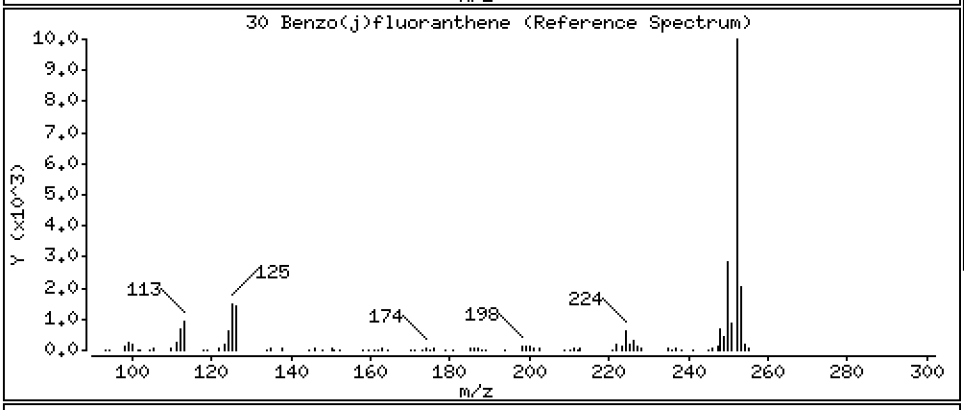
Concentration: 0.5103 ug/mL

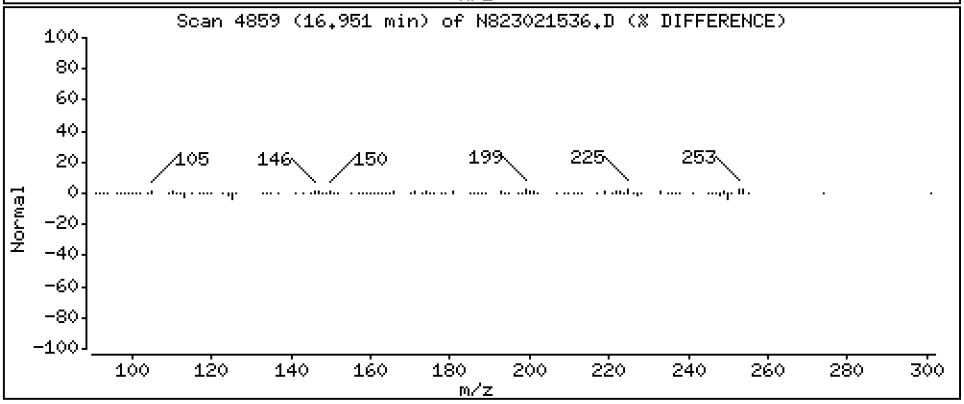












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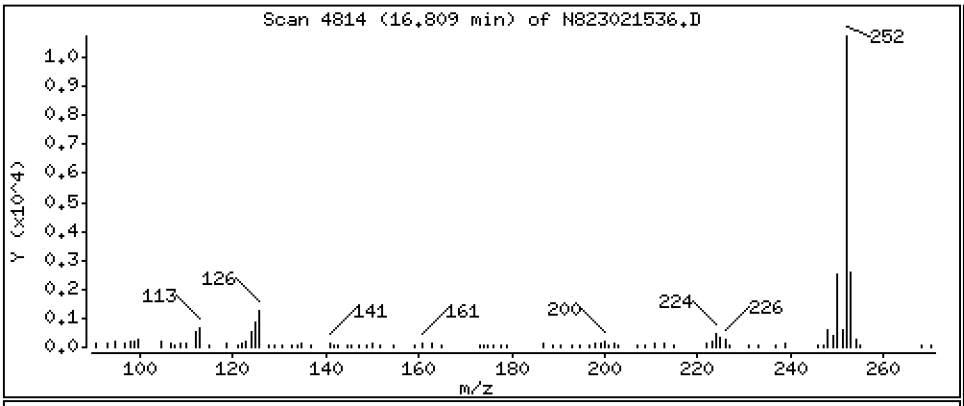
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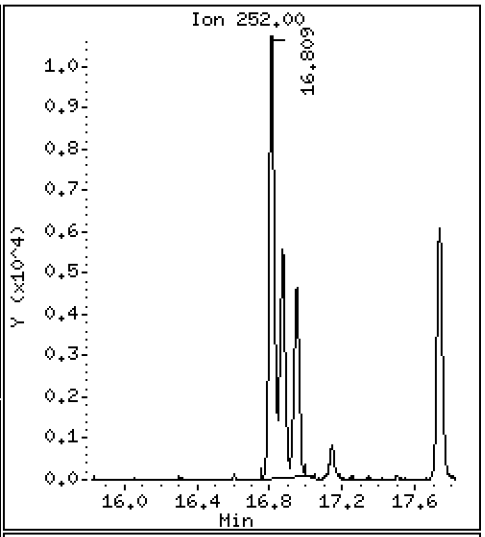
Column phase: Rxi-17sil

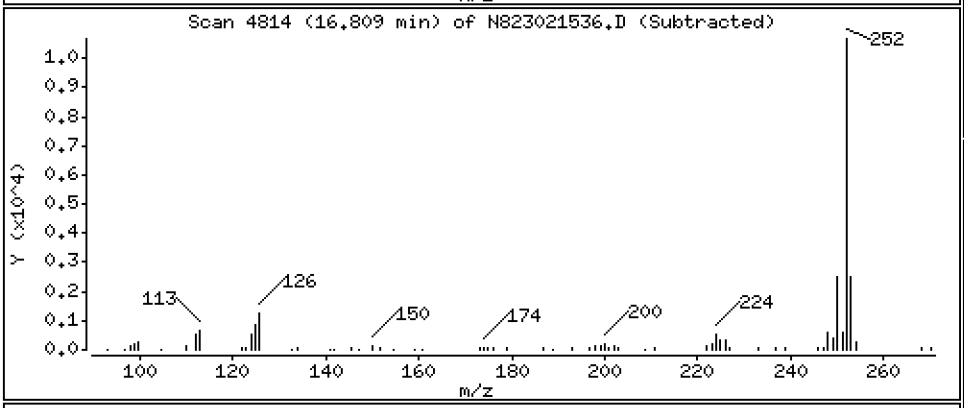
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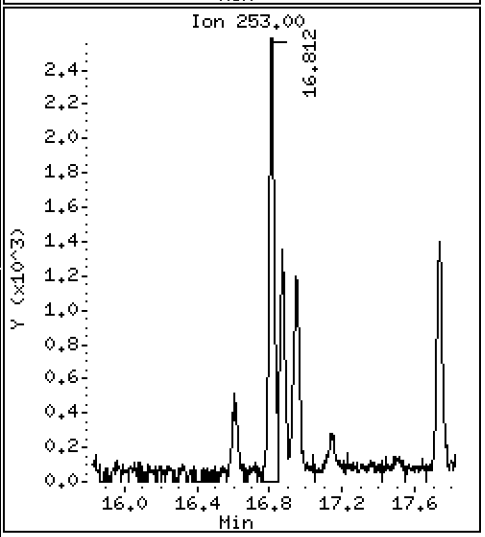
31 Total Benzofluoranthenes

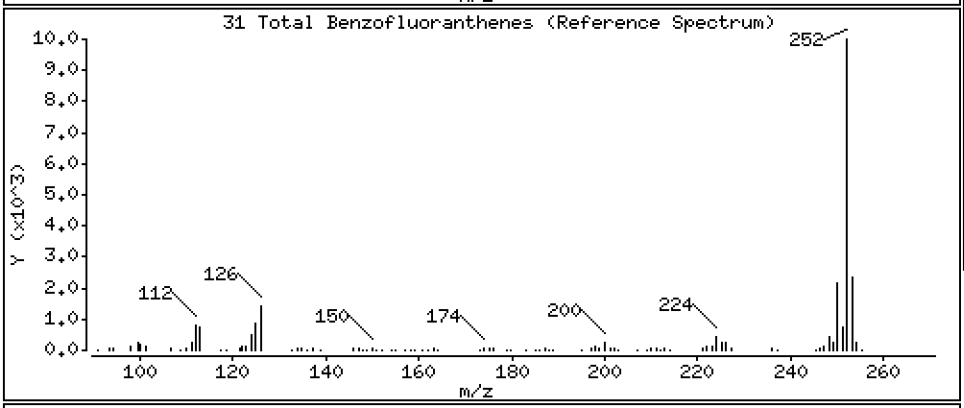
Concentration: 2.154 ug/mL

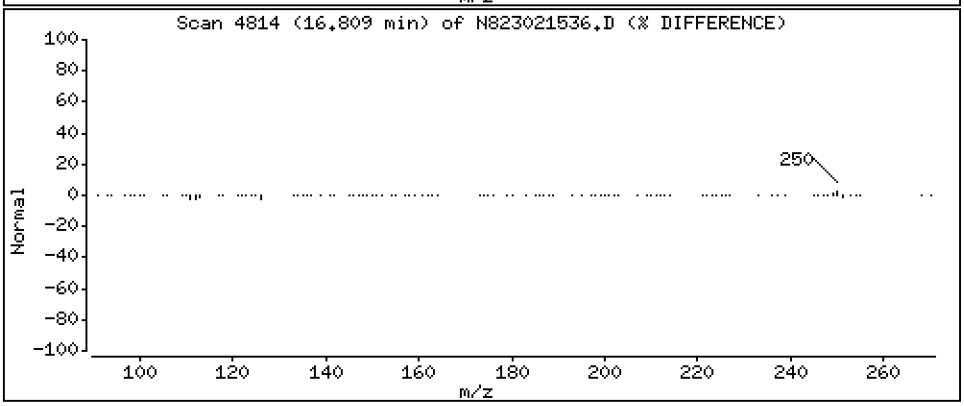












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021536.D

Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

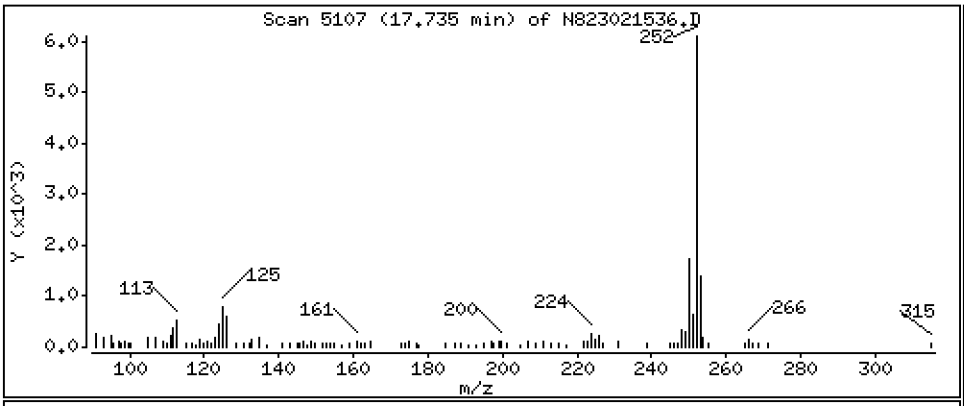
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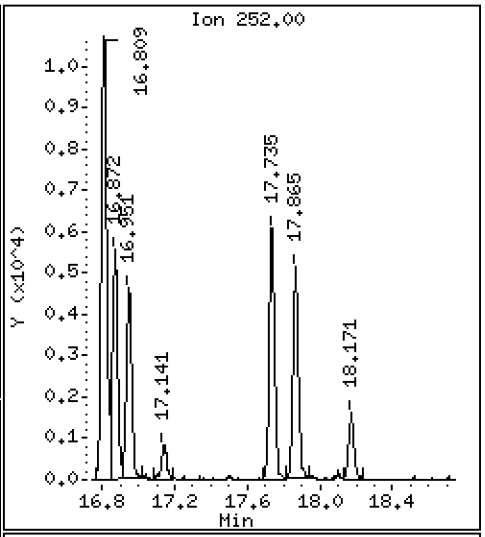
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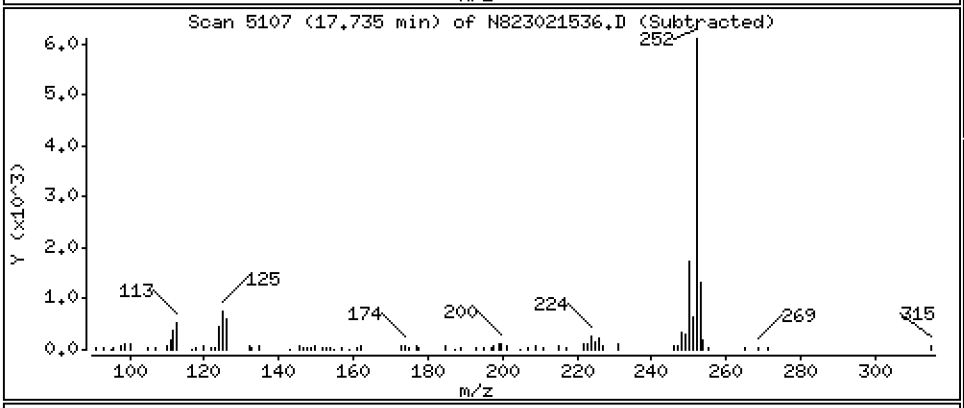
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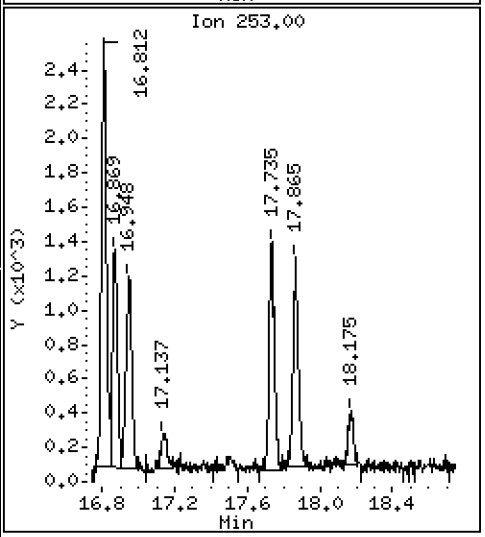
34 Benzo(e)pyrene

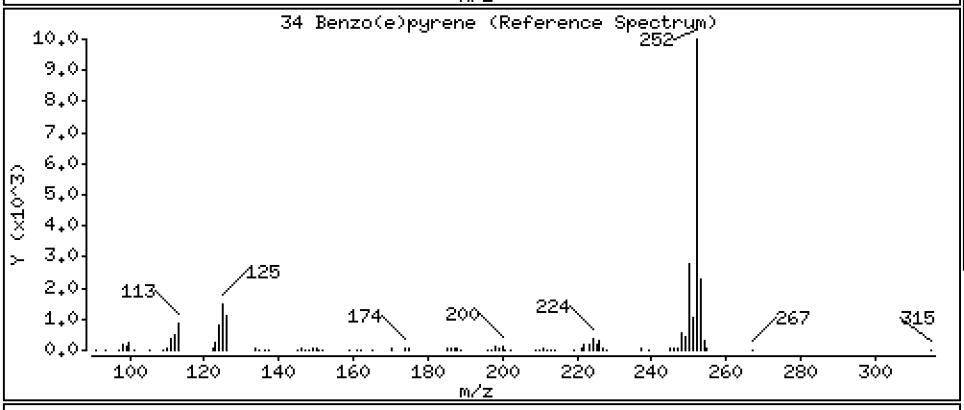
Concentration: 0.6297 ug/mL

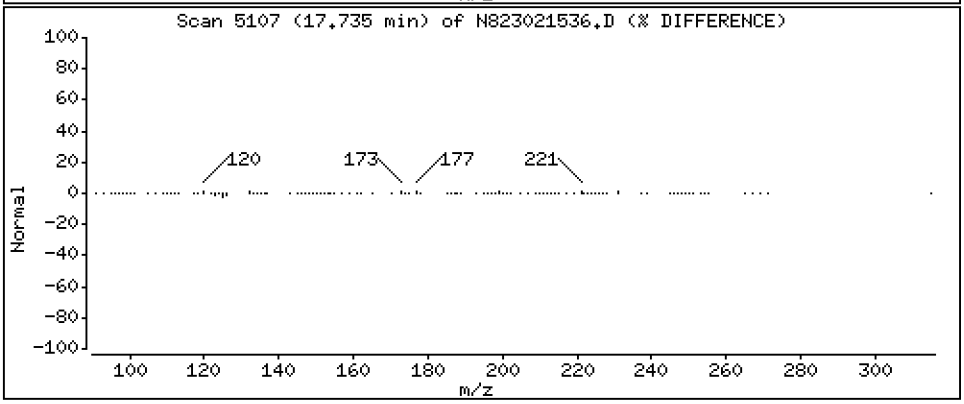












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021536.D

Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

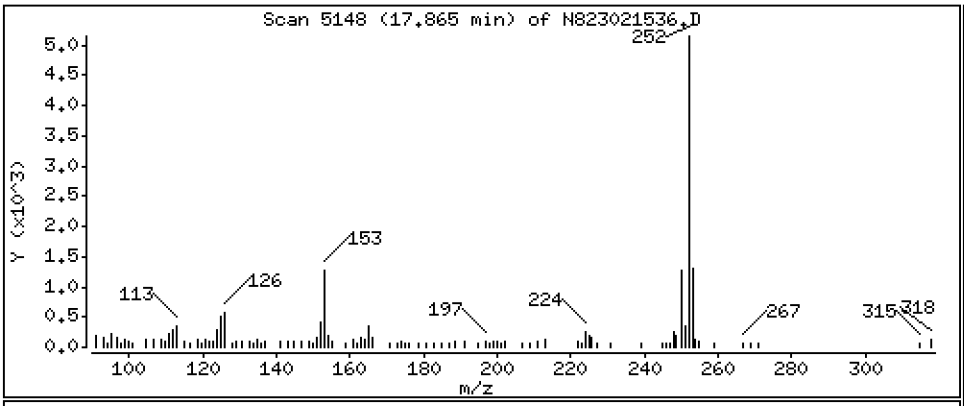
Operator: JZ

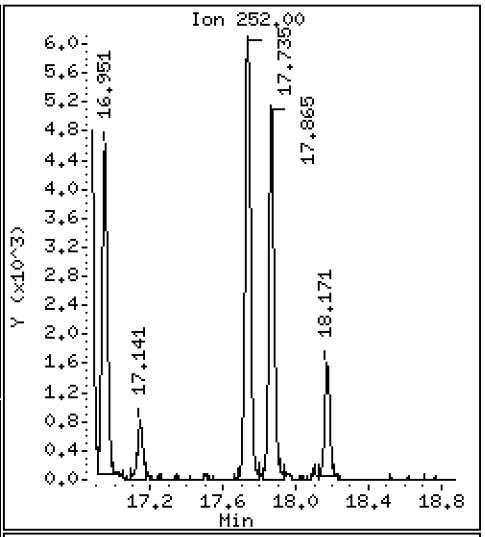
Column phase: Rxi-17sil

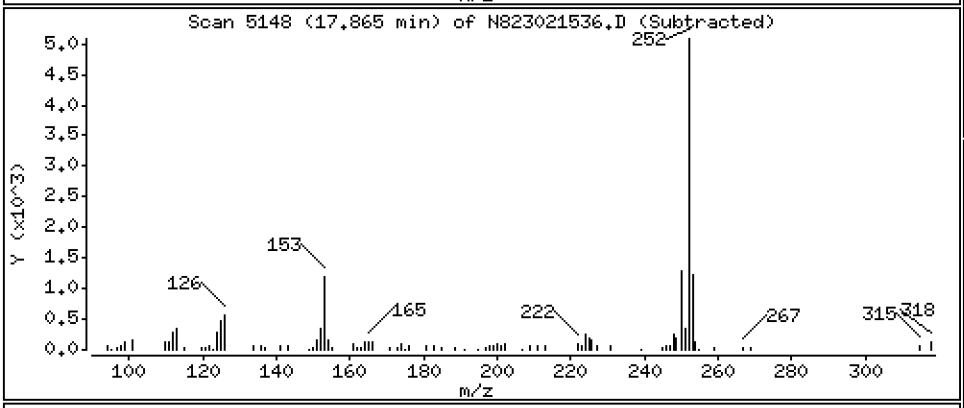
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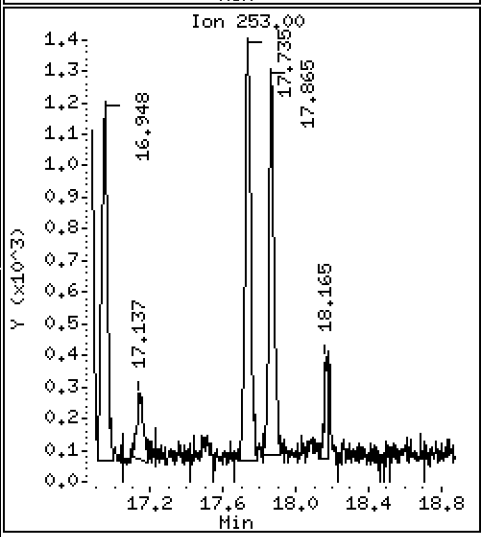
32 Benzo(a)pyrene

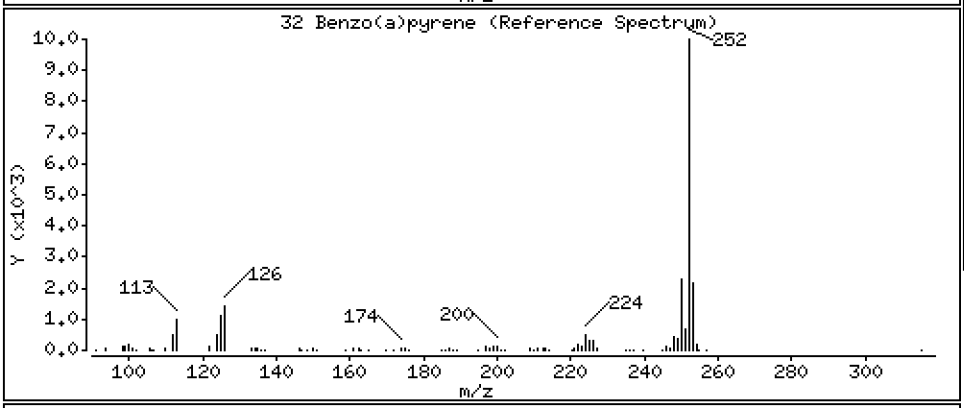
Concentration: 0.5902 ug/mL

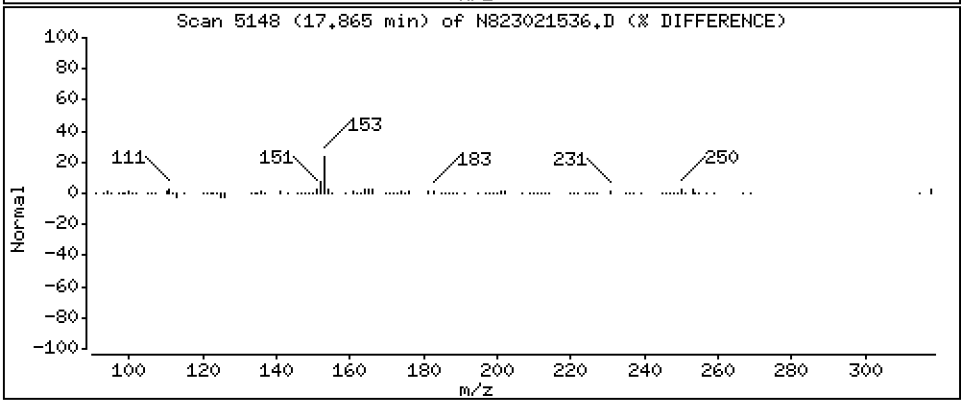












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021536.D

Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

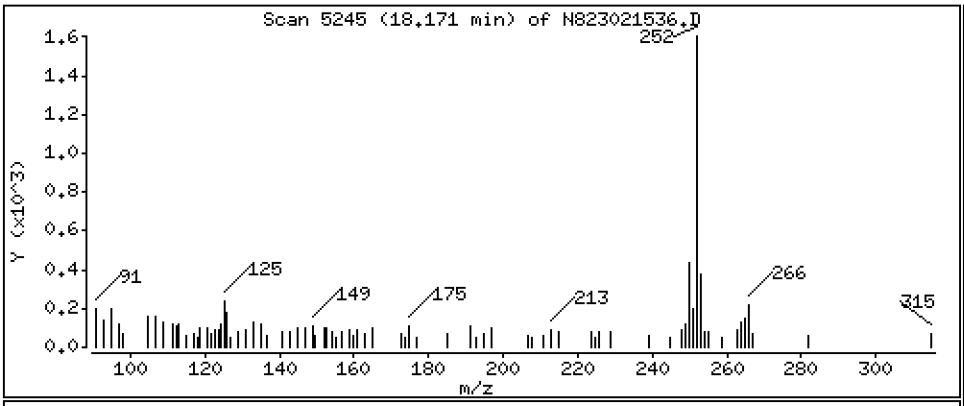
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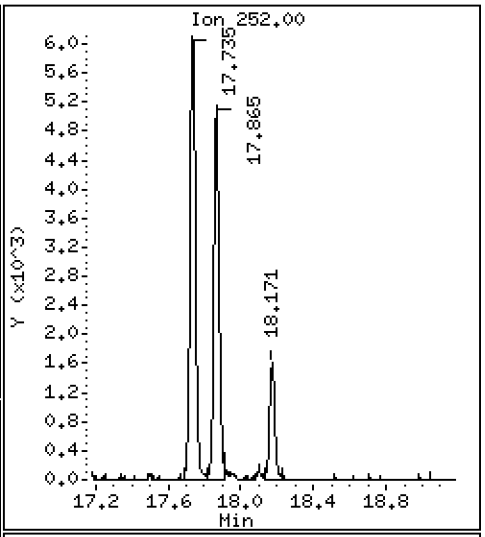
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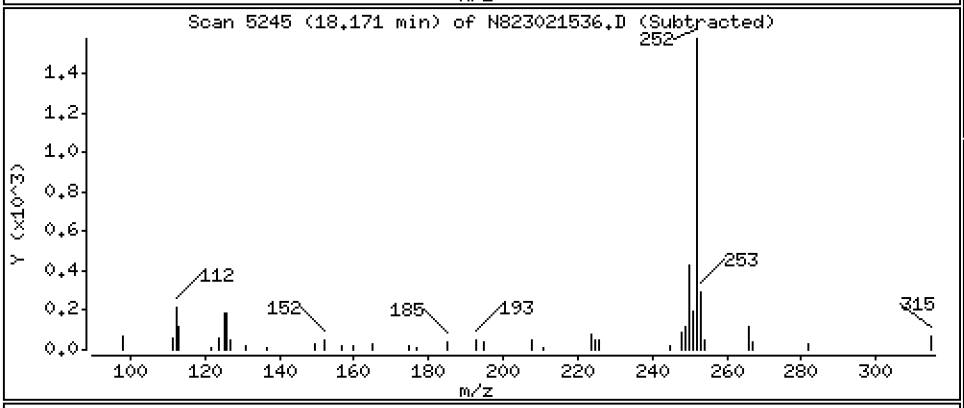
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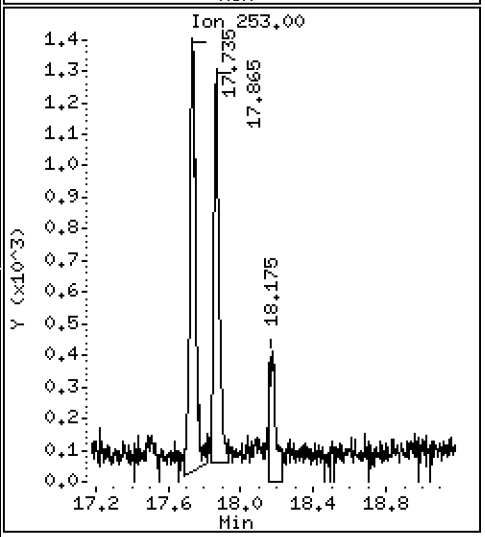
35 Perylene

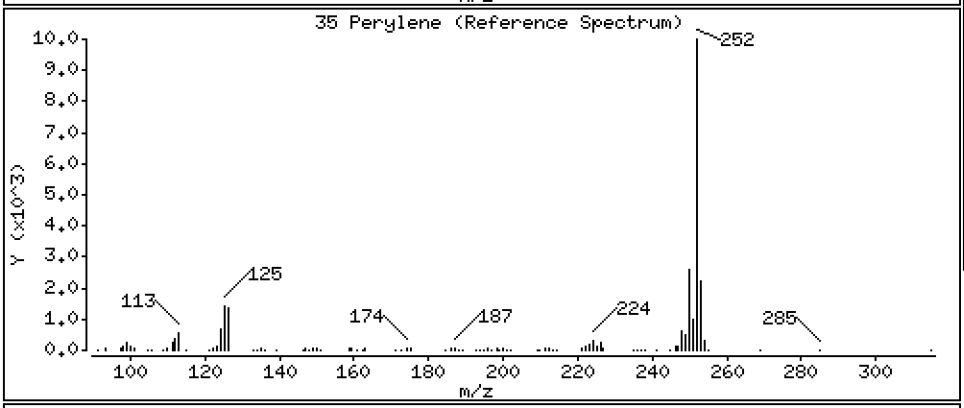
Concentration: 0.1696 ug/mL

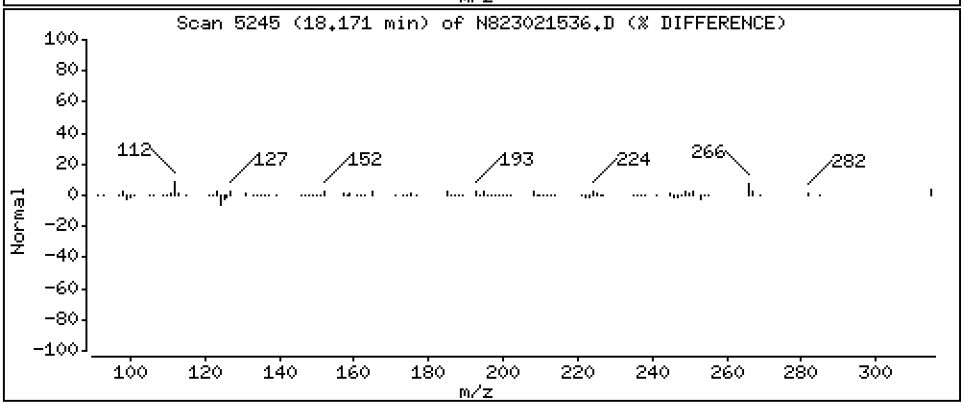












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021536.D

Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

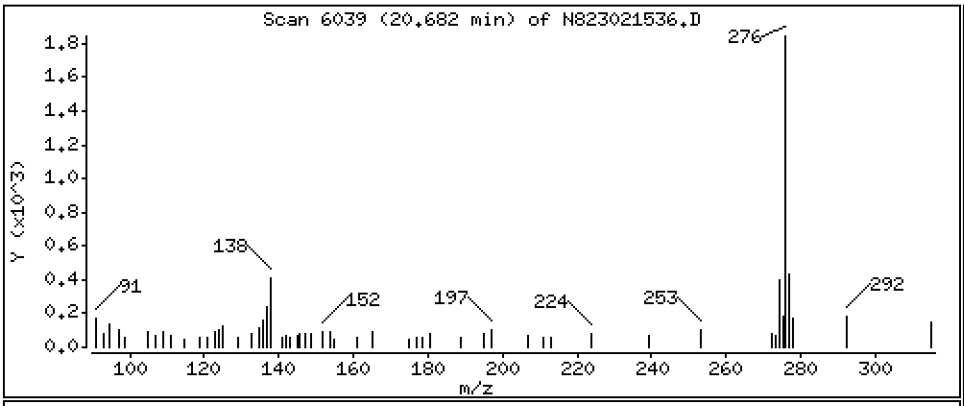
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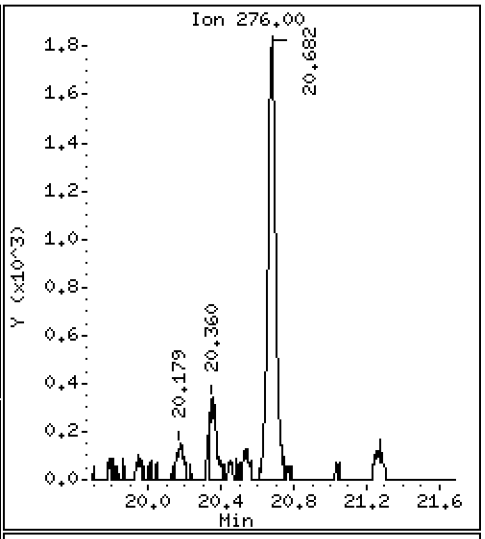
Column phase: Rxi-17sil

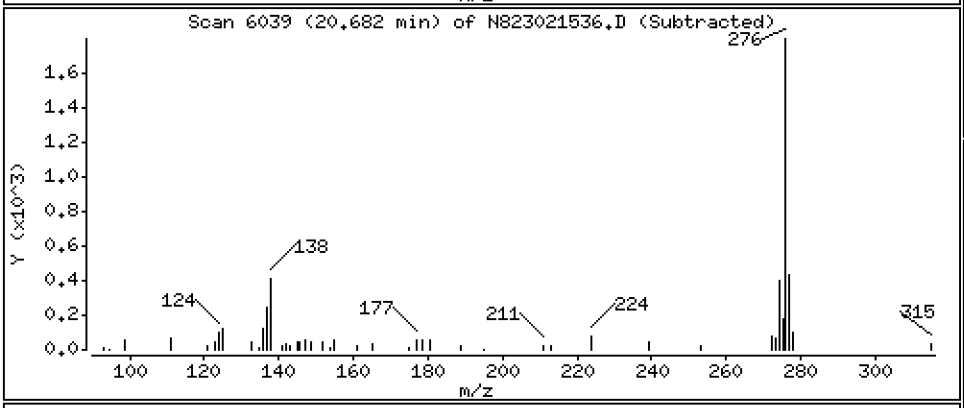
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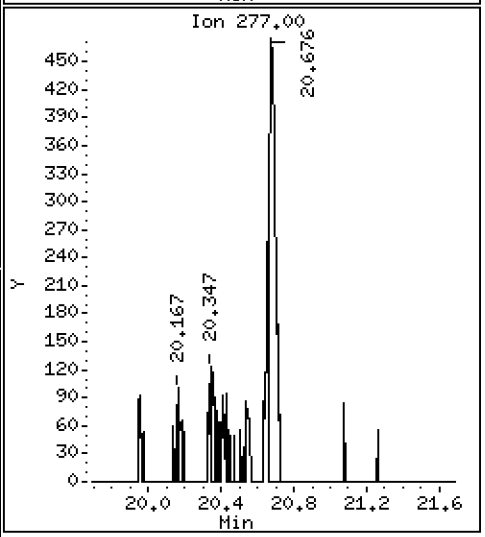
37 Indeno(1,2,3-cd)pyrene

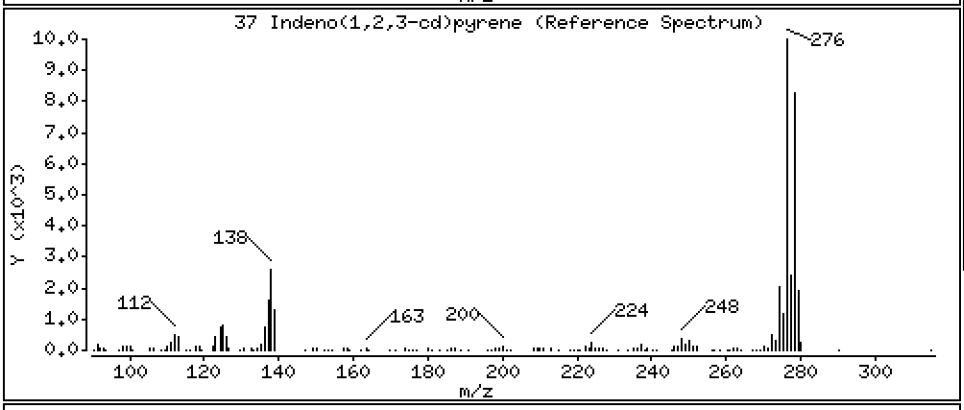
Concentration: 0.2655 ug/mL

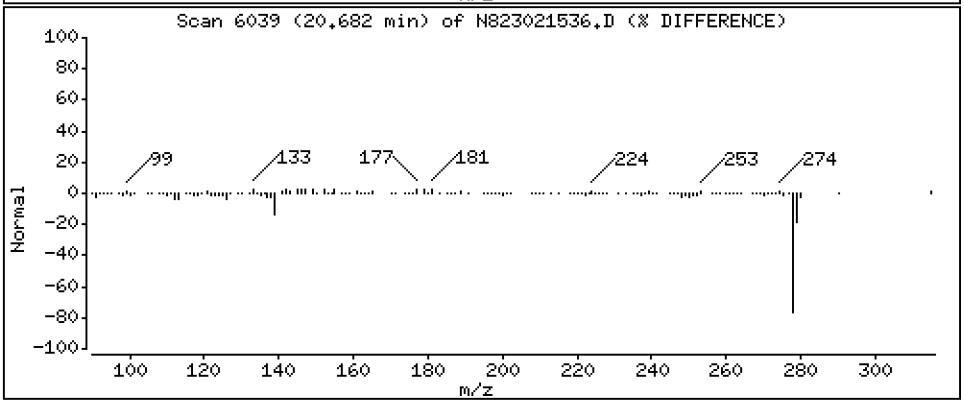












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021536.D

Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

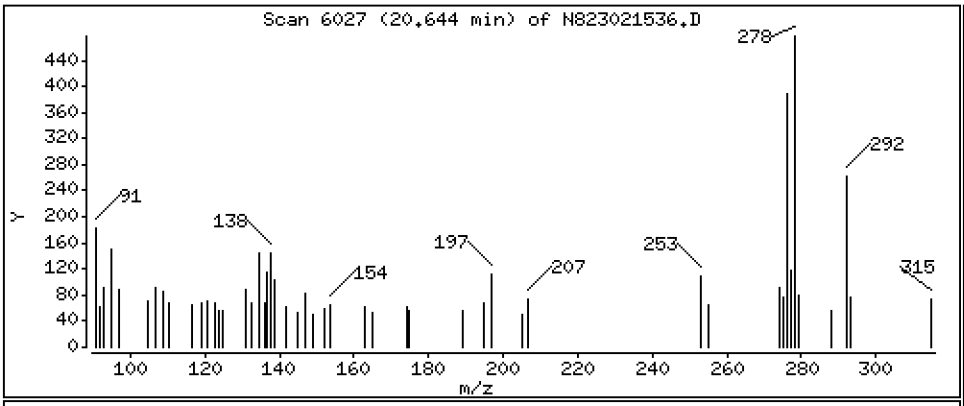
Operator: JZ

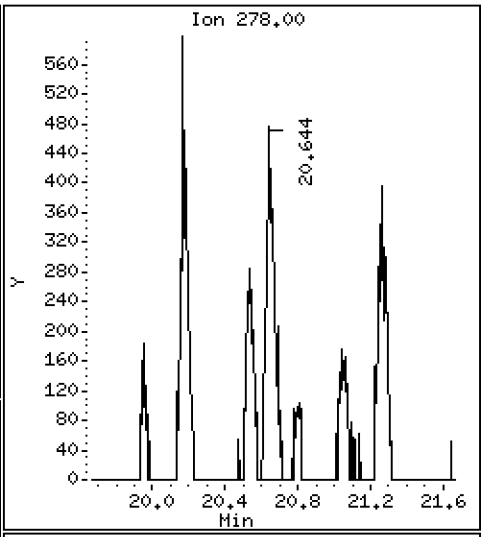
Column phase: Rxi-17sil

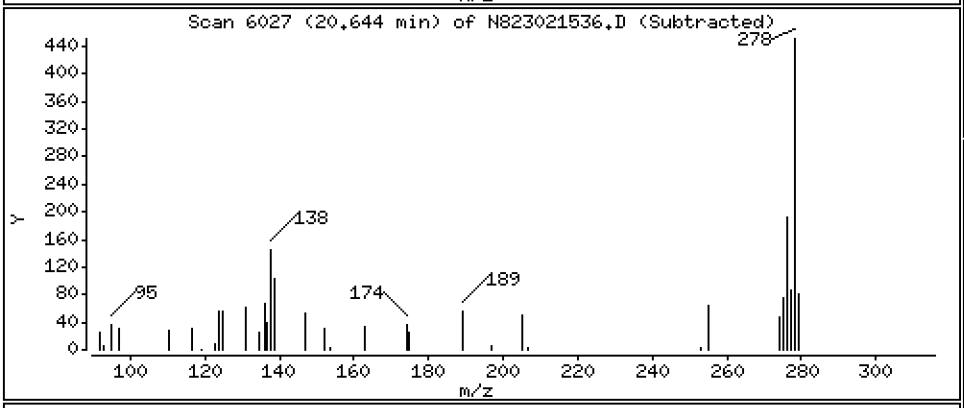
Column diameter: 0.25

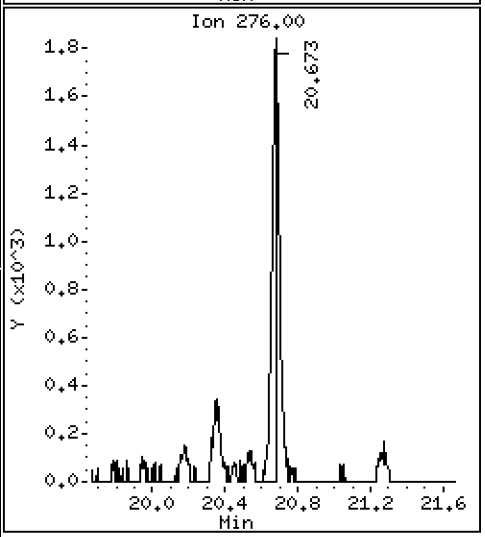
38 Dibenzo(a,h)anthracene

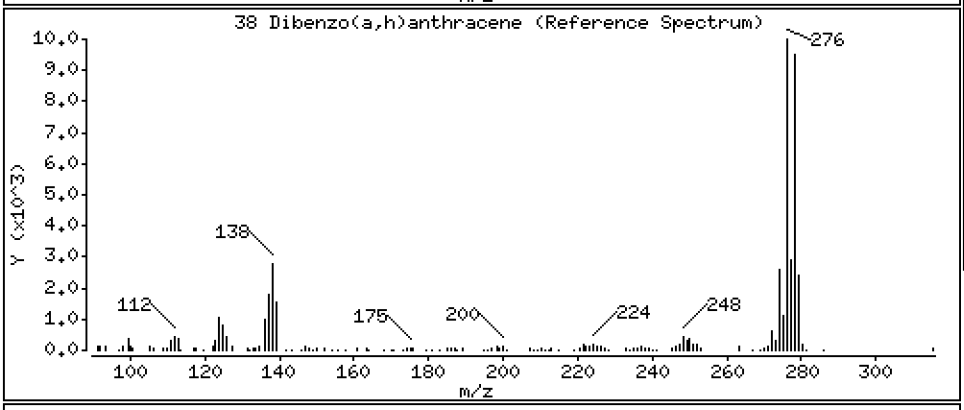
Concentration: 0.08214 ug/mL

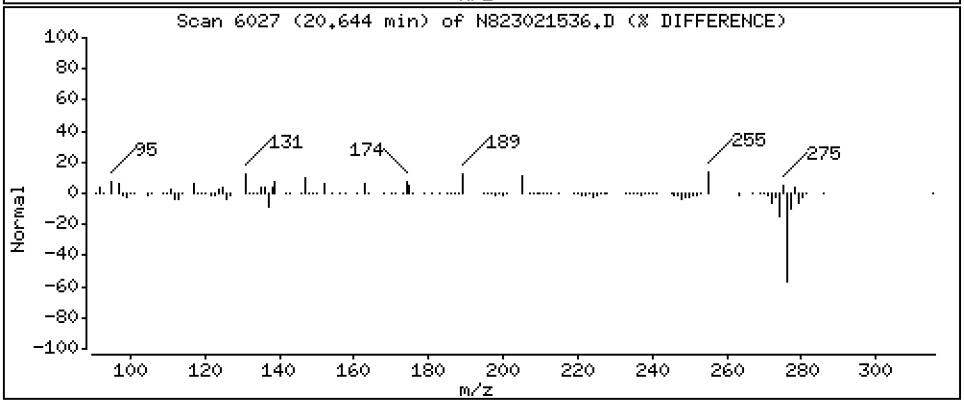












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Date : 16-FEB-2023 03:27

Client ID:

Instrument: nt8.i

Sample Info: 23A0626-29

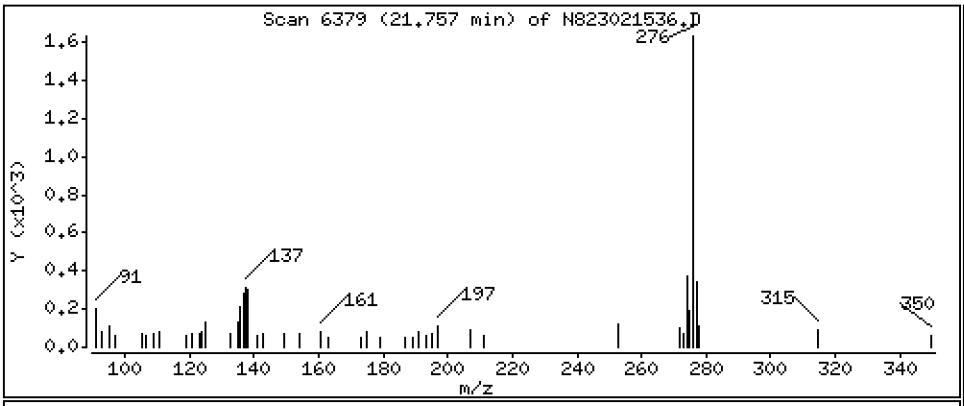
Operator: JZ

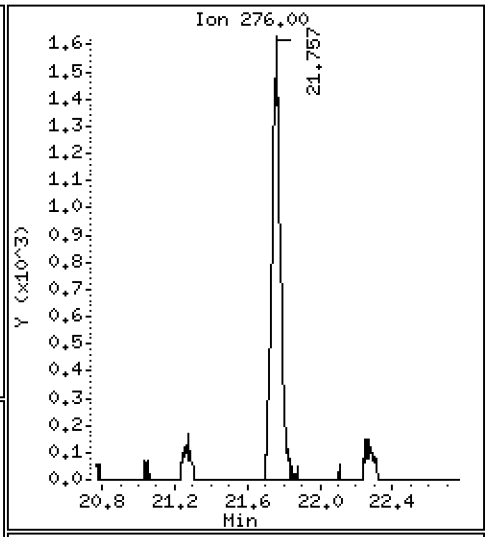
Column phase: Rxi-17sil

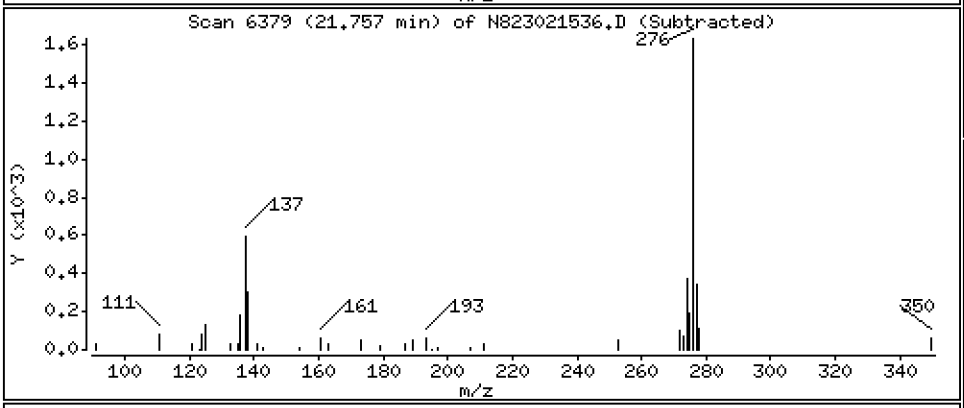
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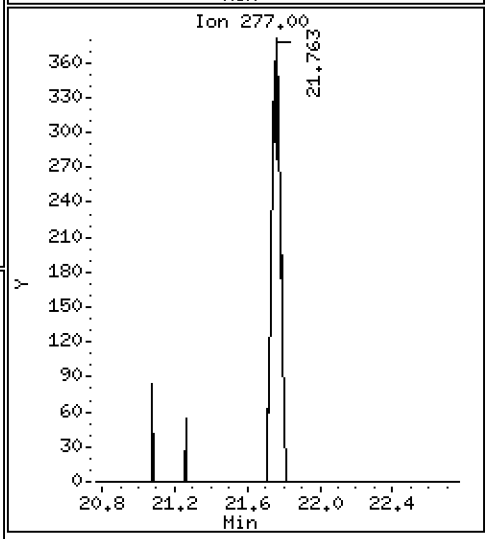
39 Benzo(g,h,i)perylene

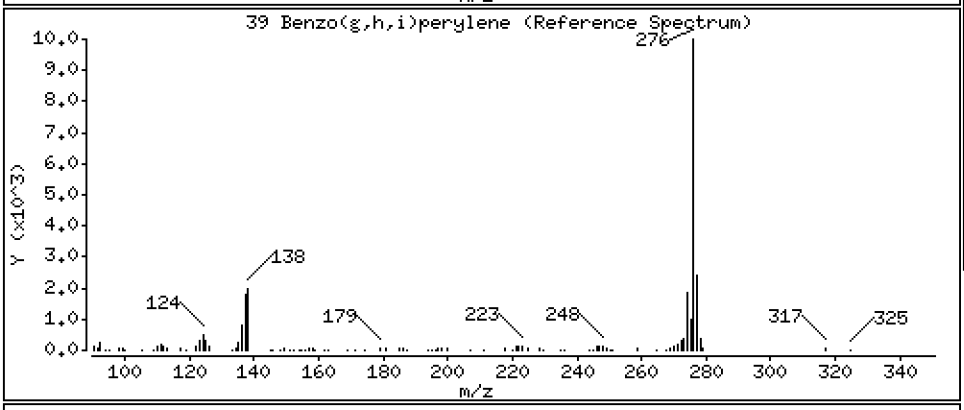
Concentration: 0.2819 ug/mL

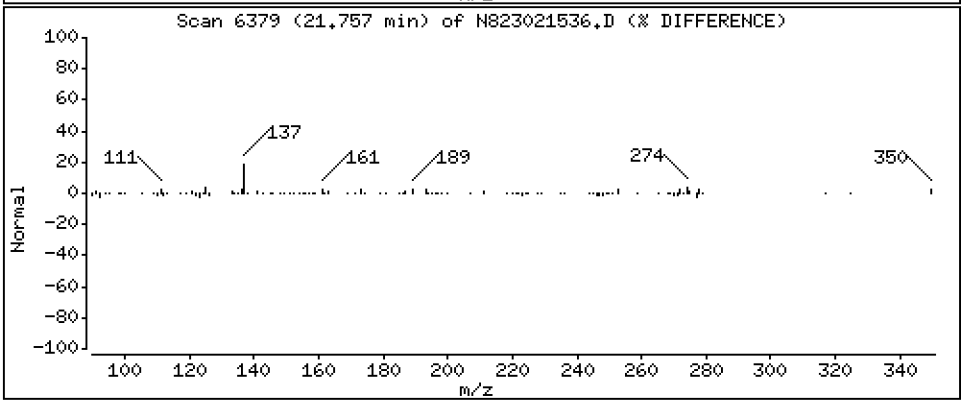












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230215A.b\N823021536.D
Lab Smp Id: 23A0626-29
Inj Date : 16-FEB-2023 03:27
Operator : JZ Inst ID: nt8.i
Smp Info : 23A0626-29
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 14:27 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.869	4.884	(1.000)	42724	2.00000	
	2 Naphthalene	128	4.897	4.913	(1.006)	77308	3.89169	3.892
$	3 2-Methylnaphthalene-d10	152	5.608	5.618	(1.152)	27603	2.36897	2.369
	4 2-Methylnaphthalene	141	5.656	5.665	(1.162)	9541	0.87318	0.8732
	5 1-methylnaphthalene	141	5.852	5.865	(1.202)	4701	0.42391	0.4239
	9 Acenaphthylene	152	7.060	7.069	(0.985)	4904	0.24877	0.2488
*	10 Acenaphthene-d10	164	7.170	7.180	(1.000)	26105	2.00000	
	11 Acenaphthene	153	7.221	7.227	(1.007)	979	0.07412	0.07412
	12 Dibenzofuran	168	7.373	7.379	(1.028)	2298	0.11455	0.1145
	14 Fluorene	166	7.850	7.860	(1.095)	2428	0.15583	0.1558
*	15 Phenanthrene-d10	188	9.216	9.223	(1.000)	49297	2.00000	
	16 Phenanthrene	178	9.251	9.257	(1.004)	8538	0.35456	0.3546
	17 Anthracene	178	9.292	9.298	(1.008)	5917	0.27049	0.2705
	19 Carbazole	167	9.808	9.814	(1.064)	2306	0.11499	0.1150
	22 Fluoranthene	202	11.038	11.041	(1.198)	8419	0.32119	0.3212
$	21 Fluoranthene-d10	212	10.996	11.003	(1.193)	72823	3.34824	3.348
	23 Pyrene	202	11.566	11.559	(0.815)	14545	0.57282	0.5728
	24 Benzo(a)anthracene	228	14.054	14.067	(0.991)	13368	0.58084	0.5808
*	25 Chrysene-d12	240	14.184	14.196	(1.000)	40956	2.00000	
	27 Chrysene	228	14.260	14.266	(1.005)	31054	1.26748	1.267
	28 Benzo(b)fluoranthene	252	16.808	16.821	(0.929)	22234	1.06819	1.068
	29 Benzo(k)fluoranthene	252	16.871	16.881	(0.932)	10992	0.53914	0.5391
	30 Benzo(j)fluoranthene	252	16.950	16.960	(0.936)	9366	0.51030	0.5103
	31 Total Benzofluoranthenes	252	16.808	16.821	(0.929)	42453	2.15361	2.154(M)
	34 Benzo(e)pyrene	252	17.735	17.744	(0.980)	13071	0.62974	0.6297
	32 Benzo(a)pyrene	252	17.864	17.877	(0.987)	10810	0.59017	0.5902
*	33 Perylene-d12	264	18.101	18.108	(1.000)	35739	2.00000	
	35 Perylene	252	18.171	18.180	(1.004)	3334	0.16962	0.1696
$	36 Dibenzo(a,h)anthracene-d14	292	20.536	20.546	(1.135)	55357	3.95314	3.953
	37 Indeno(1,2,3-cd)pyrene	276	20.682	20.688	(1.143)	5540	0.26549	0.2655
	38 Dibenzo(a,h)anthracene	278	20.644	20.666	(1.140)	1475	0.08214	0.08214(M)
	39 Benzo(g,h,i)perylene	276	21.757	21.766	(1.202)	5330	0.28192	0.2819

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021536.D
Lab Smp Id: 23A0626-29
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 17:35
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	42744	21372	85488	42724	-0.05
10 Acenaphthene-d10	25236	12618	50472	26105	3.44
15 Phenanthrene-d10	47809	23905	95618	49297	3.11
25 Chrysene-d12	40868	20434	81736	40956	0.22
33 Perylene-d12	43096	21548	86192	35739	-17.07

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.87	-0.32
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.22	-0.07
25 Chrysene-d12	14.20	13.70	14.70	14.18	-0.09
33 Perylene-d12	18.11	17.61	18.61	18.10	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021536.D

Lab ID: 23A0626-29
nt8.i, 20230215A.b\FSIMPNA230119.m,   16-FEB-2023 03:27

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

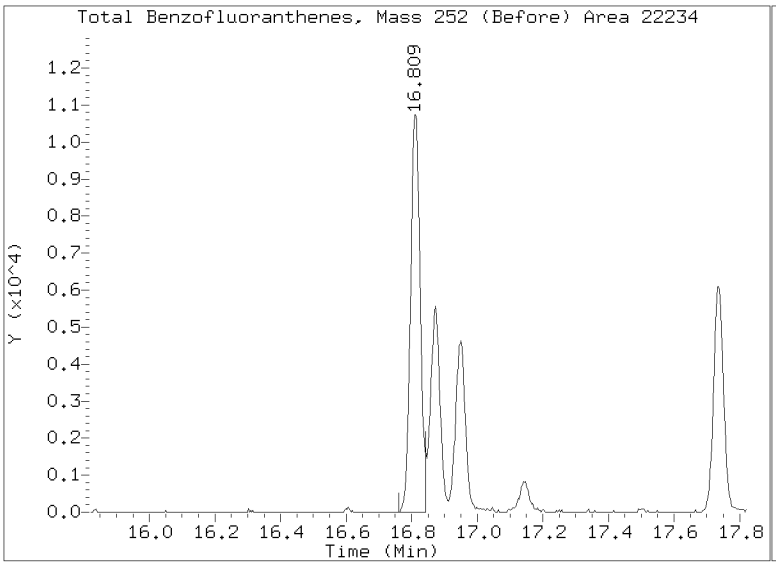
On Column LOD for nt8.i, 20230215A.b\FSIMPNA230119.m, PNAXEMDL.sub = 0.0080

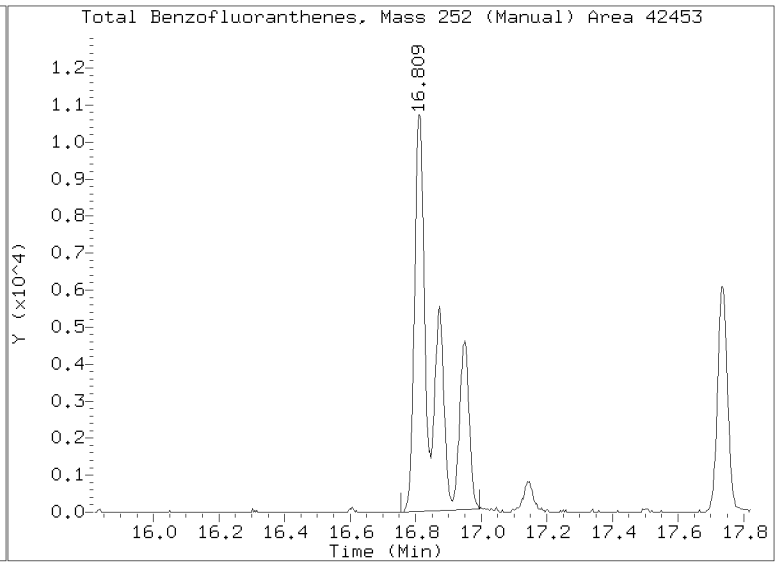
Exception: Benzo(e)pyrene 0.0800

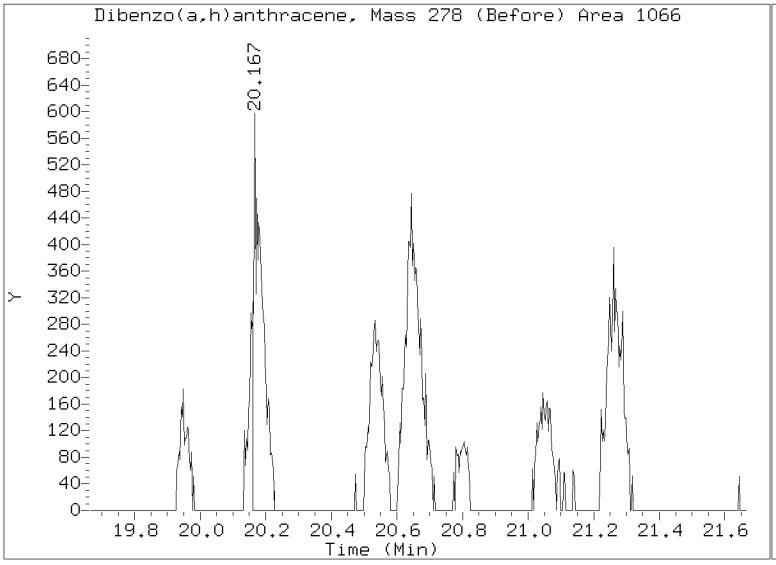
* Only compounds listed in the work order have been verified by the analyst *

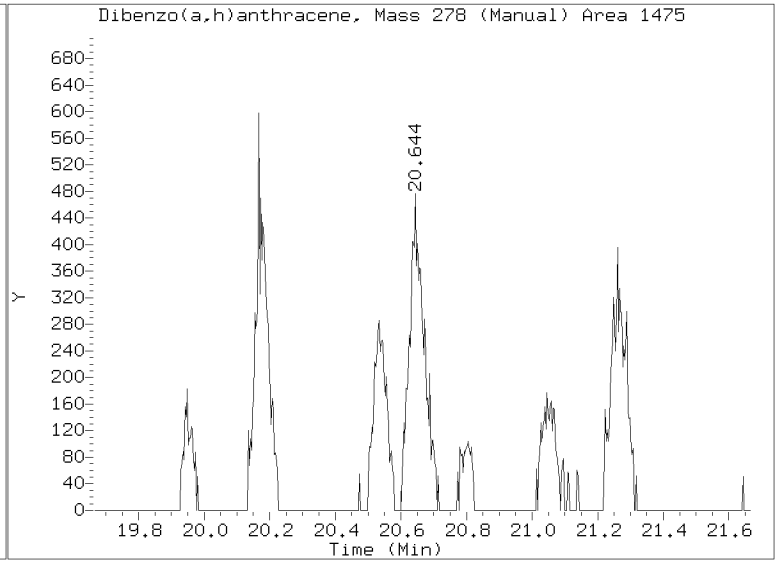
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230215A.b/N823021536.D
Injection Date: 16-FEB-2023 03:27
Lab ID:23A0626-29 Client ID:
Report Date: 02/19/2023 17:26









PREPARATION BATCH SUMMARY

EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Batch: BLB0144 Batch Matrix: Solid
Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-28_0-10	23A0626-01	N823021532.D	02/07/23 17:05	cPAH Version
LY-28_1-2	23A0626-03	N823021533.D	02/07/23 17:05	cPAH Version
LY-30_0-10	23A0626-10	N823021534.D	02/07/23 17:05	cPAH Version
LY-30_1-2	23A0626-12	N823021535.D	02/07/23 17:05	cPAH Version
LY-DUP_0-10	23A0626-29	N823021536.D	02/07/23 17:05	cPAH Version
Blank	BLB0144-BLK1	N823021723.D	02/07/23 17:05	
LCS	BLB0144-BS1	N823021724.D	02/07/23 17:05	
LCS Dup	BLB0144-BSD1	N823021725.D	02/07/23 17:05	

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0144

Prepared using: EPA 3546 (Microwave)

8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:Client list (See analytes))
8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:cPAHs)

Matrix: Solid Date Prepared: 2/7/23 Balance ID: BL3929002 Set Up By: CTO 2/7/23

WO Comments
23A0624: <E> LCS/LCSD and MS/MSD</E> <M> MS/MSD</M> <C> MS/MSD </C>
23A0626: Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

The following standards may be missing from this batch!

Designator	Description
QLS 4	QLS 4

Analysis: 8270E-SIM PAH (0.1ug/L or 5ug/kg)

Lab Number & Container	% Solids	Initial (g) Target Dry: 10 (Wet)	Actual	(REQ/Opt) GPC C/U (1:1) 1 (2) 3	(REQ/Opt) Sulfur C/U (1:1) Y/N (Transfer Rinse)	(REQ/Opt) Silica Gel C/U (1:1) Y/N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
23A0624-71 A	83.4	(11.99)	12.59	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-72 A	72.5	(13.80)	13.96	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-73 A	90.5	(11.05)	11.95	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-74 A	86.3	(11.59)	11.98	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-75 A	86.3	(11.59)	11.88	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-76 A	87.0	(11.50)	11.57	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-77 A	80.5	(12.42)	12.67	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-78 A	88.1	(11.36)	11.53	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-79 A	89.6	(11.16)	11.40	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-80 A	77.2	(12.96)	12.97	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-81 A	78.7	(12.70)	13.13	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-82 A	92.3	(10.83)	10.83	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-83 A	73.1	(13.68)	13.90	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-84 A	80.7	(12.40)	12.73	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0624-85 A	88.2	(11.34)	11.84	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0626-01 A	82.0	(12.20)	12.80	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0626-03 A	57.5	(17.38)	17.55	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0626-10 A	80.2	(12.48)	12.86	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0626-12 A	81.3	(12.31)	12.44	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23A0626-29 A	80.6	(12.40)	12.54	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	

Batch QC

Lab Number	% Solids	Initial (g) Target Dry: 10 (Wet)	Actual	(REQ/Opt) GPC C/U (1:1) 1 (2) 3	(REQ/Opt) Sulfur C/U (1:1) Y/N (Transfer Rinse)	(REQ/Opt) Silica Gel C/U (1:1) Y/N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BLB0144-BLK1	100.0	(10.00)	10.00	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
BLB0144-BS1	100.0	(10.00)	10.00	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
BLB0144-BSD1	100.0	(10.00)	10.00	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
BLB0144-MS1	92.3	(10.83)	10.83	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	Use 23A0624-82
BLB0144-MSD1	92.3	(10.83)	10.83	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	Use 23A0624-82

QR 2/7/23
Client ID verified By Date

TDC 2/14/23
Preparation Reviewed By Date

2/7/23 SH 17:45
Extraction Date and Time

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0144

Prepared using: EPA 3546 (Microwave)

8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:Client list (See analytes))
8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:cPAHs)

WO Comments
23A0624: <E> LCS/LCSD and MS/MSD</E> <M> MS/MSD</M> <C> MS/MSD </C>
23A0626: Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

Prep Steps

Microwave
1 2 3
CR 2/8/23
Analyst/Date

Pre-GPC KD 100°C (No Exchange)
0 1 2 3 4 5 6
LD/AV 2-8-23
Analyst/Date

Pre GPC TurboVap
1 2 3 4
SH 2/8/23
Analyst/Date

GPC
1 2 3
ZH 2/9/23
Analyst/Date

Post-GPC KD 80°C Hexane Exchange 2 x 20 mL 100°C
0 1 2 4 5 6
LD/AV 2-14
Analyst/Date

Pre-Cleanup TurboVap
1 2 3 4
TWC 2/14/23
Analyst/Date

Post-Cleanup TurboVap
1 2 3 4
TWC 2/14/23
Analyst/Date

Vialing
TWC 2/14/23
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: CR Date: 2/8/23	
Pre-Deactivated Glass Wool	L0008252
Anhydrous Sodium Sulfate	L0000759
1:1 Methylene Chloride/Acetone	L0000878
Methylene Chloride	L0000807
Pre GPC KD Analyst: LD/AV Date: 2-8-23	
Methylene Chloride	L0000880
Hexane	K011373
GPC Filter Prep Analyst: SH Date: 2/8/23	
Methylene Chloride	L0000808
GPC Analyst: ZH Date: 2/9/23	
Methylene Chloride	L0000808
GPC Calibration File	CLA0166
Post GPC KD Analyst: LD/AV Date: 2-14-23	
Methylene Chloride	L0000806
Hexane	L0000809
Vialing Analyst: TWC Date: 2/14/23	
Hexane	L0000809
Methylene Chloride	L0000808
Silica Gel (SPE) darts	K011573
Sodium Sulfite	N/A
Tetrabutylammonium hydrogensulfate (TBAS)	N/A

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 15/75µg/mL	B K009860 Exp Date: 9/28/23	100µL	LD	SH
Spike 15/75µg/mL	15 K009081 Exp Date: 8/4/23	200µL	LD	SH

MANUALLY ENTER EXPIRATION DATES!

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory
Analyst Notes

Extraction Parameter: SIM PAH Extraction Batch: BLB0144

Total Solids Batch: BLA0182 Work Order(s): 23A0624 71-85

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= 71-85	CR 2/3/23
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions). 624-71 @ vialing pre. GPC filter, due to extracts appearing dark and containing significant particulate, it took 3 GPC filter & filter the ~~extract~~ extractie extracts was difficult to filter	SH 2/8/23
☒ Share Samples (Y) / N	CR 2/3/23
☒ Multiple Jars Y / (N)	CR 2/3/23
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: SIM PAH Extraction Batch: BLB0144

Total Solids Batch: BLB0016 Work Order(s): 23A0626

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
[x] No Anomalies (standard soil/wet sediment/sand/gravel)= ϕ7, 12.	NJ ϕ2/ϕ4/23
[x] Standing Water Decanted (Not shared)= ϕ1, ϕ3, ϕ5, 12, 29.	
[ ] Standing Water Homogenized (Shared samples)=	
[ ] Clay/Clumps (Difficult to homogenize)=	
[x] Rocks (%+size)? 20.0% ϕ3	NJ ϕ2/ϕ4/23
[ ] Organics (Leaves/sticks/grass)=	
[x] Oily, obvious fuel/sulfur odors= ϕ1, ϕ3.	NJ ϕ2/ϕ4/23
[ ] Received in 32oz jar(s)=Homogenized in Pyrex dish=	
[ ] Previously Frozen =	
[x] Other (Details)= Shell 20.0% pieces = ϕ1, ϕ5, 1ϕ, 29.	NJ ϕ2/ϕ4/23
Aqueous:	
[ ] No Anomalies	
[ ] Turbid/Color=	
[ ] Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
[ ] Emulsions (%)=	
[ ] Oily, obvious fuel/sulfur odors=	
[ ] Other (Details)=	
[ ] Received in 1.0L Bottle(s)=No Bottle Rinse=	
[ ] Other Notes/Comments= (Note problems, concerns, corrective actions).	
[x] Share Samples Y / (N)	NJ ϕ2/ϕ4/23
[x] Multiple Jars Y / (N)	NJ ϕ2/ϕ4/23
[ ] Sample Pre-Screens indicate analyte activity=	
[ ] Sample weights/volumes reduced based on Pre-Screen=	

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0144

Prepared using: EPA 3546 (Microwave)

8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:Client list (See analytcs))
8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:cPAHs)

WO Comments

23A0624: <E> LCS/LCSD and MS/MSD</E> <M> MS/MSD</M> <C> MS/MSD </C>

23A0626: Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0144

Prepared using: EPA 3546 (Microwave)

8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:Client list (See analytes))
8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:cPAHs)

WO Comments

23A0624: <E> LCS/LCSD and MS/MSD</E> <M> MS/MSD</M> <C> MS/MSD </C>

23A0626: Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh into beakers-lightly dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add DCM ONLY to the vessels (until solvent is 3 inches above soil layer after homogenization). 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-re-homogenize while hot then let cool 10-15 min in Refridgerator 05. Re-homogenize while cool. 7. Decant DCM into Erlenmeyer flask with a funnel containing pre-deactivated glasswool. 8. Rinse with DCM 9. Microwave a 2nd time using 1:1 DCM/ACE. 10. Let cool and decant the solvent then empty the soil into the funnel and rinse with DCM. 11. If GPC is Req add 10mL Hexane and KD to 5mL at 100°C (NO EXCHANGE) 12. If GPC is NOT Req = KD to 5mL at 100°C. Exchange to Hexane (2X with 10mL) to 5mL at 100°C. 13. TurboVap. 14. If no GPC then Sulfur clean is REQUIRED. 15. Sulfur clean = Hexane transfer rinse. 16. Silica Clean-up Any Color=REQ (All or none). 17. TurboVap 18. Vial in DCM. A. Need Total Solids Y / N ☐ B. Archive/Freeze Y / N ☐	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: _____ Extraction Batch _____

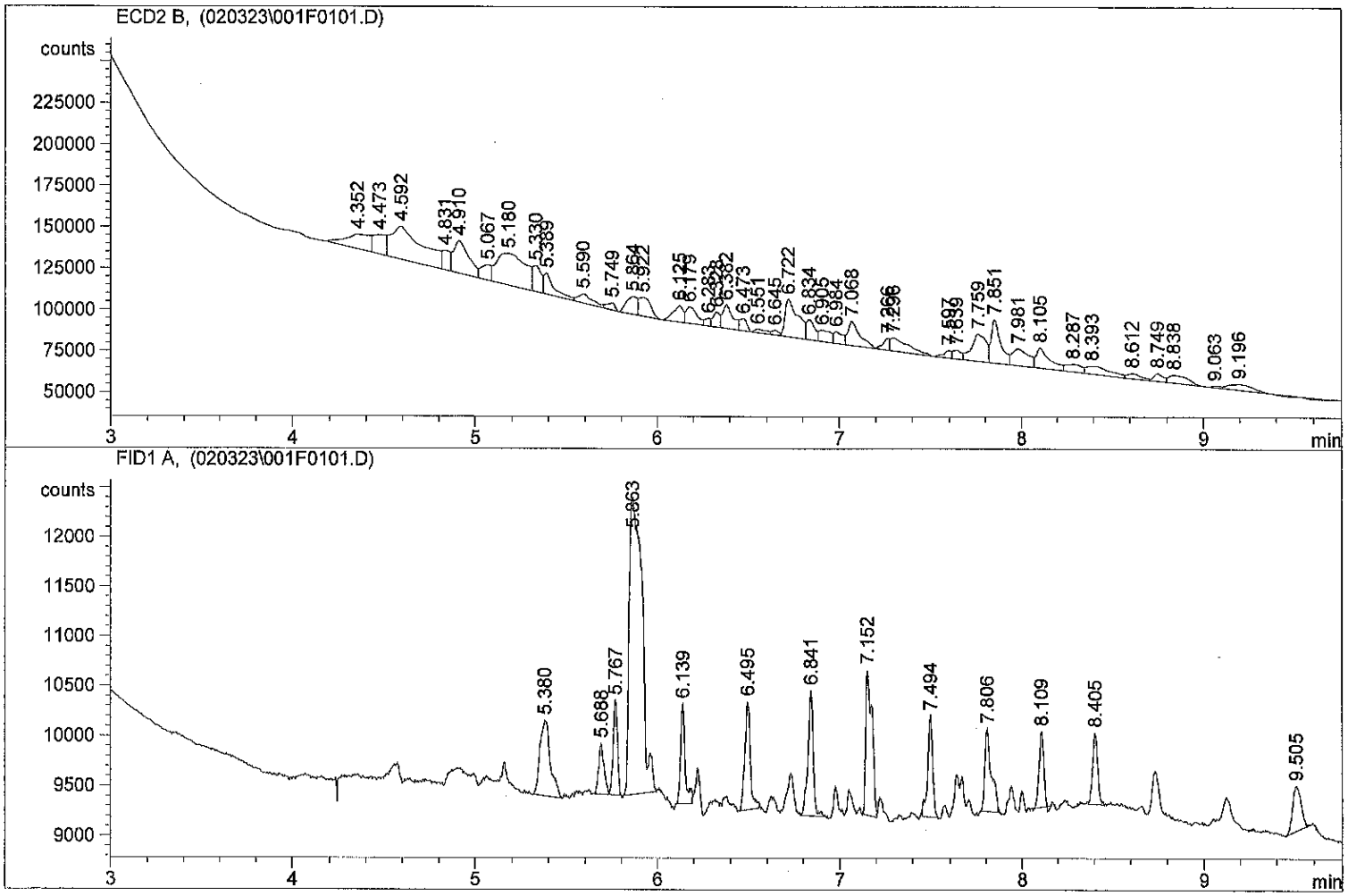
Total Solids Batch: BLA0382 Work Order(s): 23A0624 71-85

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☐ No Anomalies (standard soil/wet sediment/sand/gravel)=	
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☒ Oily, obvious fuel/sulfur odors= 71-85	CR 2/3/23
☐ Received in 32oz Jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples (Y) / N	CR 2/3/23
☒ Multiple Jars Y / (N)	CR 2/3/23
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

3056F

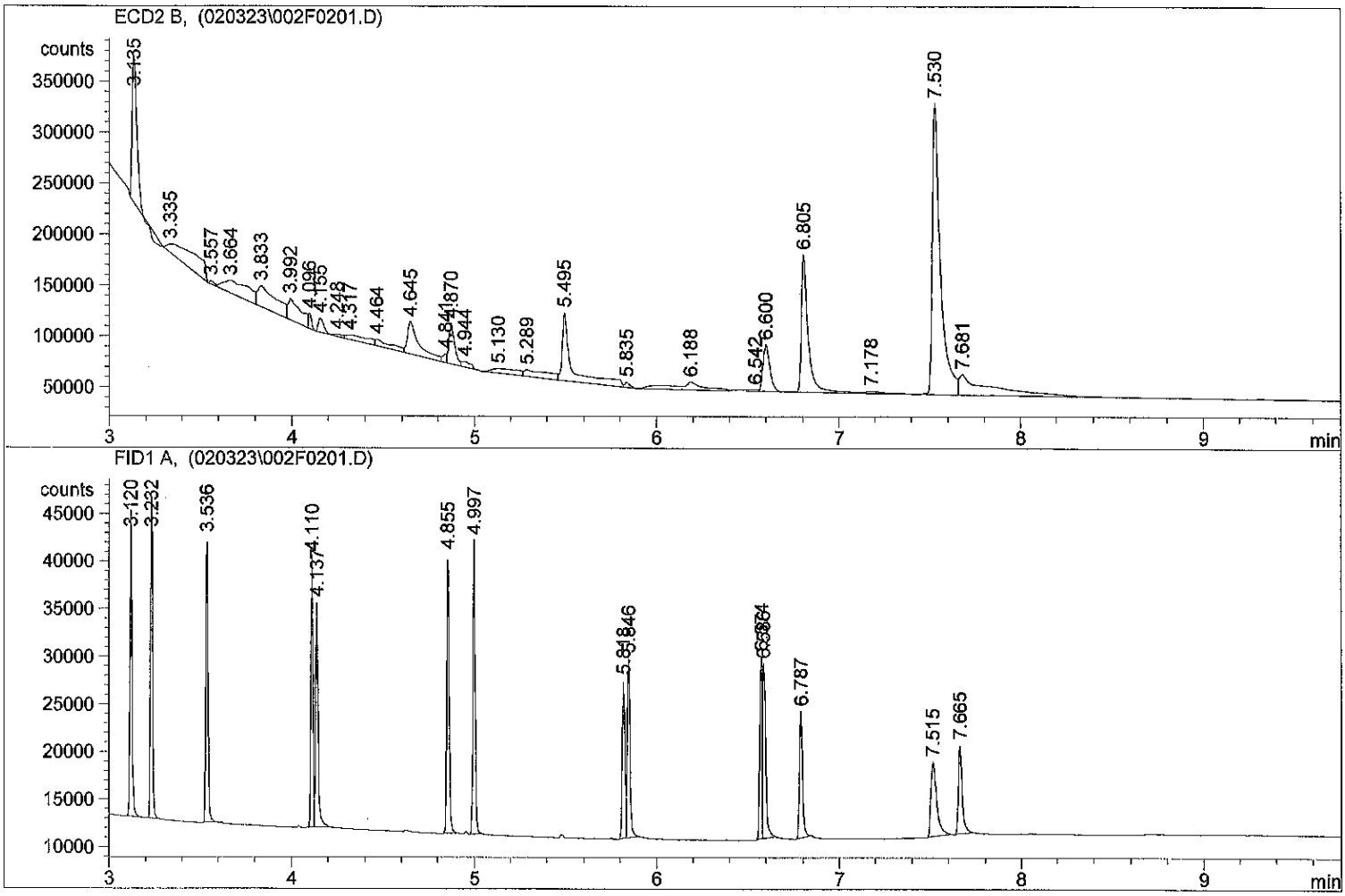
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Injection Date	: 2/3/2023 5:23:41 PM	Seq. Line :	1
Sample Name	: DCM RINSE	Location :	Vial 1
Acq. Operator	: CR	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



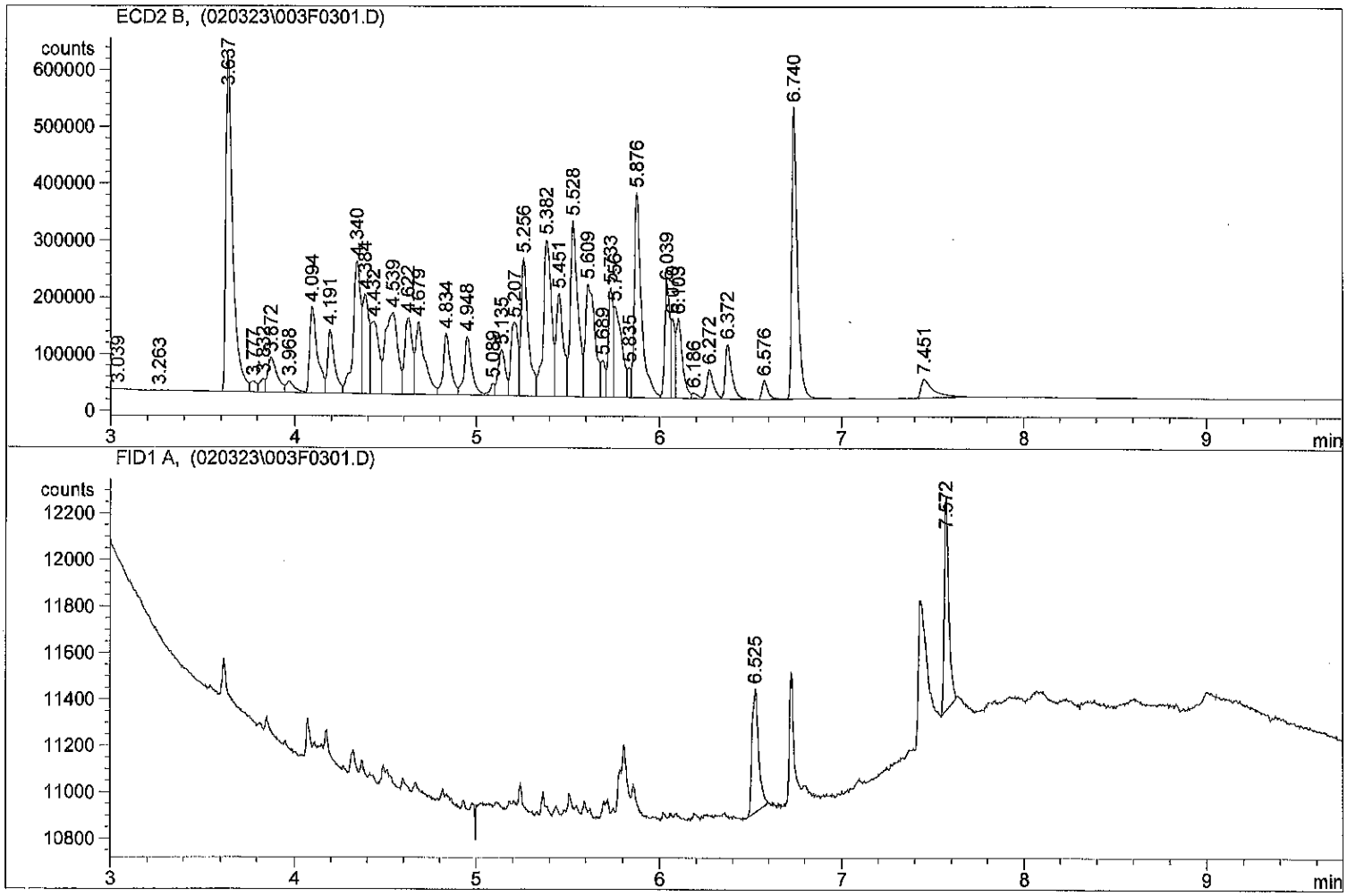
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Injection Date	: 2/3/2023 5:37:37 PM	Seq. Line	: 2
Sample Name	: PNA STD 10PPM	Location	: Vial 2
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



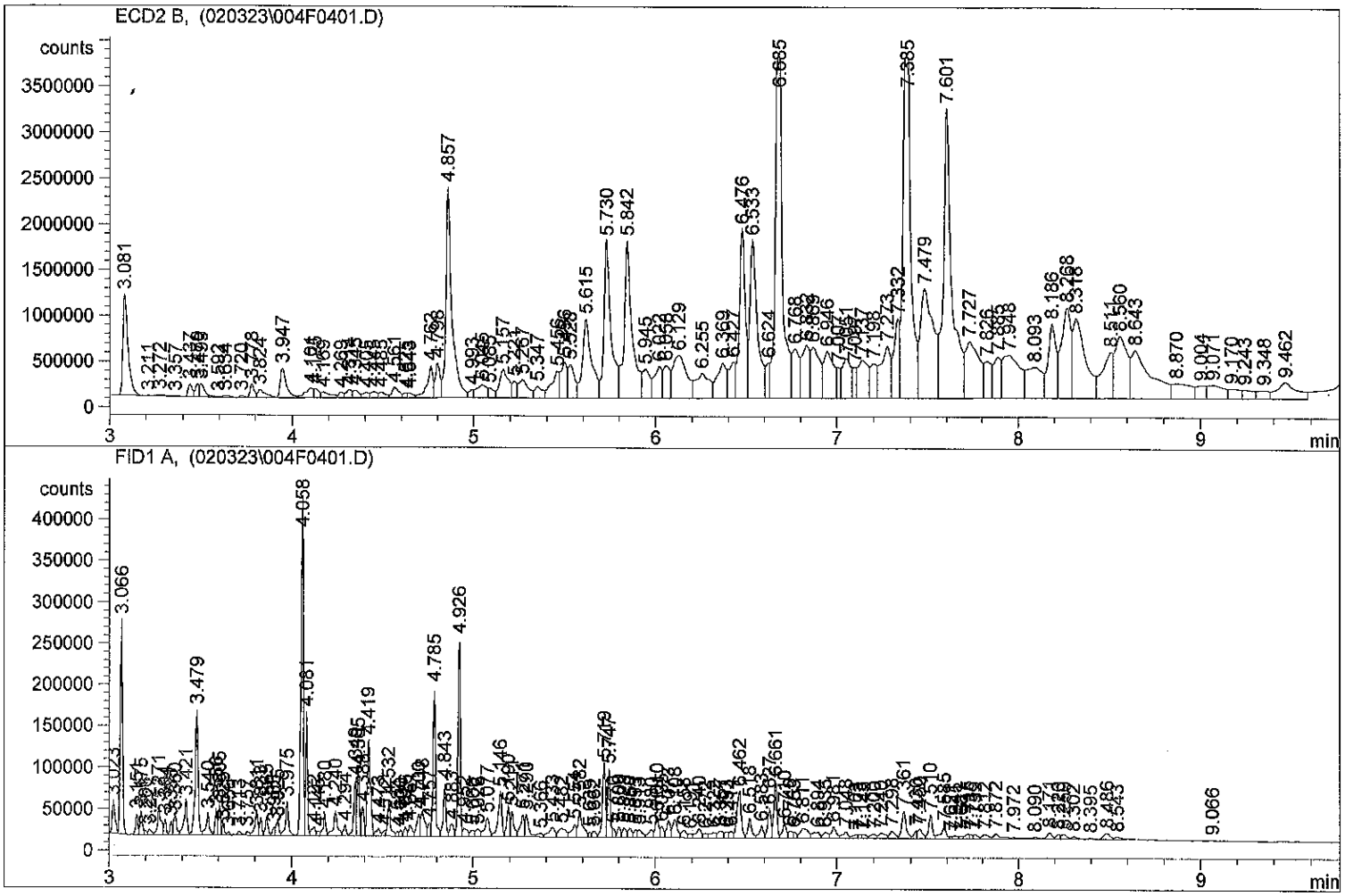
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Injection Date	: 2/3/2023 5:51:31 PM	Seq. Line	: 3
Sample Name	: AR1660 1PPM	Location	: Vial 3
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



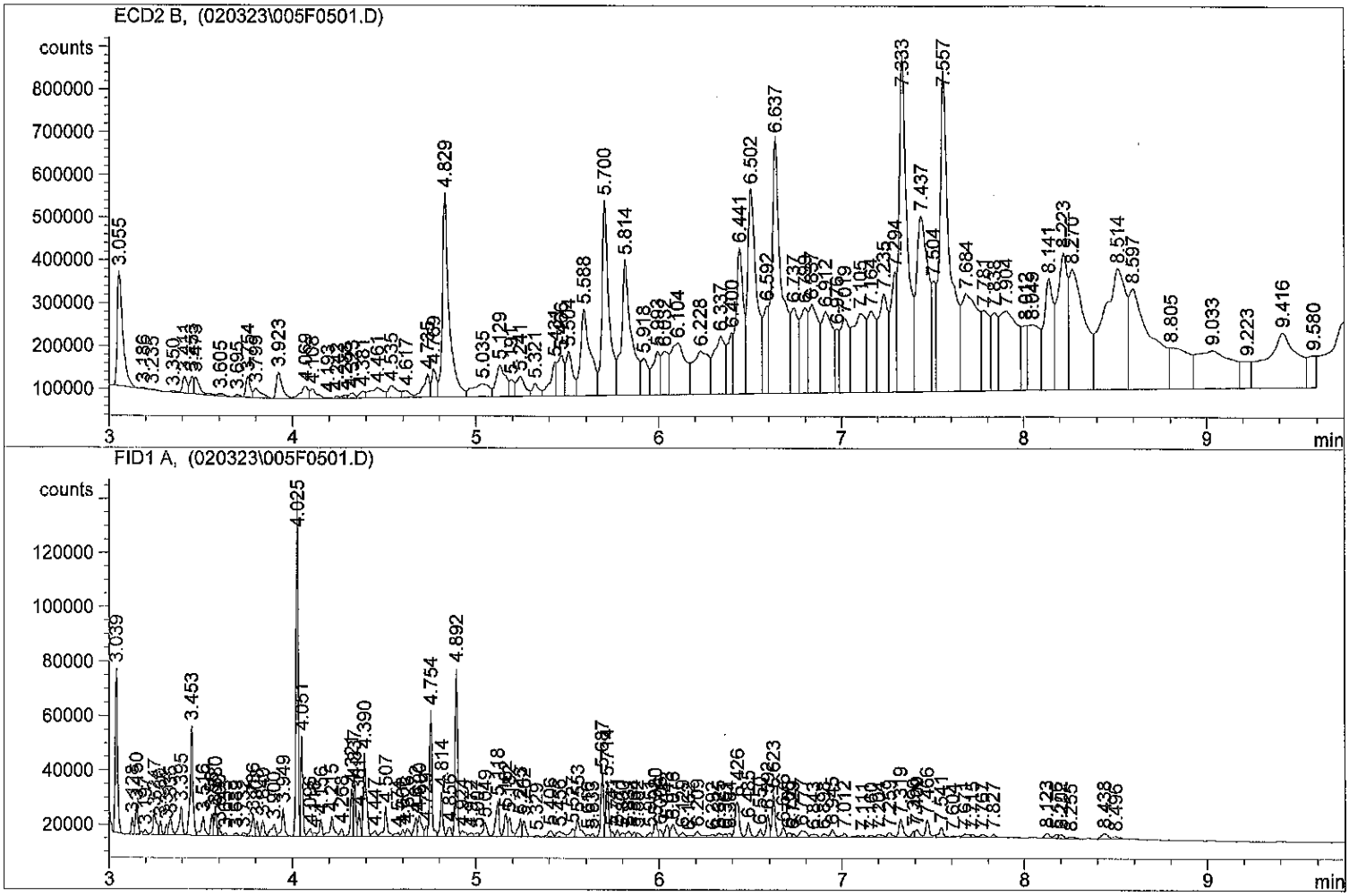
*** End of Report ***

Injection Date	: 2/3/2023 6:06:05 PM	Seq. Line	: 4
Sample Name	: 23A0624 71	Location	: Vial 4
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



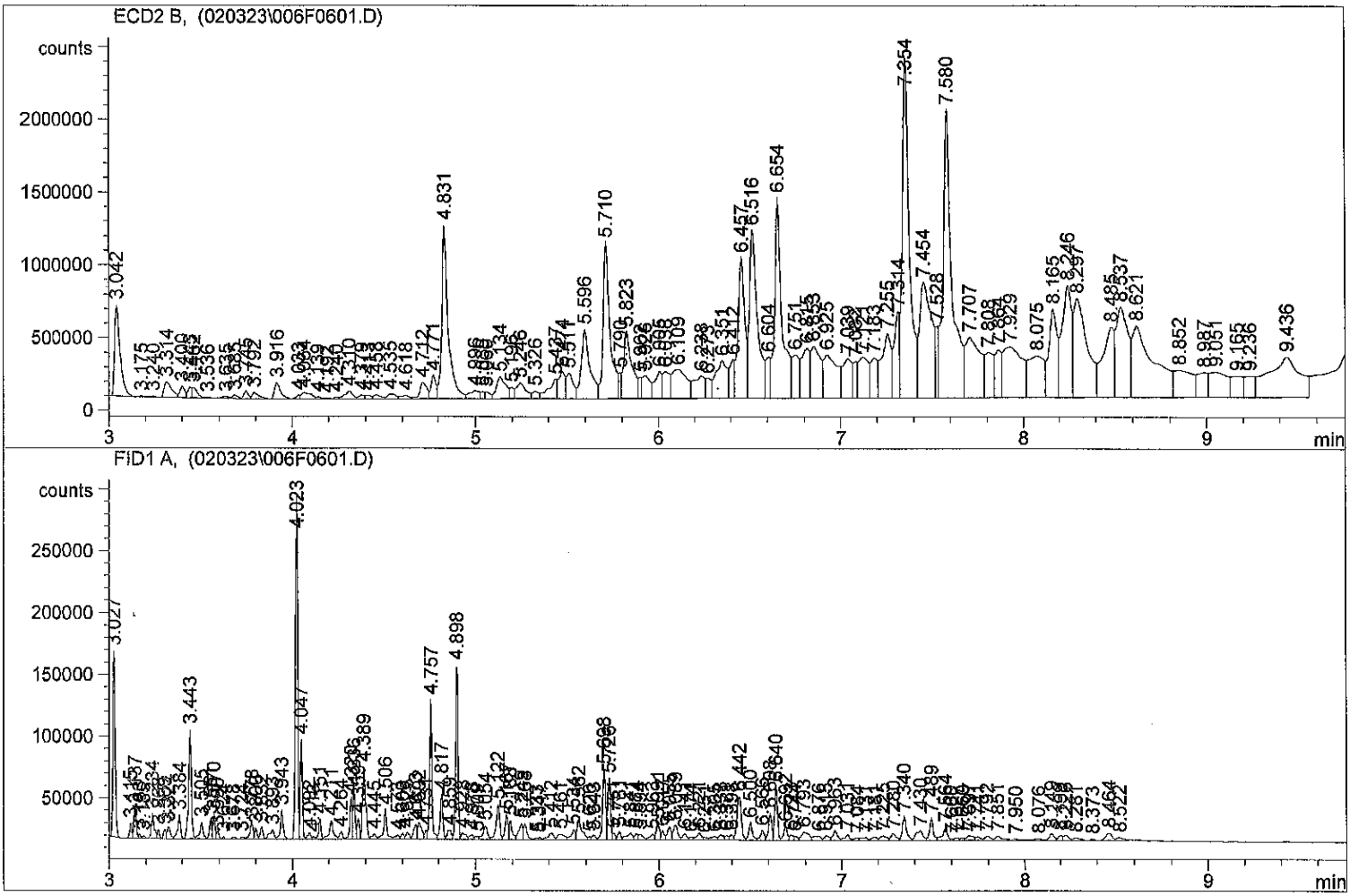
*** End of Report ***

Injection Date	: 2/3/2023 6:20:03 PM	Seq. Line	: 5
Sample Name	: 23A0624 72	Location	: Vial 5
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



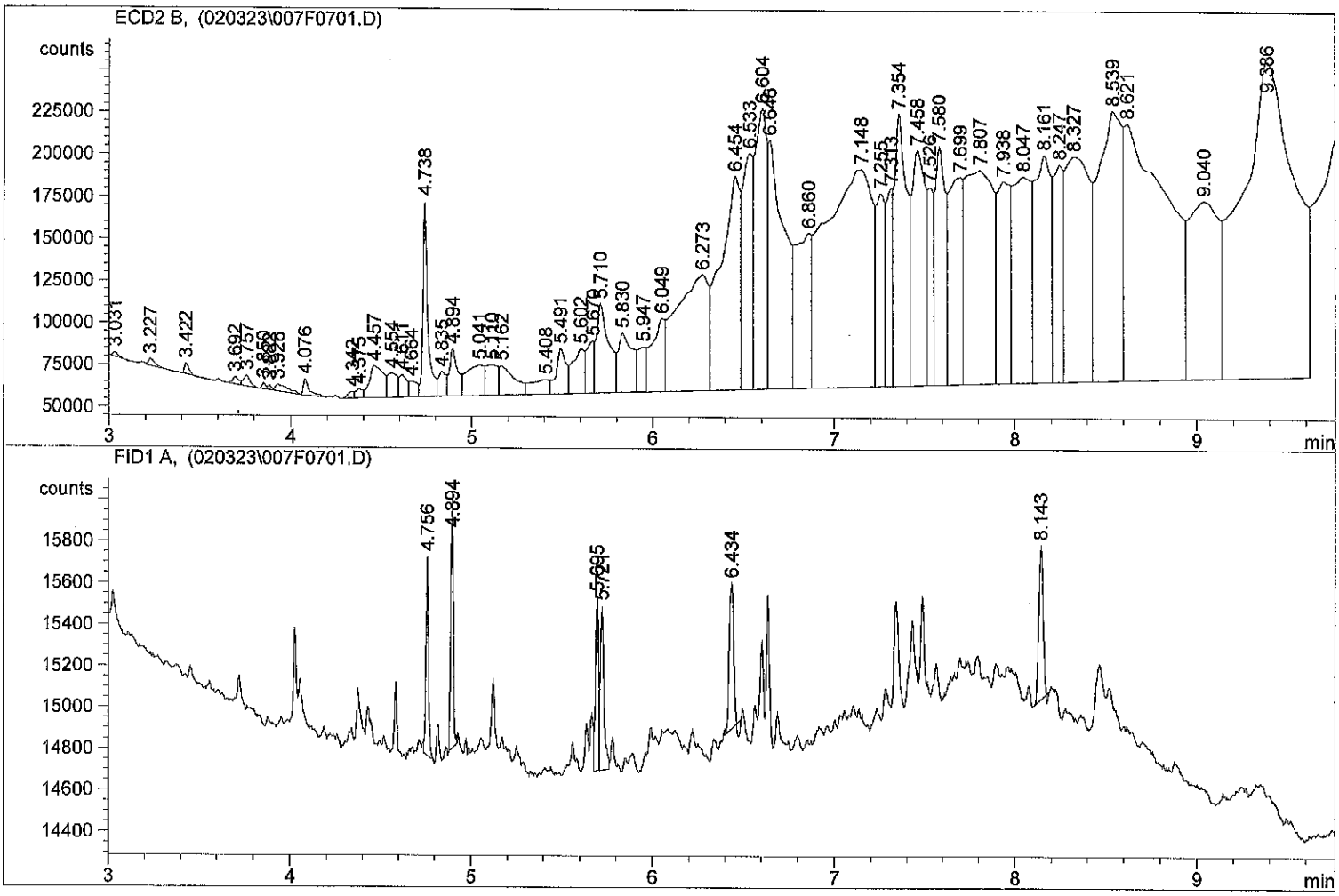
*** End of Report ***

Injection Date	: 2/3/2023 6:34:40 PM	Seq. Line	: 6
Sample Name	: 23A0624 73	Location	: Vial 6
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



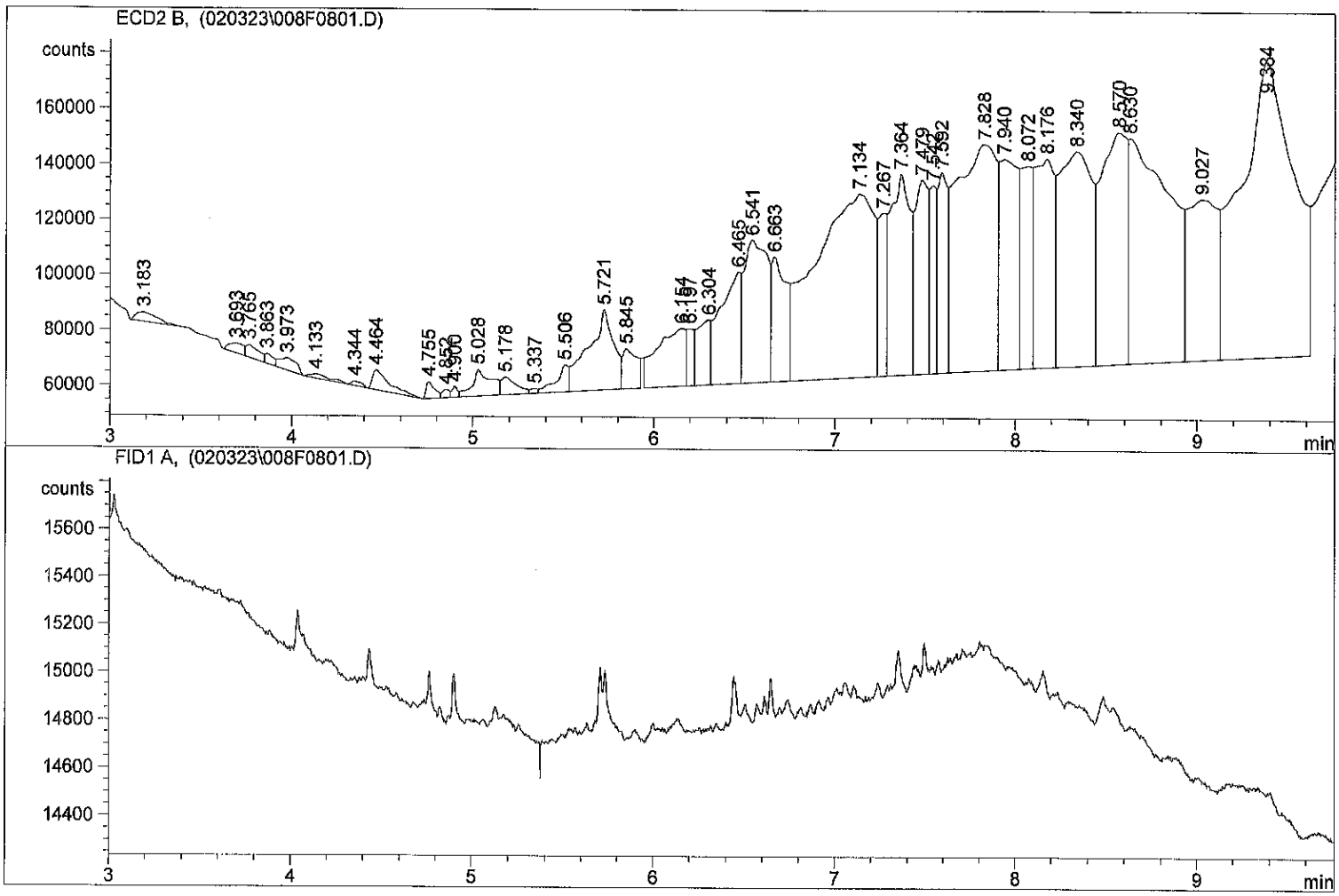
*** End of Report ***

Injection Date	: 2/3/2023 6:48:39 PM	Seq. Line :	7
Sample Name	: 23A0624 74	Location :	Vial 7
Acq. Operator	: CR	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

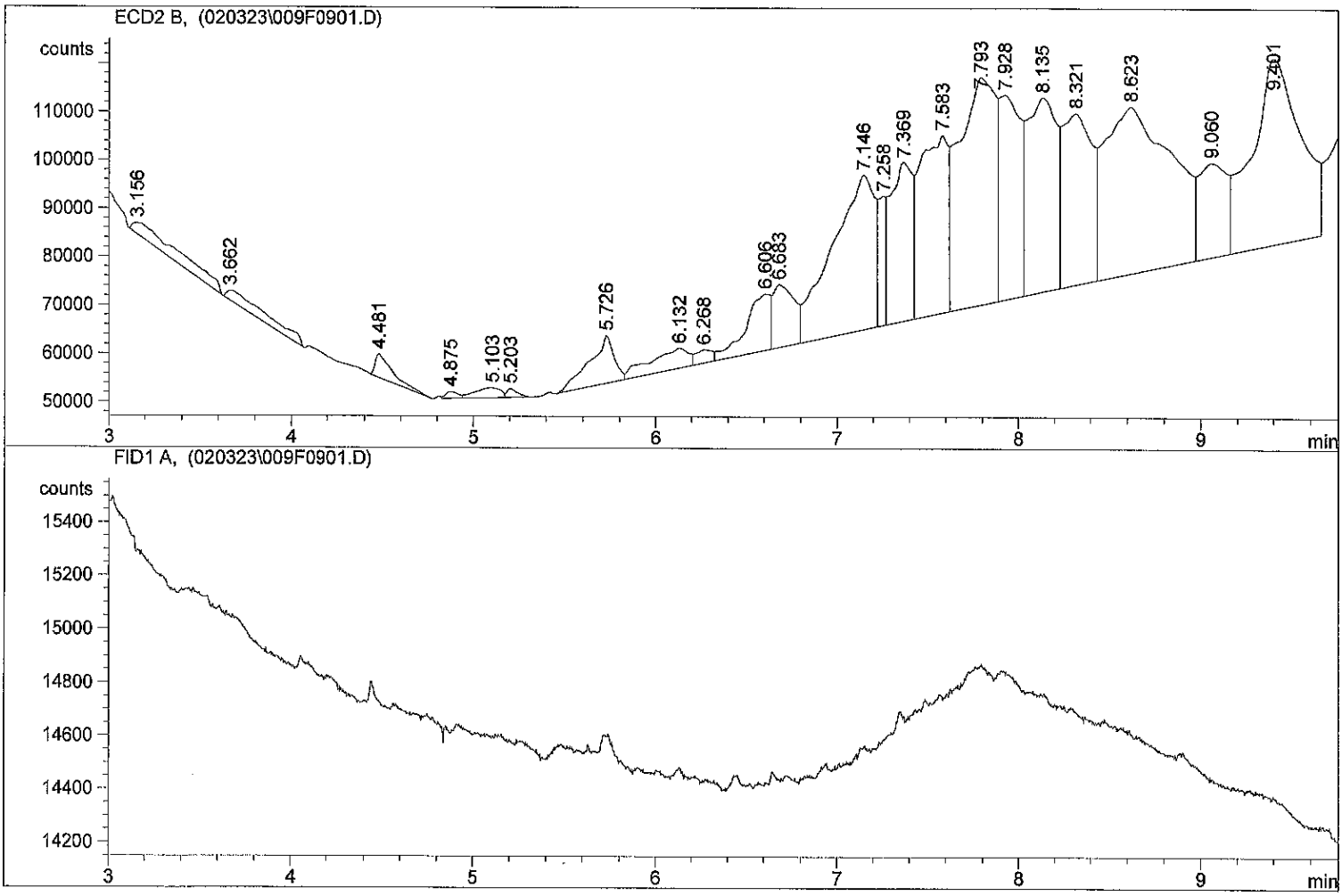
Injection Date	: 2/3/2023 7:03:19 PM	Seq. Line :	8
Sample Name	: 23A0624 75	Location :	Vial 8
Acq. Operator	: CR	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

Injection Date : 2/3/2023 7:17:20 PM Seq. Line : 9
Sample Name : 23A0624 76 Location : Vial 9
Acq. Operator : CR Inj : 1
Inj Volume : 1 µl

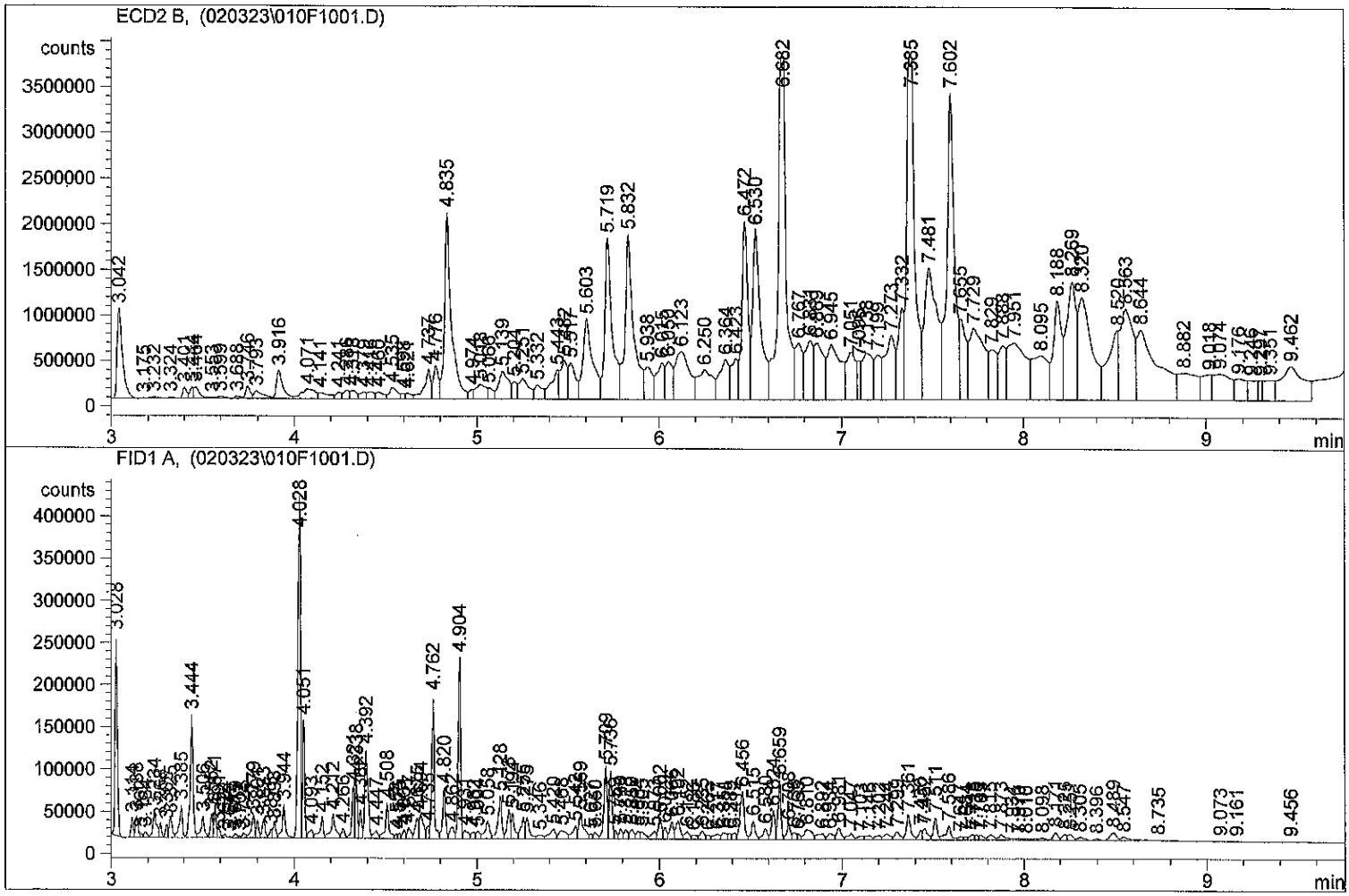
Sequence File : C:\HPCHEM\1\SEQUENCE\020323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



*** End of Report ***

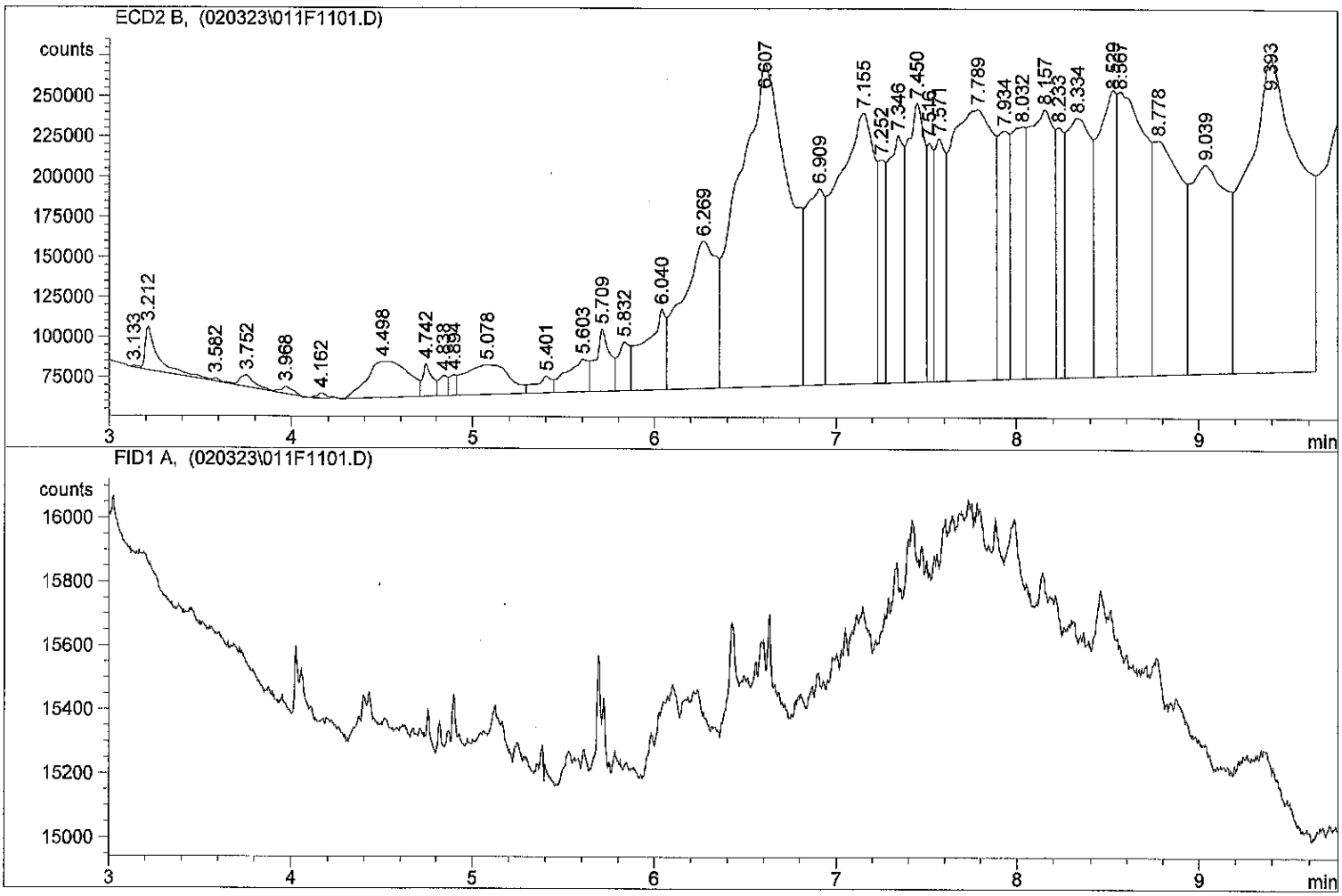
Injection Date : 2/3/2023 7:31:53 PM Seq. Line : 10
Sample Name : 23A0624 77 Location : Vial 10
Acq. Operator : CR Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\020323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



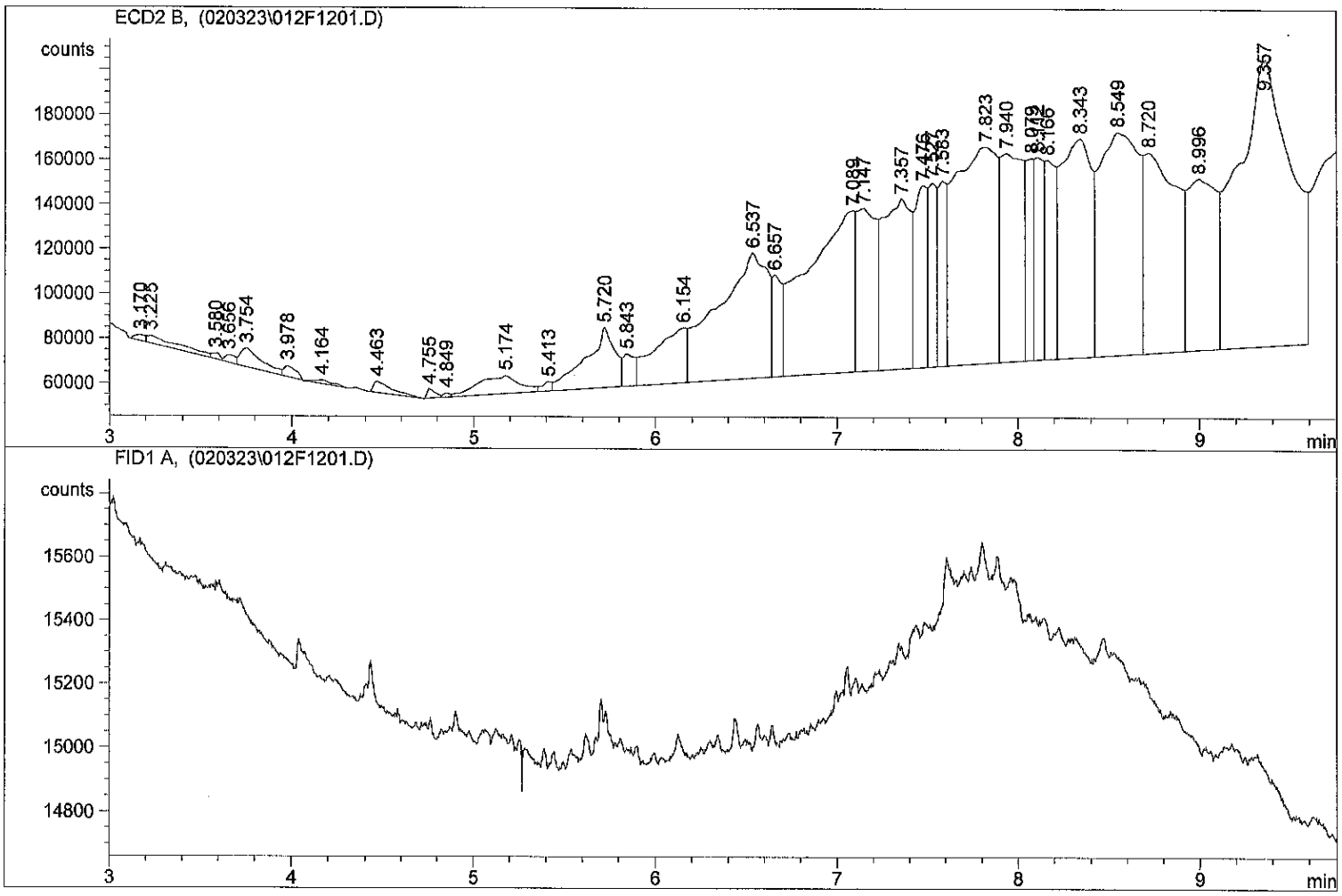
*** End of Report ***

Injection Date	: 2/3/2023 7:45:56 PM	Seq. Line :	11
Sample Name	: 23A0624 78	Location :	Vial 11
Acq. Operator	: CR	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

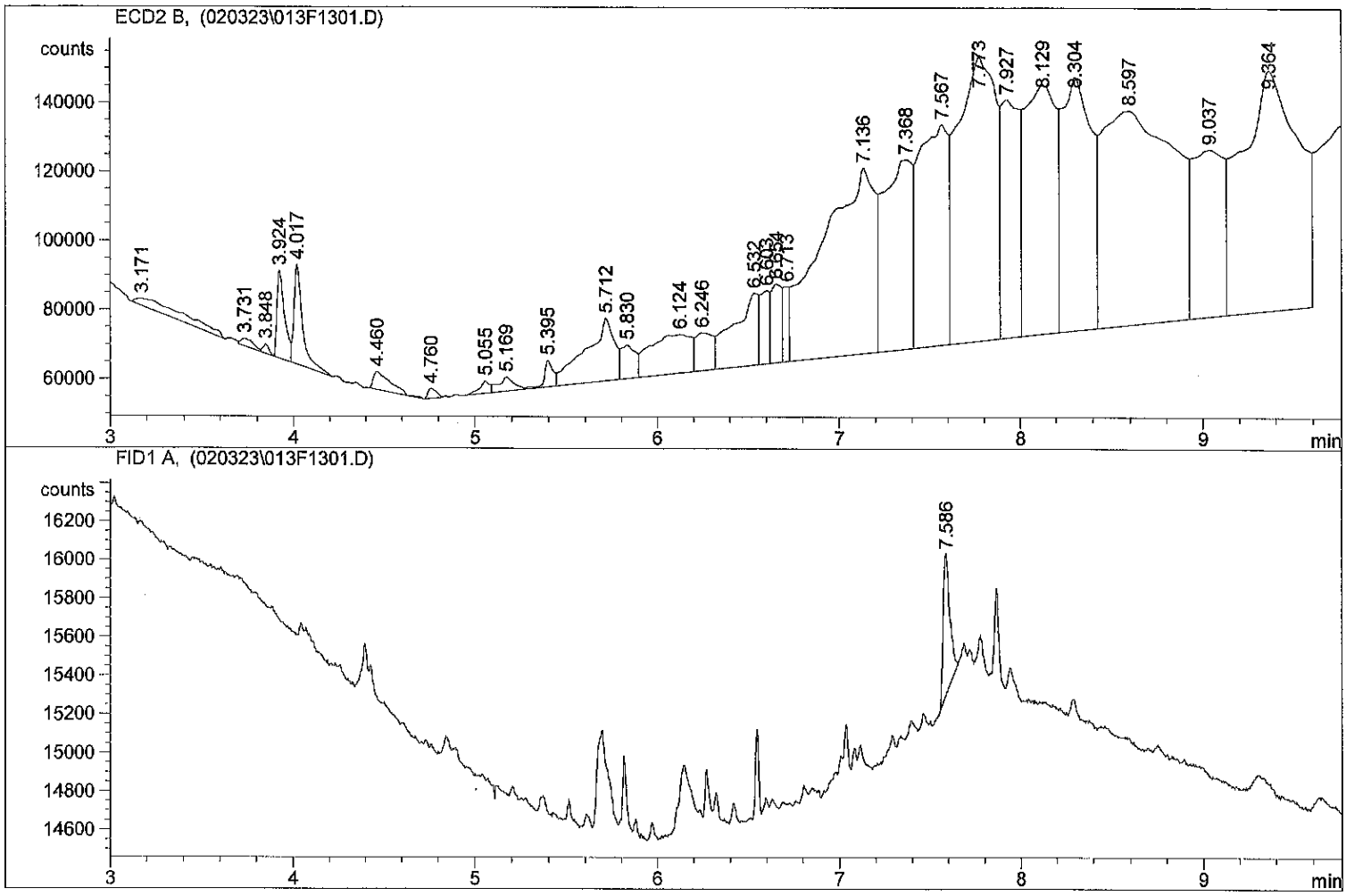
Injection Date	: 2/3/2023 8:00:30 PM	Seq. Line	: 12
Sample Name	: 23A0624 79	Location	: Vial 12
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

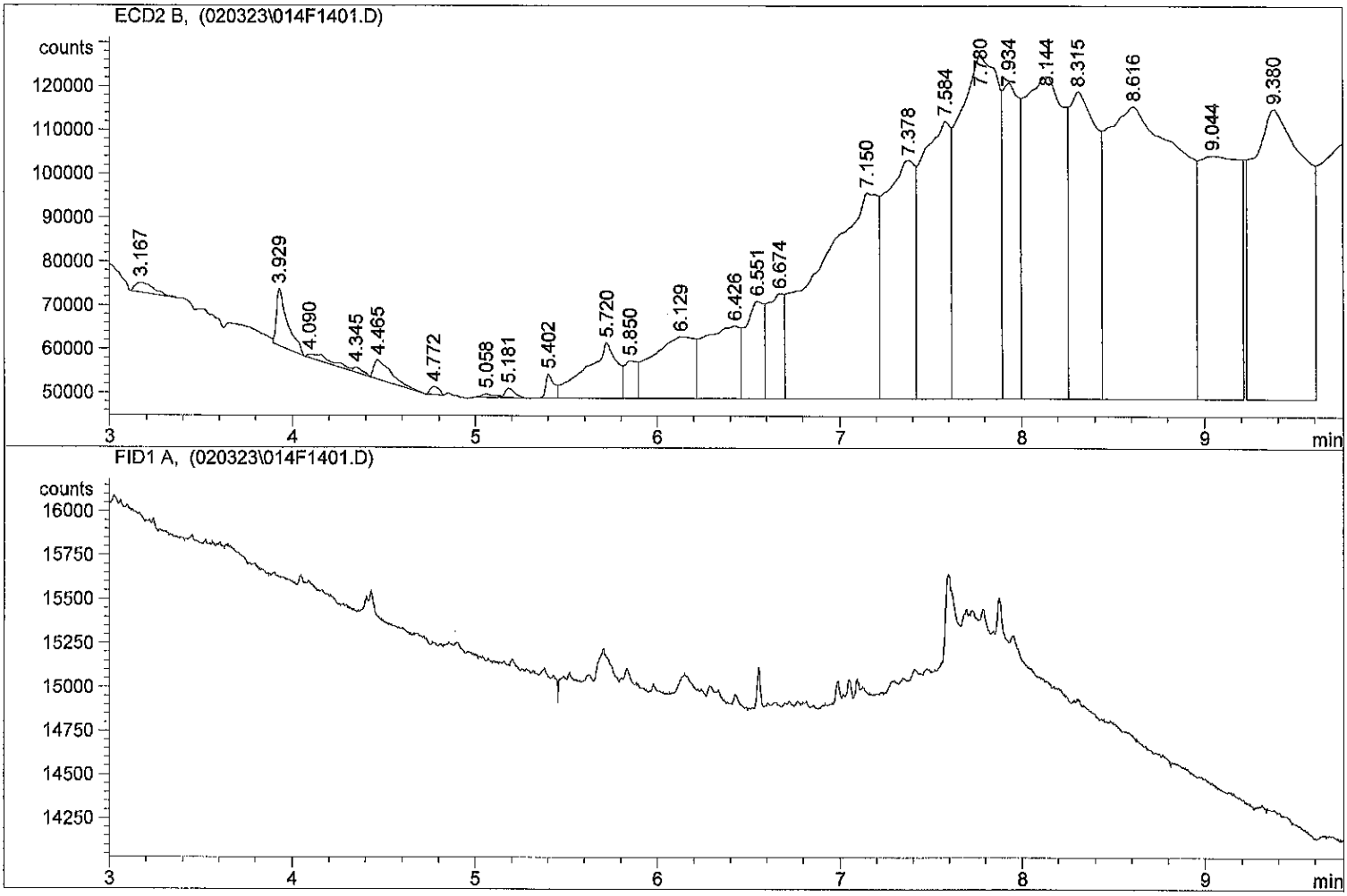
Injection Date : 2/3/2023 8:14:32 PM Seq. Line : 13
Sample Name : 23A0624 80 Location : Vial 13
Acq. Operator : CR Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\020323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



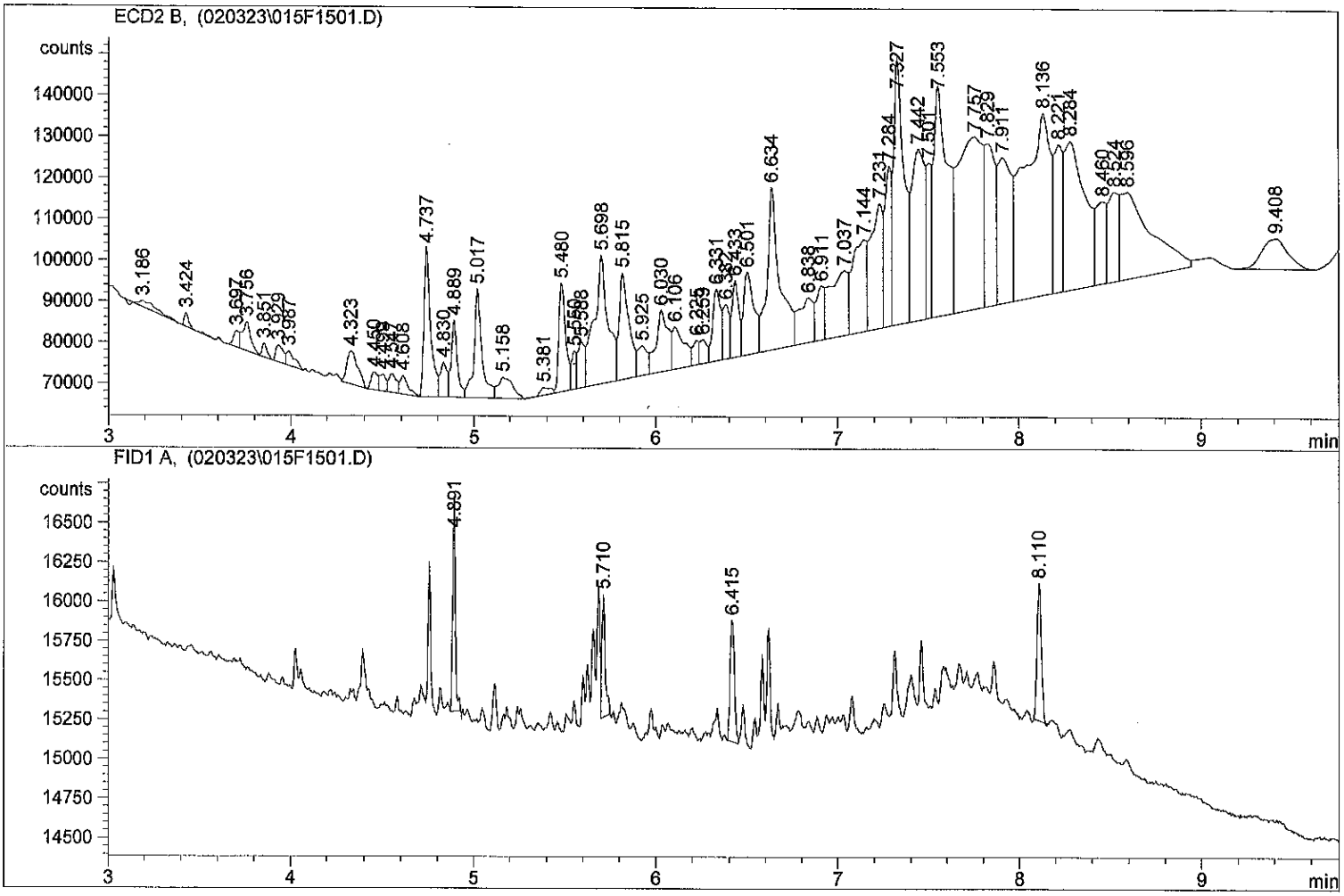
*** End of Report ***

Injection Date	: 2/3/2023 8:29:07 PM	Seq. Line	: 14
Sample Name	: 23A0624 81	Location	: Vial 14
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



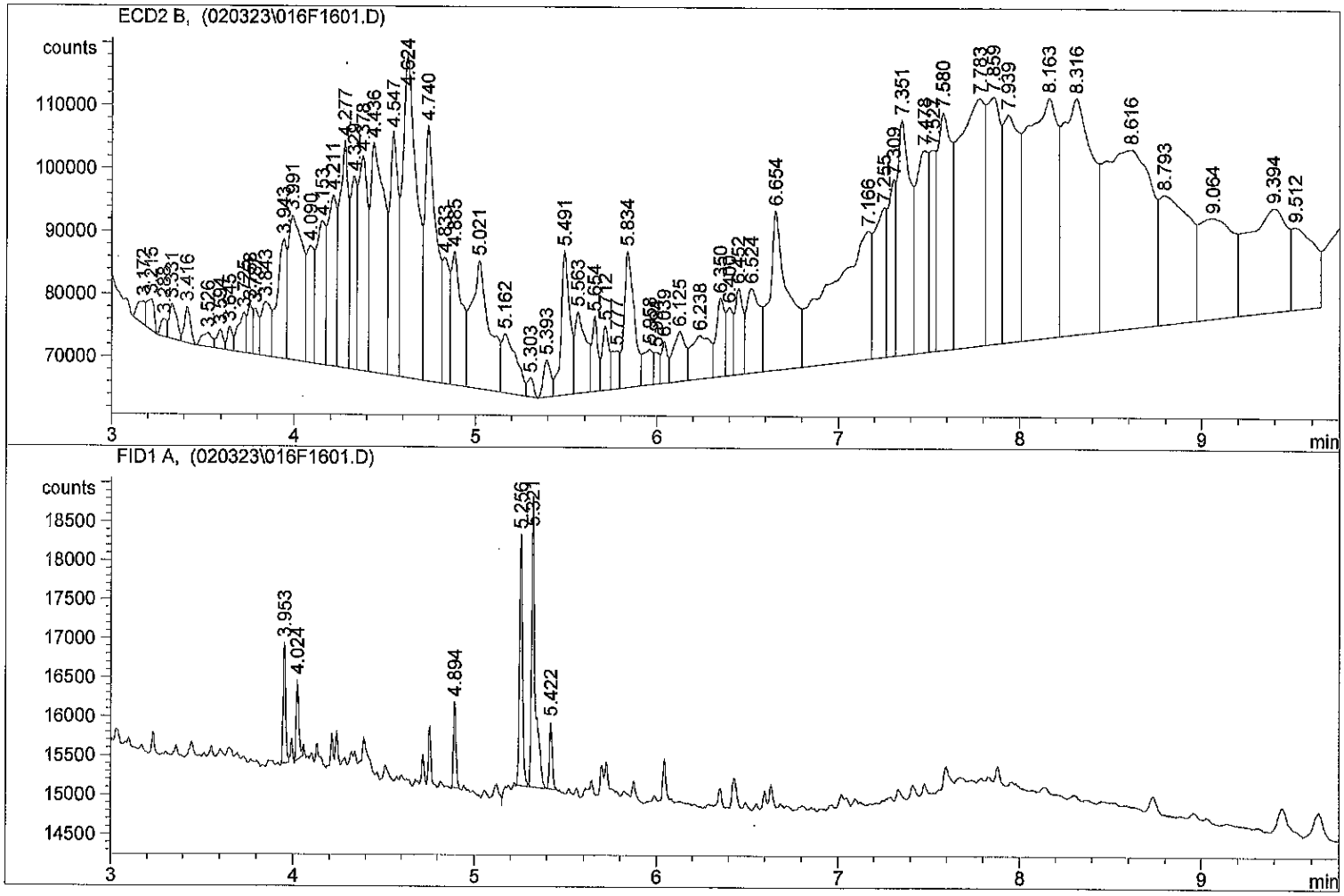
*** End of Report ***

Injection Date	: 2/3/2023 8:43:07 PM	Seq. Line	: 15
Sample Name	: 23A0624 82	Location	: Vial 15
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

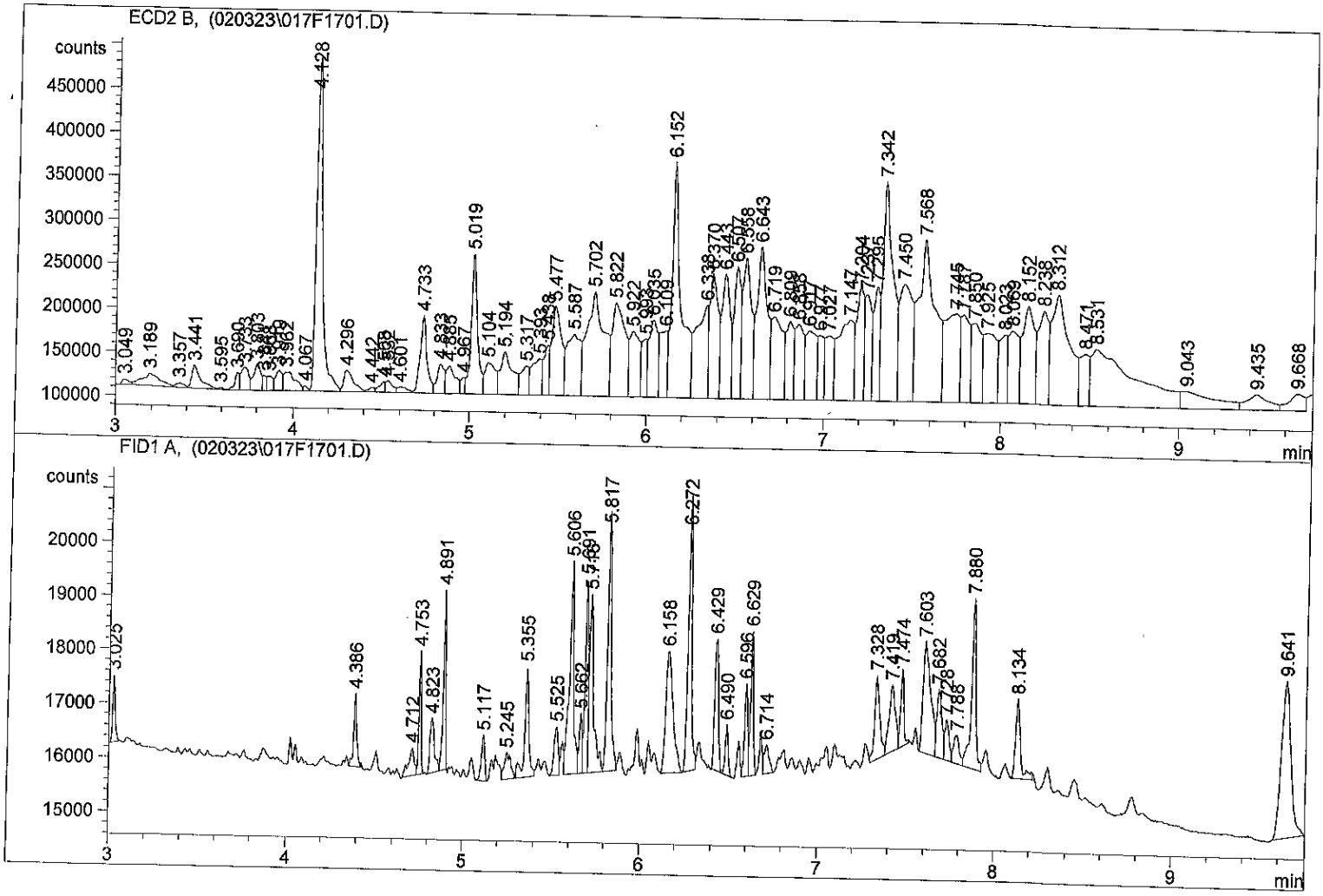
Injection Date	: 2/3/2023 8:57:42 PM	Seq. Line	: 16
Sample Name	: 23A0624 83	Location	: Vial 16
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

Data File C:\HPCHEM\1\DATA\020323\017F1701.D

Injection Date	: 2/3/2023 9:11:42 PM	Seq. Line	: 17
Sample Name	: 23A0624 84	Location	: Vial 17
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

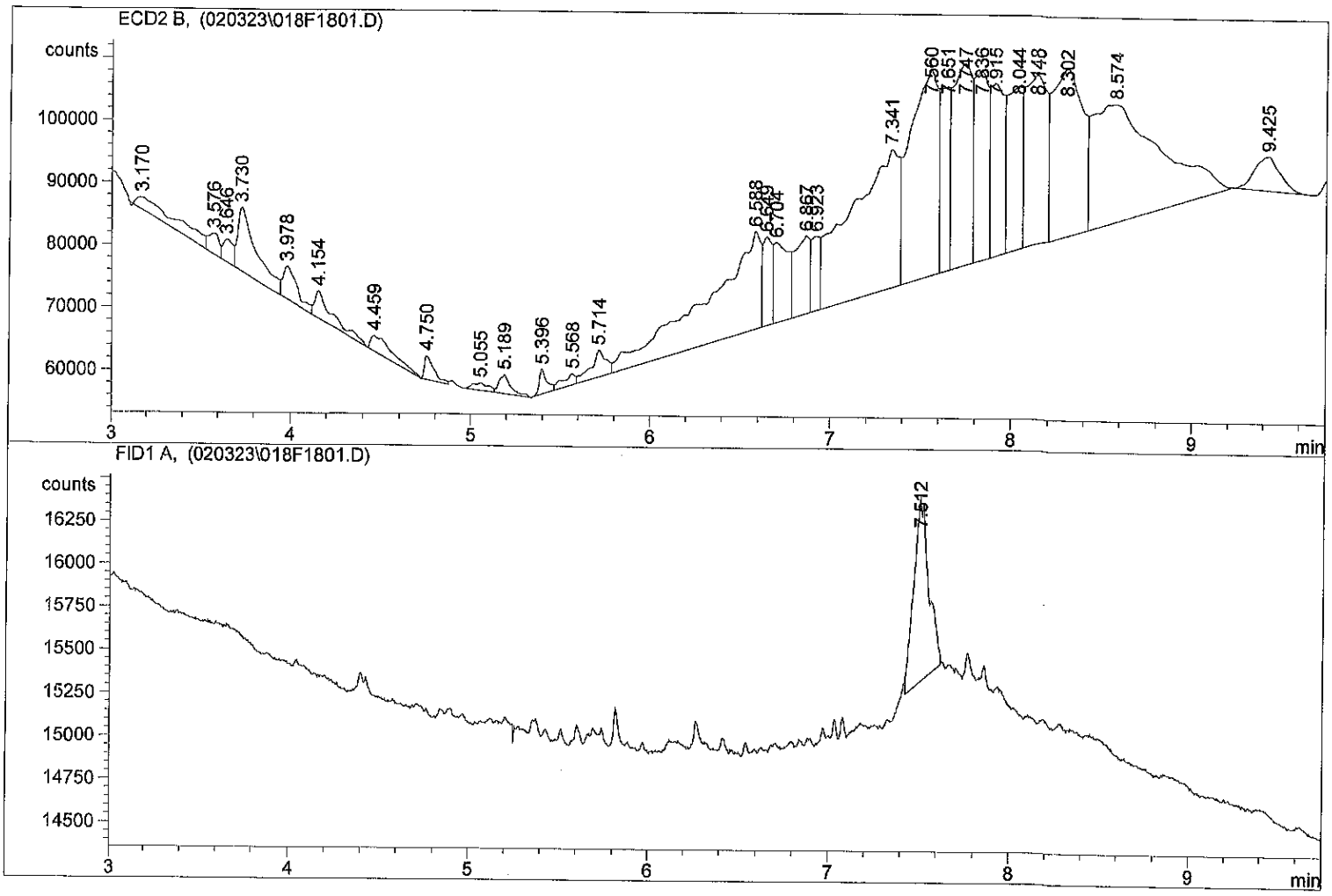
File C:\HPCHEM\1\DATA\020323\018F1801.D

Sample Name: 23A0624 85

Injection Date : 2/3/2023 9:26:19 PM
Sample Name : 23A0624 85
Acq. Operator : CR

Seq. Line : 18
Location : Vial 18
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\020323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



*** End of Report ***

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLB0124	Cleanup Type:	GPC
Cleanup Method:	EPA 3640A GPC Cleanup 1:1	Analysis:	EPA 8270E-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-DUP_0-10	23A0626-29	N823021536.D	02/09/2023	
Blank	BLB0144-BLK1	N823021723.D	02/09/2023	
LCS	BLB0144-BS1	N823021724.D	02/09/2023	
LCS Dup	BLB0144-BSD1	N823021725.D	02/09/2023	
LY-30_1-2	23A0626-12	N823021535.D	02/09/2023	
LY-28_0-10	23A0626-01	N823021532.D	02/09/2023	
LY-28_1-2	23A0626-03	N823021533.D	02/09/2023	
LY-30_0-10	23A0626-10	N823021534.D	02/09/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLB0124

Matrix: Solid **Cleanup using: Organics - EPA 3640A GPC Cleanup 1:1** **Check Standard: CLA0166-GPC2** **Printed: 2/14/2023 5:21:25PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23A0624-71	A	PP13S3.5-5	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-72	A	PP13S6-7	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-73	A	PP13S10-12	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-74	A	PP-DUP1	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-75	A	PP-DUP2	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-76	A	PP-DUP3	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-77	A	PP-DUP4	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-78	A	PK1S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-79	A	PK2S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-80	A	B1S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-81	A	B2S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-82	A	HS1S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-83	A	HS2S0.0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-84	A	HS3S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0624-85	A	SS-DUP1	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0626-01	A	LY-28_0-10	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0626-03	A	LY-28_1-2	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0626-10	A	LY-30_0-10	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0626-12	A	LY-30_1-2	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
23A0626-29	A	LY-DUP_0-10	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/9/2023	TWC	
BLB0144-BLK1	-	Blank	-	0.5	0.5	-	2/9/2023	TWC	
BLB0144-BS1	-	LCS	-	0.5	0.5	-	2/9/2023	TWC	

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Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLB0124

Matrix: Solid **Cleanup using: Organics - EPA 3640A GPC Cleanup 1:1** **Check Standard: CLA0166-GPC2** **Printed: 2/14/2023 5:21:25PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
BLB0144-BSD1	-	LCS Dup	-	0.5	0.5	-	2/9/2023	TWC	
BLB0144-MS1	-	Matrix Spike	-	0.5	0.5	-	2/9/2023	TWC	
BLB0144-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	2/9/2023	TWC	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLB0125	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 8270E-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-28_1-2	23A0626-03	N823021533.D	02/14/2023	
LCS	BLB0144-BS1	N823021724.D	02/14/2023	
Blank	BLB0144-BLK1	N823021723.D	02/14/2023	
LY-DUP_0-10	23A0626-29	N823021536.D	02/14/2023	
LCS Dup	BLB0144-BSD1	N823021725.D	02/14/2023	
LY-30_0-10	23A0626-10	N823021534.D	02/14/2023	
LY-28_0-10	23A0626-01	N823021532.D	02/14/2023	
LY-30_1-2	23A0626-12	N823021535.D	02/14/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLB0125

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 2/14/2023 5:22:15PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23A0624-71	A	PP13S3.5-5	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-72	A	PP13S6-7	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-73	A	PP13S10-12	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-74	A	PP-DUP1	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-75	A	PP-DUP2	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-76	A	PP-DUP3	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-77	A	PP-DUP4	A 02	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-78	A	PK1S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-79	A	PK2S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-80	A	B1S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-81	A	B2S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-82	A	HS1S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-83	A	HS2S0.0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-84	A	HS3S0-0.5	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0624-85	A	SS-DUP1	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0626-01	A	LY-28_0-10	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0626-03	A	LY-28_1-2	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0626-10	A	LY-30_0-10	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0626-12	A	LY-30_1-2	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
23A0626-29	A	LY-DUP_0-10	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	2/14/2023	TWC	
BLB0144-BLK1	-	Blank	-	0.5	0.5	-	2/14/2023	TWC	
BLB0144-BS1	-	LCS	-	0.5	0.5	-	2/14/2023	TWC	

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Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLB0125

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 2/14/2023 5:22:15PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
BLB0144-BSD1	-	LCS Dup	-	0.5	0.5	-	2/14/2023	TWC	
BLB0144-MS1	-	Matrix Spike	-	0.5	0.5	-	2/14/2023	TWC	
BLB0144-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	2/14/2023	TWC	

Form I

METHOD BLANK DATA SHEET

EPA 8270E-SIM

Blank

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers			Project:	Anacortes Log Yard
Matrix:	Solid	Laboratory ID:	BLB0144-BLK1	File ID:	N823021723.D
Sampled:	N/A	Prepared:	02/07/23 17:05	Analyzed:	02/17/23 21:18
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	10 g / 0.5 mL
Batch:	BLB0144	Sequence:	SLB0244	Calibration:	GA00050
Instrument:	NT8	Column:	RXI-17Sil ms	Cleanups:	GPC, Silica Gel

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	5.00	U	0.82	5.00
218-01-9	Chrysene	1	5.00	U	1.05	5.00
205-99-2	Benzo(b)fluoranthene	1	5.00	U	1.37	5.00
207-08-9	Benzo(k)fluoranthene	1	5.00	U	0.76	5.00
50-32-8	Benzo(a)pyrene	1	5.00	U	0.61	5.00
193-39-5	Indeno(1,2,3-cd)pyrene	1	5.00	U	1.05	5.00
53-70-3	Dibenzo(a,h)anthracene	1	5.00	U	0.89	5.00
191-24-2	Benzo(g,h,i)perylene	1	5.00	U	1.07	5.00

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	150.00	114	76.0	32 - 120	
Dibenzo[a,h]anthracene-d14	150.00	178	119	21 - 133	
Fluoranthene-d10	150.00	142	94.8	36 - 134	

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Date : 17-FEB-2023 21:18

Client ID:

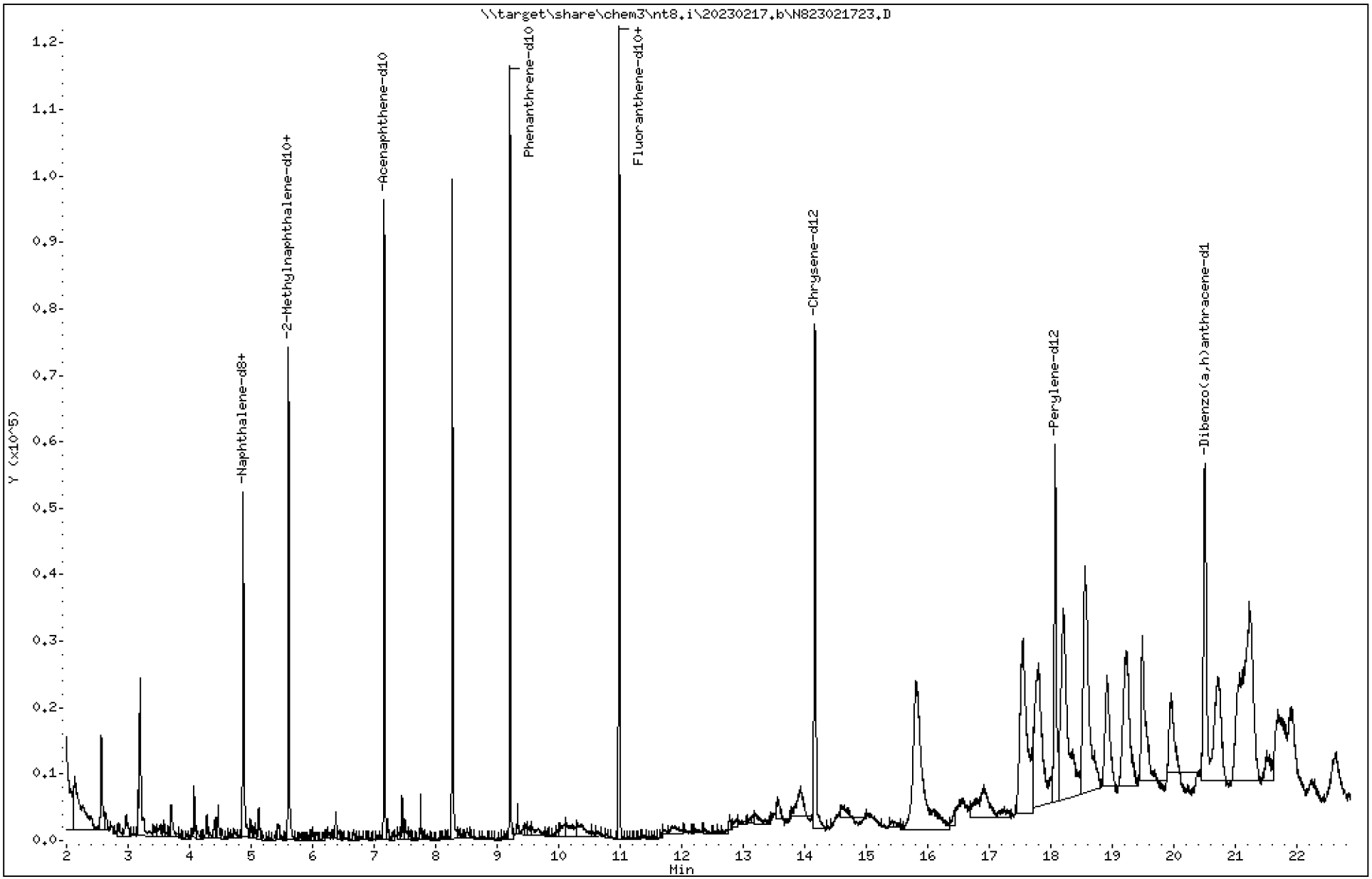
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Sample Info: BLB0144-BLK1,

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



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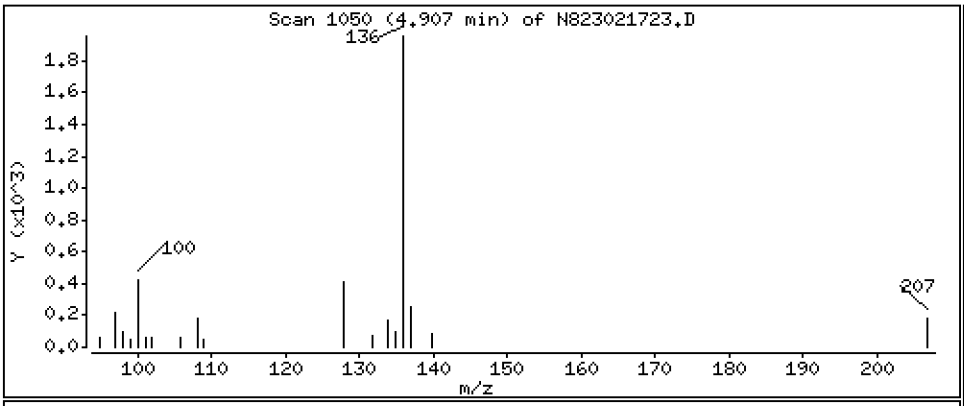
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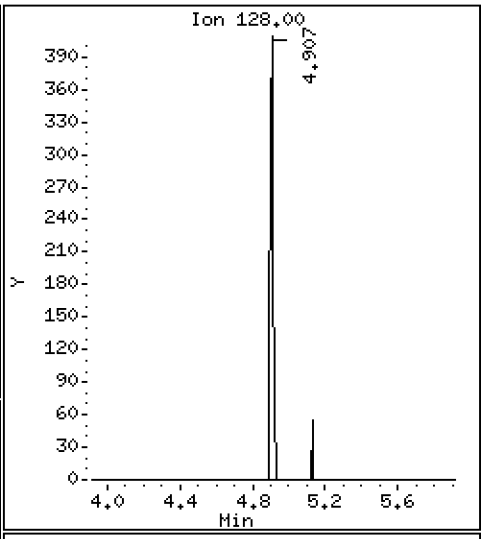
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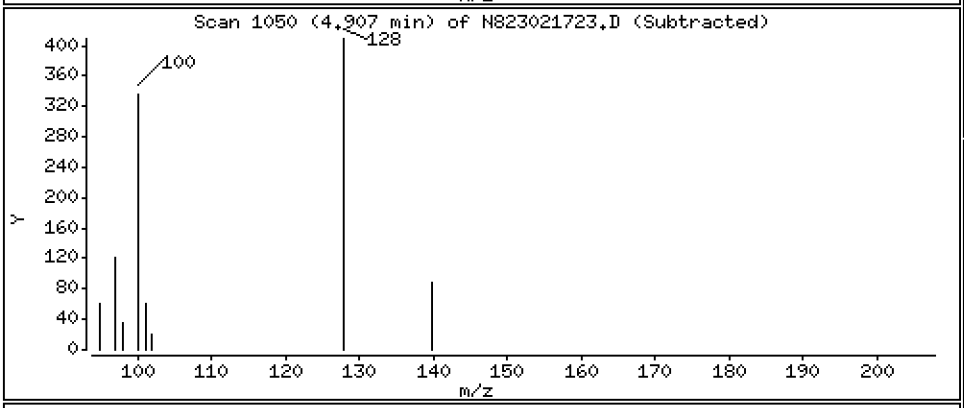
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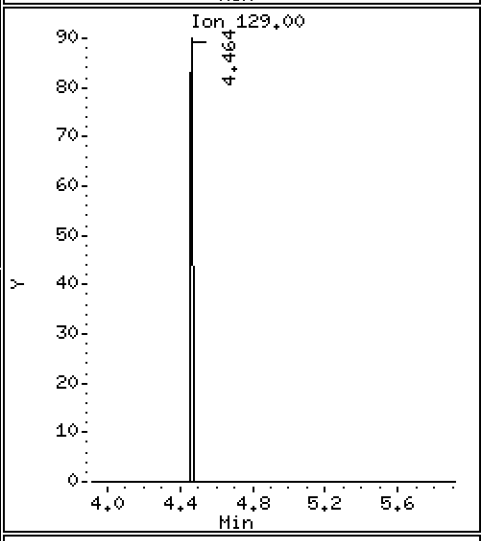
2 Naphthalene

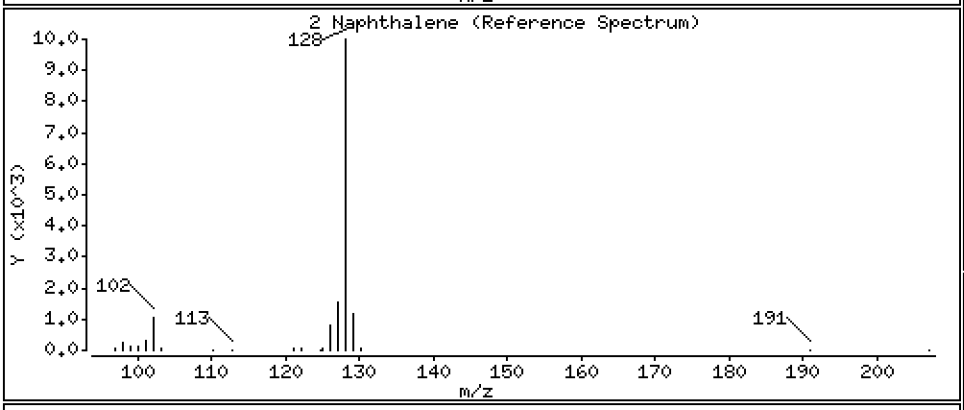
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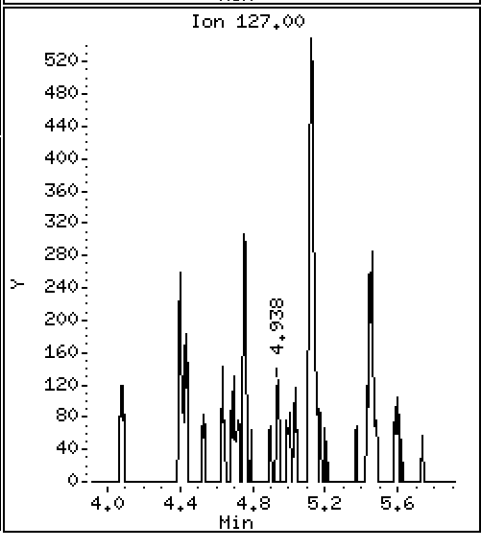


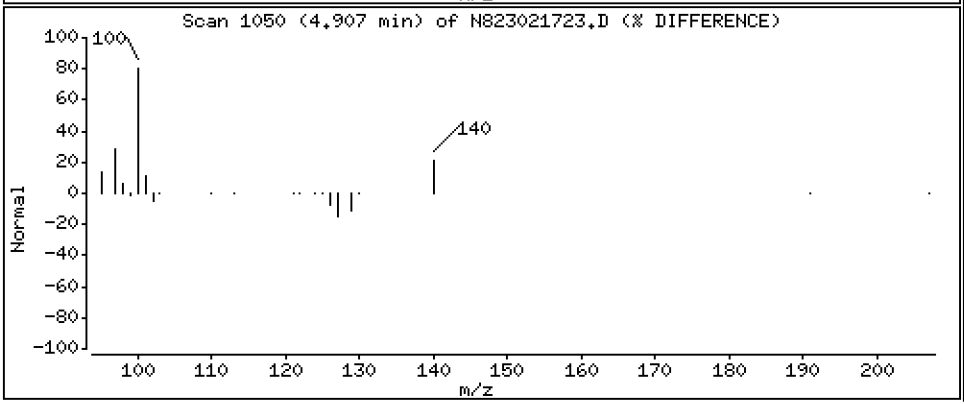












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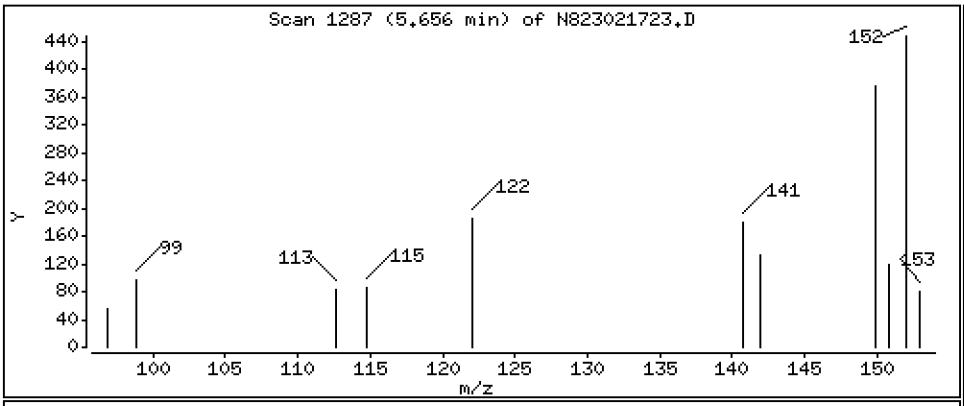
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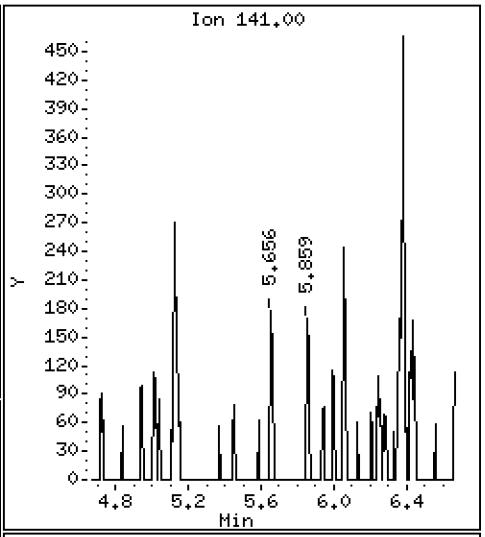
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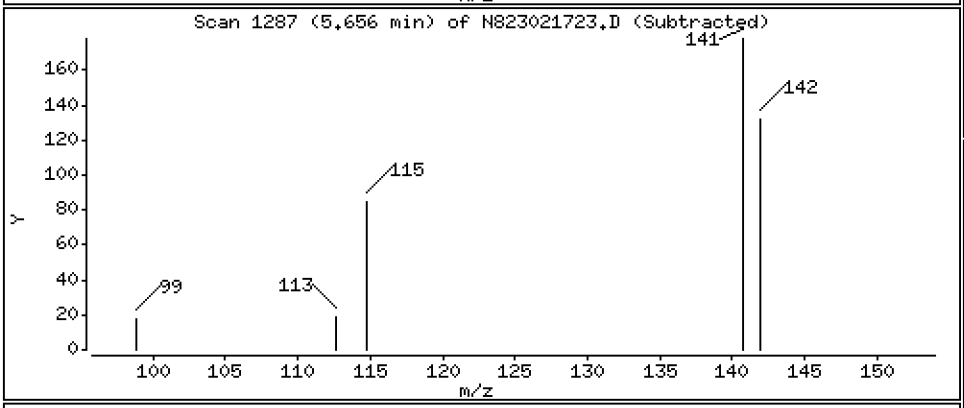
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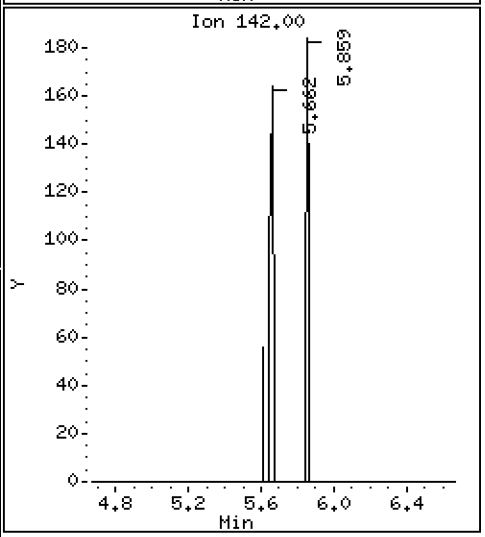
4 2-Methylnaphthalene

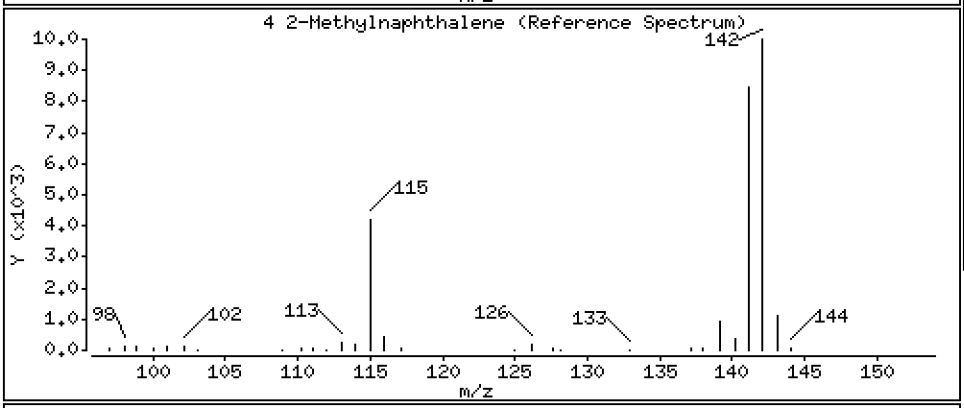
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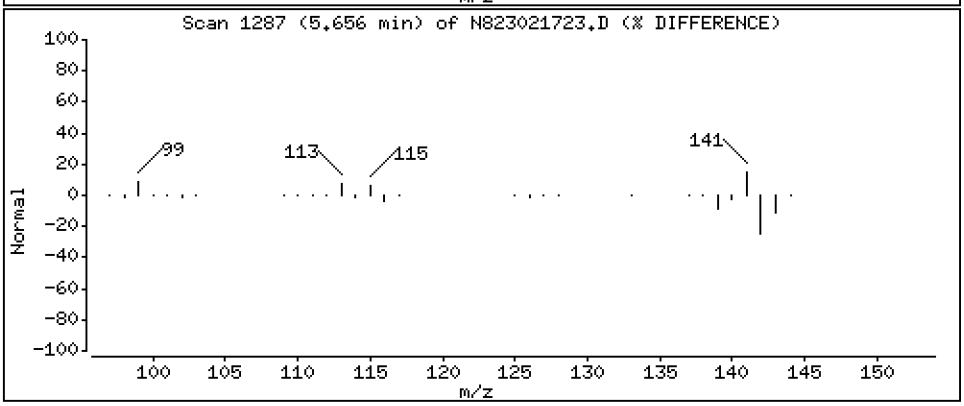












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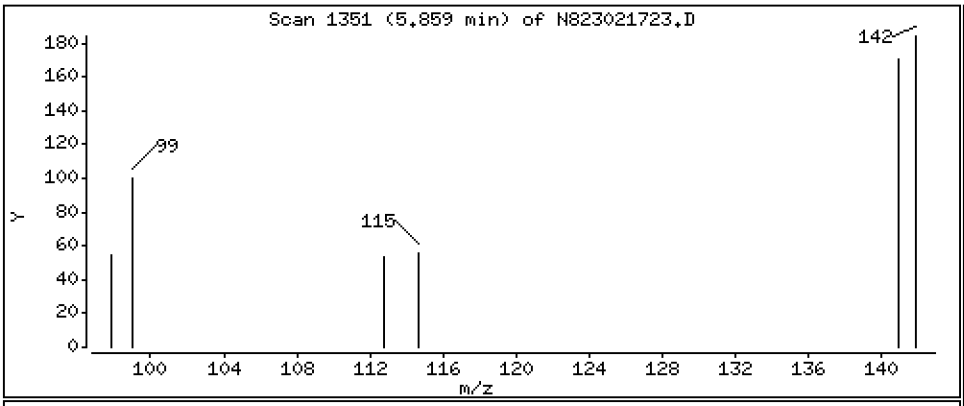
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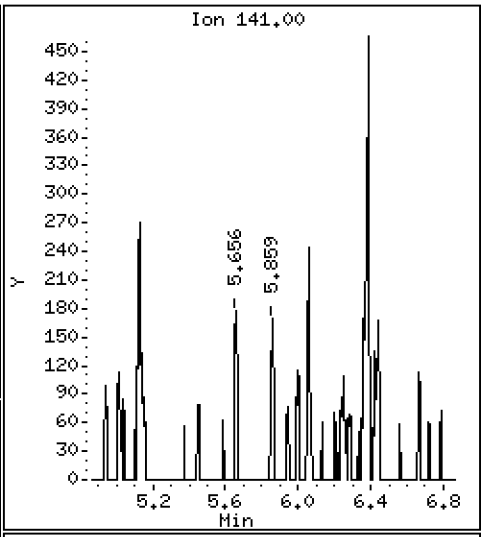
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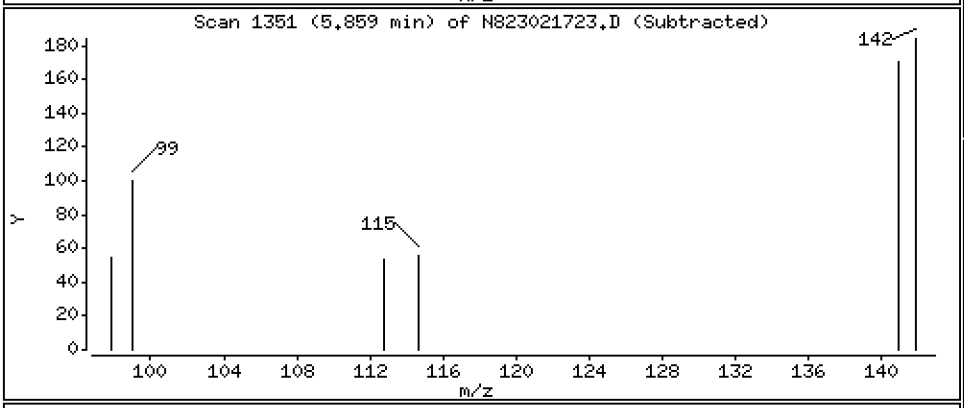
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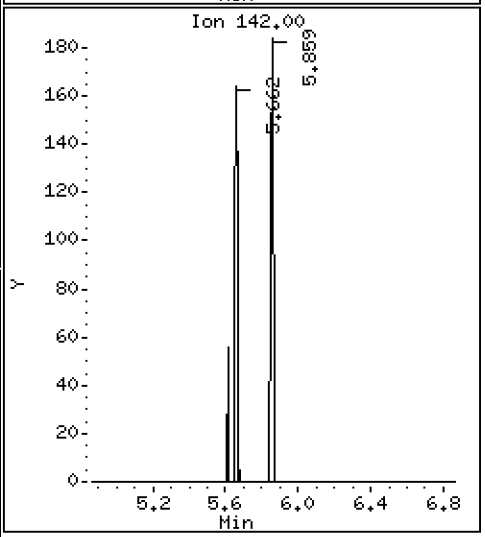
5 1-methylnaphthalene

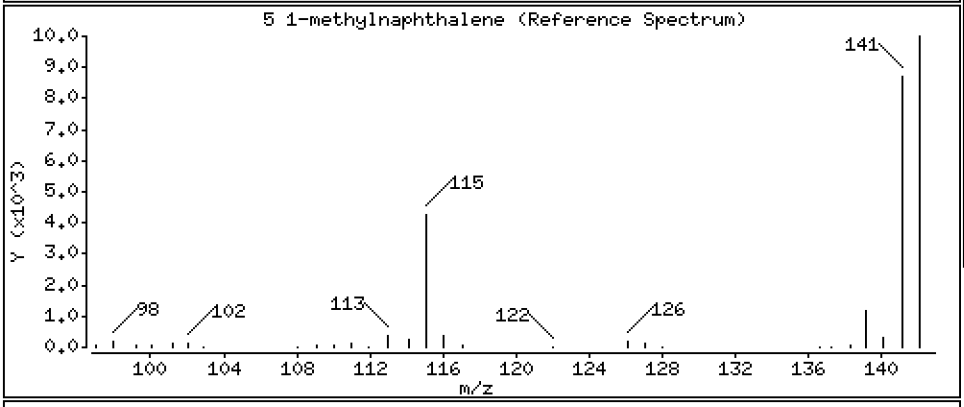
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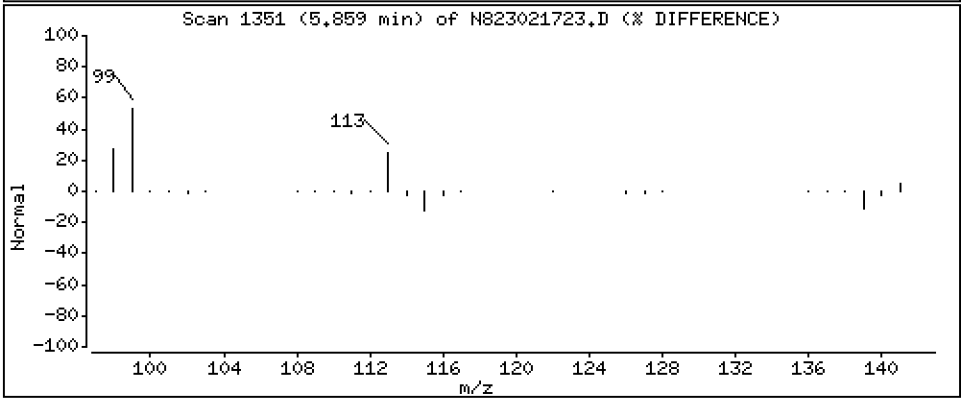












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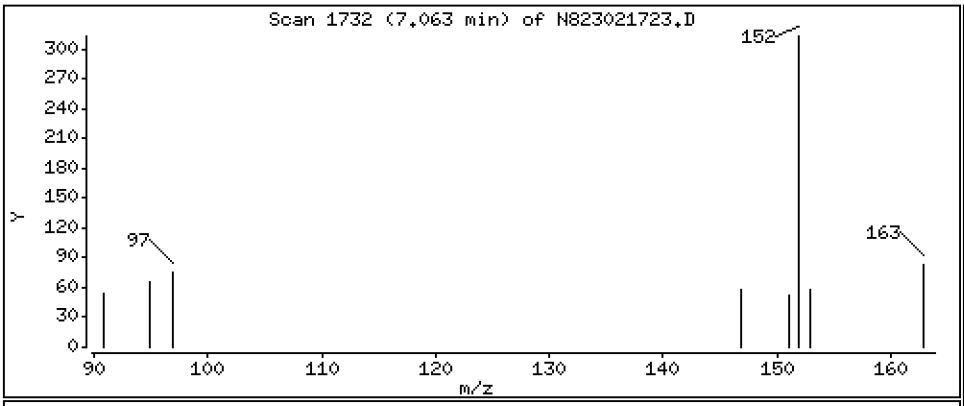
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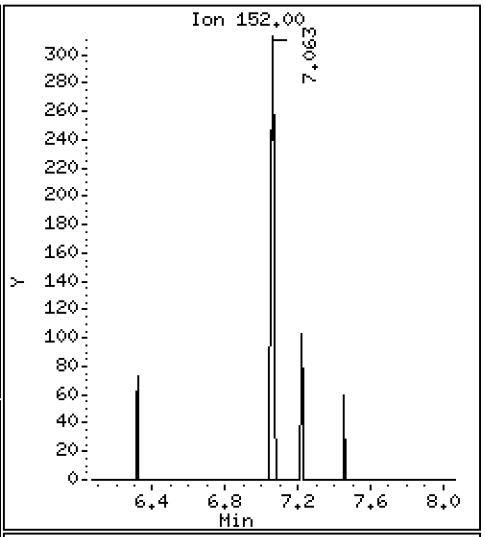
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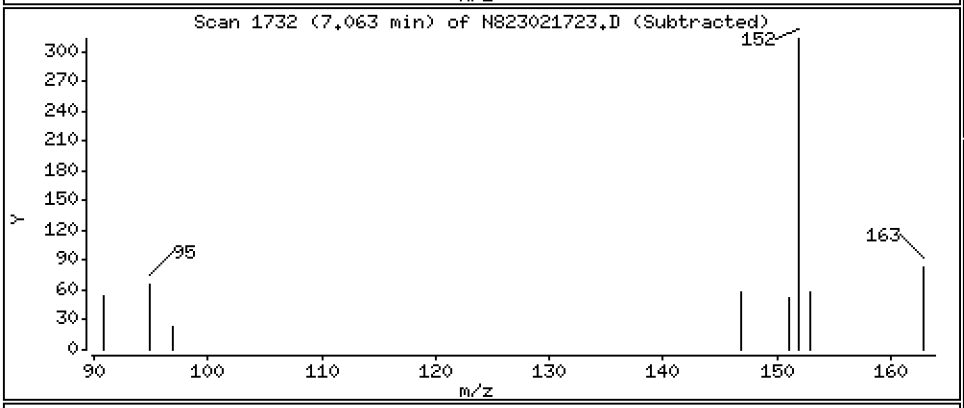
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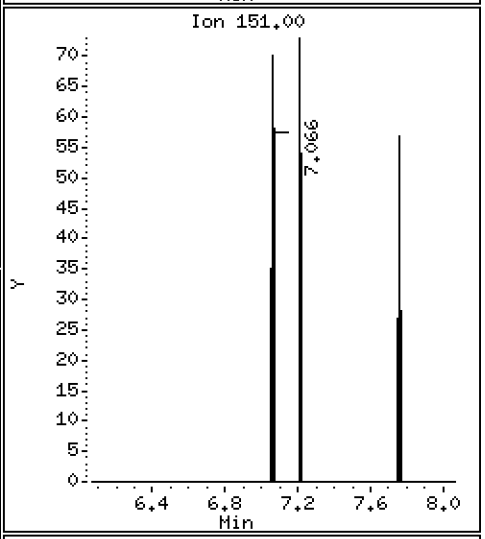
9 Acenaphthylene

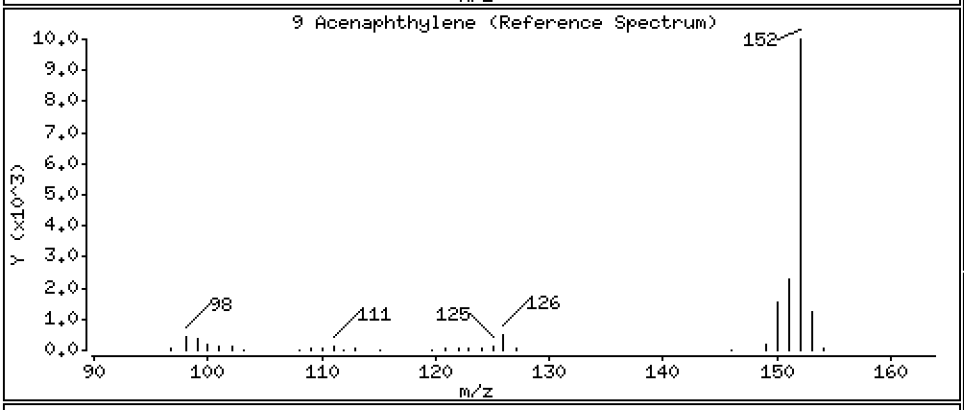
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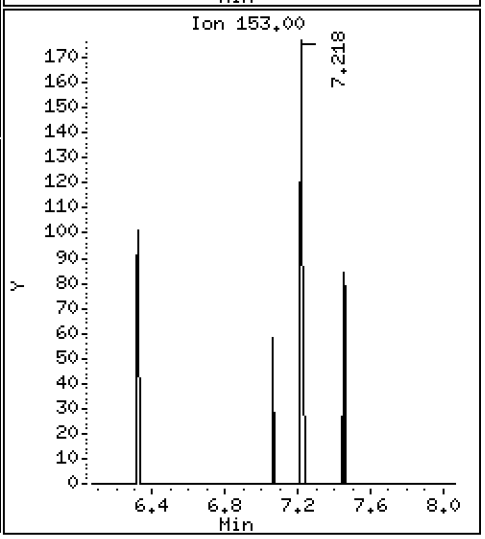


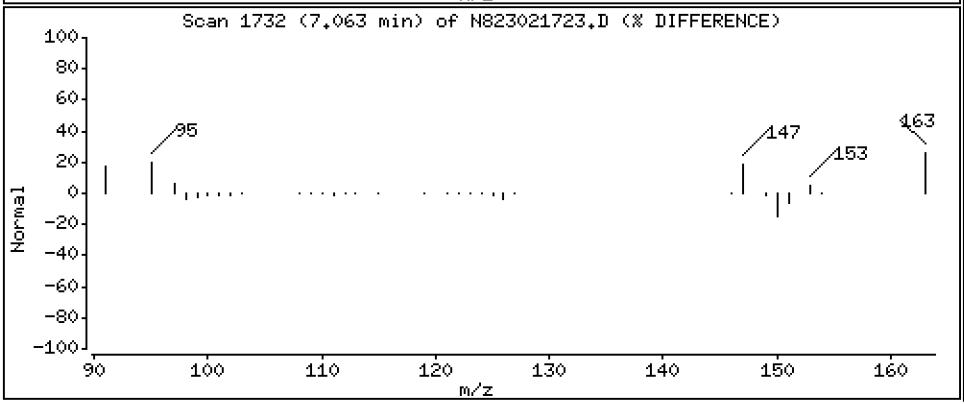












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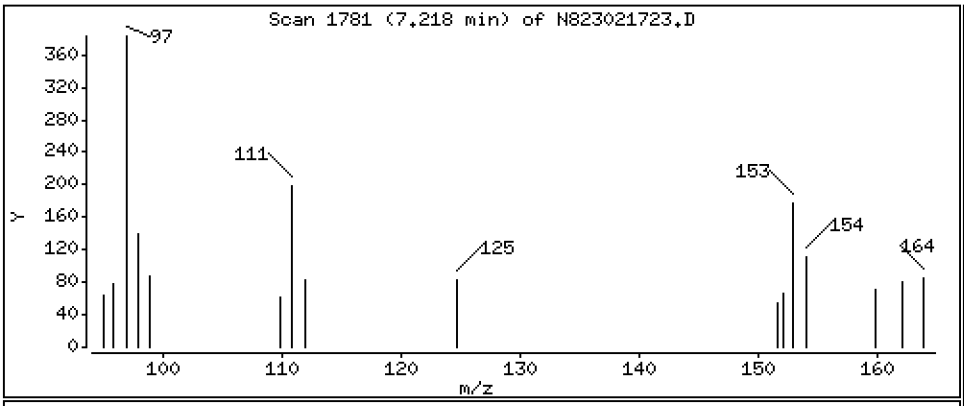
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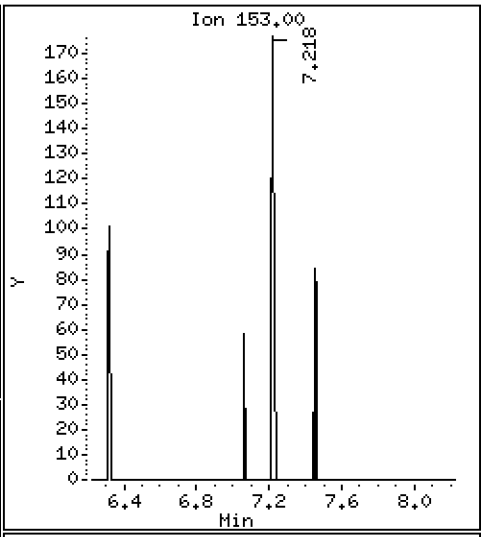
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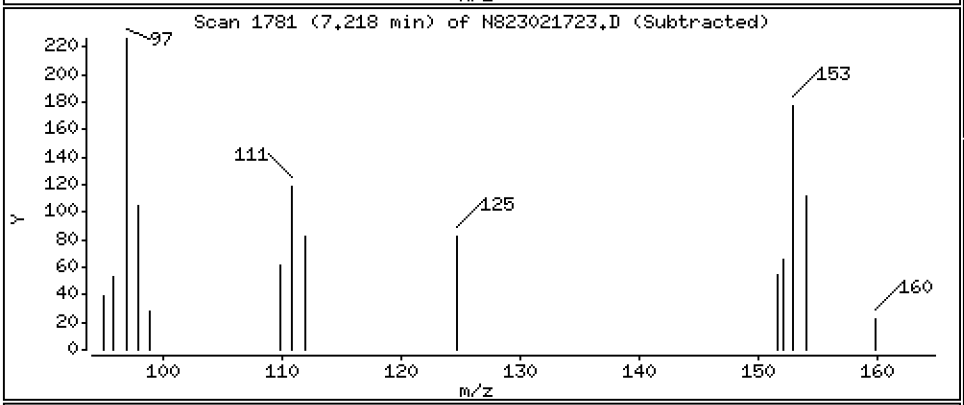
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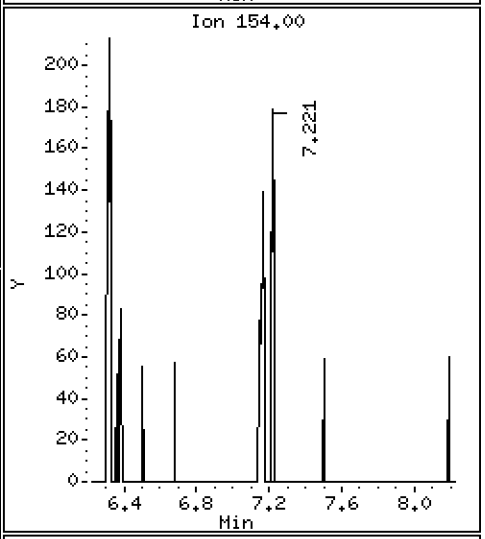
11 Acenaphthene

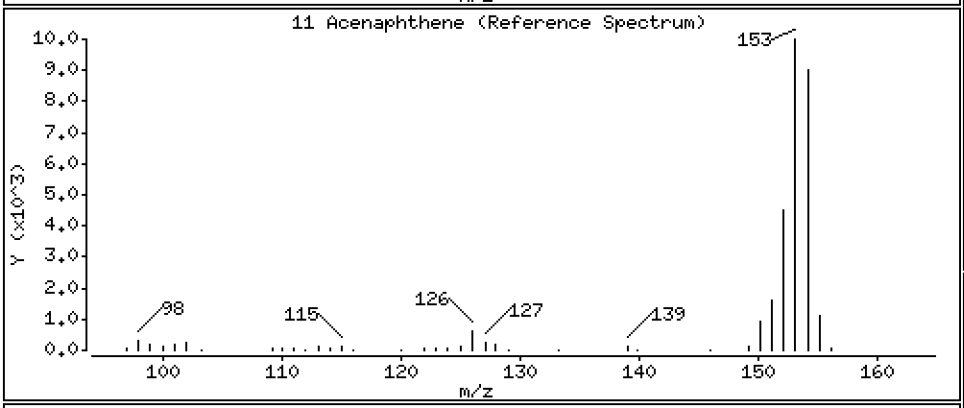
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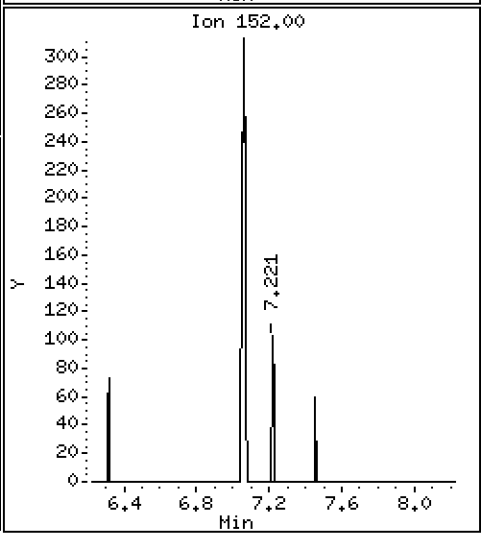


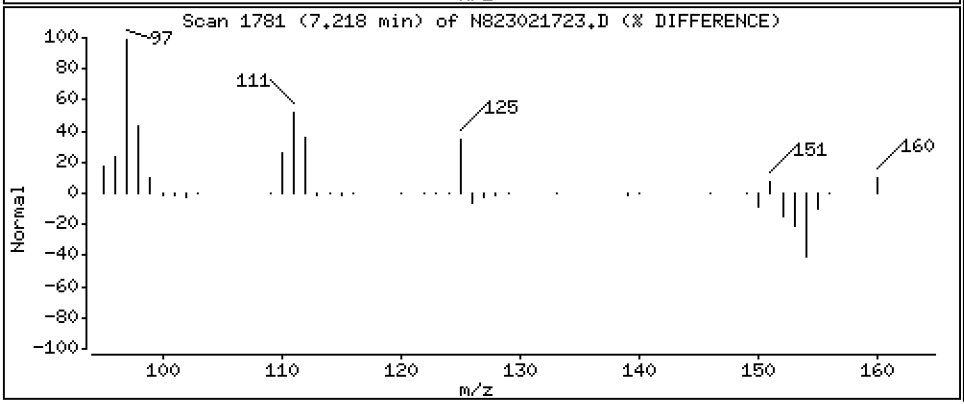












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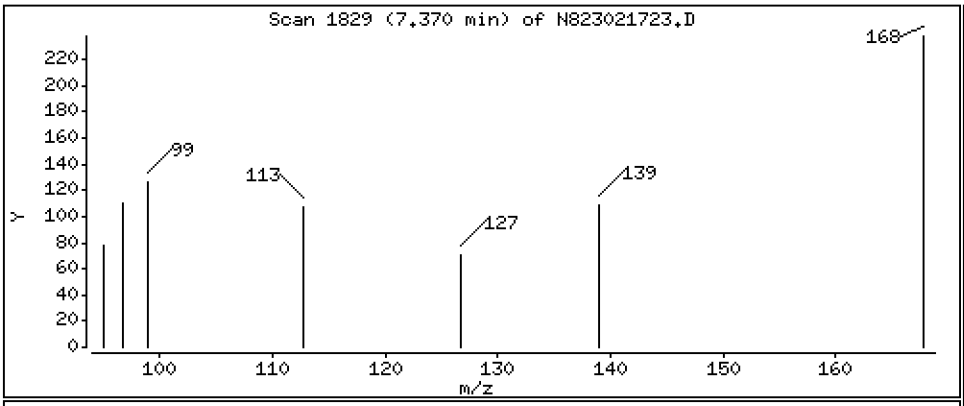
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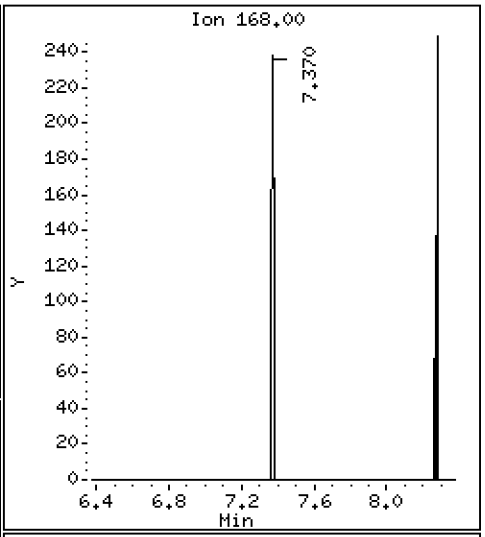
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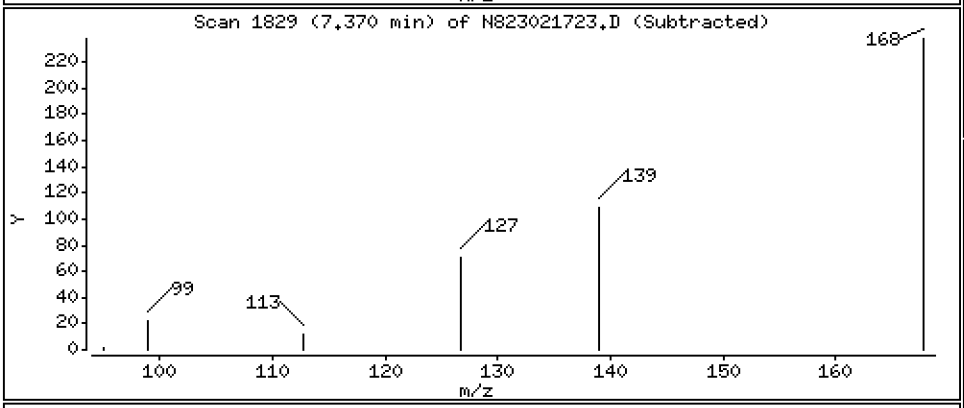
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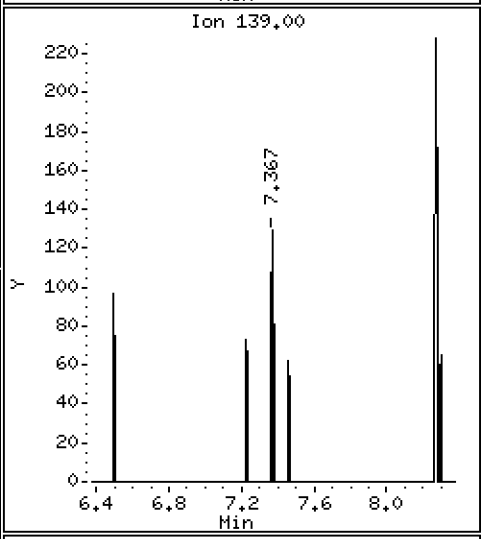
12 Dibenzofuran

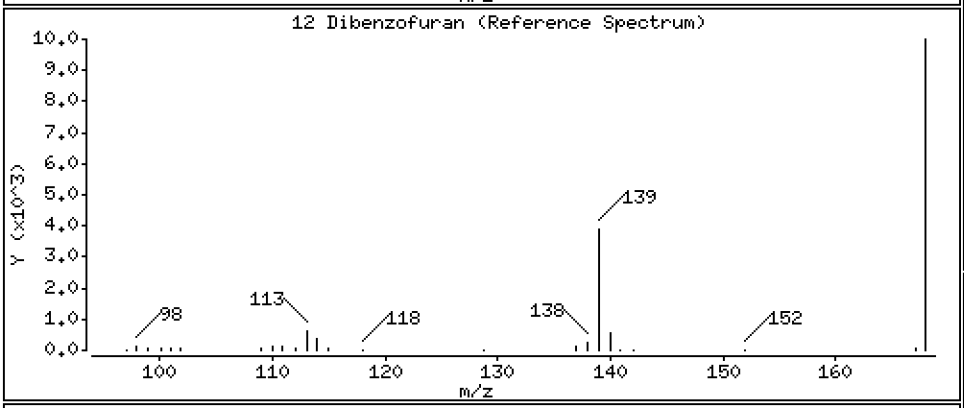
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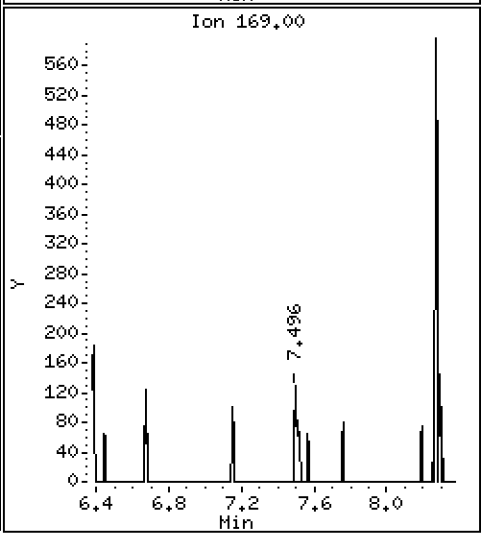


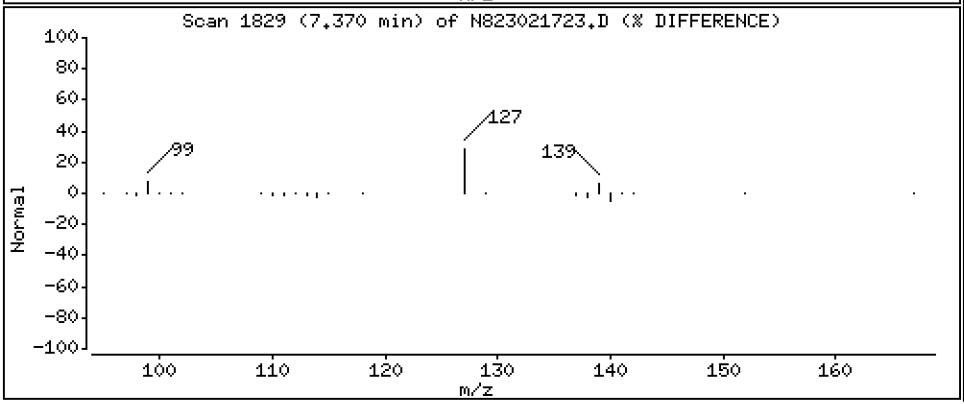












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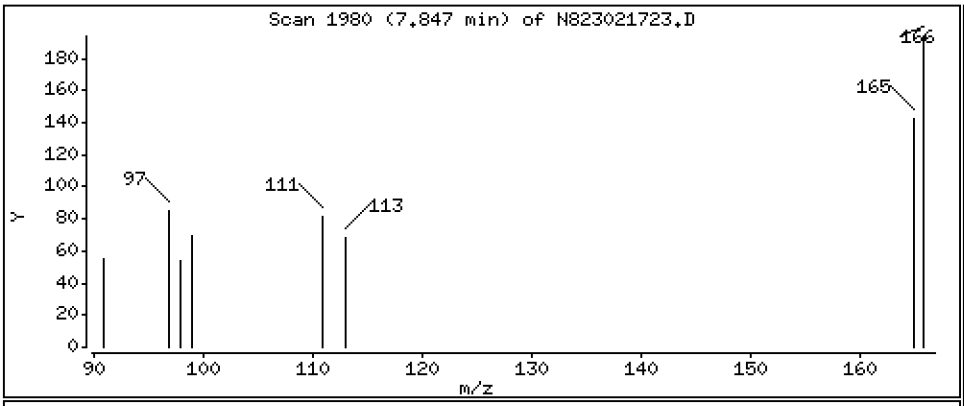
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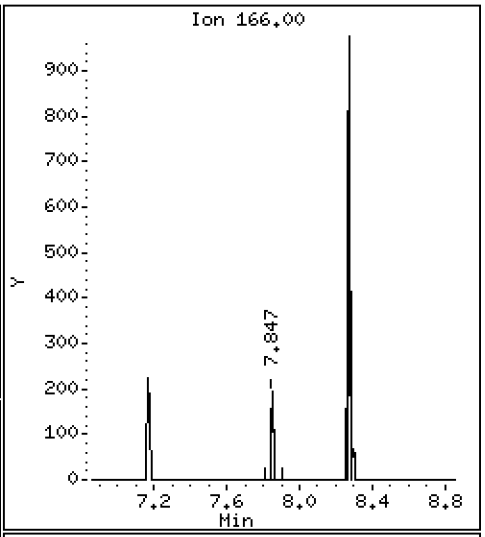
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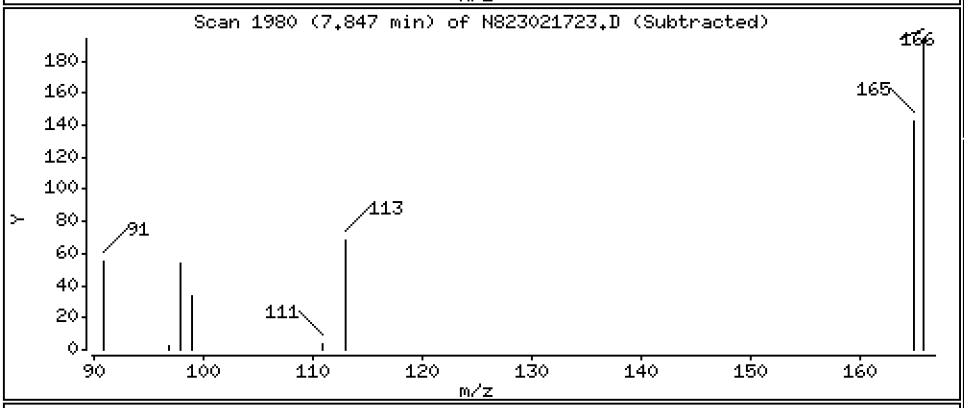
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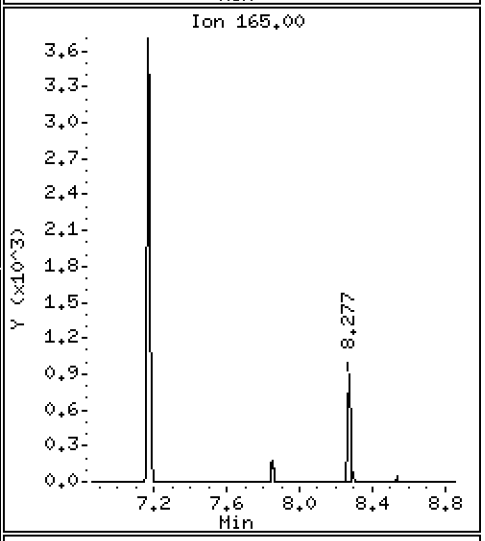
14 Fluorene

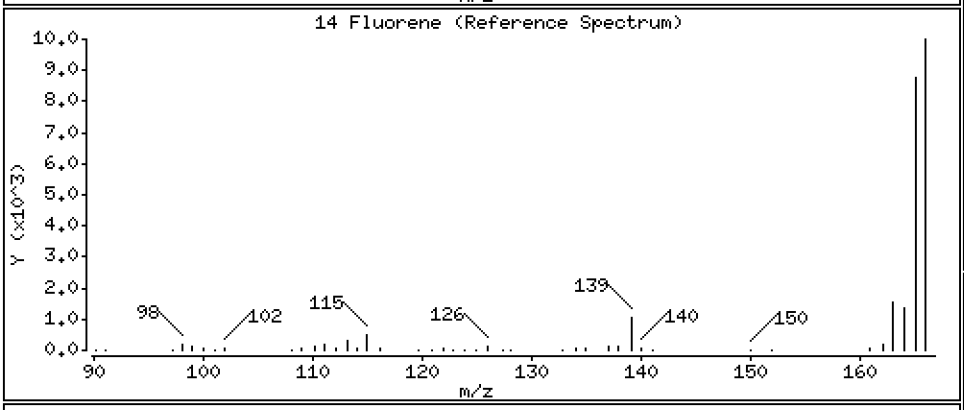
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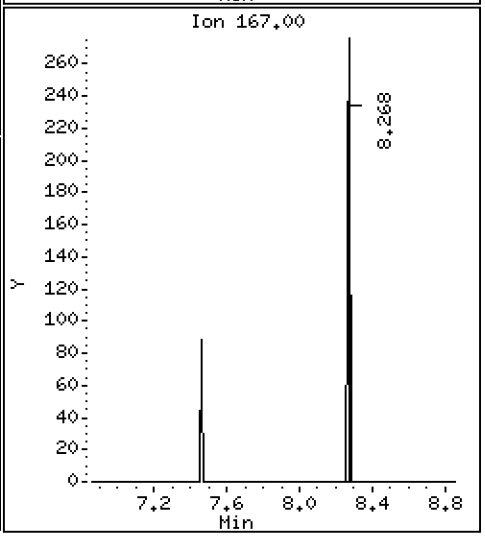


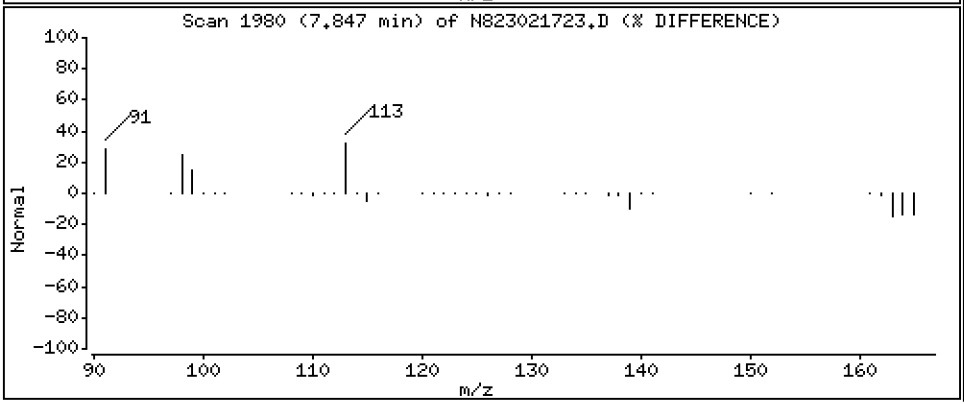












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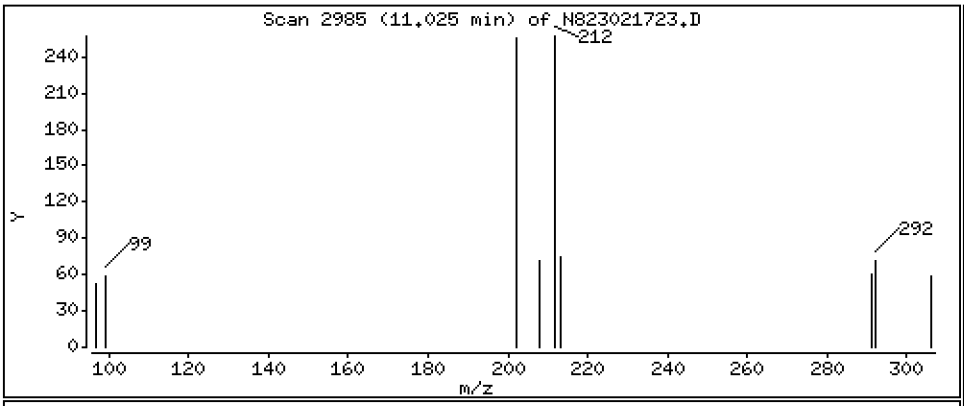
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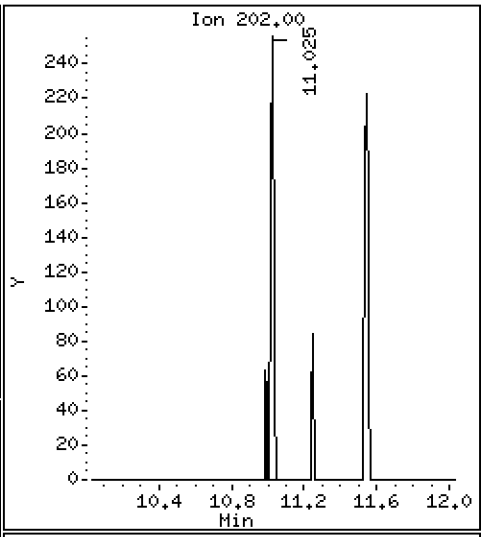
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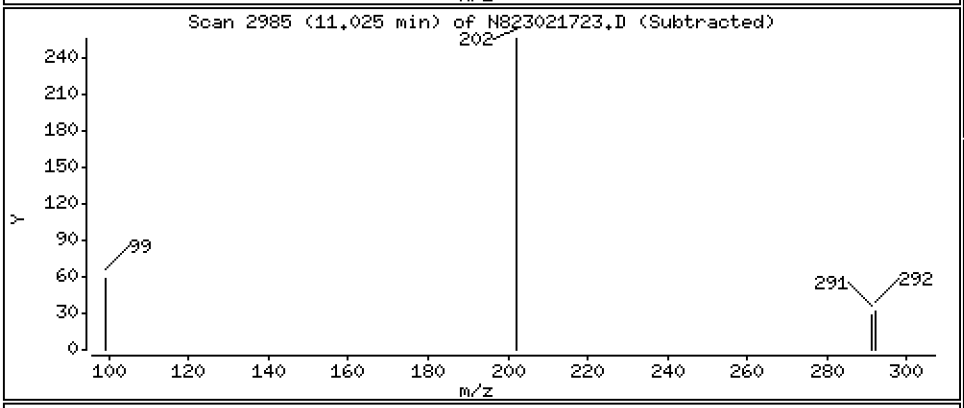
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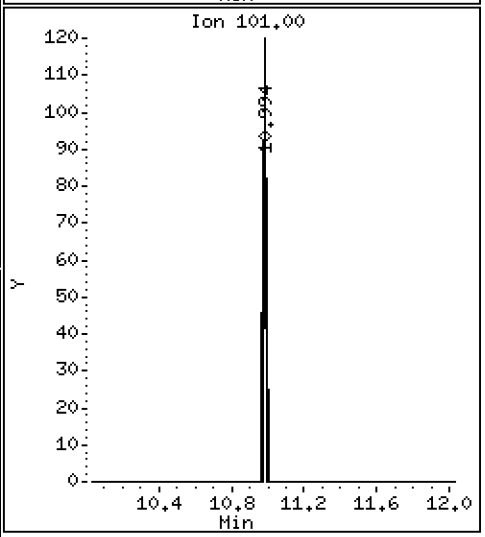
22 Fluoranthene

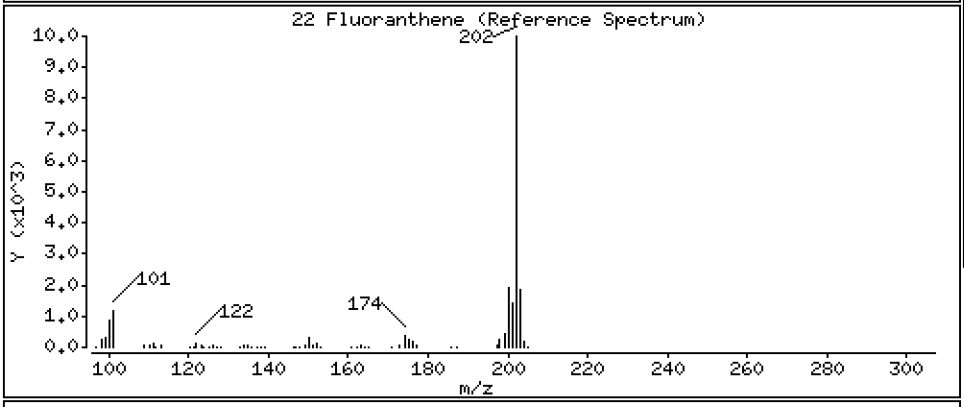
Concentration: 0.009962 ug/mL

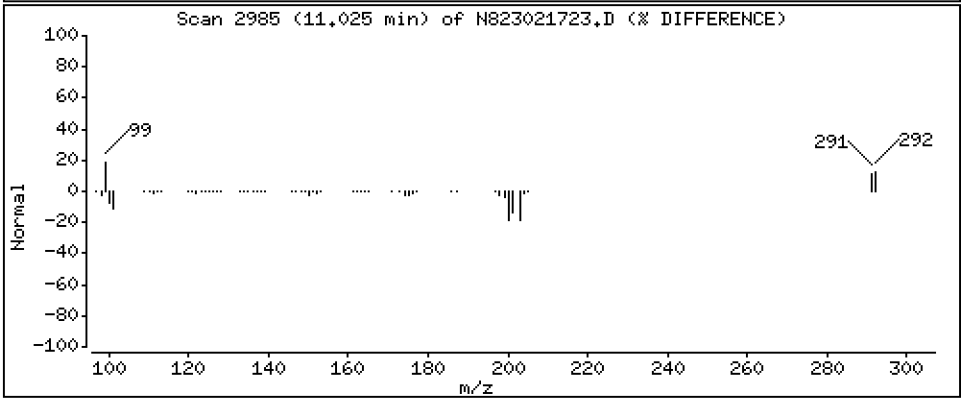












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021723.D

Date : 17-FEB-2023 21:18

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BLK1,

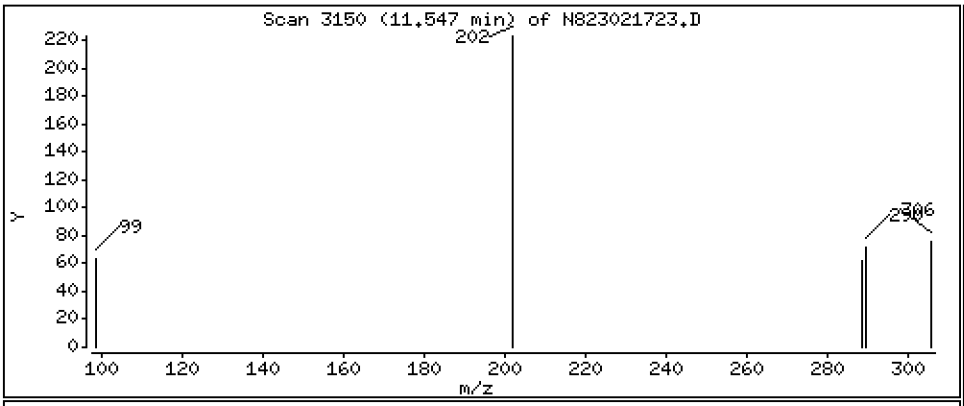
Operator: JZ

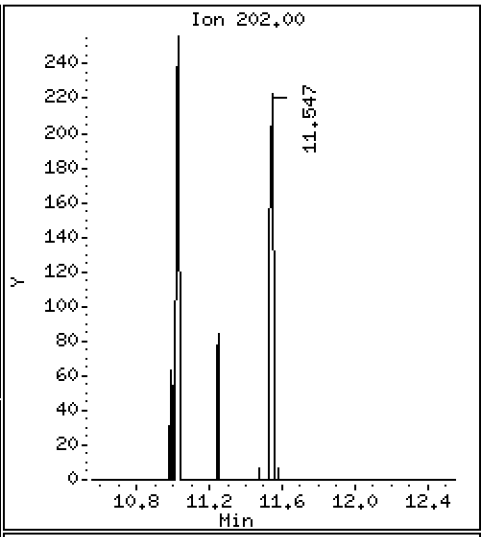
Column phase: Rxi-17sil

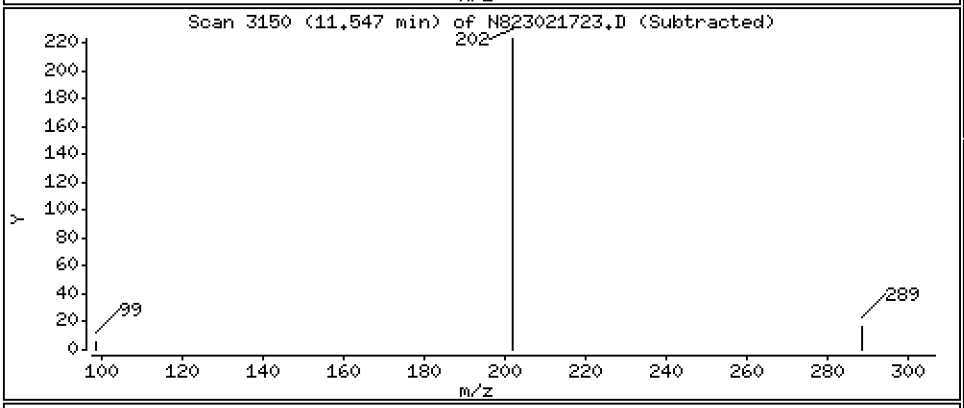
Column diameter: 0.25

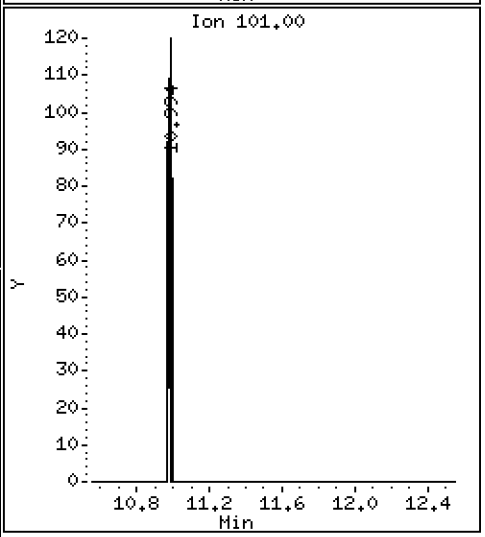
23 Pyrene

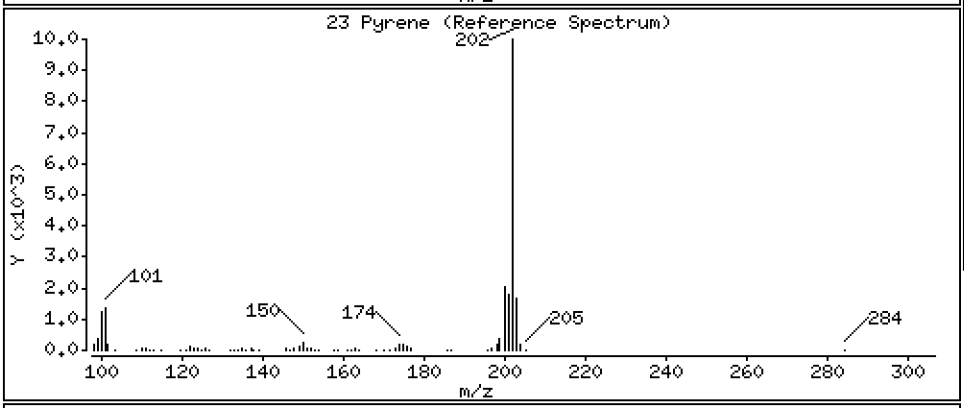
Concentration: 0.009975 ug/mL

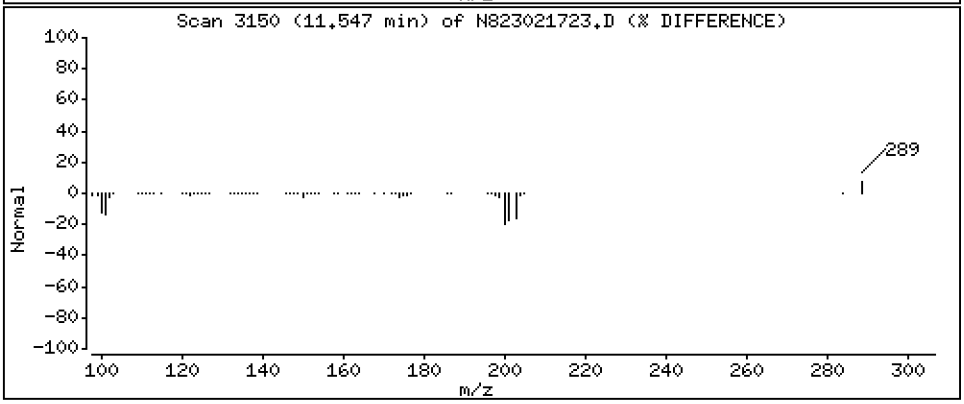












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230217.b\N823021723.D
Lab Smp Id: BLB0144-BLK1
Inj Date : 17-FEB-2023 21:18
Operator : JZ Inst ID: nt8.i
Smp Info : BLB0144-BLK1,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 20:47 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.875	4.884	(1.000)	47032	2.00000	
	2 Naphthalene	128	4.906	4.916	(1.006)	458	0.02094	0.02094
$	3 2-Methylnaphthalene-d10	152	5.608	5.621	(1.150)	29239	2.27952	2.280
	4 2-Methylnaphthalene	141	5.656	5.669	(1.160)	167	0.01388	0.01388
	5 1-methylnaphthalene	141	5.858	5.865	(1.202)	169	0.01384	0.01384
	9 Acenaphthylene	152	7.063	7.066	(0.985)	374	0.01686	0.01686
*	10 Acenaphthene-d10	164	7.167	7.177	(1.000)	29380	2.00000	
	11 Acenaphthene	153	7.218	7.224	(1.007)	176	0.01184	0.01184
	12 Dibenzofuran	168	7.369	7.376	(1.028)	202	0.00895	0.008947
	14 Fluorene	166	7.847	7.857	(1.095)	157	0.00895	0.008953(M)
*	15 Phenanthrene-d10	188	9.210	9.216	(1.000)	57015	2.00000	
	16 Phenanthrene	178	Compound Not Detected.					
	17 Anthracene	178	Compound Not Detected.					
	19 Carbazole	167	Compound Not Detected.					
	22 Fluoranthene	202	11.025	11.031	(1.197)	302	0.00996	0.009962
$	21 Fluoranthene-d10	212	10.987	10.996	(1.193)	71552	2.84447	2.844
	23 Pyrene	202	11.546	11.553	(0.815)	307	0.00998	0.009975(M)
	24 Benzo(a)anthracene	228	Compound Not Detected.					
*	25 Chrysene-d12	240	14.168	14.181	(1.000)	49640	2.00000	
	27 Chrysene	228	Compound Not Detected.					
	28 Benzo(b)fluoranthene	252	Compound Not Detected.					
	29 Benzo(k)fluoranthene	252	Compound Not Detected.					
	30 Benzo(j)fluoranthene	252	Compound Not Detected.					
	31 Total Benzofluoranthenes	252	Compound Not Detected.					
	34 Benzo(e)pyrene	252	Compound Not Detected.					
	32 Benzo(a)pyrene	252	Compound Not Detected.					
*	33 Perylene-d12	264	18.076	18.086	(1.000)	39731	2.00000	
	35 Perylene	252	Compound Not Detected.					
$	36 Dibenzo(a,h)anthracene-d14	292	20.514	20.523	(1.135)	55473	3.56339	3.563
	37 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	39 Benzo(g,h,i)perylene	276	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021723.D
Lab Smp Id: BLB0144-BLK1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 17-FEB-2023
Calibration Time: 11:25
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	41552	20776	83104	47032	13.19
10 Acenaphthene-d10	25012	12506	50024	29380	17.46
15 Phenanthrene-d10	44752	22376	89504	57015	27.40
25 Chrysene-d12	34520	17260	69040	49640	43.80
33 Perylene-d12	30529	15265	61058	39731	30.14

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	-0.20
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.21	-0.07
25 Chrysene-d12	14.18	13.68	14.68	14.17	-0.09
33 Perylene-d12	18.09	17.59	18.59	18.08	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021723.D

Lab ID: BLB0144-BLK1
nt8.i, 20230217.b\FSIMPNA230119.m,   17-FEB-2023 21:18

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

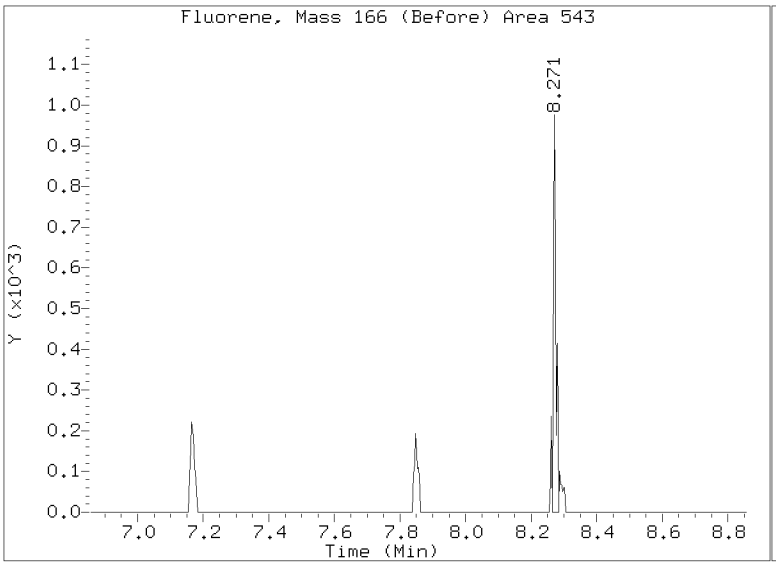
On Column LOD for nt8.i, 20230217.b\FSIMPNA230119.m, PNAXEMDL.sub = 0.0080

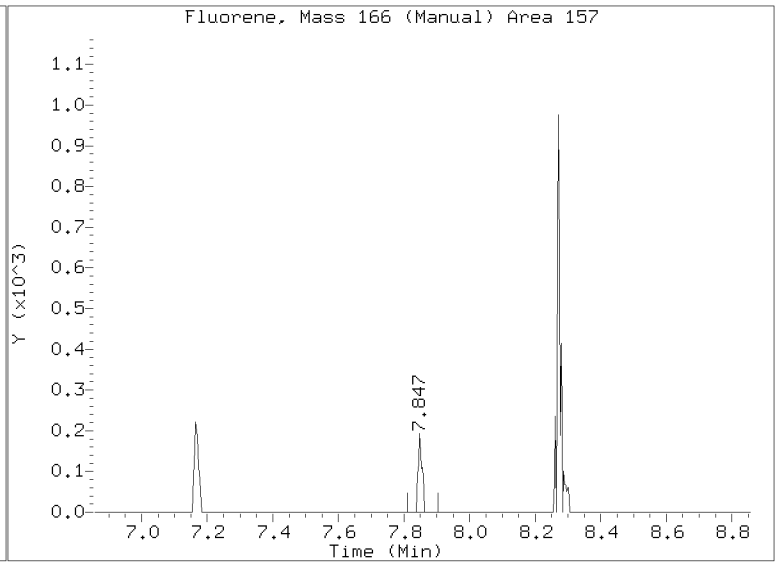
Exception: Benzo(e)pyrene 0.0800

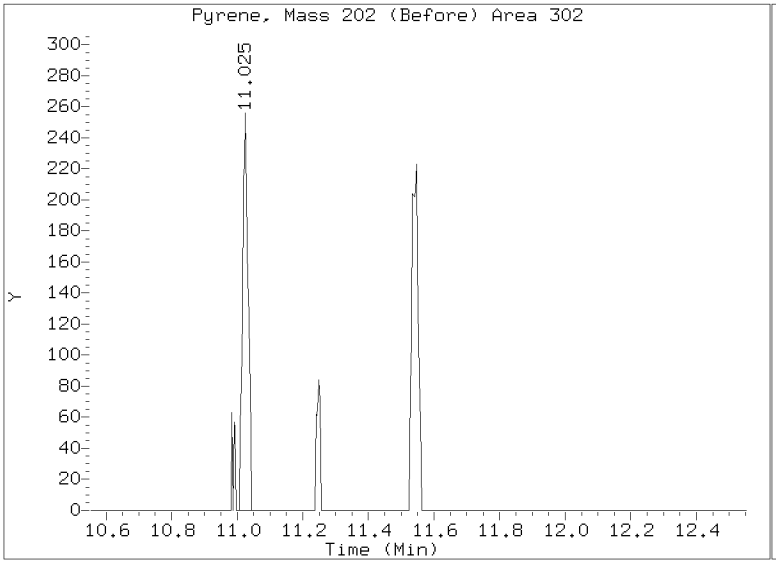
* Only compounds listed in the work order have been verified by the analyst *

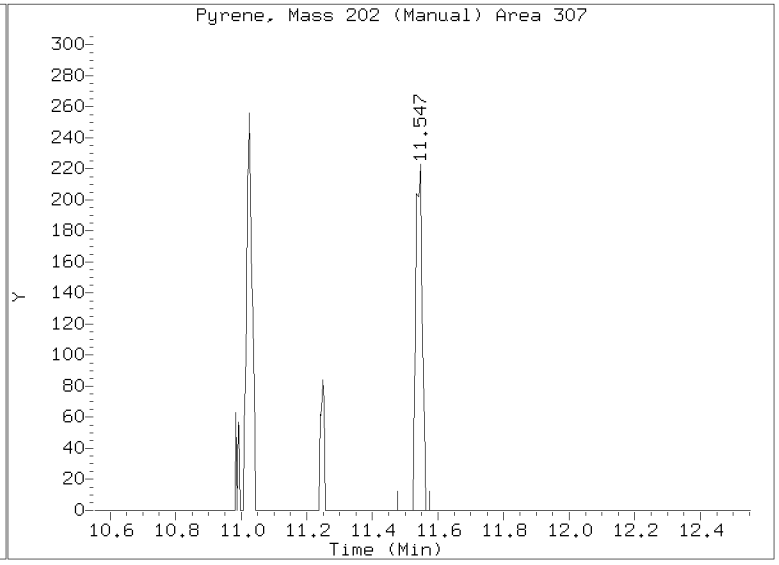
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230217.b/N823021723.D
Injection Date: 17-FEB-2023 21:18
Lab ID:BLB0144-BLK1 Client ID:
Report Date: 02/19/2023 20:48









LCS / LCS DUPLICATE RECOVERY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	02/17/23 21:44
Batch:	BLB0144	Laboratory ID:	BLB0144-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	10 g / 0.5 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Benzo(a)anthracene	300	245		81.7	42 - 120
Chrysene	300	228		76.0	48 - 120
Benzo(b)fluoranthene	300	291		97.0	52 - 137
Benzo(k)fluoranthene	300	262		87.5	37 - 129
Benzo(a)pyrene	300	221		73.6	36 - 120
Indeno(1,2,3-cd)pyrene	300	276		92.0	67 - 132
Dibenzo(a,h)anthracene	300	303		101	66 - 139
Benzo(g,h,i)perylene	300	295		98.3	51 - 153

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/kg wet)	LCSD CONCENTRATION (ug/kg wet)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzo(a)anthracene	300	257		85.7	4.71	30	42 - 120
Chrysene	300	237		79.2	4.02	30	48 - 120
Benzo(b)fluoranthene	300	306		102	4.88	30	52 - 137
Benzo(k)fluoranthene	300	287		95.7	9.00	30	37 - 129
Benzo(a)pyrene	300	231		77.2	4.76	30	36 - 120
Indeno(1,2,3-cd)pyrene	300	285		95.0	3.23	30	67 - 132
Dibenzo(a,h)anthracene	300	315		105	3.93	30	66 - 139
Benzo(g,h,i)perylene	300	300		99.9	1.63	30	51 - 153

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

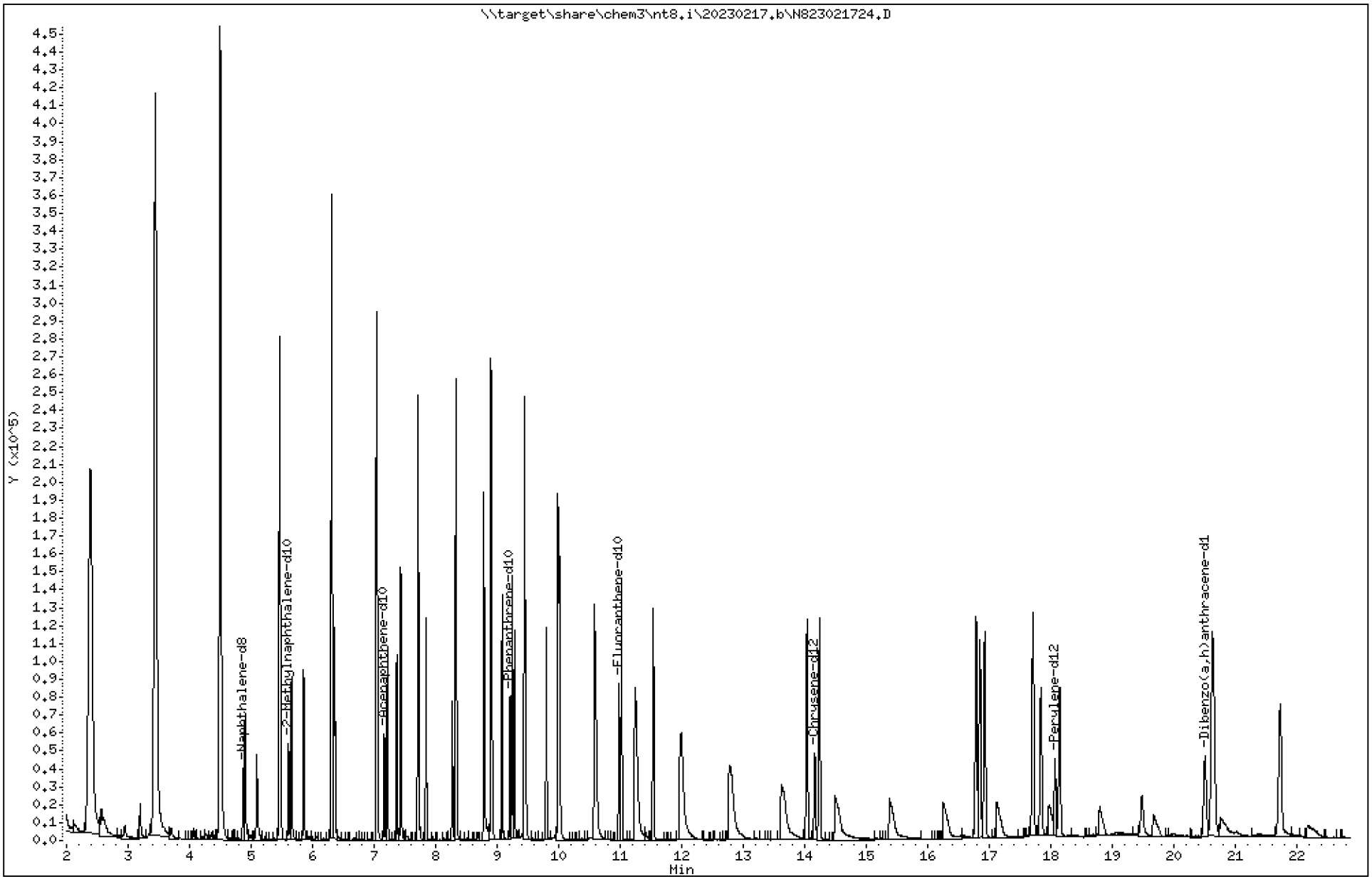
Instrument: nt8.i

Sample Info: BLB0144-BS1,

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



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Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

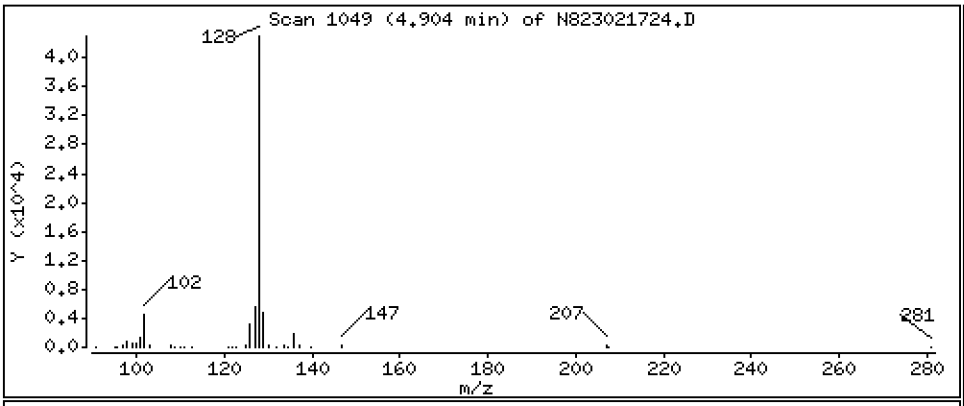
Operator: JZ

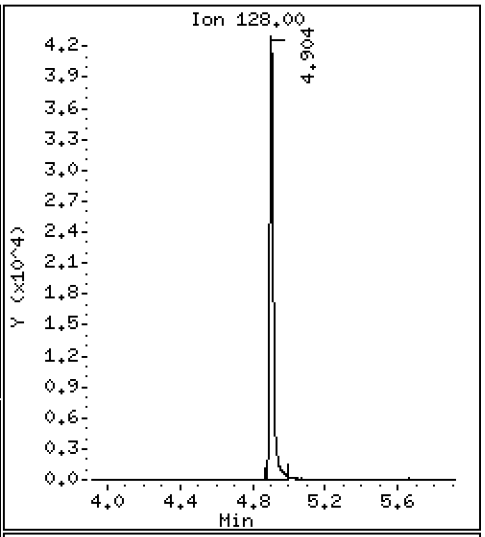
Column phase: Rxi-17sil

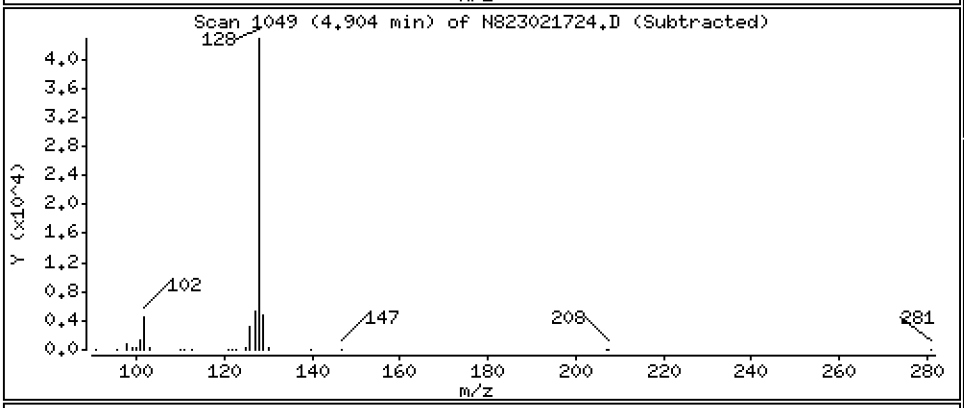
Column diameter: 0.25

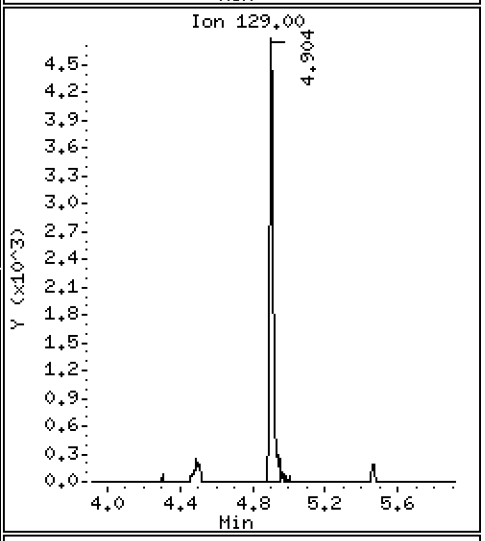
2 Naphthalene

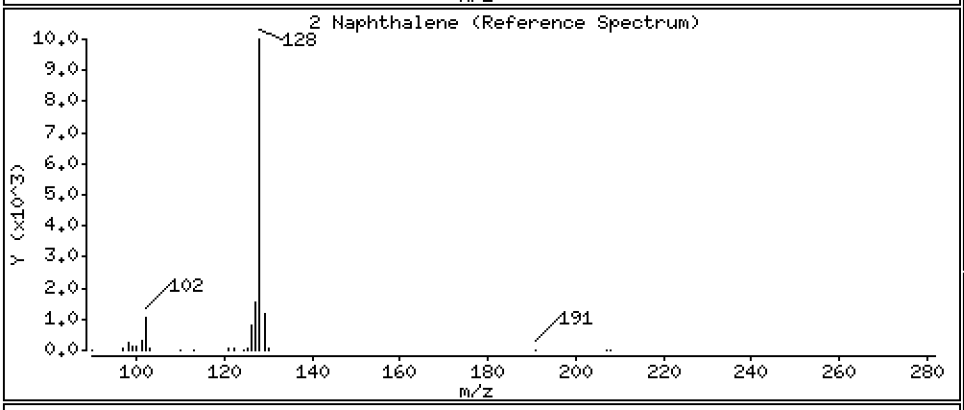
Concentration: 3.436 ug/mL

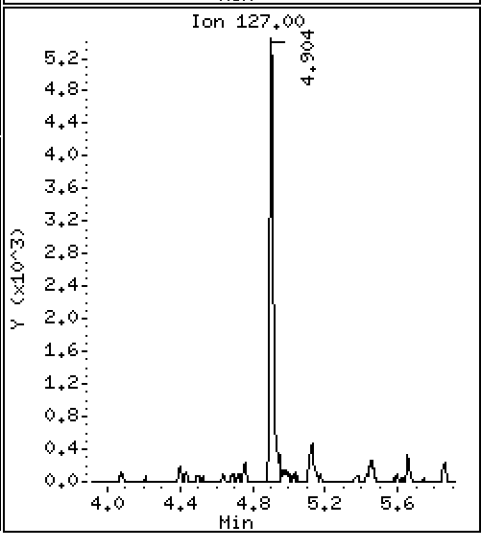


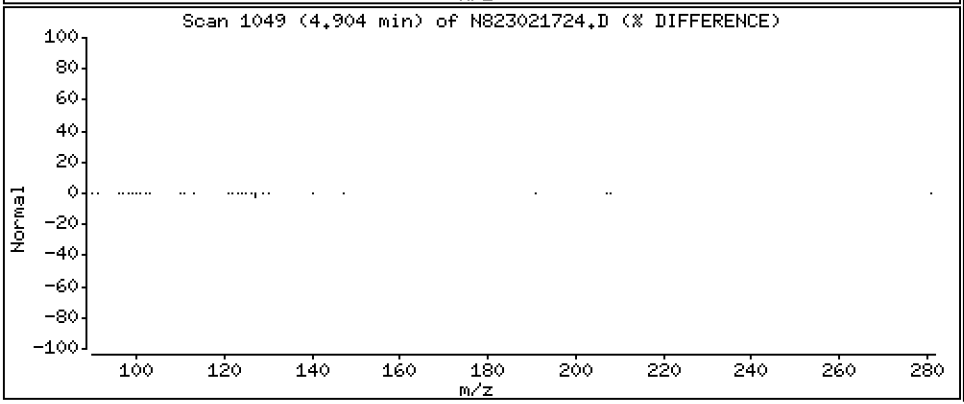












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

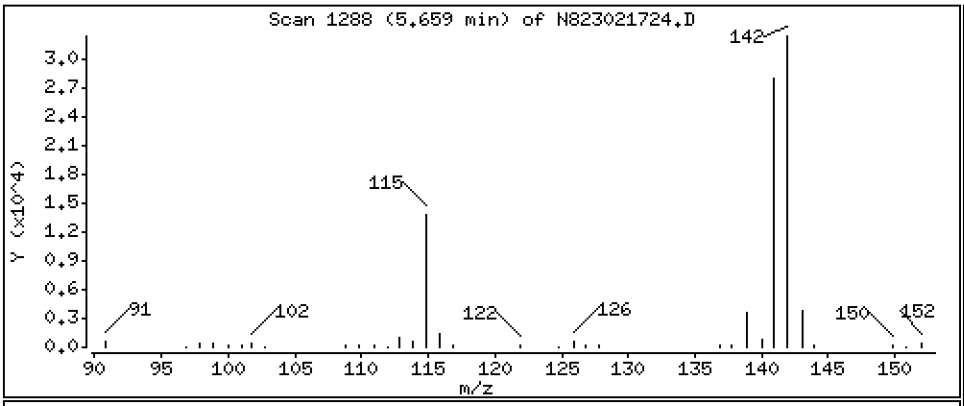
Operator: JZ

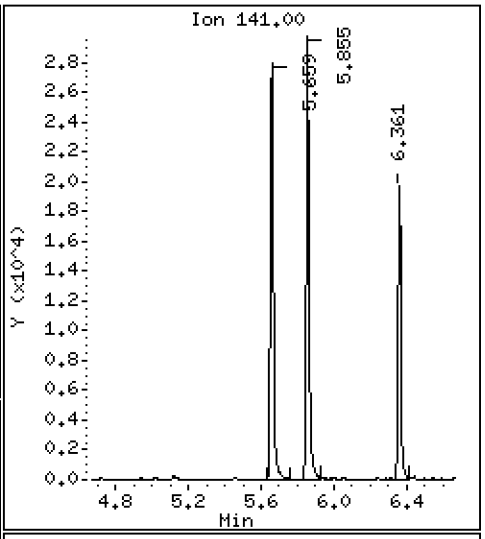
Column phase: Rxi-17sil

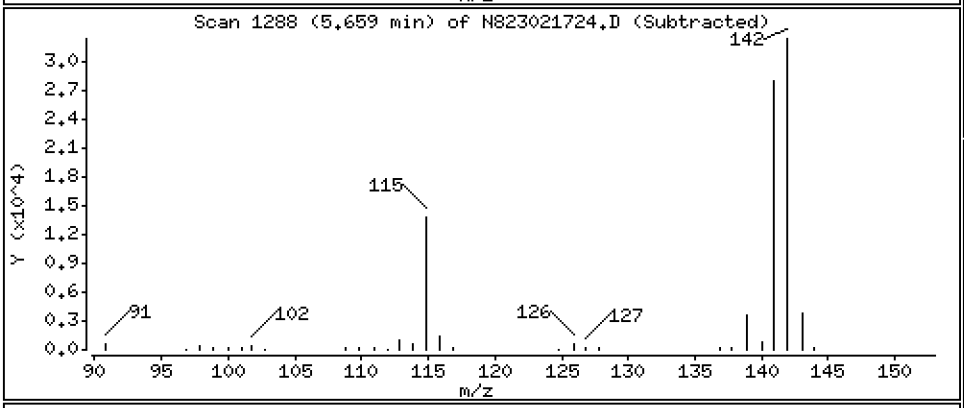
Column diameter: 0.25

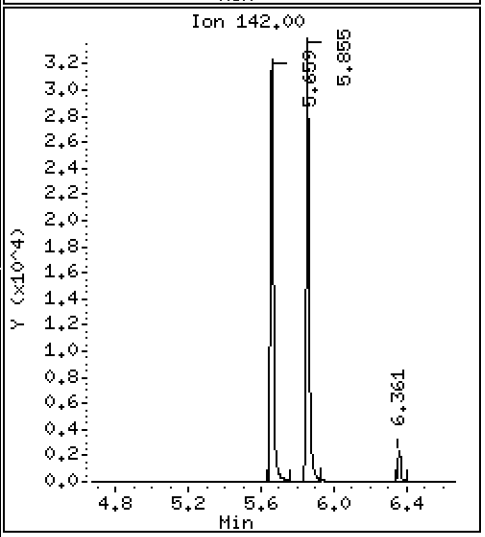
4 2-Methylnaphthalene

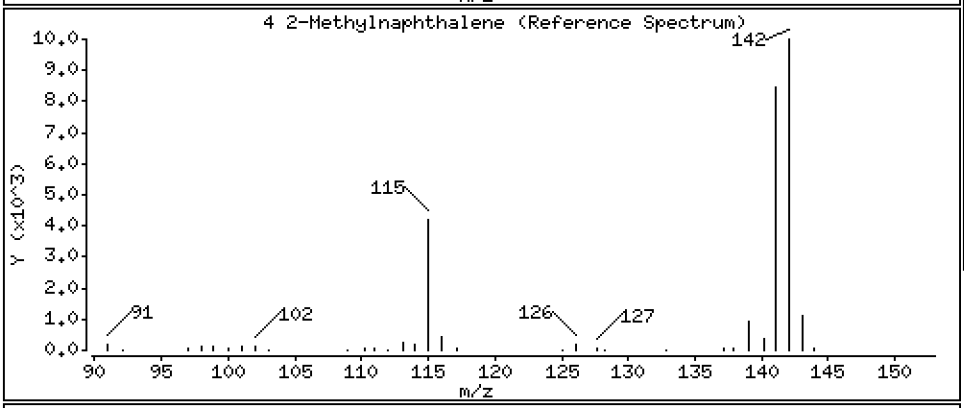
Concentration: 3.369 ug/mL

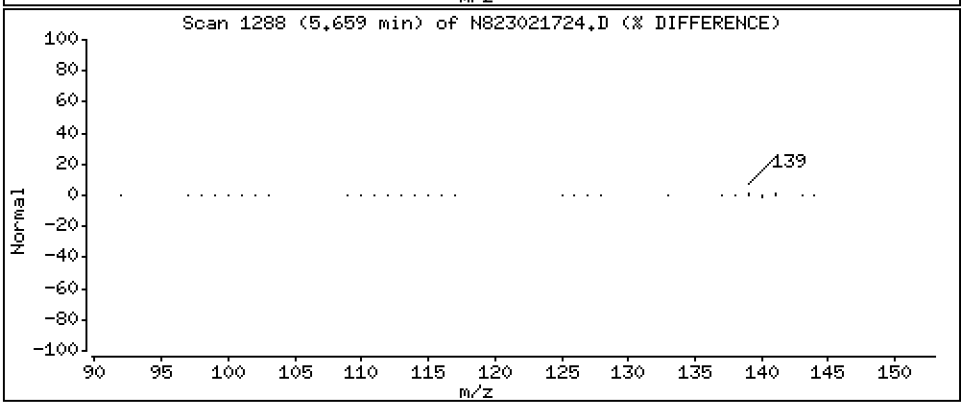












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

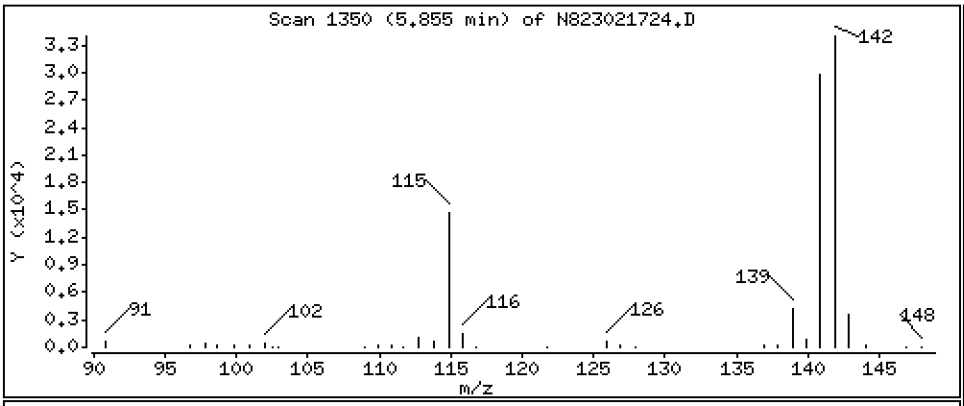
Operator: JZ

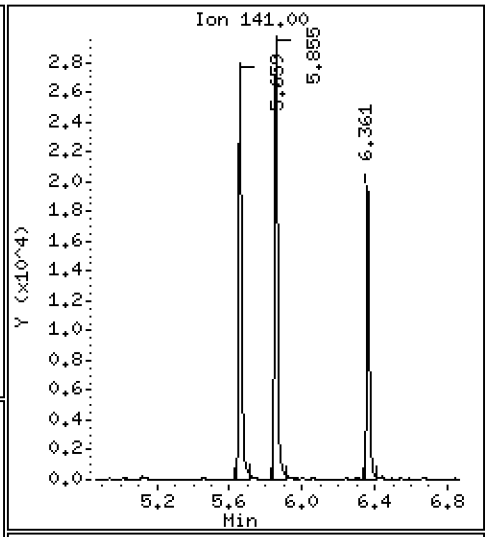
Column phase: Rxi-17sil

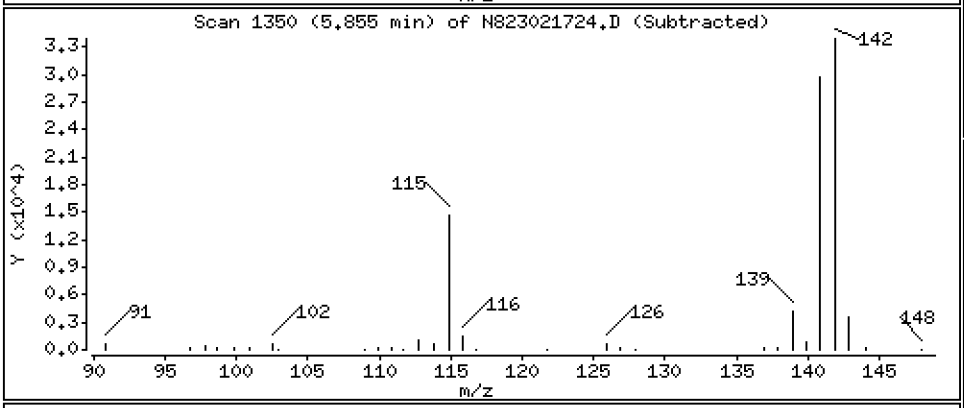
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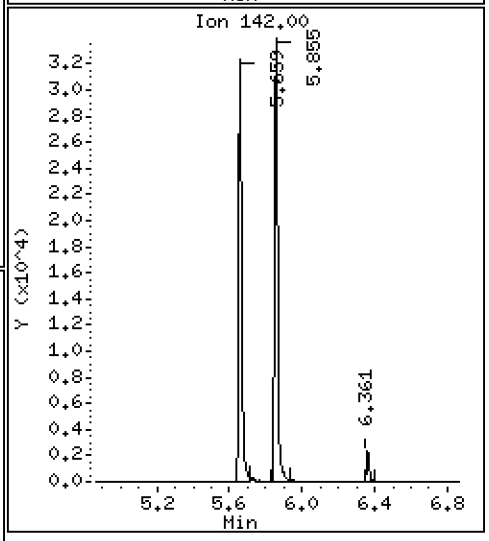
5 1-methylnaphthalene

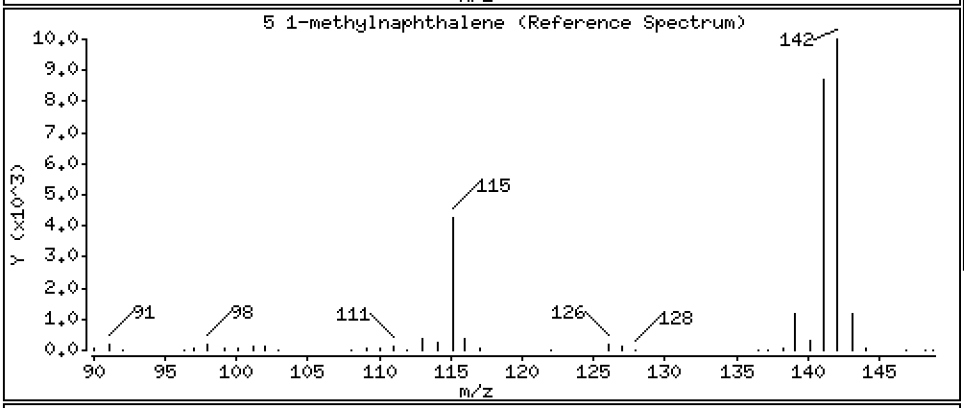
Concentration: 3.506 ug/mL

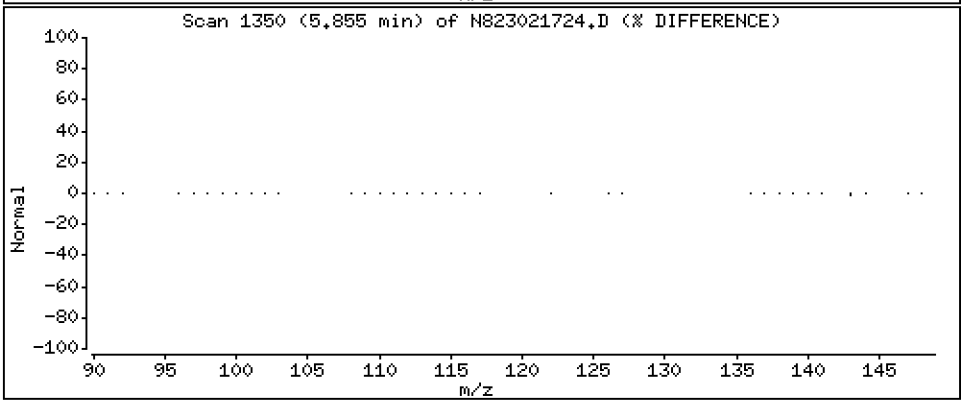












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

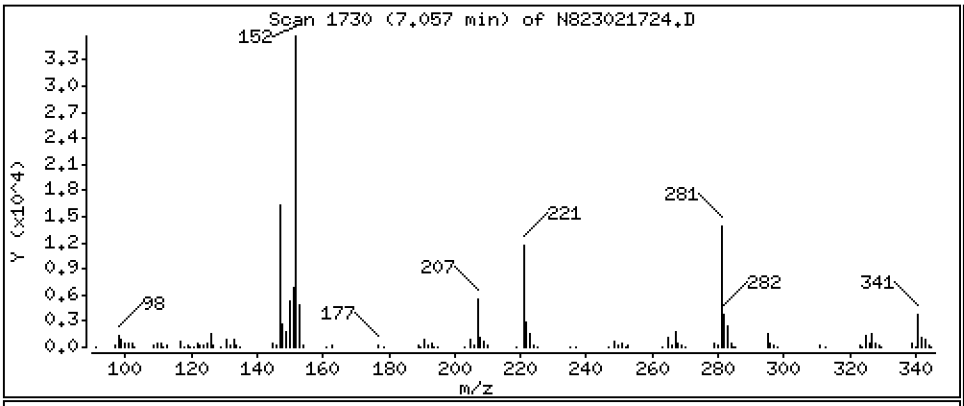
Operator: JZ

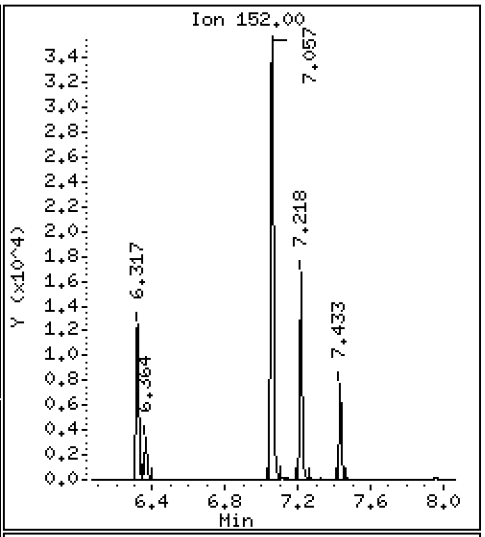
Column phase: Rxi-17sil

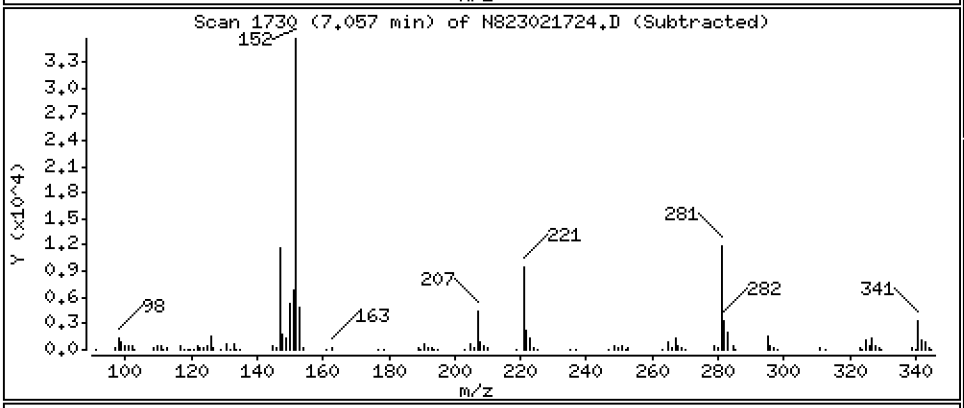
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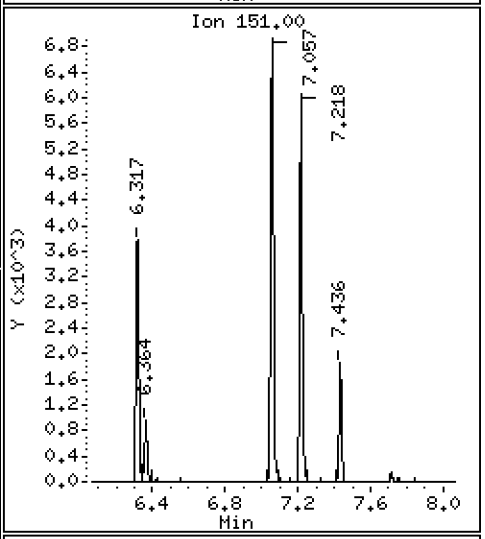
9 Acenaphthylene

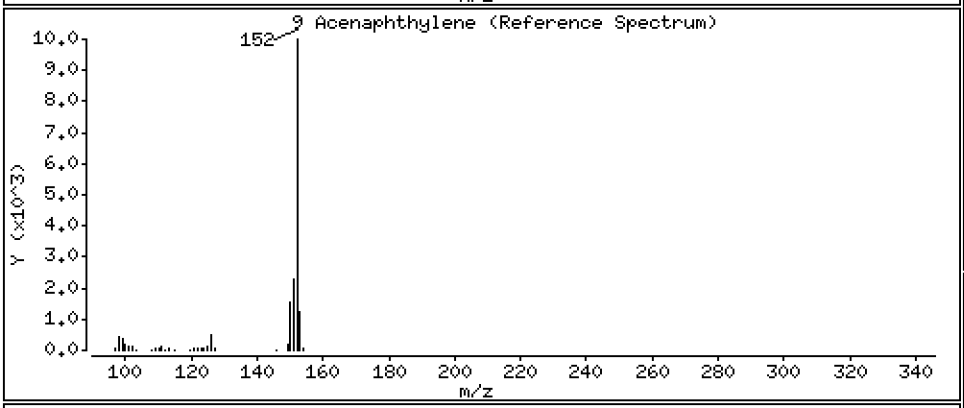
Concentration: 2.768 ug/mL

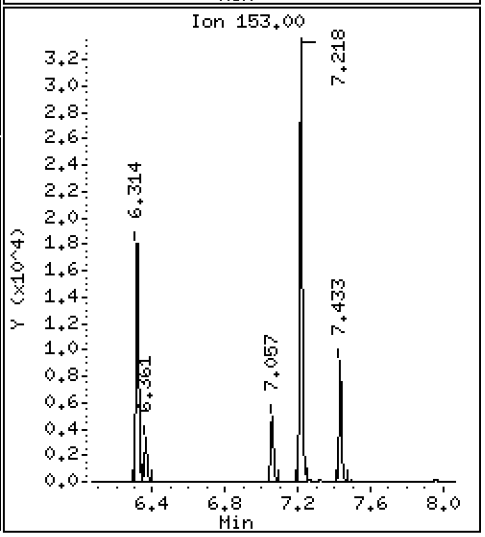


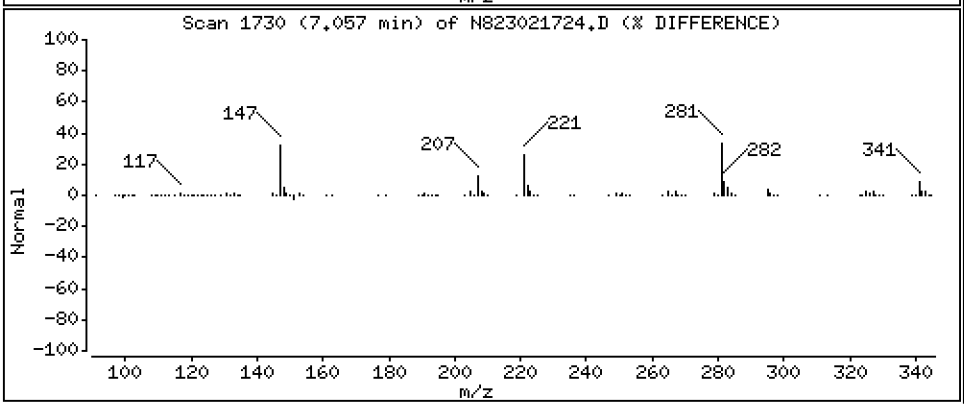












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

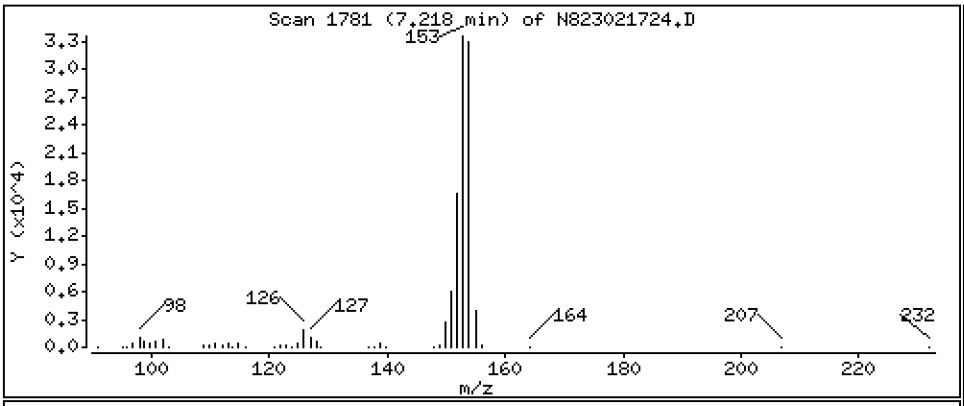
Operator: JZ

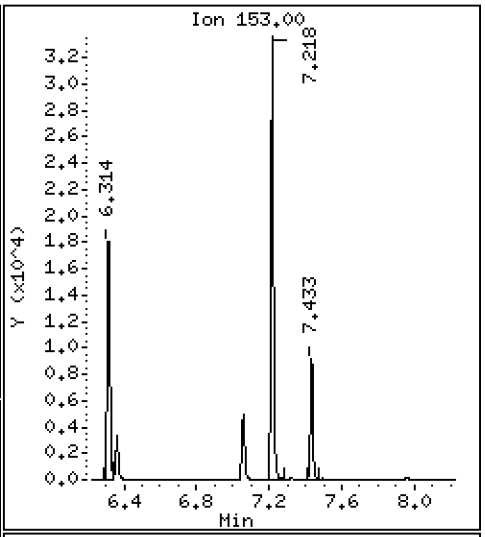
Column phase: Rxi-17sil

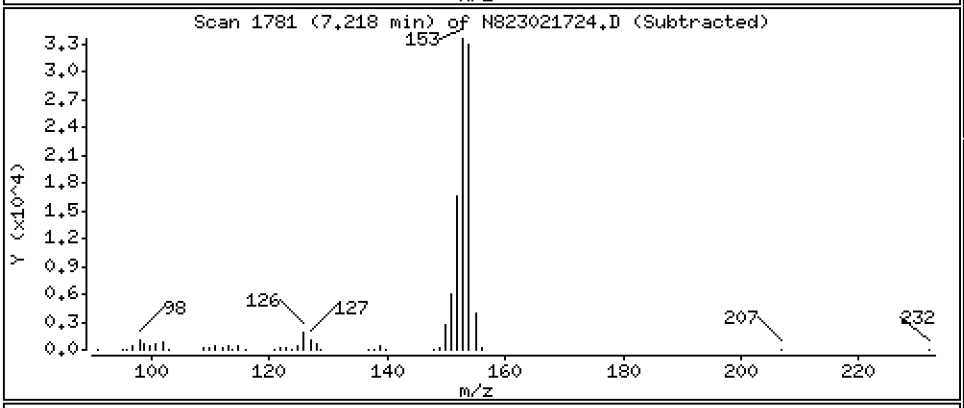
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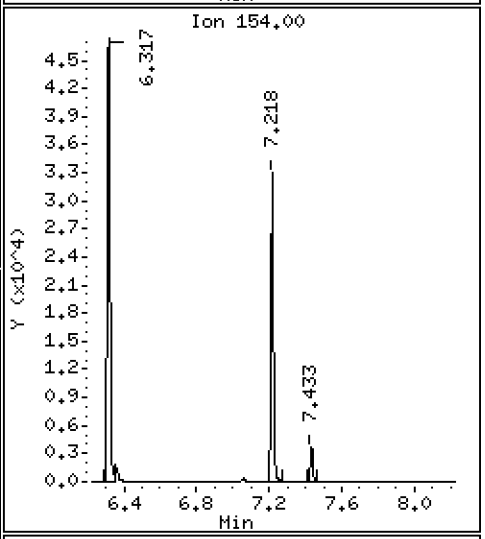
11 Acenaphthene

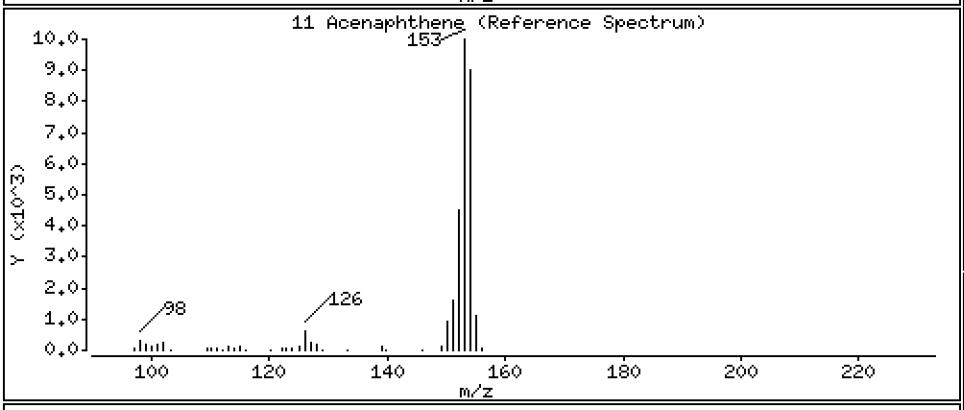
Concentration: 3.650 ug/mL

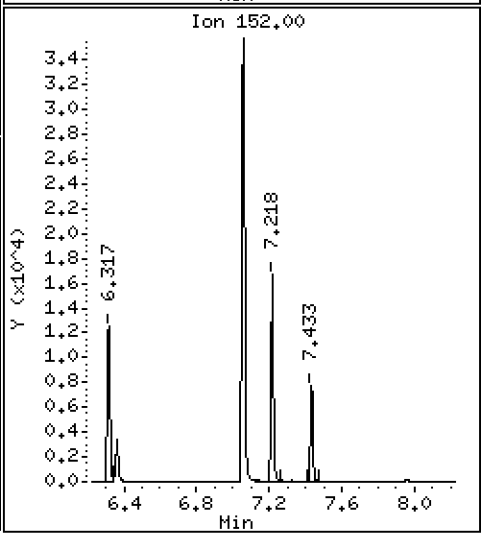


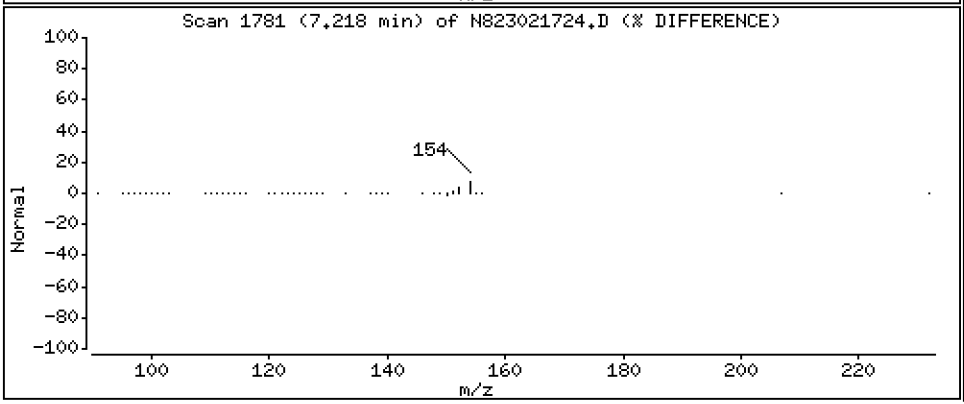












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

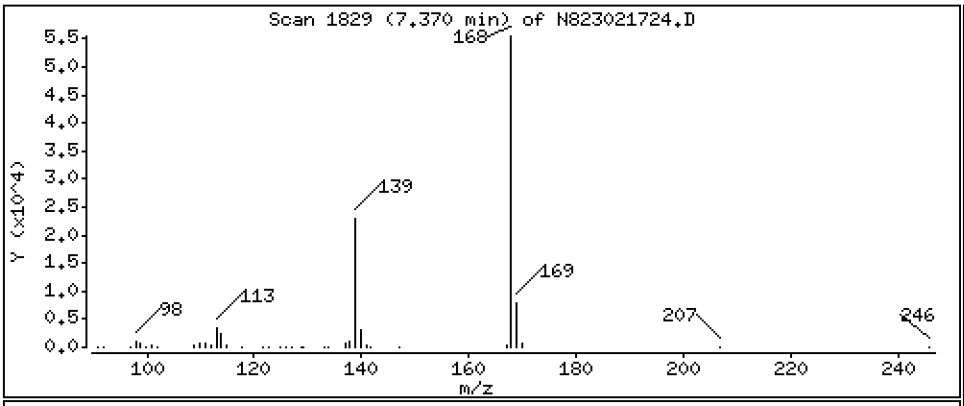
Operator: JZ

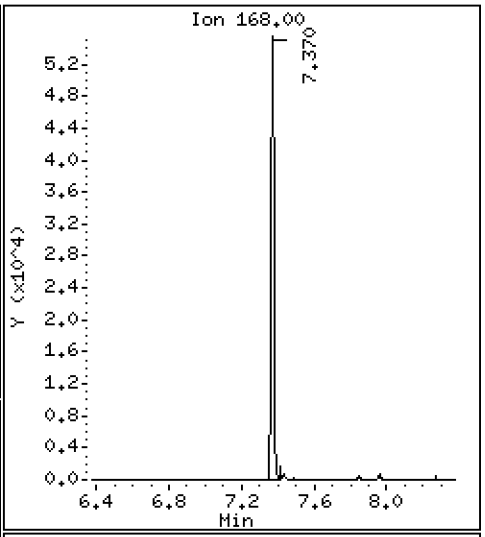
Column phase: Rxi-17sil

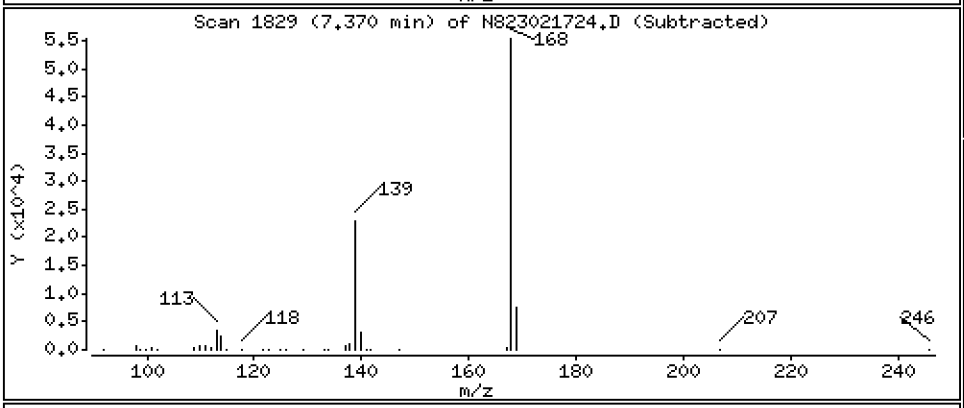
Column diameter: 0.25

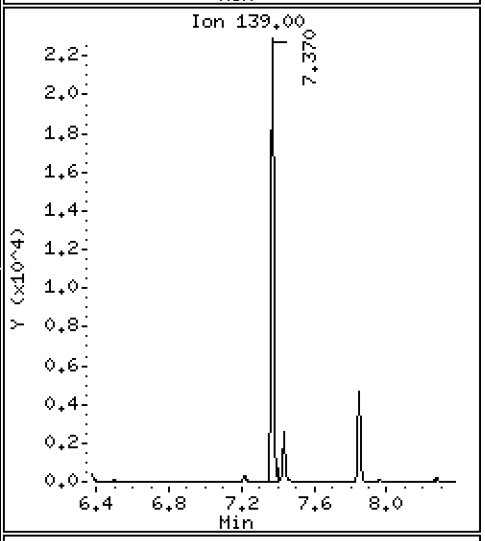
12 Dibenzofuran

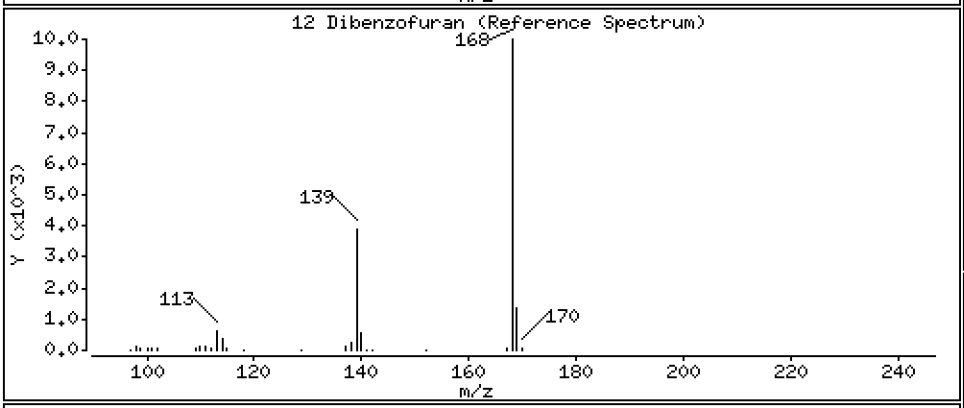
Concentration: 4.015 ug/mL

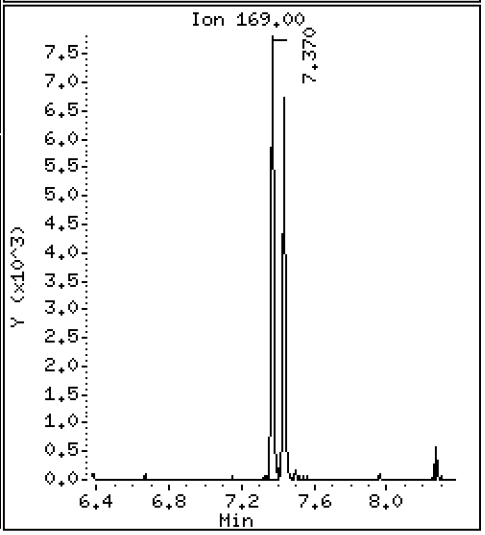


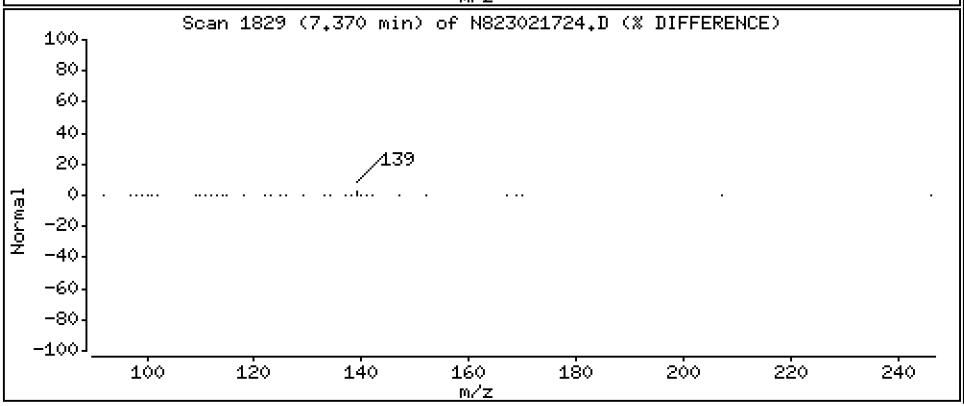












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Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

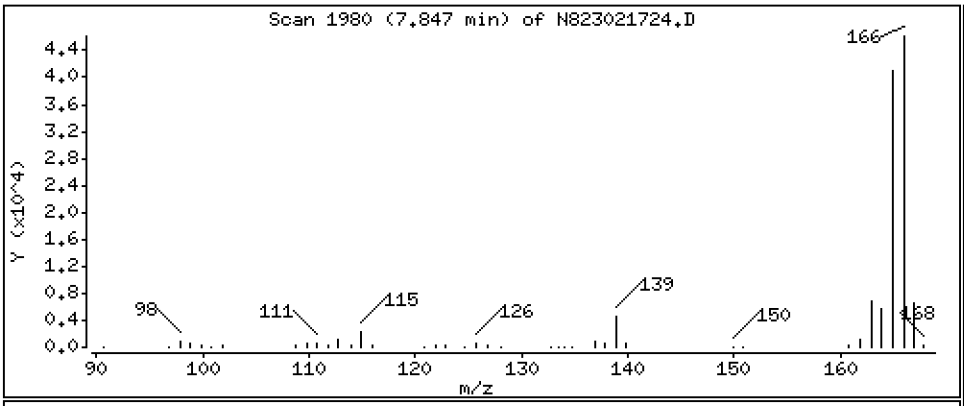
Operator: JZ

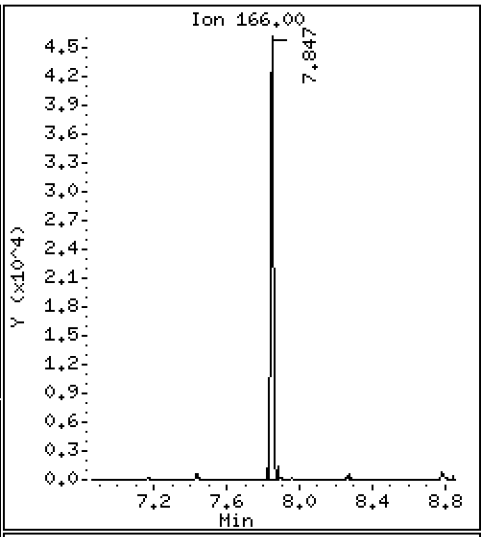
Column phase: Rxi-17sil

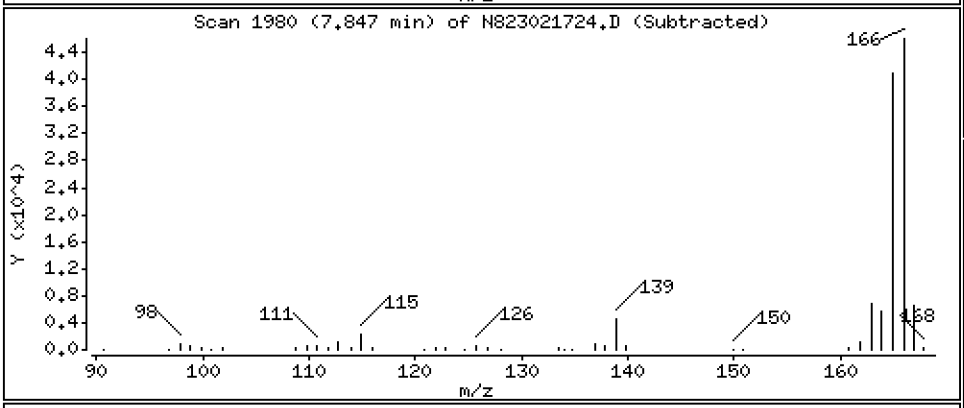
Column diameter: 0.25

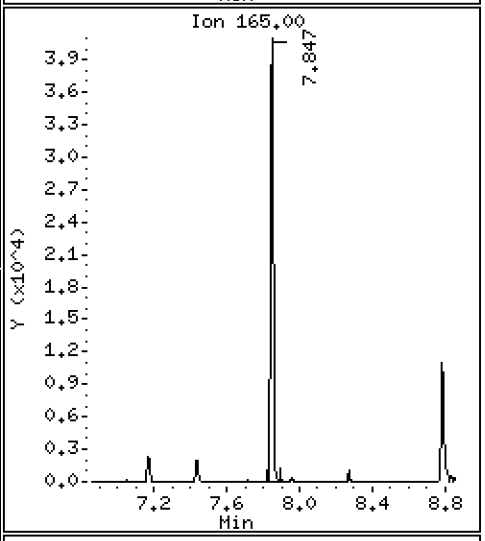
14 Fluorene

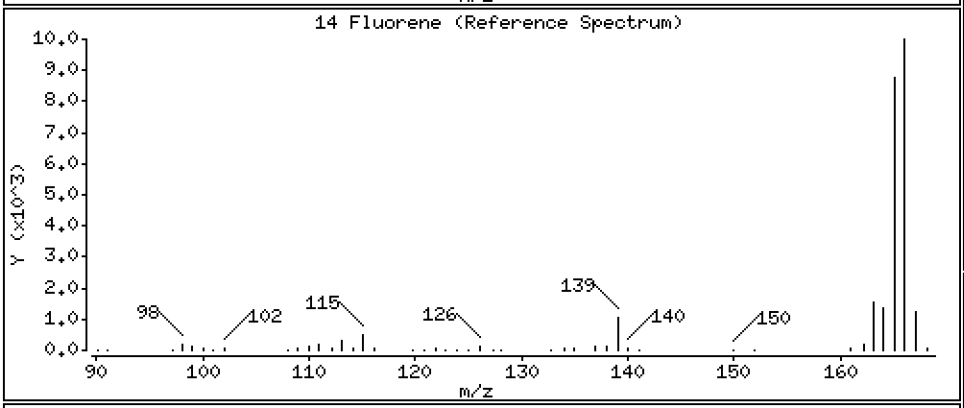
Concentration: 4.079 ug/mL

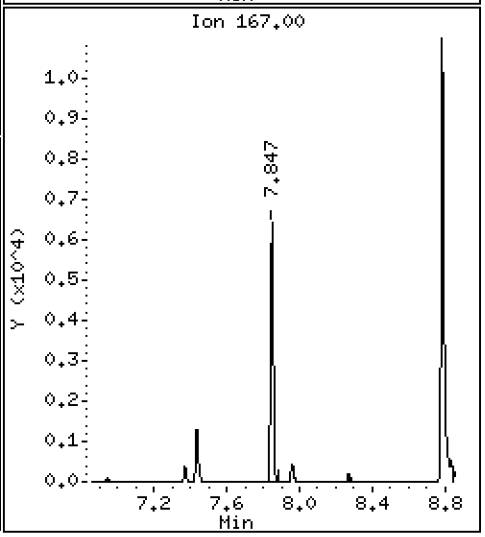


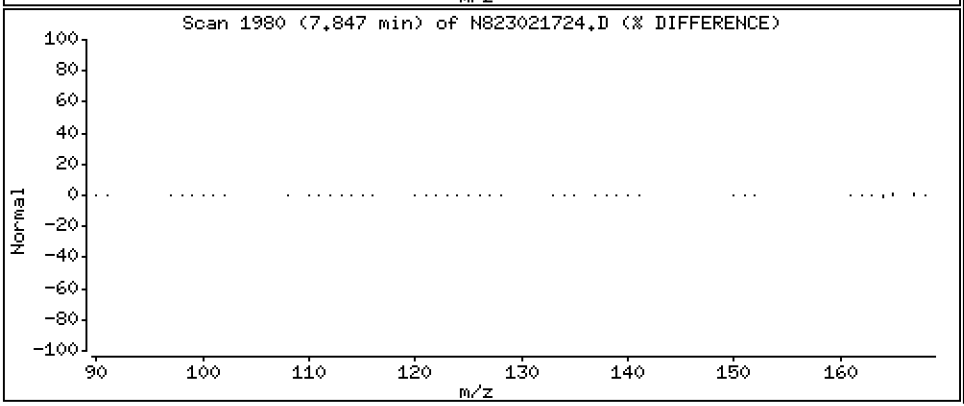












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Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

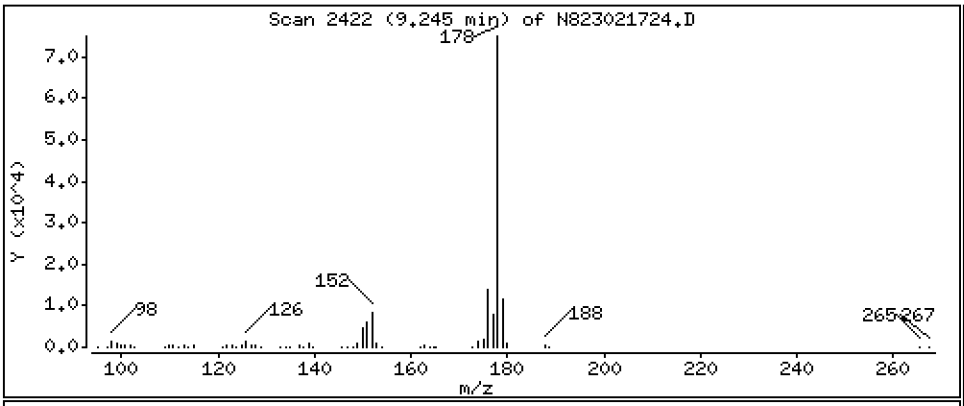
Operator: JZ

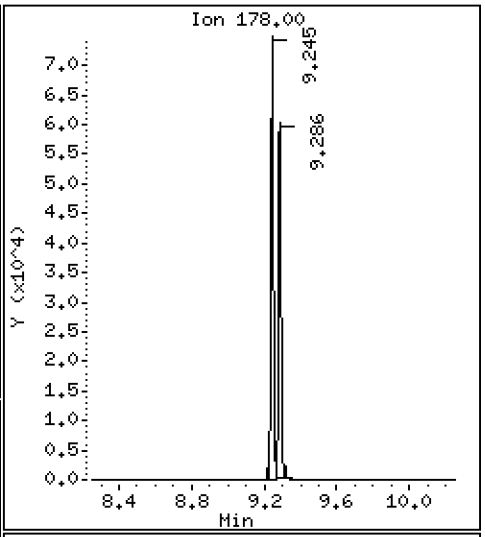
Column phase: Rxi-17sil

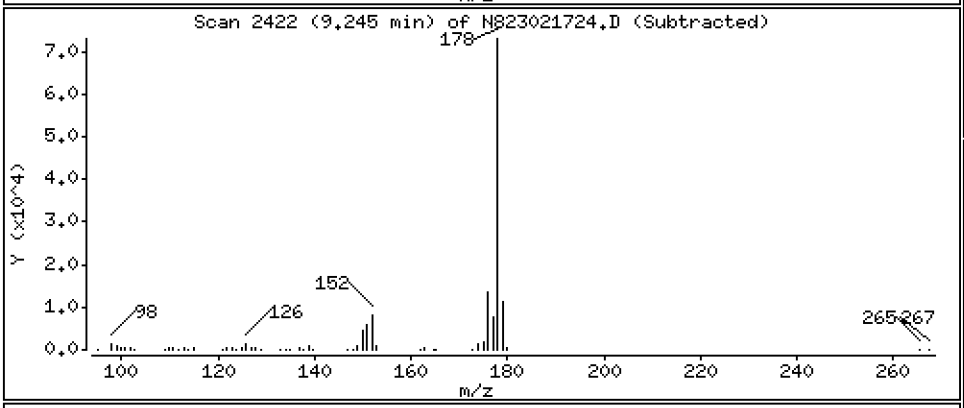
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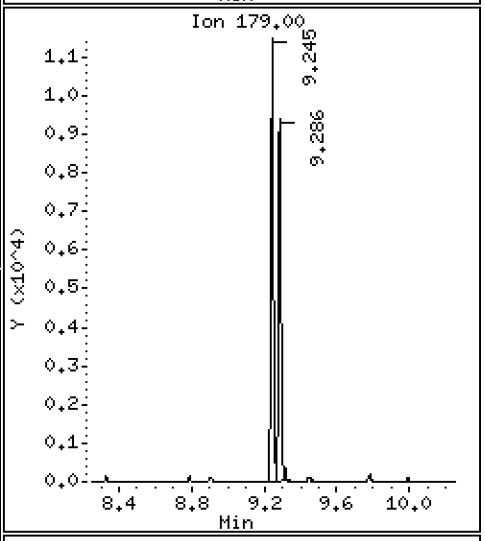
16 Phenanthrene

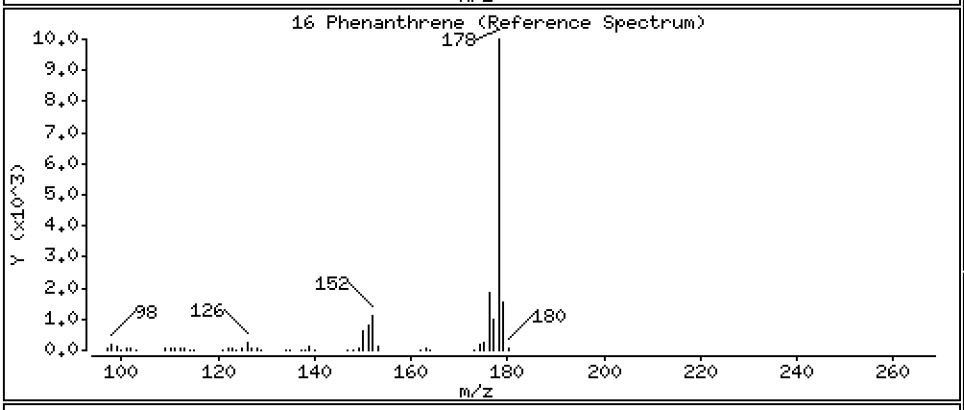
Concentration: 4.010 ug/mL

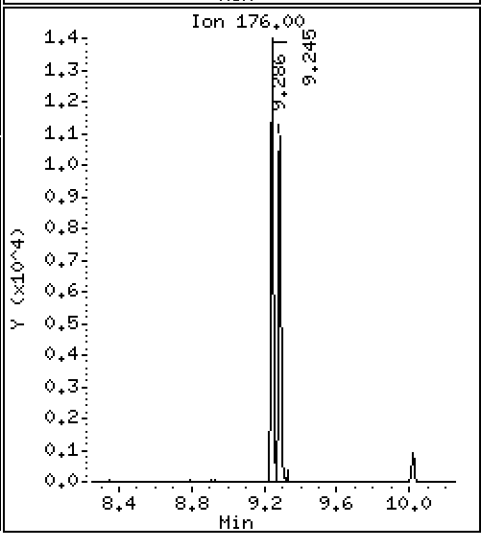


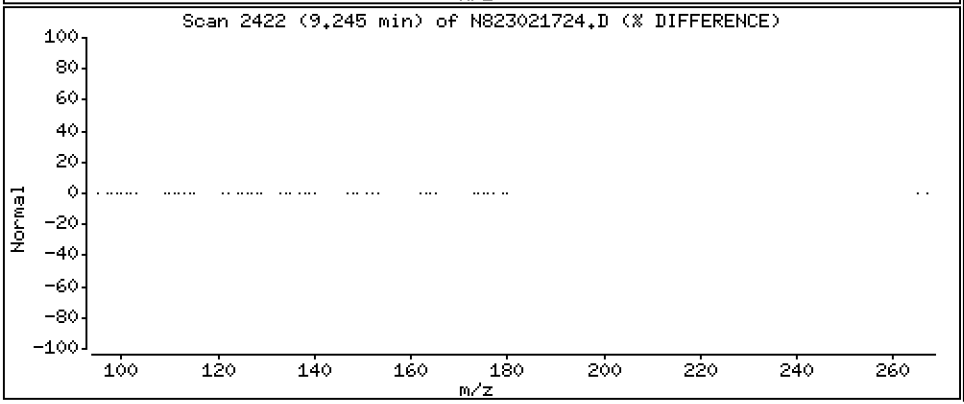












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Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

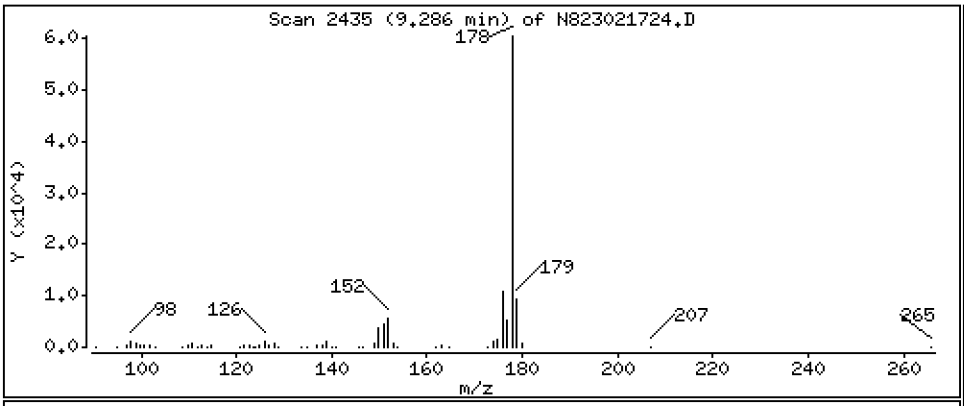
Operator: JZ

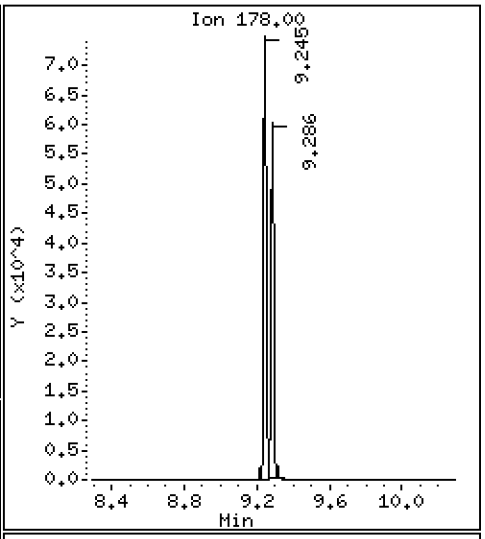
Column phase: Rxi-17sil

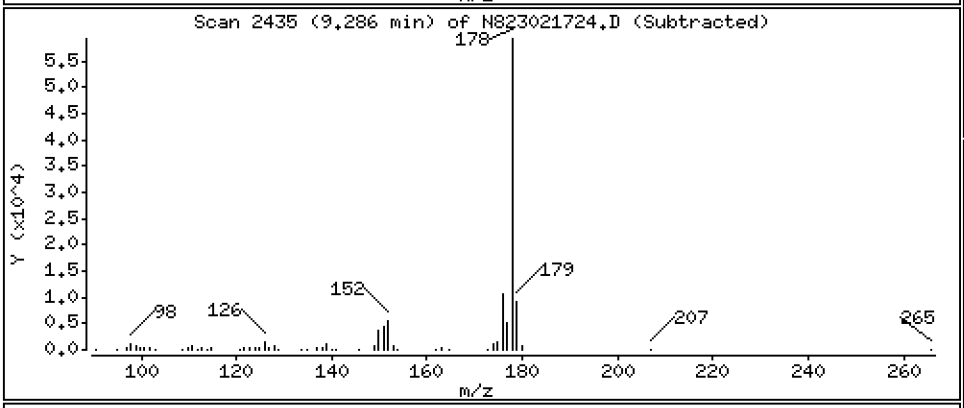
Column diameter: 0.25

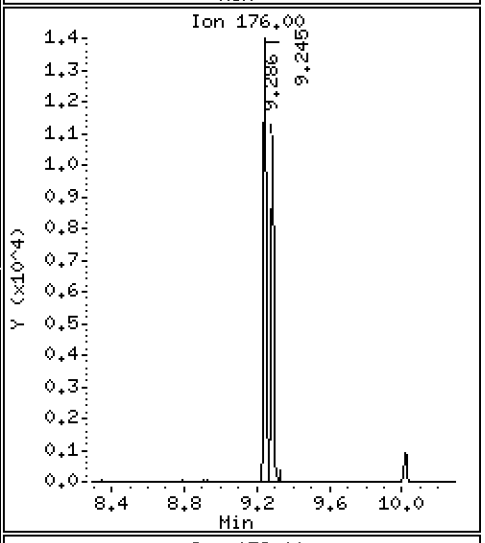
17 Anthracene

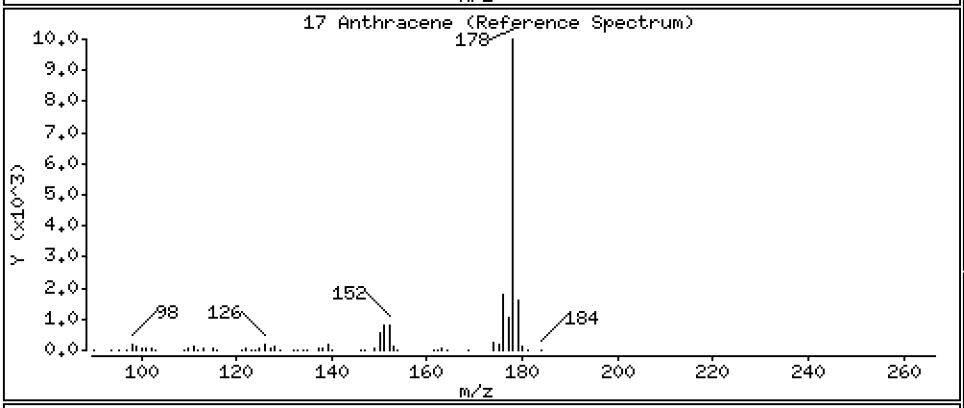
Concentration: 3.587 ug/mL

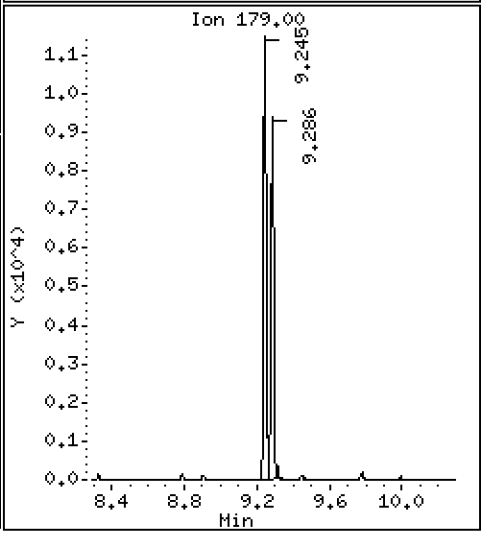


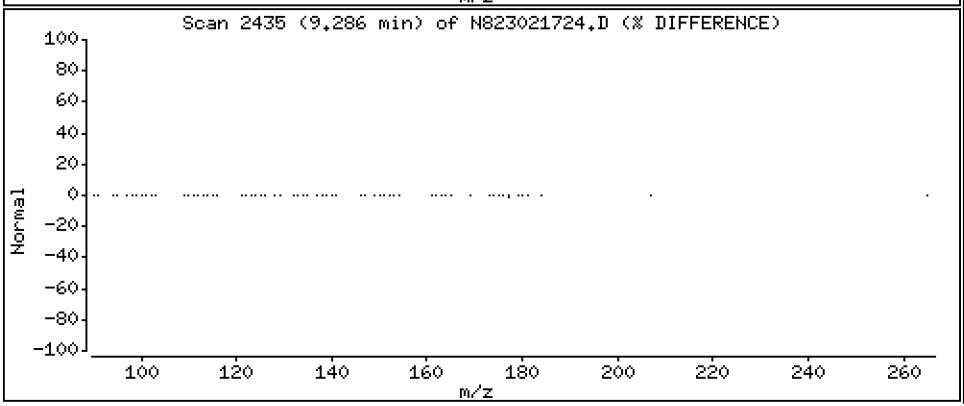












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Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

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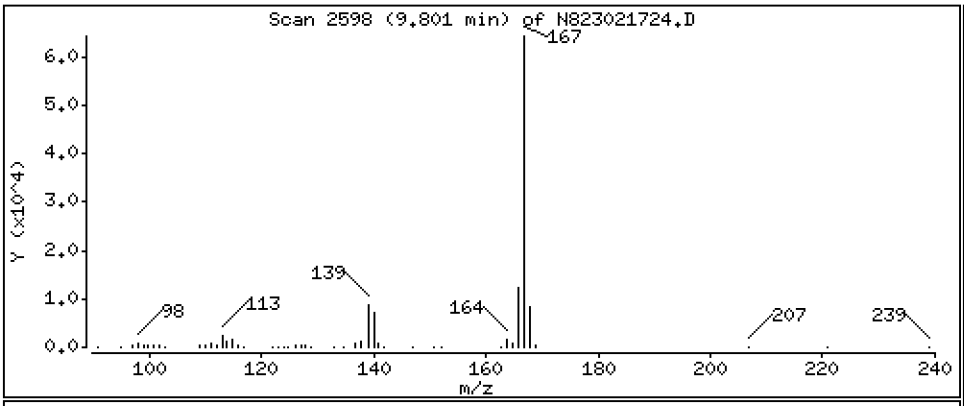
Operator: JZ

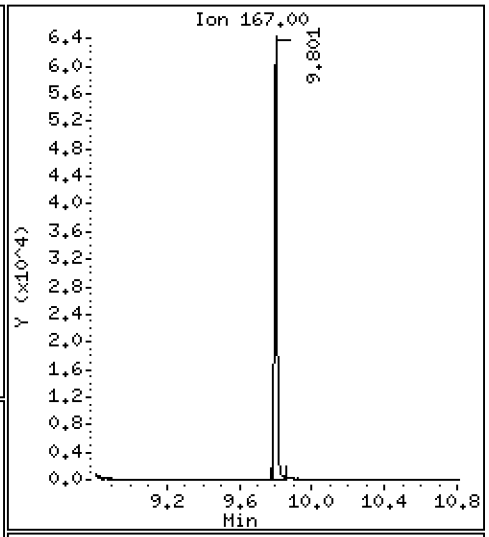
Column phase: Rxi-17sil

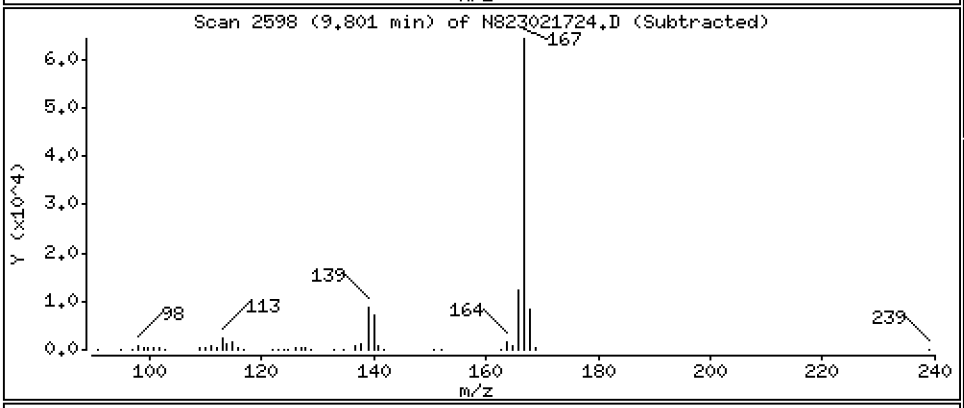
Column diameter: 0.25

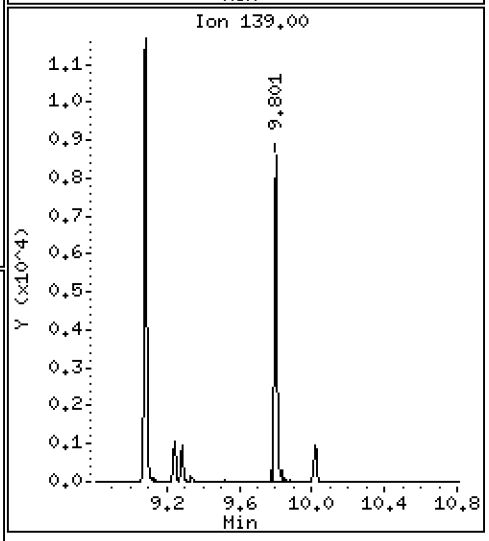
19 Carbazole

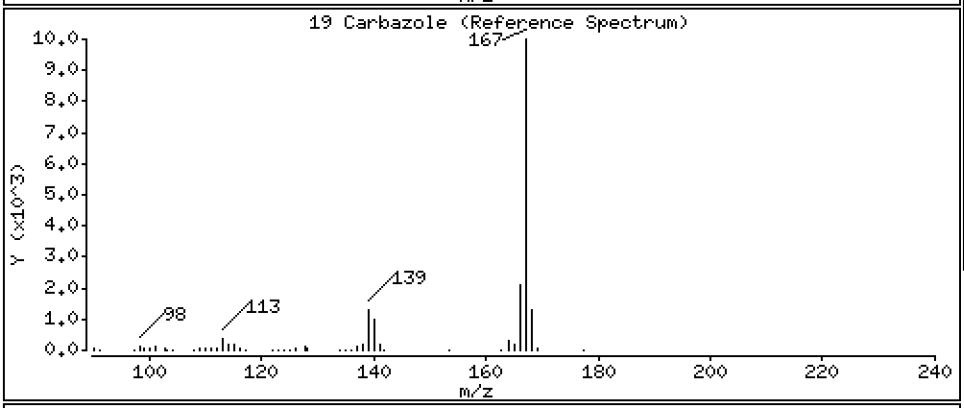
Concentration: 4.346 ug/mL

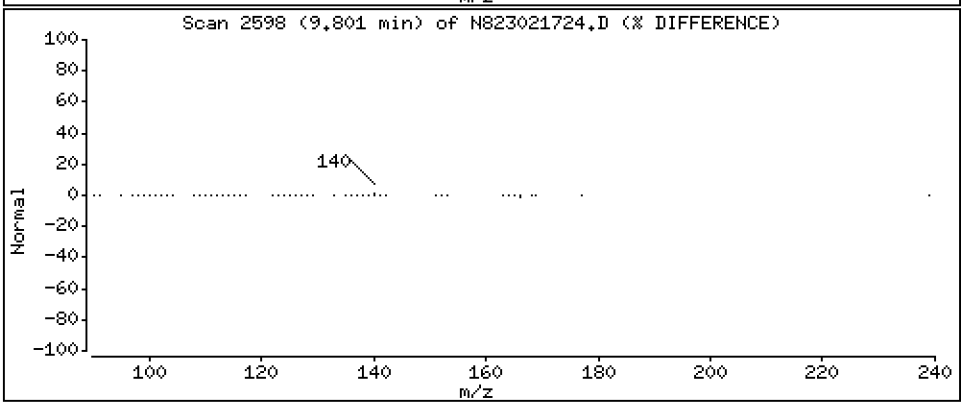












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

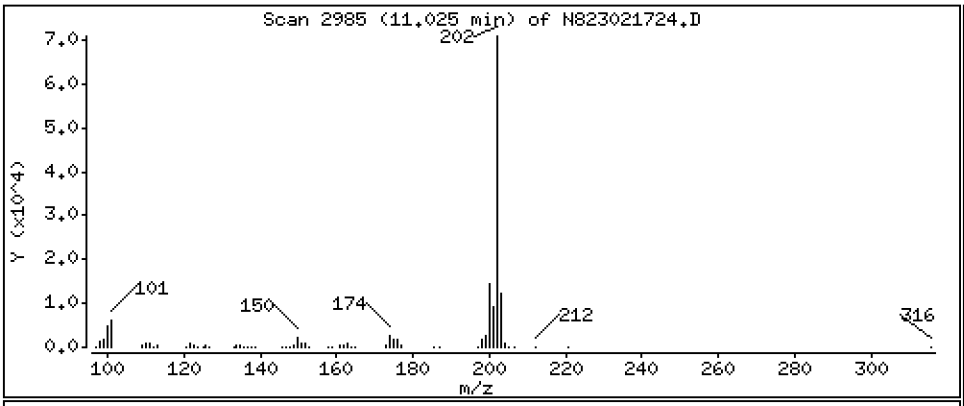
Operator: JZ

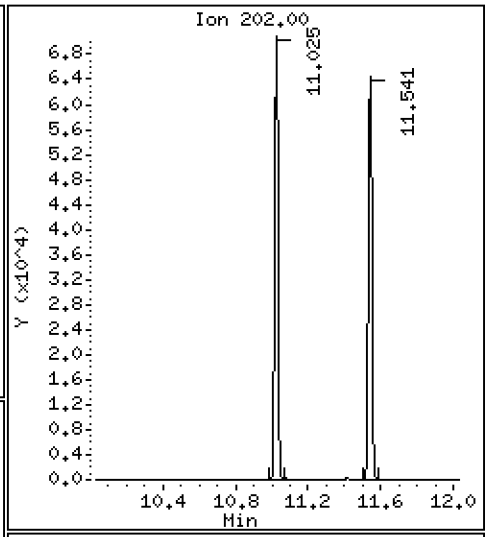
Column phase: Rxi-17sil

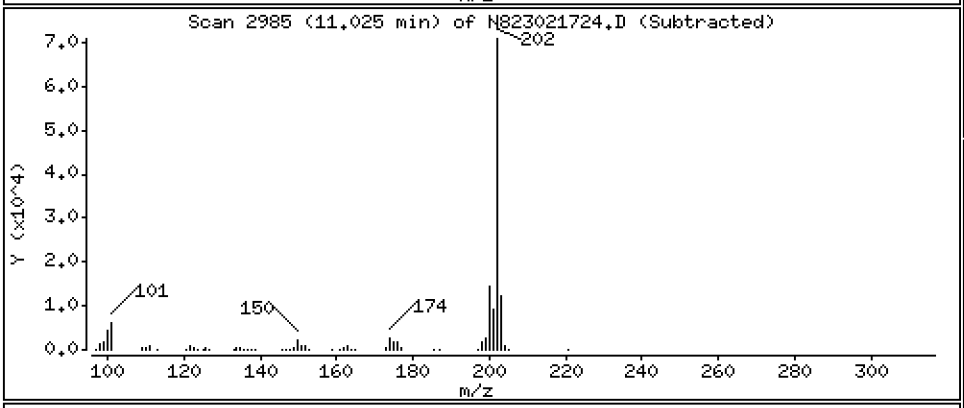
Column diameter: 0.25

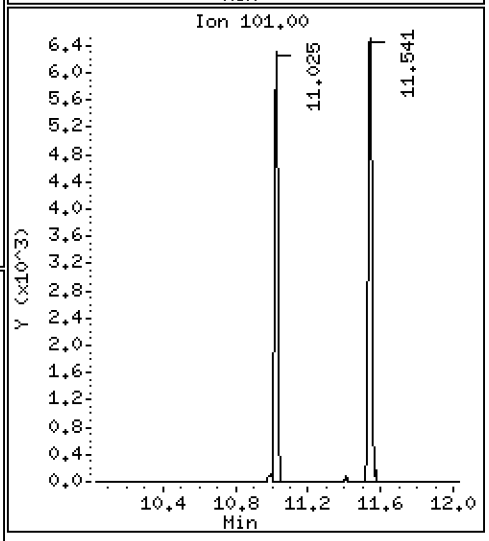
22 Fluoranthene

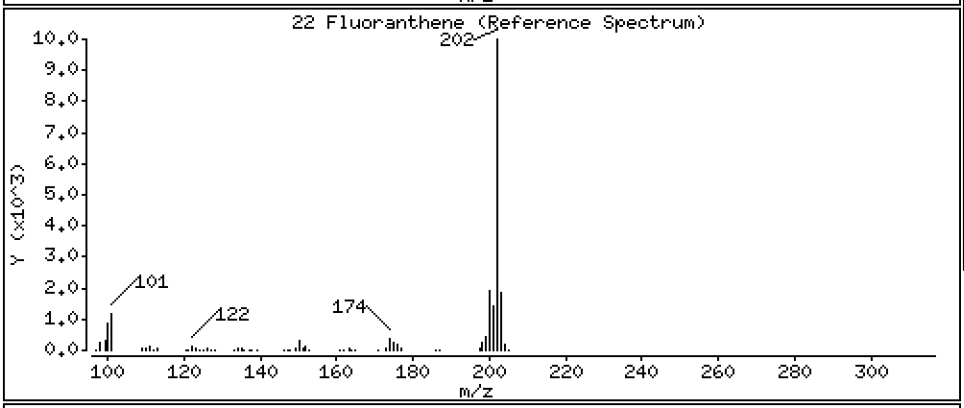
Concentration: 4.311 ug/mL

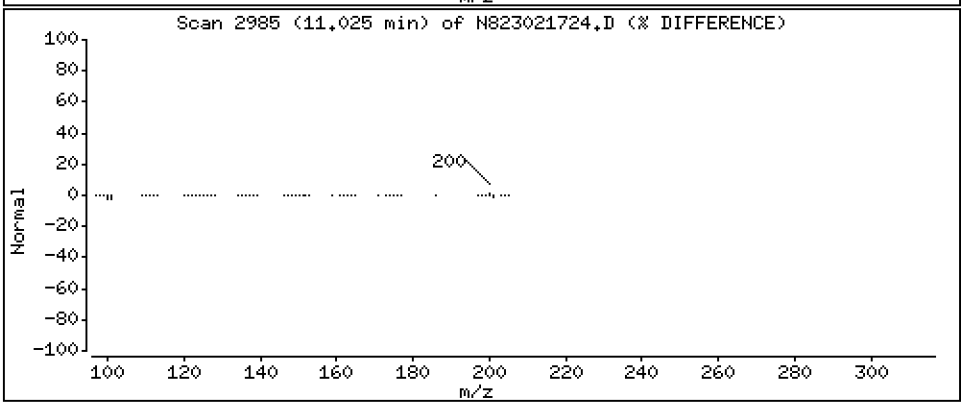












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

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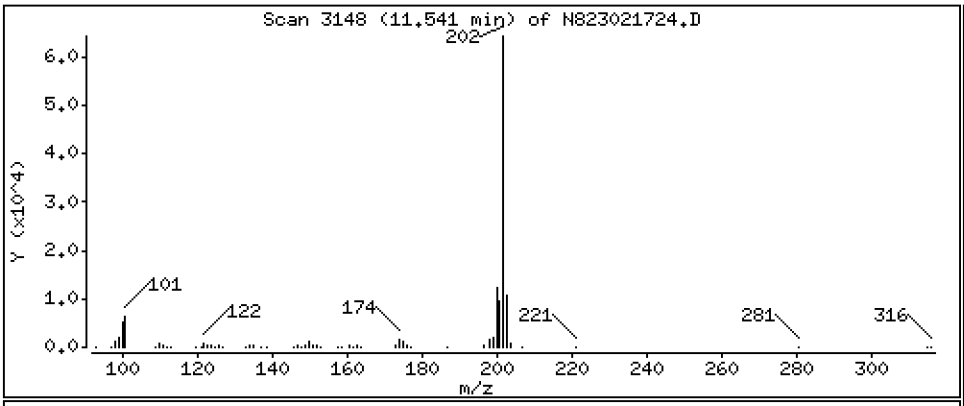
Operator: JZ

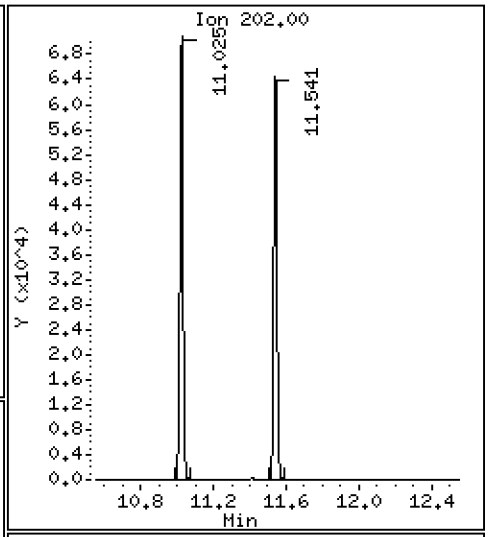
Column phase: Rxi-17sil

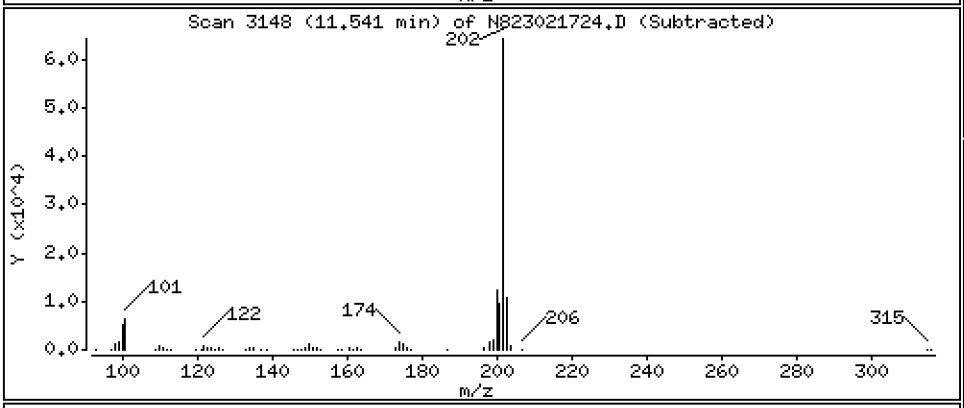
Column diameter: 0.25

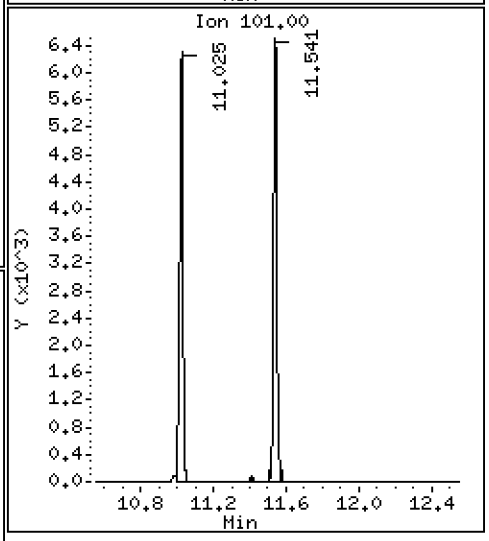
23 Pyrene

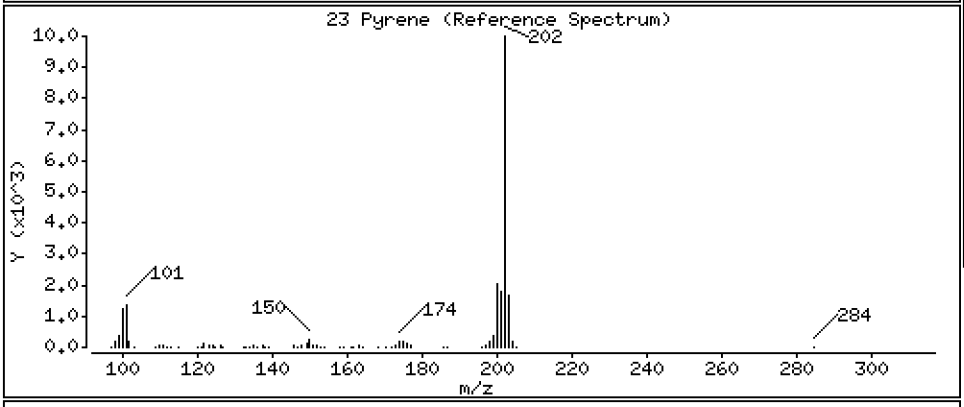
Concentration: 4.206 ug/mL

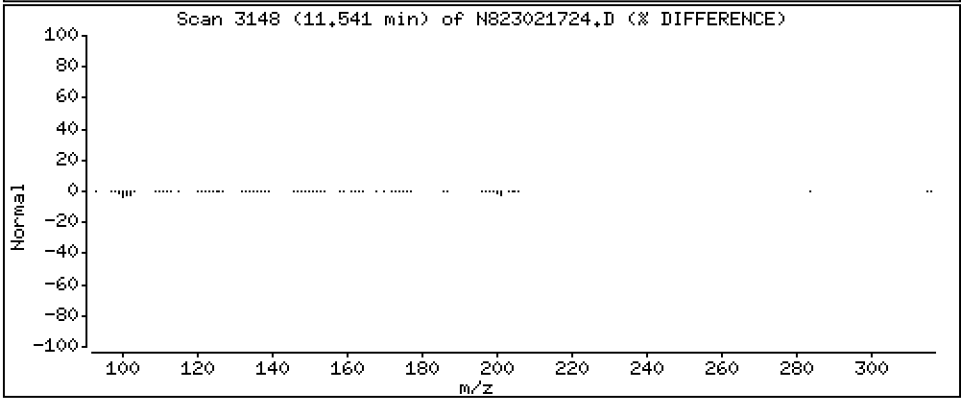












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Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

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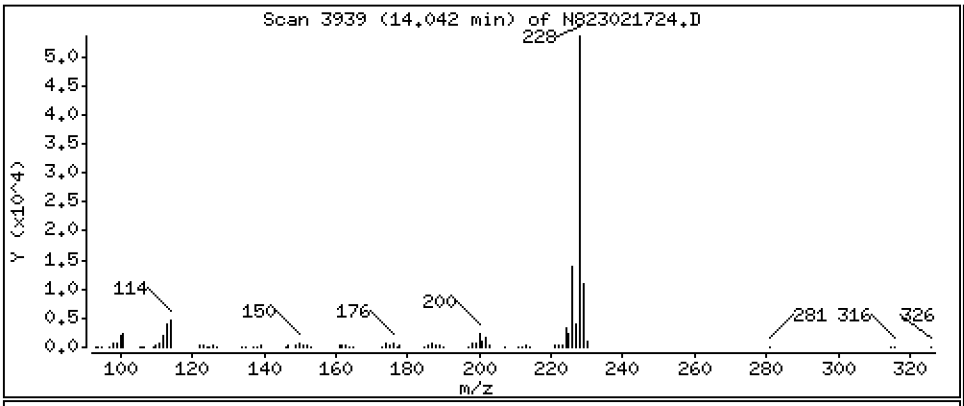
Operator: JZ

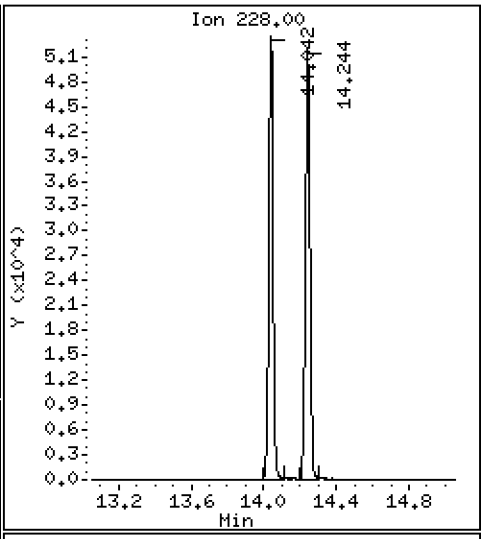
Column phase: Rxi-17sil

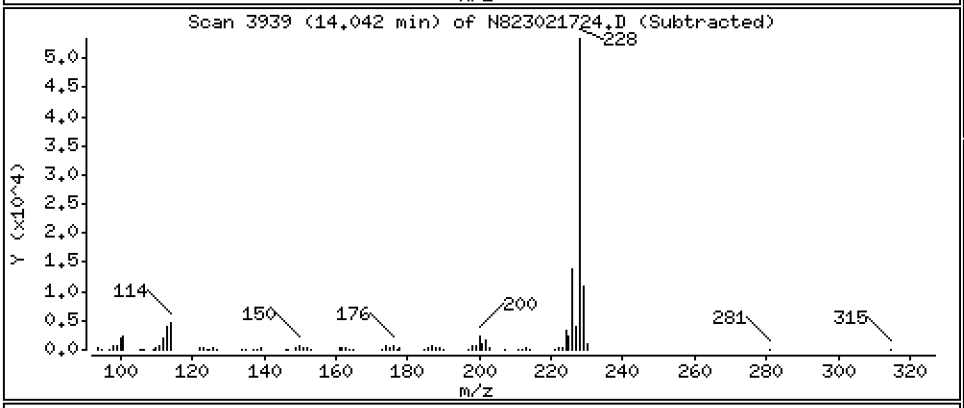
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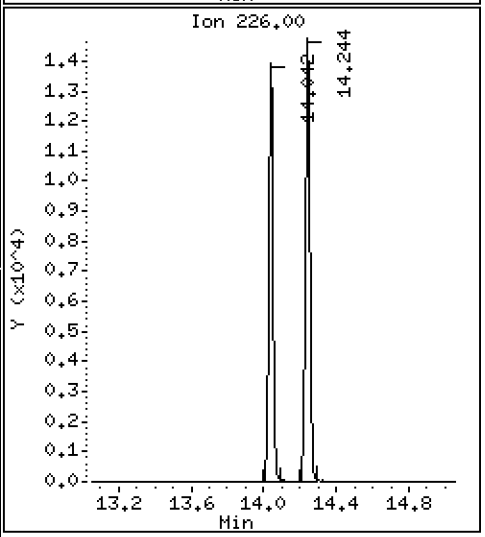
24 Benzo(a)anthracene

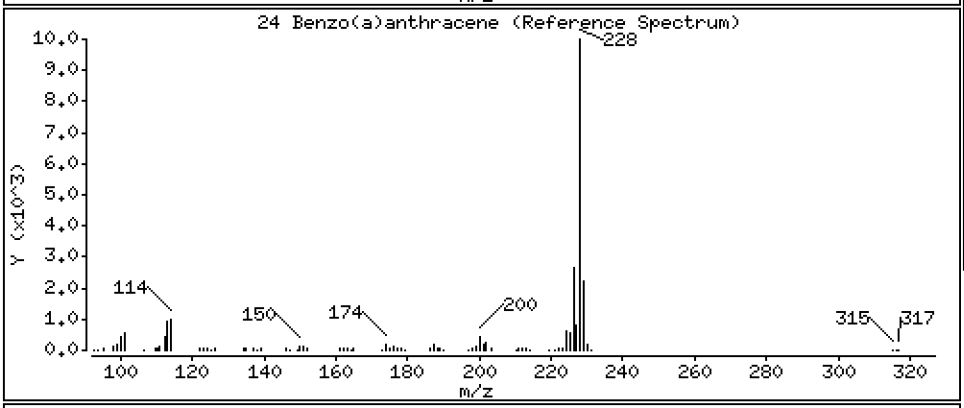
Concentration: 4.904 ug/mL

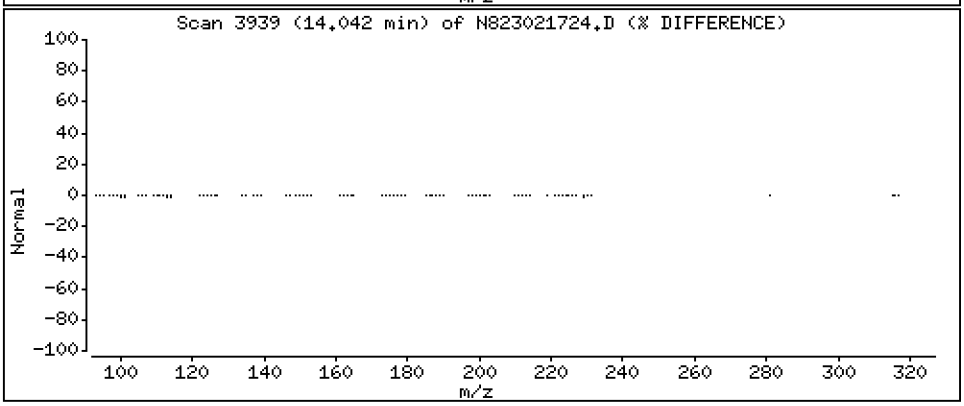












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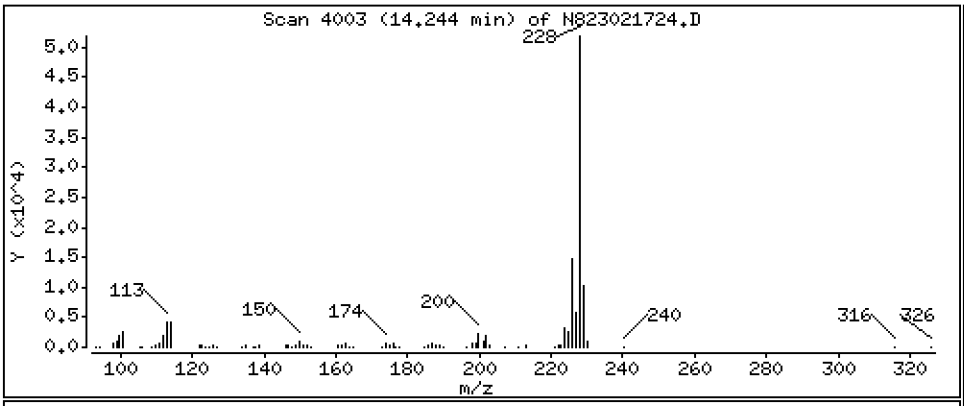
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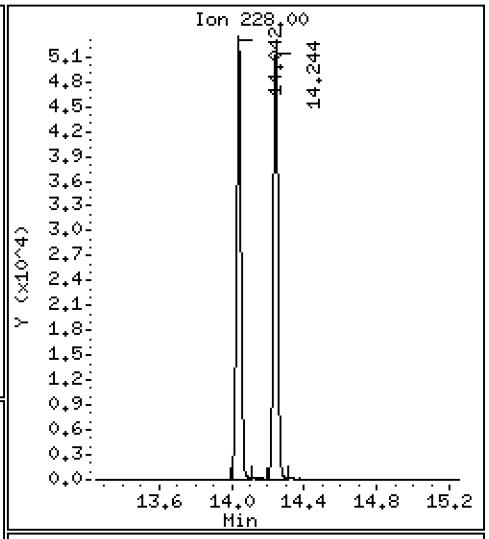
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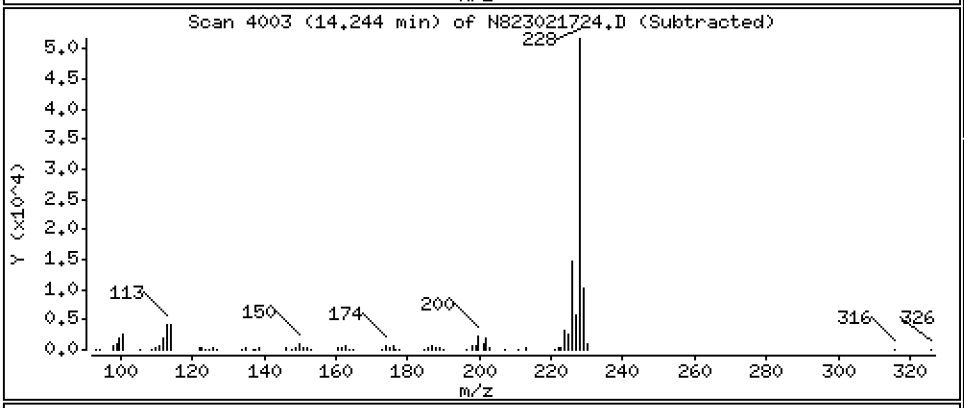
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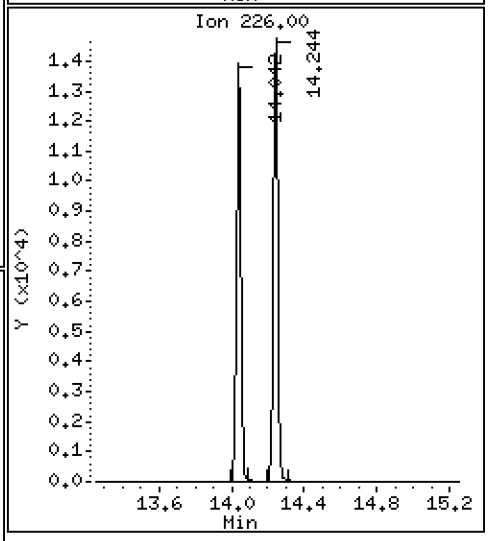
27 Chrysene

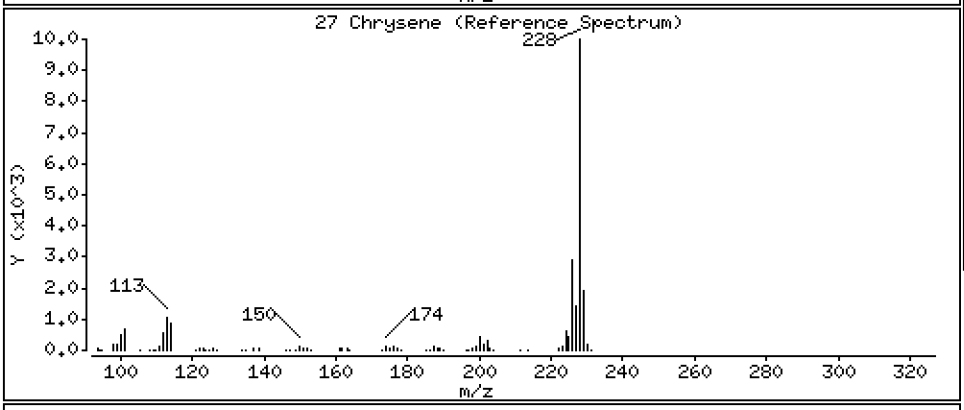
Concentration: 4.563 ug/mL

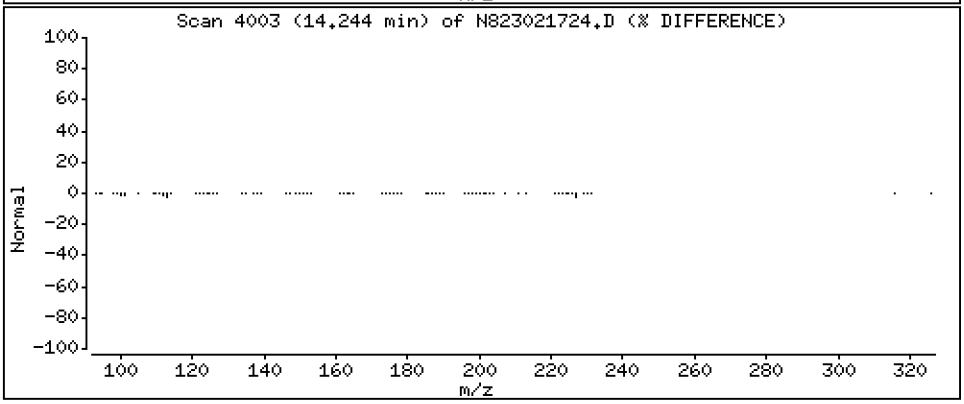












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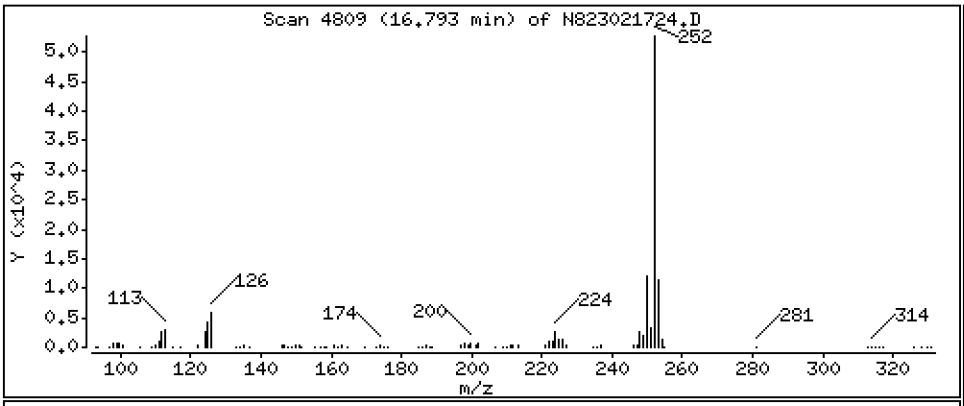
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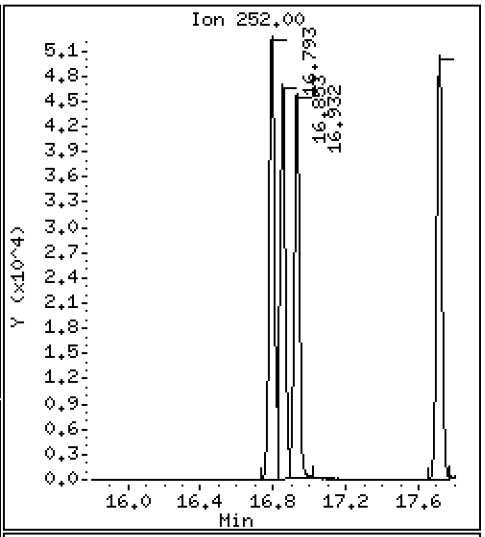
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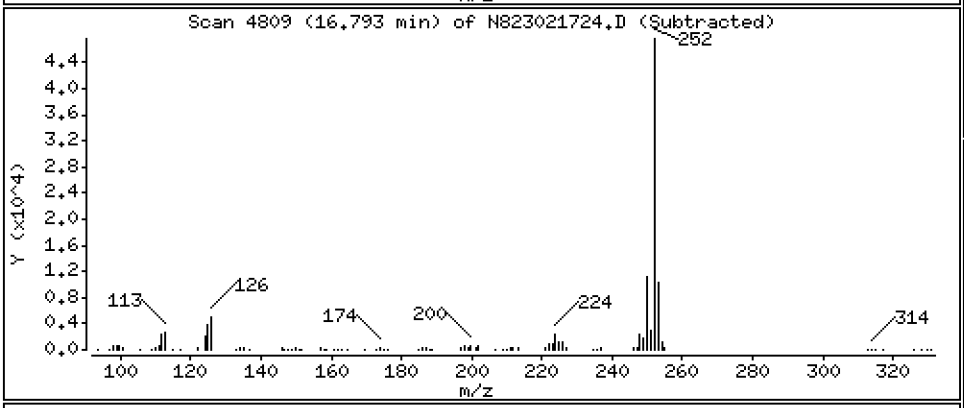
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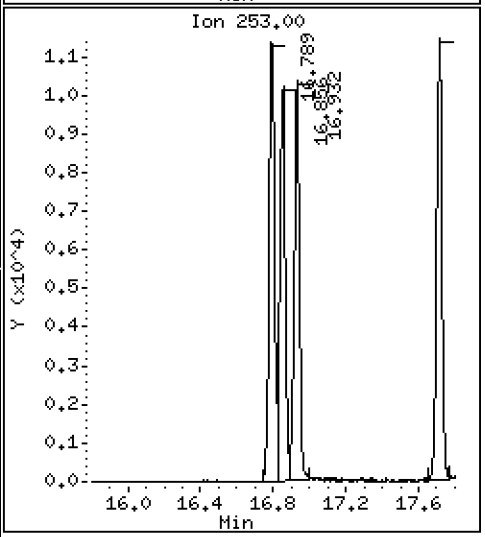
28 Benzo(b)fluoranthene

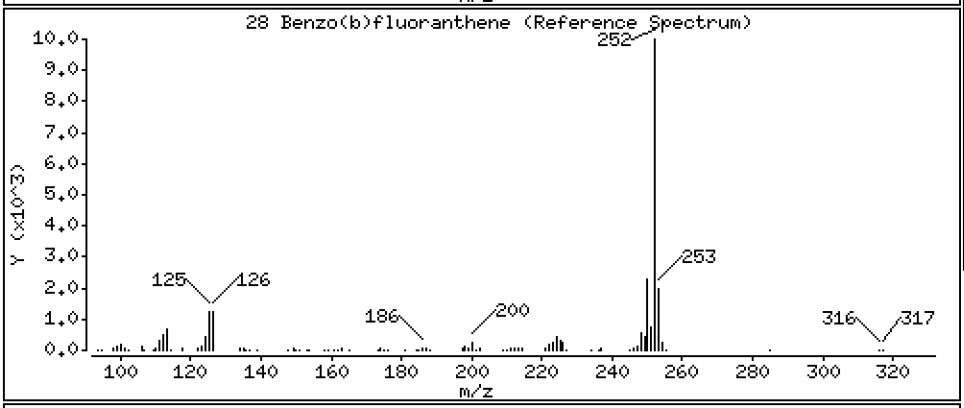
Concentration: 5.820 ug/mL

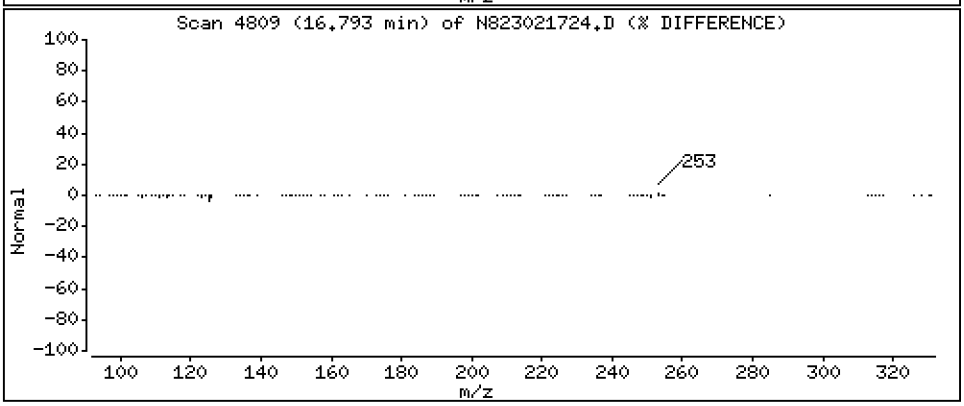












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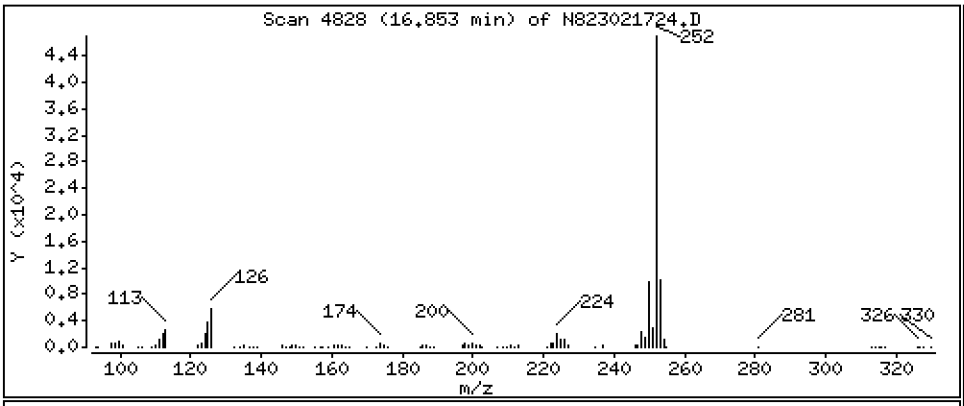
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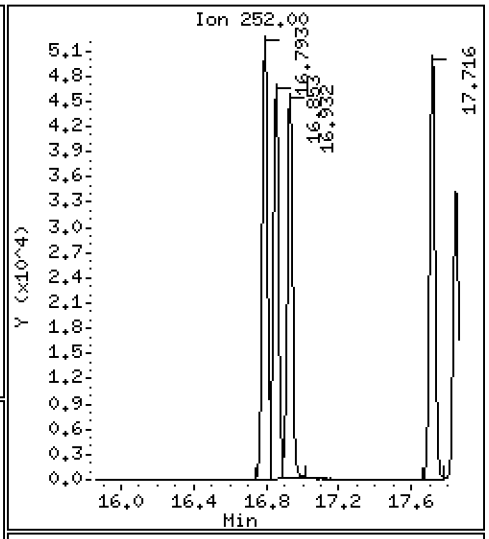
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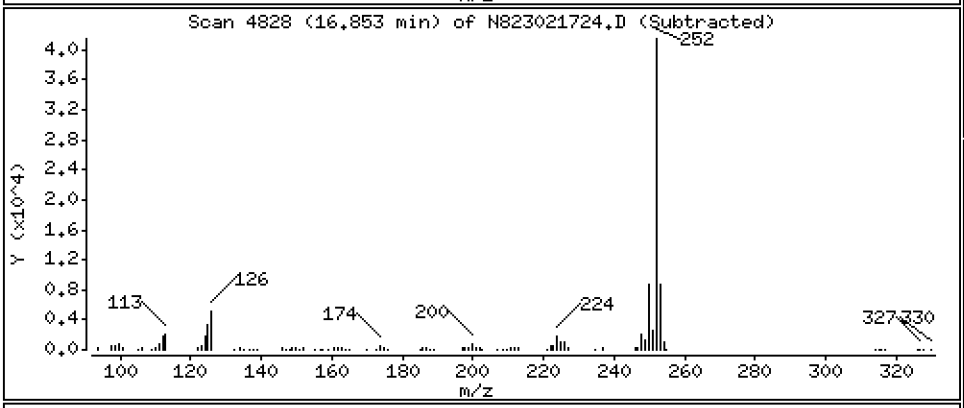
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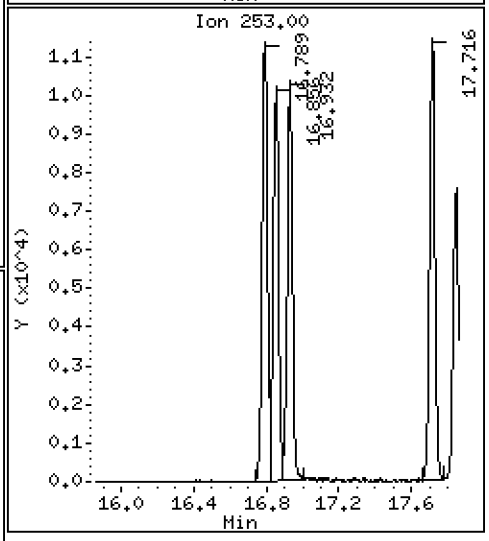
29 Benzo(k)fluoranthene

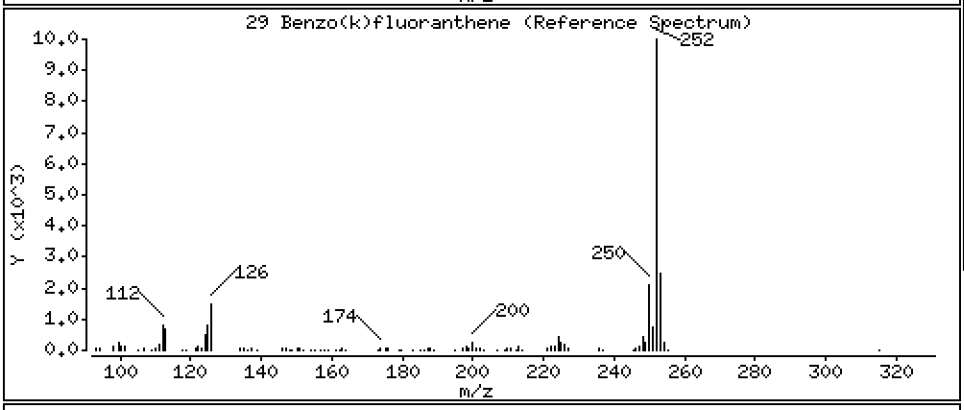
Concentration: 5.247 ug/mL

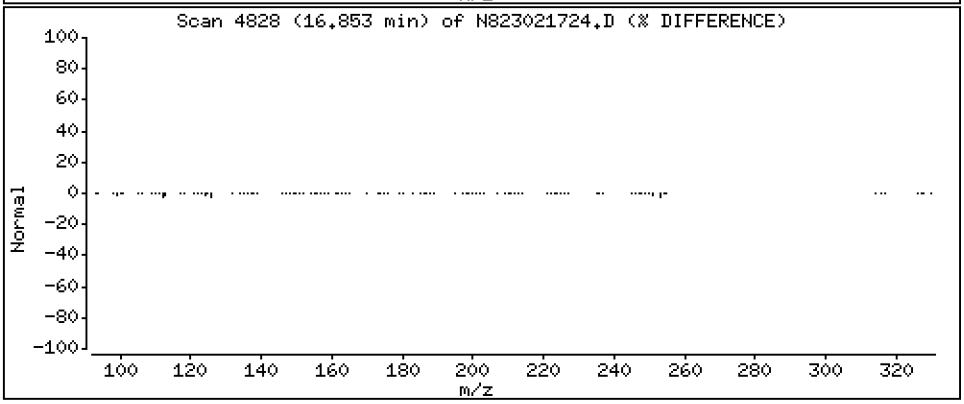












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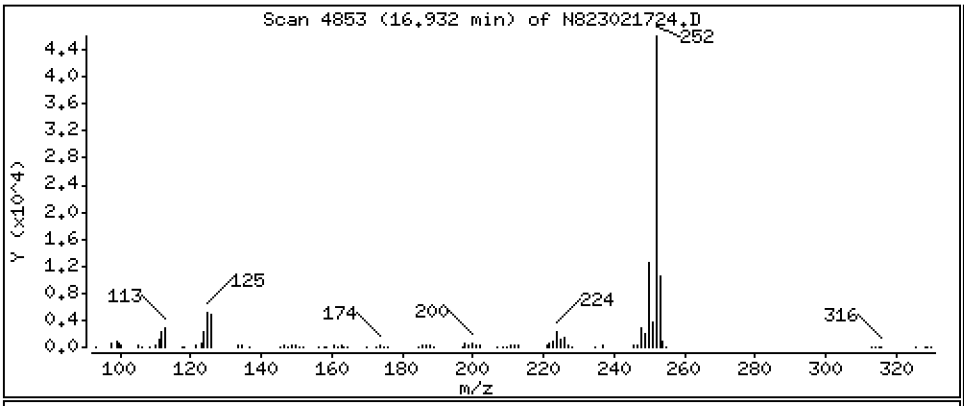
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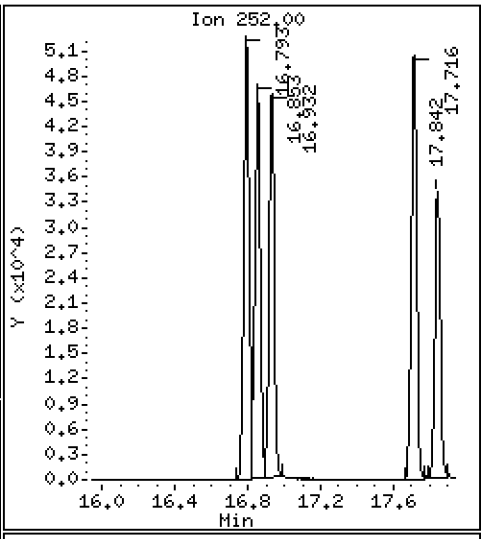
Column phase: Rxi-17sil

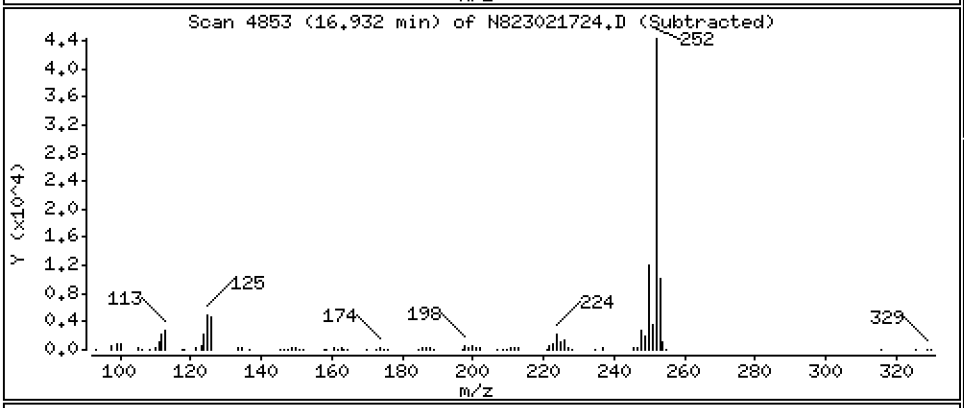
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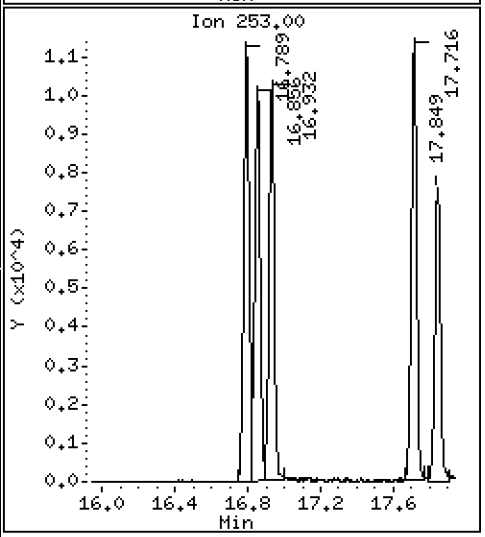
30 Benzo(j)fluoranthene

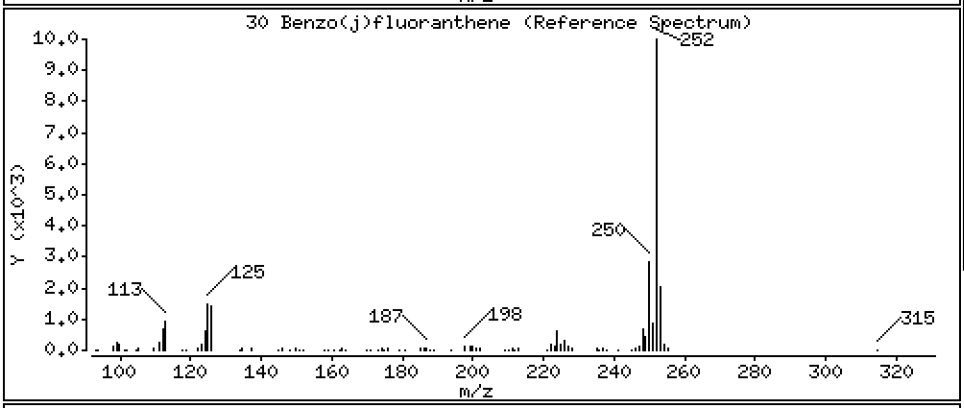
Concentration: 5.566 ug/mL

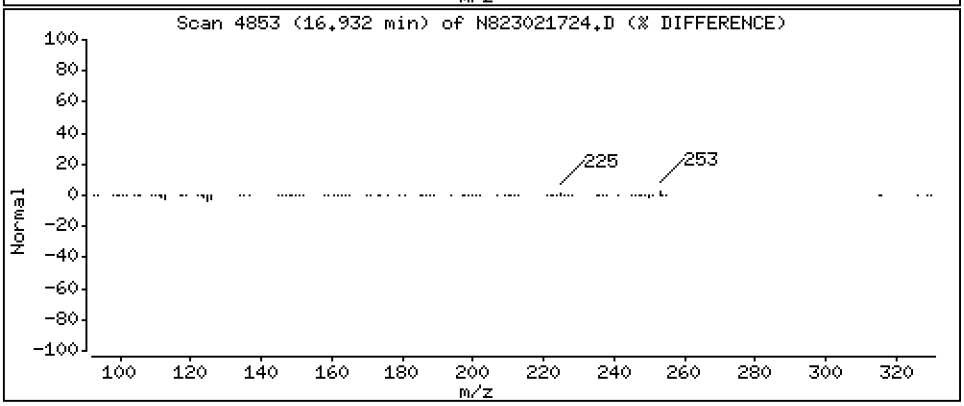












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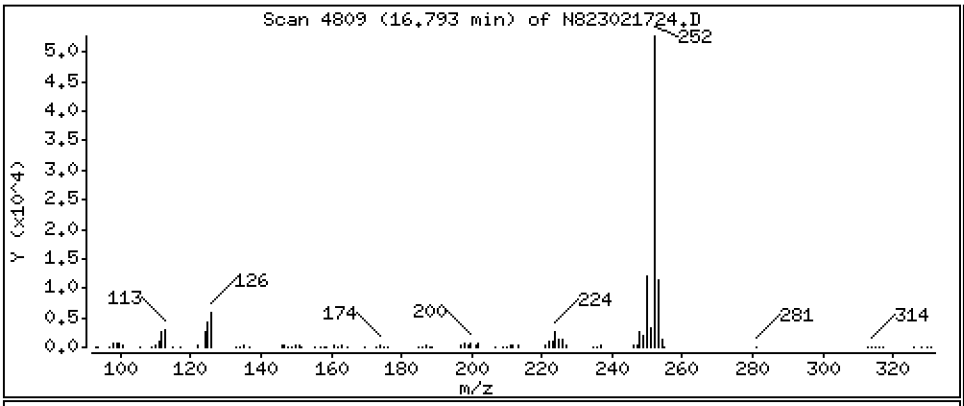
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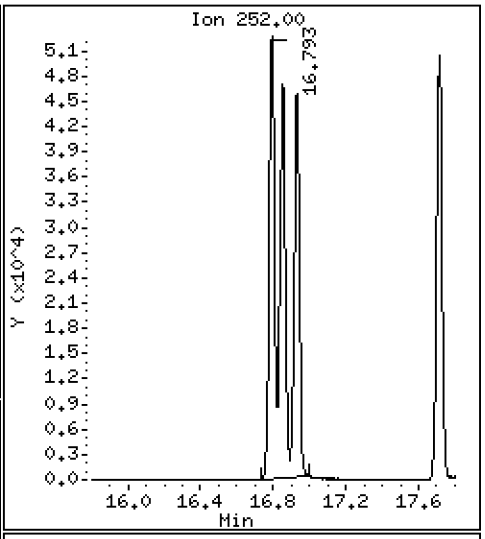
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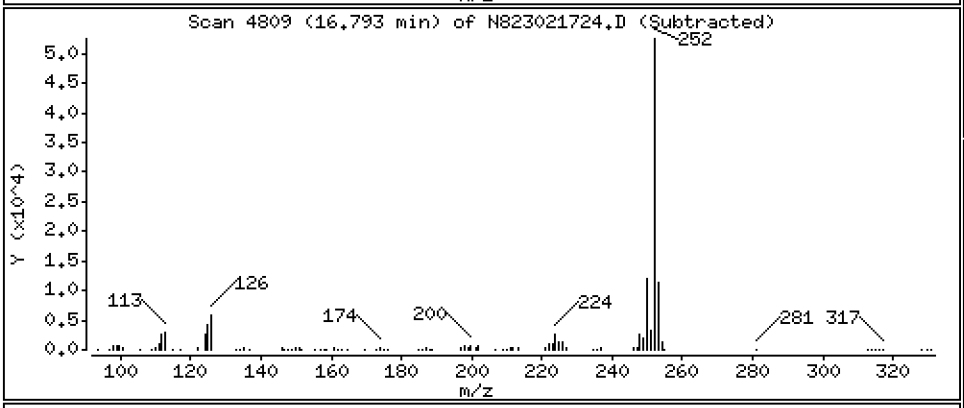
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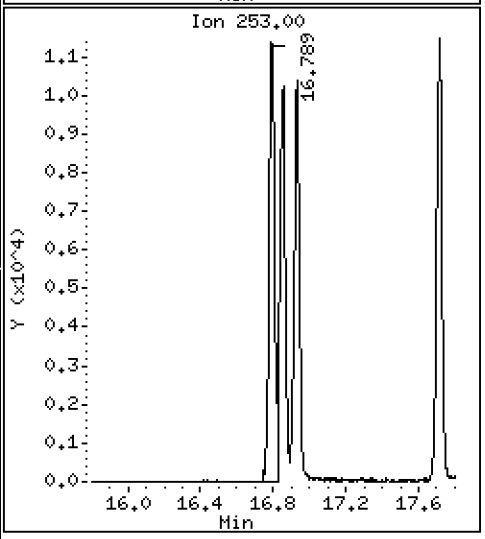
31 Total Benzofluoranthenes

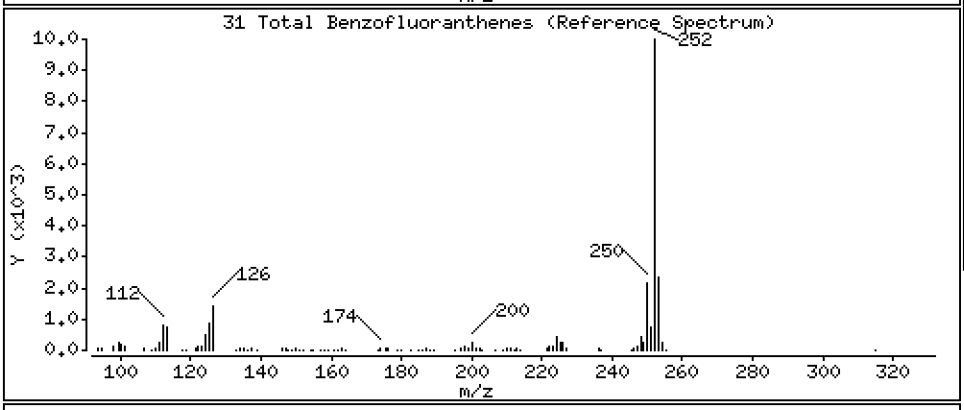
Concentration: 16.63 ug/mL

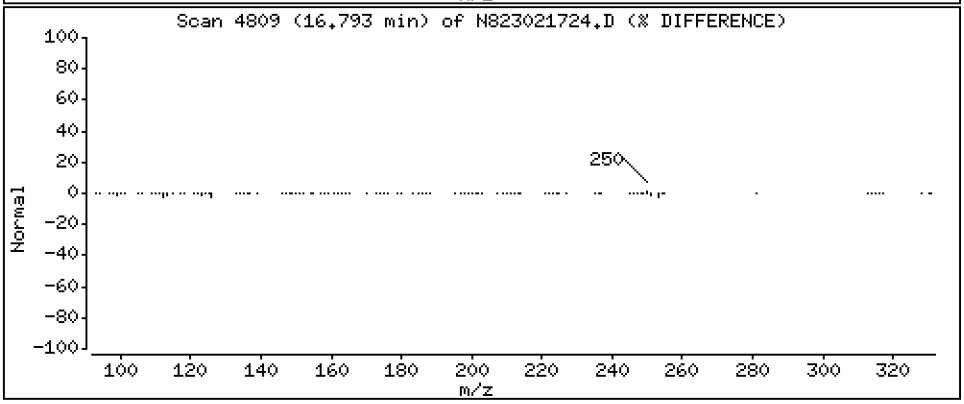












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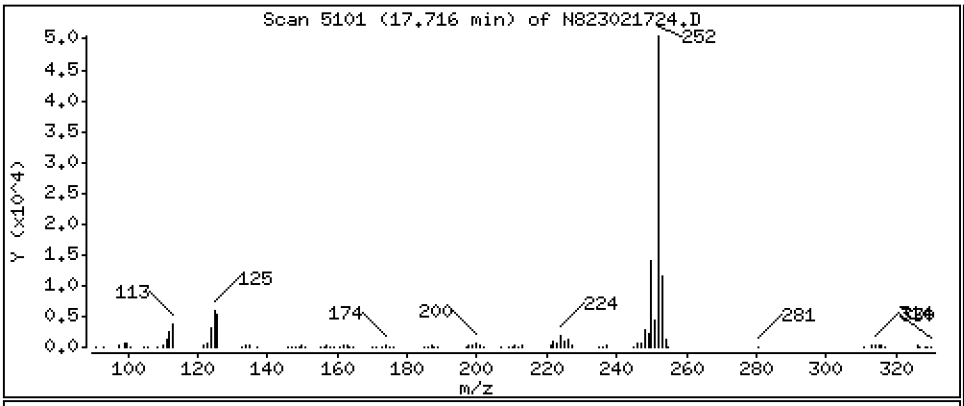
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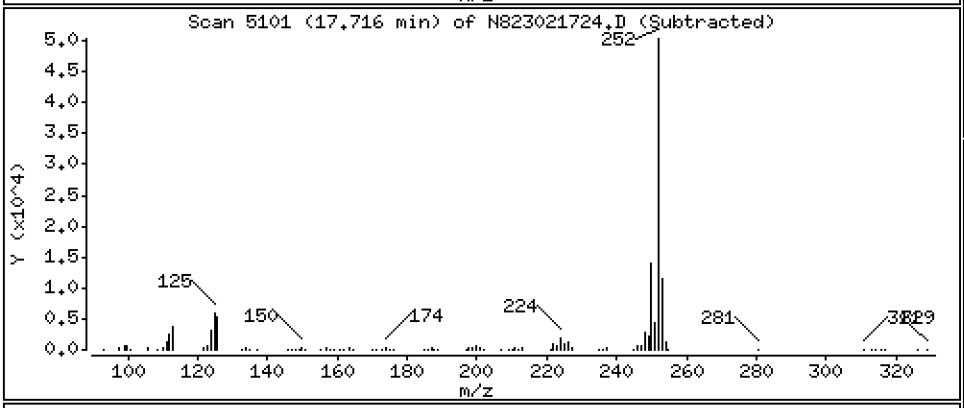
Column phase: Rxi-17sil

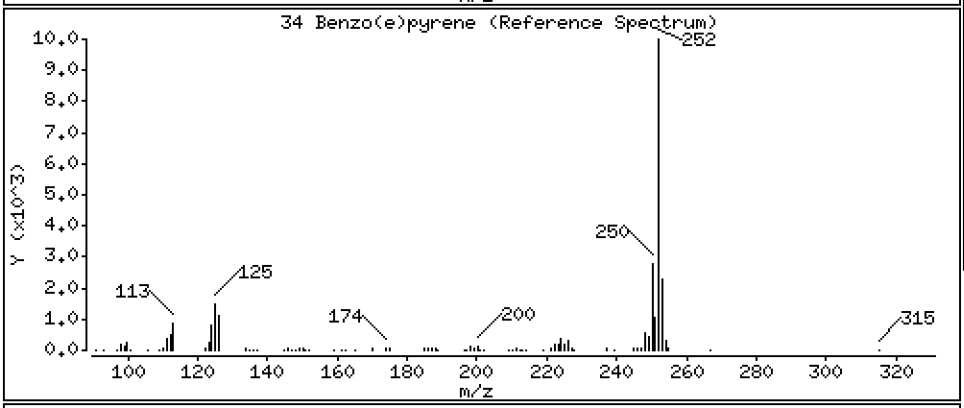
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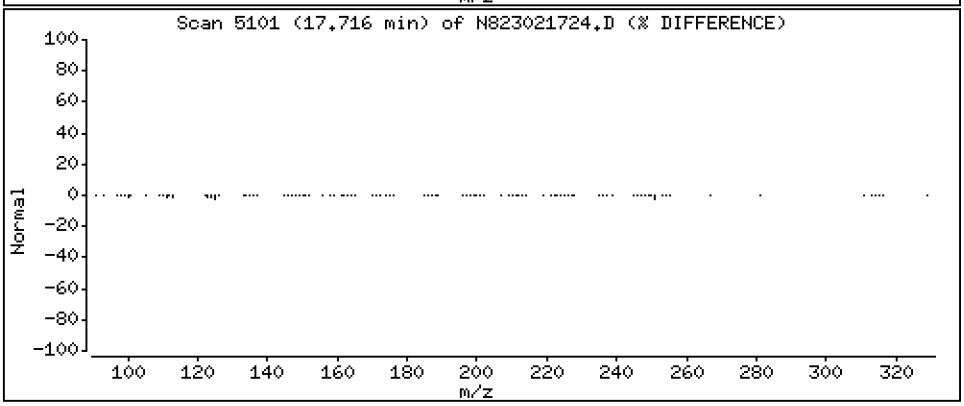
34 Benzo(e)pyrene

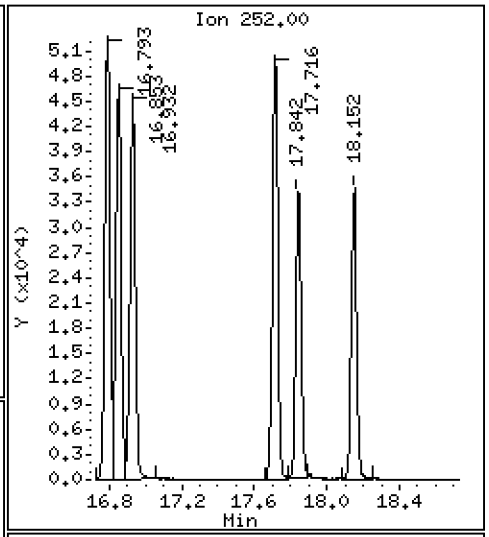
Concentration: 5.687 ug/mL

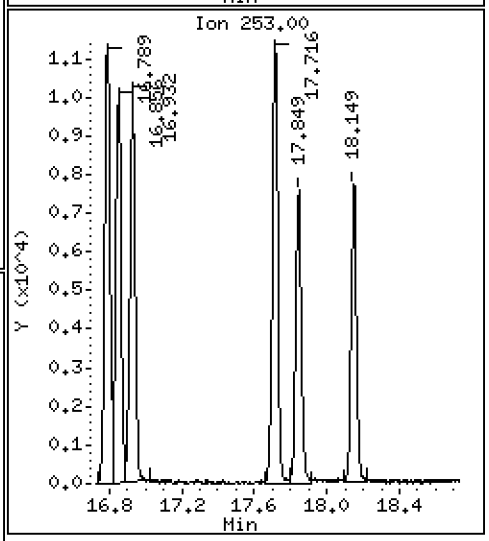












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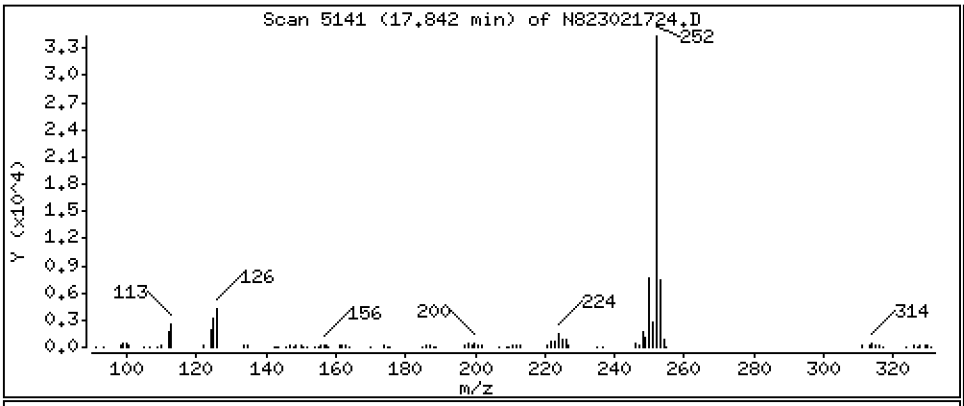
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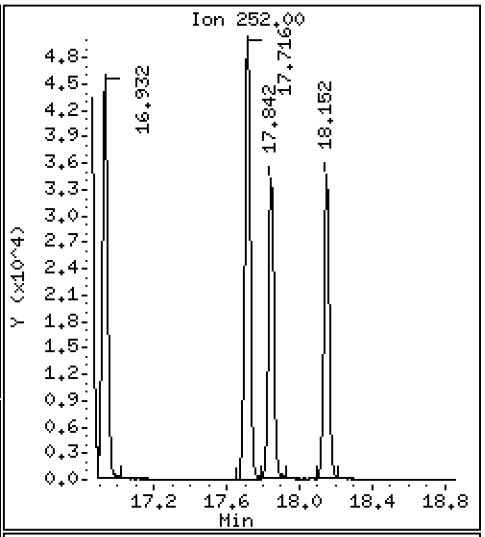
Column phase: Rxi-17sil

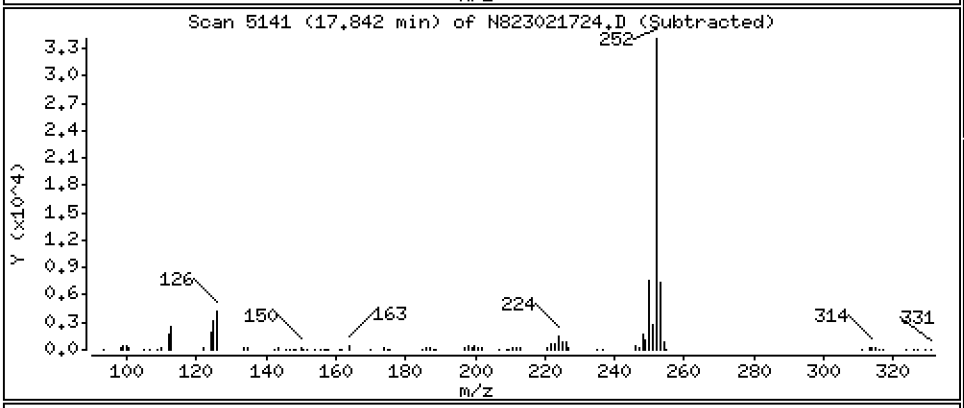
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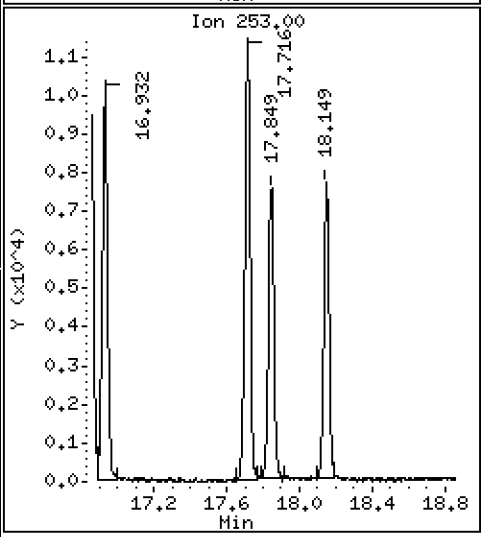
32 Benzo(a)pyrene

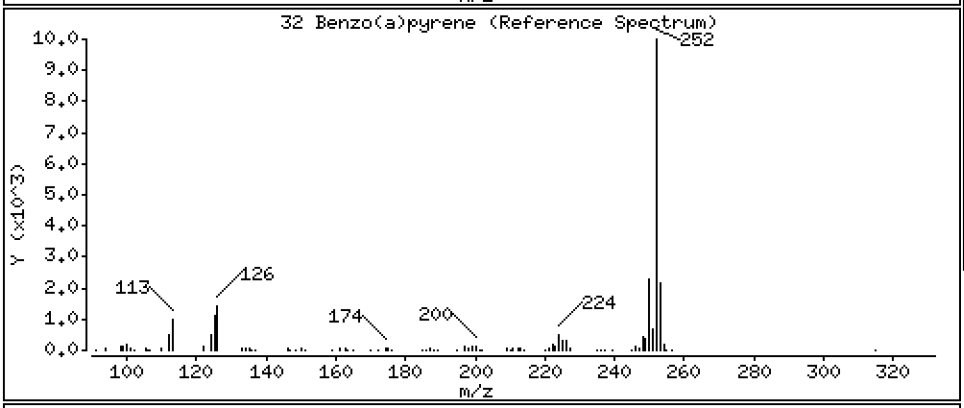
Concentration: 4.414 ug/mL

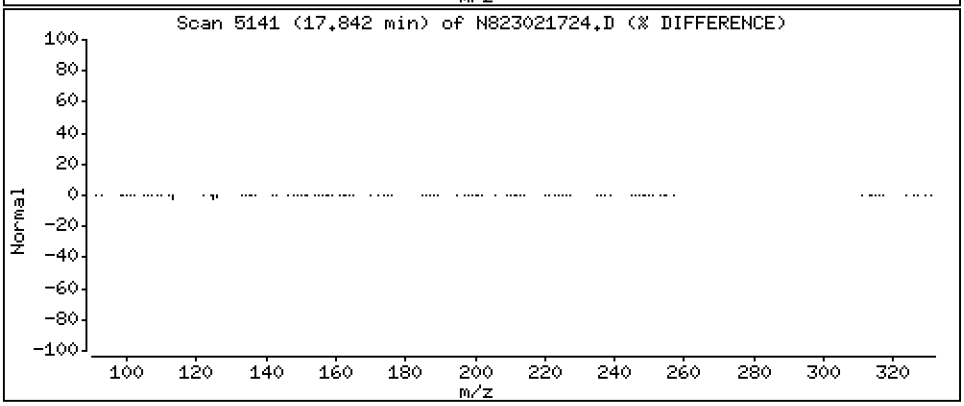












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Date : 17-FEB-2023 21:44

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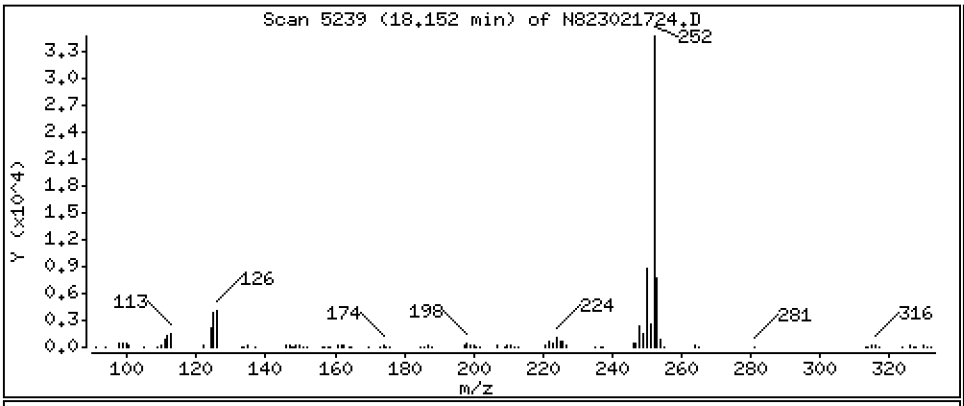
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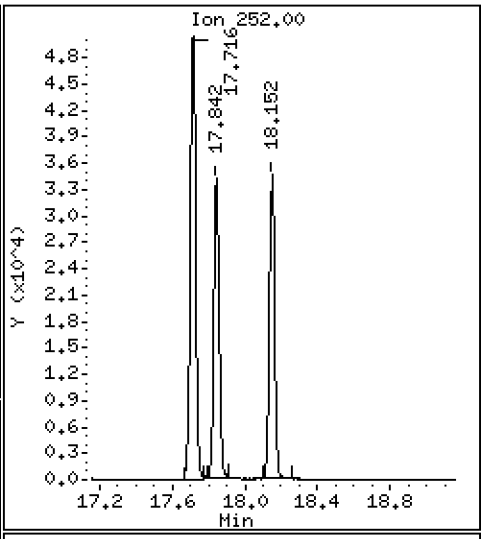
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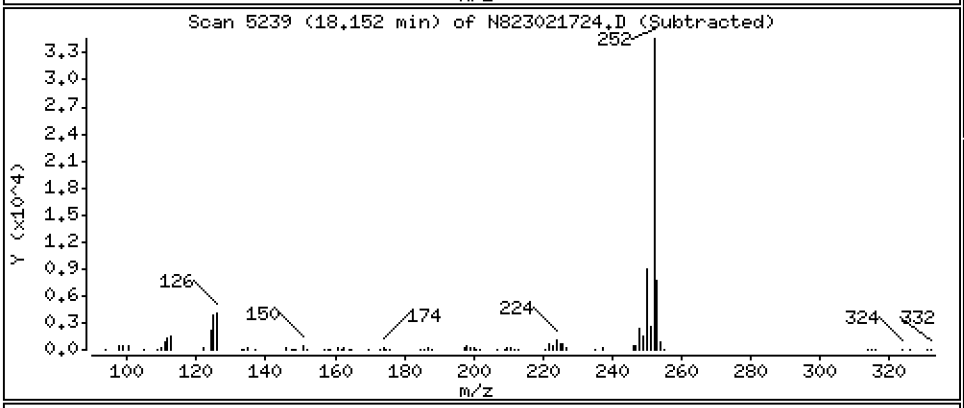
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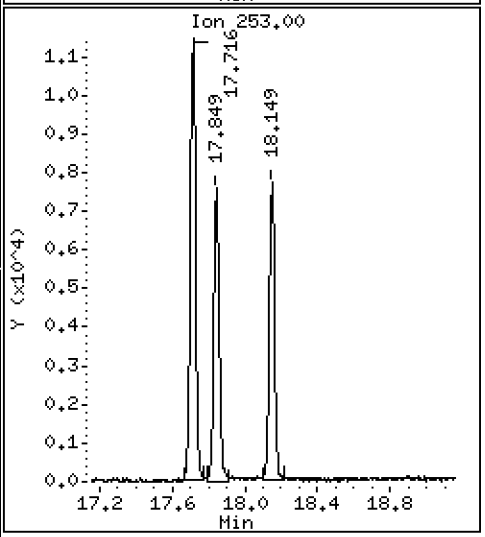
35 Perylene

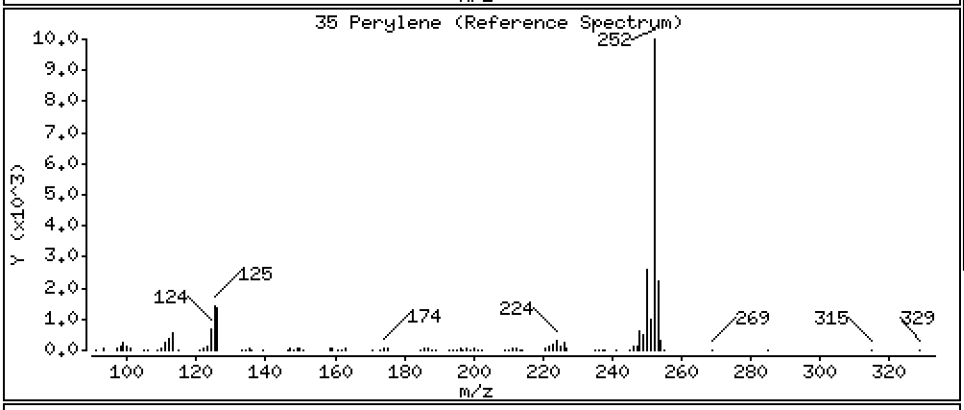
Concentration: 4.009 ug/mL

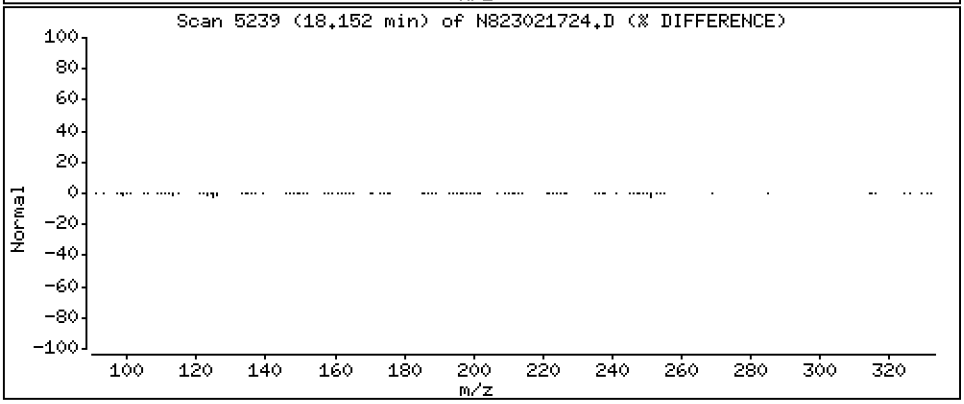












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

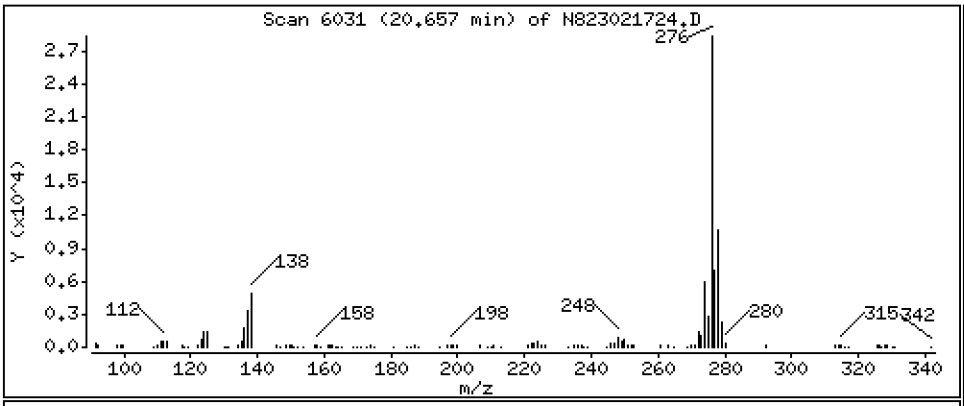
Operator: JZ

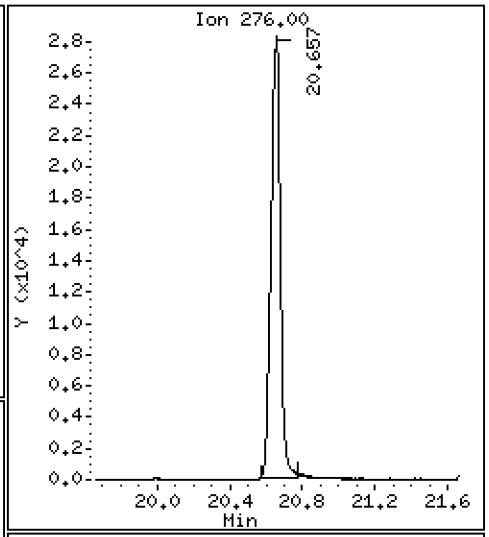
Column phase: Rxi-17sil

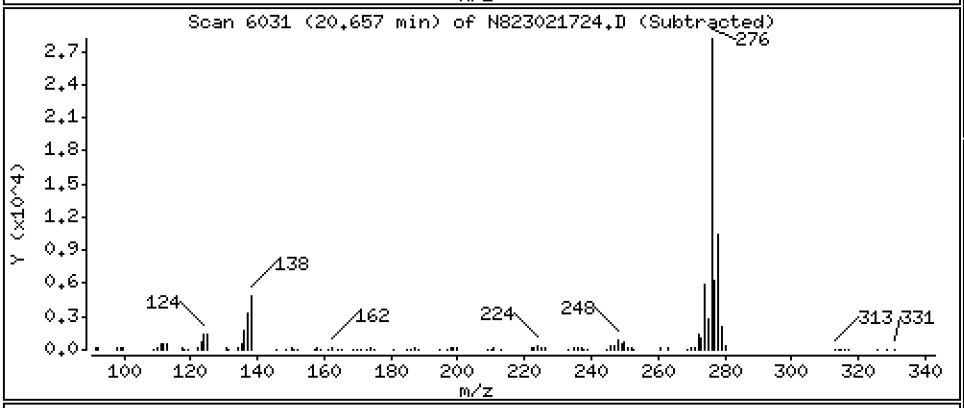
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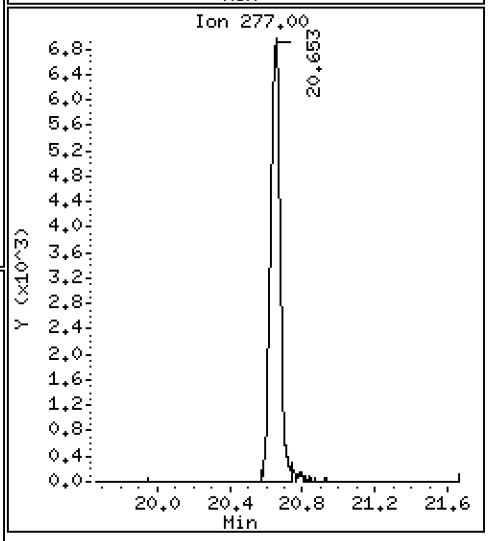
37 Indeno(1,2,3-cd)pyrene

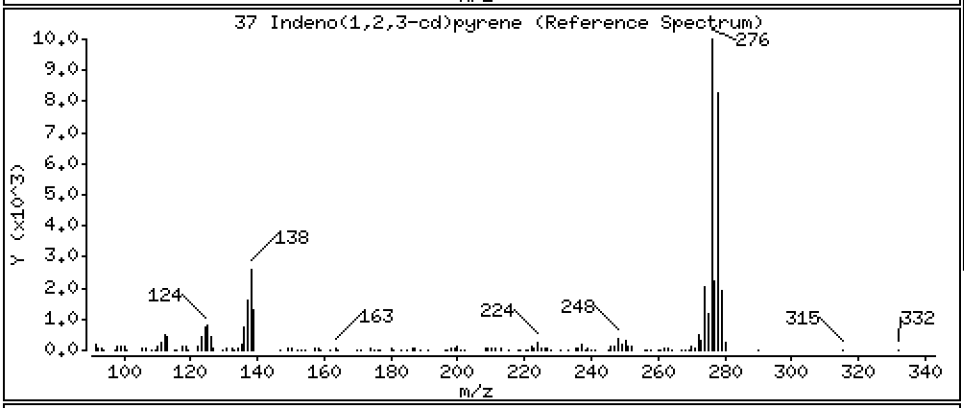
Concentration: 5.518 ug/mL

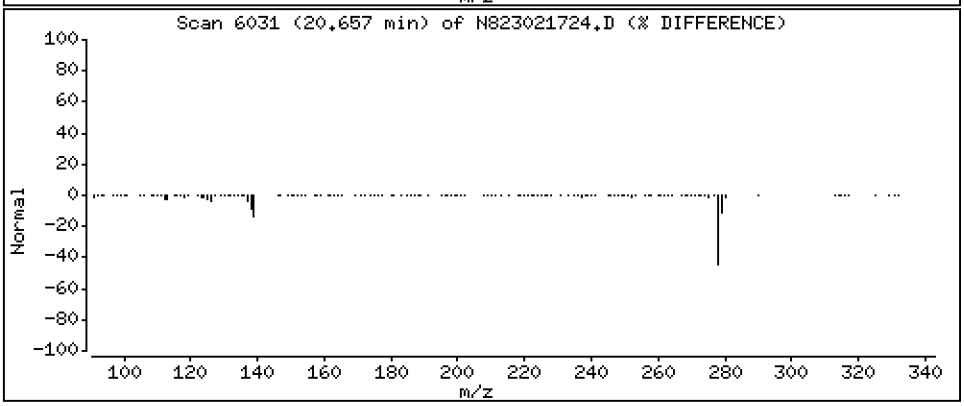












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

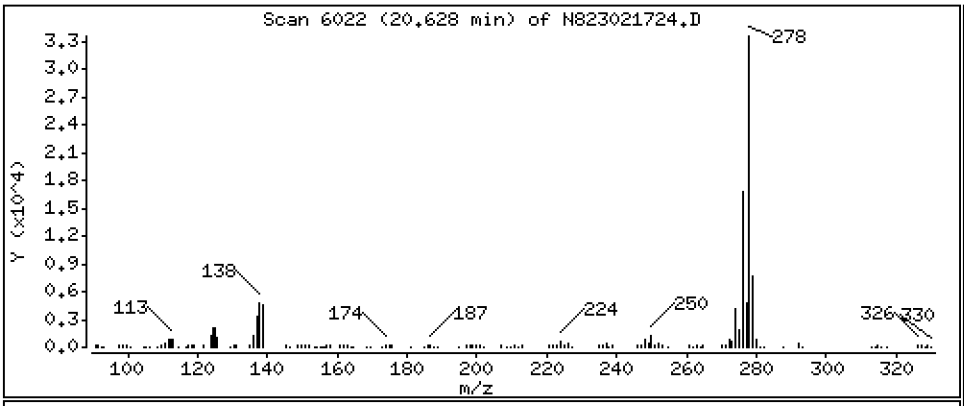
Operator: JZ

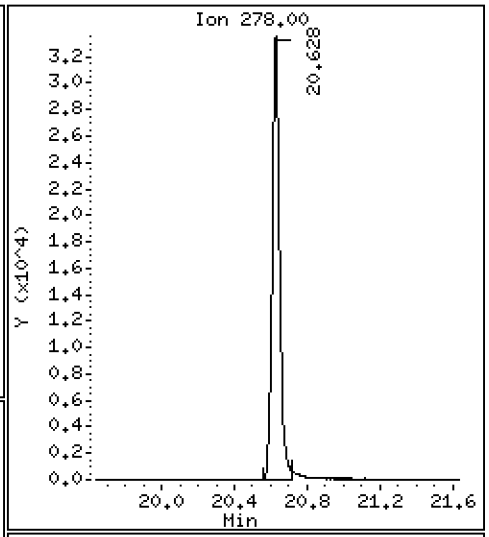
Column phase: Rxi-17sil

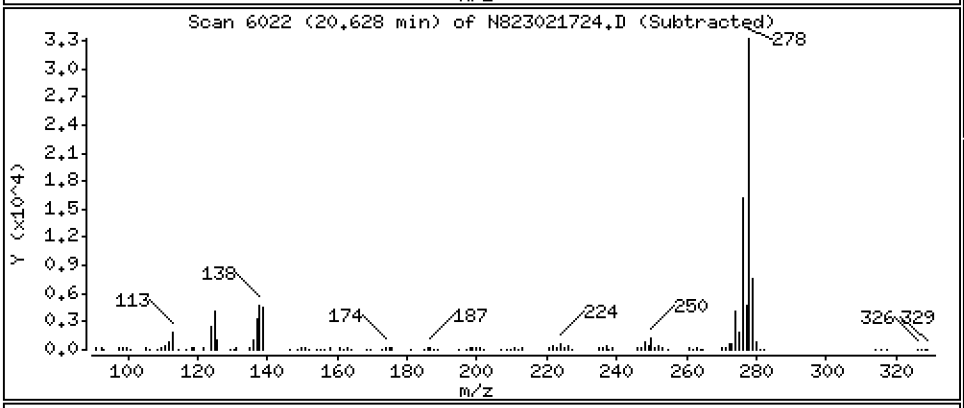
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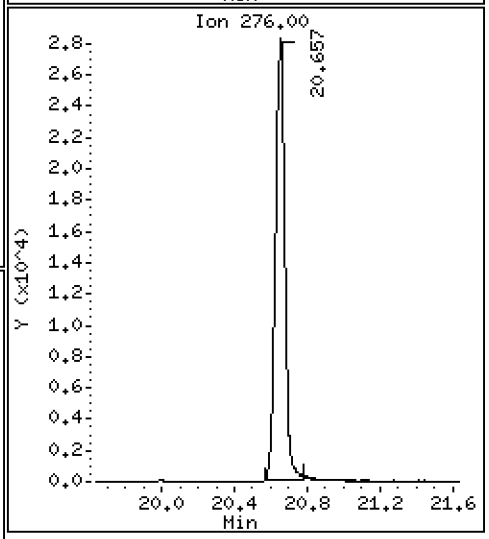
38 Dibenzo(a,h)anthracene

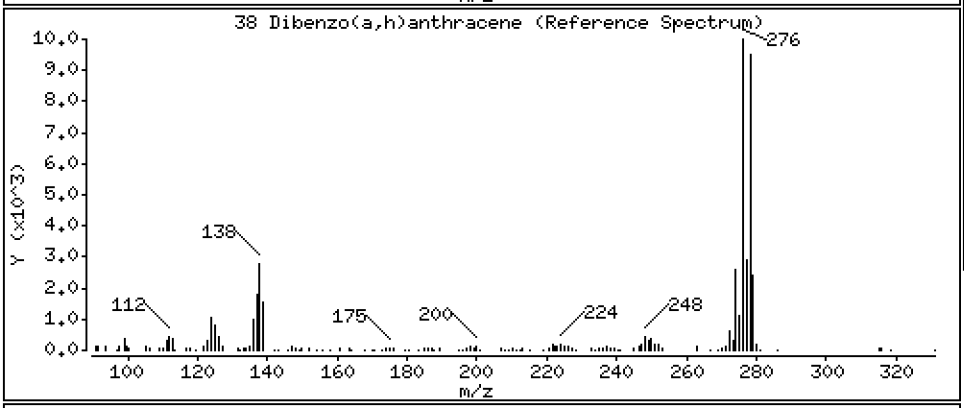
Concentration: 6.055 ug/mL

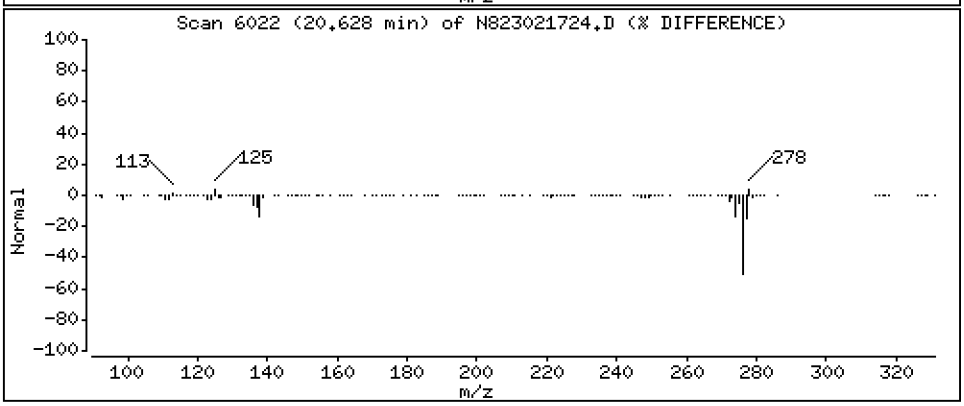












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021724.D

Date : 17-FEB-2023 21:44

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BS1,

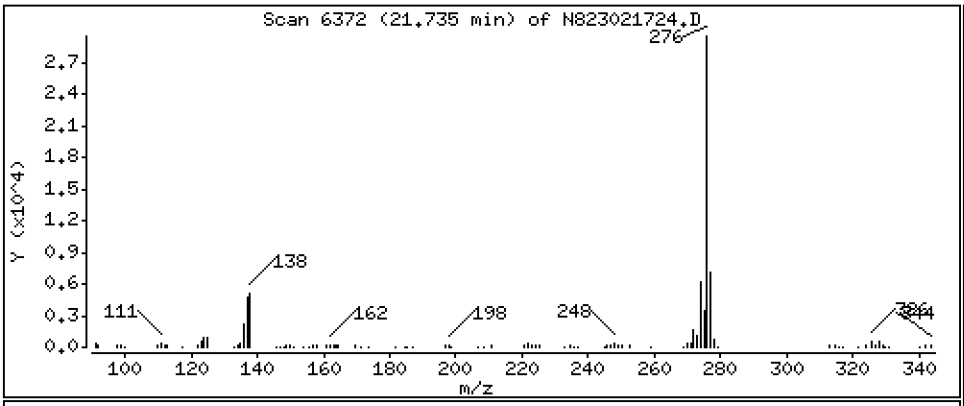
Operator: JZ

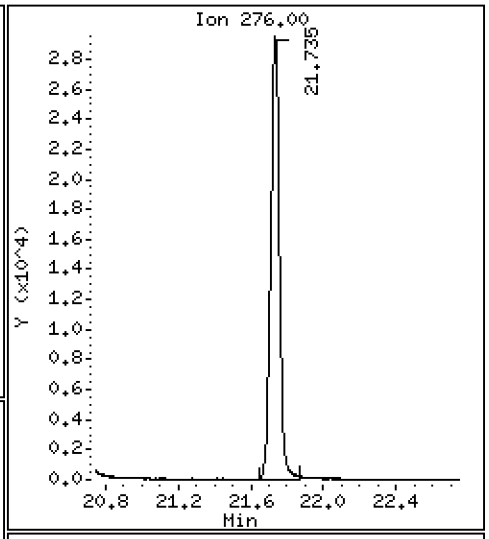
Column phase: Rxi-17sil

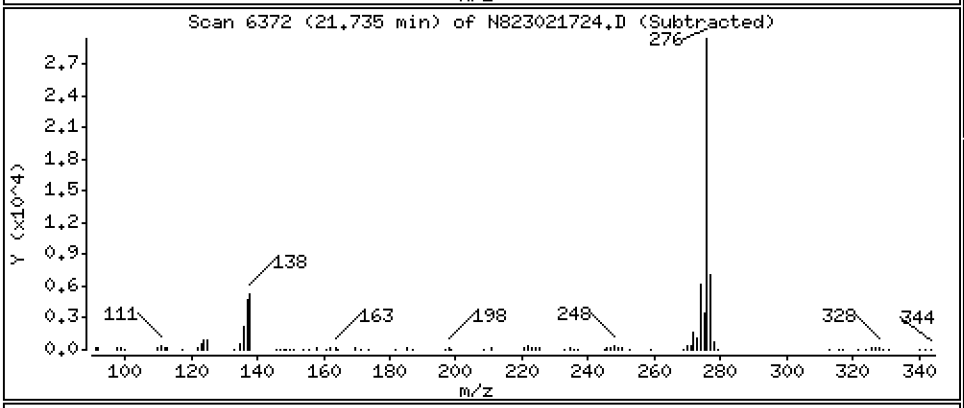
Column diameter: 0.25

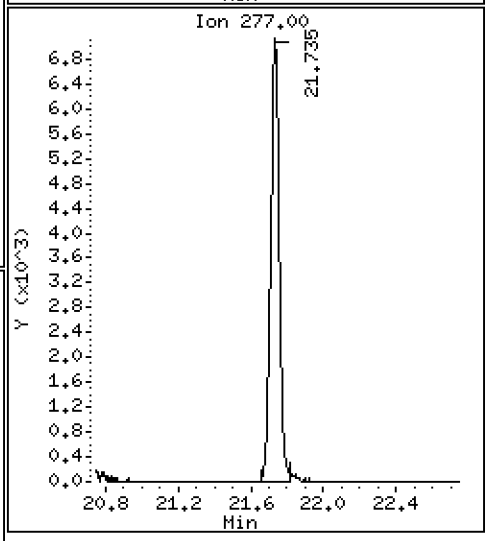
39 Benzo(g,h,i)perylene

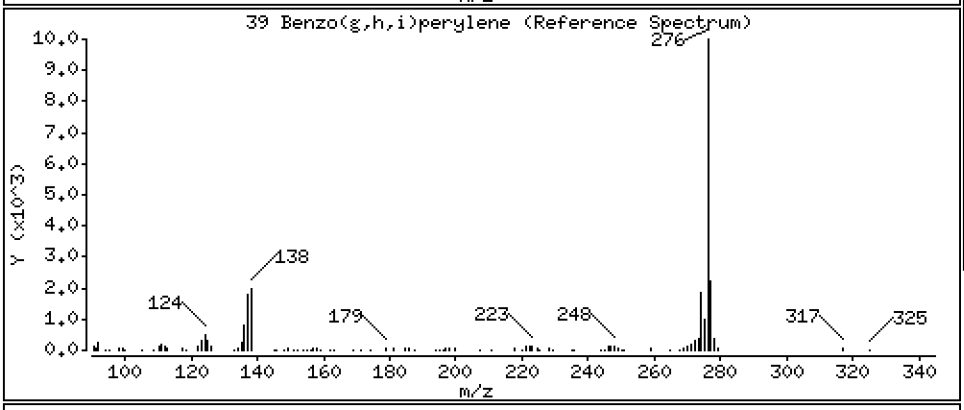
Concentration: 5.897 ug/mL

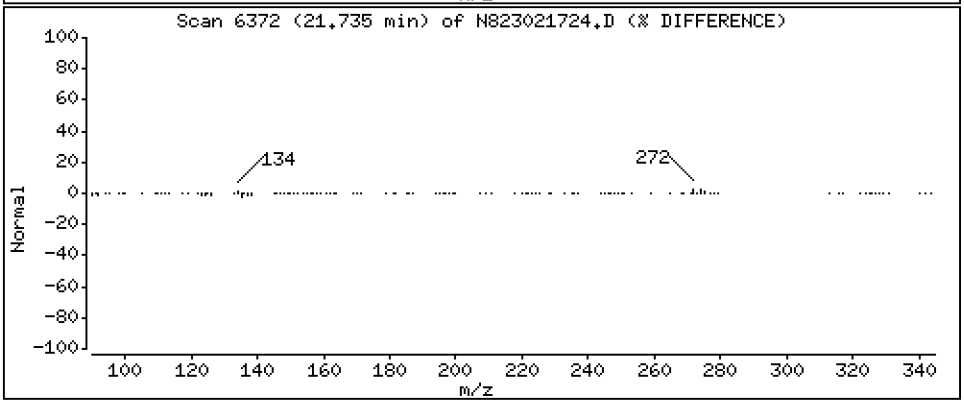












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230217.b\N823021724.D
Lab Smp Id: BLB0144-BS1
Inj Date : 17-FEB-2023 21:44
Operator : JZ Inst ID: nt8.i
Smp Info : BLB0144-BS1,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 20:47 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

							CONCENTRATIONS	
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.875	4.884	(1.000)	36024	2.00000	
	2 Naphthalene	128	4.903	4.916	(1.006)	57549	3.43583	3.436
$	3 2-Methylnaphthalene-d10	152	5.611	5.621	(1.151)	21176	2.15540	2.155
	4 2-Methylnaphthalene	141	5.659	5.669	(1.161)	31036	3.36865	3.369
	5 1-methylnaphthalene	141	5.855	5.865	(1.201)	32782	3.50587	3.506
	9 Acenaphthylene	152	7.056	7.066	(0.985)	38389	2.76818	2.768
*	10 Acenaphthene-d10	164	7.167	7.177	(1.000)	18365	2.00000	
	11 Acenaphthene	153	7.218	7.224	(1.007)	33915	3.64995	3.650
	12 Dibenzofuran	168	7.369	7.376	(1.028)	56659	4.01461	4.015
	14 Fluorene	166	7.847	7.857	(1.095)	44715	4.07933	4.079
*	15 Phenanthrene-d10	188	9.210	9.216	(1.000)	37666	2.00000	
	16 Phenanthrene	178	9.244	9.251	(1.004)	73786	4.01032	4.010
	17 Anthracene	178	9.286	9.292	(1.008)	59951	3.58683	3.587
	19 Carbazole	167	9.801	9.811	(1.064)	66585	4.34551	4.346
	22 Fluoranthene	202	11.025	11.031	(1.197)	86335	4.31082	4.311
$	21 Fluoranthene-d10	212	10.987	10.996	(1.193)	52616	3.16619	3.166
	23 Pyrene	202	11.540	11.553	(0.815)	85745	4.20626	4.206
	24 Benzo(a)anthracene	228	14.041	14.054	(0.991)	90613	4.90418	4.904
*	25 Chrysene-d12	240	14.168	14.181	(1.000)	32880	2.00000	
	27 Chrysene	228	14.244	14.253	(1.005)	89744	4.56262	4.563
	28 Benzo(b)fluoranthene	252	16.792	16.802	(0.929)	107815	5.81992	5.820
	29 Benzo(k)fluoranthene	252	16.852	16.862	(0.932)	95210	5.24704	5.247
	30 Benzo(j)fluoranthene	252	16.931	16.941	(0.937)	90924	5.56614	5.566
	31 Total Benzofluoranthenes	252	16.792	16.802	(0.929)	291794	16.6319	16.63(M)
	34 Benzo(e)pyrene	252	17.715	17.728	(0.980)	105051	5.68668	5.687
	32 Benzo(a)pyrene	252	17.842	17.858	(0.987)	71957	4.41399	4.414
*	33 Perylene-d12	264	18.076	18.086	(1.000)	31808	2.00000	
	35 Perylene	252	18.152	18.158	(1.004)	70134	4.00909	4.009
$	36 Dibenzo(a,h)anthracene-d14	292	20.511	20.523	(1.135)	55397	4.44490	4.445
	37 Indeno(1,2,3-cd)pyrene	276	20.656	20.663	(1.143)	102479	5.51795	5.518
	38 Dibenzo(a,h)anthracene	278	20.628	20.637	(1.141)	96776	6.05508	6.055
	39 Benzo(g,h,i)perylene	276	21.734	21.747	(1.202)	99228	5.89709	5.897

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021724.D
Lab Smp Id: BLB0144-BS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 17-FEB-2023
Calibration Time: 11:25
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	41552	20776	83104	36024	-13.30
10 Acenaphthene-d10	25012	12506	50024	18365	-26.58
15 Phenanthrene-d10	44752	22376	89504	37666	-15.83
25 Chrysene-d12	34520	17260	69040	32880	-4.75
33 Perylene-d12	30529	15265	61058	31808	4.19

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	-0.20
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.14
15 Phenanthrene-d10	9.22	8.72	9.72	9.21	-0.07
25 Chrysene-d12	14.18	13.68	14.68	14.17	-0.09
33 Perylene-d12	18.09	17.59	18.59	18.08	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021724.D

Lab ID: BLB0144-BS1
nt8.i, 20230217.b\FSIMPNA230119.m,   17-FEB-2023 21:44

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

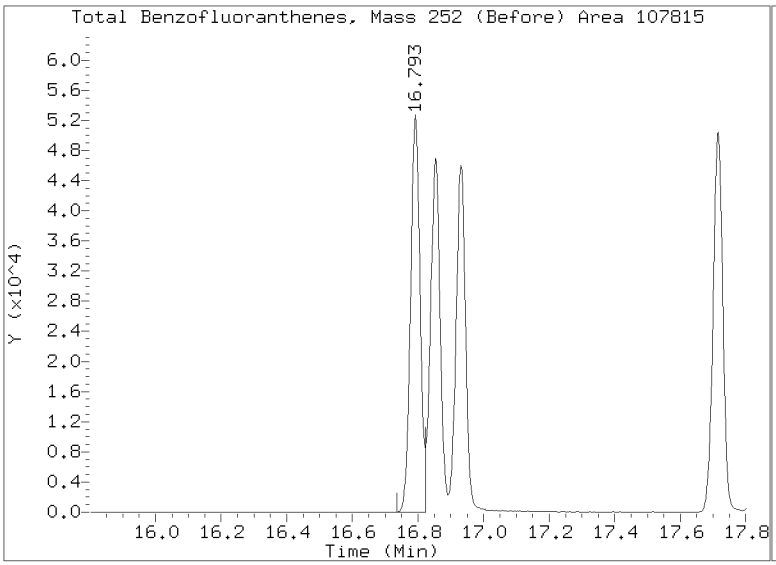
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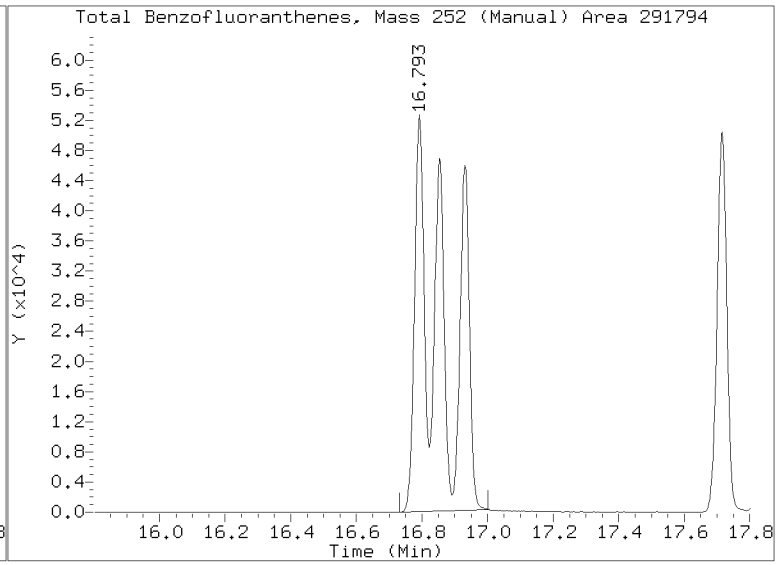
Exception: Benzo(e)pyrene 0.0800

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230217.b/N823021724.D
Injection Date: 17-FEB-2023 21:44
Lab ID:BLB0144-BS1 Client ID:
Report Date: 02/19/2023 20:48





Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

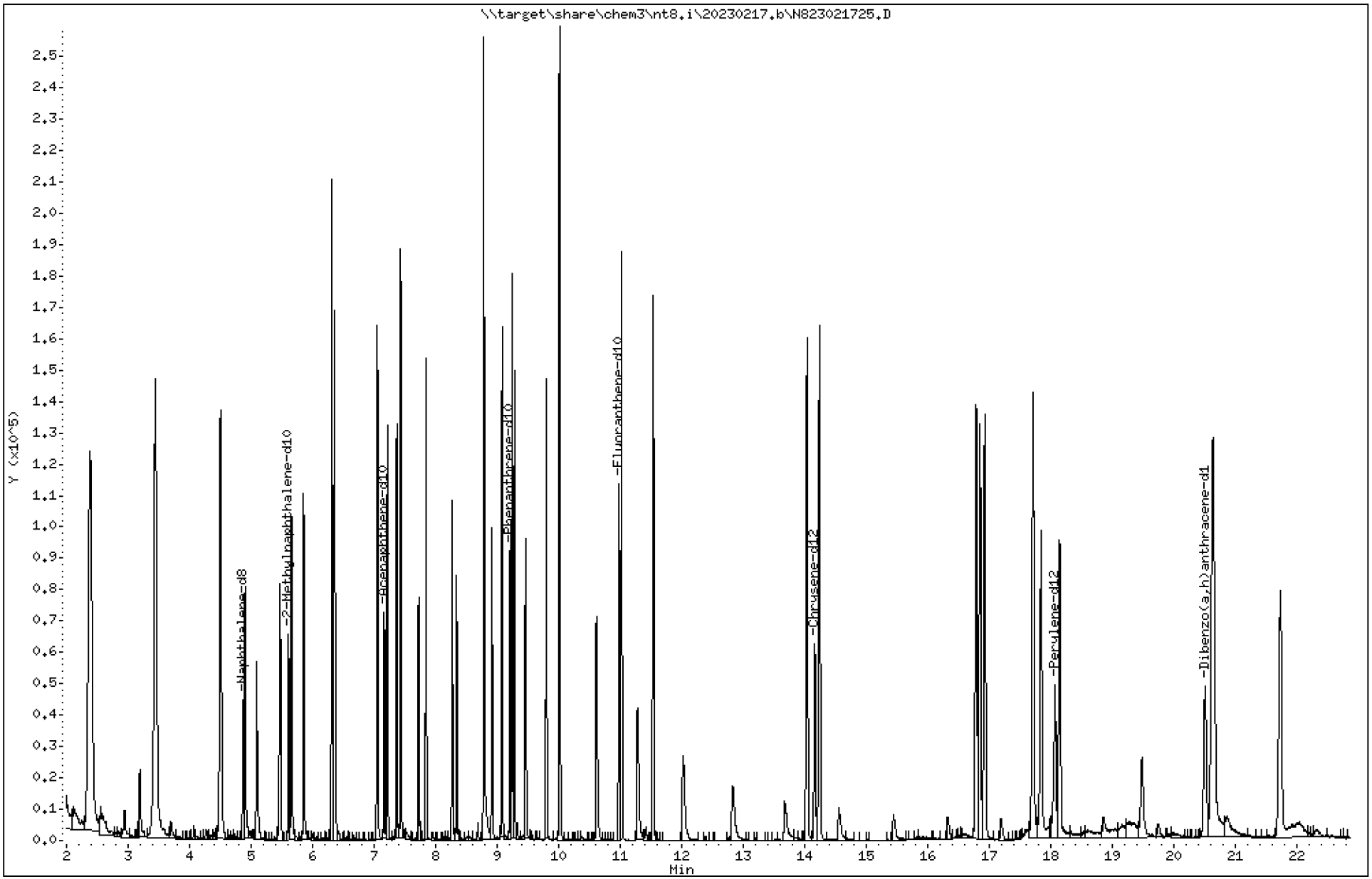
Instrument: nt8.i

Sample Info: BLB0144-BSD1,

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 243 of 1233

Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

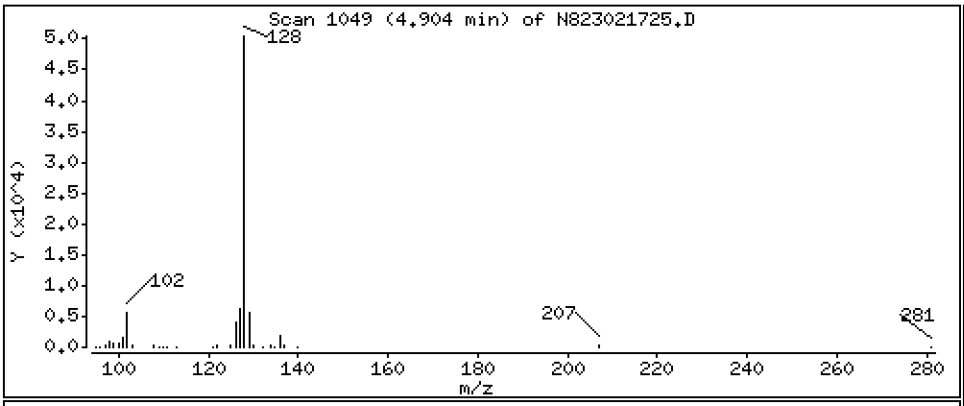
Operator: JZ

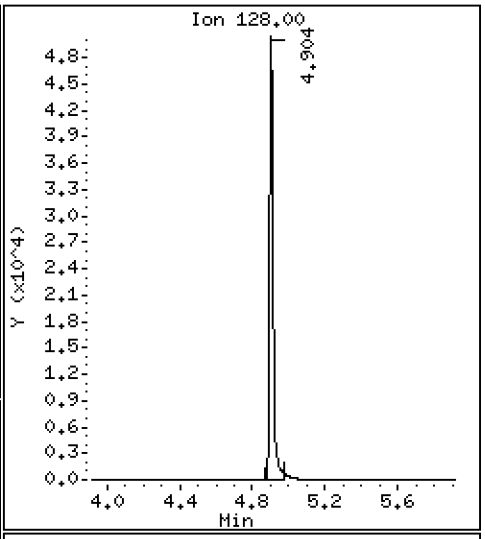
Column phase: Rxi-17sil

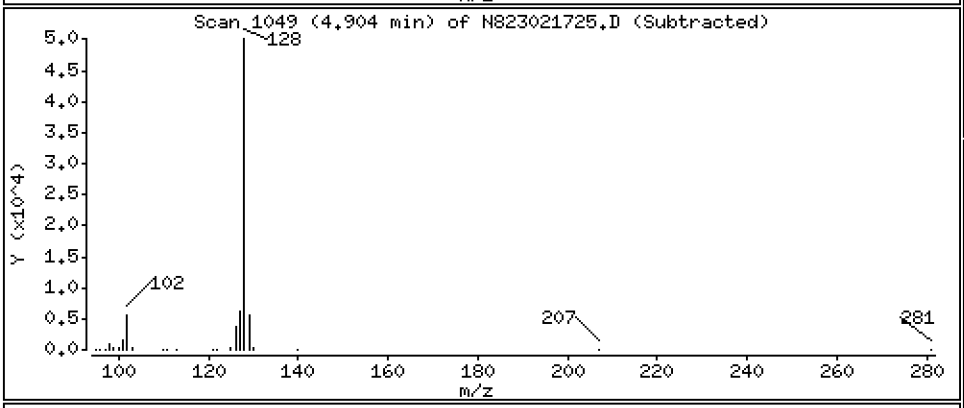
Column diameter: 0.25

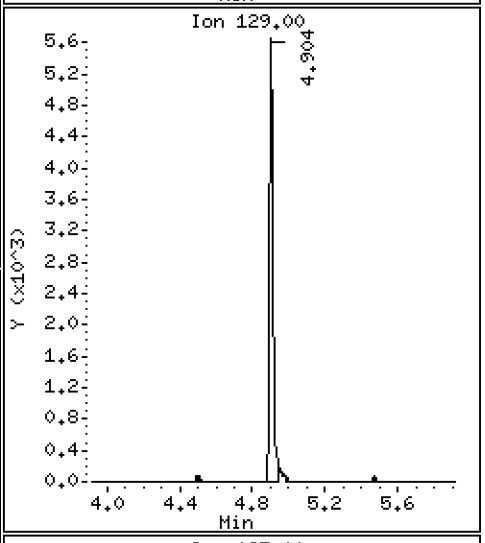
2 Naphthalene

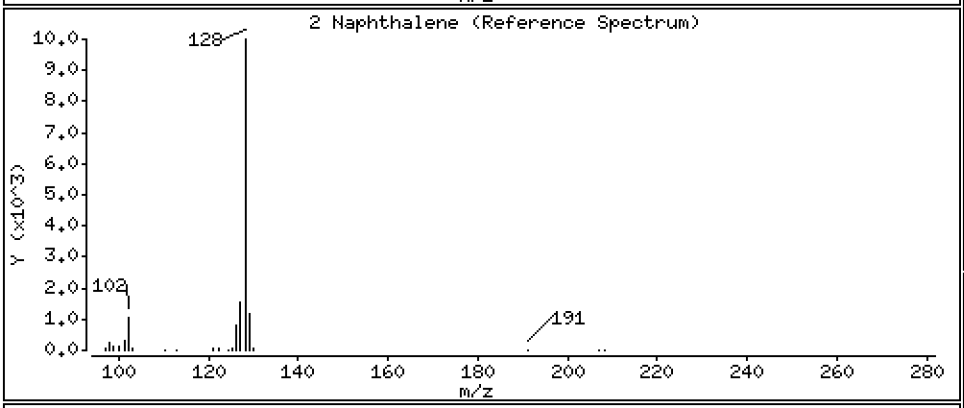
Concentration: 3.609 ug/mL

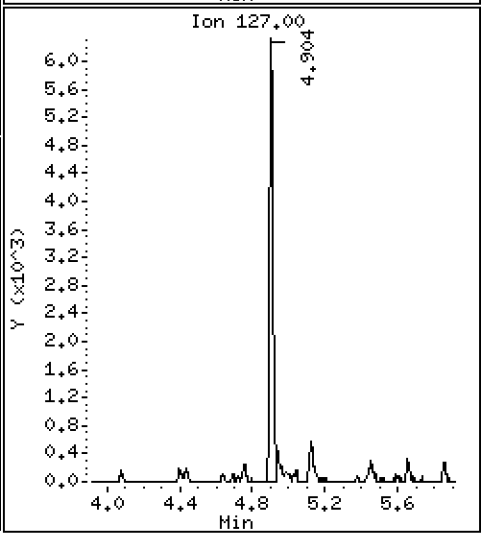


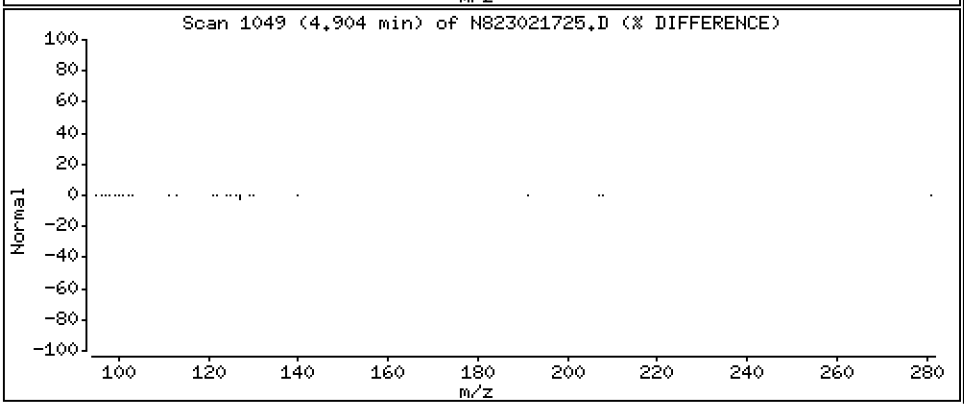












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

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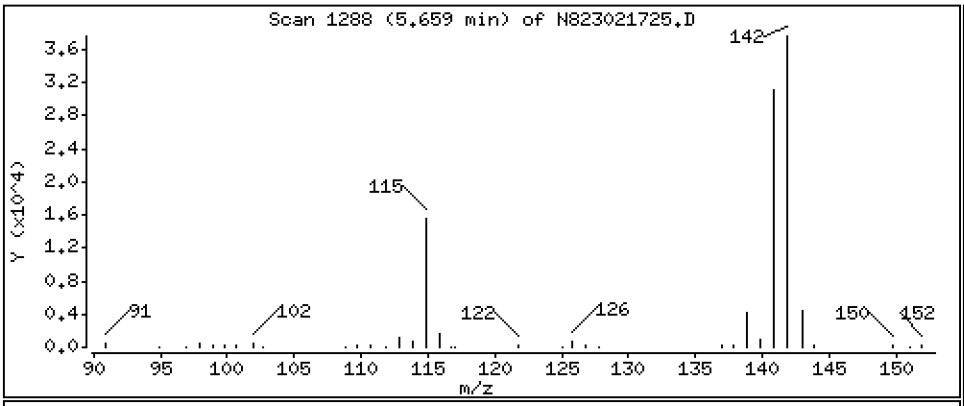
Operator: JZ

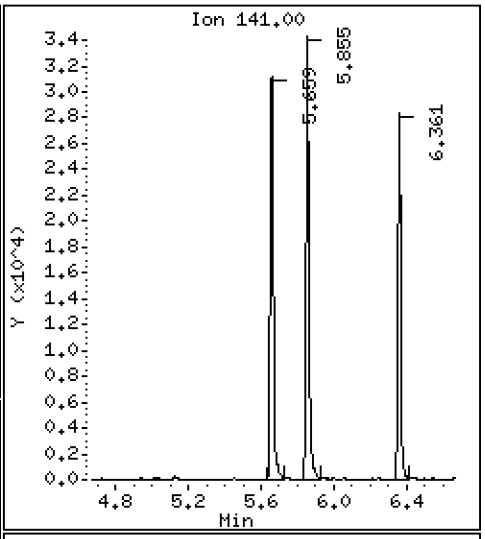
Column phase: Rxi-17sil

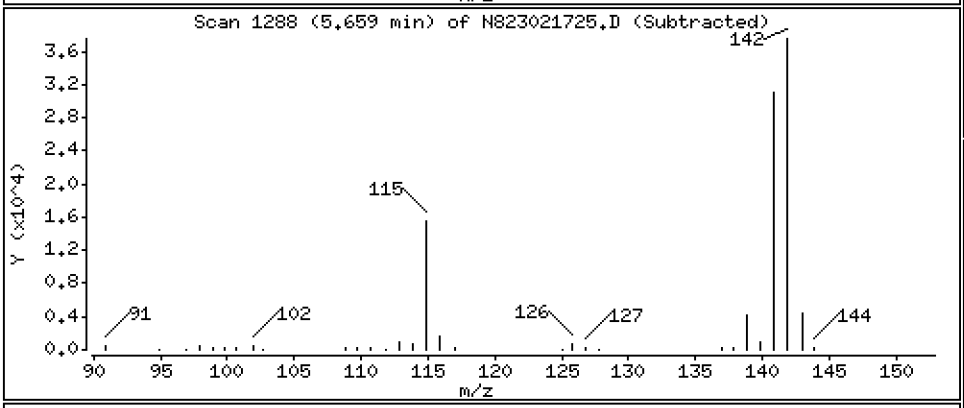
Column diameter: 0.25

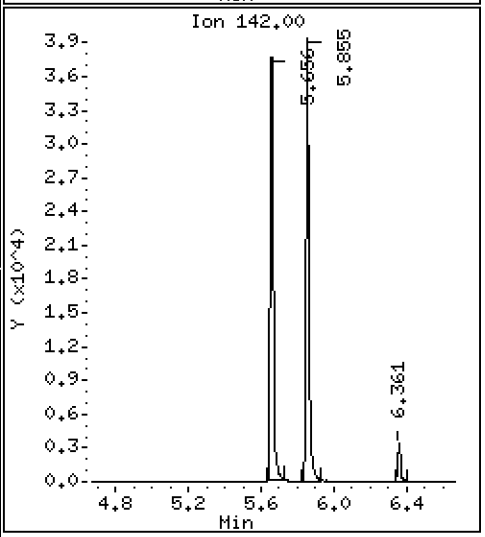
4 2-Methylnaphthalene

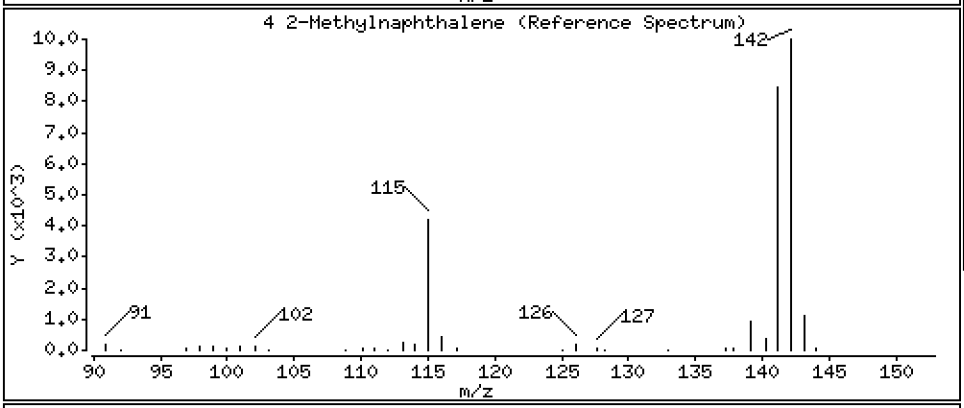
Concentration: 3.711 ug/mL

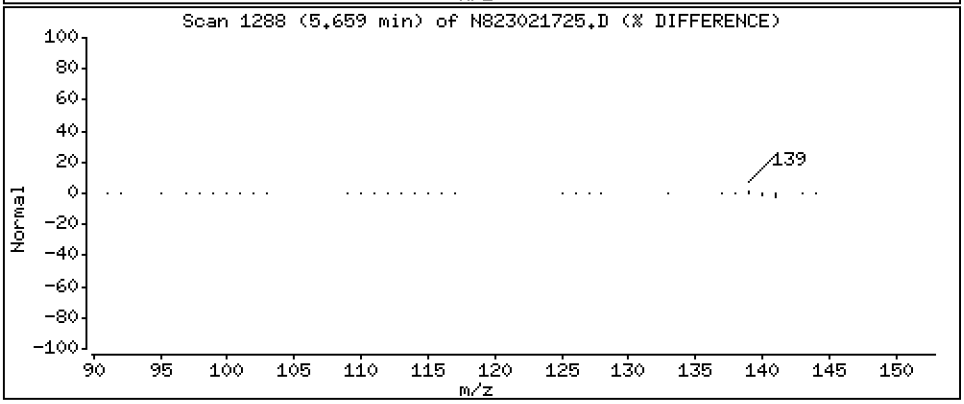












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

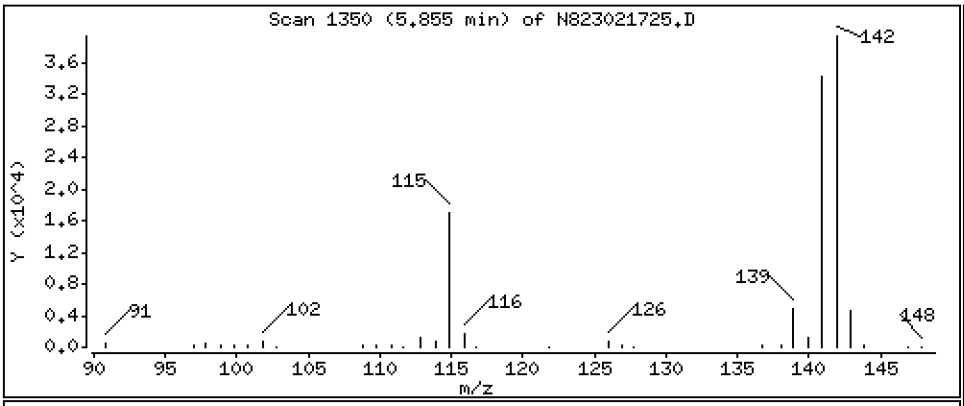
Operator: JZ

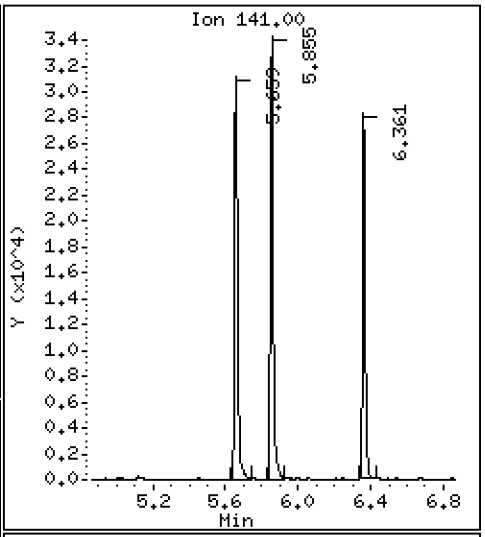
Column phase: Rxi-17sil

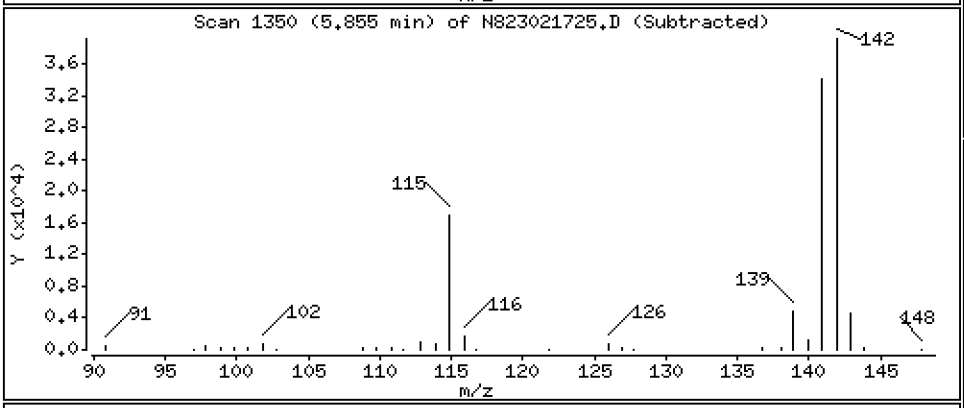
Column diameter: 0.25

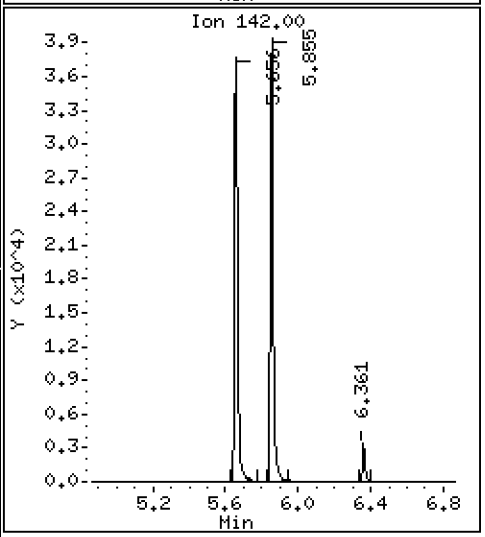
5 1-methylnaphthalene

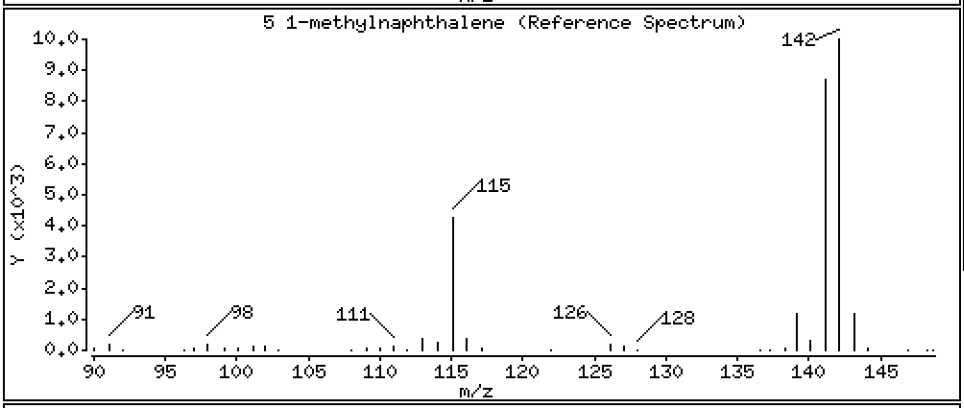
Concentration: 3.821 ug/mL

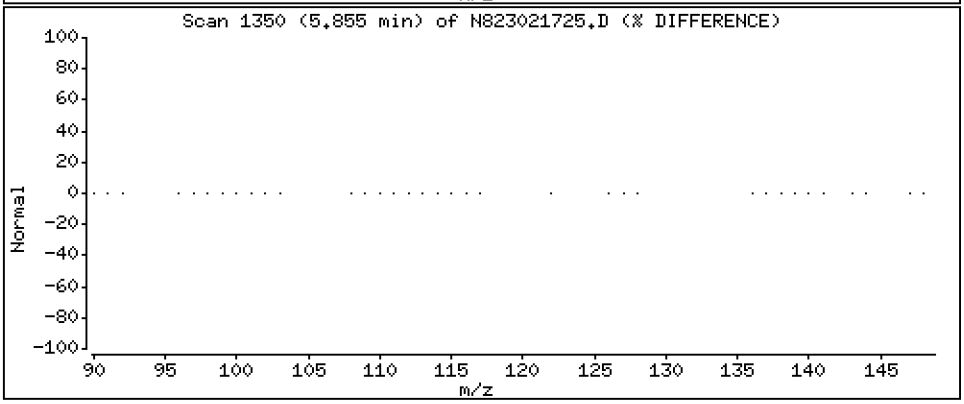












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

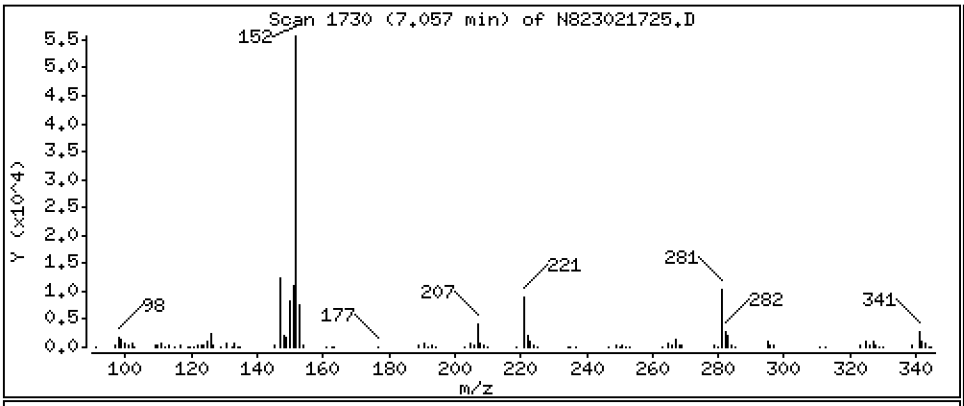
Operator: JZ

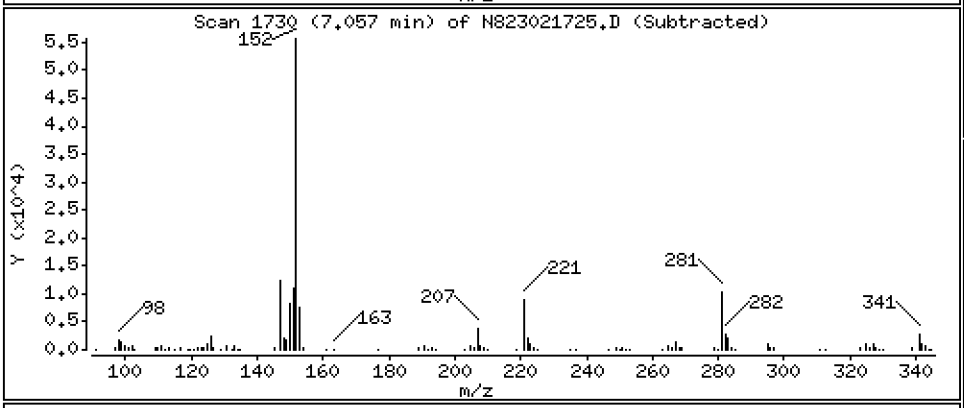
Column phase: Rxi-17sil

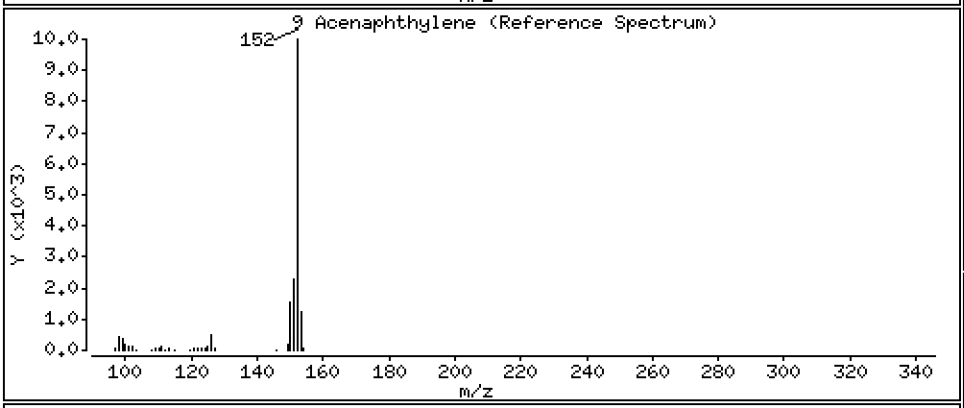
Column diameter: 0.25

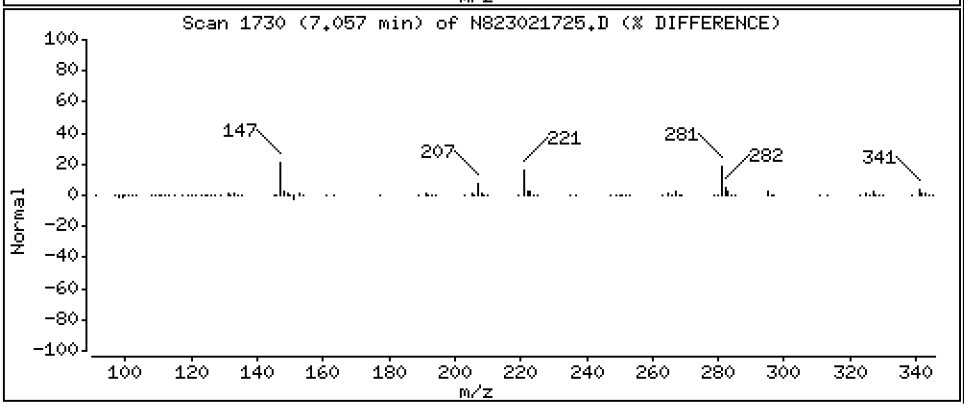
9 Acenaphthylene

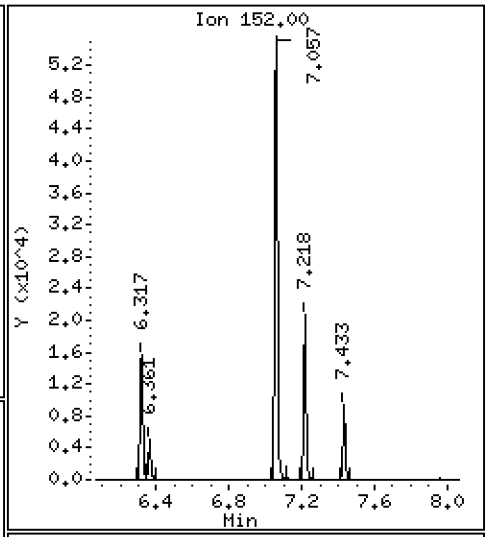
Concentration: 3.348 ug/mL

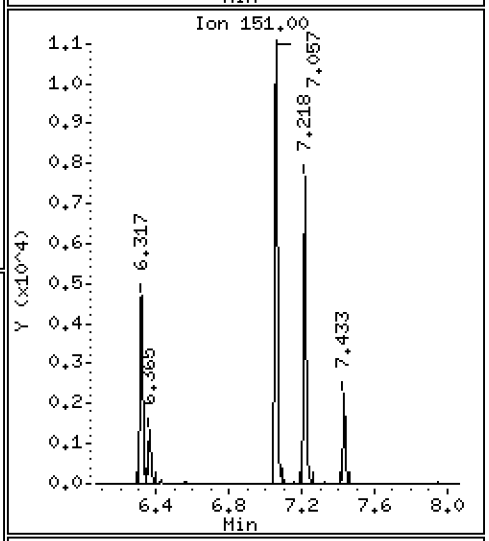


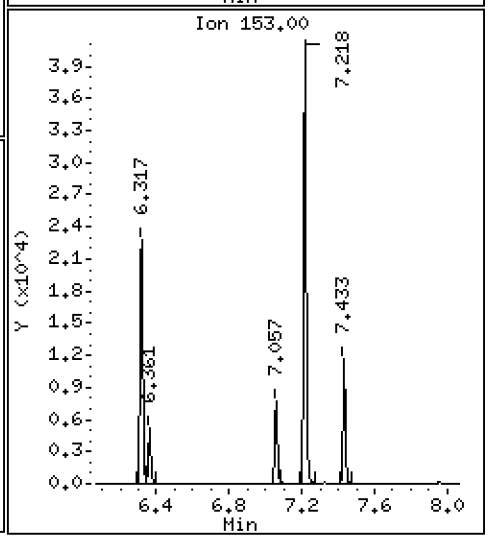












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

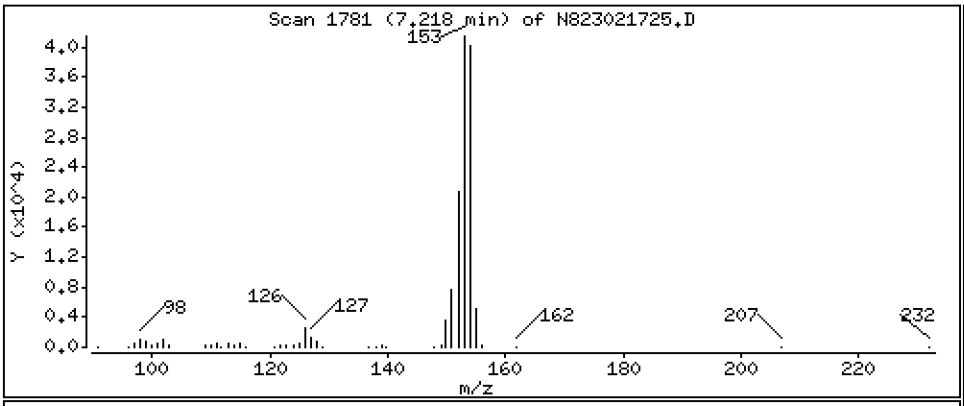
Operator: JZ

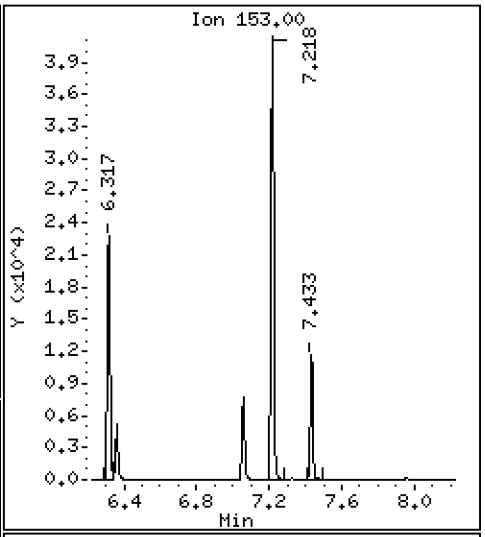
Column phase: Rxi-17sil

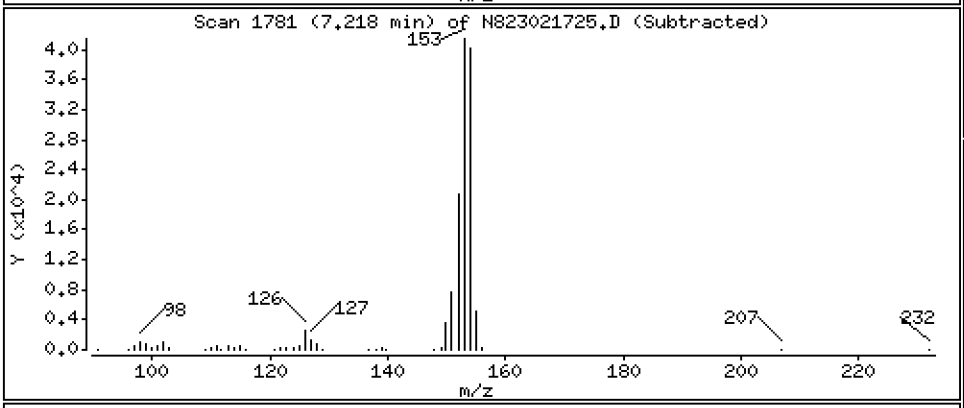
Column diameter: 0.25

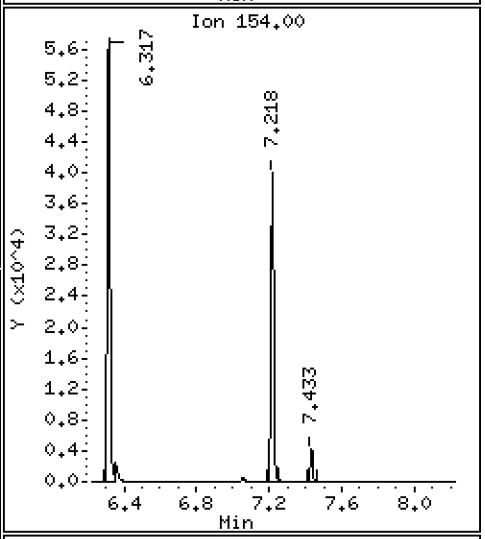
11 Acenaphthene

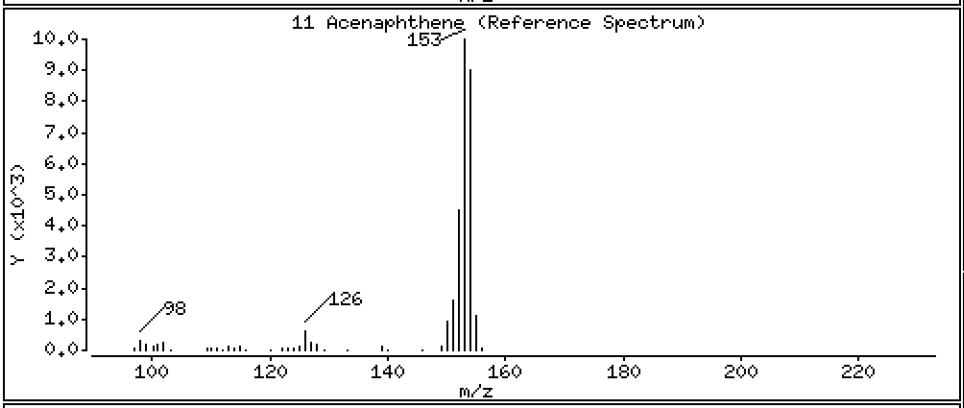
Concentration: 3.792 ug/mL

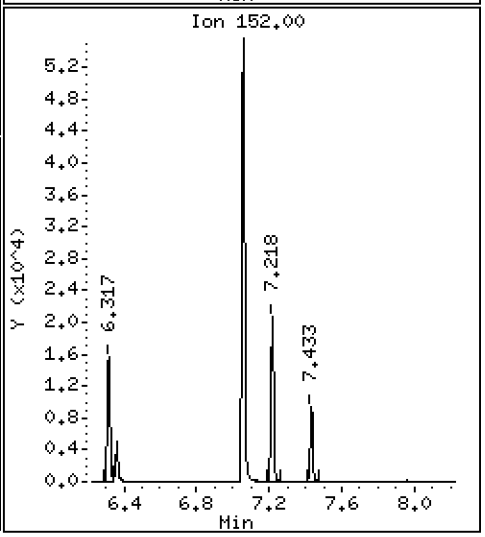


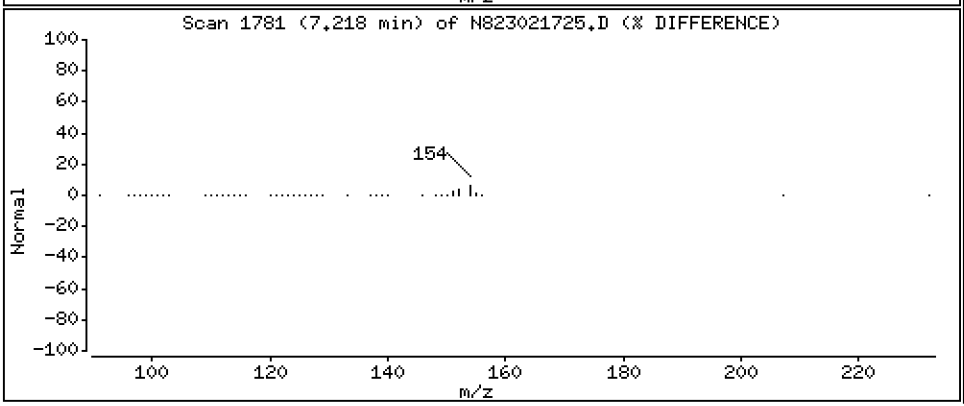












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

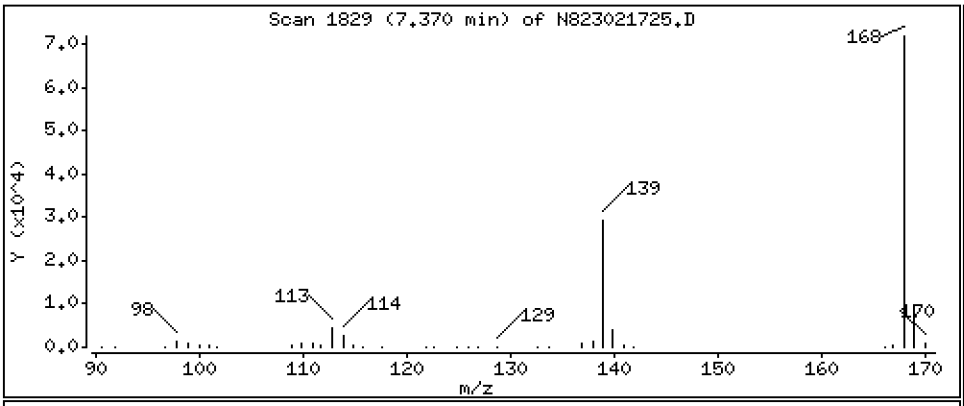
Operator: JZ

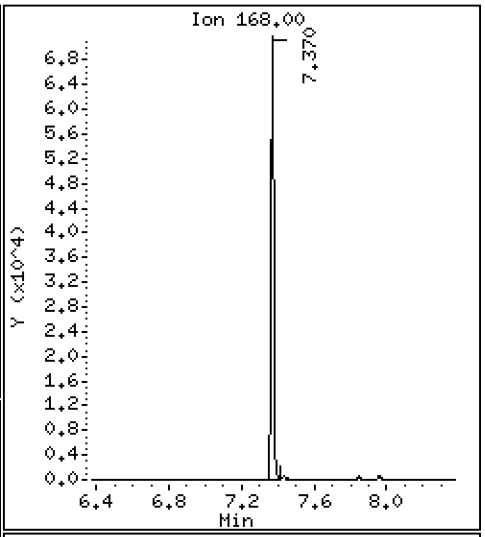
Column phase: Rxi-17sil

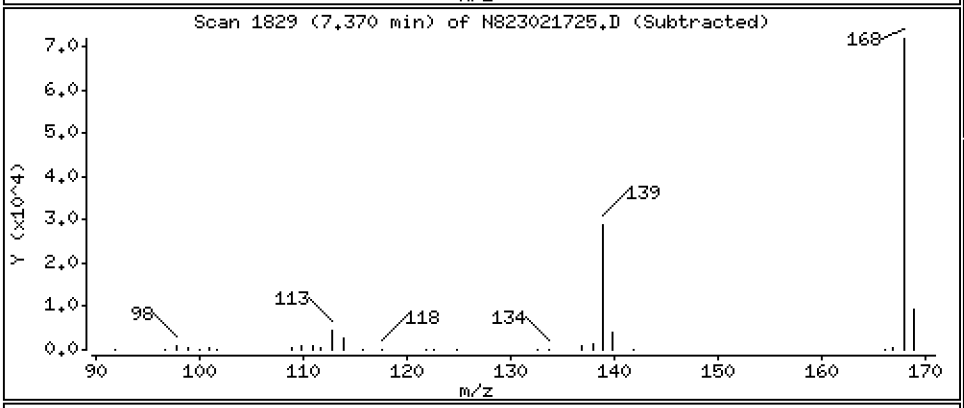
Column diameter: 0.25

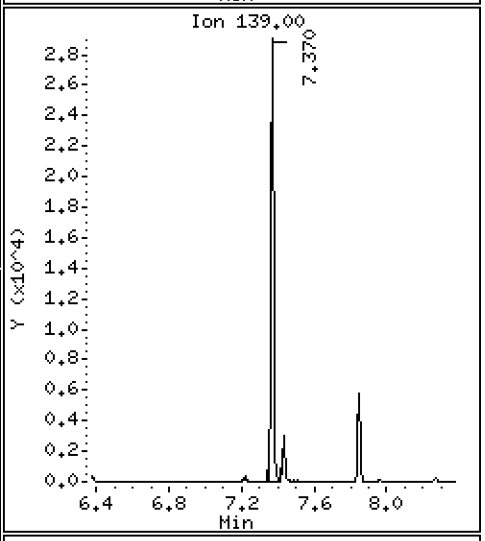
12 Dibenzofuran

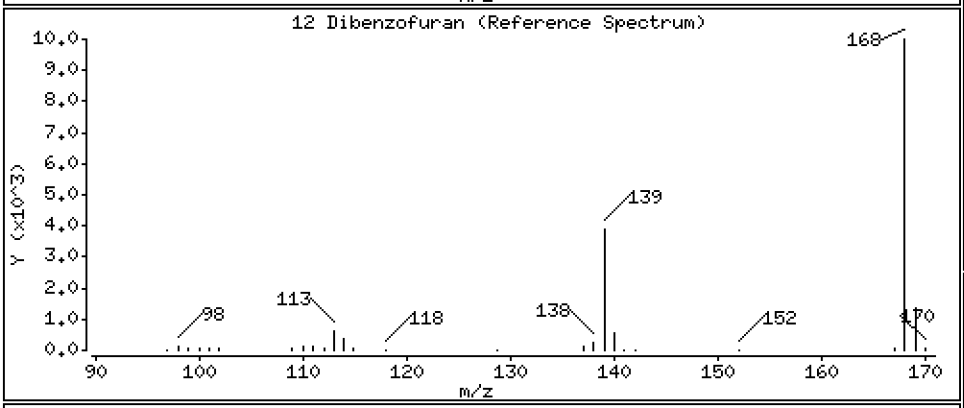
Concentration: 4.007 ug/mL

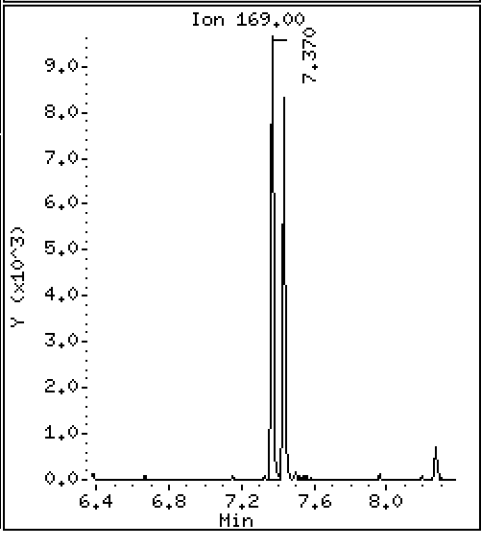


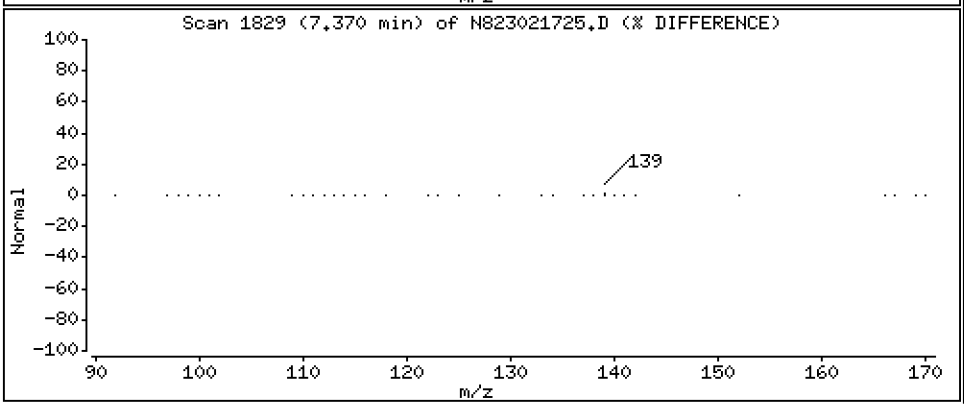












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

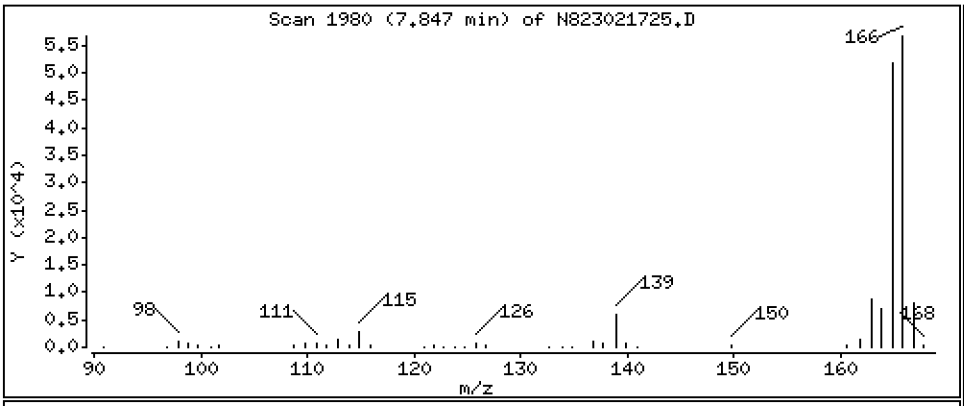
Operator: JZ

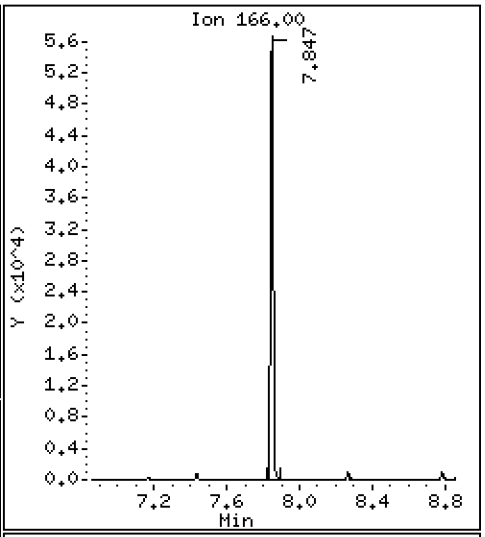
Column phase: Rxi-17sil

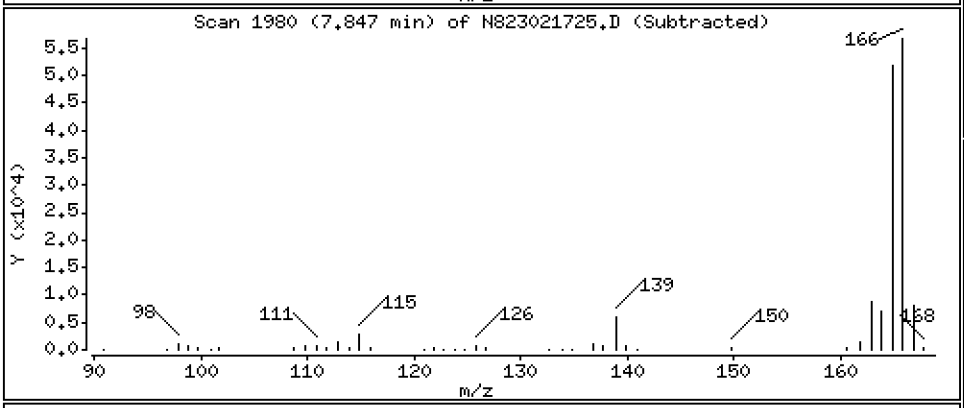
Column diameter: 0.25

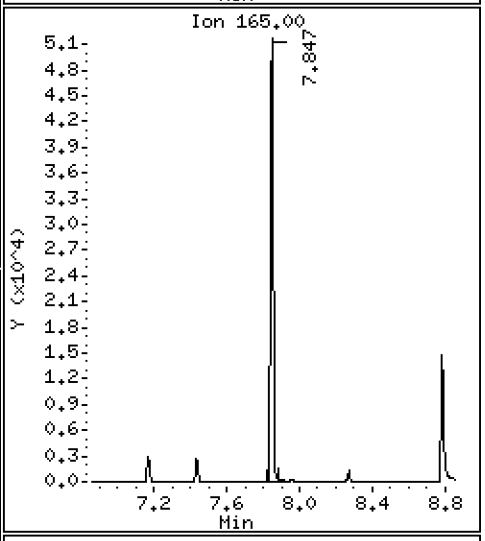
14 Fluorene

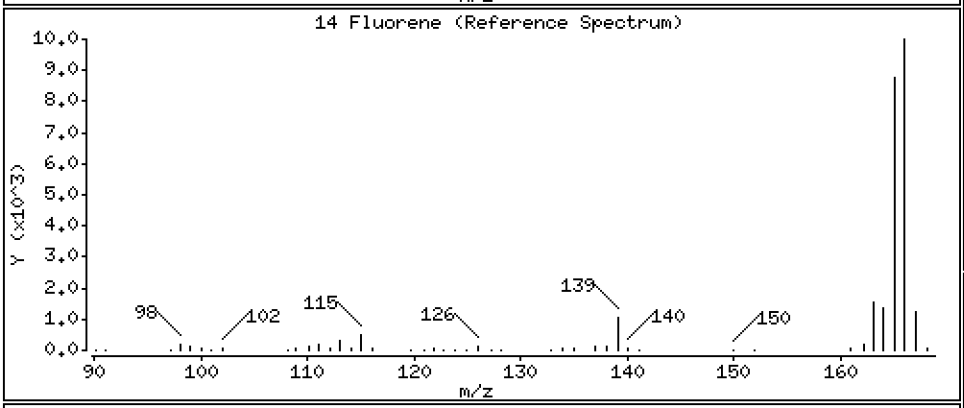
Concentration: 4.152 ug/mL

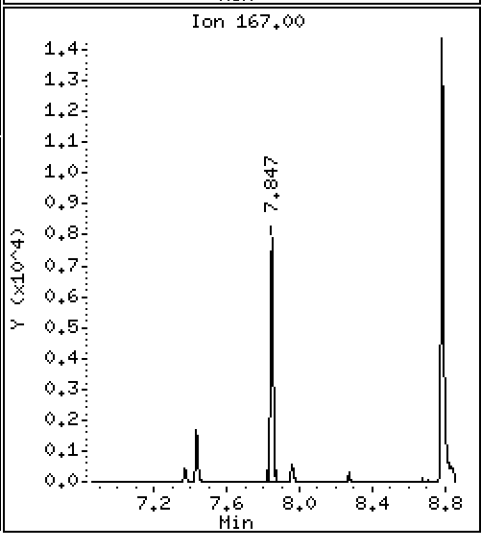


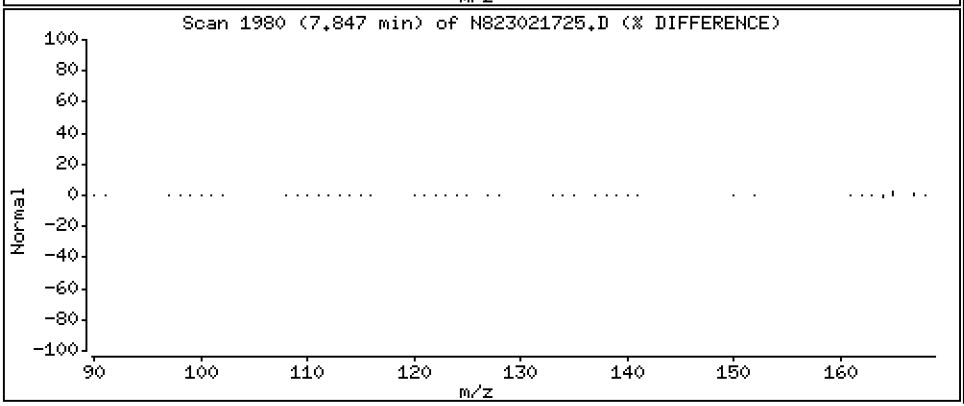












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

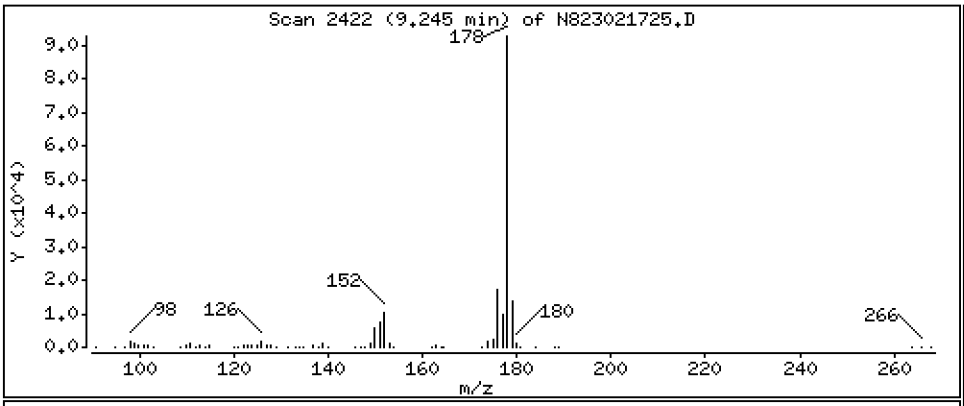
Operator: JZ

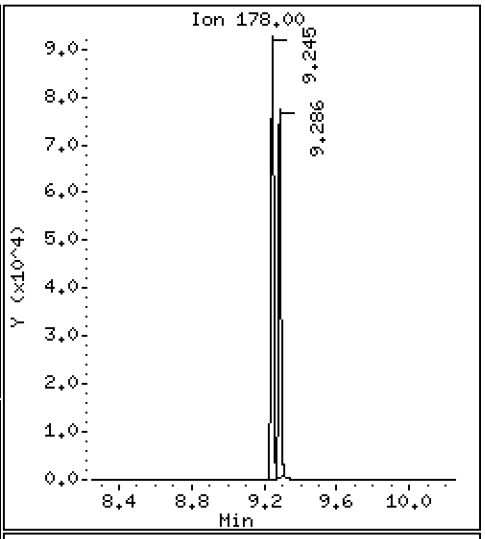
Column phase: Rxi-17sil

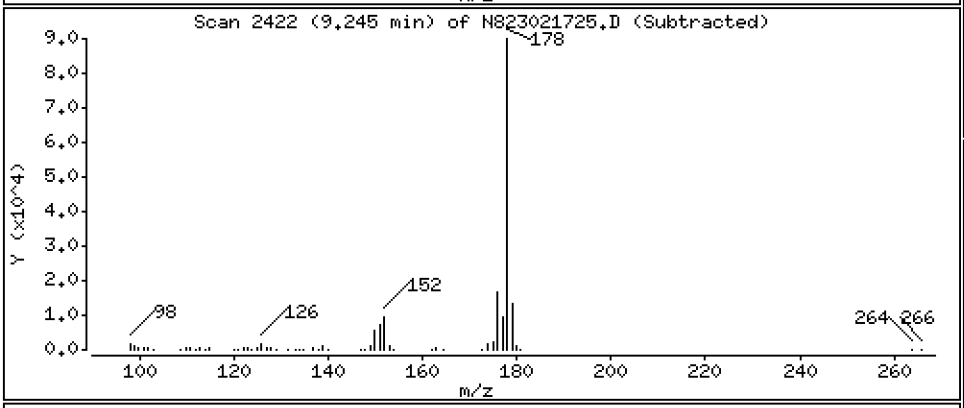
Column diameter: 0.25

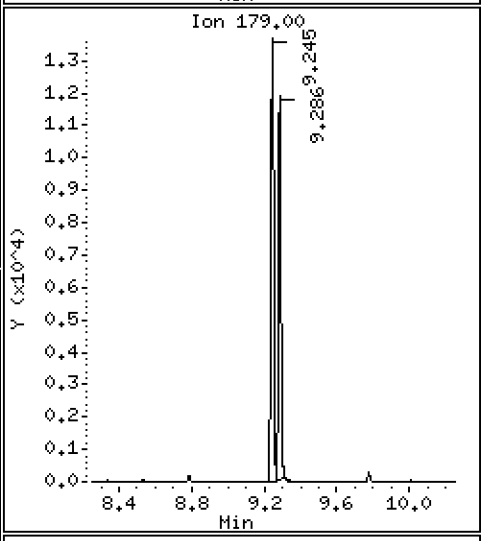
16 Phenanthrene

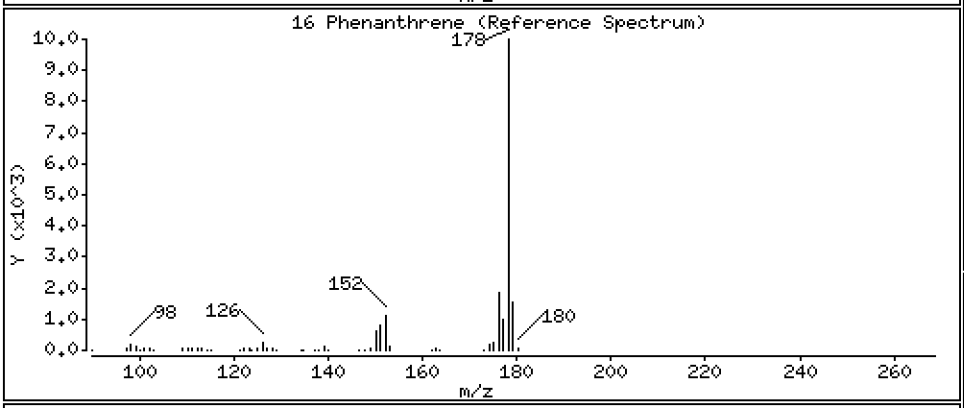
Concentration: 4.158 ug/mL

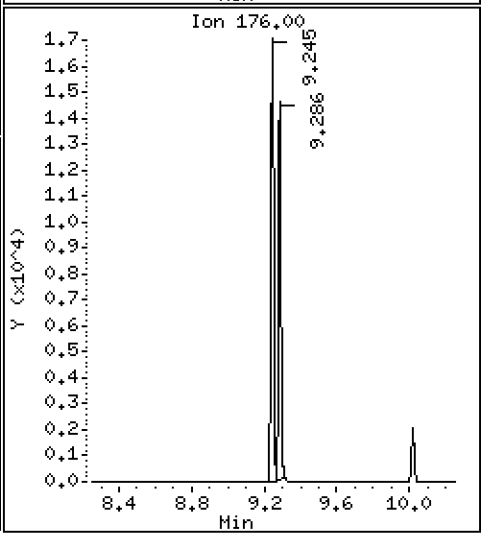


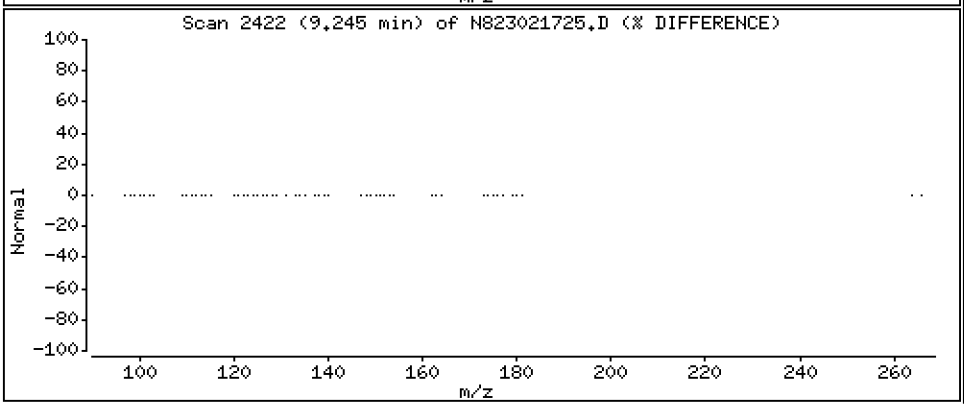












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

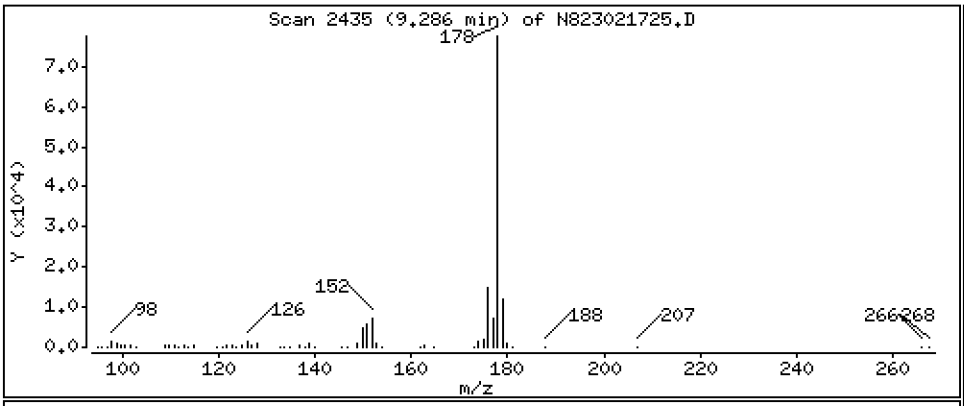
Operator: JZ

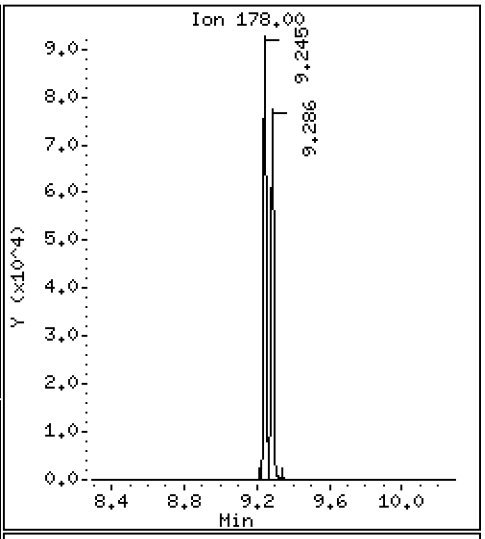
Column phase: Rxi-17sil

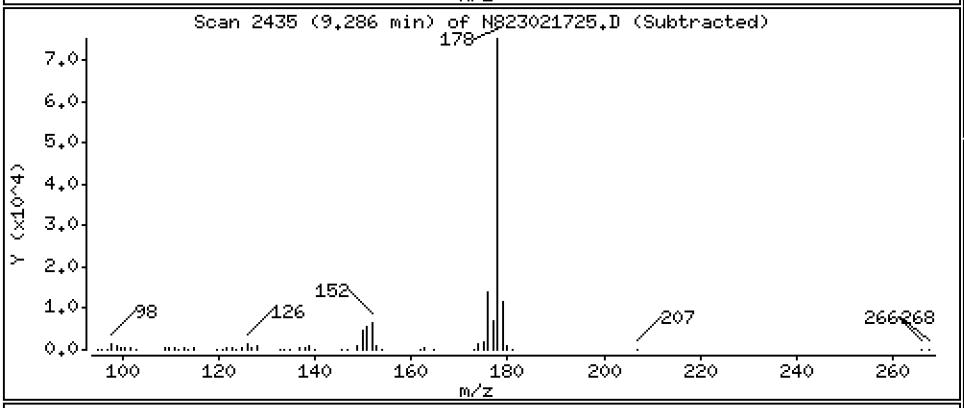
Column diameter: 0.25

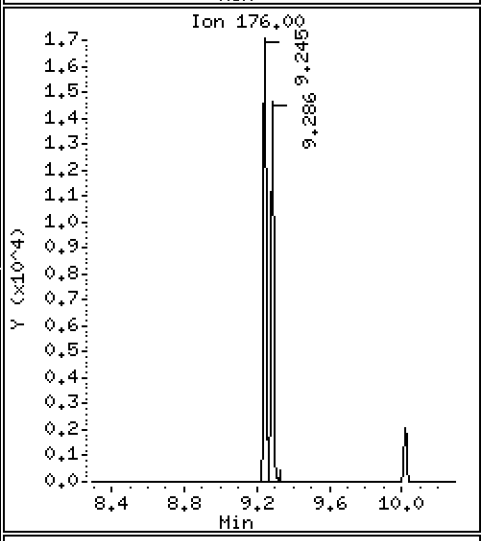
17 Anthracene

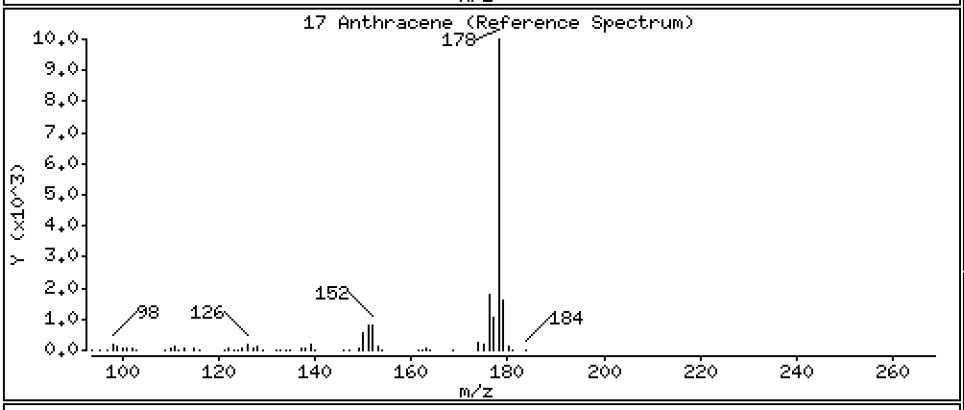
Concentration: 3.887 ug/mL

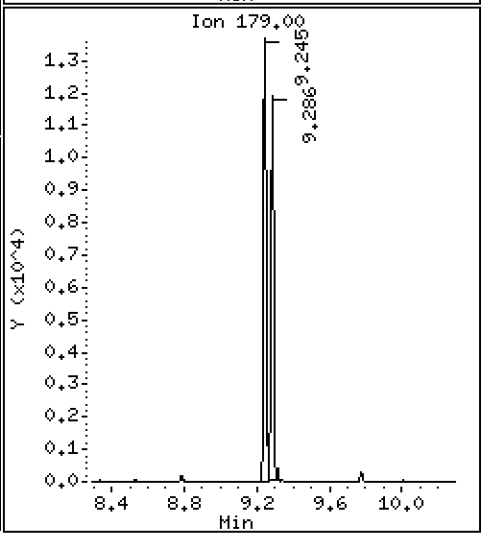


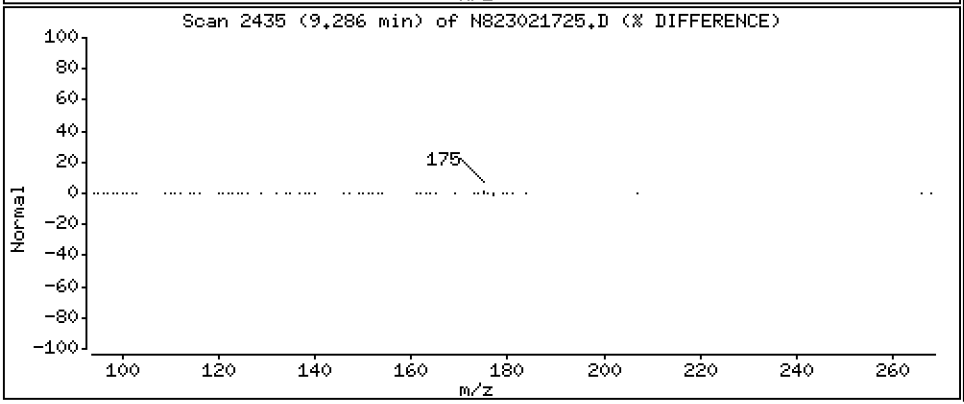












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

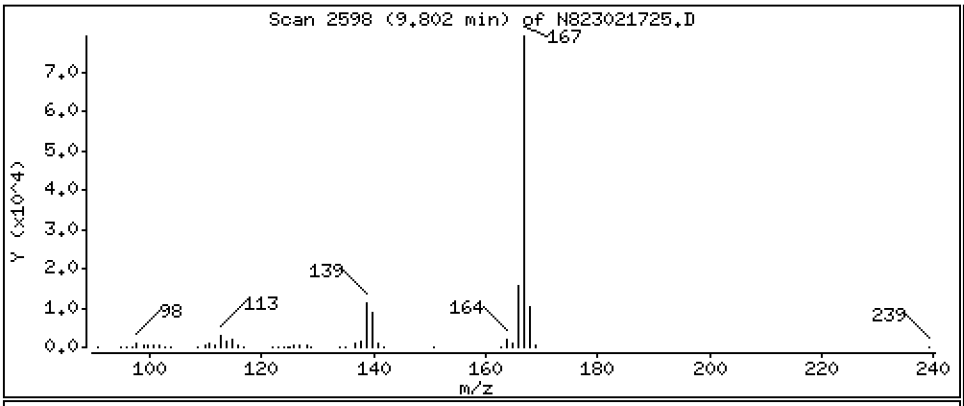
Operator: JZ

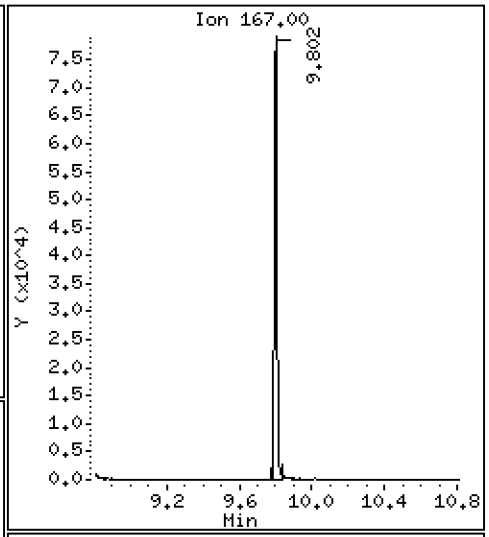
Column phase: Rxi-17sil

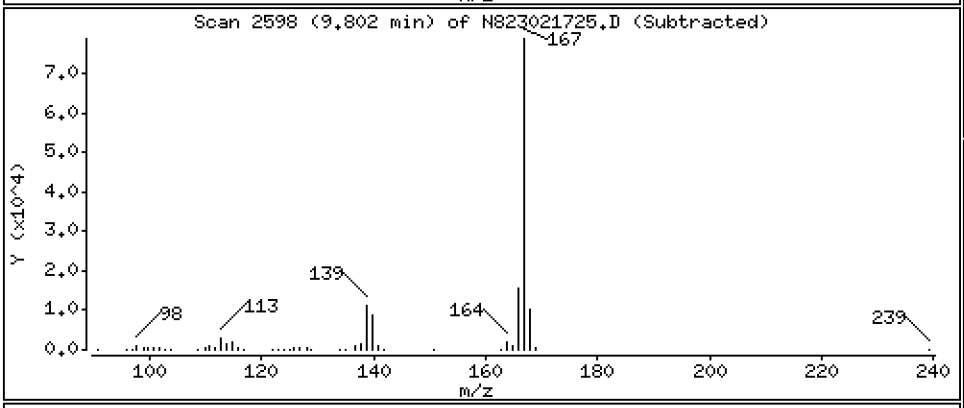
Column diameter: 0.25

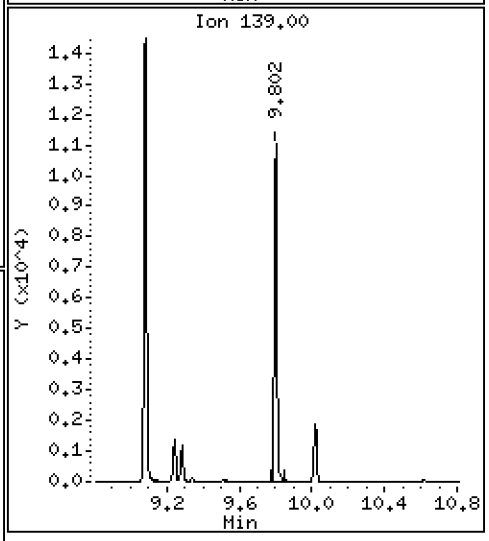
19 Carbazole

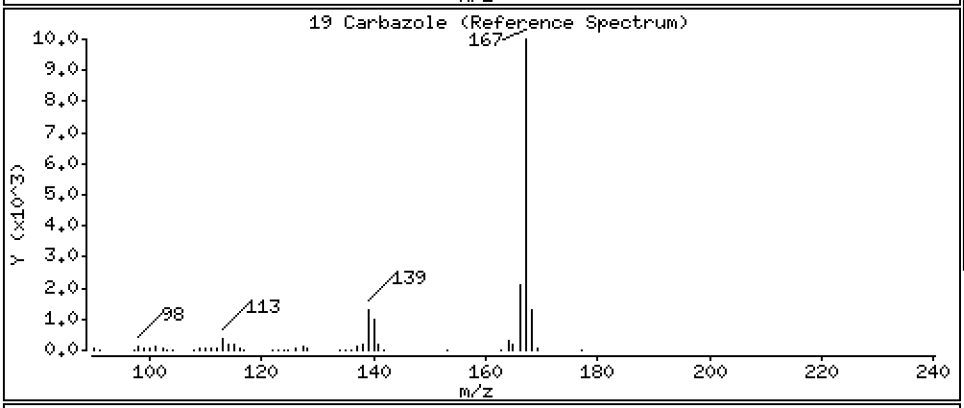
Concentration: 4.608 ug/mL

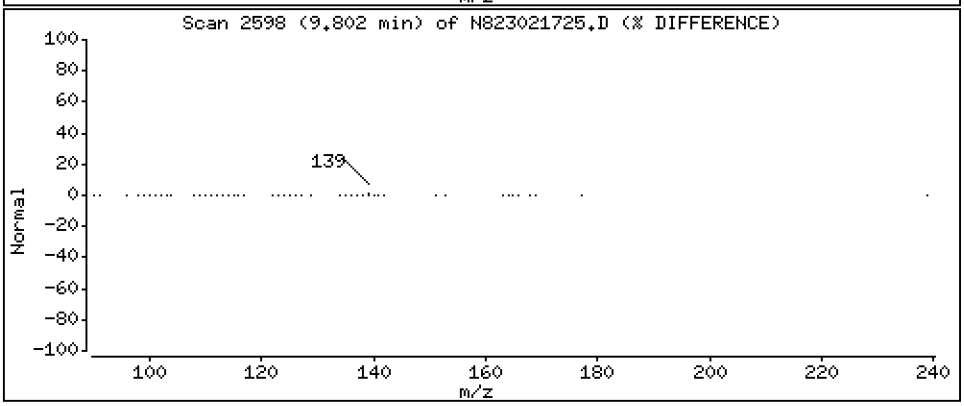












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

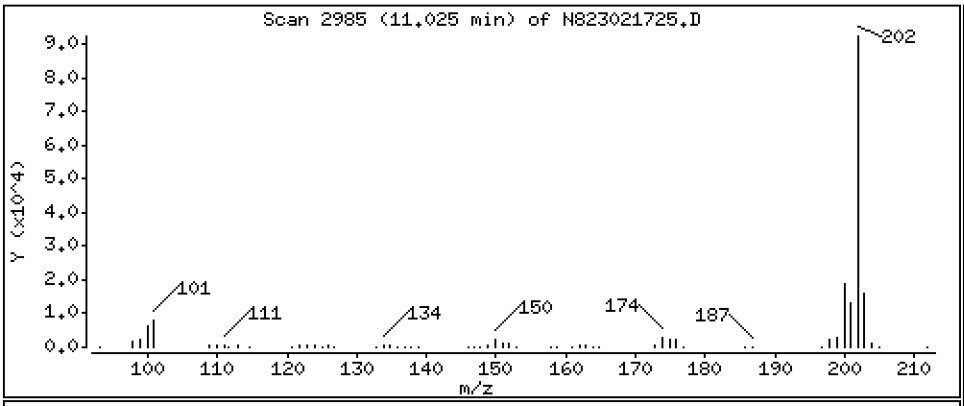
Operator: JZ

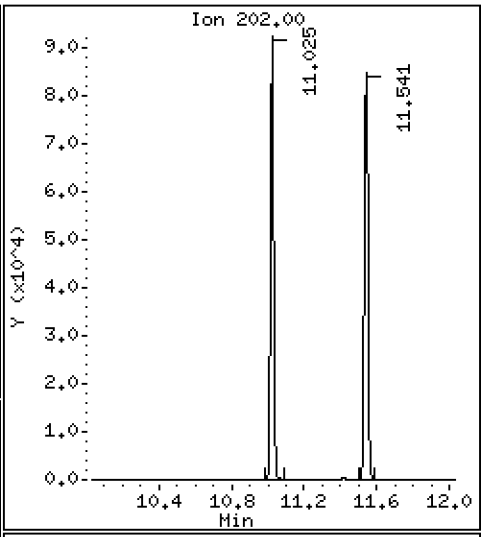
Column phase: Rxi-17sil

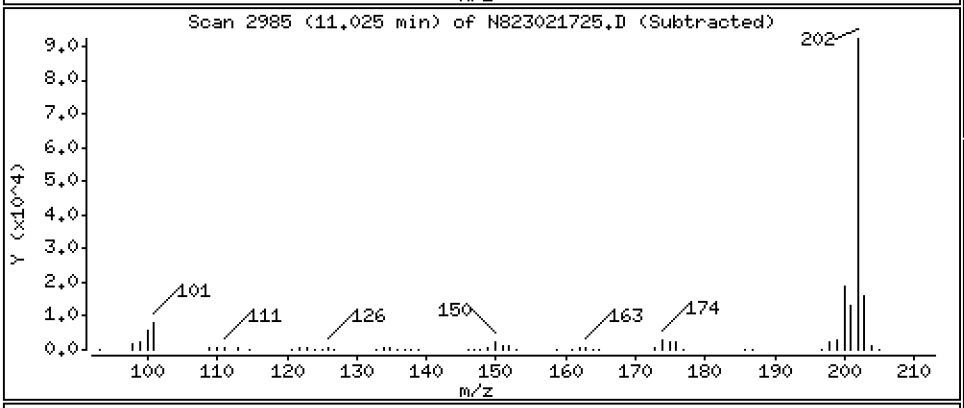
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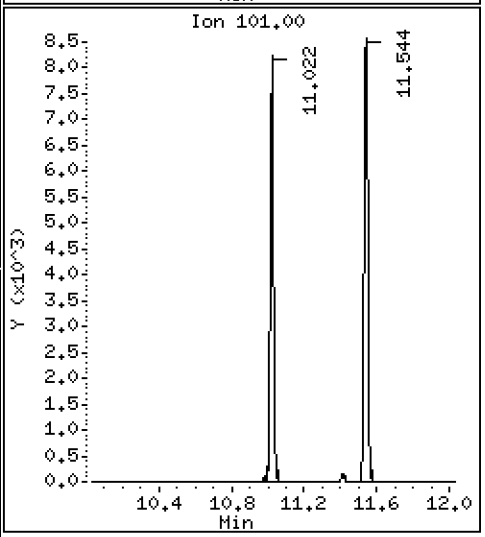
22 Fluoranthene

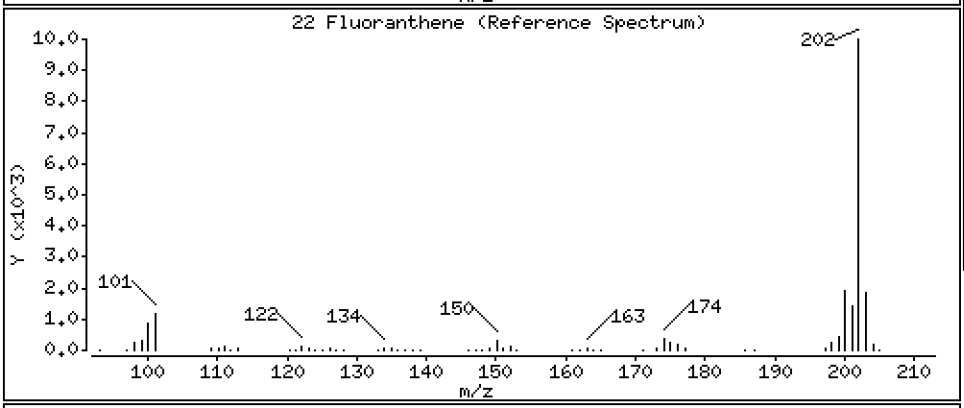
Concentration: 4.815 ug/mL

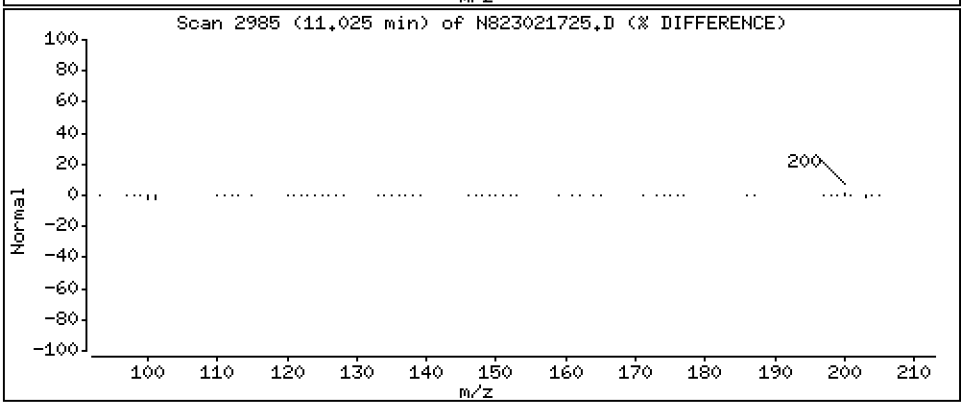












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

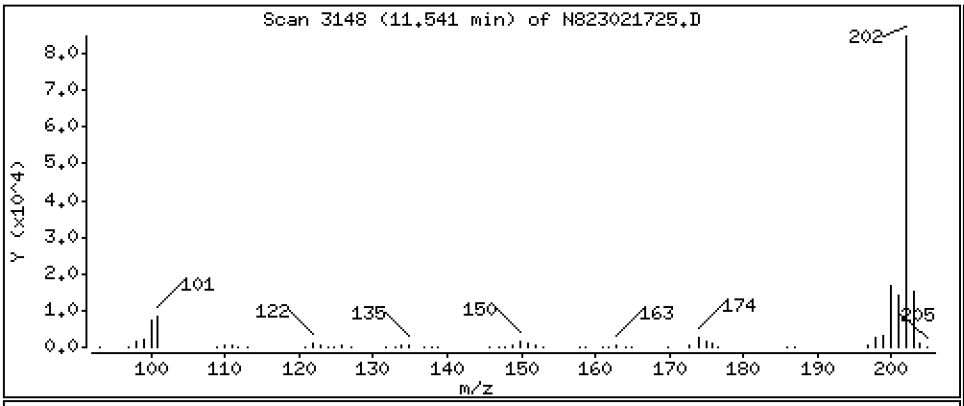
Operator: JZ

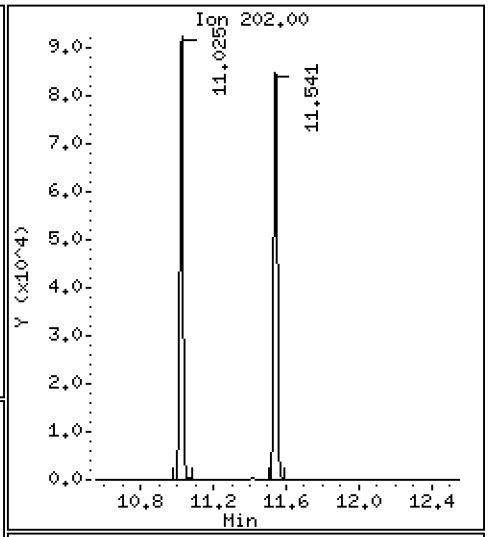
Column phase: Rxi-17sil

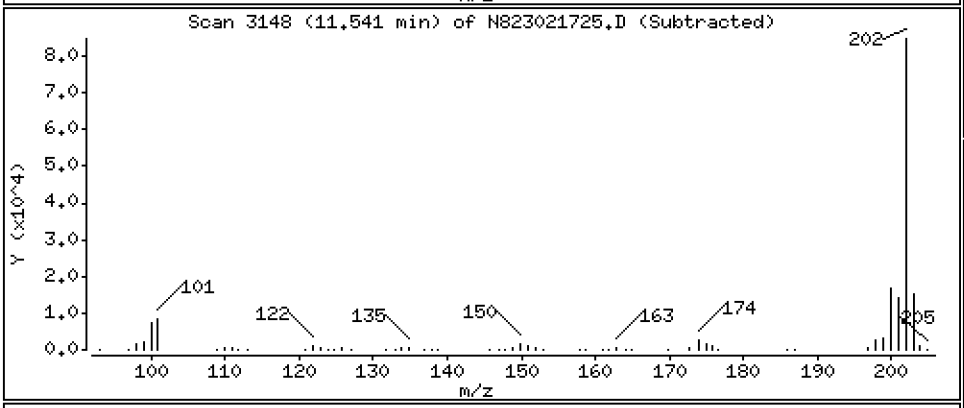
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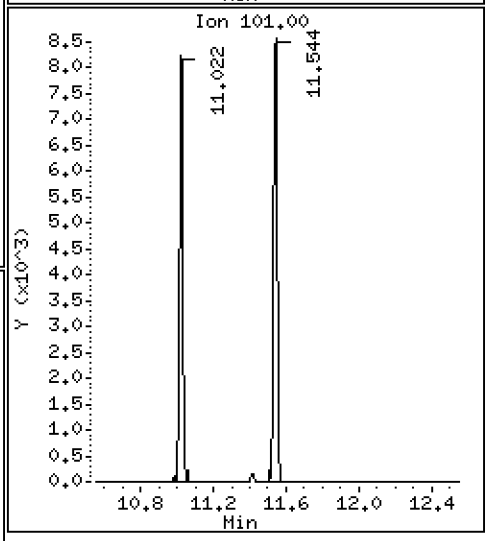
23 Pyrene

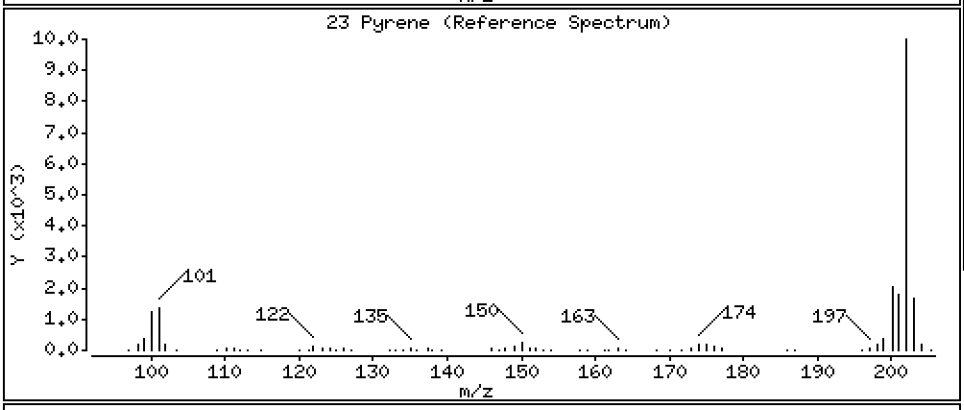
Concentration: 4.453 ug/mL

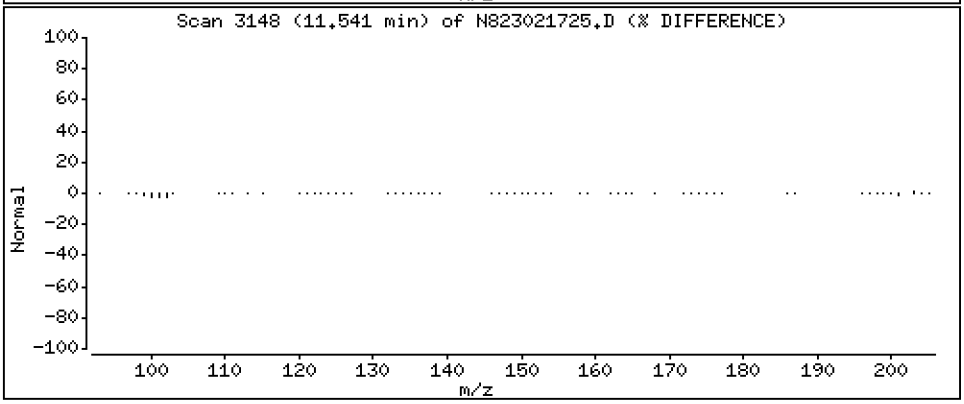












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

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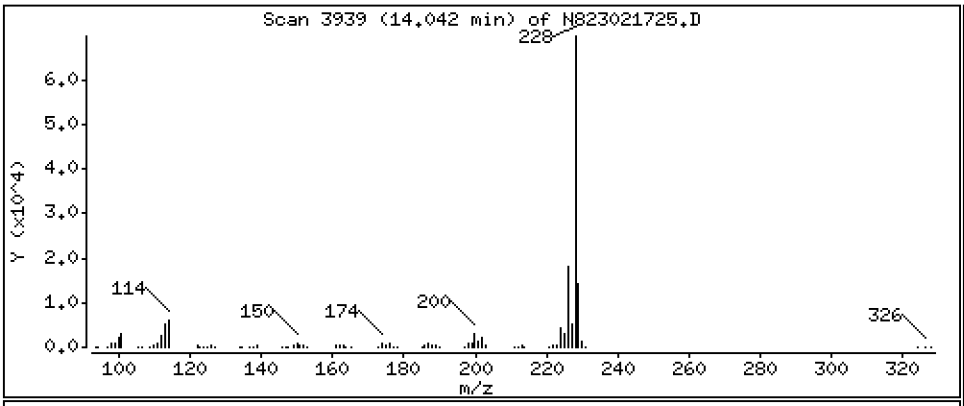
Operator: JZ

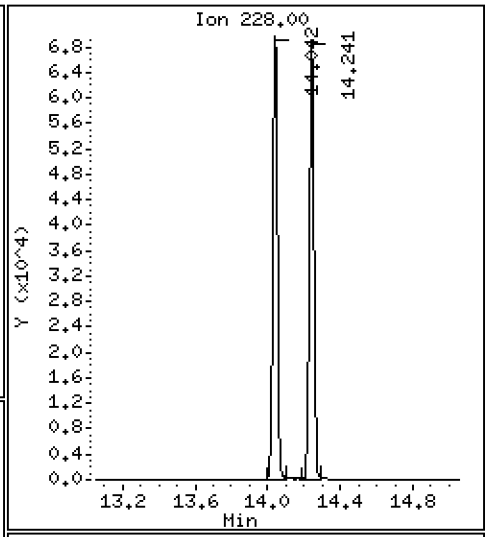
Column phase: Rxi-17sil

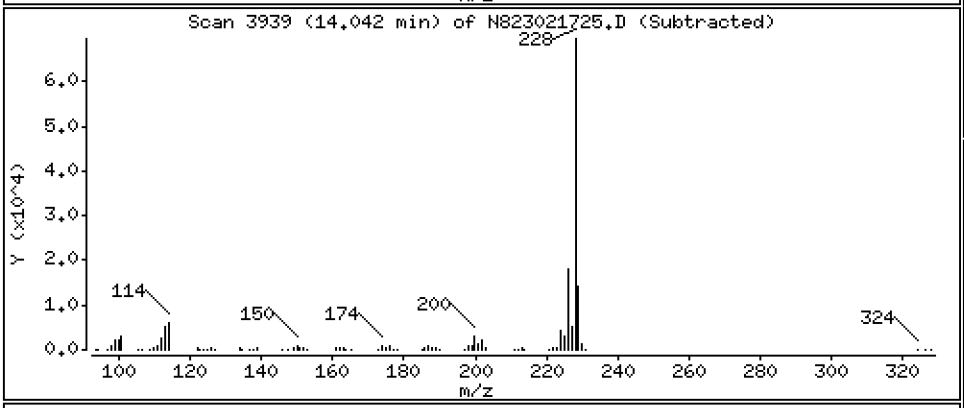
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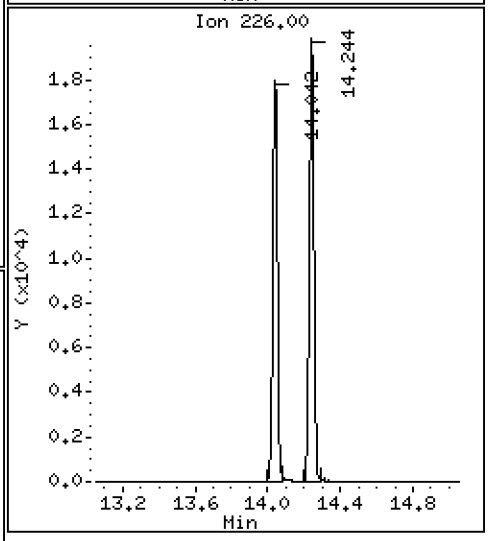
24 Benzo(a)anthracene

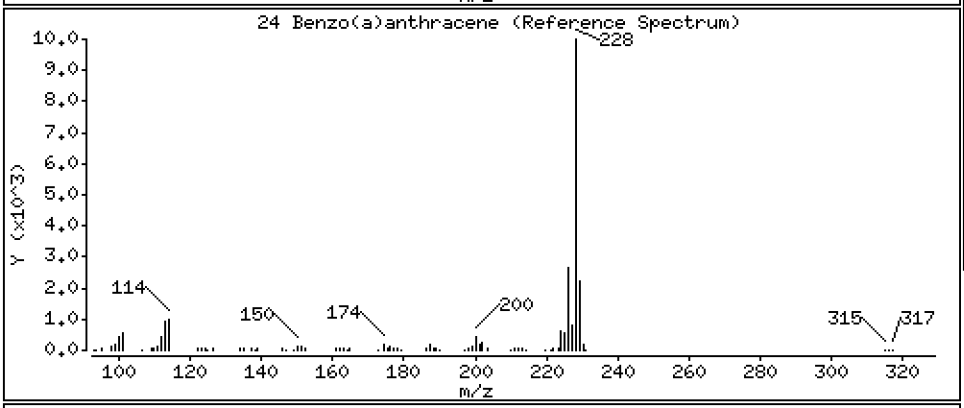
Concentration: 5.141 ug/mL

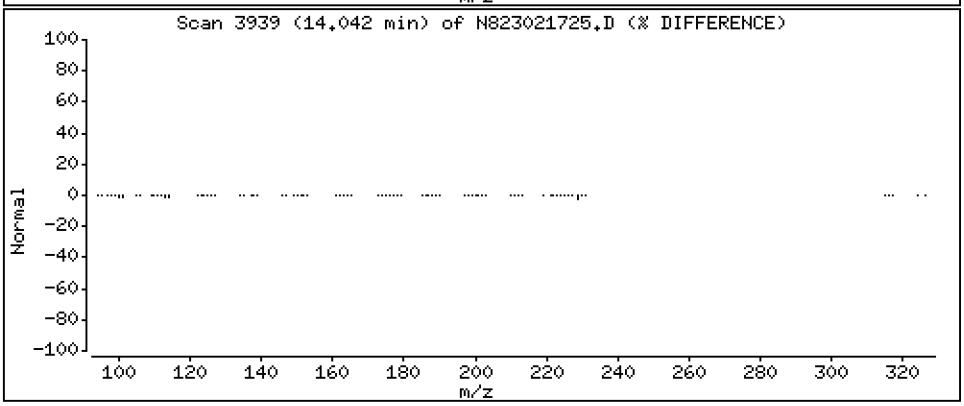












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

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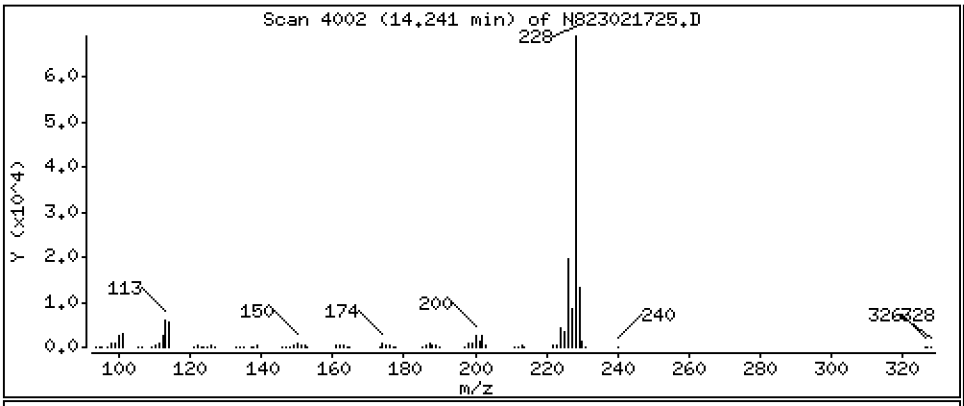
Operator: JZ

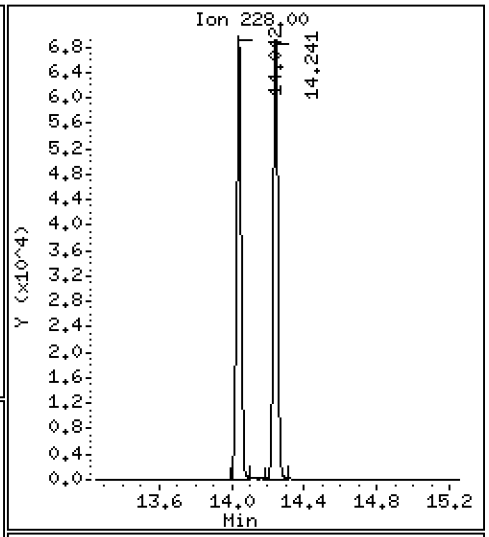
Column phase: Rxi-17sil

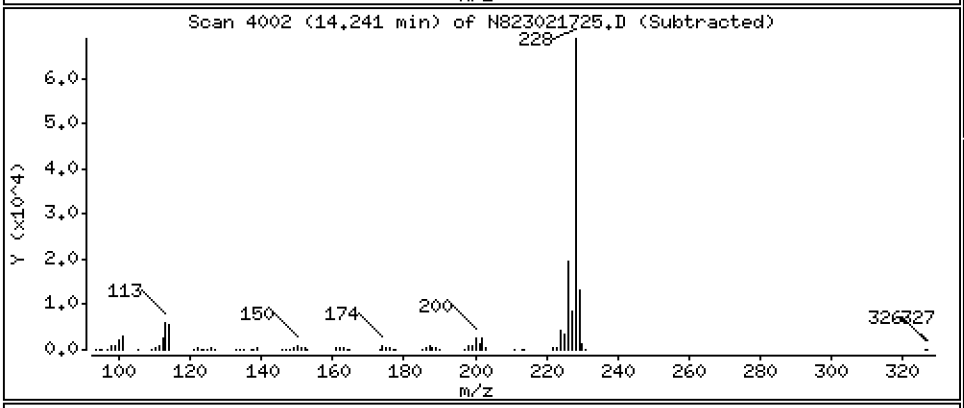
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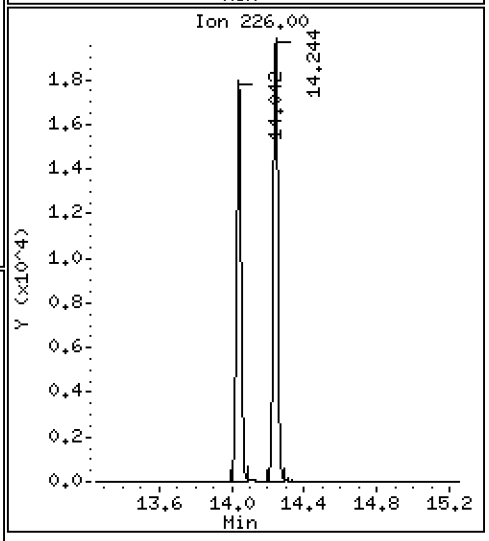
27 Chrysene

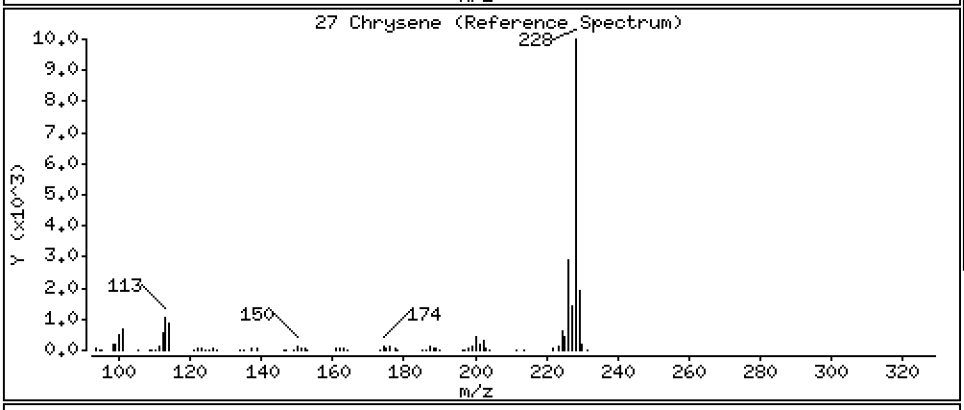
Concentration: 4.750 ug/mL

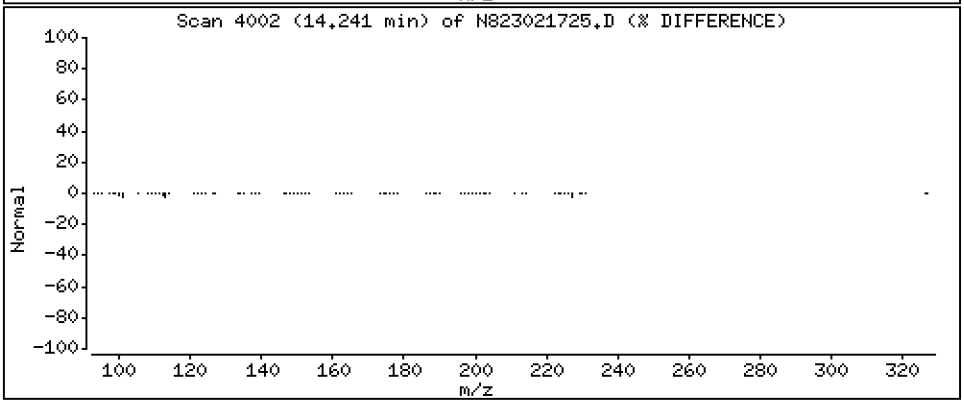












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

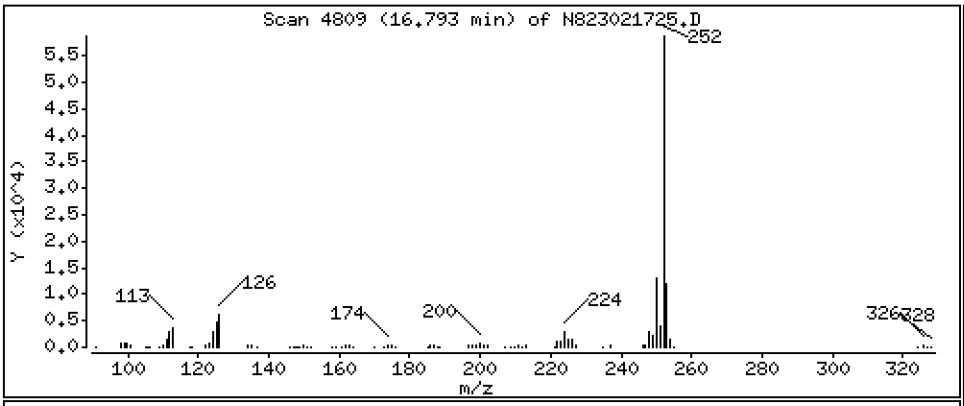
Operator: JZ

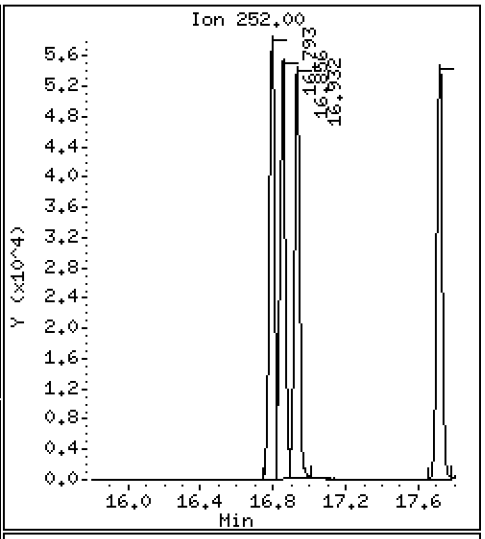
Column phase: Rxi-17sil

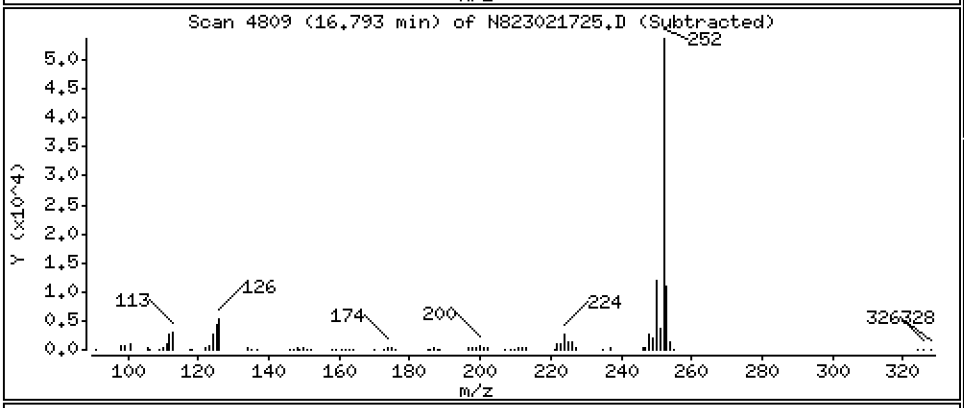
Column diameter: 0.25

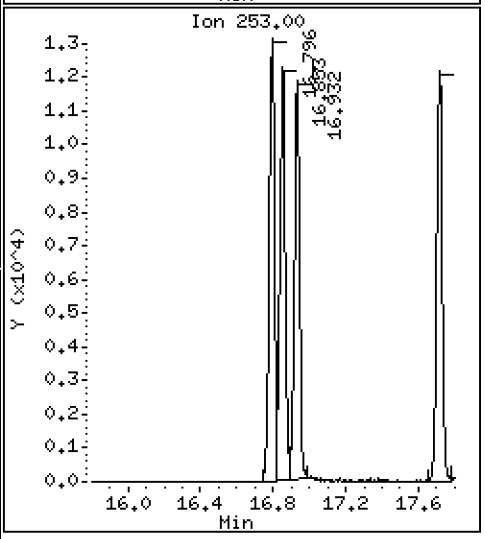
28 Benzo(b)fluoranthene

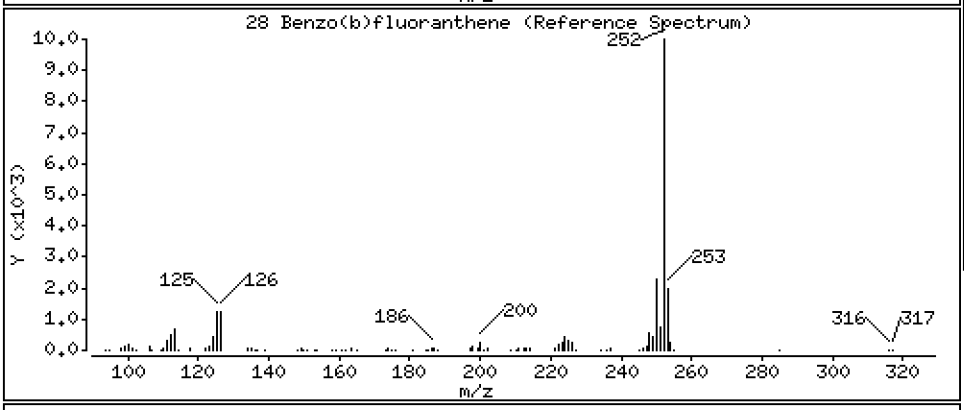
Concentration: 6.111 ug/mL

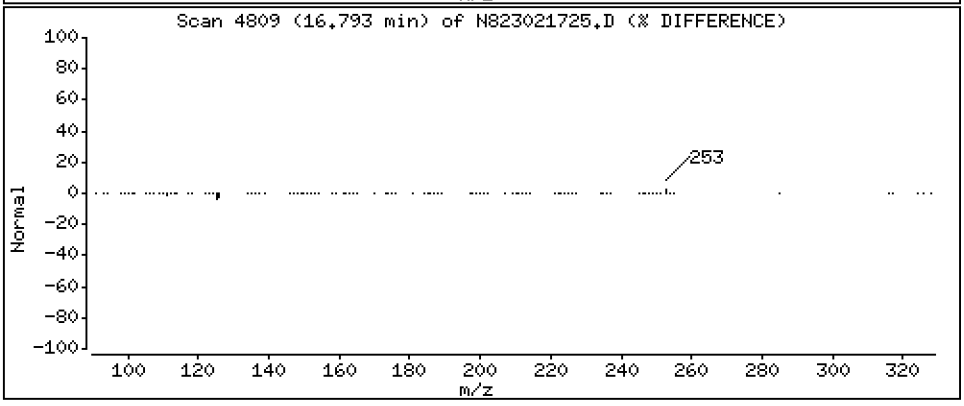












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

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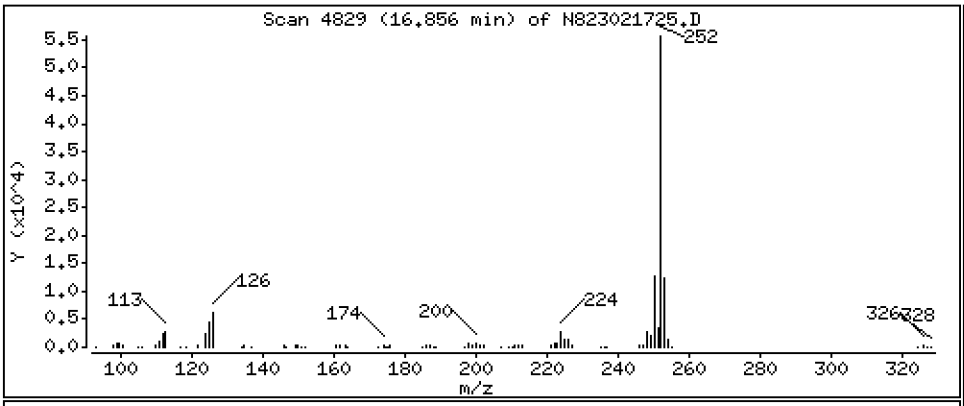
Operator: JZ

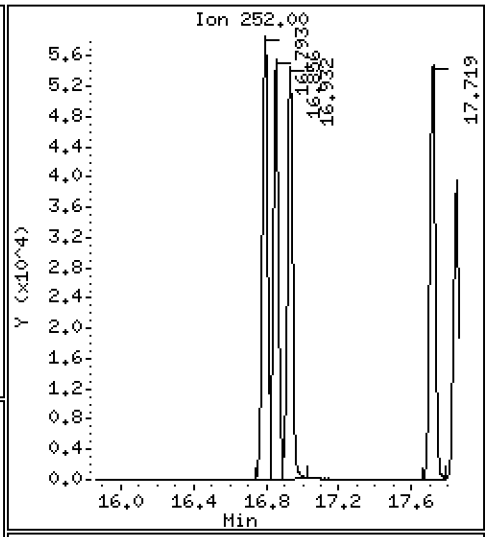
Column phase: Rxi-17sil

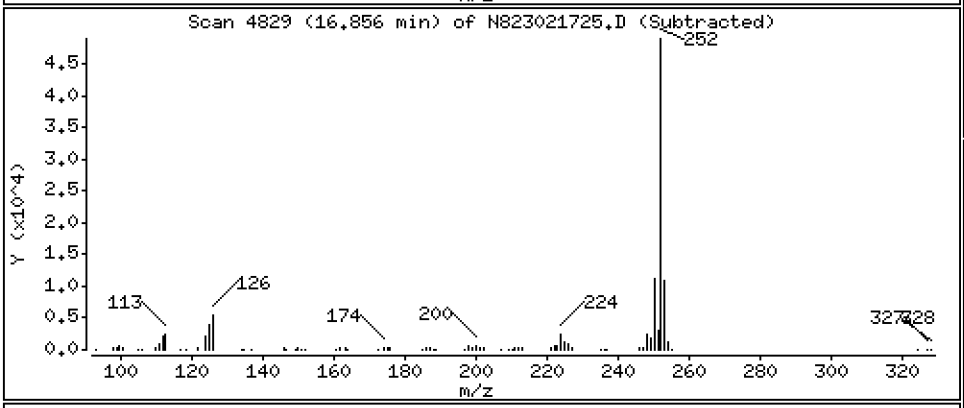
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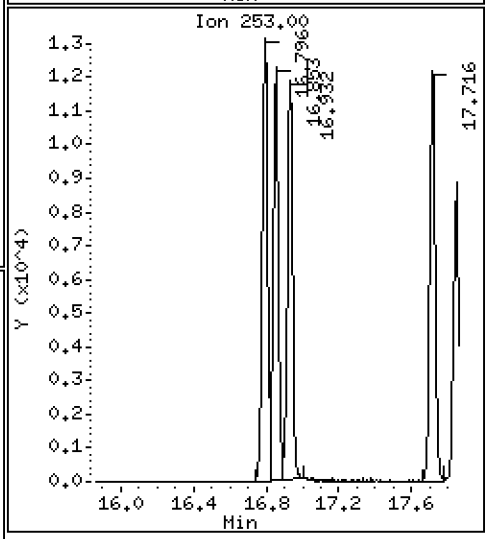
29 Benzo(k)fluoranthene

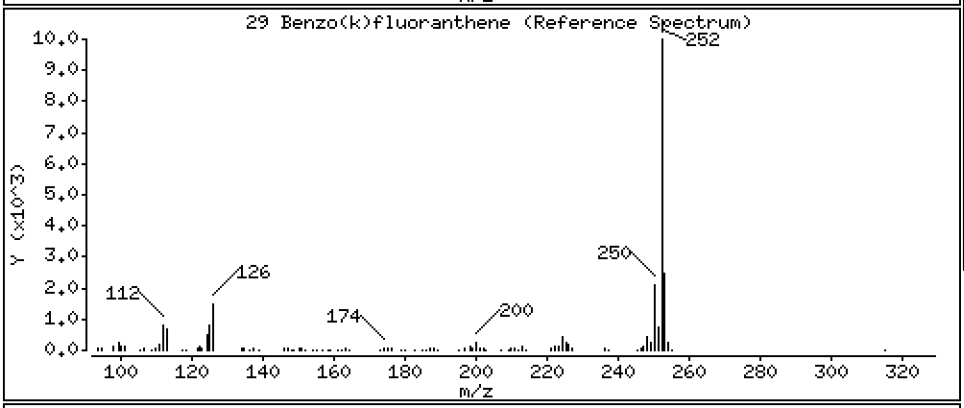
Concentration: 5.741 ug/mL

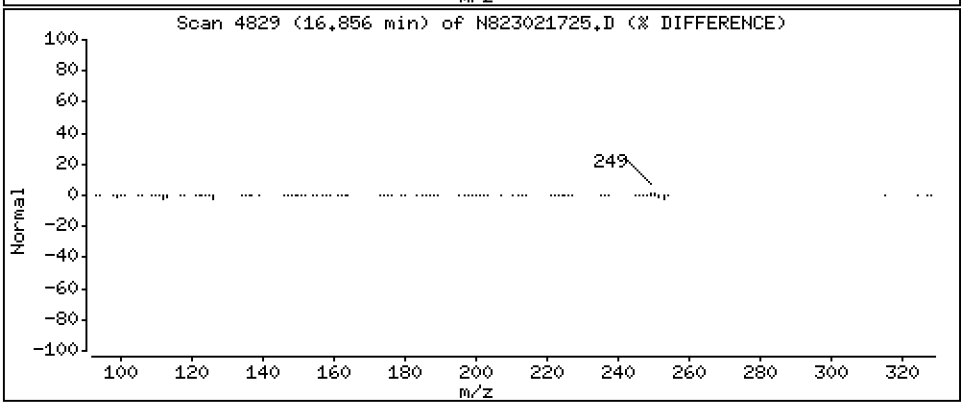












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

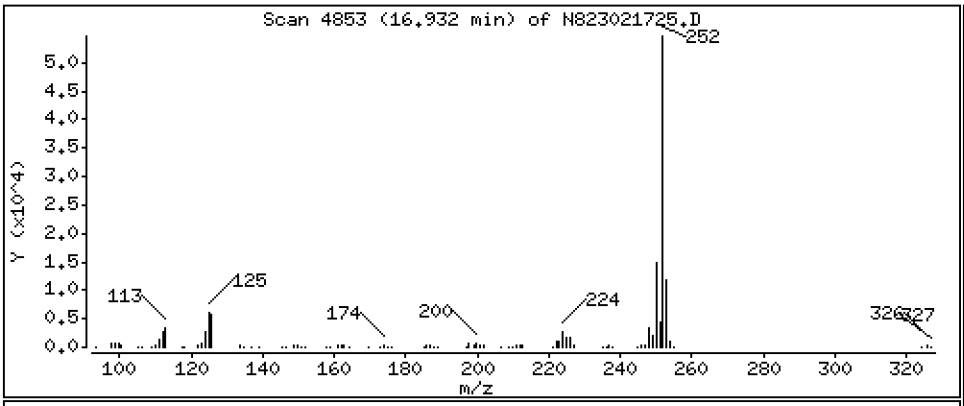
Operator: JZ

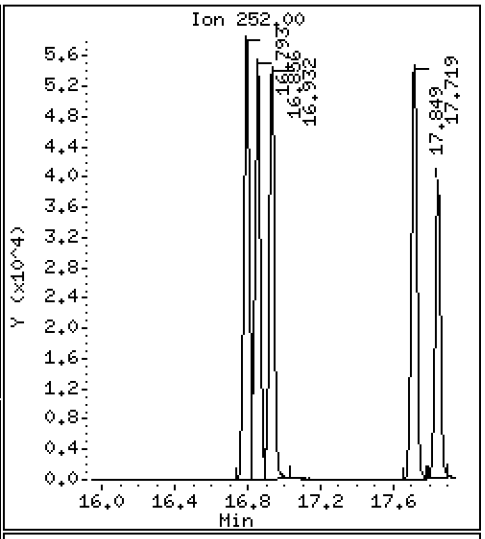
Column phase: Rxi-17sil

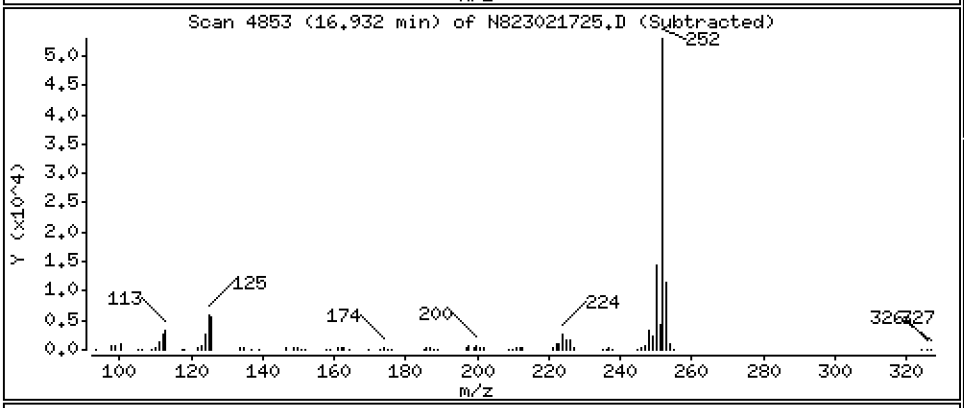
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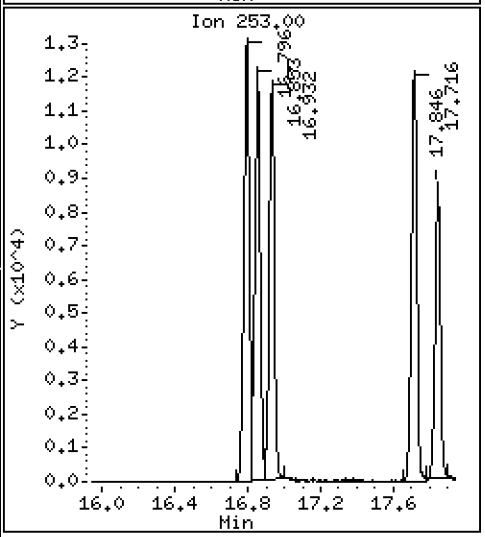
30 Benzo(j)fluoranthene

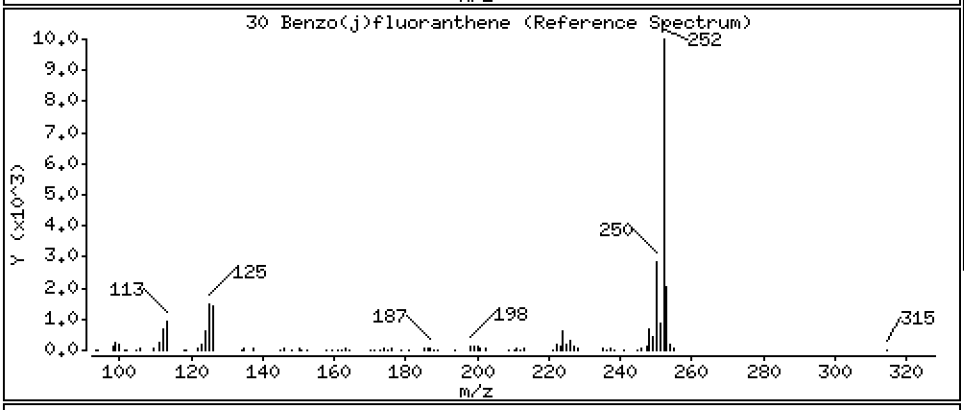
Concentration: 6.244 ug/mL

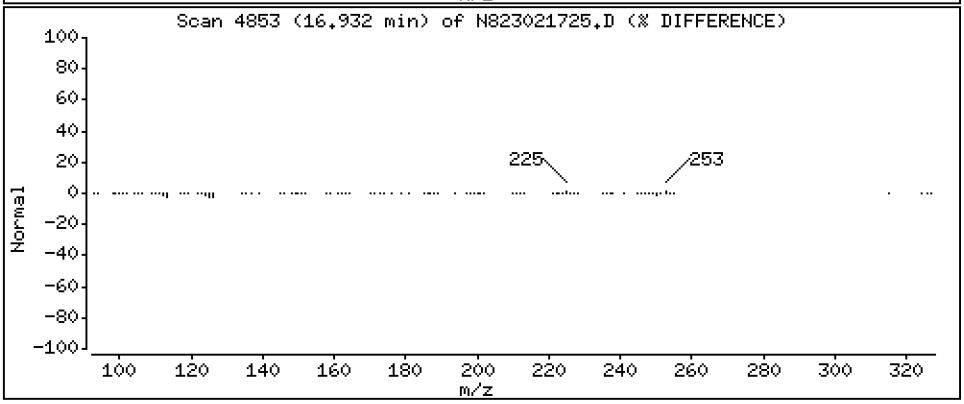












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

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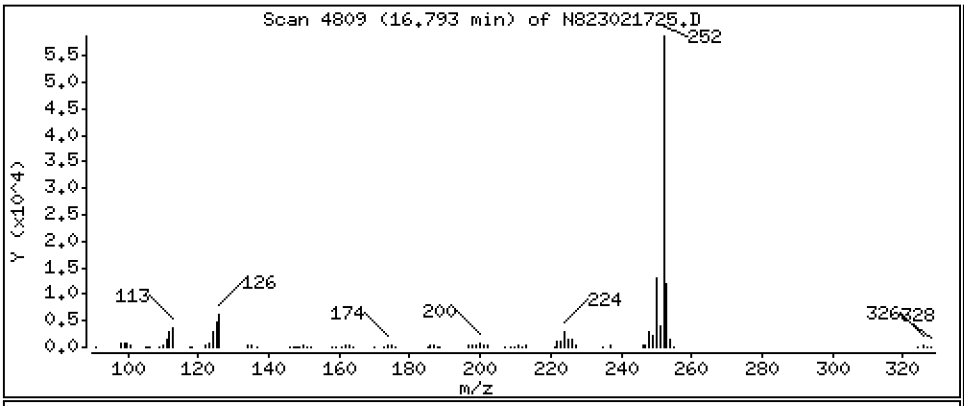
Operator: JZ

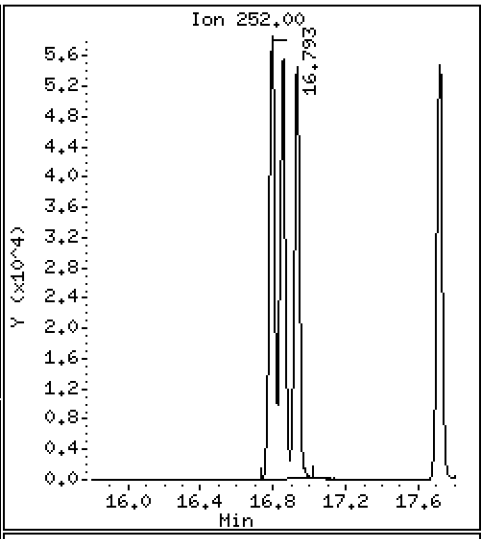
Column phase: Rxi-17sil

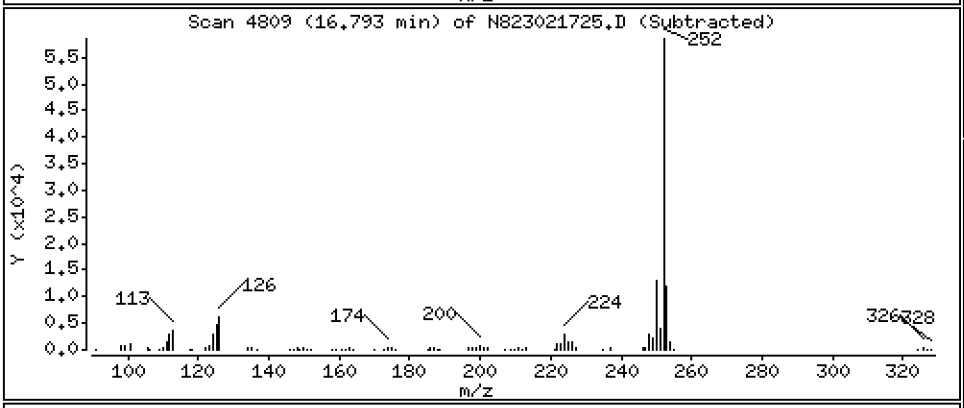
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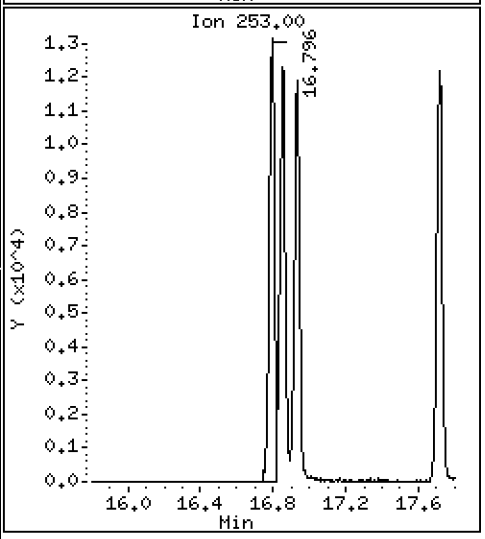
31 Total Benzofluoranthenes

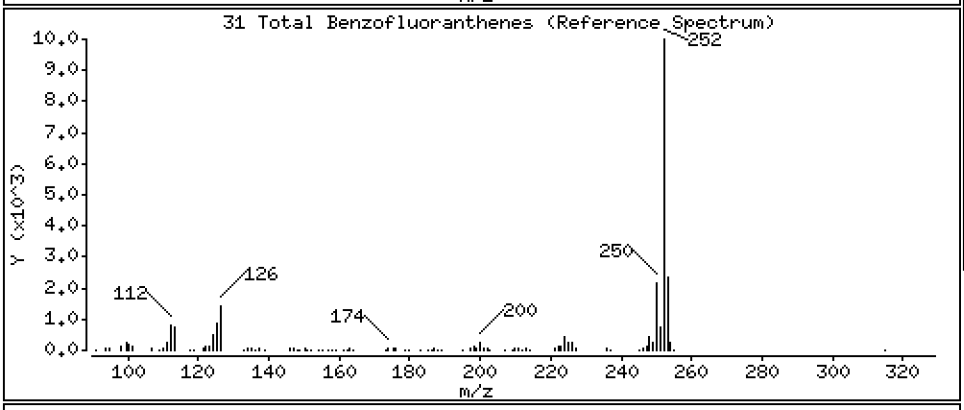
Concentration: 18.11 ug/mL

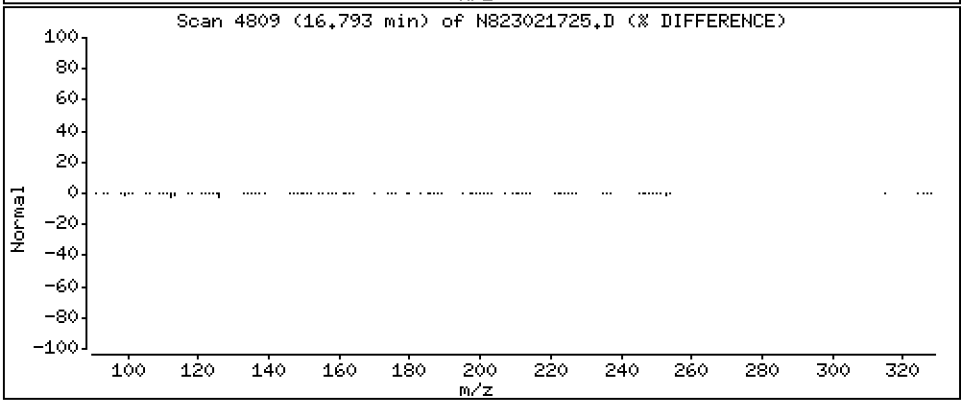












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

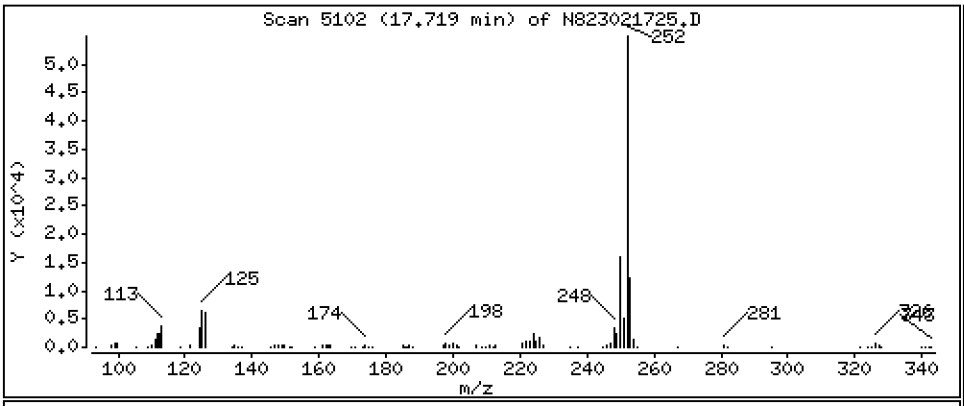
Operator: JZ

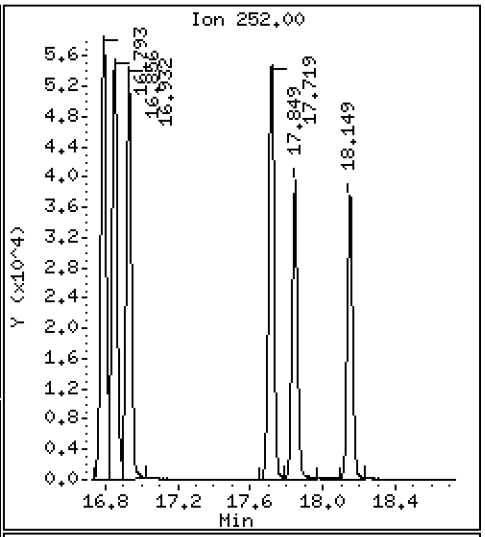
Column phase: Rxi-17sil

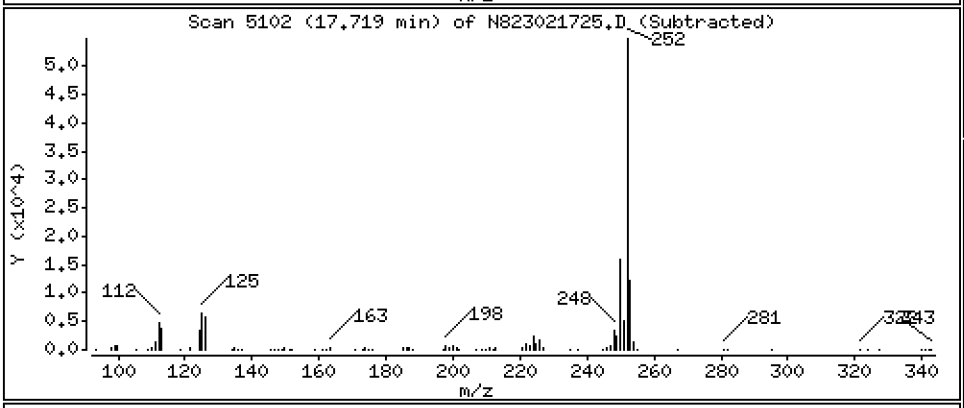
Column diameter: 0.25

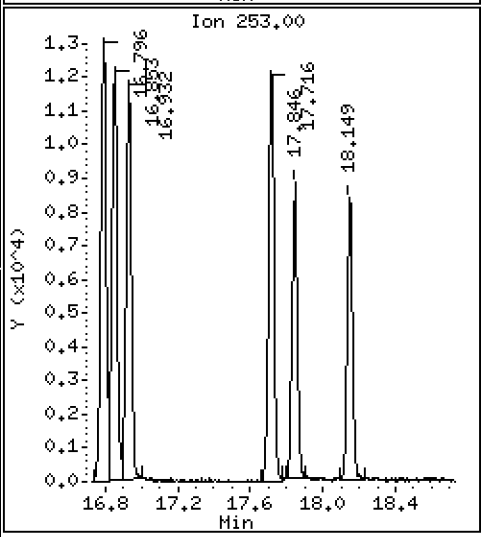
34 Benzo(e)pyrene

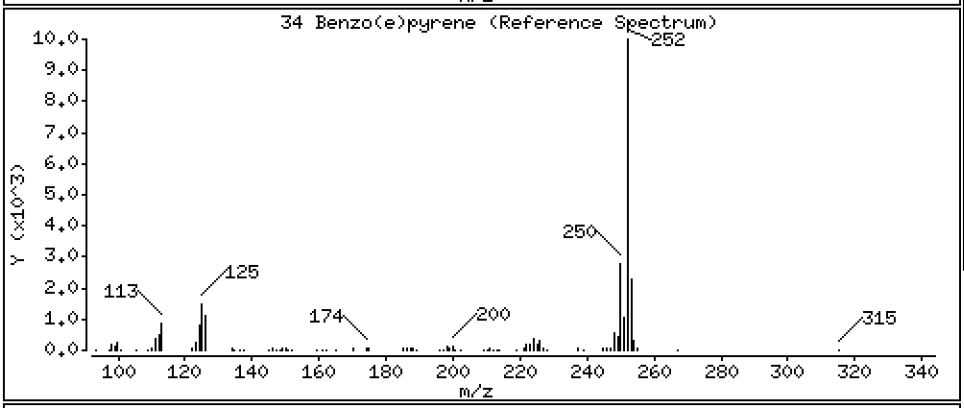
Concentration: 5.947 ug/mL

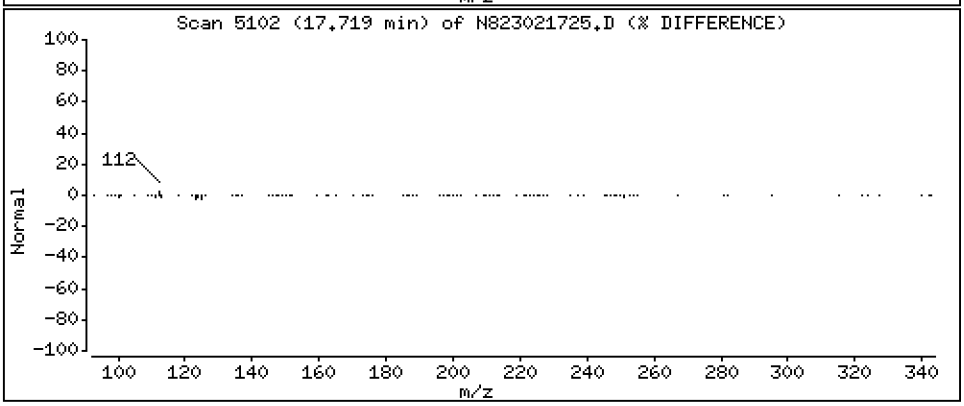












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Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

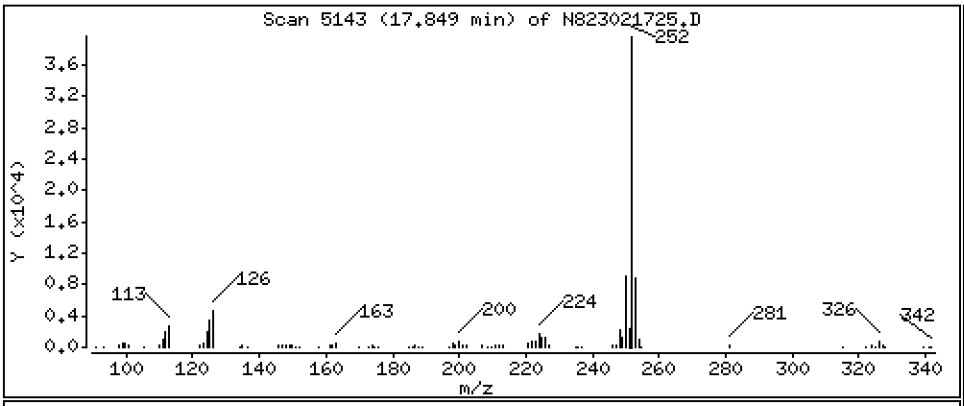
Operator: JZ

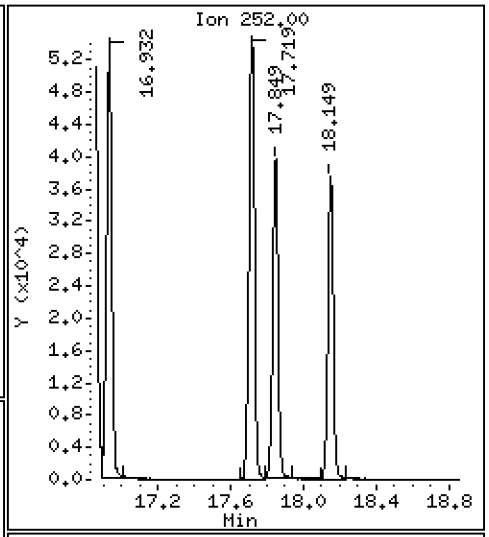
Column phase: Rxi-17sil

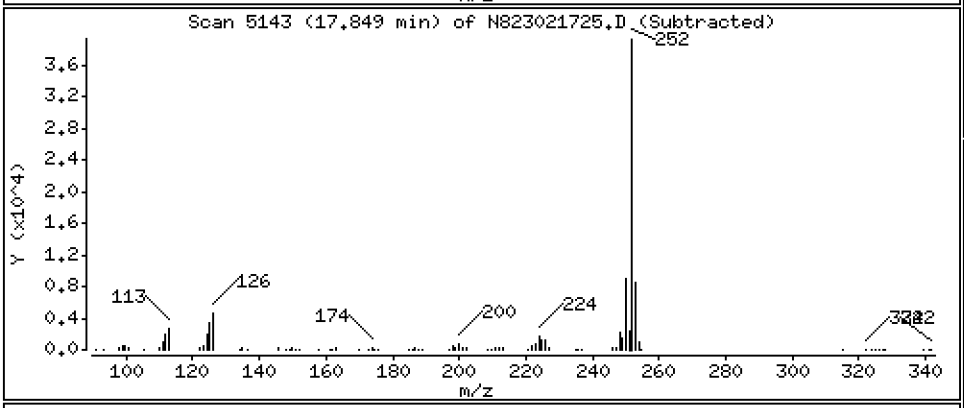
Column diameter: 0.25

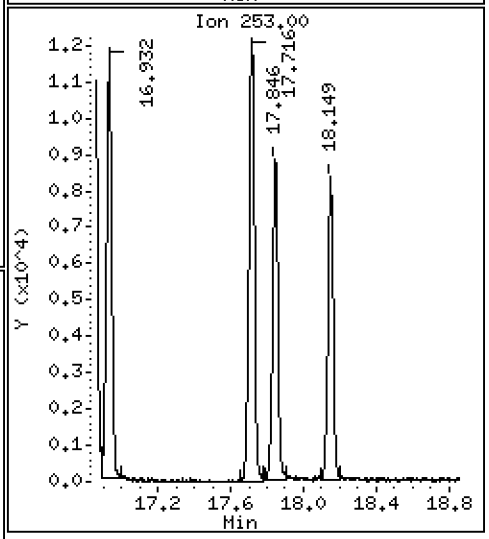
32 Benzo(a)pyrene

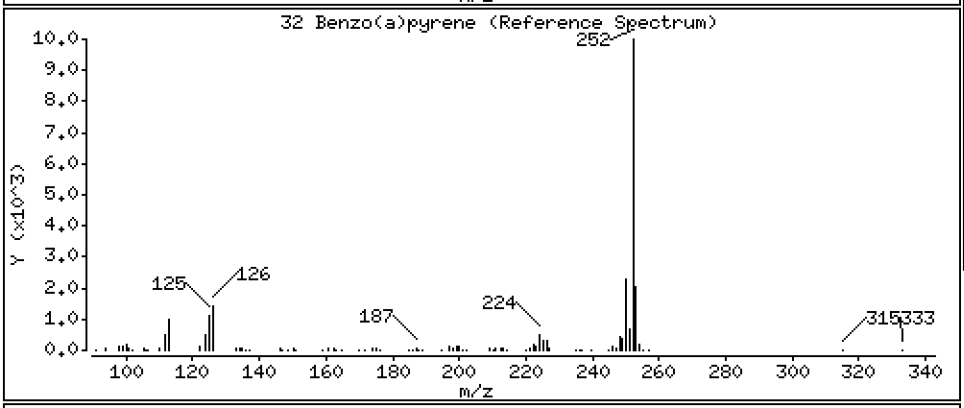
Concentration: 4.629 ug/mL

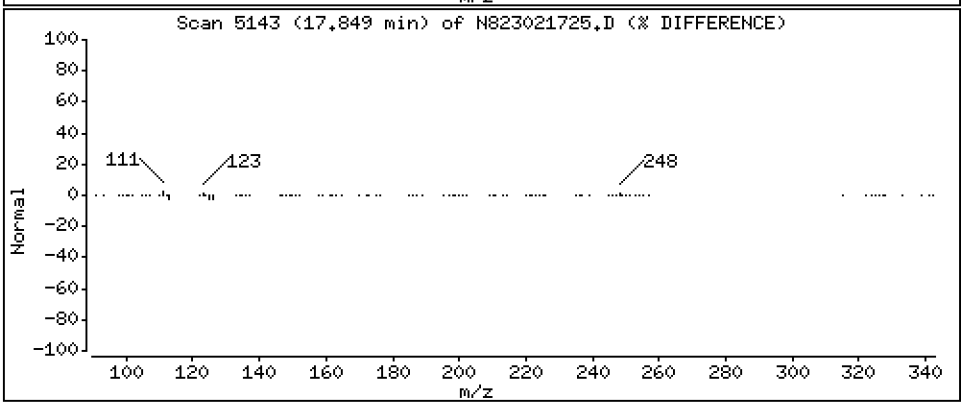












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

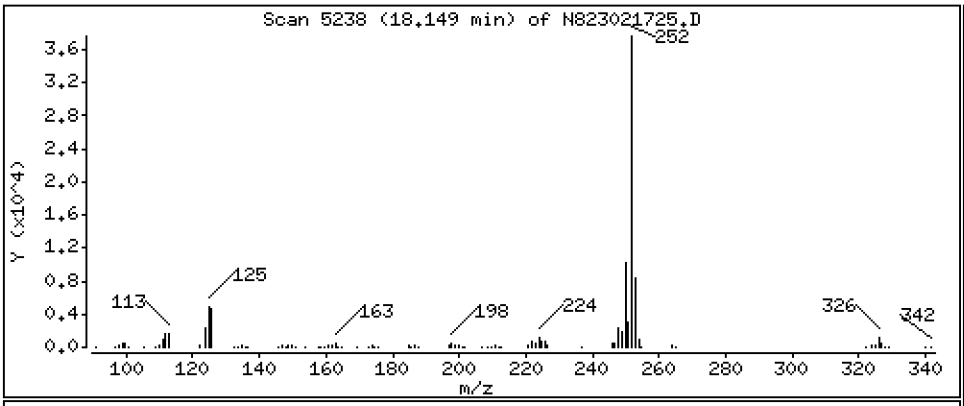
Operator: JZ

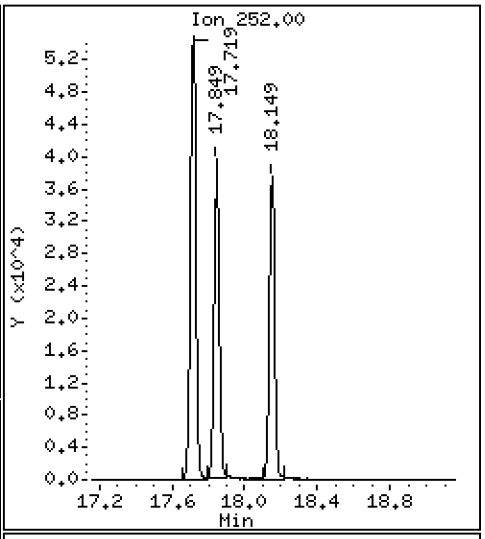
Column phase: Rxi-17sil

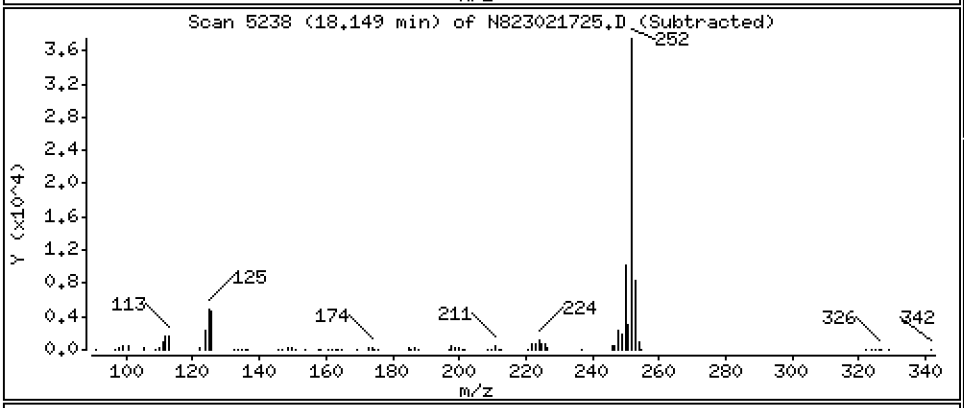
Column diameter: 0.25

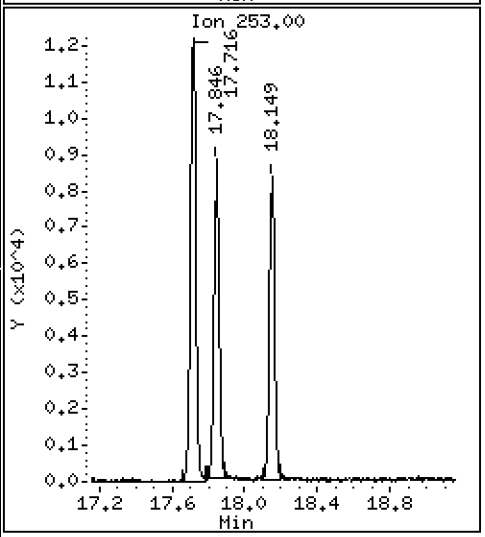
35 Perylene

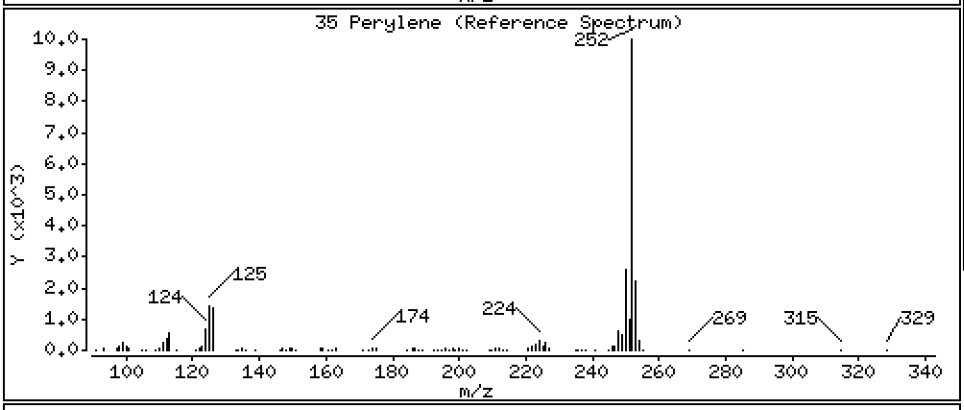
Concentration: 4.135 ug/mL

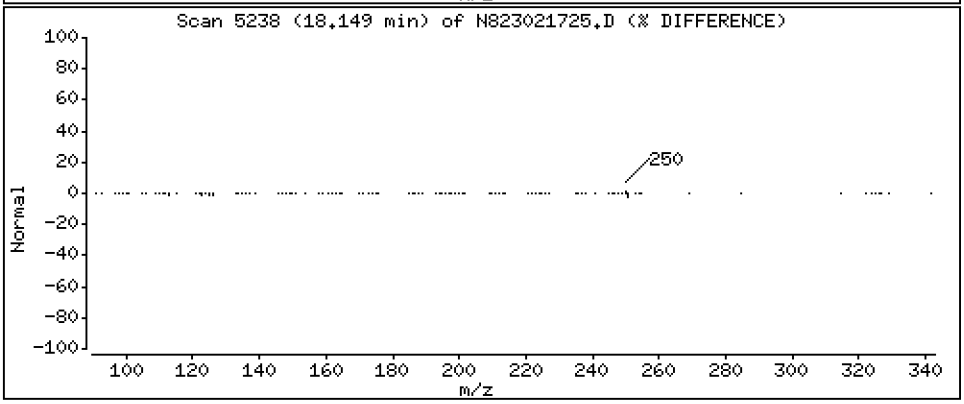












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

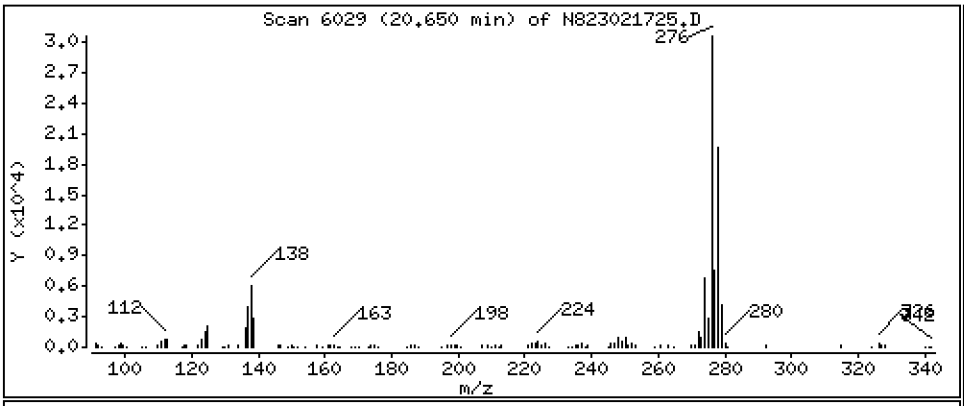
Operator: JZ

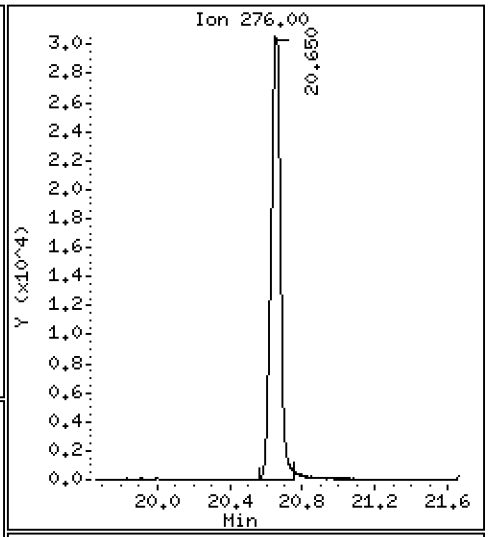
Column phase: Rxi-17sil

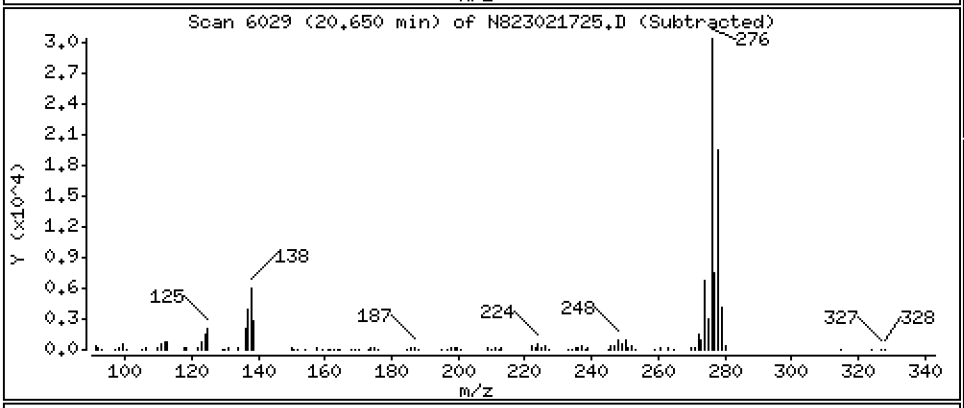
Column diameter: 0.25

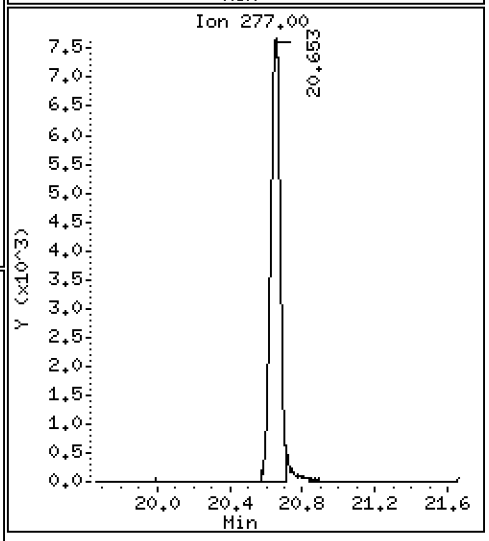
37 Indeno(1,2,3-cd)pyrene

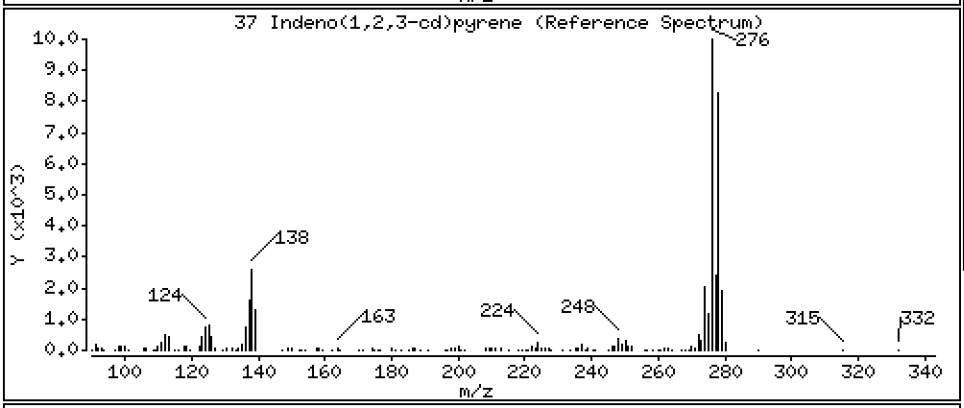
Concentration: 5.699 ug/mL

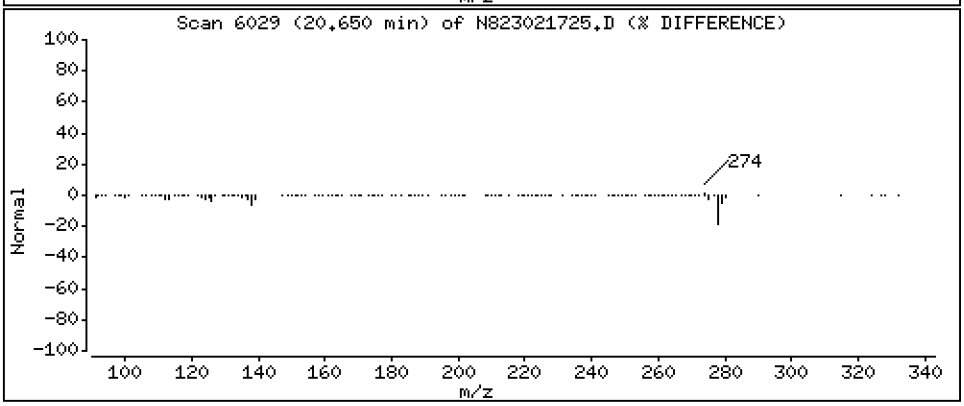












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

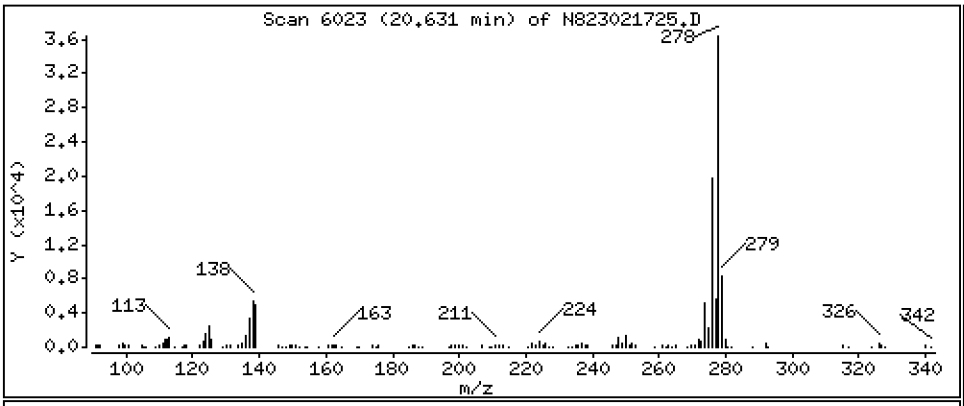
Operator: JZ

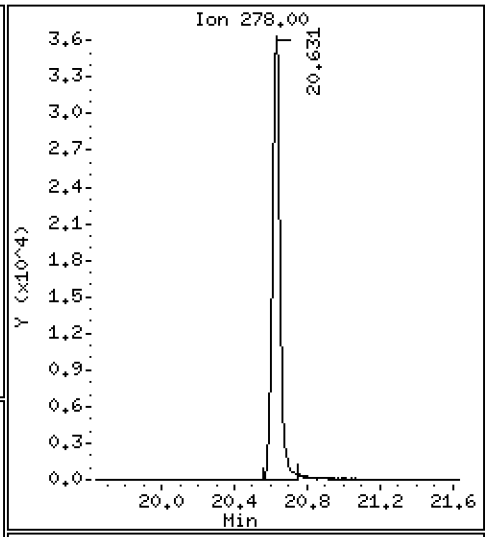
Column phase: Rxi-17sil

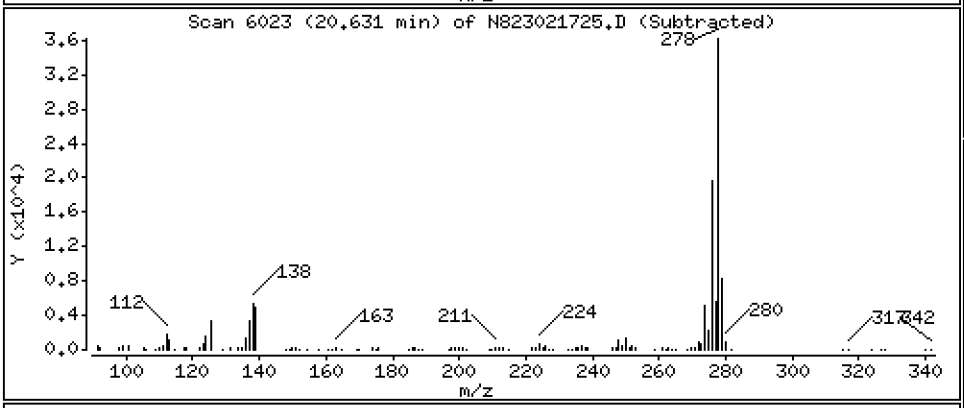
Column diameter: 0.25

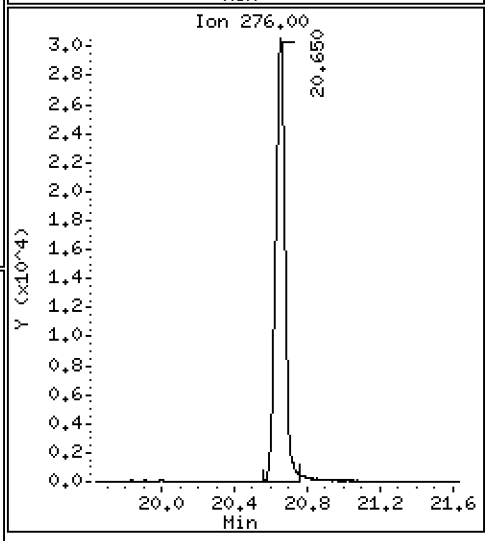
38 Dibenzo(a,h)anthracene

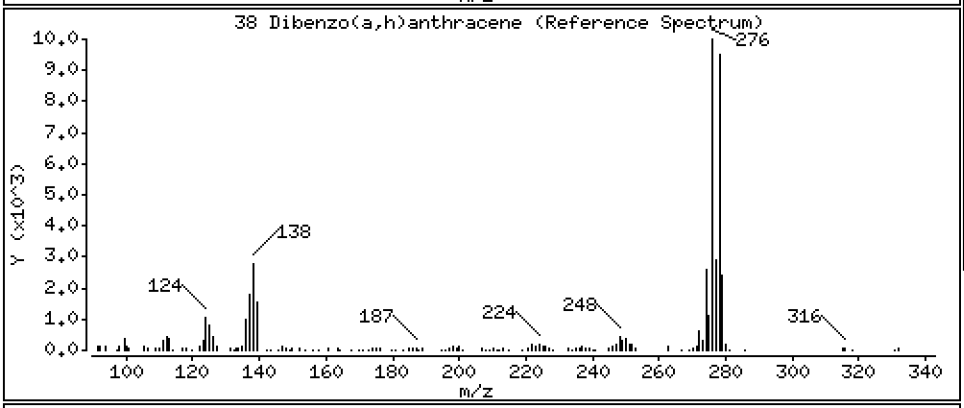
Concentration: 6.298 ug/mL

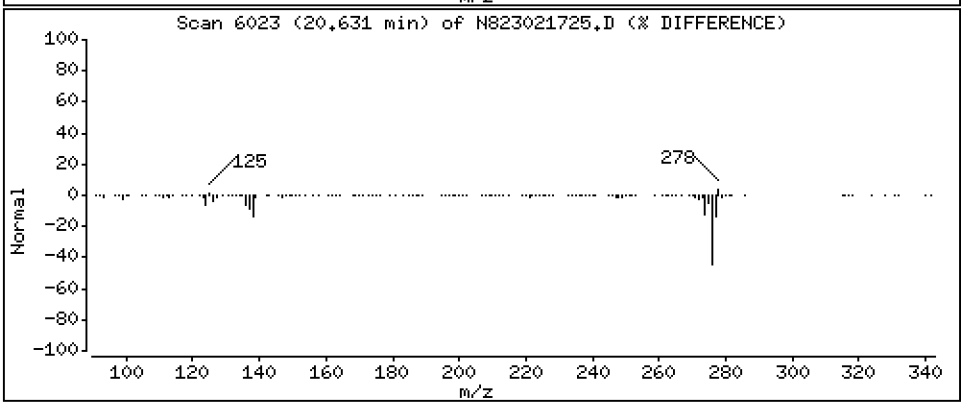












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021725.D

Date : 17-FEB-2023 22:11

Client ID:

Instrument: nt8.i

Sample Info: BLB0144-BSD1,

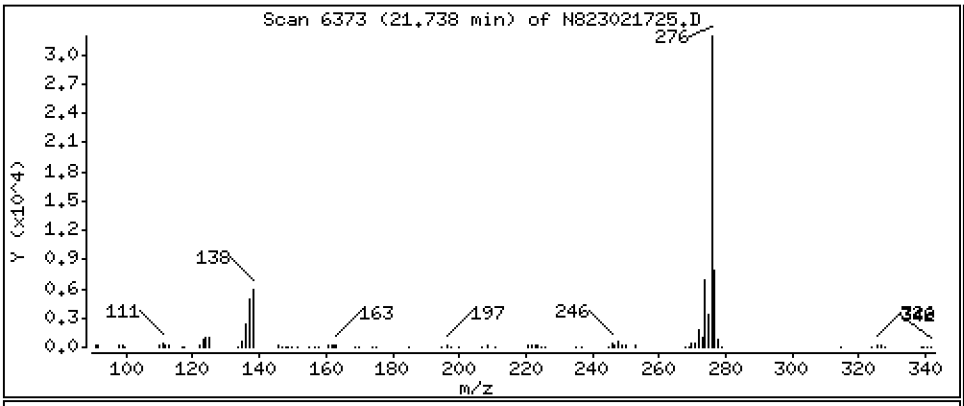
Operator: JZ

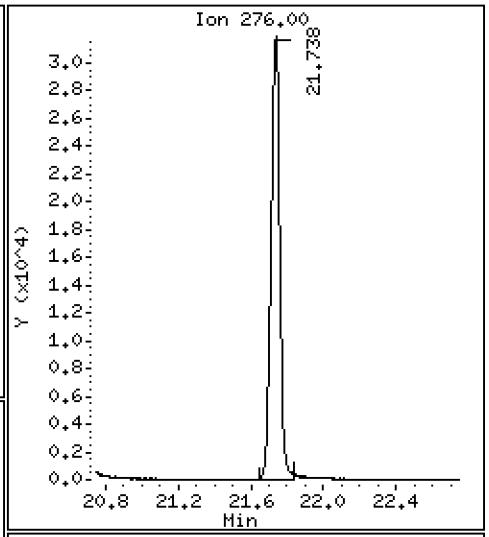
Column phase: Rxi-17sil

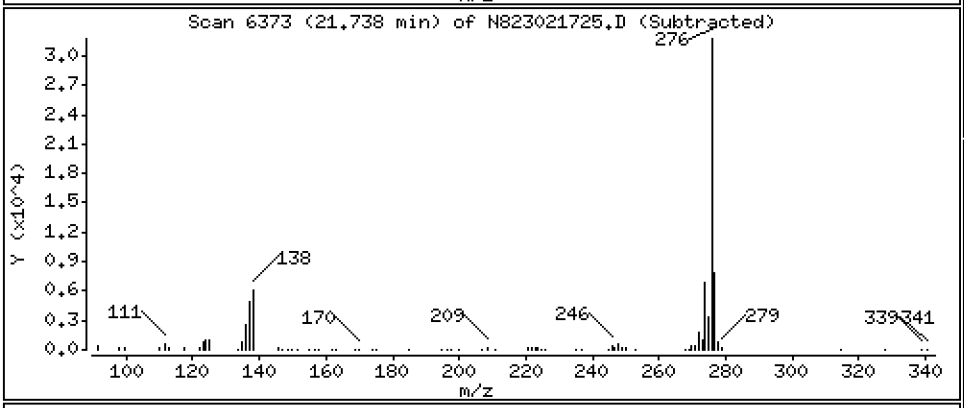
Column diameter: 0.25

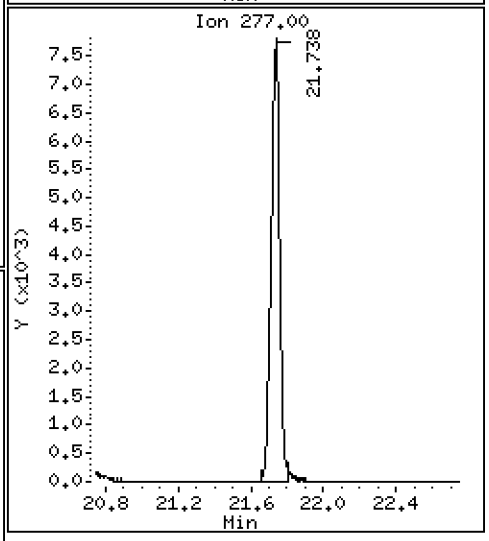
39 Benzo(g,h,i)perylene

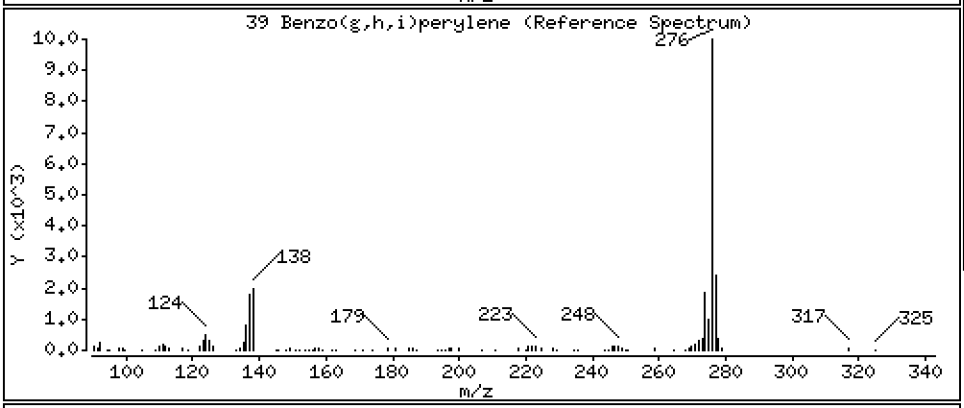
Concentration: 5.994 ug/mL

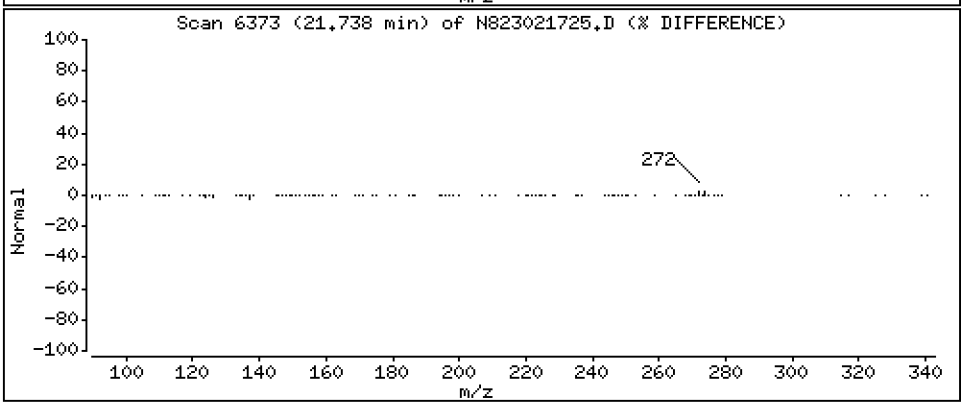












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230217.b\N823021725.D
Lab Smp Id: BLB0144-BSD1
Inj Date : 17-FEB-2023 22:11
Operator : JZ Inst ID: nt8.i
Smp Info : BLB0144-BSD1,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 20:47 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

								CONCENTRATIONS	
		QUANT SIG						ON-COLUMN	FINAL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE		(ug/mL)	(ug/mL)
*	1 Naphthalene-d8	136	4.875	4.884	(1.000)	39213		2.00000	
	2 Naphthalene	128	4.903	4.916	(1.006)	65797		3.60879	3.609
$	3 2-Methylnaphthalene-d10	152	5.608	5.621	(1.150)	25869		2.41894	2.419
	4 2-Methylnaphthalene	141	5.659	5.669	(1.161)	37212		3.71052	3.711
	5 1-methylnaphthalene	141	5.855	5.865	(1.201)	38895		3.82134	3.821
	9 Acenaphthylene	152	7.056	7.066	(0.985)	56436		3.34752	3.348
*	10 Acenaphthene-d10	164	7.167	7.177	(1.000)	22326		2.00000	
	11 Acenaphthene	153	7.218	7.224	(1.007)	42838		3.79231	3.792
	12 Dibenzofuran	168	7.370	7.376	(1.028)	68748		4.00695	4.007
	14 Fluorene	166	7.847	7.857	(1.095)	55328		4.15203	4.152
*	15 Phenanthrene-d10	188	9.207	9.216	(1.000)	44507		2.00000	
	16 Phenanthrene	178	9.245	9.251	(1.004)	90389		4.15759	4.158
	17 Anthracene	178	9.286	9.292	(1.009)	76759		3.88655	3.887
	19 Carbazole	167	9.801	9.811	(1.065)	83436		4.60828	4.608
	22 Fluoranthene	202	11.025	11.031	(1.197)	113947		4.81501	4.815
$	21 Fluoranthene-d10	212	10.987	10.996	(1.193)	67407		3.43277	3.433
	23 Pyrene	202	11.540	11.553	(0.815)	115382		4.45343	4.453
	24 Benzo(a)anthracene	228	14.041	14.054	(0.991)	120723		5.14086	5.141
*	25 Chrysene-d12	240	14.168	14.181	(1.000)	41789		2.00000	
	27 Chrysene	228	14.240	14.253	(1.005)	118739		4.74977	4.750
	28 Benzo(b)fluoranthene	252	16.792	16.802	(0.929)	120545		6.11131	6.111
	29 Benzo(k)fluoranthene	252	16.855	16.862	(0.933)	110928		5.74143	5.741
	30 Benzo(j)fluoranthene	252	16.931	16.941	(0.937)	108607		6.24425	6.244
	31 Total Benzofluoranthenes	252	16.792	16.802	(0.929)	338375		18.1138	18.11(M)
	34 Benzo(e)pyrene	252	17.719	17.728	(0.980)	116971		5.94681	5.947
	32 Benzo(a)pyrene	252	17.848	17.858	(0.988)	80351		4.62910	4.629
*	33 Perylene-d12	264	18.073	18.086	(1.000)	33868		2.00000	
	35 Perylene	252	18.149	18.158	(1.004)	77030		4.13546	4.135
$	36 Dibenzo(a,h)anthracene-d14	292	20.514	20.523	(1.135)	60224		4.53829	4.538
	37 Indeno(1,2,3-cd)pyrene	276	20.650	20.663	(1.143)	112695		5.69895	5.699
	38 Dibenzo(a,h)anthracene	278	20.631	20.637	(1.142)	107172		6.29767	6.298
	39 Benzo(g,h,i)perylene	276	21.738	21.747	(1.203)	107395		5.99424	5.994

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021725.D
Lab Smp Id: BLB0144-BSD1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 17-FEB-2023
Calibration Time: 11:25
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	41552	20776	83104	39213	-5.63
10 Acenaphthene-d10	25012	12506	50024	22326	-10.74
15 Phenanthrene-d10	44752	22376	89504	44507	-0.55
25 Chrysene-d12	34520	17260	69040	41789	21.06
33 Perylene-d12	30529	15265	61058	33868	10.94

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	-0.20
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.21	-0.10
25 Chrysene-d12	14.18	13.68	14.68	14.17	-0.09
33 Perylene-d12	18.09	17.59	18.59	18.07	-0.07

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021725.D

Lab ID: BLB0144-BSD1
nt8.i, 20230217.b\FSIMPNA230119.m,   17-FEB-2023 22:11

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

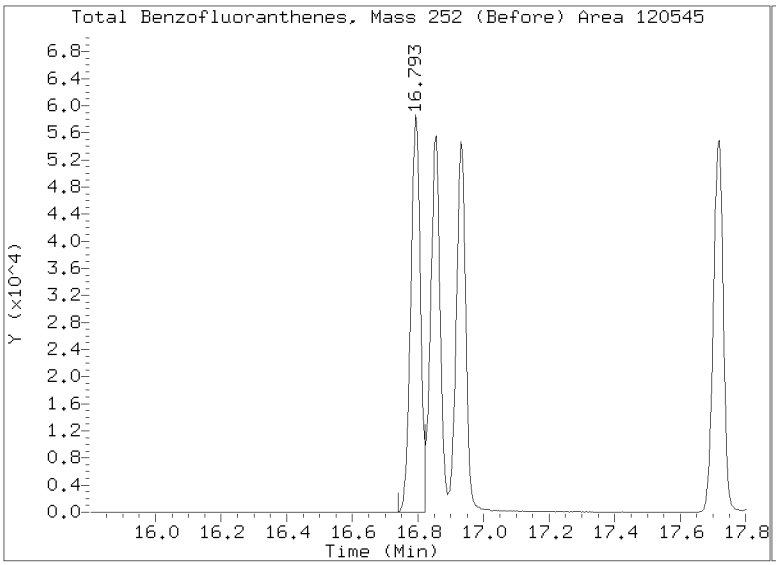
On Column LOD for nt8.i, 20230217.b\FSIMPNA230119.m, PNAXEMDL.sub = 0.0080

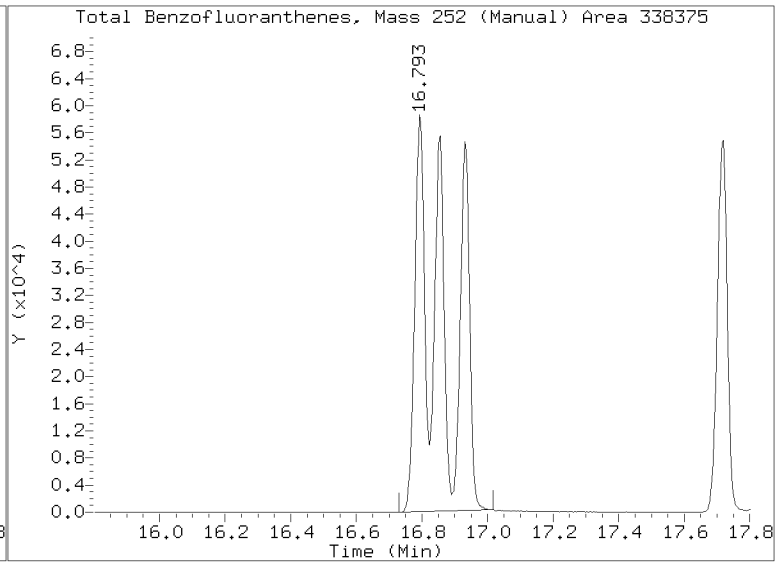
Exception: Benzo(e)pyrene 0.0800

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230217.b/N823021725.D
Injection Date: 17-FEB-2023 22:11
Lab ID:BLB0144-BSD1 Client ID:
Report Date: 02/19/2023 20:48





Analytical Resources, LLC
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270E-SIM

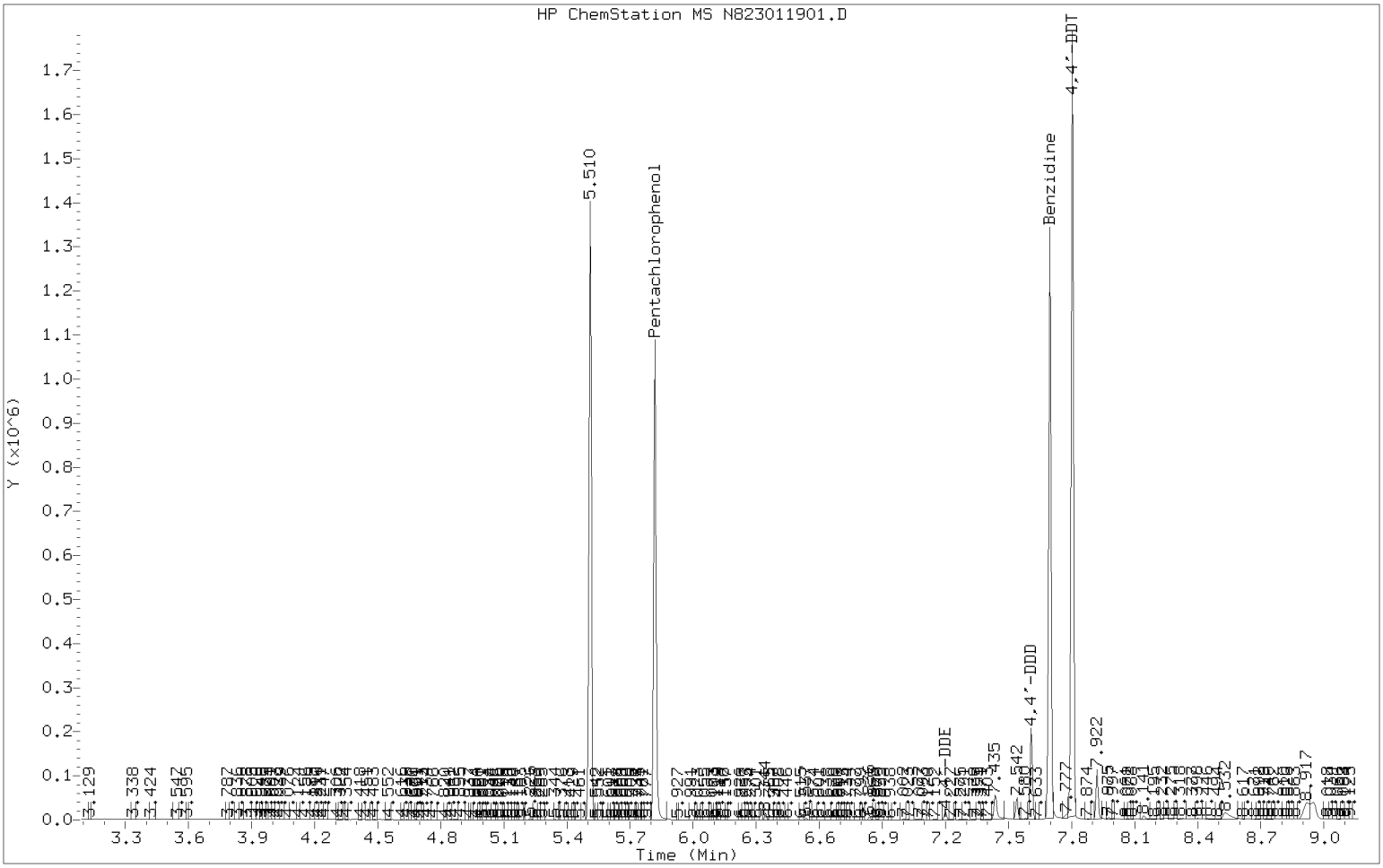
Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Lab File ID:	N823011901.D	Injection Date:	01/19/23
Instrument ID:	NT8	Injection Time:	10:28
Sequence:	SLA0213	Lab Sample ID:	SLA0213-TUN1

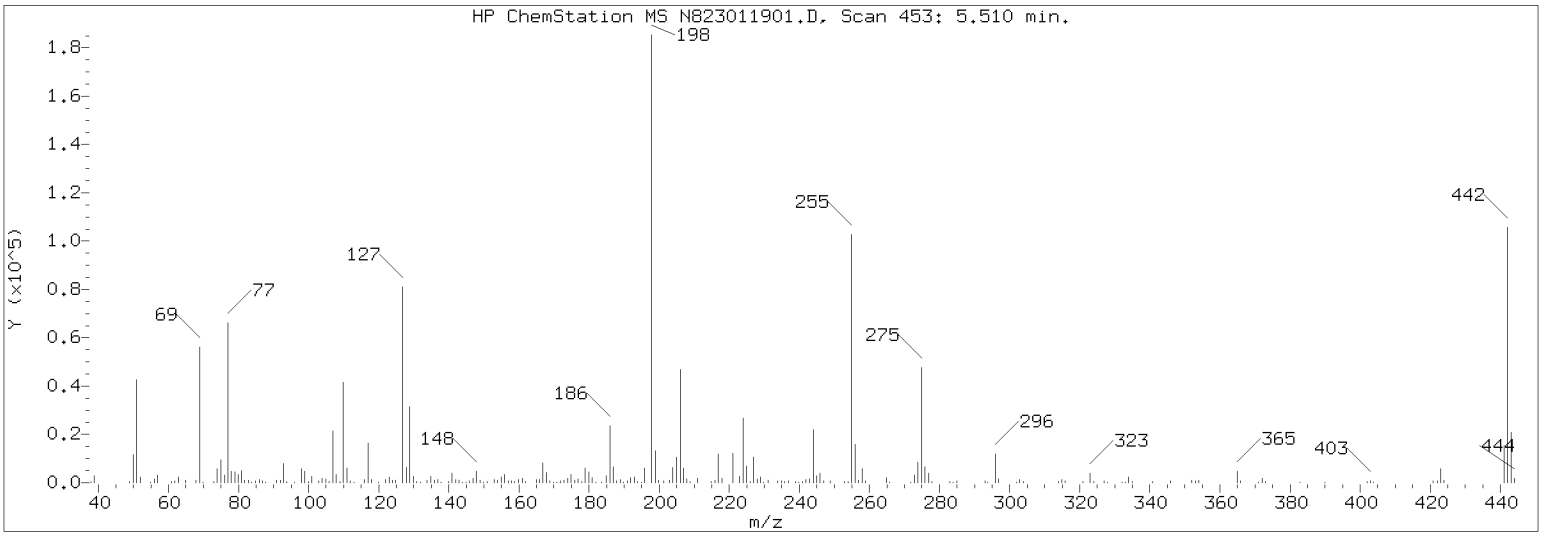
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
68	Less than 2% of 69	1.25	PASS
69	Less than 100% of 198	30.9	PASS
70	Less than 2% of 69	0.208	PASS
197	Less than 2% of 198	0.168	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	6.89	PASS
365	1 - 100% of 198	2.85	PASS
441	Less than 150% of 443	72.9	PASS
442	1 - 200% of 198	67.9	PASS
443	15 - 24% of 442	19.6	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SLA0213-TUN1	N823011901.D	01/19/2023	10:28
Initial Cal Blank	SLA0213-ICB1	N823011902.D	01/19/2023	10:59
Cal Standard	SLA0213-CAL1	N823011903.D	01/19/2023	11:26
Cal Standard	SLA0213-CAL2	N823011904.D	01/19/2023	11:58
Cal Standard	SLA0213-CAL3	N823011905.D	01/19/2023	12:25
Cal Standard	SLA0213-CAL4	N823011906.D	01/19/2023	12:52
Cal Standard	SLA0213-CAL5	N823011907.D	01/19/2023	13:19
Cal Standard	SLA0213-CAL6	N823011908.D	01/19/2023	13:46
Secondary Cal Check	SLA0213-SCV1	N823011909.D	01/19/2023	14:58

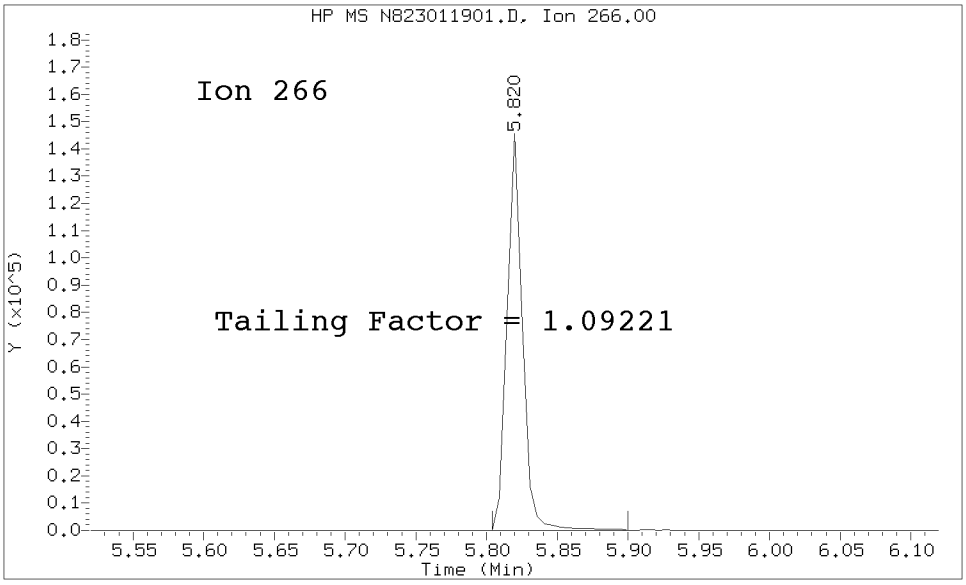
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: SLA0213-TUN1 DFTPP230119
Report Date: 01/19/2023 20:14



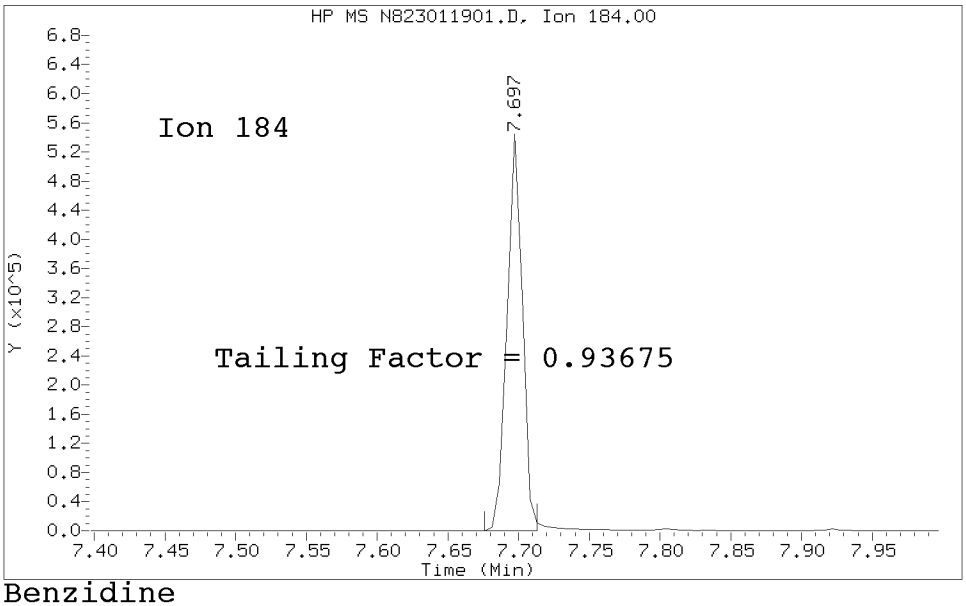


Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m\sw846ddt.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: DFTPP230119
Report Date: 01/19/2023 20:14



Pentachlorophenol
==========
Exp. RT = 5.825
Found RT = 5.820

Tail Factor = 1.092 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.703
Found RT = 7.697

Tail Factor = 0.937 Maximum Allowed = 2.0

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	23.71
68	Less than 2.00% of mass 69	0.39 (1.25)
69	Mass 69 relative abundance	30.92
70	Less than 2.00% of mass 69	0.06 (0.21)
127	10.00 - 80.00% of mass 198	44.20
197	Less than 2.00% of mass 198	0.17
199	5.00 - 9.00% of mass 198	6.89
275	10.00 - 60.00% of mass 198	26.96
365	Greater than 1.00% of mass 198	2.85
441	0.01 - 24.00% of mass 442	9.72 (14.32)
442	50.00 - 200.00% of mass 198	67.89
443	15.00 - 24.00% of mass 442	13.33 (19.64)

Data File: N823011901.D
Spectrum: Avg. Scans 452-454 (5.51), Background Scan 448
Location of Maximum: 198.00
Number of points: 228

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	424	124.00	727	188.00	466	265.00	1738
39.00	2285	125.00	694	189.00	1088	266.00	231
49.00	389	127.00	59064	190.00	92	272.00	97
50.00	8567	128.00	4618	191.00	538	273.00	2435
51.00	31688	129.00	23208	192.00	1501	274.00	6434
52.00	1694	130.00	1967	193.00	1652	275.00	36032
55.00	89	131.00	387	194.00	339	276.00	4936
56.00	1081	132.00	92	195.00	108	277.00	3133
57.00	2353	134.00	695	196.00	4417	278.00	496
61.00	487	135.00	1887	197.00	224	283.00	243
62.00	511	136.00	770	198.00	133632	284.00	200
63.00	1627	137.00	979	199.00	9210	285.00	536
65.00	865	138.00	101	200.00	711	293.00	678
68.00	518	140.00	220	201.00	653	294.00	83
69.00	41320	141.00	2913	203.00	891	296.00	9364
70.00	86	142.00	931	204.00	4715	297.00	1310
73.00	274	143.00	728	205.00	8070	302.00	96
74.00	4327	144.00	83	206.00	34104	303.00	1146
75.00	6885	145.00	91	207.00	4557	304.00	262
76.00	2362	146.00	508	208.00	1177	314.00	364
77.00	48072	147.00	1540	209.00	387	315.00	1068
78.00	3441	148.00	3391	210.00	236	316.00	588
79.00	3296	149.00	690	211.00	1430	321.00	250
80.00	2464	150.00	90	215.00	376	323.00	3145
81.00	3741	151.00	458	216.00	746	324.00	501
82.00	872	152.00	181	217.00	9085	327.00	540
83.00	845	153.00	893	218.00	1189	328.00	201
84.00	287	154.00	764	221.00	8442	332.00	178
85.00	621	155.00	1756	223.00	2039	333.00	129
86.00	1039	156.00	2503	224.00	19544	334.00	1893
87.00	481	157.00	527	225.00	5122	335.00	518
88.00	91	158.00	516	226.00	502	341.00	275
91.00	866	159.00	410	227.00	8274	346.00	674
92.00	878	160.00	955	228.00	1174	352.00	945
93.00	5816	161.00	1421	229.00	1712	353.00	630
94.00	409	162.00	445	230.00	111	354.00	910
96.00	203	165.00	1085	231.00	685	365.00	3802
98.00	4243	166.00	1023	234.00	538	366.00	580
99.00	3501	167.00	5993	235.00	568	371.00	91
100.00	344	168.00	3082	236.00	394	372.00	1475
101.00	1983	169.00	490	237.00	657	373.00	292
103.00	704	170.00	94	239.00	327	383.00	290
104.00	1275	171.00	194	240.00	187	390.00	177
105.00	1230	172.00	595	241.00	468	402.00	468
106.00	379	173.00	732	242.00	1090	403.00	736
107.00	15826	174.00	1319	243.00	1102	404.00	243
108.00	2447	175.00	2491	244.00	16206	421.00	649
109.00	331	176.00	751	245.00	2245	422.00	226
110.00	30008	177.00	1175	246.00	3000	423.00	4860

111.00	4456	178.00	288	247.00	624	424.00	978
112.00	513	179.00	4561	249.00	587	441.00	12991
113.00	89	180.00	3271	253.00	239	442.00	90720
116.00	935	181.00	1513	254.00	438	443.00	17816
117.00	12513	182.00	106	255.00	76904	444.00	1584
118.00	931	184.00	333	256.00	11699		
120.00	104	185.00	2153	257.00	880		
122.00	1003	186.00	17336	258.00	4539		
123.00	1682	187.00	4916	259.00	746		

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GA00050	Instrument:	NT8
Calibration Date:	01/19/2023	Column (1):	RXI-17Sil ms

Calibration Comments: SS, Dibenzo(a,h)anthracene-d14, highest point included. Changed curve fit from "AVG" to "LRO" on 1/25/23 by JZ.

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
Naphthalene	0.1	1.051331	0.5	0.8804155	1	0.9140738	2.5	0.9442377	5	0.9059688	10	0.8834817
2-Methylnaphthalene	0.1	0.5583976	0.5	0.483576	1	0.4966087	2.5	0.5321582	5	0.5081776	10	0.490102
1-Methylnaphthalene	0.1	0.567502	0.5	0.4881925	1	0.5073336	2.5	0.5386185	5	0.5123544	10	0.5007901
Acenaphthylene	0.1	1.569275	0.5	1.288567	1	1.419627	2.5	1.612722	5	1.573862	10	1.597505
Acenaphthene	0.1	1.159165	0.5	0.9399536	1	0.9690137	2.5	1.040021	5	0.9826181	10	0.9807186
Dibenzofuran	0.1	1.856131	0.5	1.449189	1	1.468766	2.5	1.539056	5	1.458398	10	1.450275
Fluorene	0.1	1.333774	0.5	1.066627	1	1.134936	2.5	1.226731	5	1.19285	10	1.207426
Phenanthrene	0.1	1.200199	0.5	0.9068737	1	0.925967	2.5	0.9922048	5	0.9288855	10	0.90761
Anthracene	0.1	0.9900686	0.5	0.7891408	1	0.8362482	2.5	0.9415647	5	0.895227	10	0.8727266
Fluoranthene	0.1	1.200966	0.5	0.9720444	1	1.022937	2.5	1.114343	5	1.05358	10	1.016684
Pyrene	0.1	1.416146	0.5	1.066416	1	1.156217	2.5	1.294823	5	1.256828	10	1.249389
Benzo(a)anthracene	0.1	1.200365	0.5	0.9419141	1	1.006861	2.5	1.18718	5	1.184592	10	1.222407
Chrysene	0.1	1.382333	0.5	1.081643	1	1.128342	2.5	1.227241	5	1.185771	10	1.173282
Benzo(b)fluoranthene	0.1	1.335895	0.5	0.9774708	1	1.022944	2.5	1.220494	5	1.192377	10	1.239686
Benzo(k)fluoranthene	0.1	1.327249	0.5	0.9937275	1	1.005899	2.5	1.178993	5	1.164539	10	1.175213
Benzo(j)fluoranthene	0.1	1.092831	0.5	0.9205253	1	0.9228699	2.5	1.084778	5	1.075203	10	1.066465
Benzofluoranthenes, Total	0.3	1.255354	1.5	0.9344954	3	0.9716584	7.5	1.159079	15	1.142352	30	1.155882
Benzo(a)pyrene	0.1	1.139906	0.5	0.8777692	1	0.8951488	2.5	1.077374	5	1.063086	10	1.096879
Indeno(1,2,3-cd)pyrene	0.1	1.208599	0.5	0.995325	1	1.072555	2.5	1.257473	5	1.228578	10	1.24398
Dibenzo(a,h)anthracene	0.1	1.049117	0.5	0.8348251	1	0.8950591	2.5	1.081382	5	1.068557	10	1.100721
Benzo(g,h,i)perylene	0.1	1.162964	0.5	0.9102826	1	0.9409469	2.5	1.106673	5	1.088733	10	1.138469
2-Methylnaphthalene-d10	0.1	0.5857106	0.5	0.4932528	1	0.5345061	2.5	0.5674481	5	0.5504276	10	0.5413545
Dibenzo[a,h]anthracene-d14	0.1	0.580281	0.5	0.5471844	1	0.6076211	2.5	0.7324975	5	0.7420675	10	0.7980029
Fluoranthene-d10	0.1	0.9007247	0.5	0.754546	1	0.8247891	2.5	0.9550254	5	0.9291815	10	0.930087

INITIAL CALIBRATION DATA

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GA00050	Instrument:	NT8
Calibration Date:	01/19/2023	Column (1):	RXI-17Sil ms

Calibration Comments: SS, Dibenzo(a,h)anthracene-d14, highest point included. Changed curve fit from "AVG" to "LRO" on 1/25/23 by JZ.

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Naphthalene	0.9299181	6.9			RSD (15)	
2-Methylnaphthalene	0.5115033	5.6			RSD (15)	
1-Methylnaphthalene	0.5191318	5.6			RSD (15)	
Acenaphthylene	1.51026	8.5			RSD (15)	
Acenaphthene	1.011915	7.8			RSD (15)	
Dibenzofuran	1.536969	10.4			RSD (15)	
Fluorene	1.193724	7.5			RSD (15)	
Phenanthrene	0.9769567	11.6			RSD (15)	
Anthracene	0.887496	8.1			RSD (15)	
Fluoranthene	1.063426	7.7			RSD (15)	
Pyrene	1.23997	9.6			RSD (15)	
Benzo(a)anthracene	1.123887	10.5			RSD (15)	
Chrysene	1.196435	8.7			RSD (15)	
Benzo(b)fluoranthene	1.164811	11.8			RSD (15)	
Benzo(k)fluoranthene	1.140937	10.9			RSD (15)	
Benzo(j)fluoranthene	1.027112	8.0			RSD (15)	
Benzofluoranthenes, Total	1.103137	11.2			RSD (15)	
Benzo(a)pyrene	1.025027	10.8			RSD (15)	
Indeno(1,2,3-cd)pyrene	1.167752	9.2			RSD (15)	
Dibenzo(a,h)anthracene	1.004944	11.1			RSD (15)	
Benzo(g,h,i)perylene	1.058011	10.0			RSD (15)	
2-Methylnaphthalene-d10	0.5454499	5.8			RSD (15)	
Dibenzo[a,h]anthracene-d14	0.6679424	15.3	0.9971		LCOD (0.99)	
Fluoranthene-d10	0.8823923	8.7			RSD (15)	

Printed: 1/19/2023 8:45:16PM

ANALYSIS SEQUENCE

SLA0213

Instrument: NT8 Element Column ID: J006458
Calibration ID: GA00050

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	Comments
SLA0213-TUN1	MS Tune	QC		1	K004775			
SLA0213-ICB1	Initial Cal Blank	QC		2		K008540		
SLA0213-CAL1	8270 SIM PNA 0.1	QC		3	L000603	K008540		
SLA0213-CAL2	8270 SIM PNA 0.5	QC		4	L000604	K008540		
SLA0213-CAL3	8270 SIM PNA 1.0	QC		5	L000605	K008540		
SLA0213-CAL4	8270 SIM PNA 2.5	QC		6	L000606	K008540		
SLA0213-CAL5	8270 SIM PNA 5	QC		7	L000607	K008540		
SLA0213-CAL6	8270 SIM PNA 10	QC		8	L000608	K008540		
SLA0213-SCV1	8270 SIM PNA SCV	QC		9	L000686	K008540		

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

	Time	Filename	LabID	ClientId	DF										
1	1028	N823011901.D	SLA0213-TUN1		1	|NO ISTDS FOUND||									
2	1059	N823011902.D	SLA0213-ICB1		1	| 4.92	52082	| 7.20	30936	| 9.24	59030	|14.22	50944	|18.12	47418|
3	1126	N823011903.D	SLA0213-CAL1		1	| 4.91	46132	| 7.20	27261	| 9.24	52158	|14.20	44953	|18.11	41635|
4	1158	N823011904.D	SLA0213-CAL2		1	| 4.91	45056	| 7.20	26746	| 9.24	50759	|14.21	44658	|18.11	42567|
5	1225	N823011905.D	SLA0213-CAL3		1	| 4.91	47180	| 7.20	28206	| 9.24	53233	|14.20	46493	|18.11	44587|
6	1252	N823011906.D	SLA0213-CAL4		1	| 4.91	44704	| 7.20	26411	| 9.24	49210	|14.20	42994	|18.11	40520|
7	1319	N823011907.D	SLA0213-CAL5		1	| 4.91	46542	| 7.20	27638	| 9.23	51351	|14.20	44781	|18.11	42187|
8	1346	N823011908.D	SLA0213-CAL6		1	| 4.91	46070	| 7.20	26689	| 9.24	50683	|14.21	43880	|18.11	40659|
9	1458	N823011909.D	SLA0213-SCV1		1	| 4.91	46346	| 7.20	27709	| 9.24	51685	|14.21	46582	|18.12	41743|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

ARI Job No.: SLA0 Method: FSIMPNA230119.m Instrument: nt8.i Date: 19-JAN-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1059	N823011902.D	SLA0213-ICB1		1	NO MANUAL INTEGRATION
1126	N823011903.D	SLA0213-CAL1		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene-d14,
1158	N823011904.D	SLA0213-CAL2		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene, Dibenzo(a,h)anthracene-d14,
1225	N823011905.D	SLA0213-CAL3		1	Total Benzofluoranthenes,
1252	N823011906.D	SLA0213-CAL4		1	Total Benzofluoranthenes,
1319	N823011907.D	SLA0213-CAL5		1	Total Benzofluoranthenes,
1346	N823011908.D	SLA0213-CAL6		1	Total Benzofluoranthenes,
1458	N823011909.D	SLA0213-SCV1		1	Total Benzofluoranthenes,

Security Status Report

Date: 19-Jan-2023 20:43

N823011901.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011902.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011903.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011904.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011905.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011906.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011907.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011908.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011909.D	Data Locked	jianqing, 19-Jan-2023 20:43

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 19-JAN-2023 11:26
End Cal Date : 19-JAN-2023 13:46
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Last Edit : 19-Jan-2023 20:20 jianqing
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem3\nt8.i\20230119.b\N823011903.D
Level 2: \\target\share\chem3\nt8.i\20230119.b\N823011904.D
Level 3: \\target\share\chem3\nt8.i\20230119.b\N823011905.D
Level 4: \\target\share\chem3\nt8.i\20230119.b\N823011906.D
Level 5: \\target\share\chem3\nt8.i\20230119.b\N823011907.D
Level 6: \\target\share\chem3\nt8.i\20230119.b\N823011908.D

	0.10000	0.50000	1.000	2.500	5.000	10.000	___	
Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD
2 Naphthalene	1.05133	0.88042	0.91407	0.94424	0.90597	0.88348	0.92992	6.865
4 2-Methylnaphthalene	0.55840	0.48358	0.49661	0.53216	0.50818	0.49010	0.51150	5.596
5 1-methylnaphthalene	0.56750	0.48819	0.50733	0.53862	0.51235	0.50079	0.51913	5.582
6 2-Chloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
7 Biphenyl	1.53553	1.22381	1.26186	1.35447	1.27381	1.26708	1.31943	8.655
8 2,6-Dimethylnaphthalene	1.00657	0.84902	0.90342	0.98129	0.93327	0.92936	0.93382	5.997
9 Acenaphthylene	1.56927	1.28857	1.41963	1.61272	1.57386	1.59750	1.51026	8.531
11 Acenaphthene	1.15917	0.93995	0.96901	1.04002	0.98262	0.98072	1.01192	7.822
12 Dibenzofuran	1.85613	1.44919	1.46877	1.53906	1.45840	1.45028	1.53697	10.407
13 1,6,7-Trimethylnaphthalene	1.10194	0.88028	0.91555	1.00758	0.95392	0.95592	0.96920	8.030
14 Fluorene	1.33377	1.06663	1.13494	1.22673	1.19285	1.20743	1.19372	7.540
16 Phenanthrene	1.20020	0.90687	0.92597	0.99220	0.92889	0.90761	0.97696	11.644
17 Anthracene	0.99007	0.78914	0.83625	0.94156	0.89523	0.87273	0.88750	8.129
18 Dibenzothiophene	1.00464	0.81097	0.83858	0.91687	0.87432	0.85731	0.88378	7.813
19 Carbazole	0.89689	0.71317	0.75168	0.85950	0.83159	0.82882	0.81361	8.430
20 1-Methylphenanthrene	0.79489	0.62625	0.65095	0.73891	0.70849	0.70462	0.70402	8.607

22 Fluoranthene	1.20097	0.97204	1.02294	1.11434	1.05358	1.01668	1.06343	7.729
23 Pyrene	1.41615	1.06642	1.15622	1.29482	1.25683	1.24939	1.23997	9.648
24 Benzo(a)anthracene	1.20036	0.94191	1.00686	1.18718	1.18459	1.22241	1.12389	10.532
27 Chrysene	1.38233	1.08164	1.12834	1.22724	1.18577	1.17328	1.19644	8.684
28 Benzo(b)fluoranthene	1.33590	0.97747	1.02294	1.22049	1.19238	1.23969	1.16481	11.769
29 Benzo(k)fluoranthene	1.32725	0.99373	1.00590	1.17899	1.16454	1.17521	1.14094	10.933
30 Benzo(j)fluoranthene	1.09283	0.92053	0.92287	1.08478	1.07520	1.06646	1.02711	7.997
31 Total Benzofluoranthenes	1.25535	0.93450	0.97166	1.15908	1.14235	1.15588	1.10314	11.202
32 Benzo(a)pyrene	1.13991	0.87777	0.89515	1.07737	1.06309	1.09688	1.02503	10.785
34 Benzo(e)pyrene	1.38633	1.02276	1.03286	1.18813	1.15641	1.18275	1.16154	11.391
35 Perylene	1.28978	0.96103	0.98751	1.14448	1.10241	1.11455	1.09996	10.771
37 Indeno(1,2,3-cd)pyrene	1.20860	0.99533	1.07255	1.25747	1.22858	1.24398	1.16775	9.225

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 19-JAN-2023 11:26
End Cal Date : 19-JAN-2023 13:46
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Last Edit : 19-Jan-2023 20:20 jianqing
Curve Type : Average

Compound	0.10000 Level 1	0.50000 Level 2	1.000 Level 3	2.500 Level 4	5.000 Level 5	10.000 Level 6	___ RRF	% RSD
38 Dibenzo(a,h)anthracene	1.04912	0.83483	0.89506	1.08138	1.06856	1.10072	1.00494	11.083
39 Benzo(g,h,i)perylene	1.16296	0.91028	0.94095	1.10667	1.08873	1.13847	1.05801	10.032
$ 3 2-Methylnaphthalene-d10	0.58571	0.49325	0.53451	0.56745	0.55043	0.54135	0.54545	5.792
$ 21 Fluoranthene-d10	0.90072	0.75455	0.82479	0.95503	0.92918	0.93009	0.88239	8.740
$ 36 Dibenzo(a,h)anthracene-d14	0.58028	0.54718	0.60762	0.73250	0.74207	+++++	0.64193	13.973

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Batch File: \\target\share\chem3\nt8.i\20230119.b
Inst ID: nt8.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	N823011903	N823011904	N823011905	N823011906	N823011907	N823011908
INJ.DATE:	19-JAN-2023	19-JAN-2023	19-JAN-2023	19-JAN-2023	19-JAN-2023	19-JAN-2023
INJ.TIME:	11:26	11:58	12:25	12:52	13:19	13:46

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 1 Naphthalene-d8	4.907	4.913	4.907	4.907	4.910	4.907	4.907	1.907-7.907	4.908	0.003
2 Naphthalene	4.939	4.942	4.939	4.938	4.938	4.938	4.938	1.938-7.938	4.939	0.001
$ 3 2-Methylnaphthalene-d1	5.644	5.647	5.640	5.640	5.640	5.640	5.640	2.640-8.640	5.642	0.003
4 2-Methylnaphthalene	5.691	5.694	5.688	5.688	5.688	5.688	5.688	2.688-8.688	5.689	0.003
5 1-methylnaphthalene	5.884	5.890	5.887	5.884	5.887	5.887	5.887	2.887-8.887	5.887	0.002
6 2-Chloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	6.377	3.377-9.377	+++++	+++++
7 Biphenyl	6.346	6.352	6.346	6.345	6.346	6.349	6.349	3.349-9.349	6.347	0.003
8 2,6-Dimethylnaphthalen	6.390	6.396	6.390	6.390	6.390	6.393	6.393	3.393-9.393	6.391	0.003
9 Acenaphthylene	7.086	7.092	7.085	7.085	7.085	7.089	7.089	4.089-10.089	7.087	0.003
* 10 Acenaphthene-d10	7.196	7.199	7.196	7.196	7.196	7.196	7.196	4.196-10.196	7.197	0.001
11 Acenaphthene	7.247	7.250	7.247	7.247	7.247	7.247	7.247	4.247-10.247	7.247	0.001
12 Dibenzofuran	7.395	7.402	7.395	7.395	7.395	7.398	7.398	4.398-10.398	7.397	0.003
13 1,6,7-Trimethylnaphtha	7.462	7.465	7.462	7.462	7.462	7.465	7.465	4.465-10.465	7.463	0.002
14 Fluorene	7.876	7.879	7.876	7.873	7.876	7.876	7.876	4.876-10.876	7.876	0.002
* 15 Phenanthrene-d10	9.236	9.239	9.236	9.236	9.232	9.236	9.236	6.236-12.236	9.236	0.002
16 Phenanthrene	9.270	9.273	9.270	9.270	9.270	9.274	9.274	6.274-12.274	9.271	0.002
17 Anthracene	9.312	9.315	9.312	9.311	9.311	9.315	9.315	6.315-12.315	9.313	0.002

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

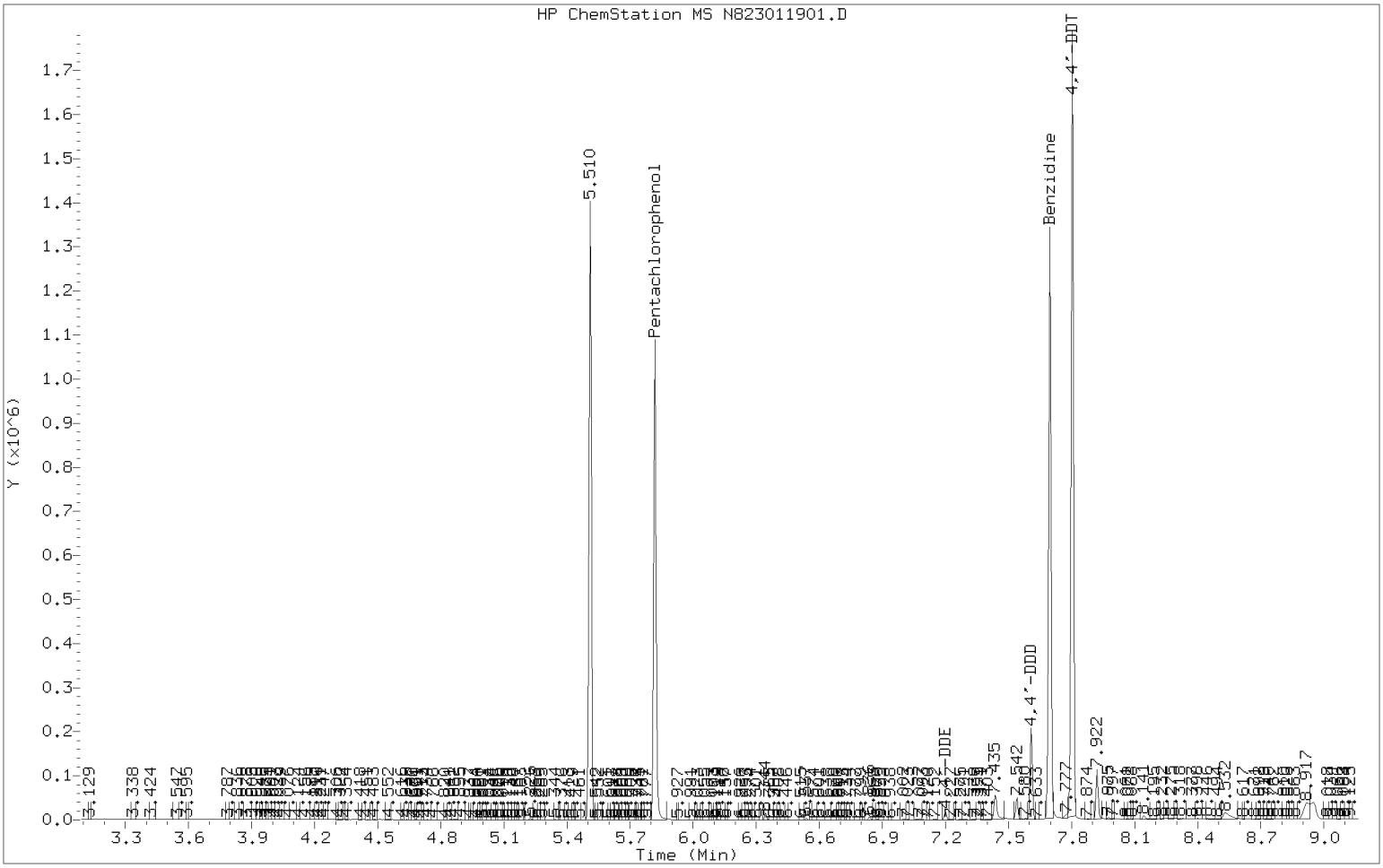
ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

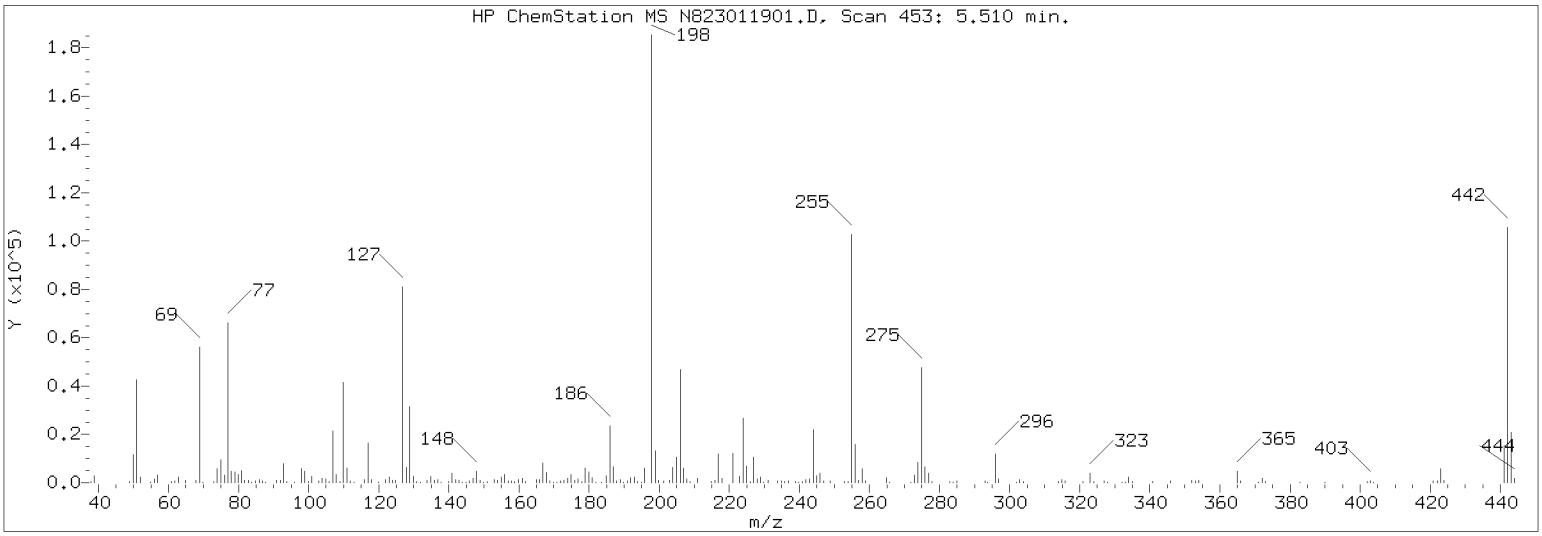
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Batch File: \\target\share\chem3\nt8.i\20230119.b
Inst ID: nt8.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	18 Dibenzothiophene	9.109	9.112	9.109	9.109	9.109	9.112	9.112	6.112-12.112	9.110	0.002
	19 Carbazole	9.824	9.830	9.824	9.824	9.824	9.827	9.827	6.827-12.827	9.825	0.003
	20 1-Methylphenanthrene	10.048	10.051	10.048	10.048	10.048	10.051	10.051	7.051-13.051	10.049	0.002
$	21 Fluoranthene-d10	11.016	11.019	11.016	11.016	11.016	11.019	11.019	8.019-14.019	11.017	0.002
	22 Fluoranthene	11.054	11.057	11.051	11.054	11.054	11.057	11.057	8.057-14.057	11.054	0.002
	23 Pyrene	11.572	11.575	11.572	11.572	11.572	11.575	11.575	8.575-14.575	11.573	0.002
	24 Benzo(a)anthracene	14.073	14.080	14.077	14.077	14.077	14.080	14.080	11.080-17.080	14.077	0.002
*	25 Chrysene-d12	14.203	14.209	14.203	14.203	14.203	14.206	14.206	11.206-17.206	14.205	0.003
	27 Chrysene	14.276	14.279	14.276	14.279	14.279	14.282	14.282	11.282-17.282	14.278	0.002
	28 Benzo(b)fluoranthene	16.821	16.827	16.824	16.821	16.827	16.834	16.834	13.834-19.834	16.826	0.005
	29 Benzo(k)fluoranthene	16.881	16.887	16.881	16.884	16.888	16.897	16.897	13.897-19.897	16.886	0.006
	30 Benzo(j)fluoranthene	16.960	16.963	16.960	16.963	16.967	16.973	16.973	13.973-19.973	16.964	0.005
	31 Total Benzofluoranthen	16.821	16.827	16.824	16.821	16.827	16.834	16.834	13.834-19.834	16.826	0.005
	32 Benzo(a)pyrene	17.874	17.883	17.877	17.877	17.884	17.890	17.890	14.890-20.890	17.881	0.006
*	33 Perylene-d12	18.111	18.114	18.111	18.111	18.111	18.114	18.114	15.114-21.114	18.112	0.002
	34 Benzo(e)pyrene	17.748	17.754	17.751	17.748	17.751	17.760	17.760	14.760-20.760	17.752	0.005
	35 Perylene	18.184	18.187	18.184	18.184	18.187	18.193	18.193	15.193-21.193	18.187	0.004
$	36 Dibenzo(a,h)anthracene	20.546	20.549	20.549	20.552	20.555	20.565	20.565	17.565-23.565	20.553	0.007
	37 Indeno(1,2,3-cd)pyrene	20.666	20.676	20.672	20.676	20.682	20.691	20.691	17.691-23.691	20.677	0.009
	38 Dibenzo(a,h)anthracene	20.666	20.666	20.657	20.663	20.669	20.685	20.685	17.685-23.685	20.668	0.010
	39 Benzo(g,h,i)perylene	21.757	21.760	21.748	21.757	21.763	21.782	21.782	18.782-24.782	21.761	0.012

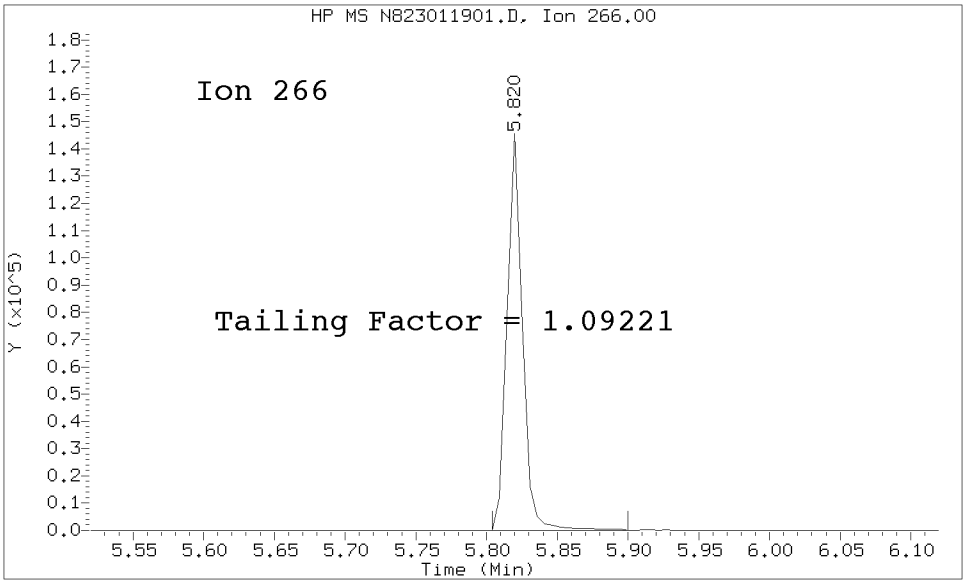
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: SLA0213-TUN1 DFTPP230119
Report Date: 01/19/2023 20:14



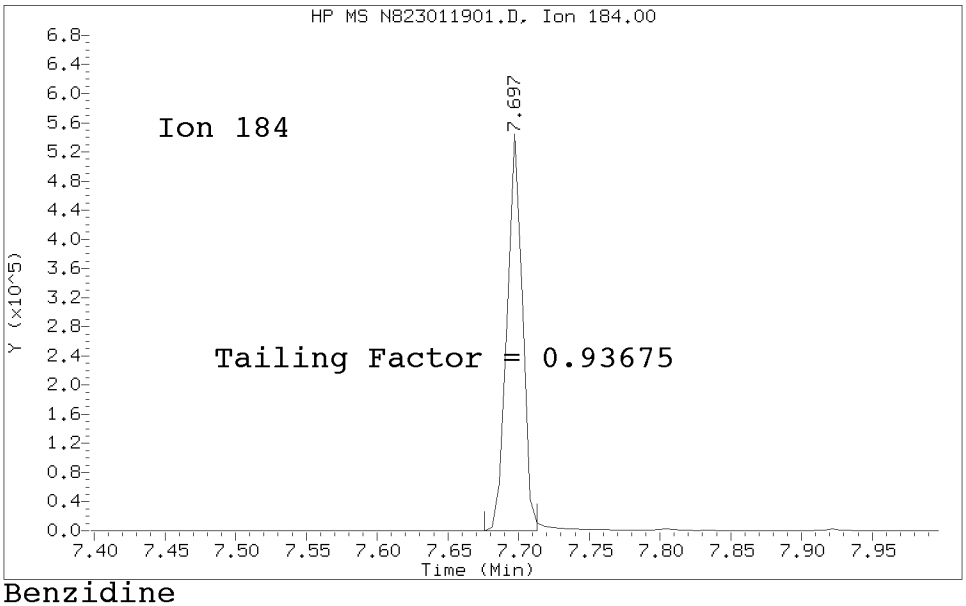


Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m\sw846ddt.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: DFTPP230119
Report Date: 01/19/2023 20:14



Pentachlorophenol
==========
Exp. RT = 5.825
Found RT = 5.820

Tail Factor = 1.092 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.703
Found RT = 7.697

Tail Factor = 0.937 Maximum Allowed = 2.0

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	23.71
68	Less than 2.00% of mass 69	0.39 (1.25)
69	Mass 69 relative abundance	30.92
70	Less than 2.00% of mass 69	0.06 (0.21)
127	10.00 - 80.00% of mass 198	44.20
197	Less than 2.00% of mass 198	0.17
199	5.00 - 9.00% of mass 198	6.89
275	10.00 - 60.00% of mass 198	26.96
365	Greater than 1.00% of mass 198	2.85
441	0.01 - 24.00% of mass 442	9.72 (14.32)
442	50.00 - 200.00% of mass 198	67.89
443	15.00 - 24.00% of mass 442	13.33 (19.64)

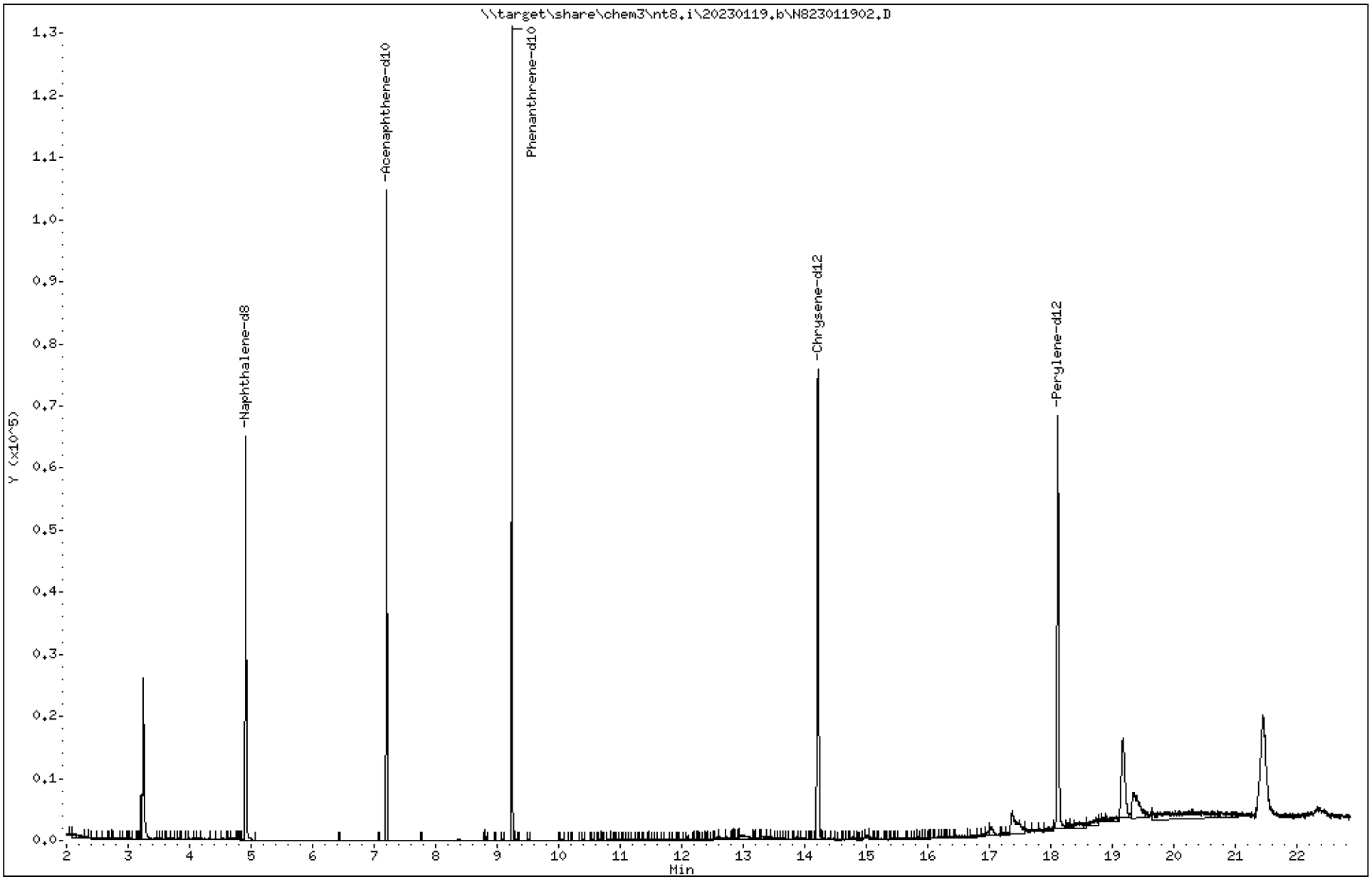
Data File: N823011901.D
Spectrum: Avg. Scans 452-454 (5.51), Background Scan 448
Location of Maximum: 198.00
Number of points: 228

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	424	124.00	727	188.00	466	265.00	1738
39.00	2285	125.00	694	189.00	1088	266.00	231
49.00	389	127.00	59064	190.00	92	272.00	97
50.00	8567	128.00	4618	191.00	538	273.00	2435
51.00	31688	129.00	23208	192.00	1501	274.00	6434
52.00	1694	130.00	1967	193.00	1652	275.00	36032
55.00	89	131.00	387	194.00	339	276.00	4936
56.00	1081	132.00	92	195.00	108	277.00	3133
57.00	2353	134.00	695	196.00	4417	278.00	496
61.00	487	135.00	1887	197.00	224	283.00	243
62.00	511	136.00	770	198.00	133632	284.00	200
63.00	1627	137.00	979	199.00	9210	285.00	536
65.00	865	138.00	101	200.00	711	293.00	678
68.00	518	140.00	220	201.00	653	294.00	83
69.00	41320	141.00	2913	203.00	891	296.00	9364
70.00	86	142.00	931	204.00	4715	297.00	1310
73.00	274	143.00	728	205.00	8070	302.00	96
74.00	4327	144.00	83	206.00	34104	303.00	1146
75.00	6885	145.00	91	207.00	4557	304.00	262
76.00	2362	146.00	508	208.00	1177	314.00	364
77.00	48072	147.00	1540	209.00	387	315.00	1068
78.00	3441	148.00	3391	210.00	236	316.00	588
79.00	3296	149.00	690	211.00	1430	321.00	250
80.00	2464	150.00	90	215.00	376	323.00	3145
81.00	3741	151.00	458	216.00	746	324.00	501
82.00	872	152.00	181	217.00	9085	327.00	540
83.00	845	153.00	893	218.00	1189	328.00	201
84.00	287	154.00	764	221.00	8442	332.00	178
85.00	621	155.00	1756	223.00	2039	333.00	129
86.00	1039	156.00	2503	224.00	19544	334.00	1893
87.00	481	157.00	527	225.00	5122	335.00	518
88.00	91	158.00	516	226.00	502	341.00	275
91.00	866	159.00	410	227.00	8274	346.00	674
92.00	878	160.00	955	228.00	1174	352.00	945
93.00	5816	161.00	1421	229.00	1712	353.00	630
94.00	409	162.00	445	230.00	111	354.00	910
96.00	203	165.00	1085	231.00	685	365.00	3802
98.00	4243	166.00	1023	234.00	538	366.00	580
99.00	3501	167.00	5993	235.00	568	371.00	91
100.00	344	168.00	3082	236.00	394	372.00	1475
101.00	1983	169.00	490	237.00	657	373.00	292
103.00	704	170.00	94	239.00	327	383.00	290
104.00	1275	171.00	194	240.00	187	390.00	177
105.00	1230	172.00	595	241.00	468	402.00	468
106.00	379	173.00	732	242.00	1090	403.00	736
107.00	15826	174.00	1319	243.00	1102	404.00	243
108.00	2447	175.00	2491	244.00	16206	421.00	649
109.00	331	176.00	751	245.00	2245	422.00	226
110.00	30008	177.00	1175	246.00	3000	423.00	4860

111.00	4456	178.00	288	247.00	624	424.00	978
112.00	513	179.00	4561	249.00	587	441.00	12991
113.00	89	180.00	3271	253.00	239	442.00	90720
116.00	935	181.00	1513	254.00	438	443.00	17816
117.00	12513	182.00	106	255.00	76904	444.00	1584
118.00	931	184.00	333	256.00	11699		
120.00	104	185.00	2153	257.00	880		
122.00	1003	186.00	17336	258.00	4539		
123.00	1682	187.00	4916	259.00	746		

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011902.D
Date : 19-JAN-2023 10:59
Client ID:
Sample Info: ICB230119

Instrument: nt8.i
Operator: JZ
Column phase: Rxi-17sil
Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 295 of 1233

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011902.D
Lab Smp Id: SLA0213-ICB1
Inj Date : 19-JAN-2023 10:59
Operator : JZ Inst ID: nt8.i
Smp Info : ICB230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:20 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.916	4.906	(1.000)	52082	2.00000	
	2 Naphthalene	128	Compound Not Detected.					
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	Compound Not Detected.					
	5 1-methylnaphthalene	141	Compound Not Detected.					
	7 Biphenyl	154	Compound Not Detected.					
	8 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	9 Acenaphthylene	152	Compound Not Detected.					
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	30936	2.00000	
	11 Acenaphthene	153	Compound Not Detected.					
	12 Dibenzofuran	168	Compound Not Detected.					
	13 1,6,7-Trimethylnaphthalene	170	Compound Not Detected.					
	14 Fluorene	166	Compound Not Detected.					
	18 Dibenzothiophene	184	Compound Not Detected.					
*	15 Phenanthrene-d10	188	9.241	9.235	(1.000)	59030	2.00000	
	16 Phenanthrene	178	Compound Not Detected.					
	17 Anthracene	178	Compound Not Detected.					
	19 Carbazole	167	Compound Not Detected.					
	20 1-Methylphenanthrene	192	Compound Not Detected.					
	22 Fluoranthene	202	Compound Not Detected.					
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	Compound Not Detected.					
	24 Benzo(a)anthracene	228	Compound Not Detected.					
*	25 Chrysene-d12	240	14.215	14.202	(1.000)	50944	2.00000	
	27 Chrysene	228	Compound Not Detected.					
	28 Benzo(b)fluoranthene	252	Compound Not Detected.					
	29 Benzo(k)fluoranthene	252	Compound Not Detected.					
	30 Benzo(j)fluoranthene	252	Compound Not Detected.					
	31 Total Benzofluoranthenes	252	Compound Not Detected.					
	34 Benzo(e)pyrene	252	Compound Not Detected.					
	32 Benzo(a)pyrene	252	Compound Not Detected.					
*	33 Perylene-d12	264	18.120	18.111	(1.000)	47418	2.00000	
	35 Perylene	252	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$ 36	Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
37	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
38	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
39	Benzo(g,h,i)perylene	276	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011902.D
Lab Smp Id: SLA0213-ICB1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	52082	16.50
10 Acenaphthene-d10	26411	13206	52822	30936	17.13
15 Phenanthrene-d10	49210	24605	98420	59030	19.96
25 Chrysene-d12	42994	21497	85988	50944	18.49
33 Perylene-d12	40520	20260	81040	47418	17.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.92	0.19
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.07
25 Chrysene-d12	14.20	13.70	14.70	14.22	0.09
33 Perylene-d12	18.11	17.61	18.61	18.12	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011902.D

Lab ID: SLA0213-ICB1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 10:59

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

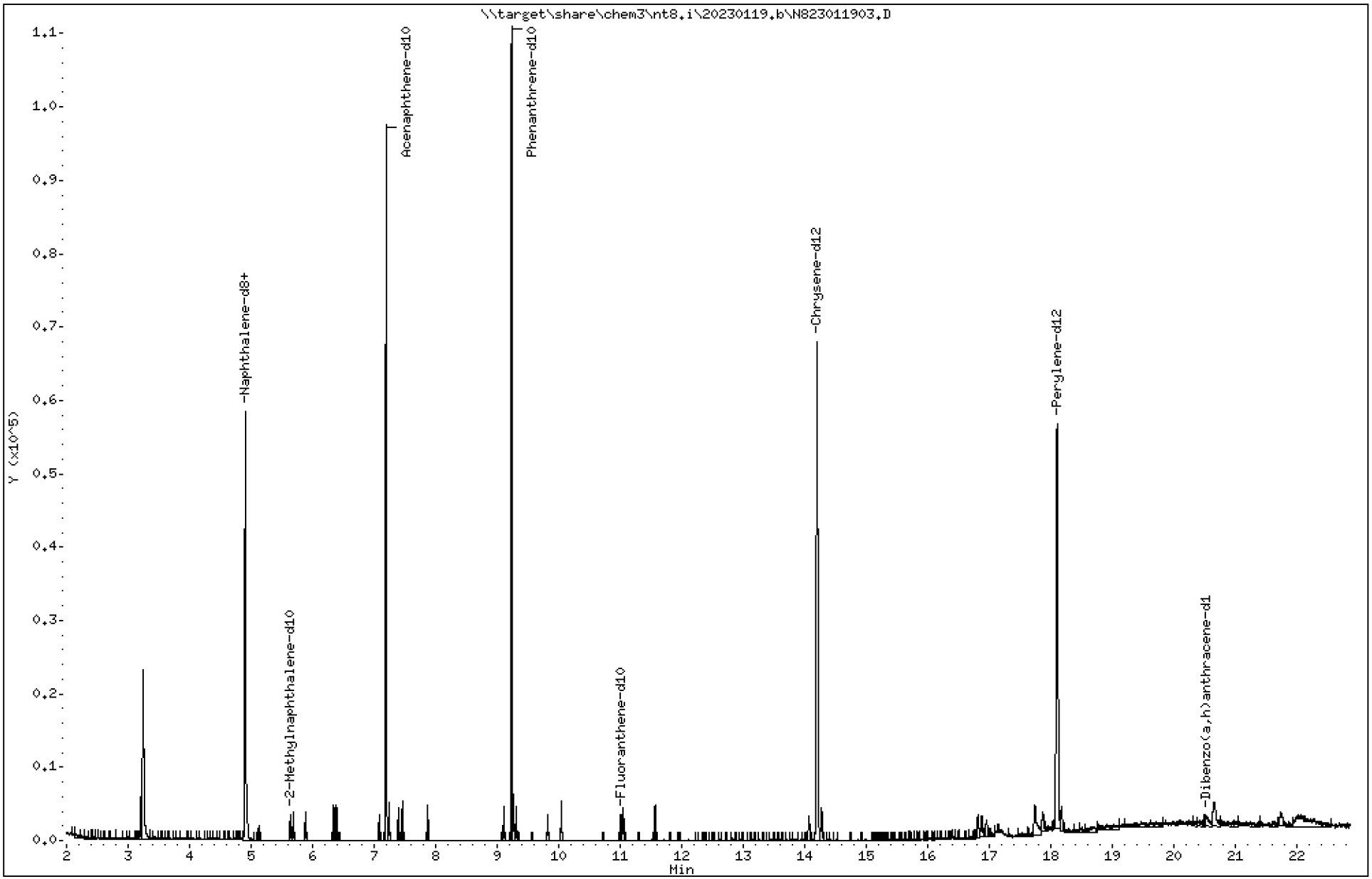
No RRT check performed

On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011903.D
Date : 19-JAN-2023 11:26
Client ID:
Sample Info: IC01230119,

Instrument: nt8.i
Operator: JZ
Column phase: Rxi-17sil
Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 300 of 1233

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011903.D
Lab Smp Id: SLA0213-CAL1
Inj Date : 19-JAN-2023 11:26
Operator : JZ Inst ID: nt8.i
Smp Info : IC01230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 3 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	46132	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	2425	0.10000	0.1131
$	3 2-Methylnaphthalene-d10	152	5.643	5.640	(1.150)	1351	0.10000	0.1074
	4 2-Methylnaphthalene	141	5.691	5.687	(1.160)	1288	0.10000	0.1092
	5 1-methylnaphthalene	141	5.883	5.887	(1.199)	1309	0.10000	0.1093
	7 Biphenyl	154	6.345	6.348	(0.882)	2093	0.10000	0.1164
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	1372	0.10000	0.1078
	9 Acenaphthylene	152	7.085	7.088	(0.985)	2139	0.10000	0.1039
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	27261	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	1580	0.10000	0.1146
	12 Dibenzofuran	168	7.395	7.398	(1.028)	2530	0.10000	0.1208
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	1502	0.10000	0.1137
	14 Fluorene	166	7.876	7.875	(1.094)	1818	0.10000	0.1117
	18 Dibenzothiophene	184	9.109	9.112	(0.986)	2620	0.10000	0.1137
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	52158	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	3130	0.10000	0.1229
	17 Anthracene	178	9.311	9.314	(1.008)	2582	0.10000	0.1116
	19 Carbazole	167	9.823	9.826	(1.064)	2339	0.10000	0.1102
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	2073	0.10000	0.1129
	22 Fluoranthene	202	11.053	11.056	(1.197)	3132	0.10000	0.1129
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	2349	0.10000	0.1021
	23 Pyrene	202	11.572	11.575	(0.815)	3183	0.10000	0.1142
	24 Benzo(a)anthracene	228	14.073	14.079	(0.991)	2698	0.10000	0.1068
*	25 Chrysene-d12	240	14.203	14.206	(1.000)	44953	2.00000	
	27 Chrysene	228	14.275	14.282	(1.005)	3107	0.10000	0.1155
	28 Benzo(b)fluoranthene	252	16.821	16.833	(0.929)	2781	0.10000	0.1147
	29 Benzo(k)fluoranthene	252	16.881	16.897	(0.932)	2763	0.10000	0.1163
	30 Benzo(j)fluoranthene	252	16.960	16.972	(0.936)	2275	0.10000	0.1064
	31 Total Benzofluoranthenes	252	16.821	16.833	(0.929)	7840	0.30000	0.3414(M)
	34 Benzo(e)pyrene	252	17.747	17.760	(0.980)	2886	0.10000	0.1194
	32 Benzo(a)pyrene	252	17.874	17.889	(0.987)	2373	0.10000	0.1112
*	33 Perylene-d12	264	18.111	18.114	(1.000)	41635	2.00000	
	35 Perylene	252	18.184	18.193	(1.004)	2685	0.10000	0.1173

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.546	20.565	(1.134)	1208	0.10000	0.09040(M)
37 Indeno(1,2,3-cd)pyrene	276	20.666	20.691	(1.141)	2516	0.10000	0.1035
38 Dibenzo(a,h)anthracene	278	20.666	20.685	(1.141)	2184	0.10000	0.1044
39 Benzo(g,h,i)perylene	276	21.757	21.782	(1.201)	2421	0.10000	0.1099

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011903.D
Lab Smp Id: SLA0213-CAL1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46132	3.19
10 Acenaphthene-d10	26411	13206	52822	27261	3.22
15 Phenanthrene-d10	49210	24605	98420	52158	5.99
25 Chrysene-d12	42994	21497	85988	44953	4.56
33 Perylene-d12	40520	20260	81040	41635	2.75

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011903.D

Lab ID: SLA0213-CAL1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 11:26

RT	CO-ELUTION COMPOUNDS
20.666	Indeno(1,2,3-cd)pyrene and Dibenzo(a,h)anthracene
20.666	Dibenzo(a,h)anthracene and Indeno(1,2,3-cd)pyrene

Quant Method: ICAL

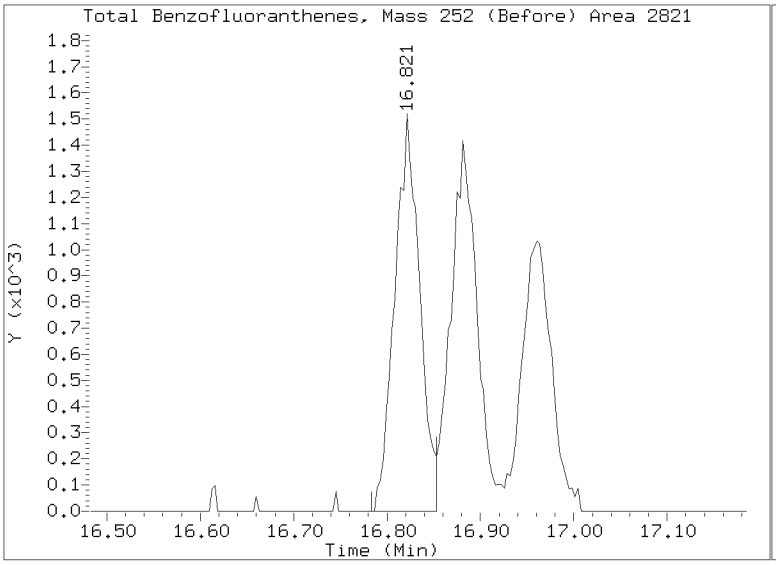
No RRT check performed

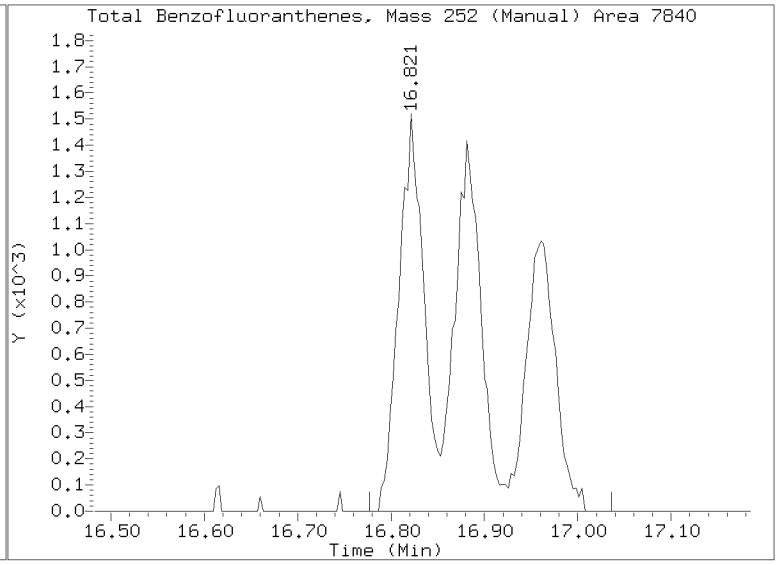
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

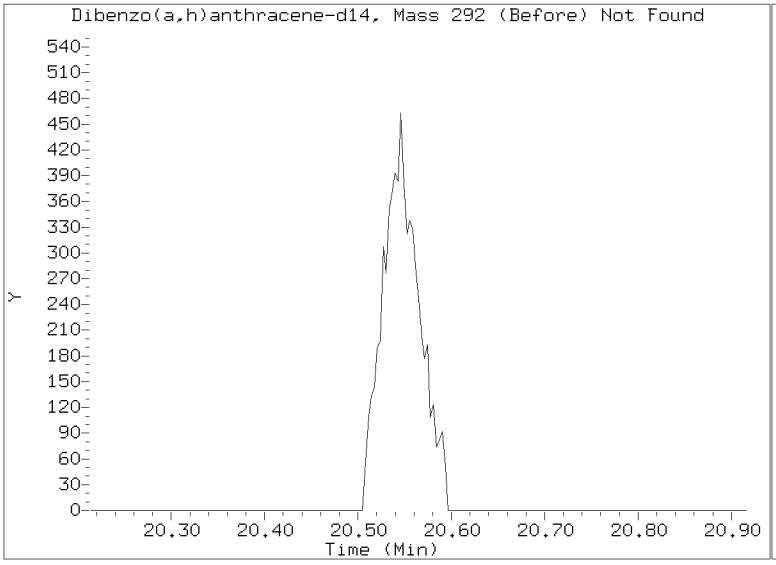
* Only compounds listed in the work order have been verified by the analyst *

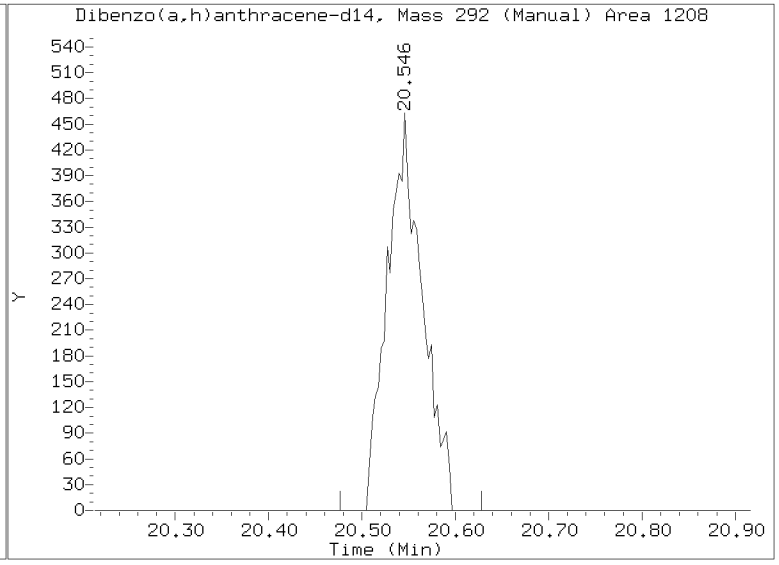
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011903.D
Injection Date: 19-JAN-2023 11:26
Lab ID:SLA0213-CAL1 Client ID:
Report Date: 01/19/2023 20:12









Data File: \\target\share\chem3\nt8.i\20230119.b\N823011904.D

Date : 19-JAN-2023 11:58

Client ID:

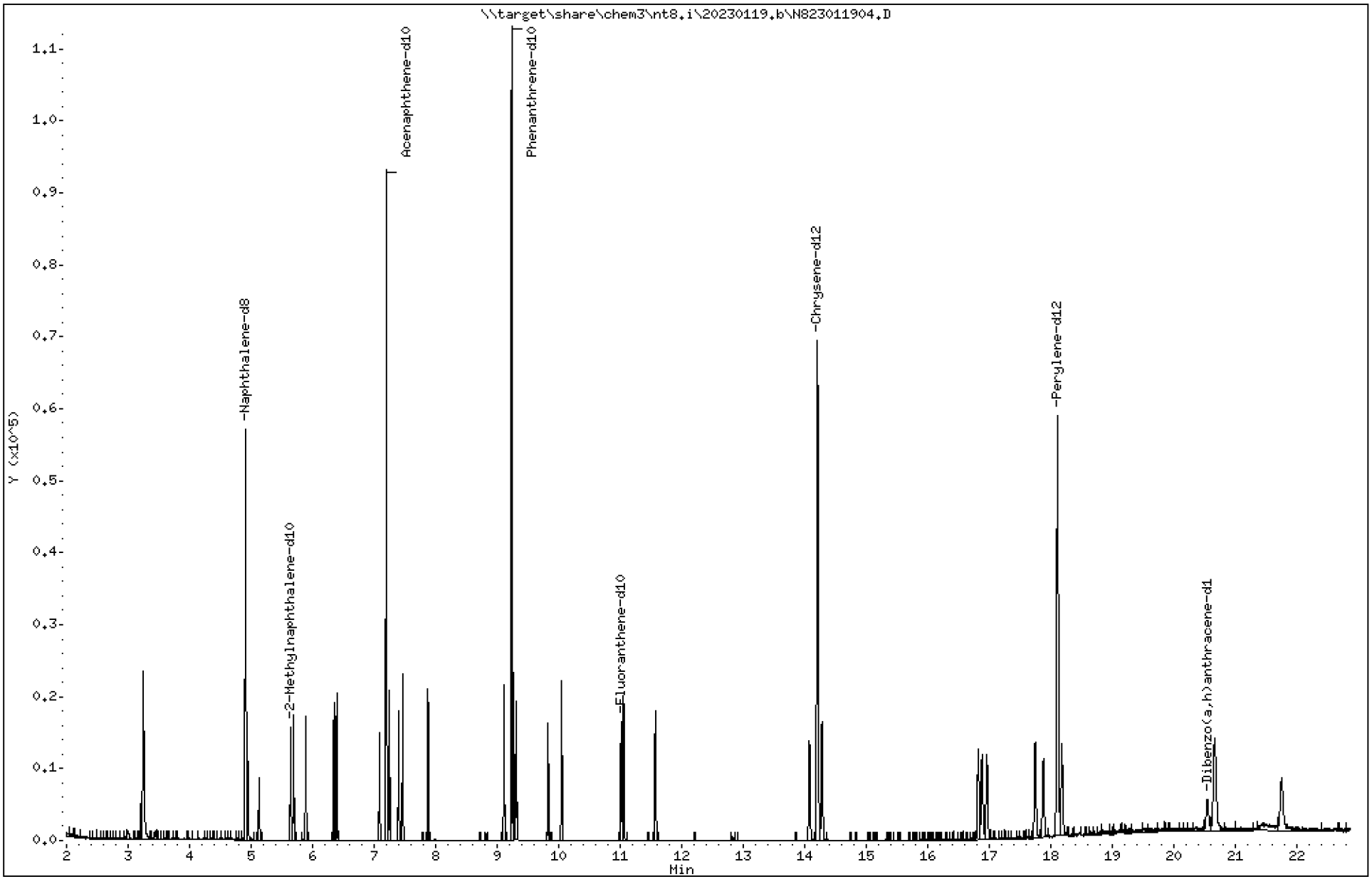
Instrument: nt8.i

Sample Info: IC05230119,

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 306 of 1233

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011904.D
Lab Smp Id: SLA0213-CAL2
Inj Date : 19-JAN-2023 11:58
Operator : JZ Inst ID: nt8.i
Smp Info : IC05230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	45056	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	9917	0.50000	0.4734
$	3 2-Methylnaphthalene-d10	152	5.646	5.640	(1.149)	5556	0.50000	0.4522
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	5447	0.50000	0.4727
	5 1-methylnaphthalene	141	5.890	5.887	(1.199)	5499	0.50000	0.4702
	7 Biphenyl	154	6.351	6.348	(0.882)	8183	0.50000	0.4638
	8 2,6-Dimethylnaphthalene	156	6.396	6.392	(0.888)	5677	0.50000	0.4546
	9 Acenaphthylene	152	7.091	7.088	(0.985)	8616	0.50000	0.4266
*	10 Acenaphthene-d10	164	7.199	7.196	(1.000)	26746	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	6285	0.50000	0.4644
	12 Dibenzofuran	168	7.401	7.398	(1.028)	9690	0.50000	0.4714
	13 1,6,7-Trimethylnaphthalene	170	7.464	7.464	(1.037)	5886	0.50000	0.4541
	14 Fluorene	166	7.879	7.875	(1.094)	7132	0.50000	0.4468
	18 Dibenzothiophene	184	9.112	9.112	(0.986)	10291	0.50000	0.4588
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	50759	2.00000	
	16 Phenanthrene	178	9.273	9.273	(1.004)	11508	0.50000	0.4641
	17 Anthracene	178	9.314	9.314	(1.008)	10014	0.50000	0.4446
	19 Carbazole	167	9.829	9.826	(1.064)	9050	0.50000	0.4383
	20 1-Methylphenanthrene	192	10.051	10.051	(1.088)	7947	0.50000	0.4448
	22 Fluoranthene	202	11.056	11.056	(1.197)	12335	0.50000	0.4570
$	21 Fluoranthene-d10	212	11.018	11.018	(1.193)	9575	0.50000	0.4276
	23 Pyrene	202	11.575	11.575	(0.815)	11906	0.50000	0.4300
	24 Benzo(a)anthracene	228	14.079	14.079	(0.991)	10516	0.50000	0.4190
*	25 Chrysene-d12	240	14.209	14.206	(1.000)	44658	2.00000	
	27 Chrysene	228	14.278	14.282	(1.005)	12076	0.50000	0.4520
	28 Benzo(b)fluoranthene	252	16.827	16.833	(0.929)	10402	0.50000	0.4196
	29 Benzo(k)fluoranthene	252	16.887	16.897	(0.932)	10575	0.50000	0.4355
	30 Benzo(j)fluoranthene	252	16.963	16.972	(0.936)	9796	0.50000	0.4481
	31 Total Benzofluoranthenes	252	16.827	16.833	(0.929)	29834	1.50000	1.271(M)
	34 Benzo(e)pyrene	252	17.753	17.760	(0.980)	10884	0.50000	0.4403
	32 Benzo(a)pyrene	252	17.883	17.889	(0.987)	9341	0.50000	0.4282
*	33 Perylene-d12	264	18.114	18.114	(1.000)	42567	2.00000	
	35 Perylene	252	18.187	18.193	(1.004)	10227	0.50000	0.4368

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.549	20.565	(1.134)	5823	0.50000	0.4262(M)
37 Indeno(1,2,3-cd)pyrene	276	20.675	20.691	(1.141)	10592	0.50000	0.4262
38 Dibenzo(a,h)anthracene	278	20.666	20.685	(1.141)	8884	0.50000	0.4154(M)
39 Benzo(g,h,i)perylene	276	21.760	21.782	(1.201)	9687	0.50000	0.4302

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011904.D
Lab Smp Id: SLA0213-CAL2
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	45056	0.79
10 Acenaphthene-d10	26411	13206	52822	26746	1.27
15 Phenanthrene-d10	49210	24605	98420	50759	3.15
25 Chrysene-d12	42994	21497	85988	44658	3.87
33 Perylene-d12	40520	20260	81040	42567	5.05

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.04
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.04
33 Perylene-d12	18.11	17.61	18.61	18.11	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011904.D

Lab ID: SLA0213-CAL2
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 11:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

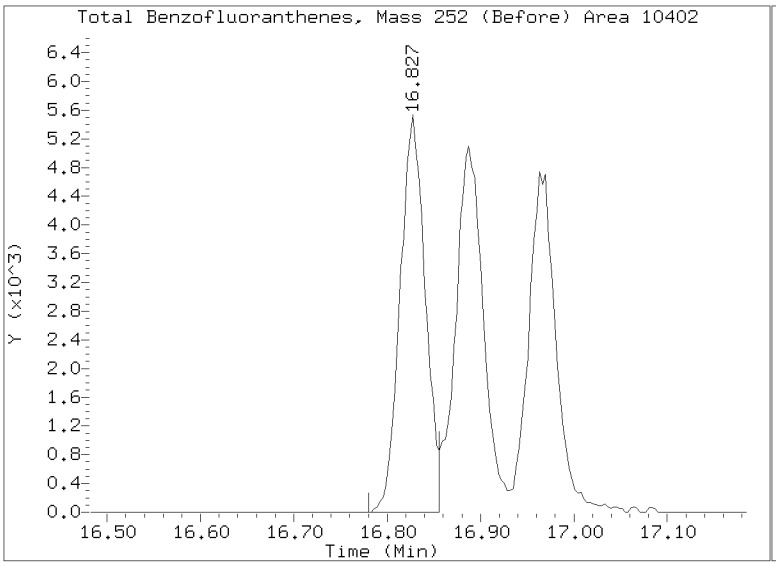
No RRT check performed

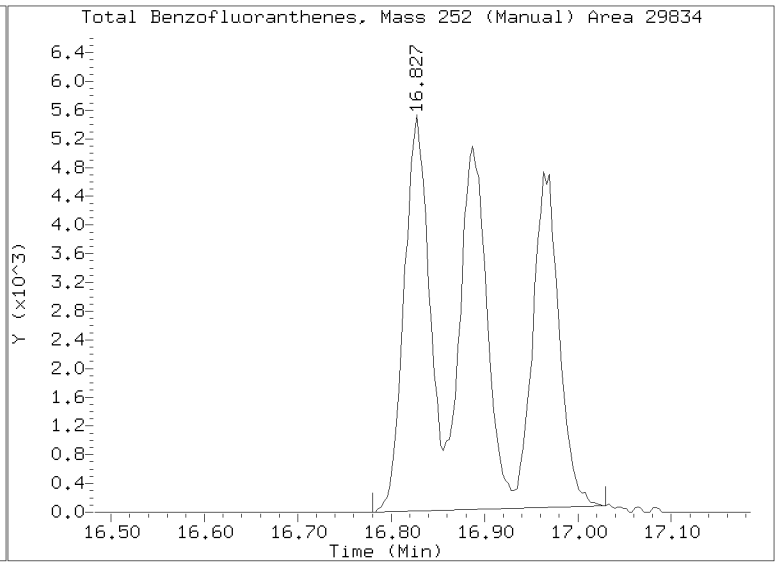
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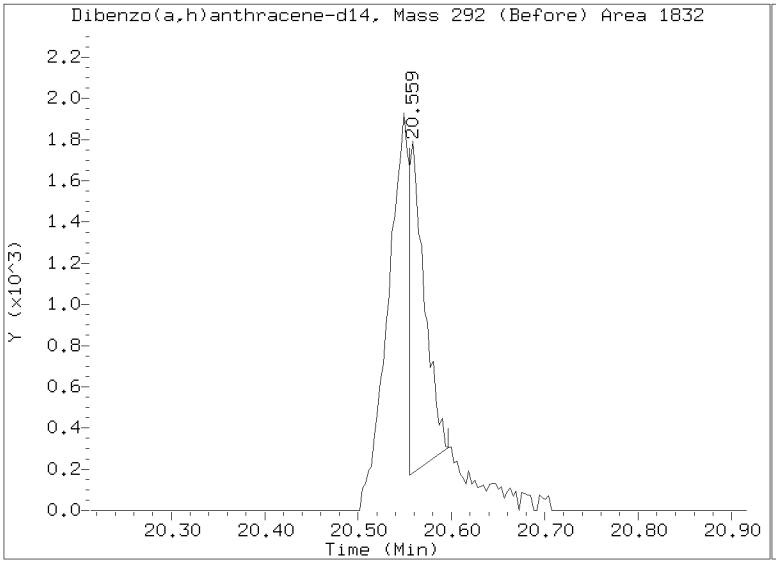
* Only compounds listed in the work order have been verified by the analyst *

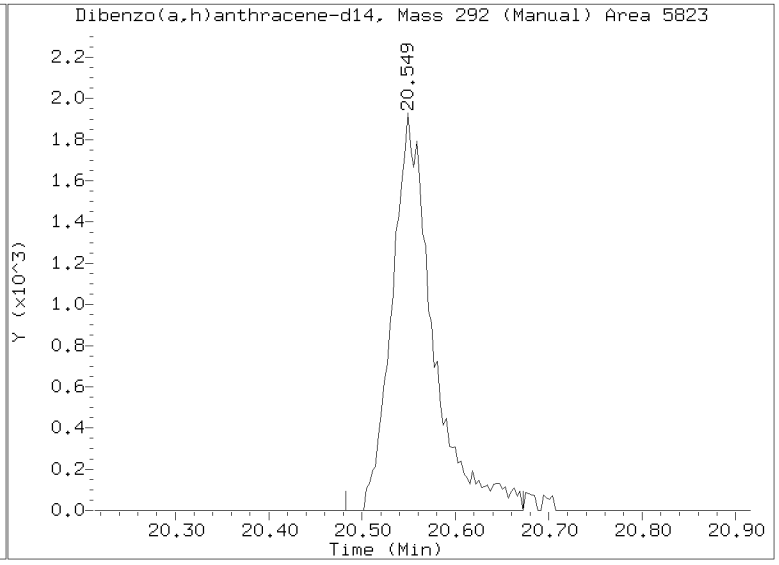
Quant Ion Manual Peak Adjustment Report

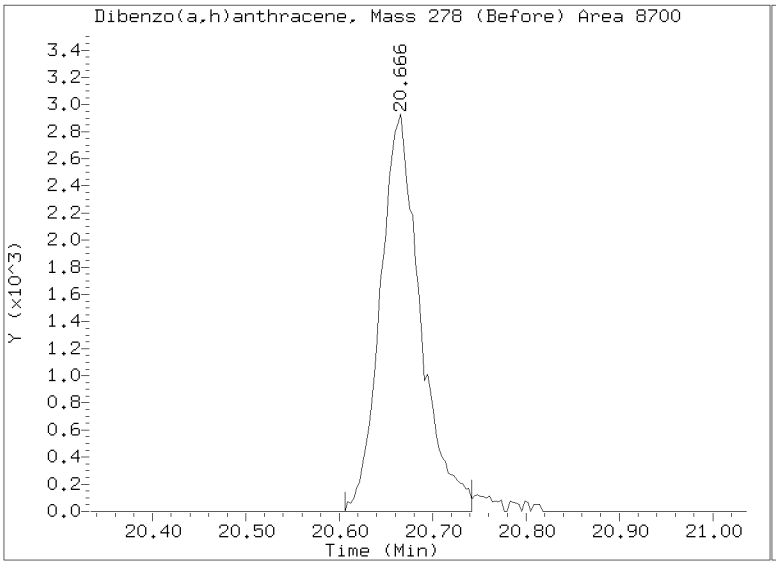
Datafile: //target/share/chem3/nt8.i/20230119.b/N823011904.D
Injection Date: 19-JAN-2023 11:58
Lab ID:SLA0213-CAL2 Client ID:
Report Date: 01/19/2023 20:12

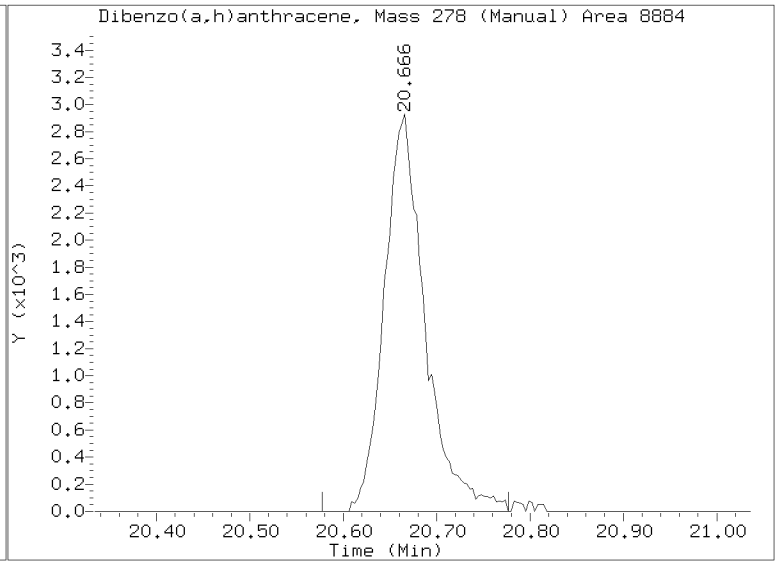








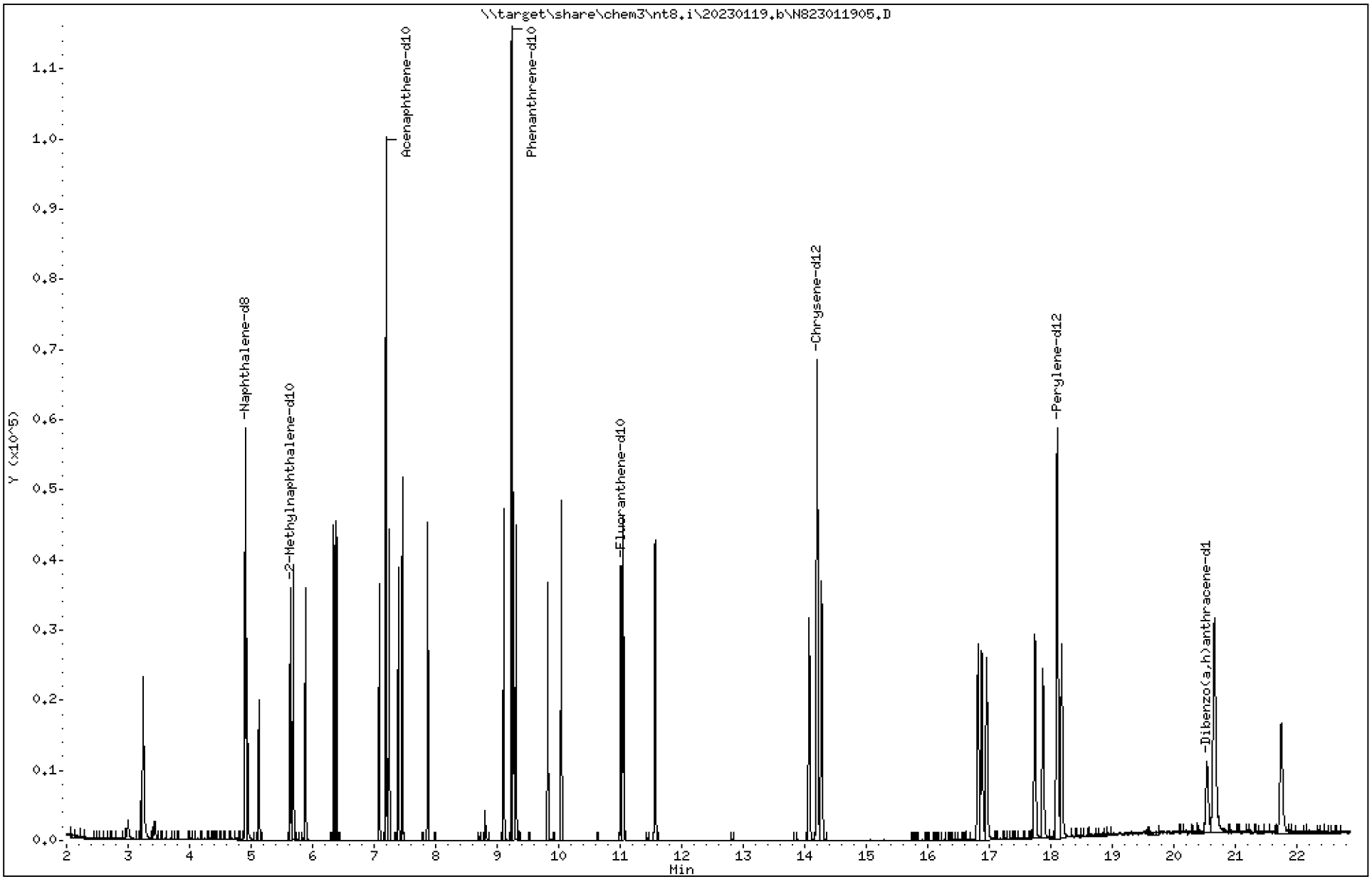




Data File: \\target\share\chem3\nt8.i\20230119.b\N823011905.D
Date : 19-JAN-2023 12:25
Client ID:
Sample Info: IC1230119,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011905.D
Lab Smp Id: SLA0213-CAL3
Inj Date : 19-JAN-2023 12:25
Operator : JZ Inst ID: nt8.i
Smp Info : IC1230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	47180	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	21563	1.00000	0.9830
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.150)	12609	1.00000	0.9799
	4 2-Methylnaphthalene	141	5.687	5.687	(1.159)	11715	1.00000	0.9709
	5 1-methylnaphthalene	141	5.887	5.887	(1.200)	11968	1.00000	0.9773
	7 Biphenyl	154	6.345	6.348	(0.882)	17796	1.00000	0.9564
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	12741	1.00000	0.9674
	9 Acenaphthylene	152	7.085	7.088	(0.985)	20021	1.00000	0.9400
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	28206	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	13666	1.00000	0.9576
	12 Dibenzofuran	168	7.395	7.398	(1.028)	20714	1.00000	0.9556
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	12912	1.00000	0.9446
	14 Fluorene	166	7.875	7.875	(1.094)	16006	1.00000	0.9508
	18 Dibenzothiophene	184	9.109	9.112	(0.986)	22320	1.00000	0.9489
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	53233	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	24646	1.00000	0.9478
	17 Anthracene	178	9.311	9.314	(1.008)	22258	1.00000	0.9423
	19 Carbazole	167	9.823	9.826	(1.064)	20007	1.00000	0.9239
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	17326	1.00000	0.9246
	22 Fluoranthene	202	11.050	11.056	(1.197)	27227	1.00000	0.9619
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	21953	1.00000	0.9347
	23 Pyrene	202	11.572	11.575	(0.815)	26878	1.00000	0.9325
	24 Benzo(a)anthracene	228	14.076	14.079	(0.991)	23406	1.00000	0.8959
*	25 Chrysene-d12	240	14.203	14.206	(1.000)	46493	2.00000	
	27 Chrysene	228	14.275	14.282	(1.005)	26230	1.00000	0.9431
	28 Benzo(b)fluoranthene	252	16.824	16.833	(0.929)	22805	1.00000	0.8782
	29 Benzo(k)fluoranthene	252	16.881	16.897	(0.932)	22425	1.00000	0.8816
	30 Benzo(j)fluoranthene	252	16.960	16.972	(0.936)	20574	1.00000	0.8985
	31 Total Benzofluoranthenes	252	16.824	16.833	(0.929)	64985	3.00000	2.642(M)
	34 Benzo(e)pyrene	252	17.750	17.760	(0.980)	23026	1.00000	0.8892
	32 Benzo(a)pyrene	252	17.877	17.889	(0.987)	19956	1.00000	0.8733
*	33 Perylene-d12	264	18.111	18.114	(1.000)	44587	2.00000	
	35 Perylene	252	18.184	18.193	(1.004)	22015	1.00000	0.8978

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.549	20.565	(1.135)	13546	1.00000	0.9466
37 Indeno(1,2,3-cd)pyrene	276	20.672	20.691	(1.141)	23911	1.00000	0.9185
38 Dibenzo(a,h)anthracene	278	20.656	20.685	(1.141)	19954	1.00000	0.8907
39 Benzo(g,h,i)perylene	276	21.747	21.782	(1.201)	20977	1.00000	0.8894

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011905.D
Lab Smp Id: SLA0213-CAL3
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	47180	5.54
10 Acenaphthene-d10	26411	13206	52822	28206	6.80
15 Phenanthrene-d10	49210	24605	98420	53233	8.18
25 Chrysene-d12	42994	21497	85988	46493	8.14
33 Perylene-d12	40520	20260	81040	44587	10.04

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011905.D

Lab ID: SLA0213-CAL3
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 12:25

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

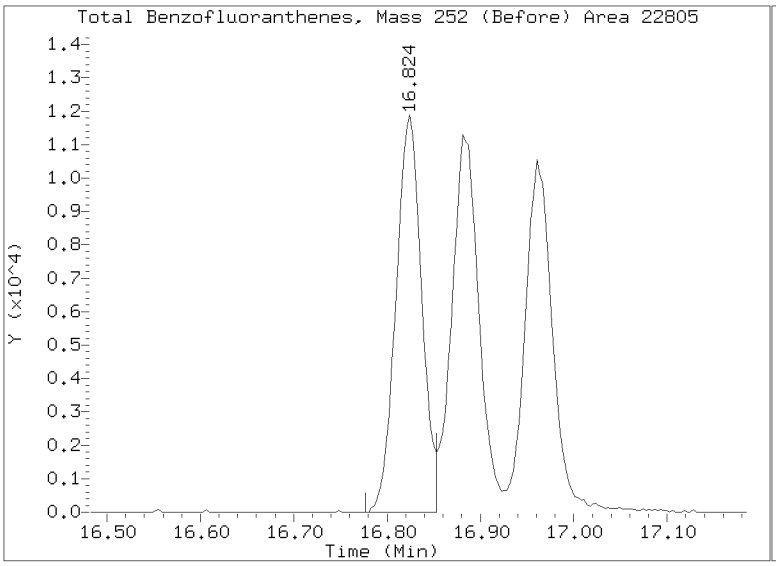
No RRT check performed

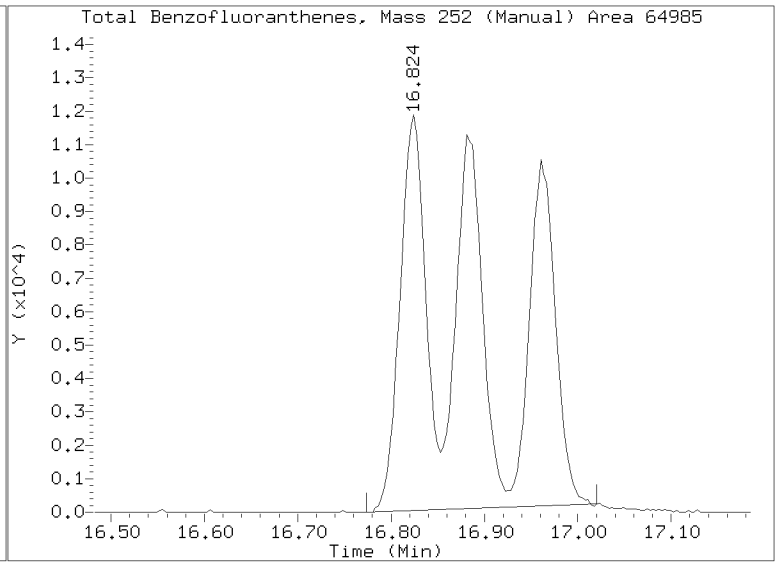
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

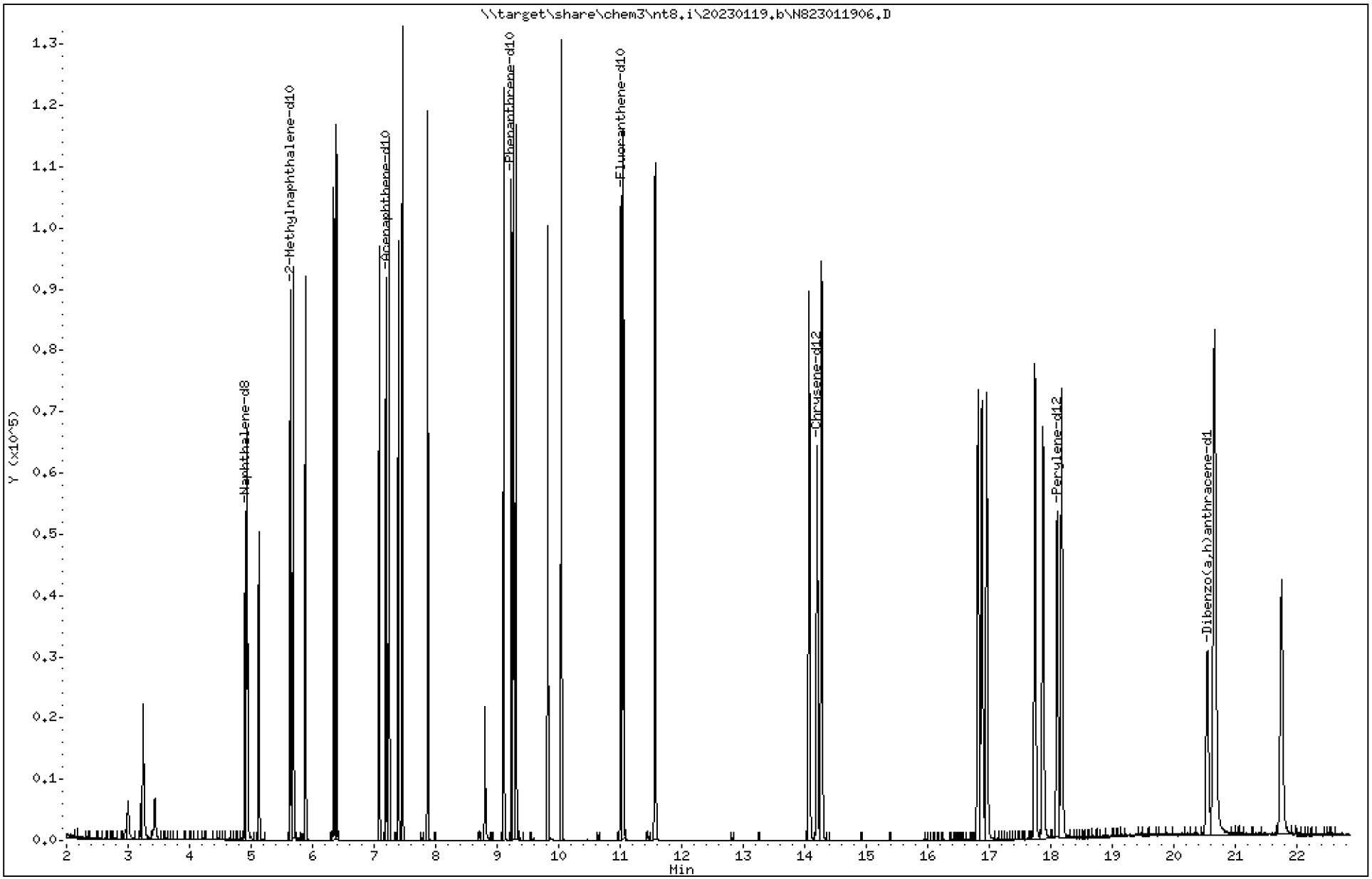
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Injection Date: 19-JAN-2023 12:25
Lab ID:SLA0213-CAL3 Client ID:
Report Date: 01/19/2023 20:12





Data File: \\target\share\chem3\nt8.i\20230119.b\N823011906.D
Date : 19-JAN-2023 12:52
Client ID:
Sample Info: IC25230119,

Instrument: nt8.i
Operator: JZ
Column phase: Rxi-17sil
Column diameter: 0.25



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011906.D
Lab Smp Id: SLA0213-CAL4
Inj Date : 19-JAN-2023 12:52
Operator : JZ Inst ID: nt8.i
Smp Info : IC25230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	44704	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	52764	2.50000	2.538
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.150)	31709	2.50000	2.601
	4 2-Methylnaphthalene	141	5.687	5.687	(1.159)	29737	2.50000	2.601
	5 1-methylnaphthalene	141	5.883	5.887	(1.199)	30098	2.50000	2.594
	7 Biphenyl	154	6.345	6.348	(0.882)	44716	2.50000	2.566
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	32396	2.50000	2.627
	9 Acenaphthylene	152	7.085	7.088	(0.985)	53242	2.50000	2.670
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	26411	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	34335	2.50000	2.569
	12 Dibenzofuran	168	7.395	7.398	(1.028)	50810	2.50000	2.503
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	33264	2.50000	2.599
	14 Fluorene	166	7.872	7.875	(1.094)	40499	2.50000	2.569
	18 Dibenzothiophene	184	9.109	9.112	(0.986)	56399	2.50000	2.594
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	49210	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	61033	2.50000	2.539
	17 Anthracene	178	9.311	9.314	(1.008)	57918	2.50000	2.652
	19 Carbazole	167	9.823	9.826	(1.064)	52870	2.50000	2.641
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	45452	2.50000	2.624
	22 Fluoranthene	202	11.053	11.056	(1.197)	68546	2.50000	2.620
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	58746	2.50000	2.706
	23 Pyrene	202	11.572	11.575	(0.815)	69587	2.50000	2.611
	24 Benzo(a)anthracene	228	14.076	14.079	(0.991)	63802	2.50000	2.641
*	25 Chrysene-d12	240	14.202	14.206	(1.000)	42994	2.00000	
	27 Chrysene	228	14.278	14.282	(1.005)	65955	2.50000	2.564
	28 Benzo(b)fluoranthene	252	16.821	16.833	(0.929)	61818	2.50000	2.620
	29 Benzo(k)fluoranthene	252	16.884	16.897	(0.932)	59716	2.50000	2.583
	30 Benzo(j)fluoranthene	252	16.963	16.972	(0.937)	54944	2.50000	2.640
	31 Total Benzofluoranthenes	252	16.821	16.833	(0.929)	176122	7.50000	7.880(M)
	34 Benzo(e)pyrene	252	17.747	17.760	(0.980)	60179	2.50000	2.557
	32 Benzo(a)pyrene	252	17.877	17.889	(0.987)	54569	2.50000	2.628
*	33 Perylene-d12	264	18.111	18.114	(1.000)	40520	2.00000	
	35 Perylene	252	18.183	18.193	(1.004)	57968	2.50000	2.601

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.552	20.565	(1.135)	37101	2.50000	2.853
37 Indeno(1,2,3-cd)pyrene	276	20.675	20.691	(1.142)	63691	2.50000	2.692
38 Dibenzo(a,h)anthracene	278	20.662	20.685	(1.141)	54772	2.50000	2.690
39 Benzo(g,h,i)perylene	276	21.756	21.782	(1.201)	56053	2.50000	2.615

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011906.D
Lab Smp Id: SLA0213-CAL4
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	44704	0.00
10 Acenaphthene-d10	26411	13206	52822	26411	0.00
15 Phenanthrene-d10	49210	24605	98420	49210	0.00
25 Chrysene-d12	42994	21497	85988	42994	0.00
33 Perylene-d12	40520	20260	81040	40520	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011906.D

Lab ID: SLA0213-CAL4
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 12:52

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

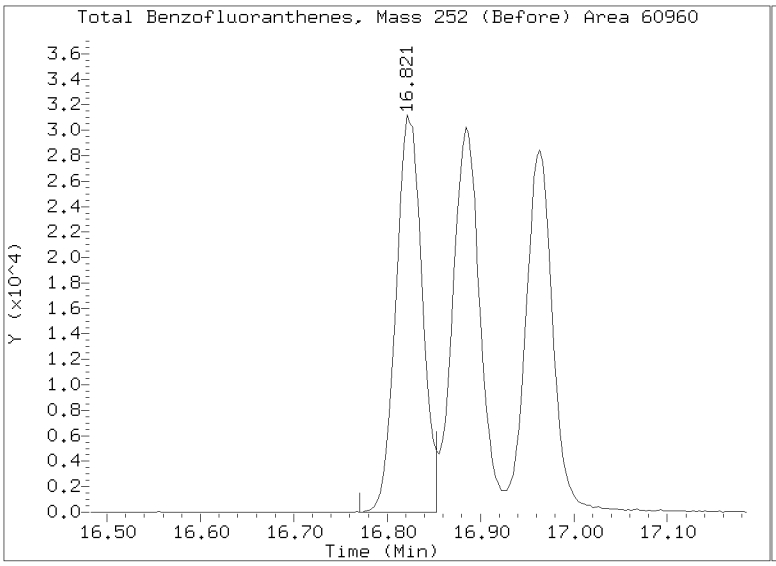
No RRT check performed

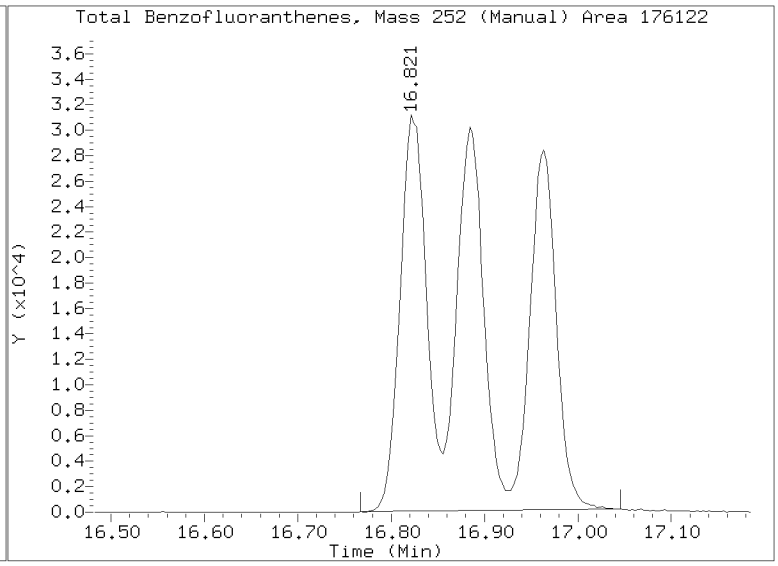
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011906.D
Injection Date: 19-JAN-2023 12:52
Lab ID:SLA0213-CAL4 Client ID:
Report Date: 01/19/2023 20:12

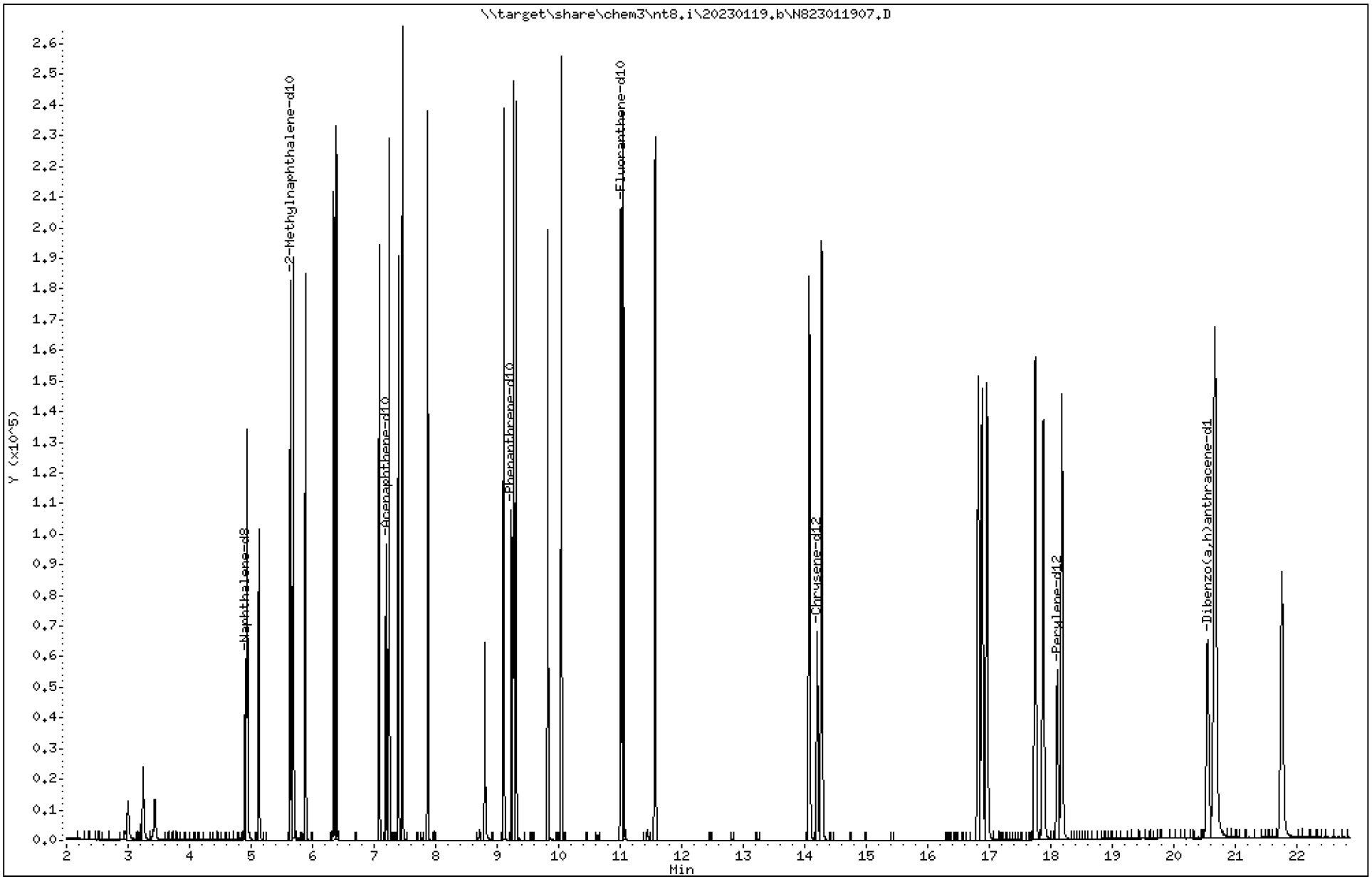




Data File: \\target\share\chem3\nt8.i\20230119.b\N823011907.D
Date : 19-JAN-2023 13:19
Client ID:
Sample Info: IC5230119,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011907.D
Lab Smp Id: SLA0213-CAL5
Inj Date : 19-JAN-2023 13:19
Operator : JZ Inst ID: nt8.i
Smp Info : IC5230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.909	4.906	(1.000)	46542	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	105414	5.00000	4.871
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.149)	64045	5.00000	5.046
	4 2-Methylnaphthalene	141	5.687	5.687	(1.158)	59129	5.00000	4.967
	5 1-methylnaphthalene	141	5.887	5.887	(1.199)	59615	5.00000	4.935
	7 Biphenyl	154	6.345	6.348	(0.882)	88014	5.00000	4.827
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	64484	5.00000	4.997
	9 Acenaphthylene	152	7.085	7.088	(0.985)	108746	5.00000	5.211
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	27638	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	67894	5.00000	4.855
	12 Dibenzofuran	168	7.395	7.398	(1.028)	100768	5.00000	4.744
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	65911	5.00000	4.921
	14 Fluorene	166	7.875	7.875	(1.094)	82420	5.00000	4.996
	18 Dibenzothiophene	184	9.109	9.112	(0.987)	112243	5.00000	4.946
*	15 Phenanthrene-d10	188	9.232	9.235	(1.000)	51351	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	119248	5.00000	4.754
	17 Anthracene	178	9.311	9.314	(1.009)	114927	5.00000	5.044
	19 Carbazole	167	9.823	9.826	(1.064)	106758	5.00000	5.111
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	90954	5.00000	5.032
	22 Fluoranthene	202	11.053	11.056	(1.197)	135256	5.00000	4.954
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	119286	5.00000	5.265
	23 Pyrene	202	11.572	11.575	(0.815)	140705	5.00000	5.068
	24 Benzo(a)anthracene	228	14.076	14.079	(0.991)	132618	5.00000	5.270
*	25 Chrysene-d12	240	14.203	14.206	(1.000)	44781	2.00000	
	27 Chrysene	228	14.278	14.282	(1.005)	132750	5.00000	4.955
	28 Benzo(b)fluoranthene	252	16.827	16.833	(0.929)	125757	5.00000	5.118
	29 Benzo(k)fluoranthene	252	16.887	16.897	(0.932)	122821	5.00000	5.103
	30 Benzo(j)fluoranthene	252	16.966	16.972	(0.937)	113399	5.00000	5.234
	31 Total Benzofluoranthenes	252	16.827	16.833	(0.929)	361443	15.0000	15.53(M)
	34 Benzo(e)pyrene	252	17.750	17.760	(0.980)	121964	5.00000	4.978
	32 Benzo(a)pyrene	252	17.883	17.889	(0.987)	112121	5.00000	5.186
*	33 Perylene-d12	264	18.111	18.114	(1.000)	42187	2.00000	
	35 Perylene	252	18.187	18.193	(1.004)	116268	5.00000	5.011

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.555	20.565	(1.135)	78264	5.00000	5.780
37 Indeno(1,2,3-cd)pyrene	276	20.681	20.691	(1.142)	129575	5.00000	5.260
38 Dibenzo(a,h)anthracene	278	20.669	20.685	(1.141)	112698	5.00000	5.317
39 Benzo(g,h,i)perylene	276	21.763	21.782	(1.202)	114826	5.00000	5.145

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011907.D
Lab Smp Id: SLA0213-CAL5
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46542	4.11
10 Acenaphthene-d10	26411	13206	52822	27638	4.65
15 Phenanthrene-d10	49210	24605	98420	51351	4.35
25 Chrysene-d12	42994	21497	85988	44781	4.16
33 Perylene-d12	40520	20260	81040	42187	4.11

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.06
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.23	-0.03
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011907.D

Lab ID: SLA0213-CAL5
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 13:19

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

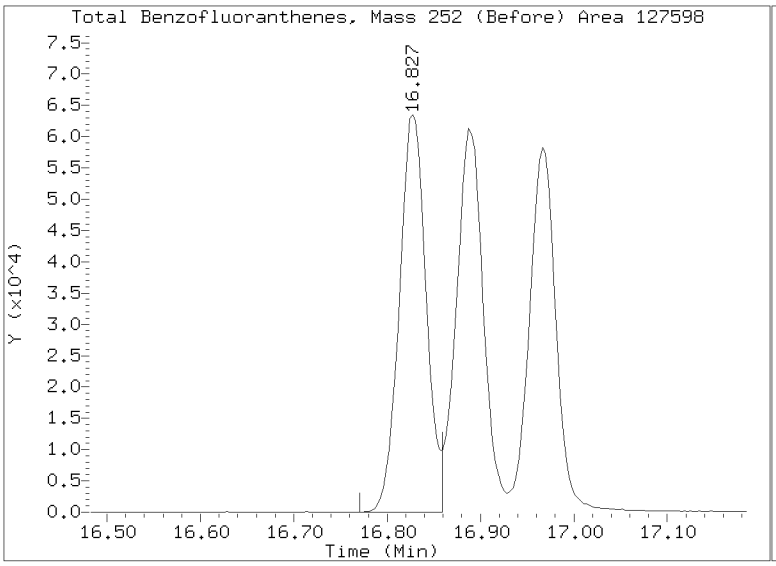
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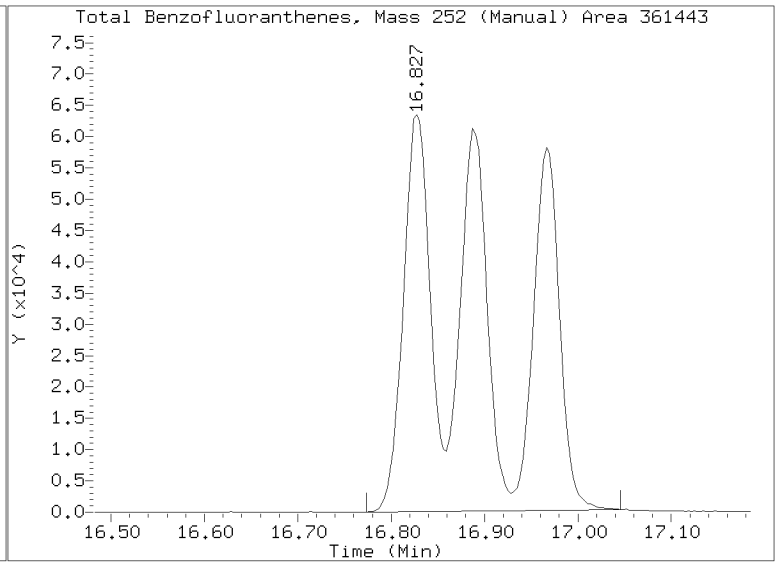
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

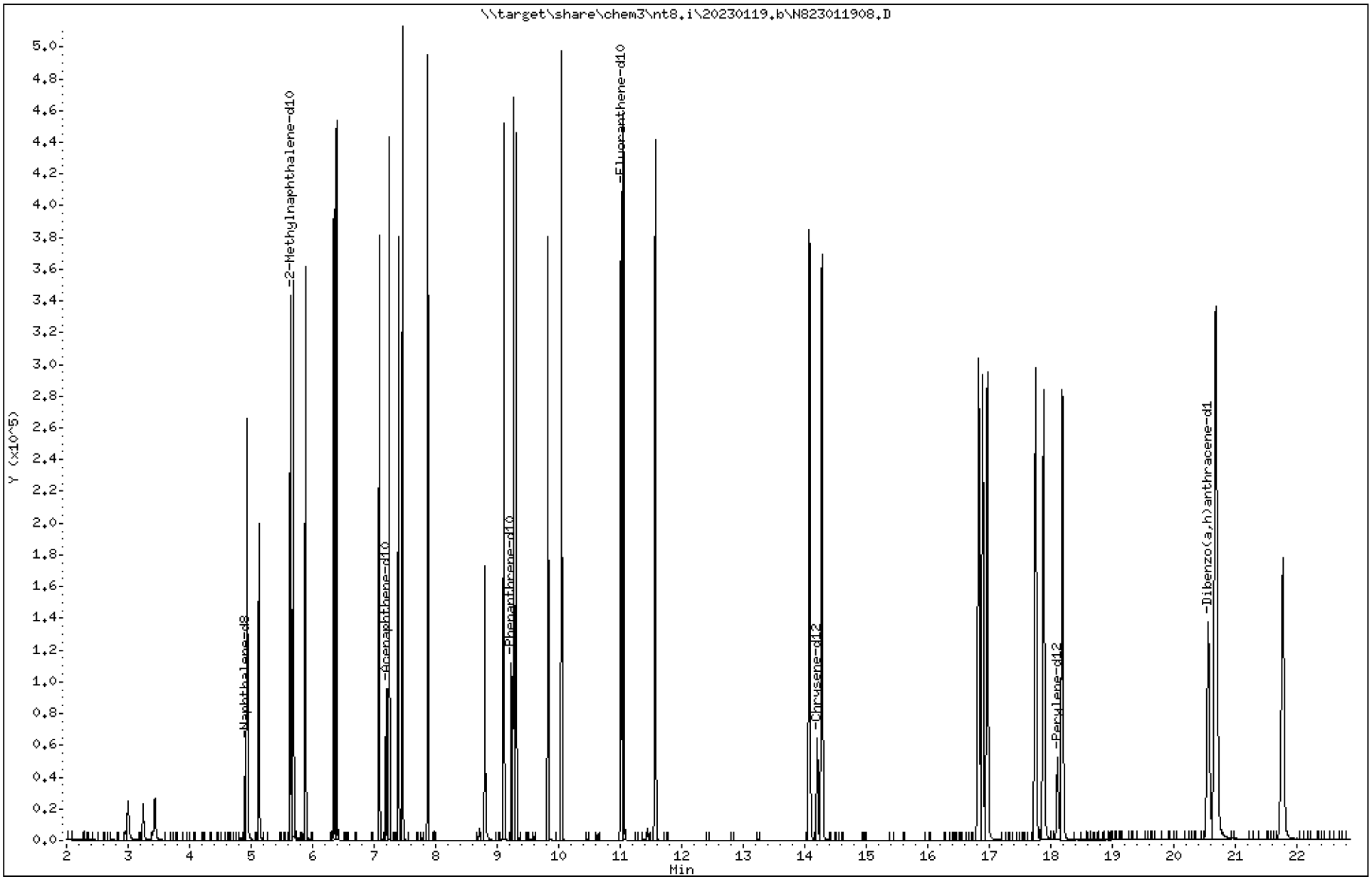
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Injection Date: 19-JAN-2023 13:19
Lab ID:SLA0213-CAL5 Client ID:
Report Date: 01/19/2023 20:12





Data File: \\target\share\chem3\nt8.i\20230119.b\N823011908.D
Date : 19-JAN-2023 13:46
Client ID:
Sample Info: IC10230119,

Instrument: nt8.i
Operator: JZ
Column phase: Rxi-17sil
Column diameter: 0.25



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011908.D
Lab Smp Id: SLA0213-CAL6
Inj Date : 19-JAN-2023 13:46
Operator : JZ Inst ID: nt8.i
Smp Info : IC10230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

							AMOUNTS	
		QUANT SIG					CAL-AMT	ON-COL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	46070	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	203510	10.0000	9.501
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.149)	124701	10.0000	9.925
	4 2-Methylnaphthalene	141	5.687	5.687	(1.159)	112895	10.0000	9.582
	5 1-methylnaphthalene	141	5.887	5.887	(1.200)	115357	10.0000	9.647
	7 Biphenyl	154	6.348	6.348	(0.882)	169086	10.0000	9.603
	8 2,6-Dimethylnaphthalene	156	6.392	6.392	(0.888)	124019	10.0000	9.952
	9 Acenaphthylene	152	7.088	7.088	(0.985)	213179	10.0000	10.58
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	26689	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	130872	10.0000	9.692
	12 Dibenzofuran	168	7.398	7.398	(1.028)	193532	10.0000	9.436
	13 1,6,7-Trimethylnaphthalene	170	7.464	7.464	(1.037)	127563	10.0000	9.863
	14 Fluorene	166	7.875	7.875	(1.094)	161125	10.0000	10.11
	18 Dibenzothiophene	184	9.112	9.112	(0.987)	217256	10.0000	9.701
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	50683	2.00000	
	16 Phenanthrene	178	9.273	9.273	(1.004)	230002	10.0000	9.290
	17 Anthracene	178	9.314	9.314	(1.009)	221162	10.0000	9.834
	19 Carbazole	167	9.826	9.826	(1.064)	210036	10.0000	10.19
	20 1-Methylphenanthrene	192	10.051	10.051	(1.088)	178561	10.0000	10.01
	22 Fluoranthene	202	11.056	11.056	(1.197)	257643	10.0000	9.560
$	21 Fluoranthene-d10	212	11.018	11.018	(1.193)	235698	10.0000	10.54
	23 Pyrene	202	11.575	11.575	(0.815)	274116	10.0000	10.08
	24 Benzo(a)anthracene	228	14.079	14.079	(0.991)	268196	10.0000	10.88
*	25 Chrysene-d12	240	14.206	14.206	(1.000)	43880	2.00000	
	27 Chrysene	228	14.282	14.282	(1.005)	257418	10.0000	9.806
	28 Benzo(b)fluoranthene	252	16.833	16.833	(0.929)	252022	10.0000	10.64
	29 Benzo(k)fluoranthene	252	16.897	16.897	(0.933)	238915	10.0000	10.30
	30 Benzo(j)fluoranthene	252	16.972	16.972	(0.937)	216807	10.0000	10.38
	31 Total Benzofluoranthenes	252	16.833	16.833	(0.929)	704955	30.0000	31.43(M)
	34 Benzo(e)pyrene	252	17.760	17.760	(0.980)	240447	10.0000	10.18
	32 Benzo(a)pyrene	252	17.889	17.889	(0.988)	222990	10.0000	10.70
*	33 Perylene-d12	264	18.114	18.114	(1.000)	40659	2.00000	
	35 Perylene	252	18.193	18.193	(1.004)	226582	10.0000	10.13

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.564	20.565	(1.135)	162230	10.0000	12.43
37 Indeno(1,2,3-cd)pyrene	276	20.691	20.691	(1.142)	252895	10.0000	10.65
38 Dibenzo(a,h)anthracene	278	20.685	20.685	(1.142)	223771	10.0000	10.95
39 Benzo(g,h,i)perylene	276	21.782	21.782	(1.202)	231445	10.0000	10.76

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011908.D
Lab Smp Id: SLA0213-CAL6
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46070	3.06
10 Acenaphthene-d10	26411	13206	52822	26689	1.05
15 Phenanthrene-d10	49210	24605	98420	50683	2.99
25 Chrysene-d12	42994	21497	85988	43880	2.06
33 Perylene-d12	40520	20260	81040	40659	0.34

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.02
33 Perylene-d12	18.11	17.61	18.61	18.11	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011908.D

Lab ID: SLA0213-CAL6
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 13:46

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

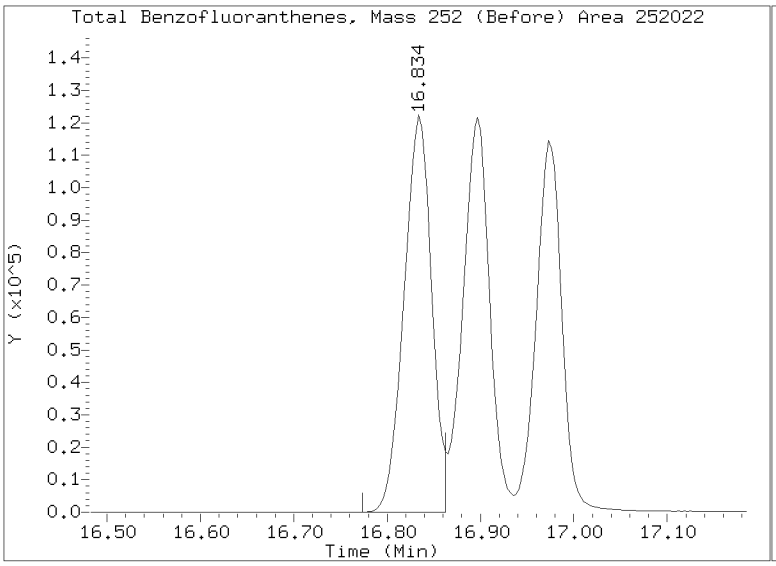
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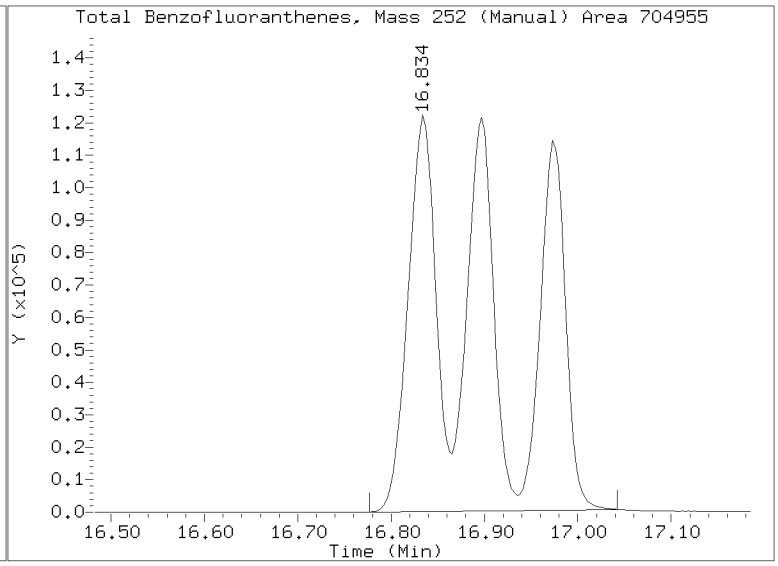
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

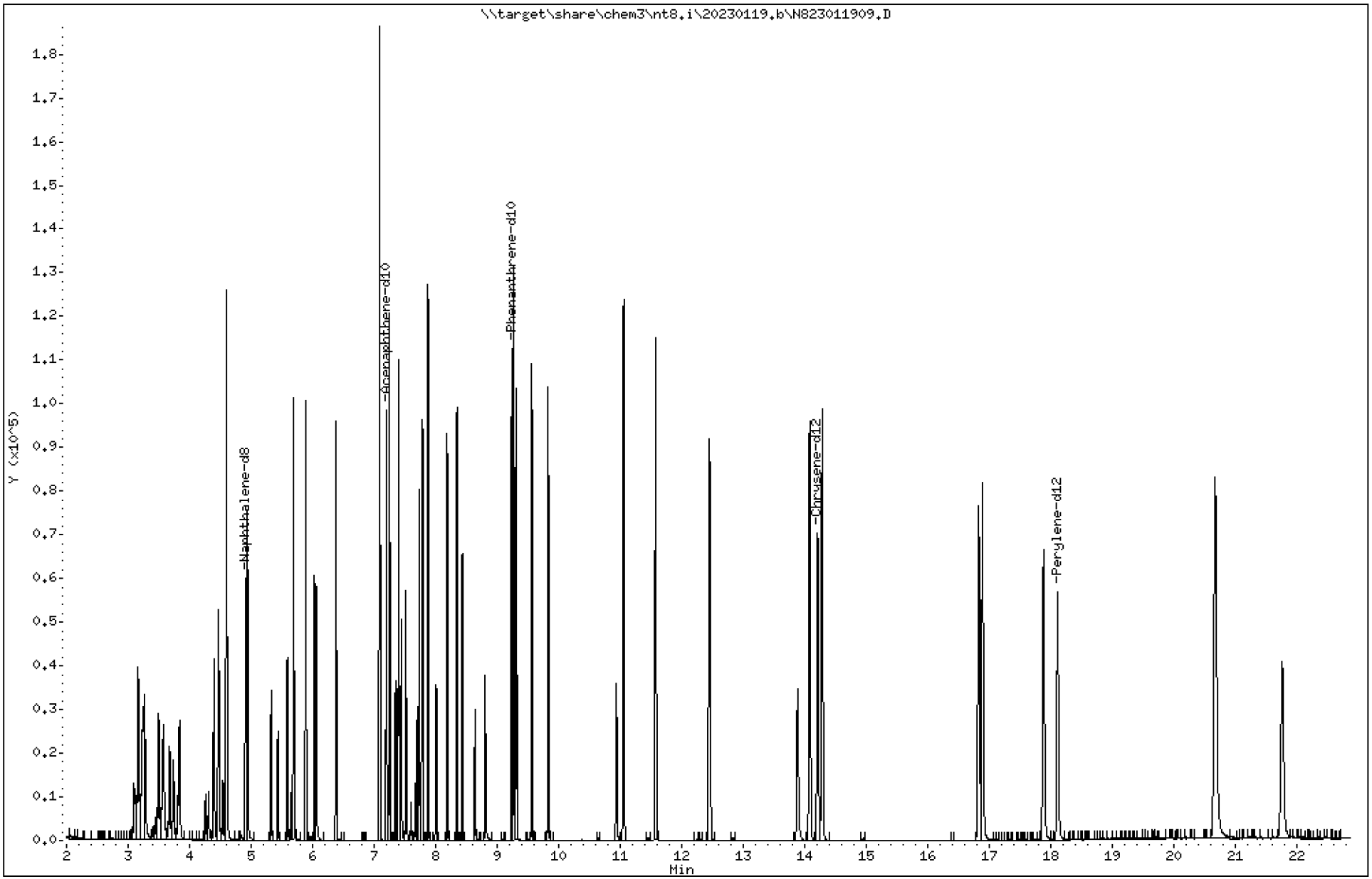
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Injection Date: 19-JAN-2023 13:46
Lab ID:SLA0213-CAL6 Client ID:
Report Date: 01/19/2023 20:12





Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Date : 19-JAN-2023 14:58
Client ID:
Sample Info: SCV230119
Volume Injected (uL): 1.0
Column phase: Rxi-17sil

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25



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Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

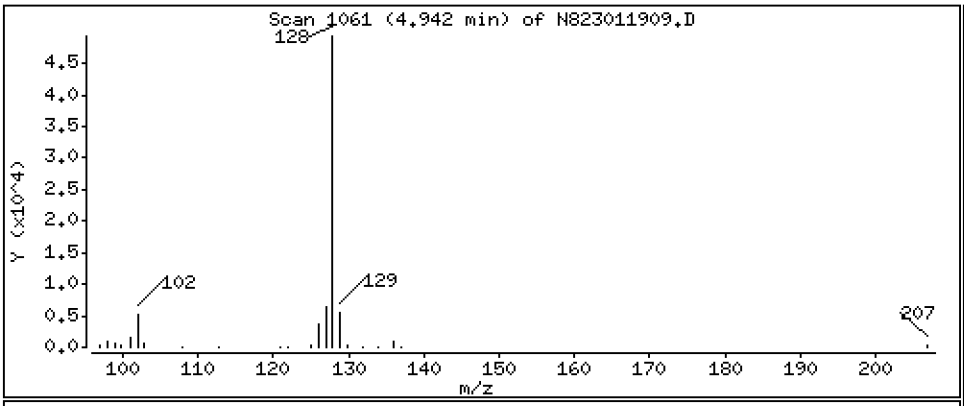
Operator: JZ

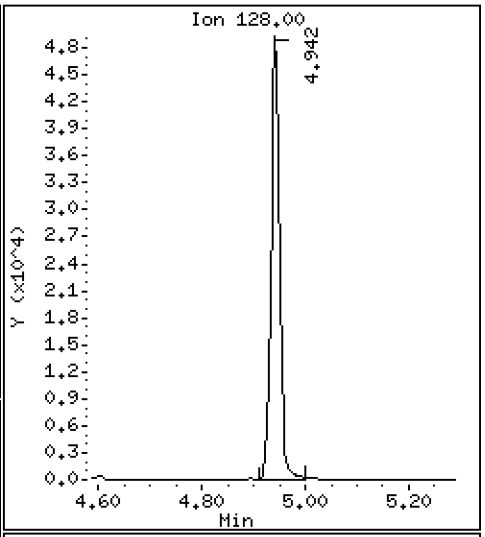
Column phase: Rxi-17sil

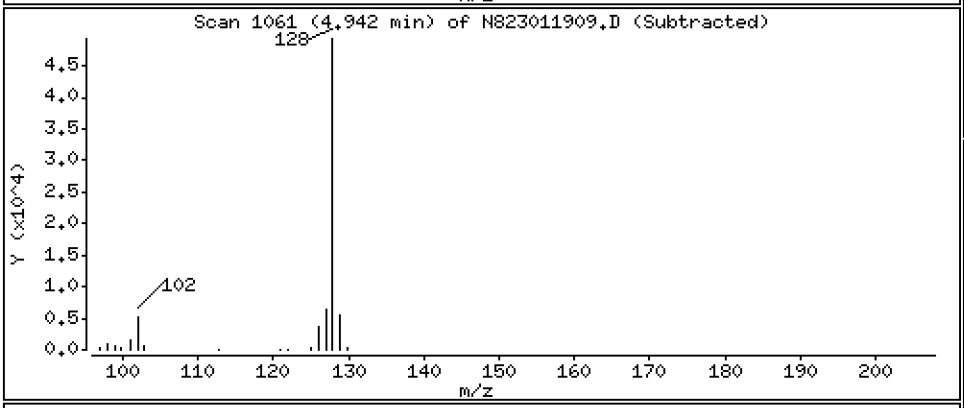
Column diameter: 0.25

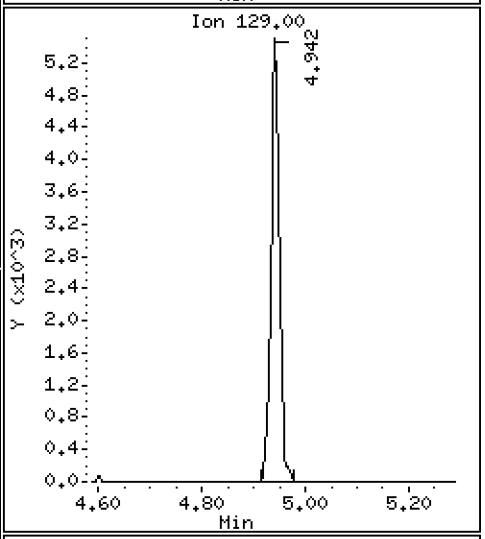
2 Naphthalene

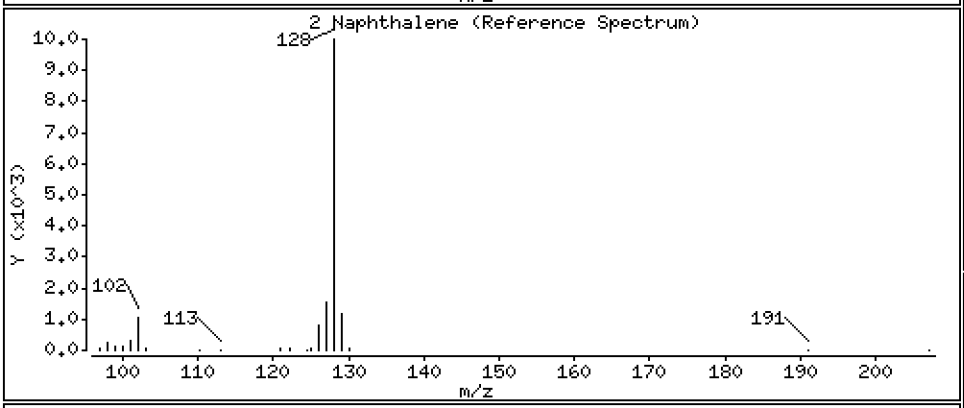
Concentration: 2.626 ug/L

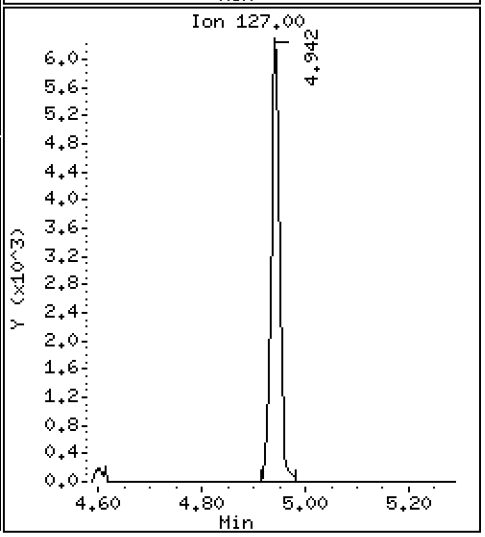


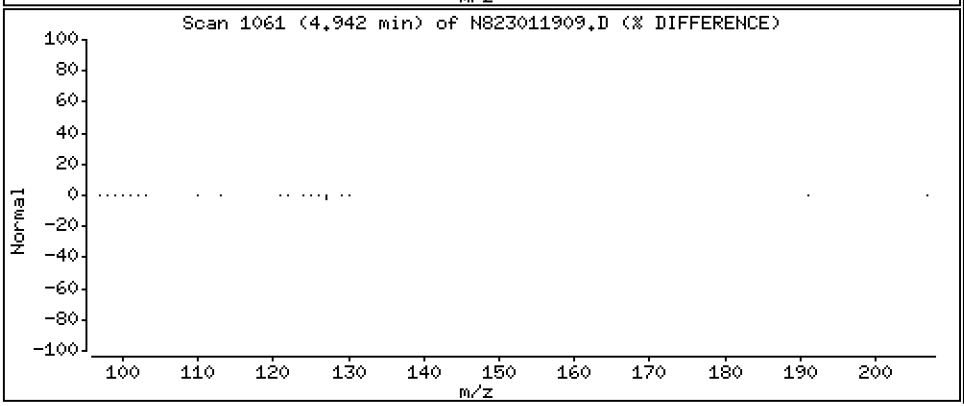












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

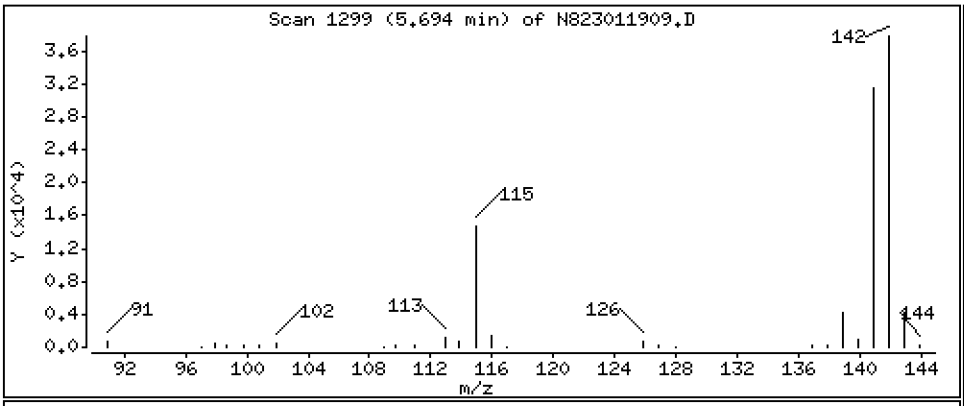
Operator: JZ

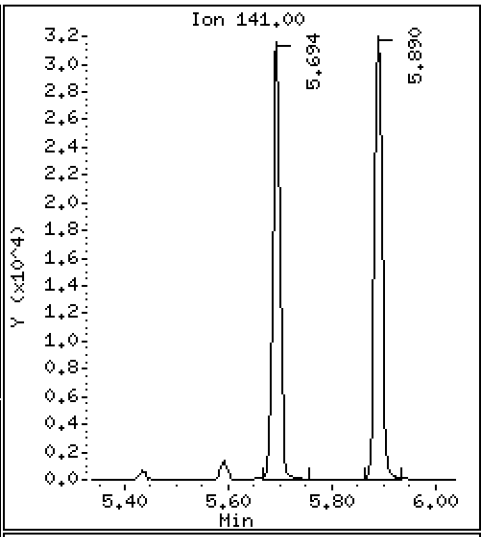
Column phase: Rxi-17sil

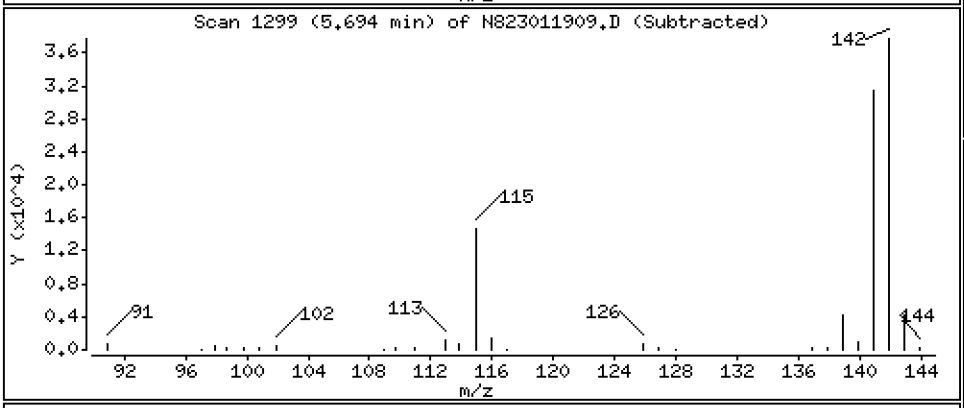
Column diameter: 0.25

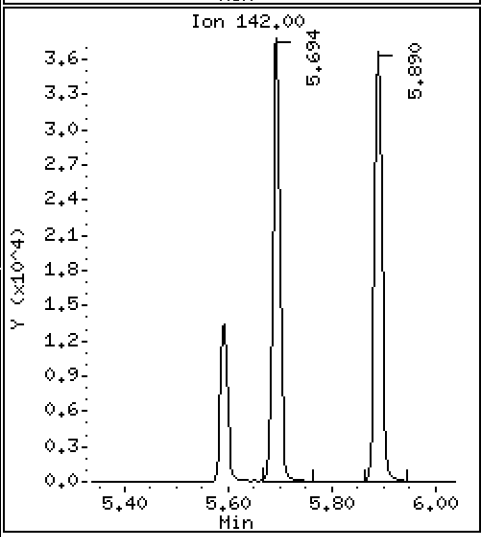
4 2-Methylnaphthalene

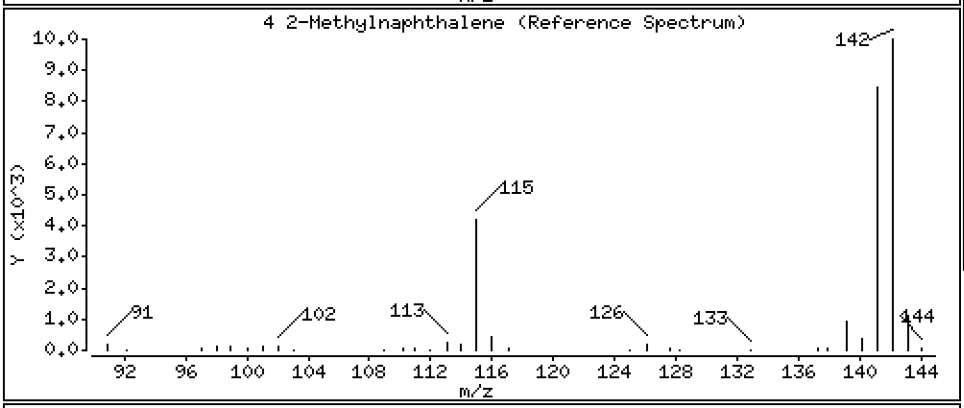
Concentration: 2.670 ug/L

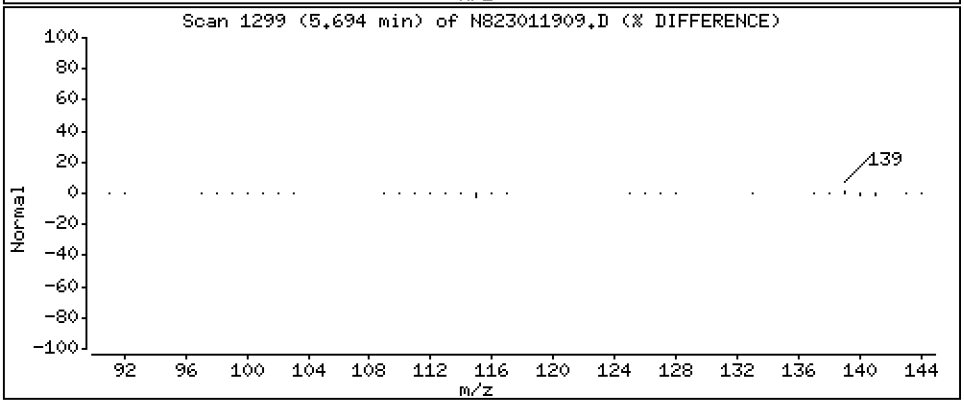












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

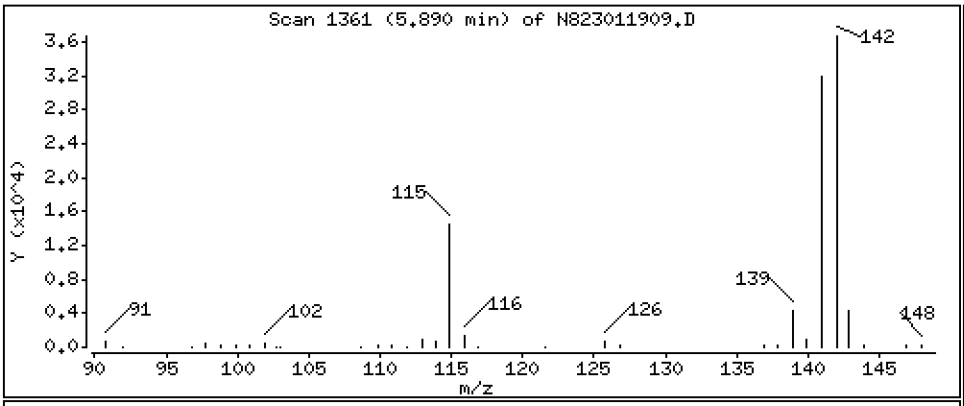
Operator: JZ

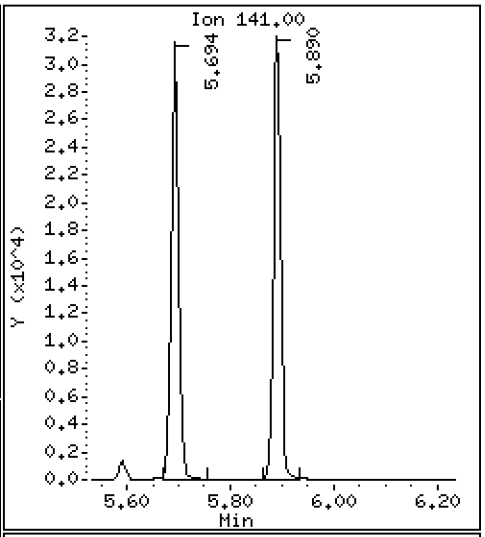
Column phase: Rxi-17sil

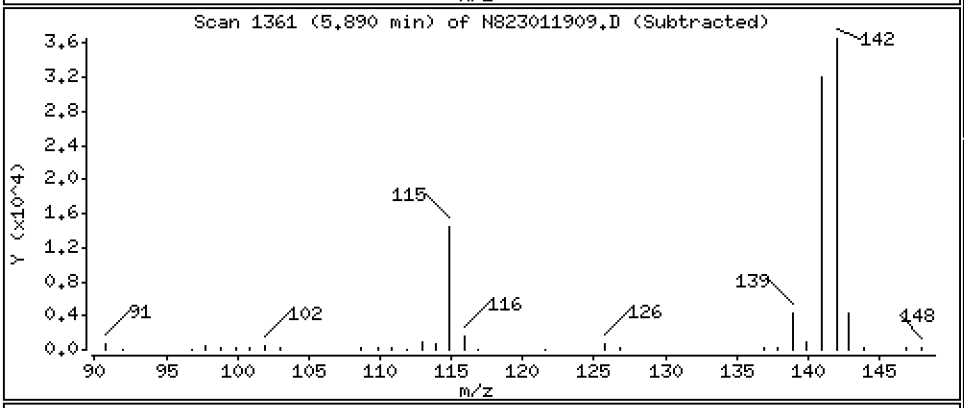
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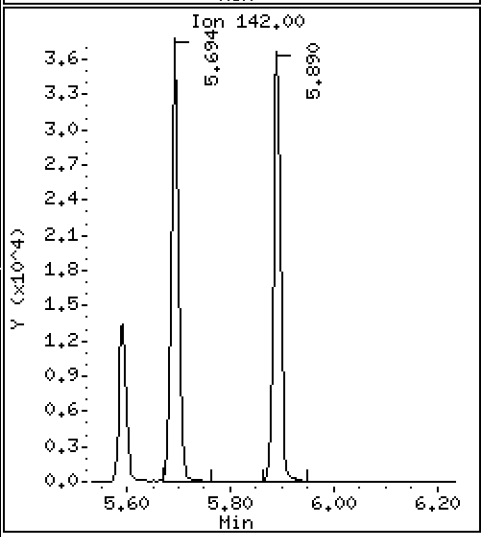
5 1-methylnaphthalene

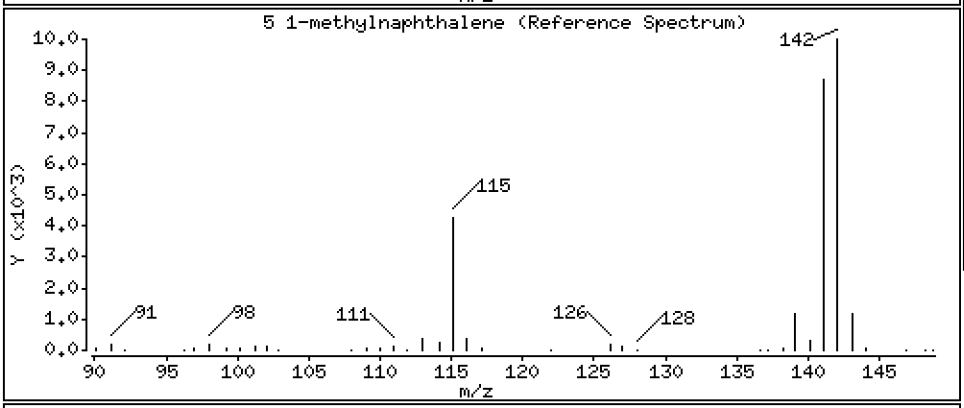
Concentration: 2.649 ug/L

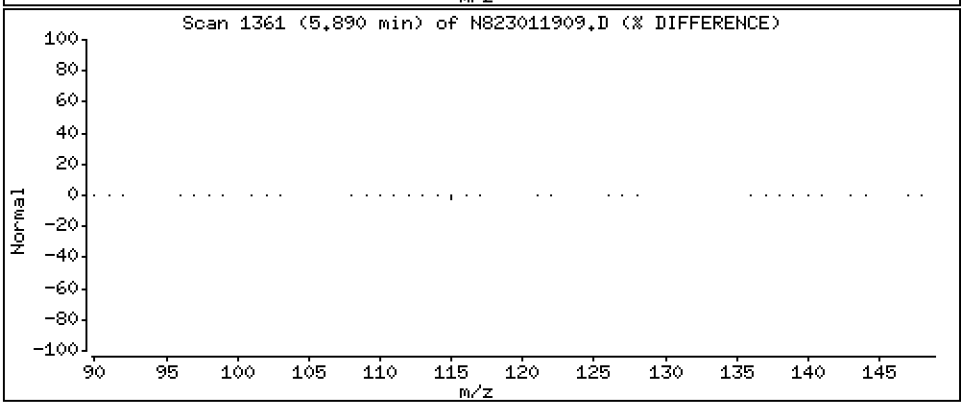












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

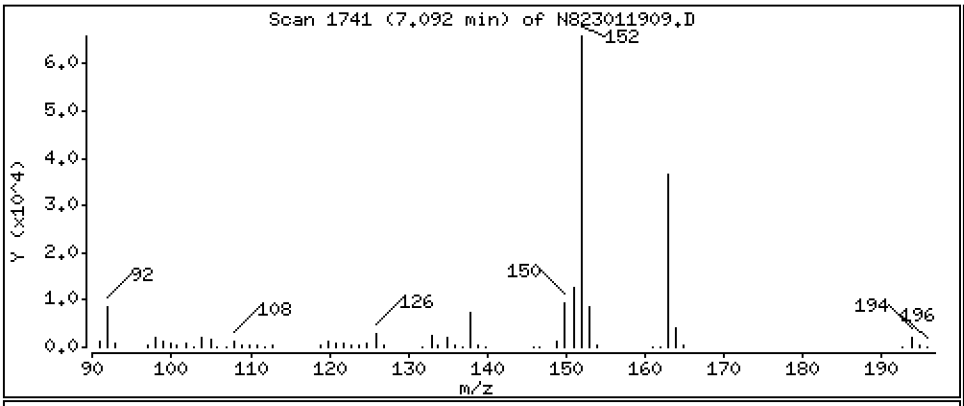
Operator: JZ

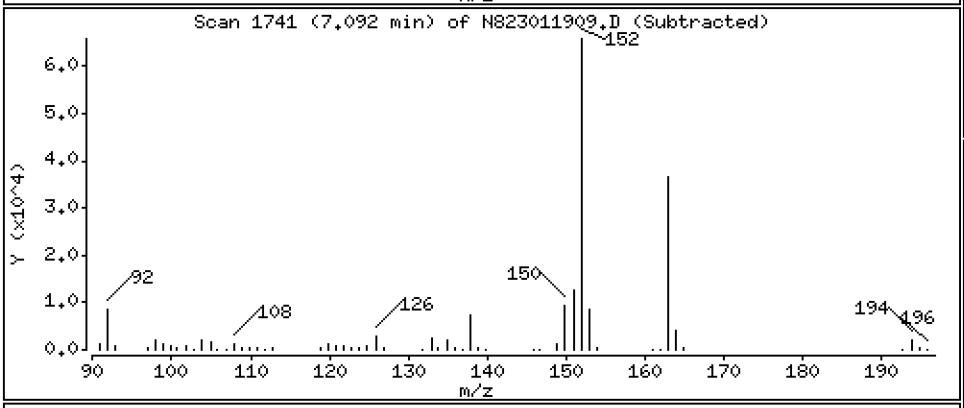
Column phase: Rxi-17sil

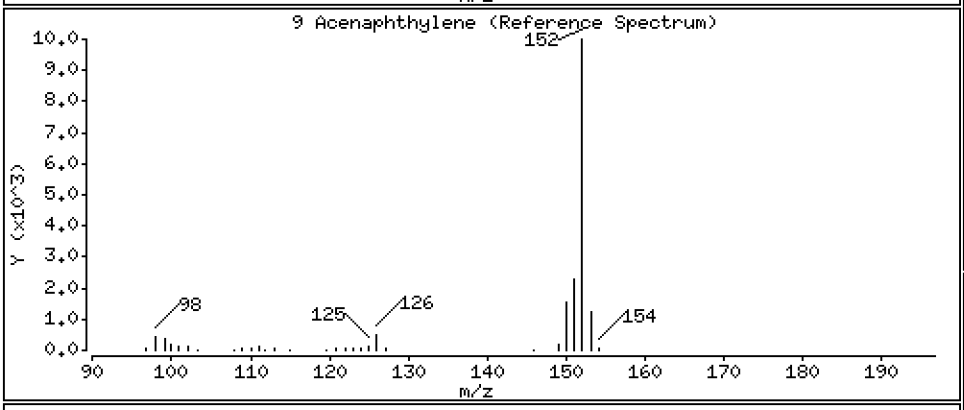
Column diameter: 0.25

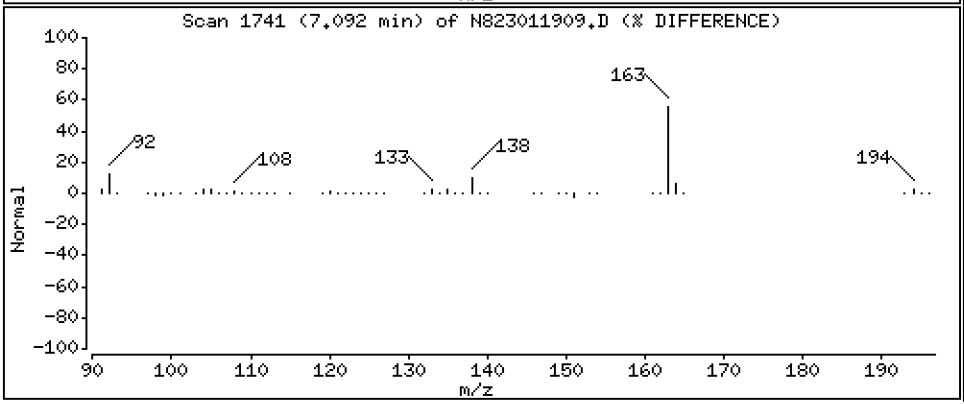
9 Acenaphthylene

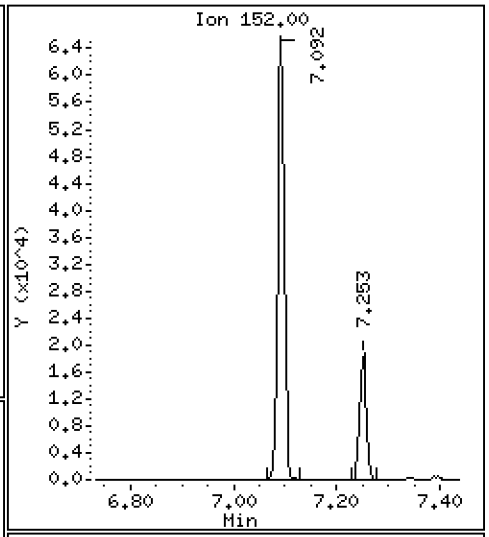
Concentration: 2.821 ug/L

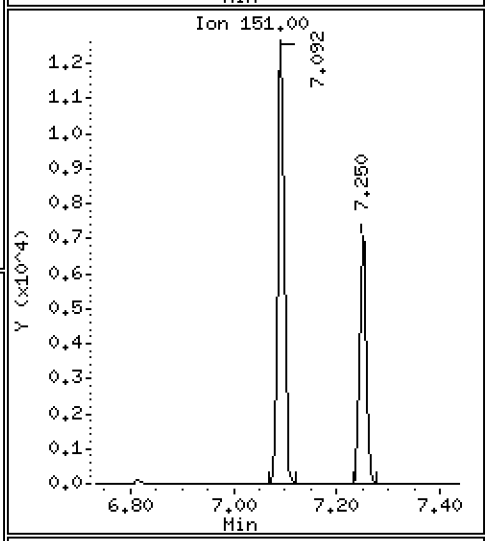


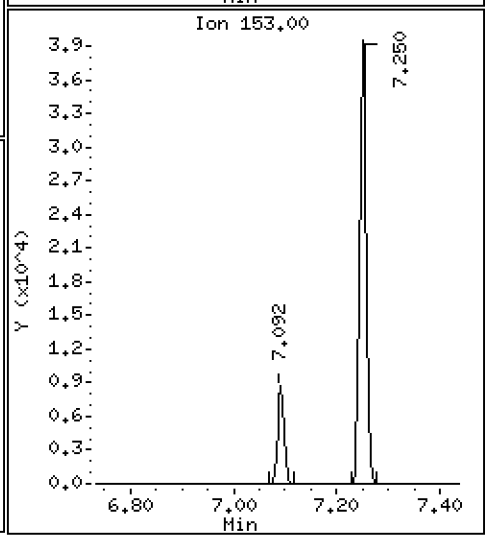












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

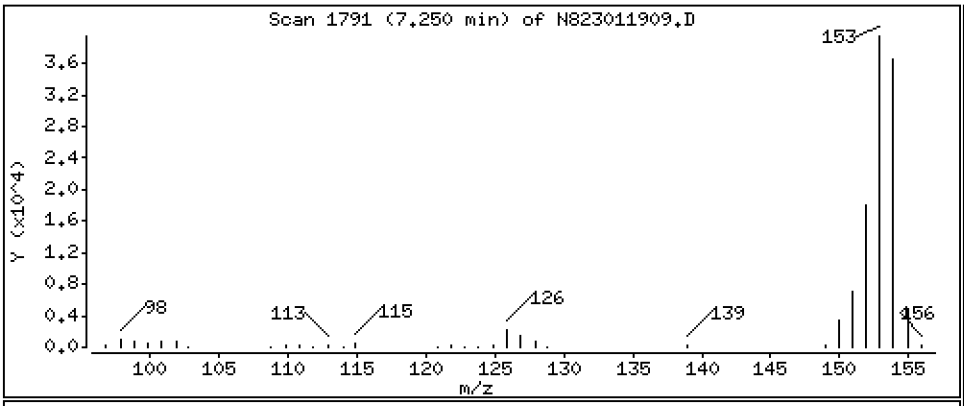
Operator: JZ

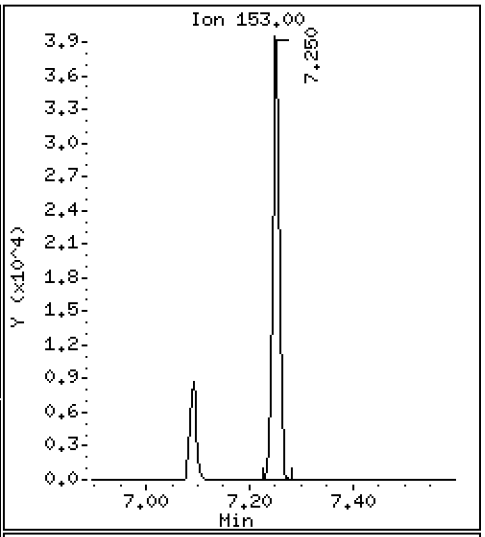
Column phase: Rxi-17sil

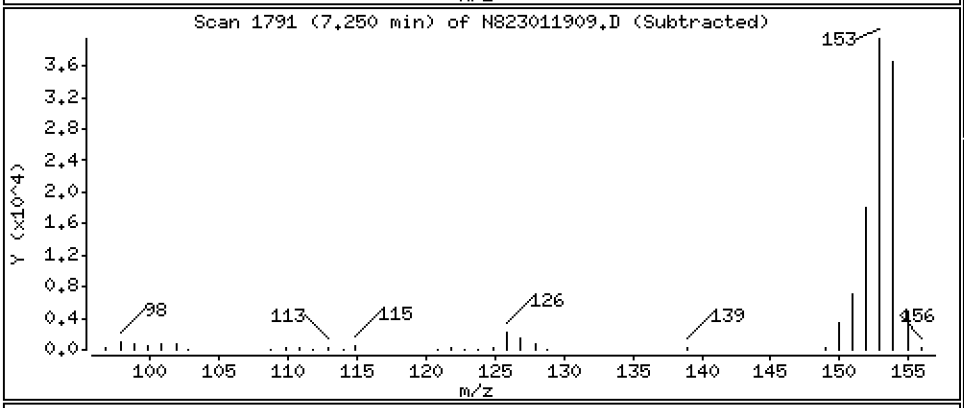
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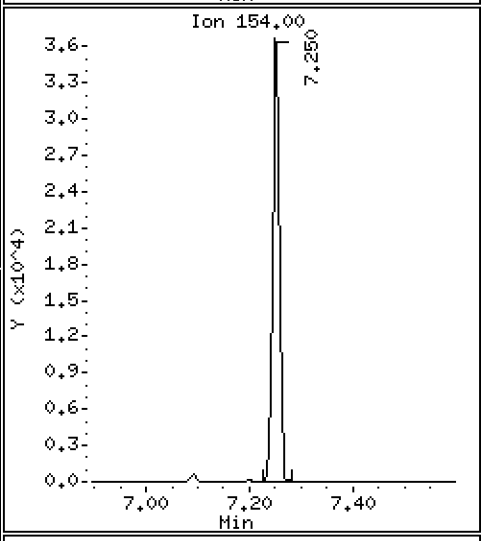
11 Acenaphthene

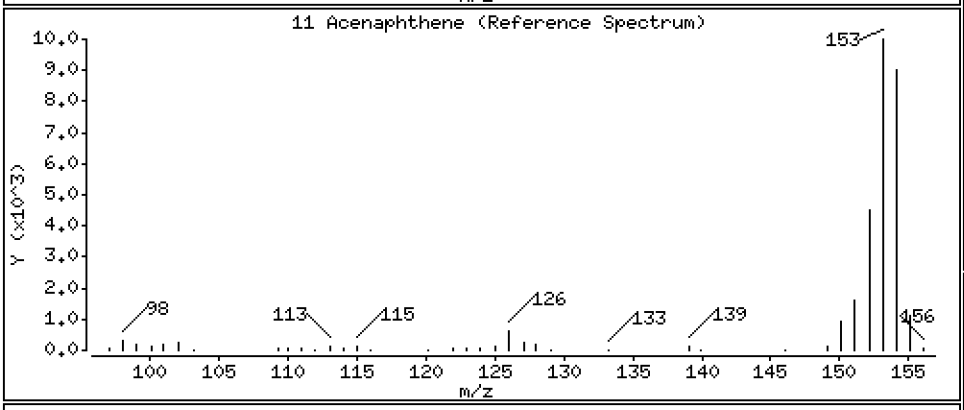
Concentration: 2.600 ug/L

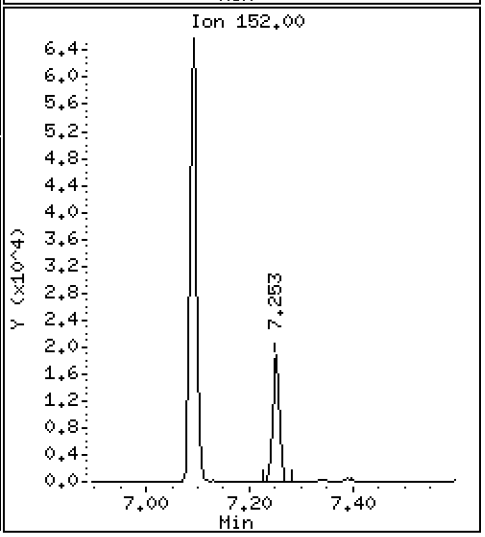


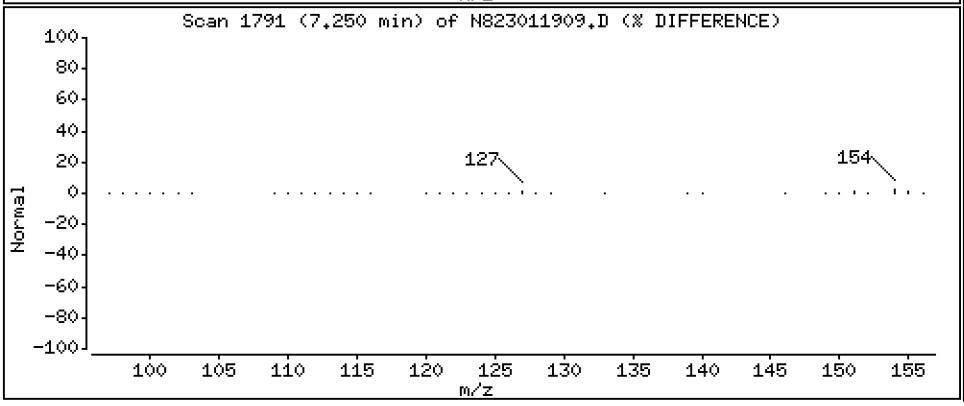












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

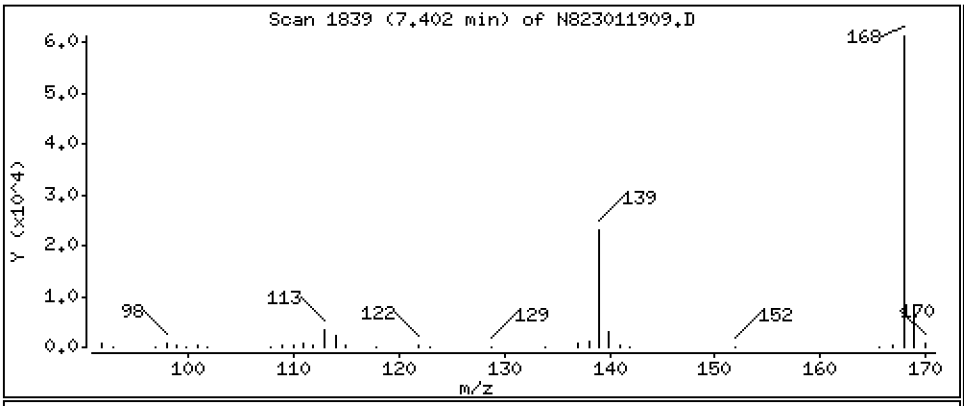
Operator: JZ

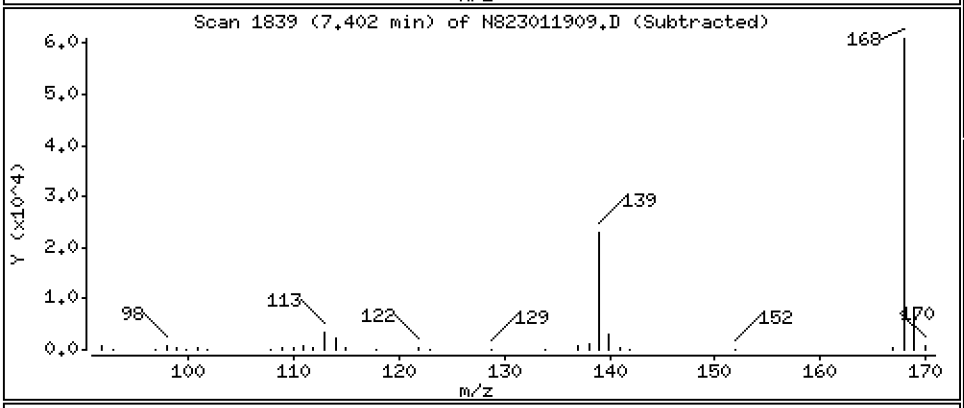
Column phase: Rxi-17sil

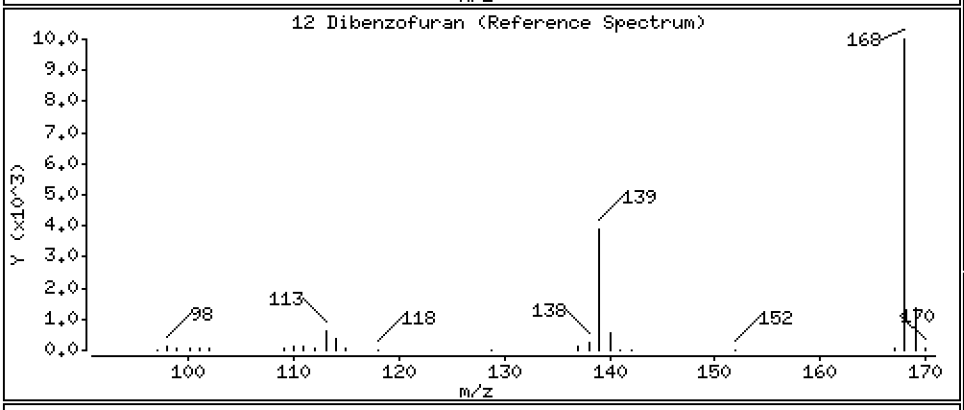
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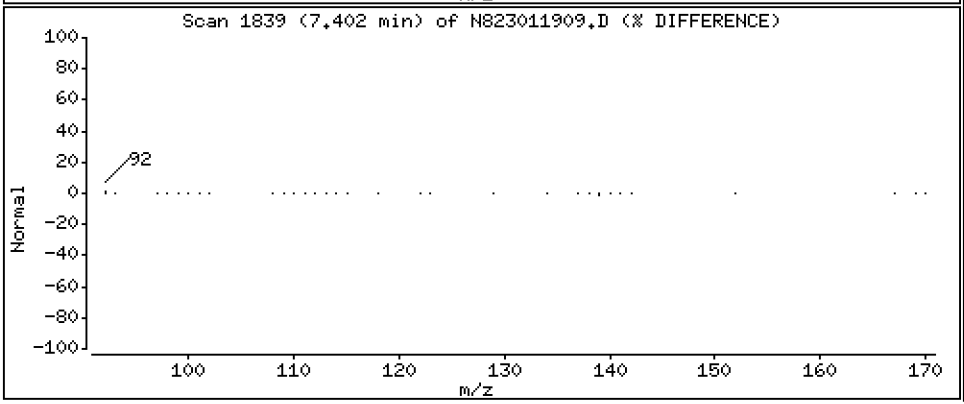
12 Dibenzofuran

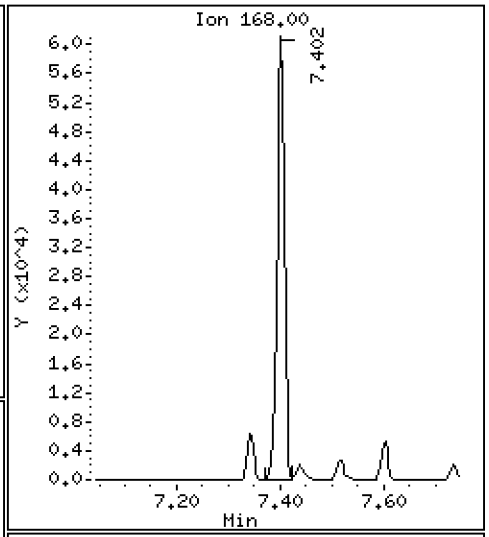
Concentration: 2.860 ug/L

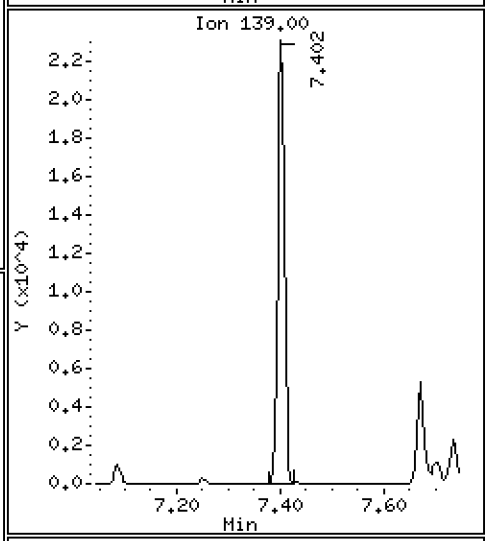


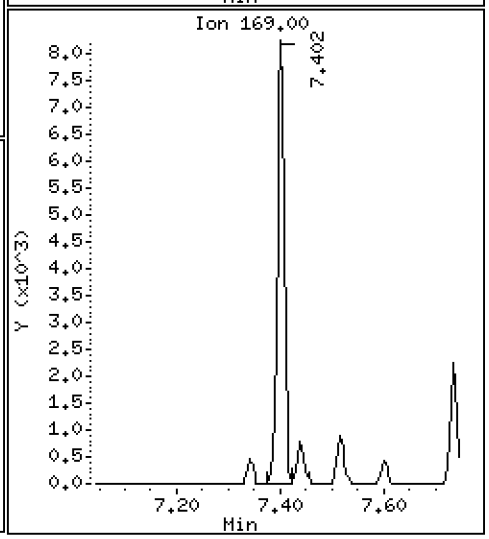












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

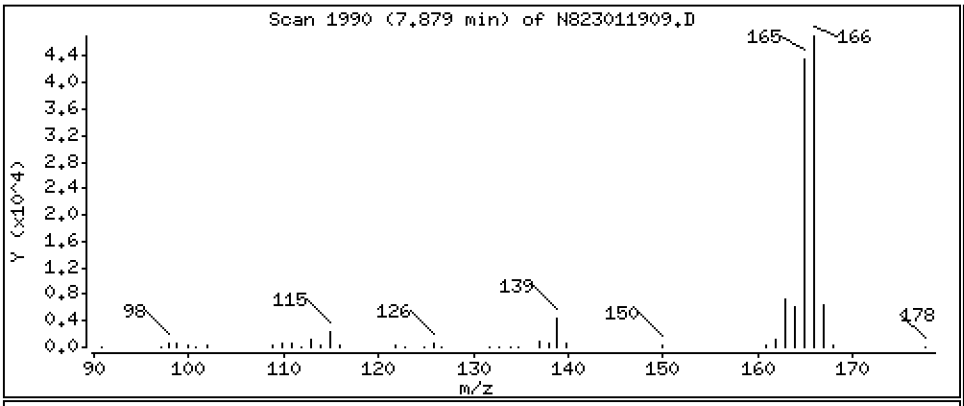
Operator: JZ

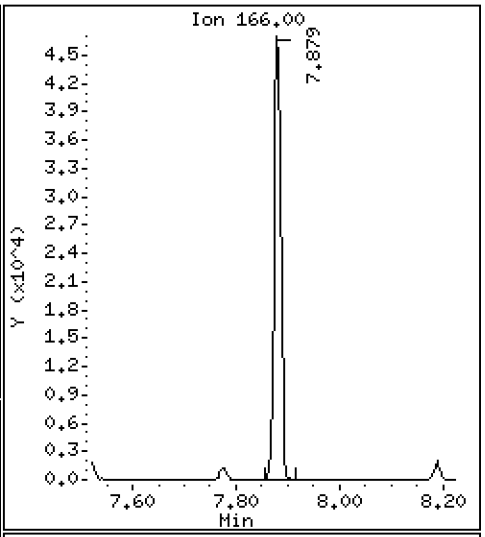
Column phase: Rxi-17sil

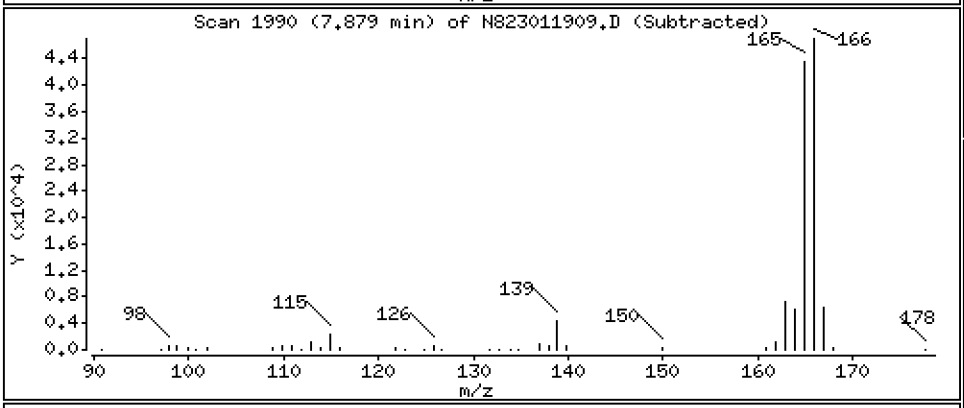
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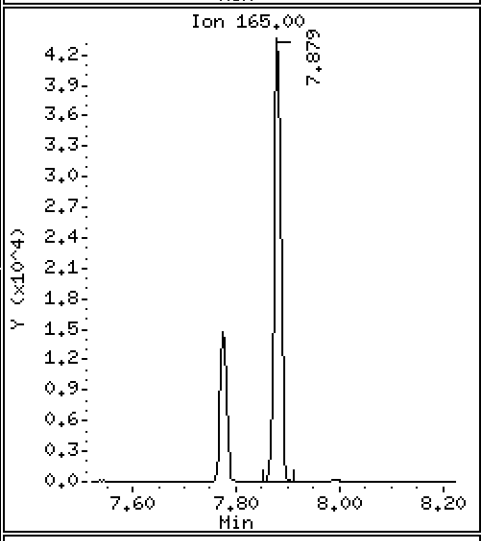
14 Fluorene

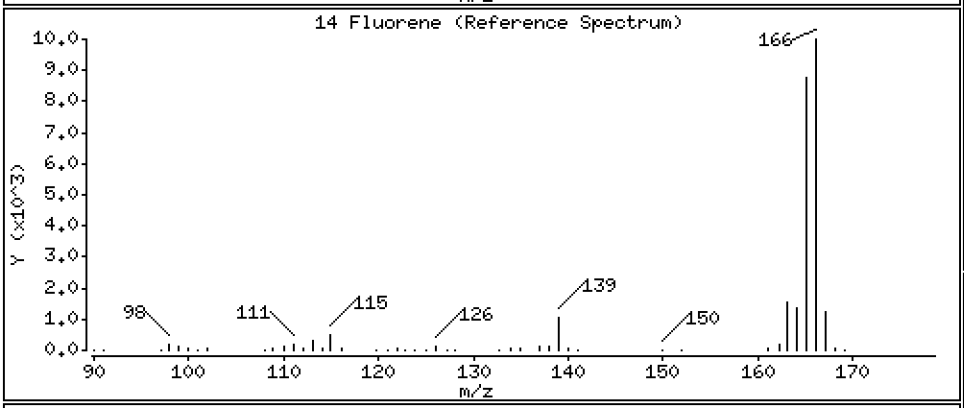
Concentration: 2.631 ug/L

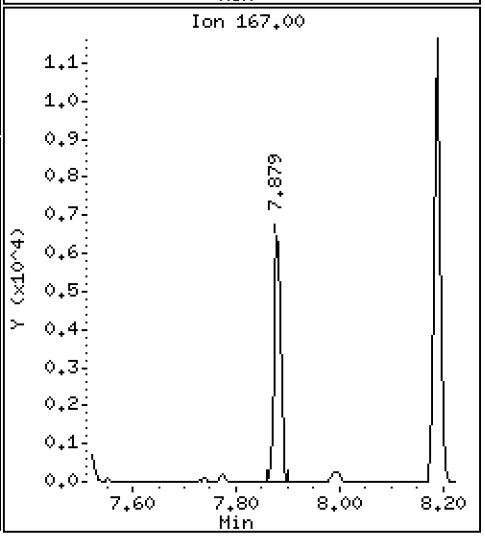


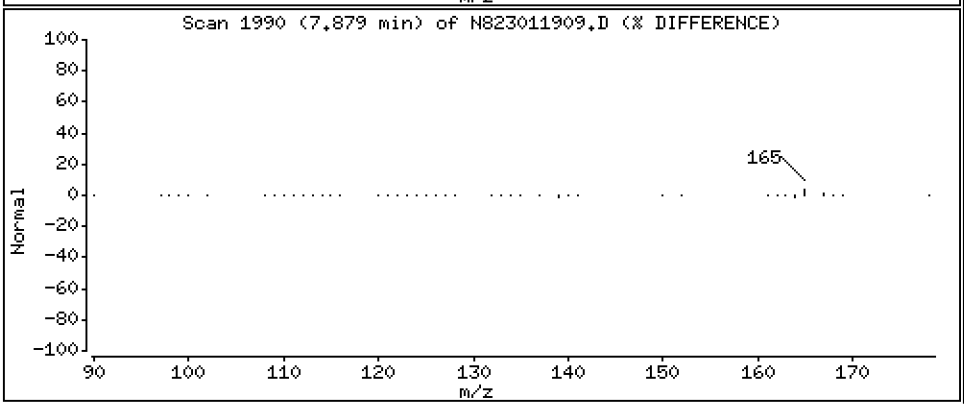












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

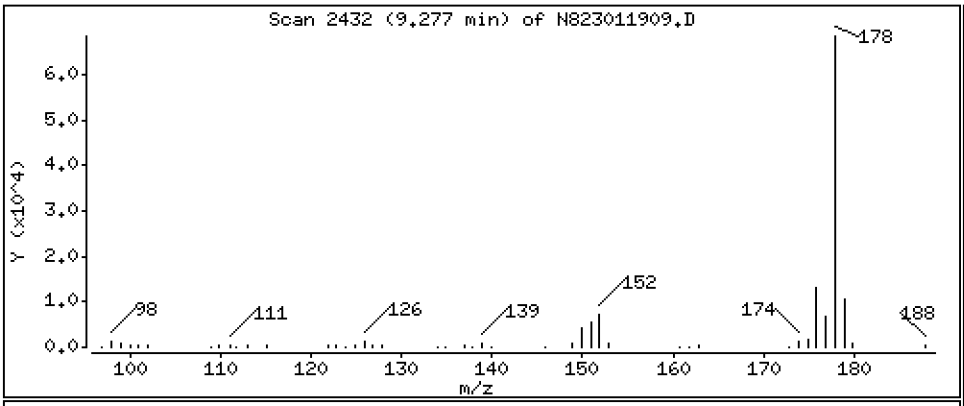
Operator: JZ

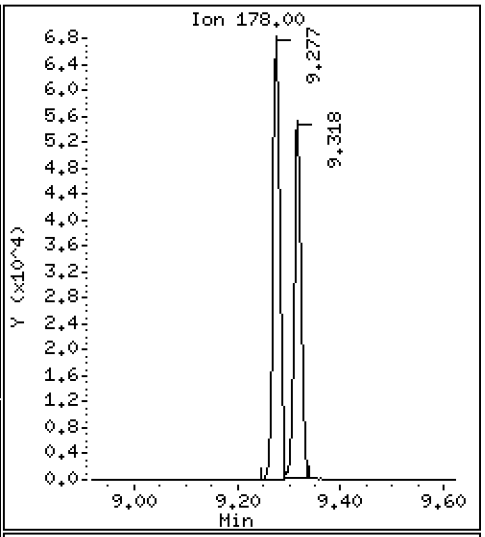
Column phase: Rxi-17sil

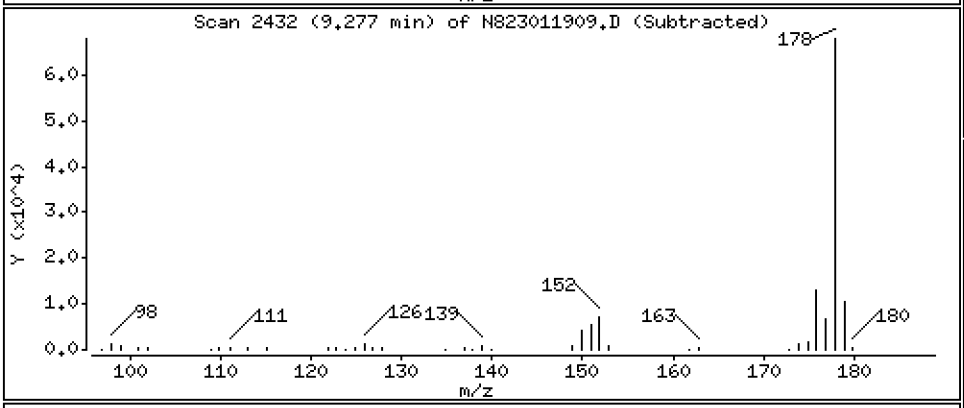
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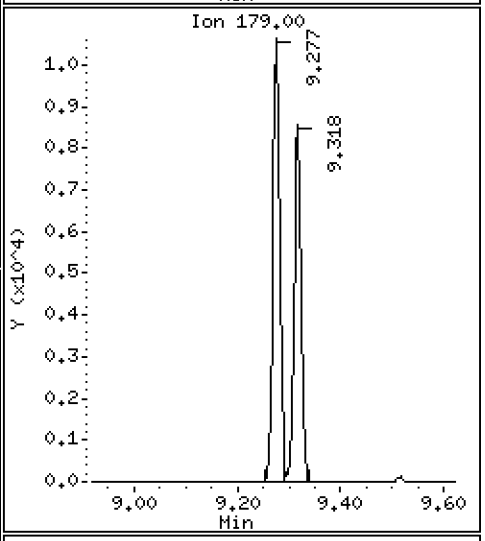
16 Phenanthrene

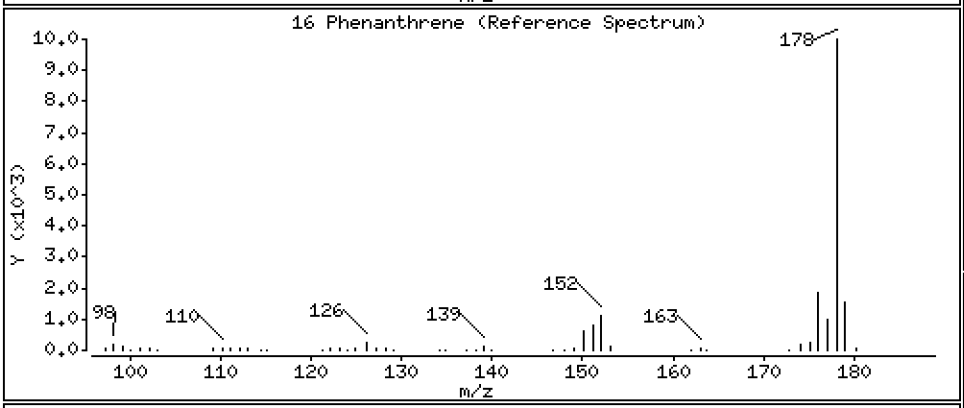
Concentration: 2.448 ug/L

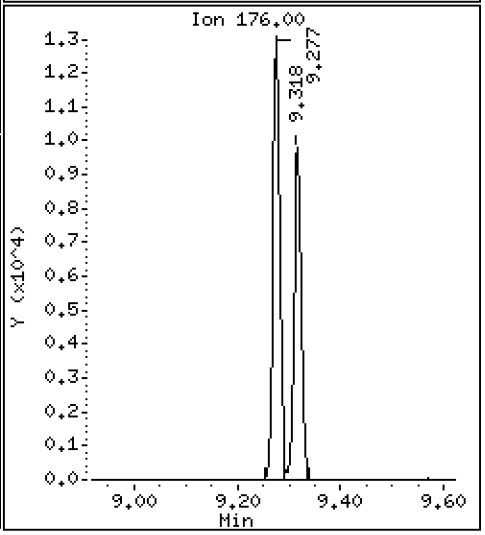


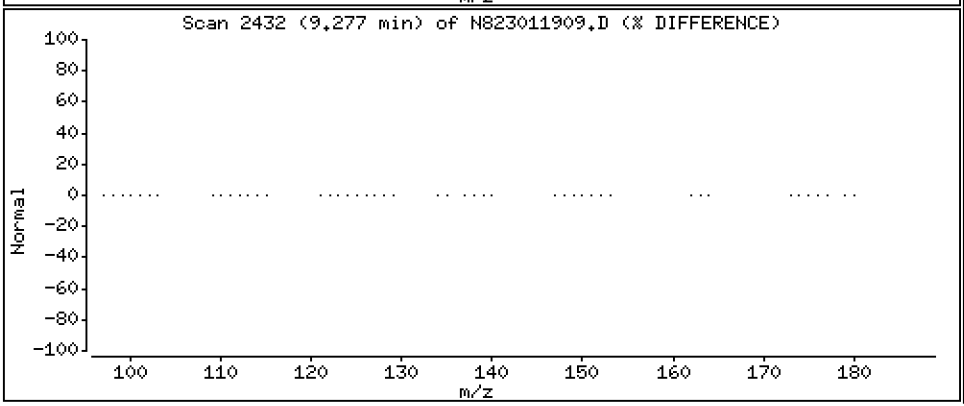












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

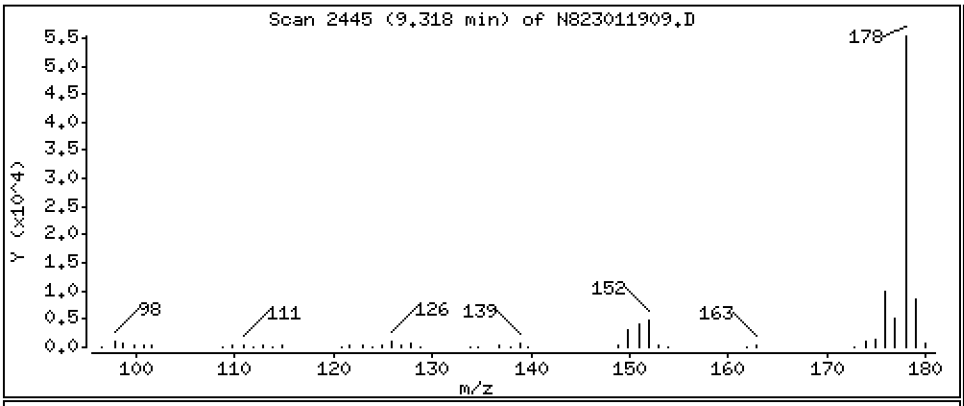
Operator: JZ

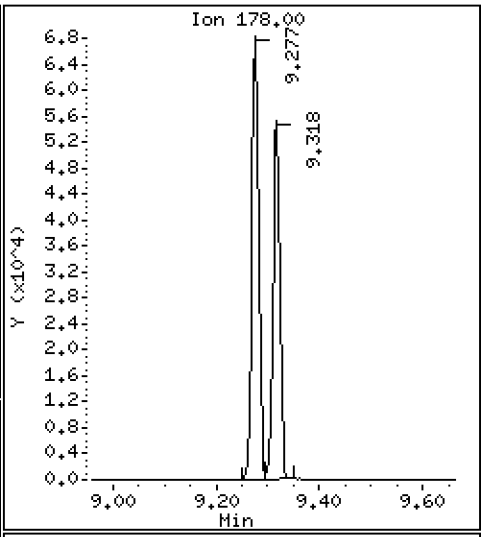
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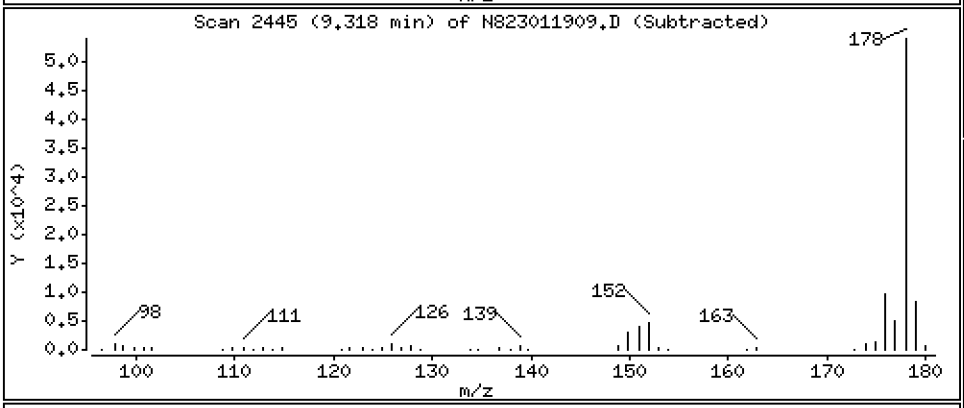
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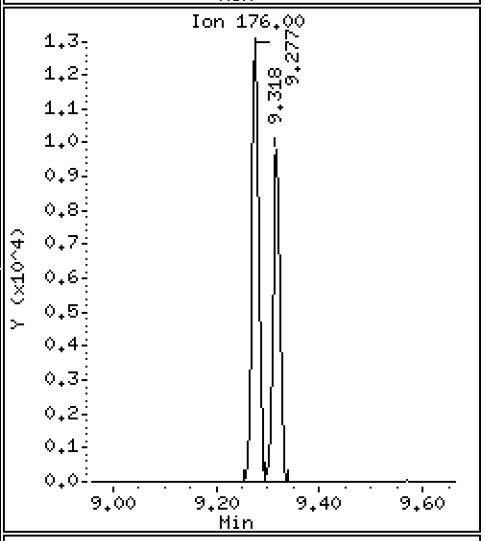
17 Anthracene

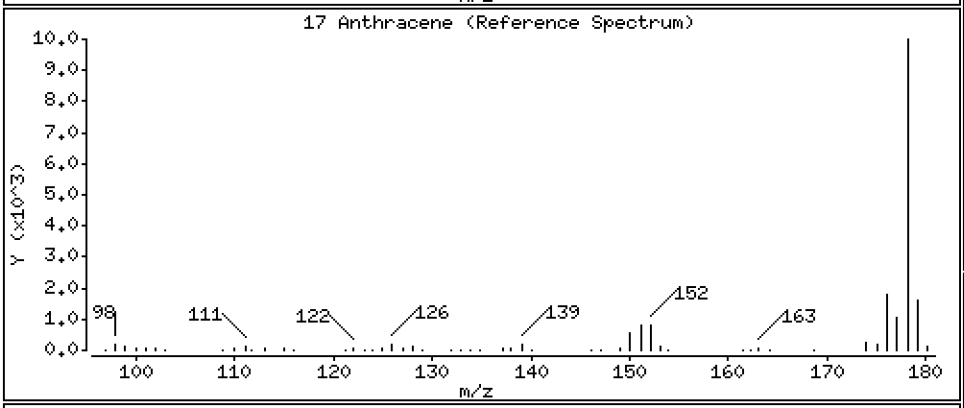
Concentration: 2.270 ug/L

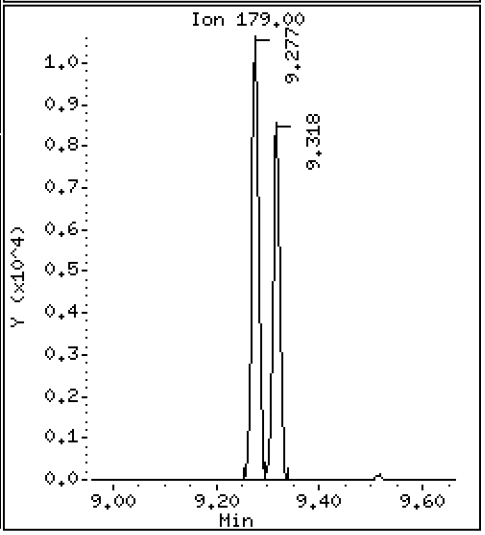


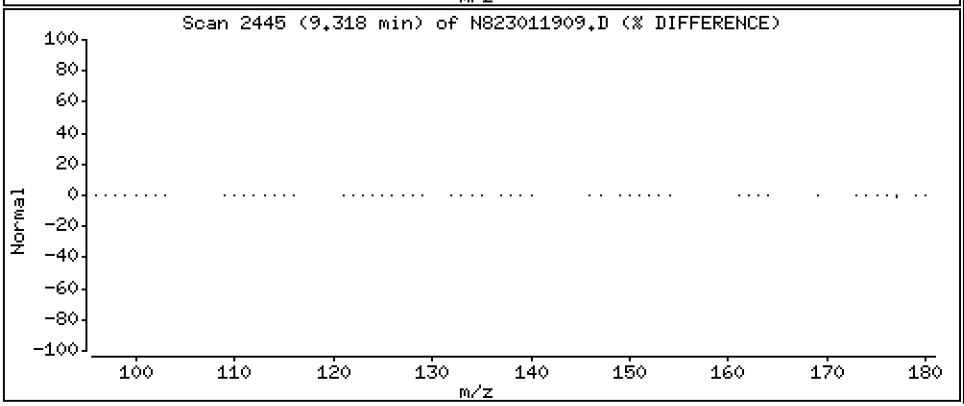












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

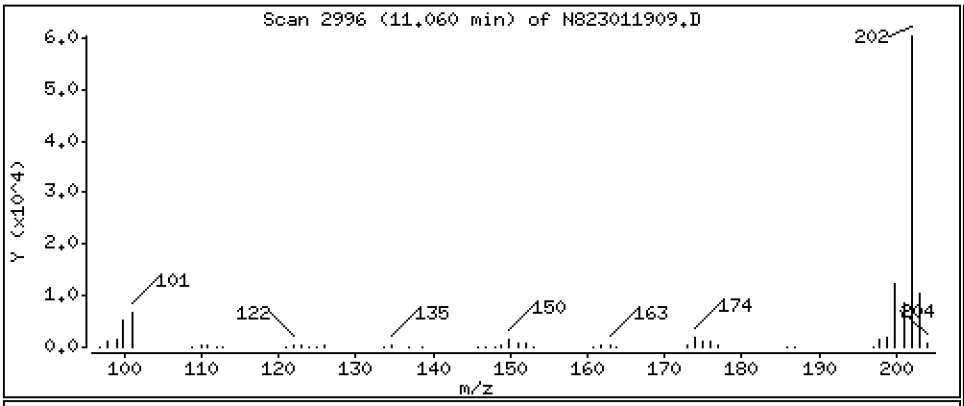
Operator: JZ

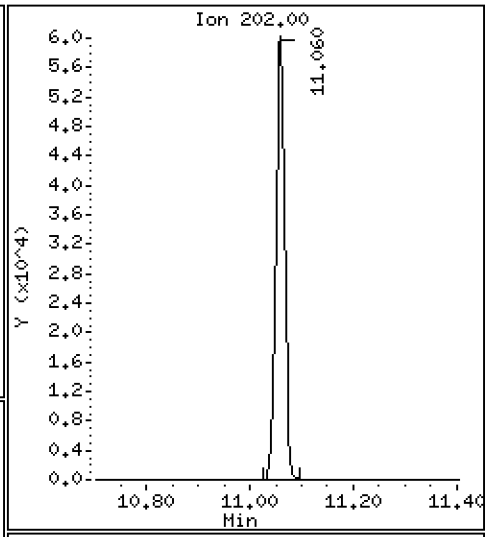
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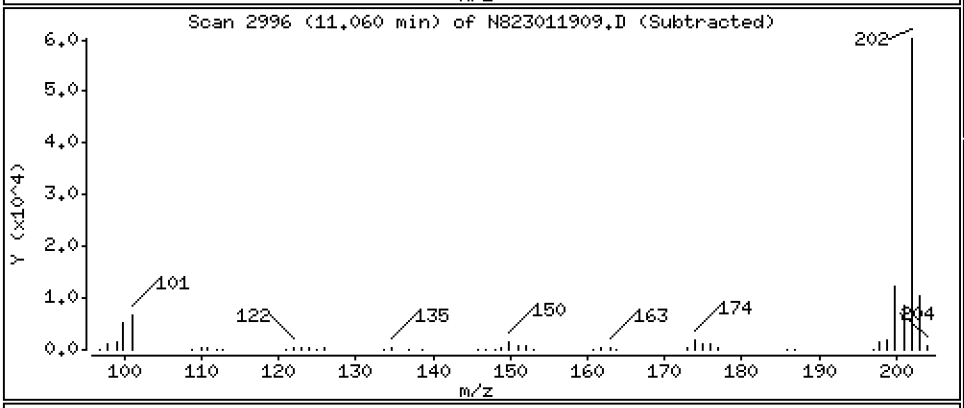
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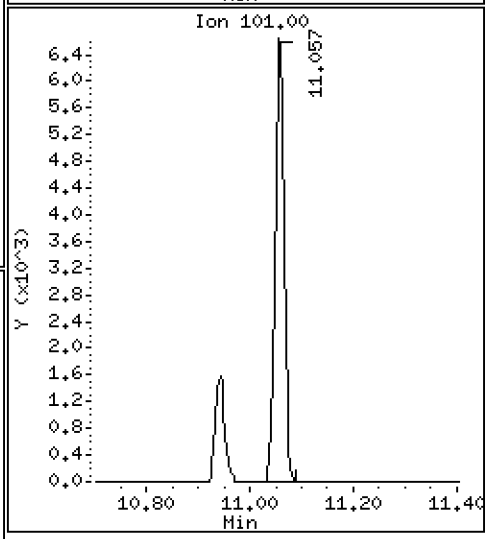
22 Fluoranthene

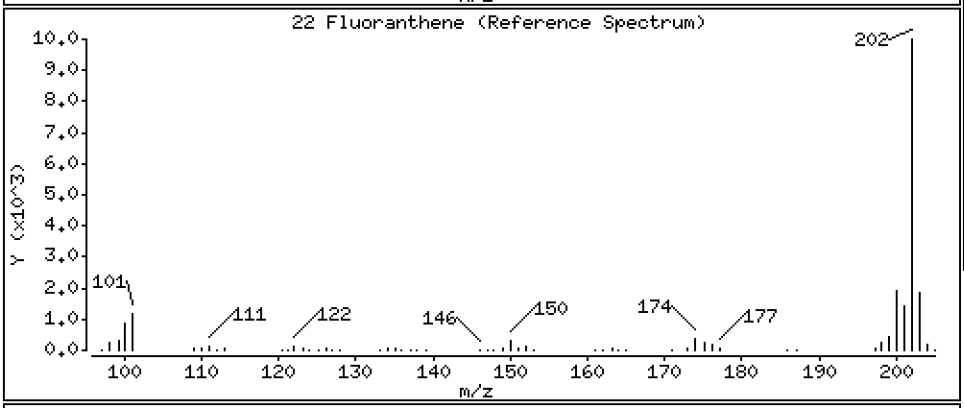
Concentration: 2.653 ug/L

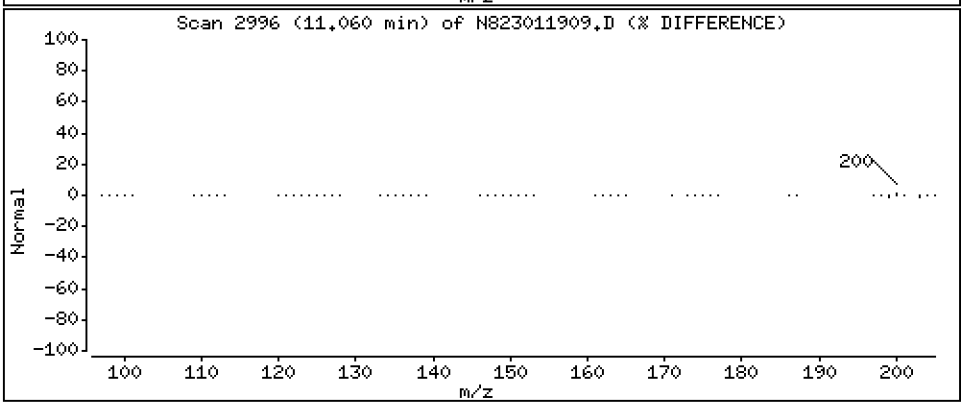












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Date : 19-JAN-2023 14:58

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Instrument: nt8.i

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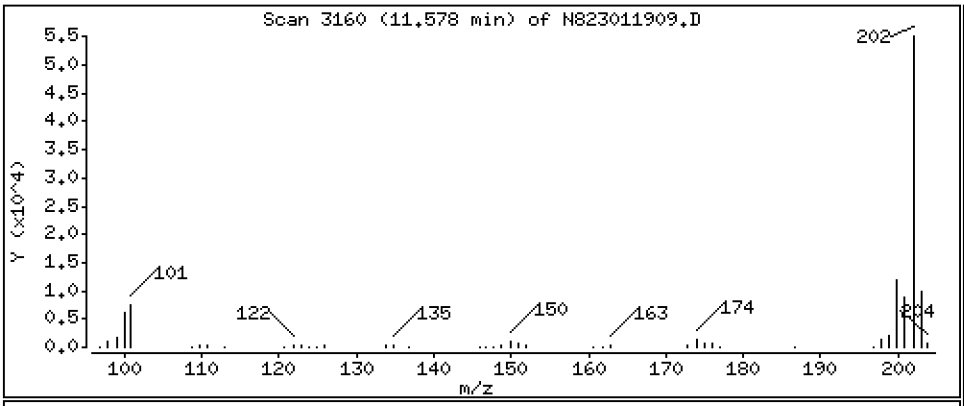
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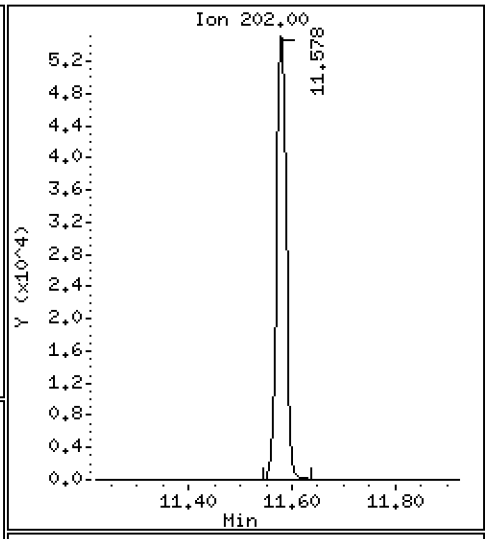
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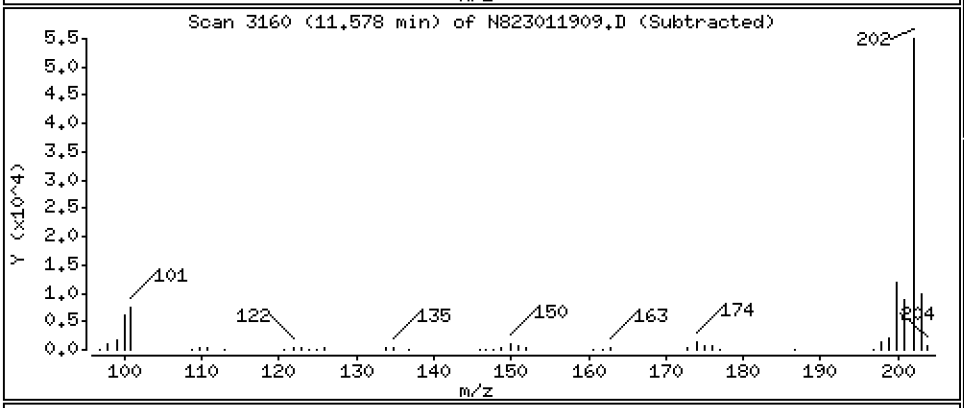
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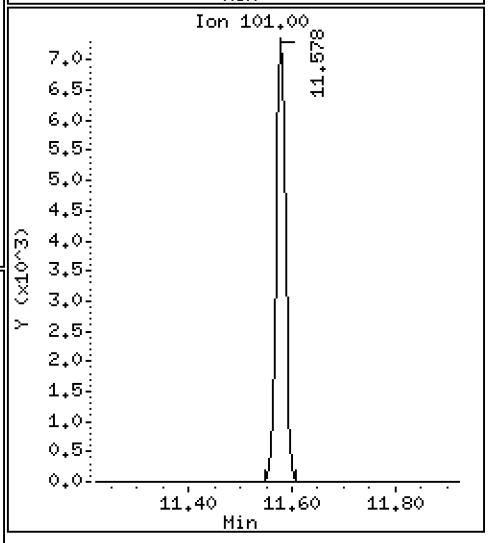
23 Pyrene

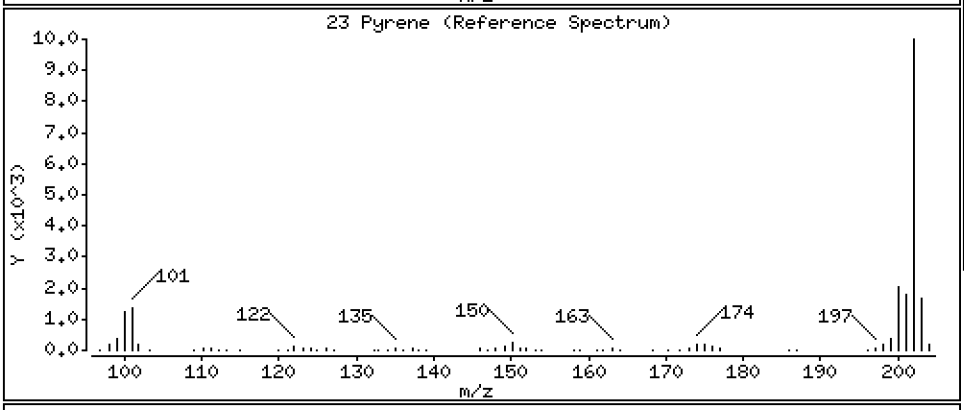
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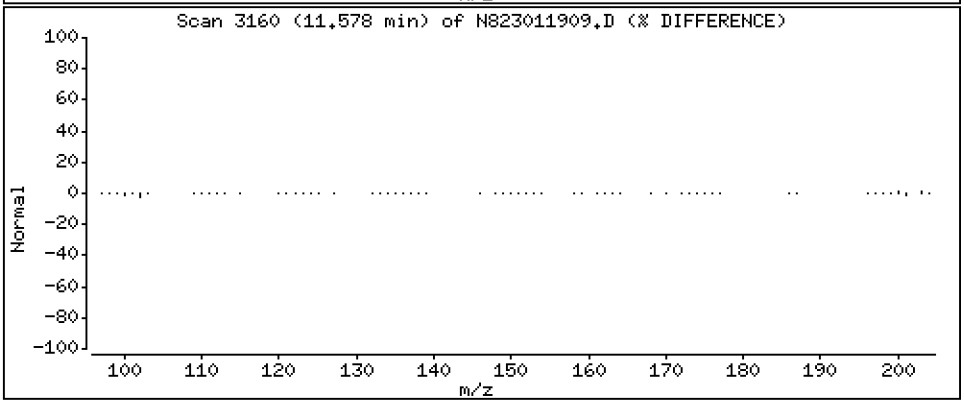












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Date : 19-JAN-2023 14:58

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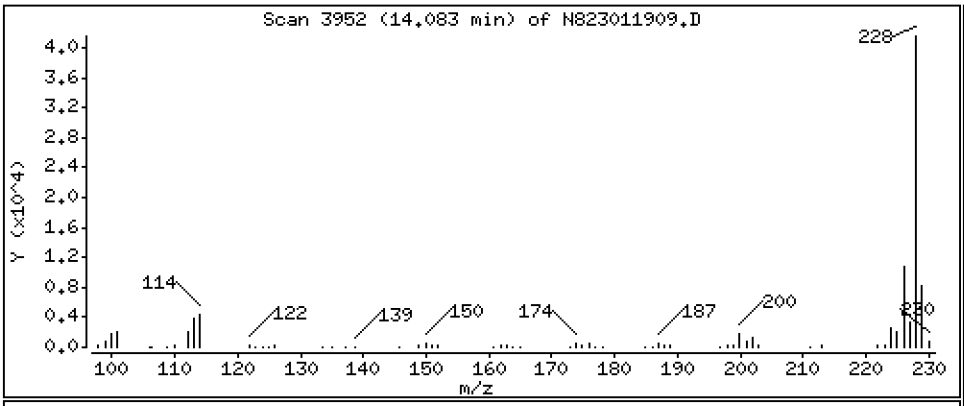
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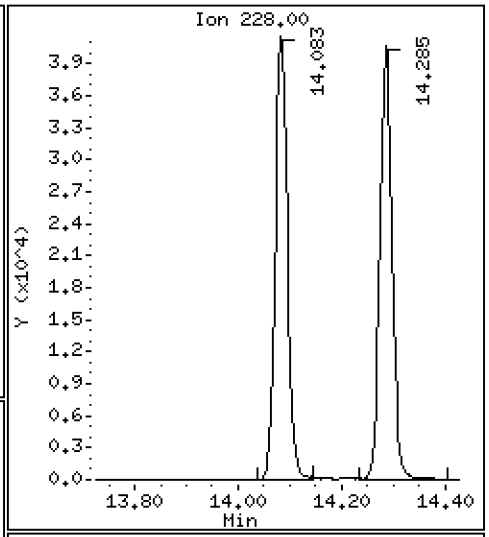
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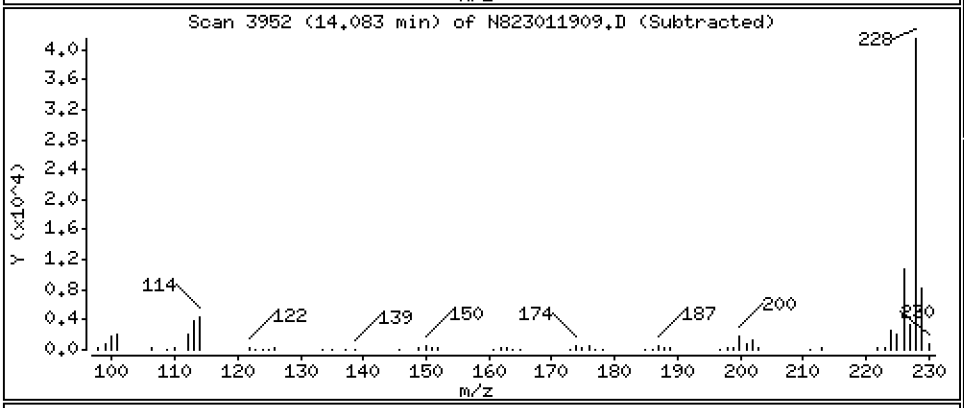
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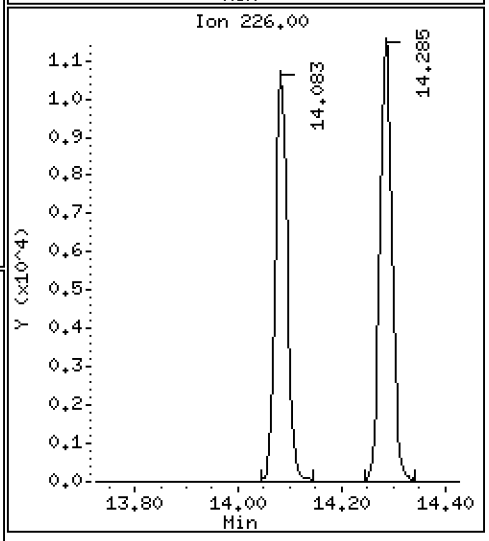
24 Benzo(a)anthracene

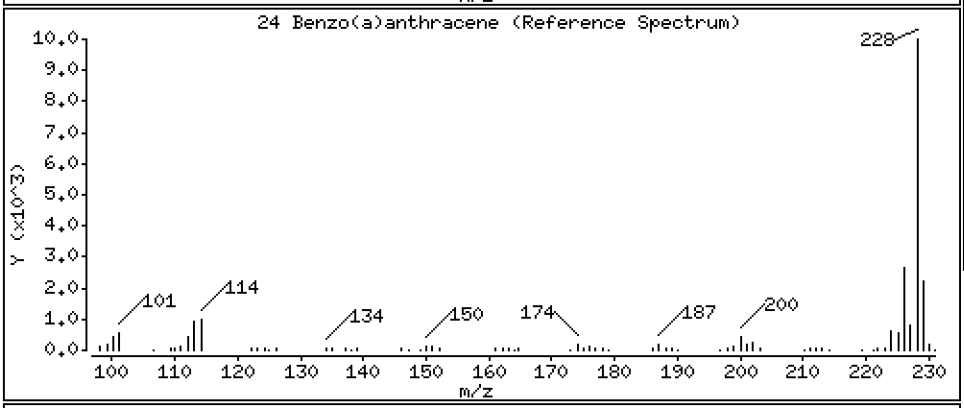
Concentration: 2.587 ug/L

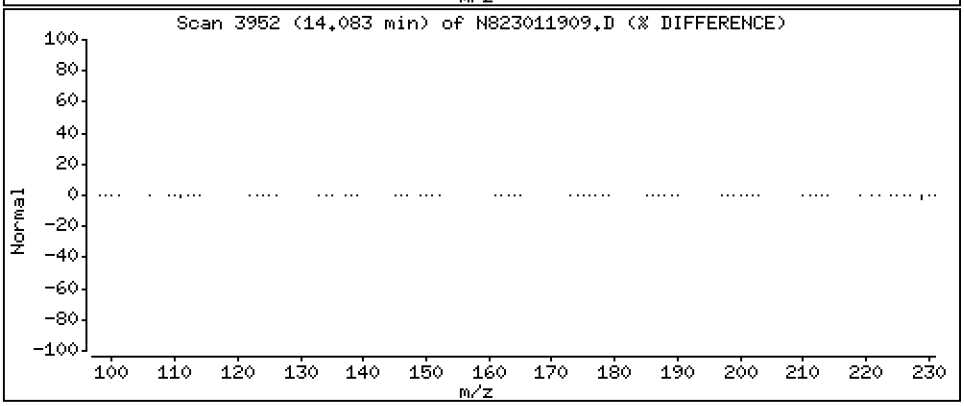












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

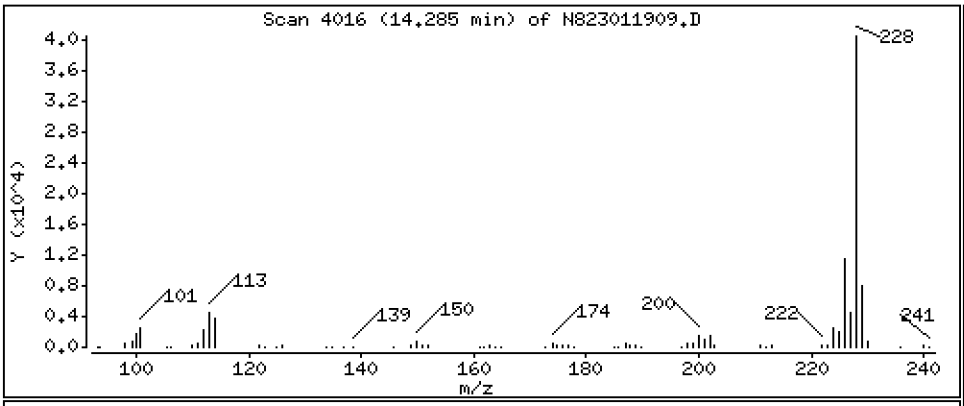
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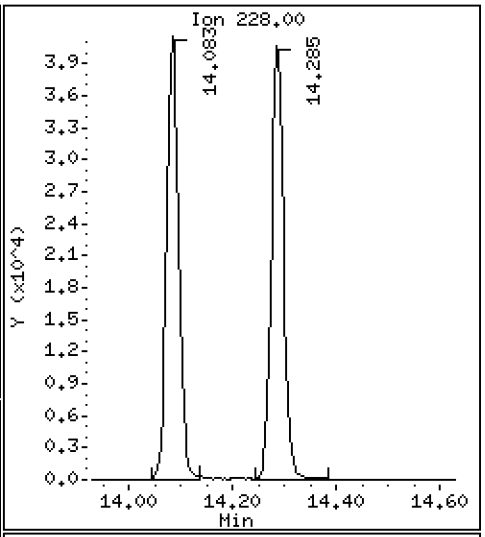
Column phase: Rxi-17sil

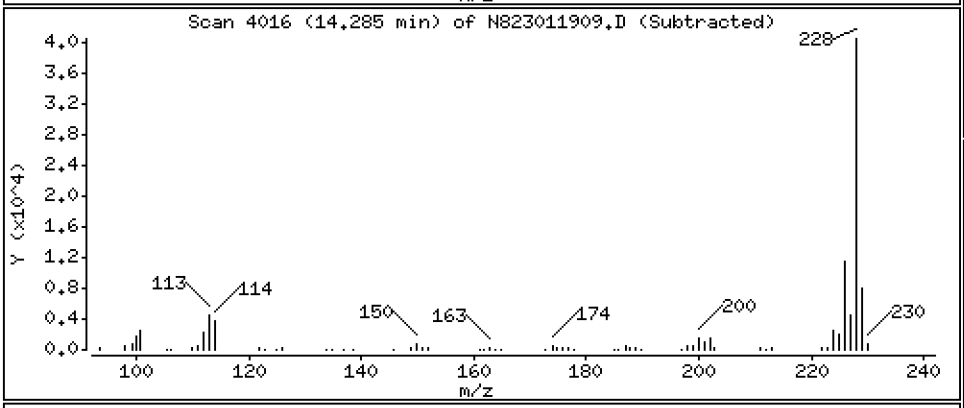
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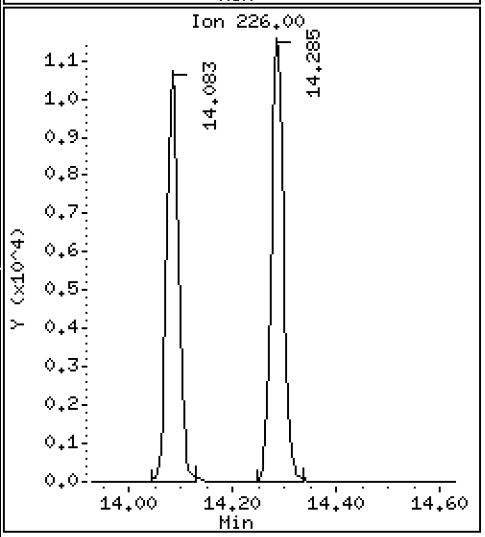
27 Chrysene

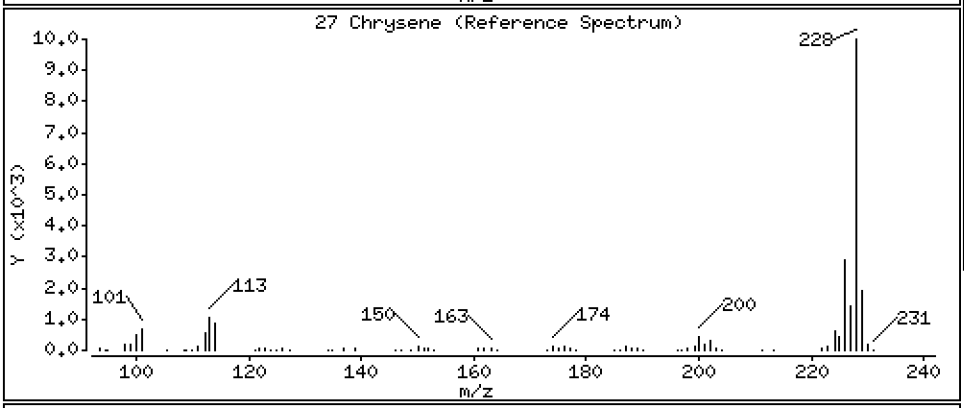
Concentration: 2.400 ug/L

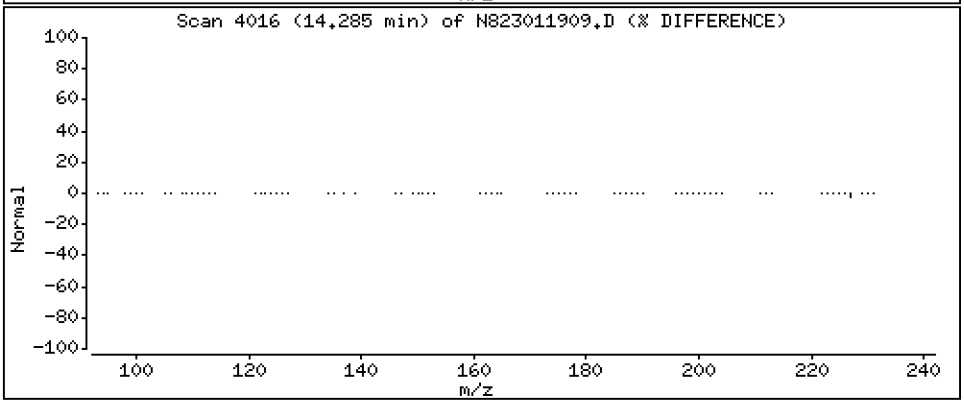












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

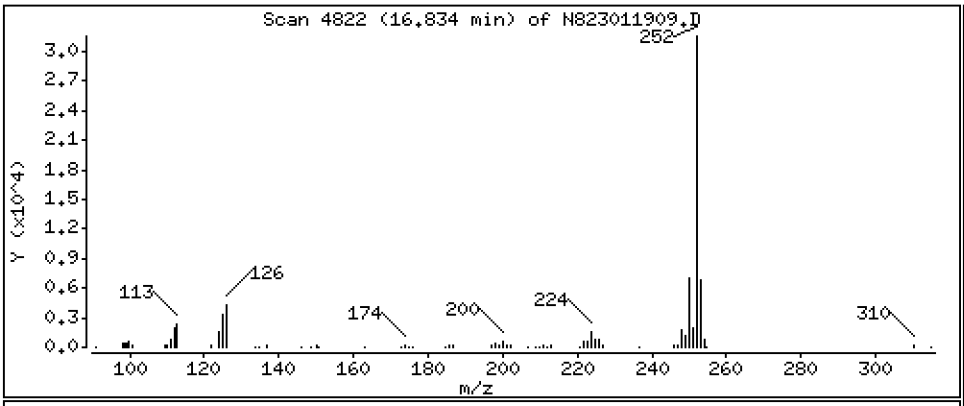
Operator: JZ

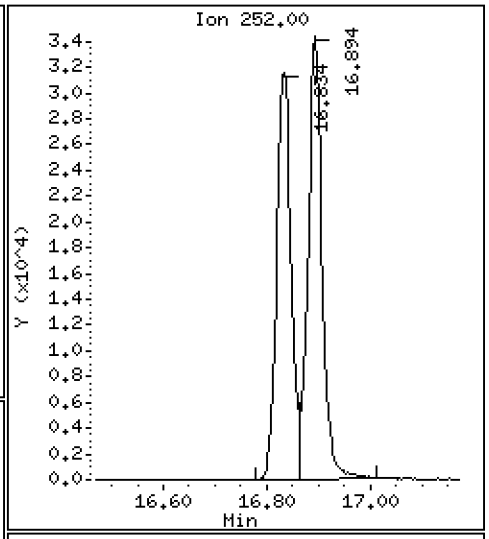
Column phase: Rxi-17sil

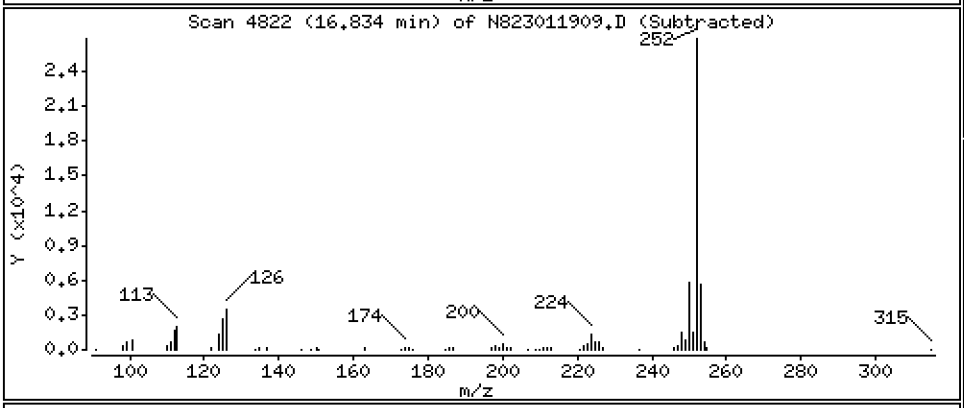
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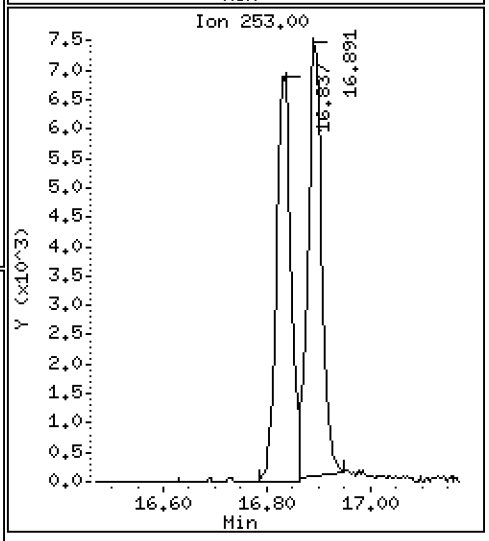
28 Benzo(b)fluoranthene

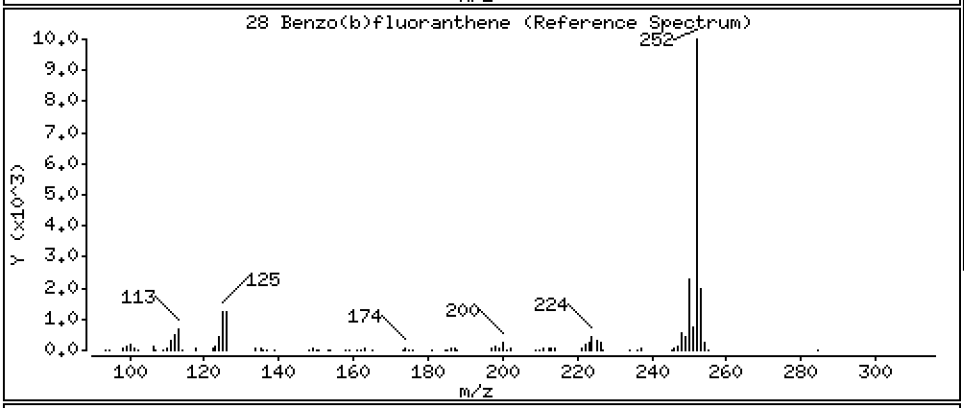
Concentration: 2.507 ug/L

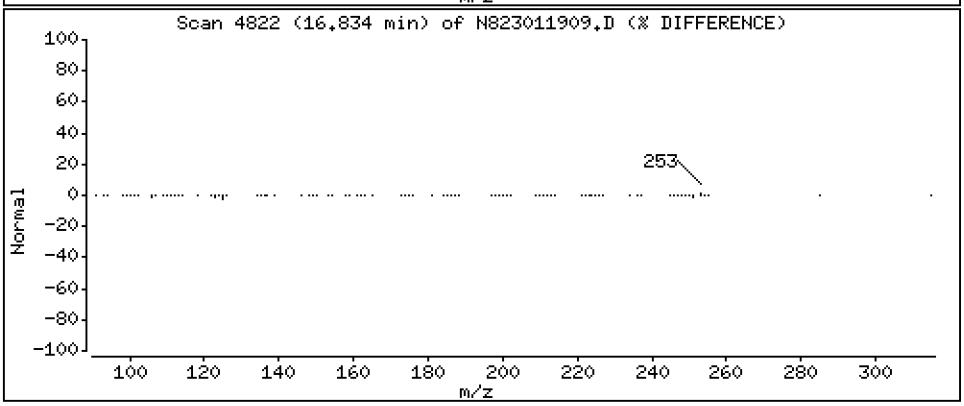












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

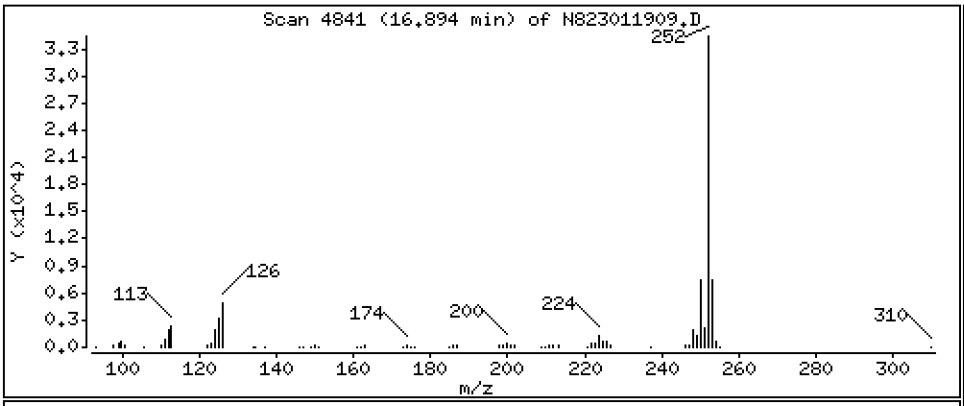
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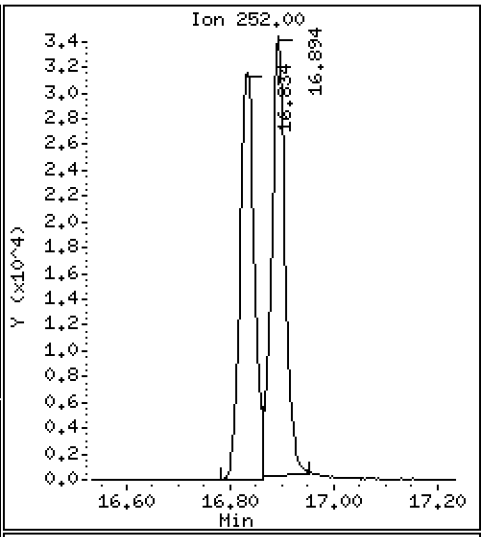
Column phase: Rxi-17sil

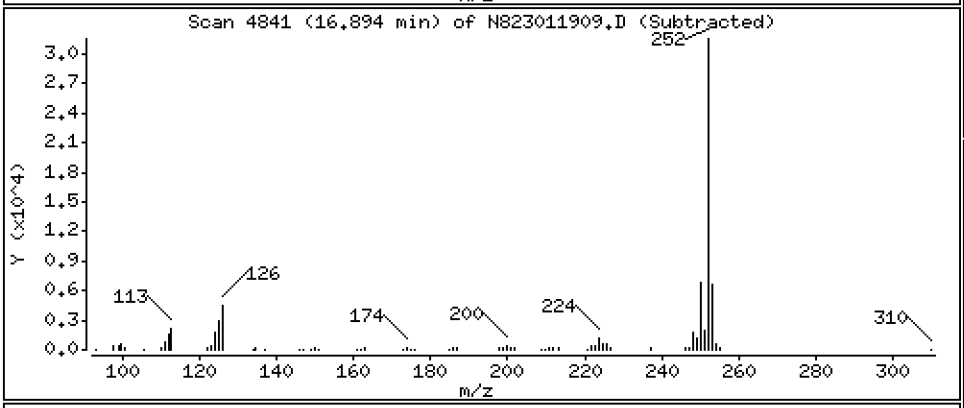
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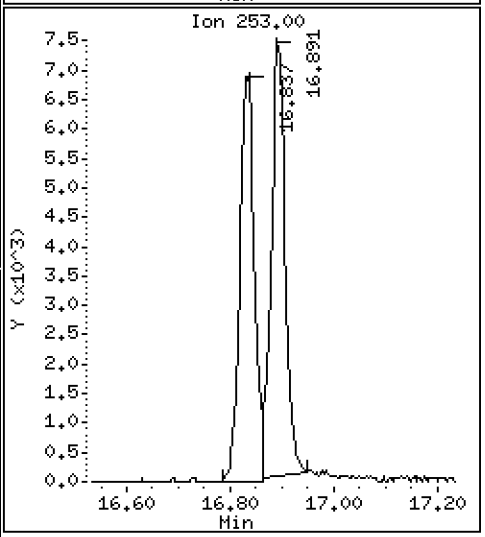
29 Benzo(k)fluoranthene

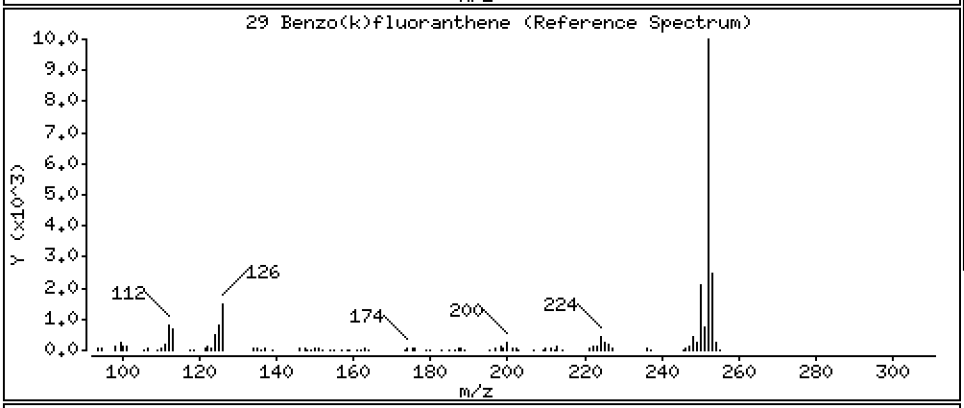
Concentration: 2.656 ug/L

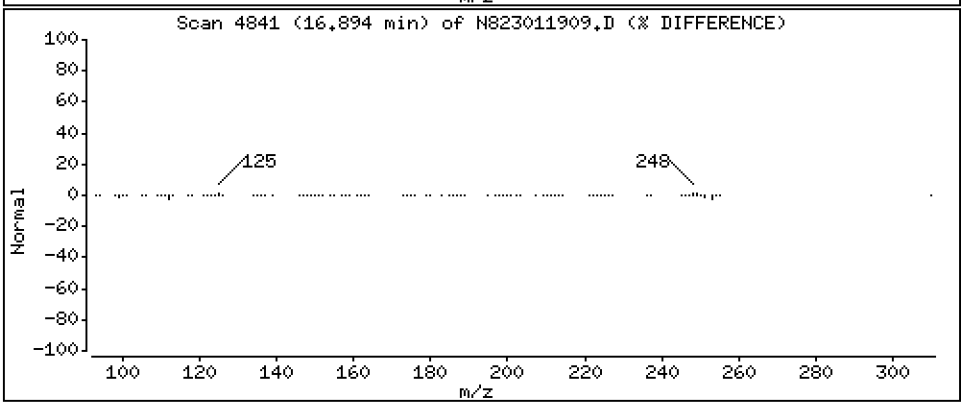












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

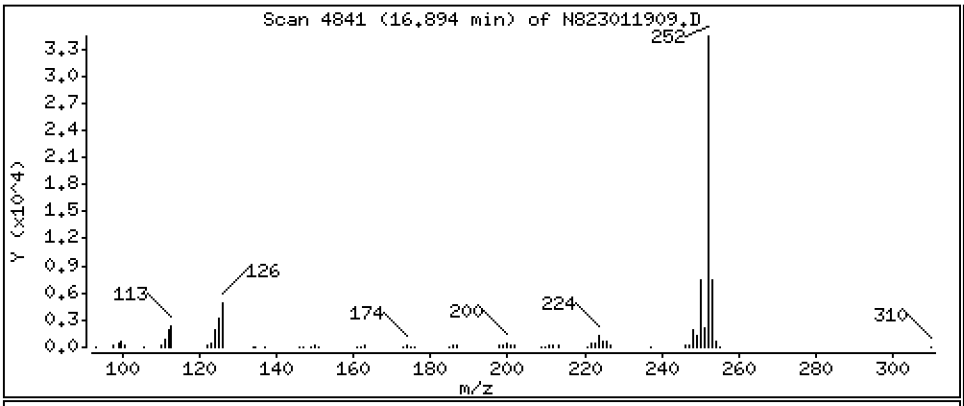
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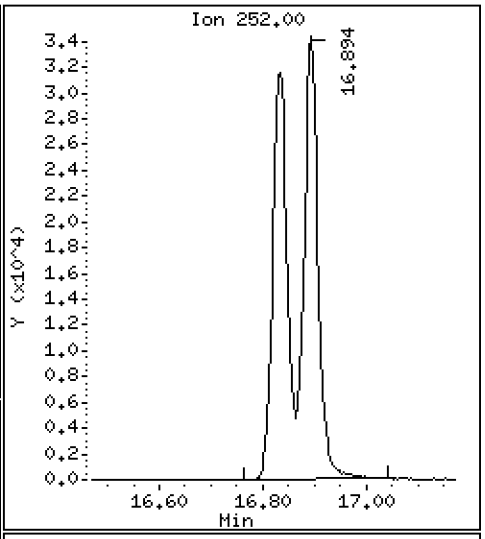
Column phase: Rxi-17sil

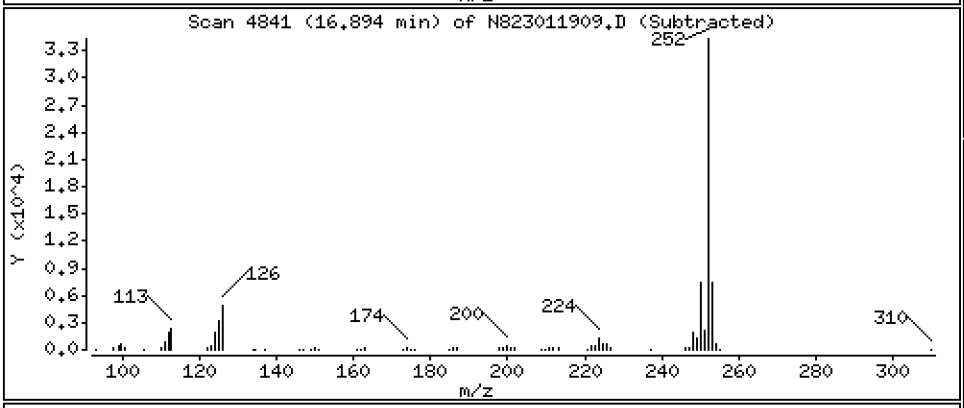
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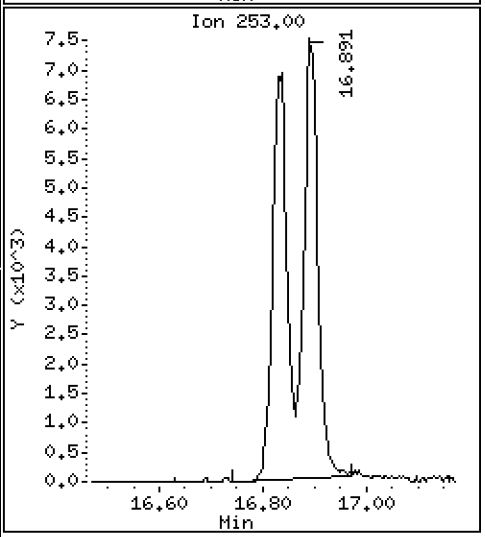
31 Total Benzofluoranthenes

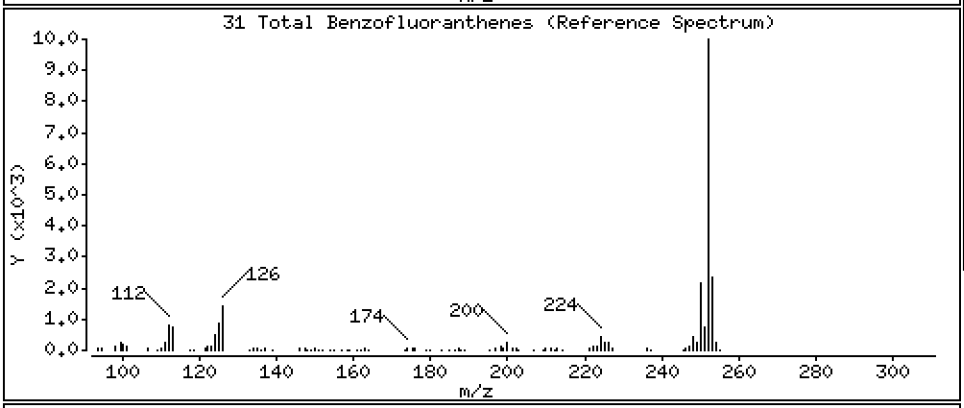
Concentration: 5.480 ug/L

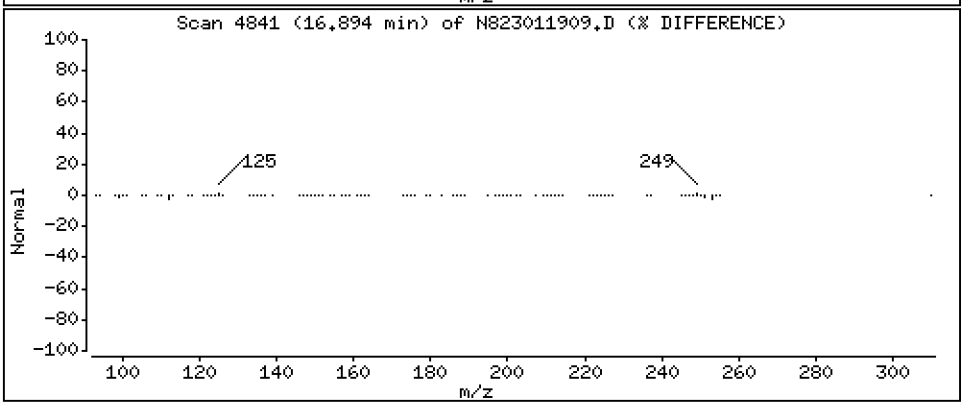












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

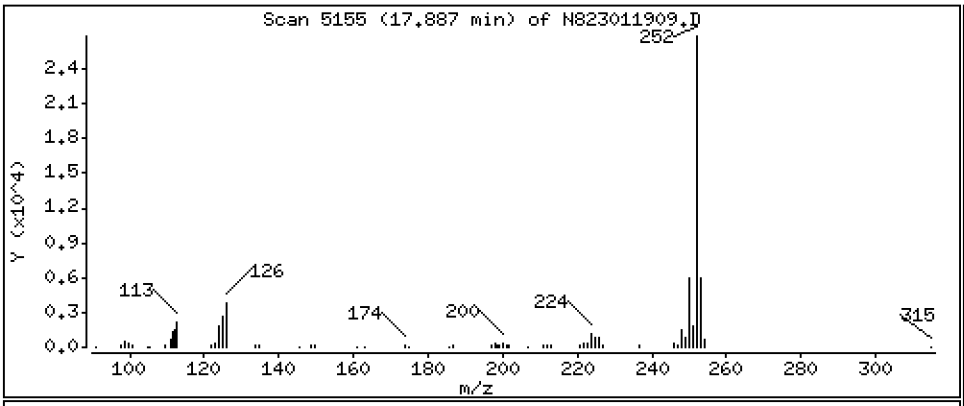
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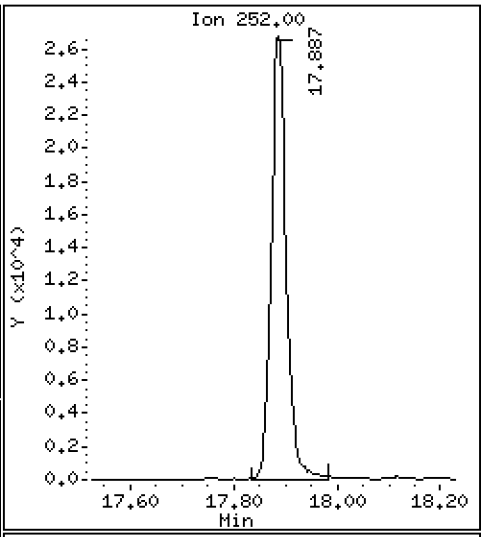
Column phase: Rxi-17sil

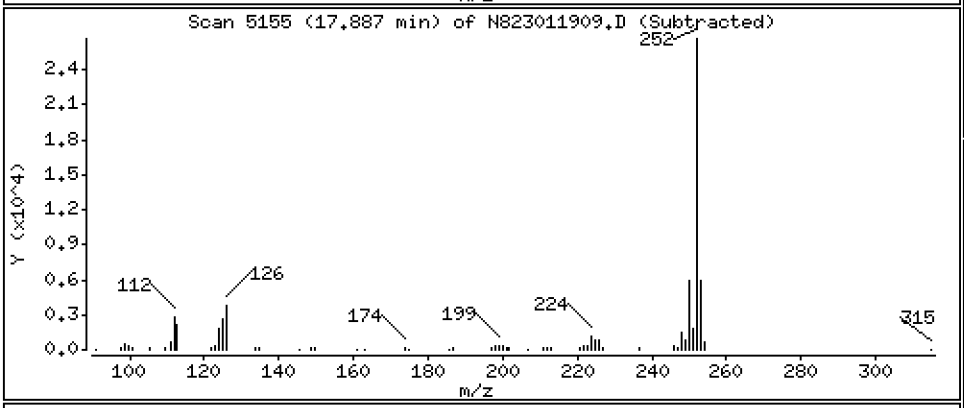
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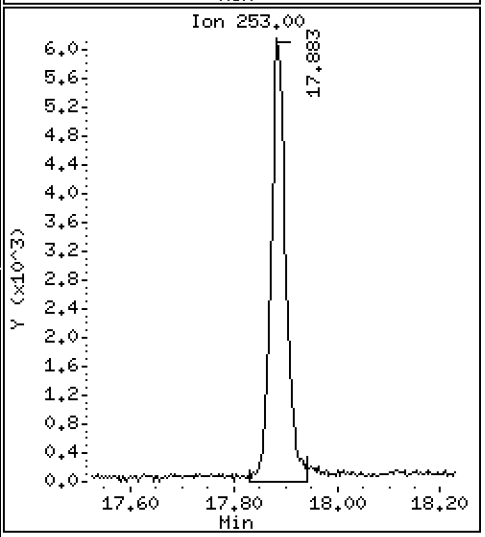
32 Benzo(a)pyrene

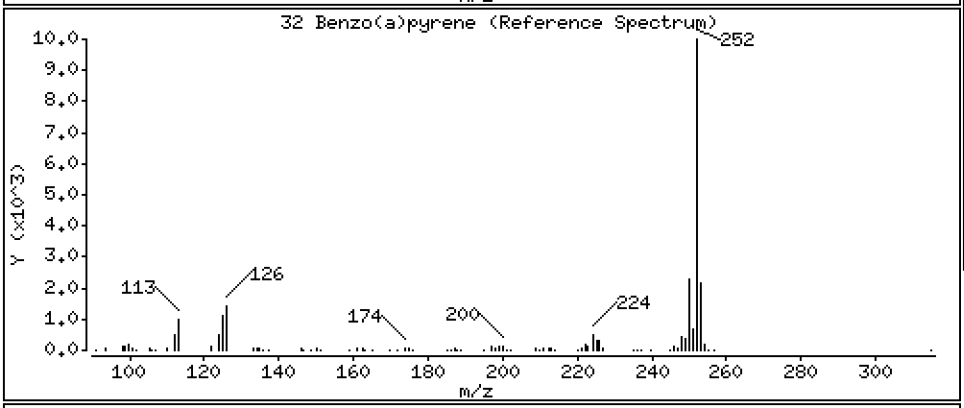
Concentration: 2.572 ug/L

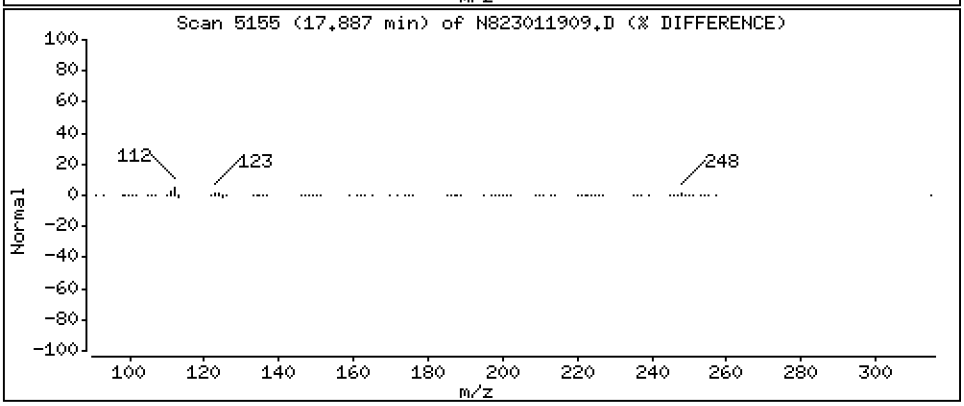












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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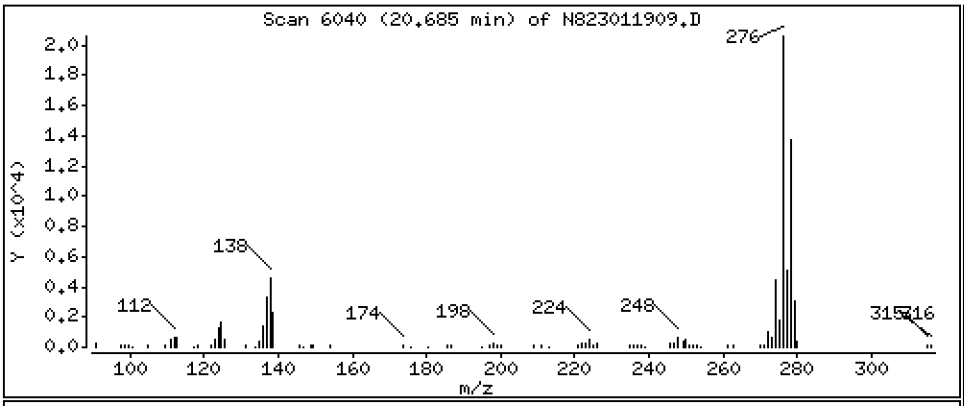
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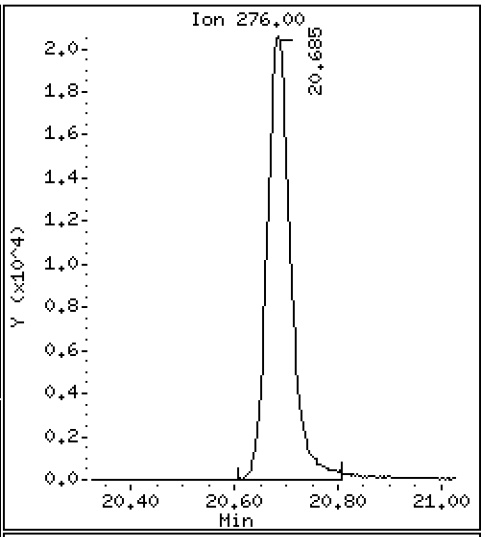
Column phase: Rxi-17sil

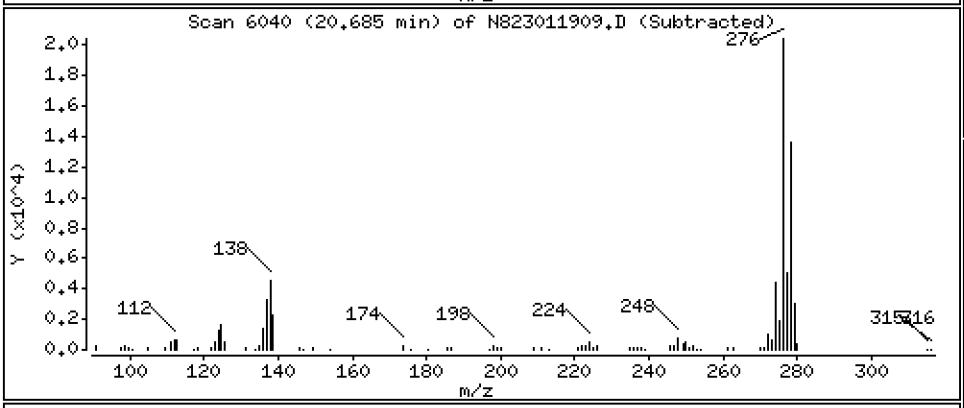
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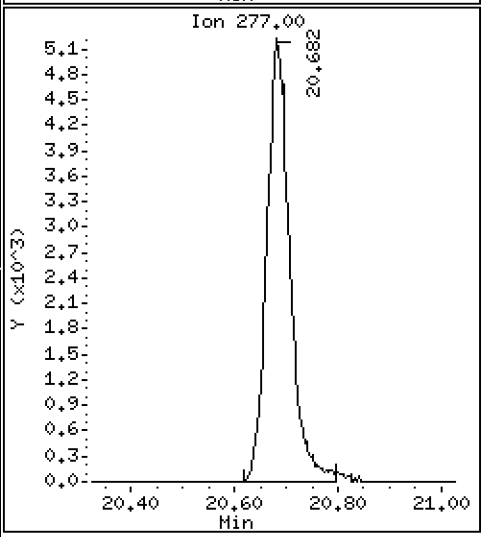
37 Indeno(1,2,3-cd)pyrene

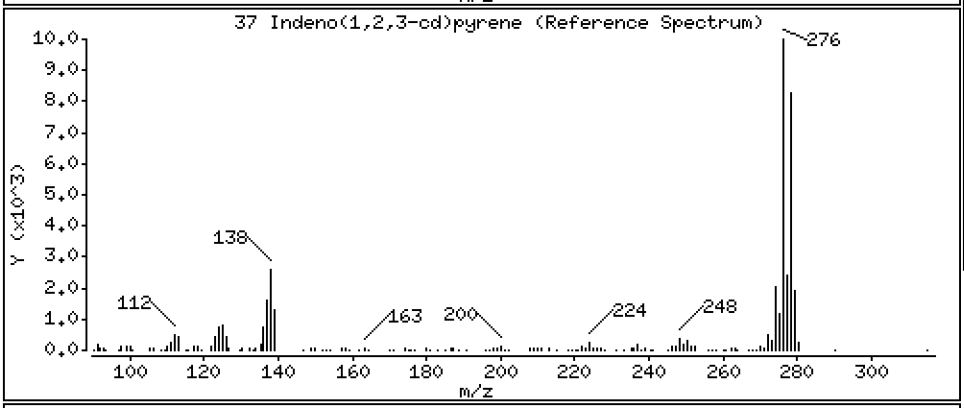
Concentration: 2.689 ug/L

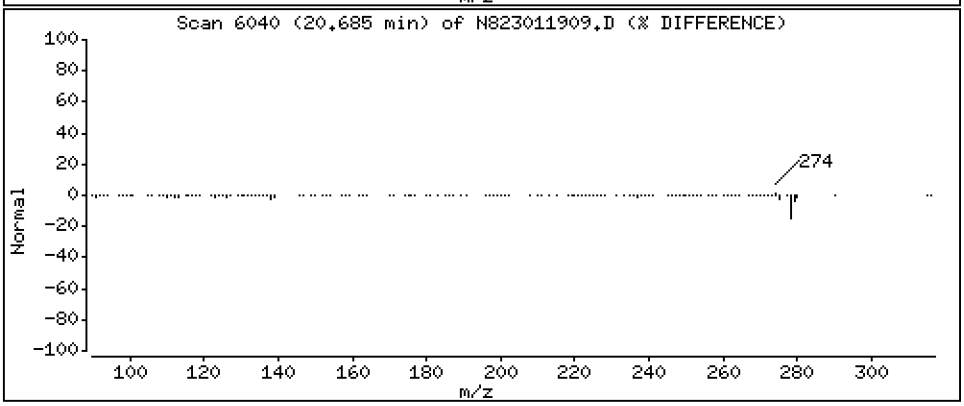












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Client ID:

Instrument: nt8.i

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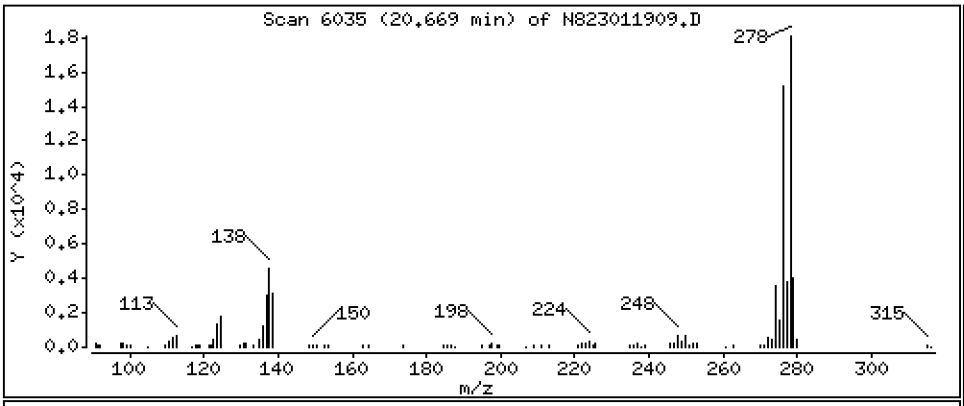
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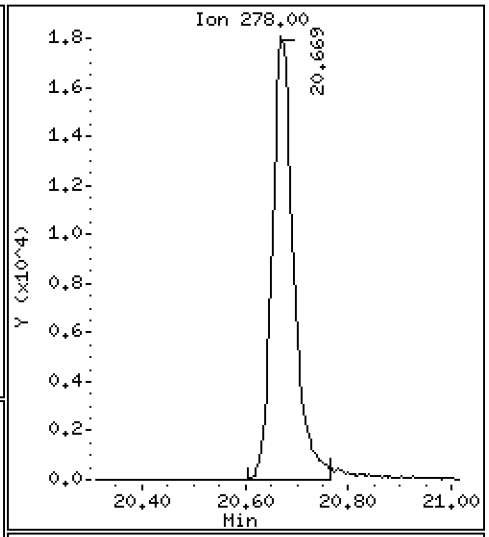
Column phase: Rxi-17sil

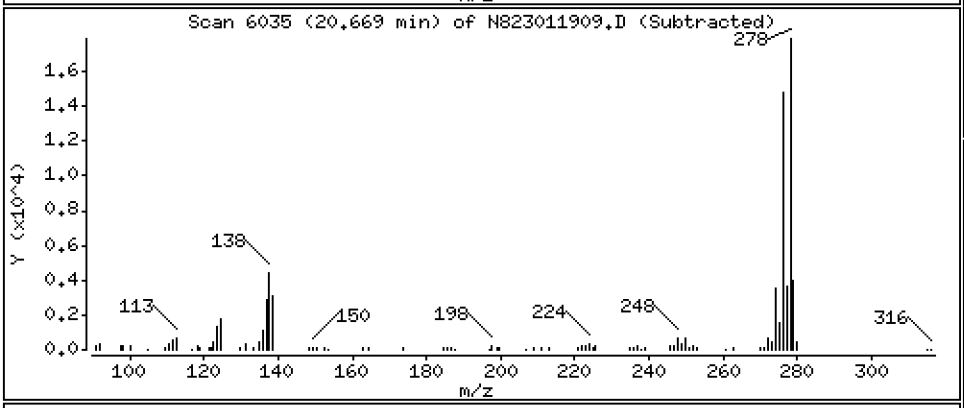
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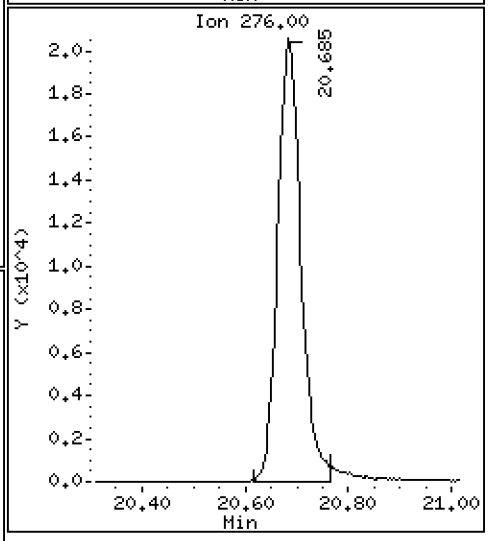
38 Dibenzo(a,h)anthracene

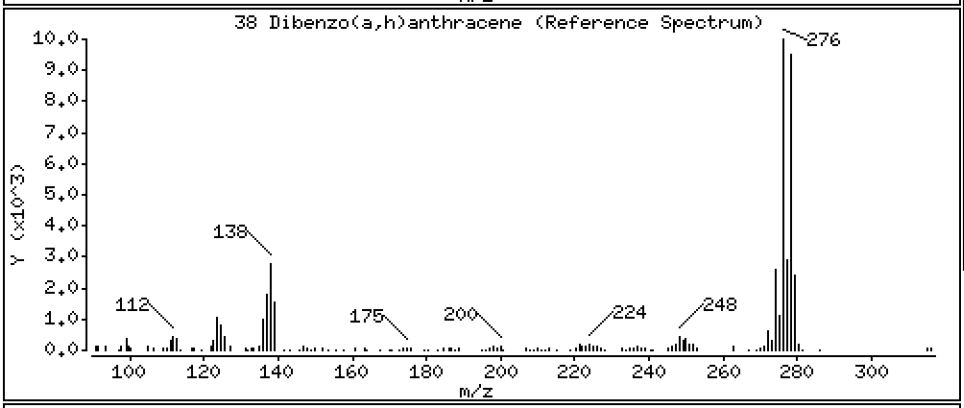
Concentration: 2.493 ug/L

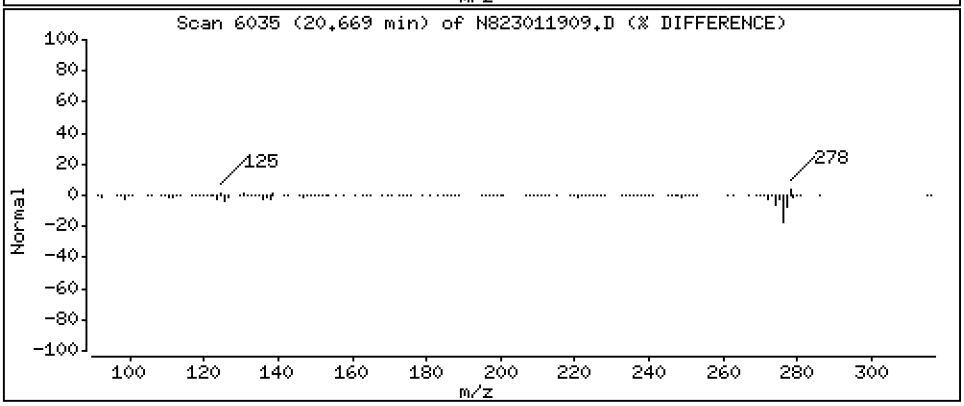












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Date : 19-JAN-2023 14:58

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Instrument: nt8.i

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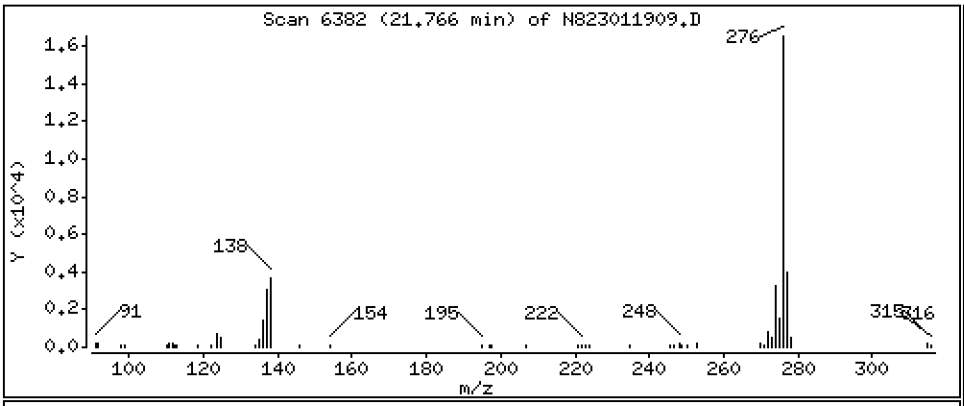
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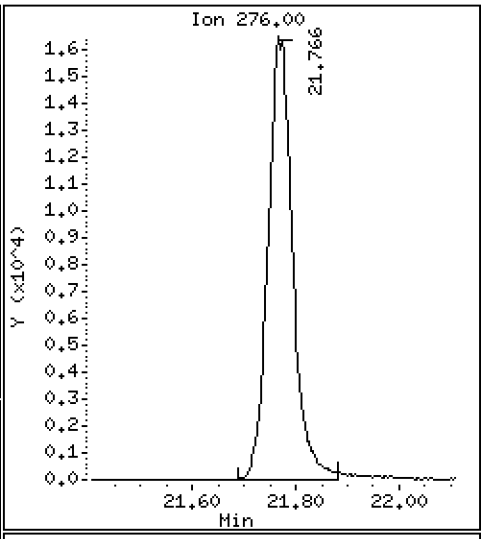
Column phase: Rxi-17sil

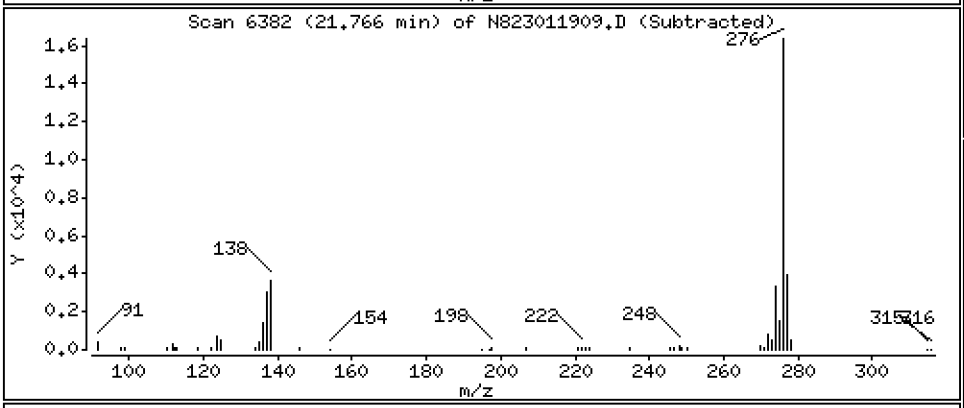
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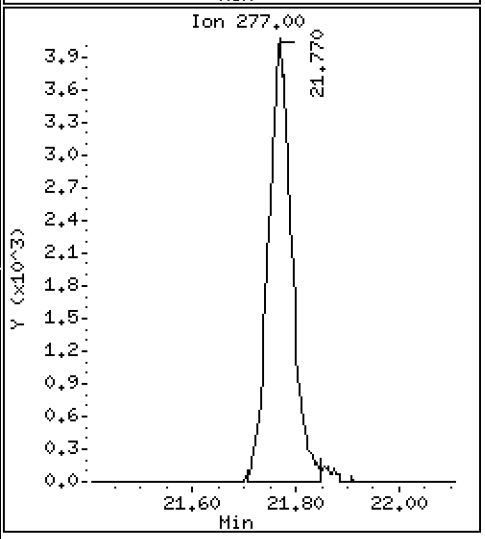
39 Benzo(g,h,i)perylene

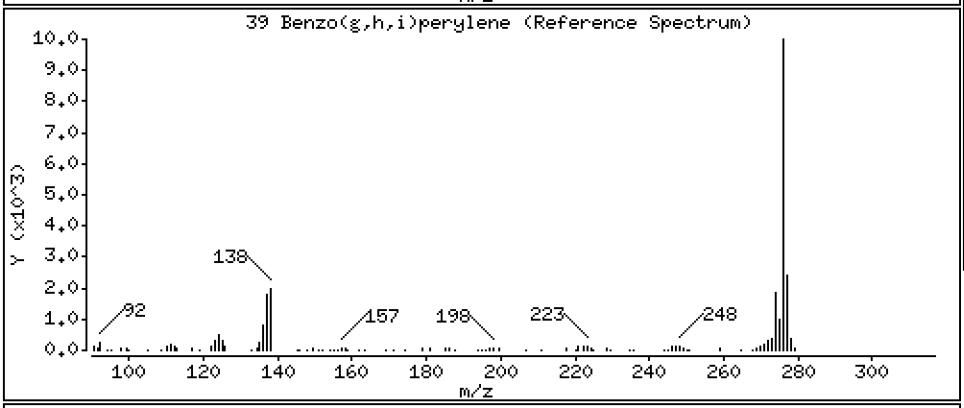
Concentration: 2.483 ug/L

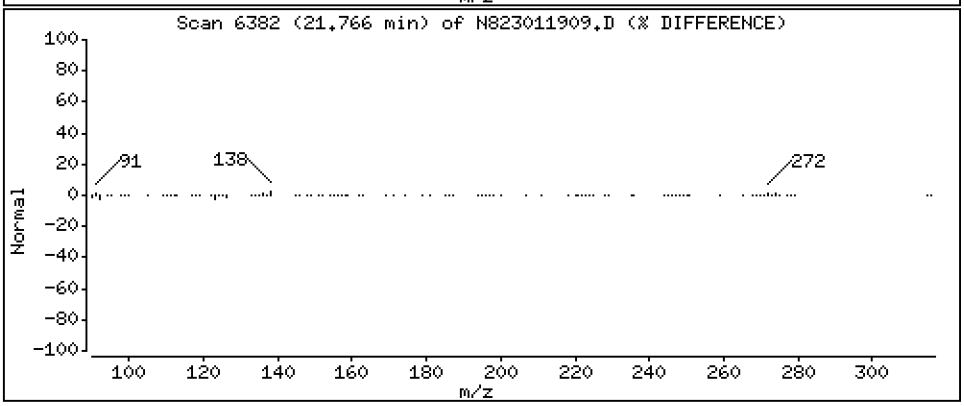












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:20 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

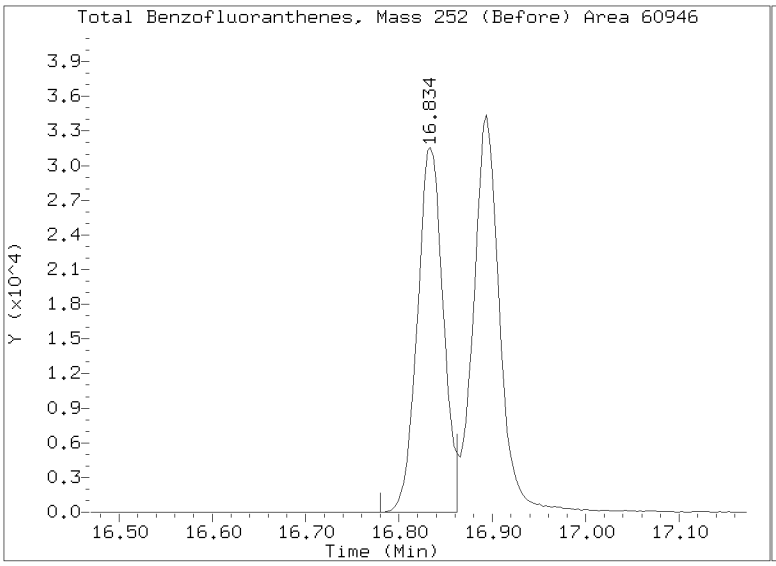
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, pnascv.sub = 0.0500

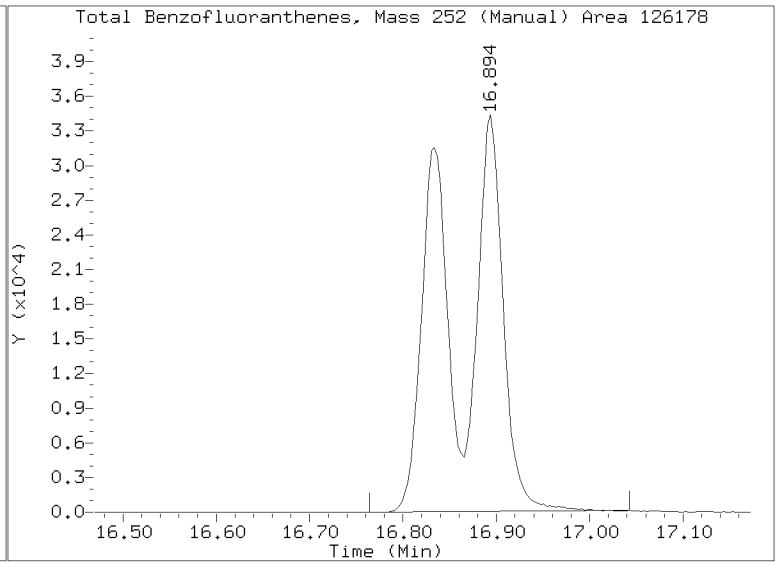
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/19/2023 20:27





Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270E-SIM

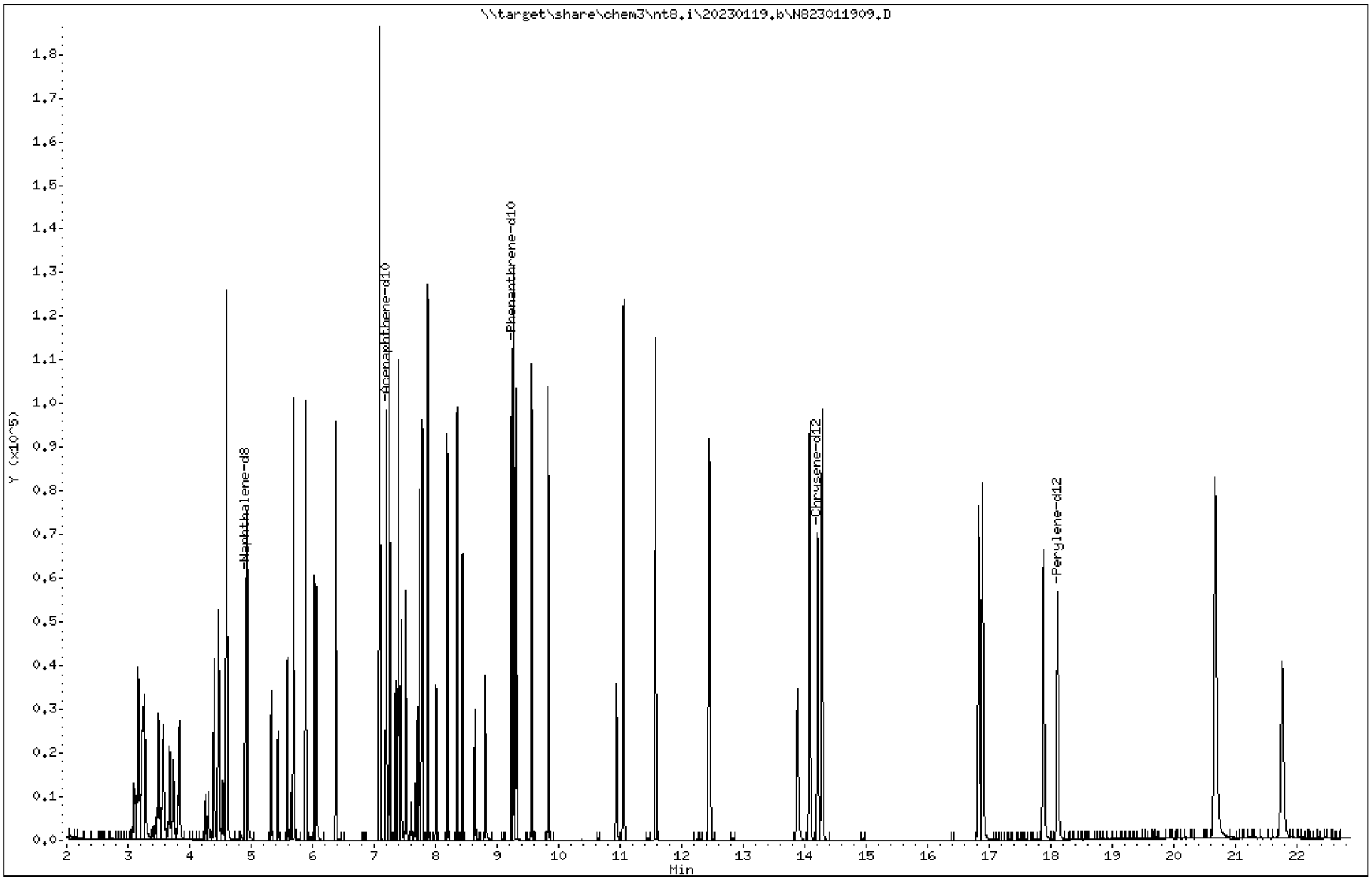
Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GA00050
Laboratory ID: SLA0213-SCV1
Sequence: SLA0213
Sequence Name: 8270 SIM PNA SCV
Standard ID: L000686

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Naphthalene	2.5000	2.63	5.0	
2-Methylnaphthalene	2.5000	2.67	6.8	
1-Methylnaphthalene	2.5000	2.65	6.0	
Acenaphthylene	2.5000	2.82	12.8	
Acenaphthene	2.5000	2.60	4.0	
Dibenzofuran	2.5000	2.86	14.4	
Fluorene	2.5000	2.63	5.2	
Phenanthrene	2.5000	2.45	-2.1	
Anthracene	2.5000	2.27	-9.2	
Fluoranthene	2.5000	2.65	6.1	
Pyrene	2.5000	2.46	-1.5	
Benzo(a)anthracene	2.5000	2.59	3.5	
Chrysene	2.5000	2.40	-4.0	
Benzo(b)fluoranthene	2.5000	2.51	0.3	
Benzo(k)fluoranthene	2.5000	2.66	6.2	
Benzofluoranthenes, Total	5.0000	5.48	9.6	
Benzo(a)pyrene	2.5000	2.57	2.9	
Indeno(1,2,3-cd)pyrene	2.5000	2.69	7.6	
Dibenzo(a,h)anthracene	2.5000	2.49	-0.3	
Benzo(g,h,i)perylene	2.5000	2.48	-0.7	

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Date : 19-JAN-2023 14:58
Client ID:
Sample Info: SCV230119
Volume Injected (uL): 1.0
Column phase: Rxi-17sil

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25



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Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

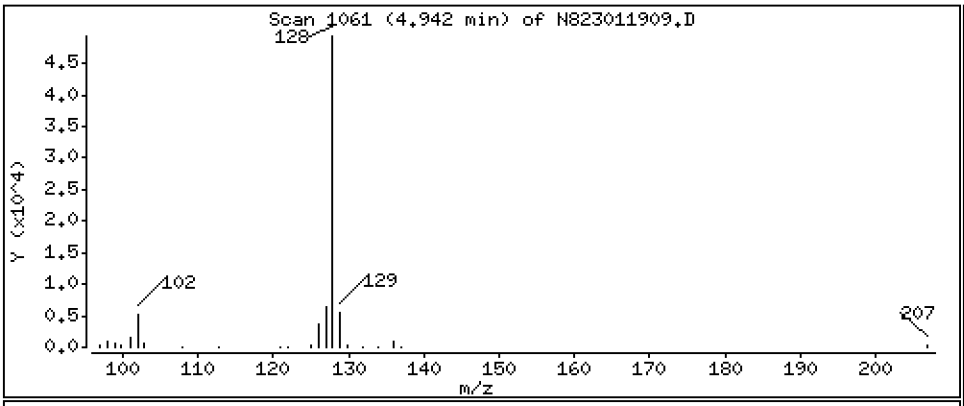
Operator: JZ

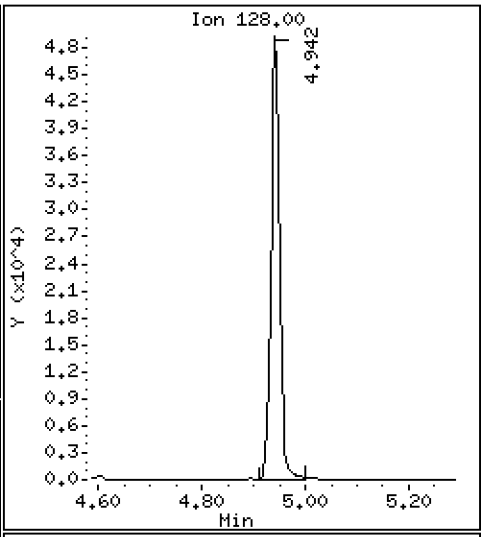
Column phase: Rxi-17sil

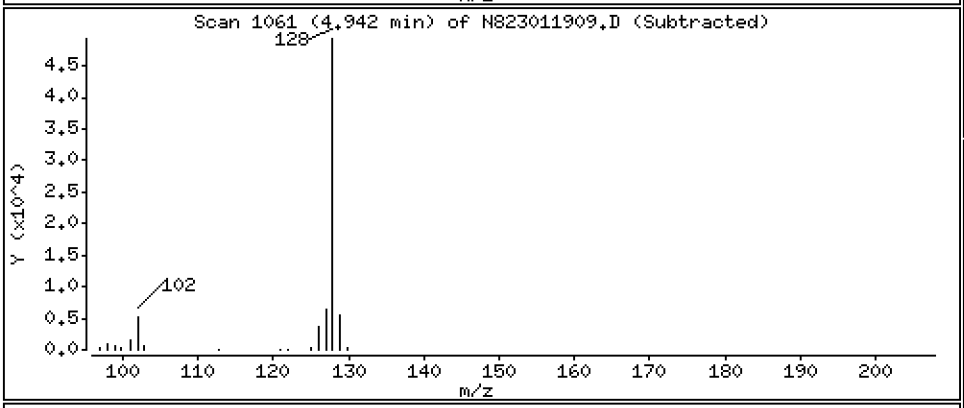
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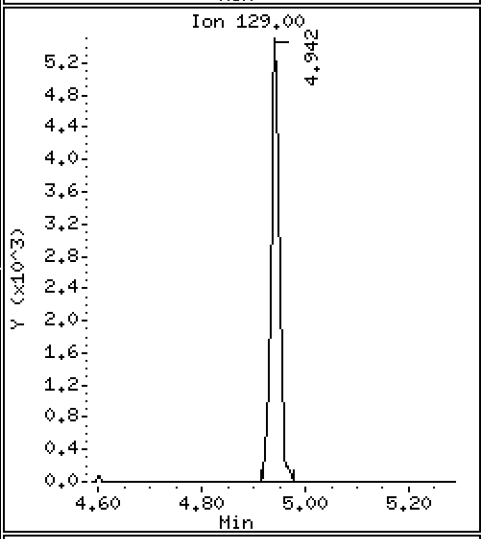
2 Naphthalene

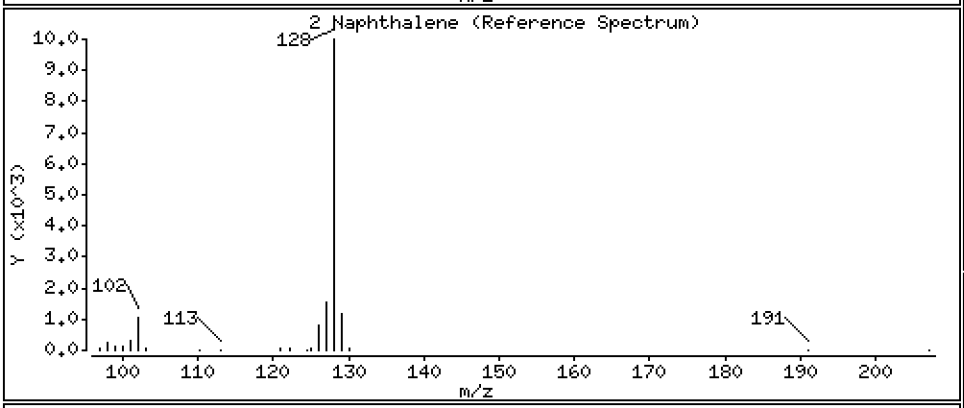
Concentration: 2.626 ug/L

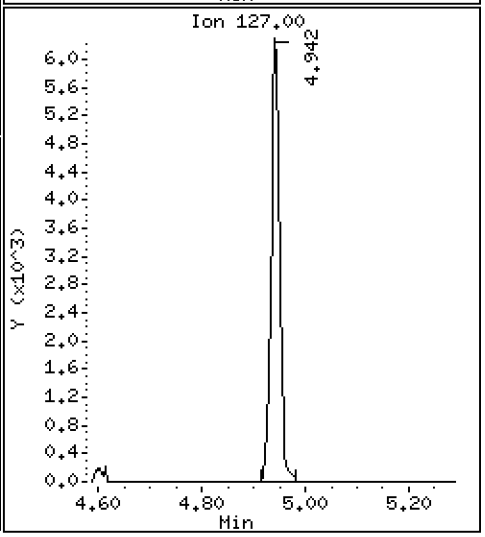


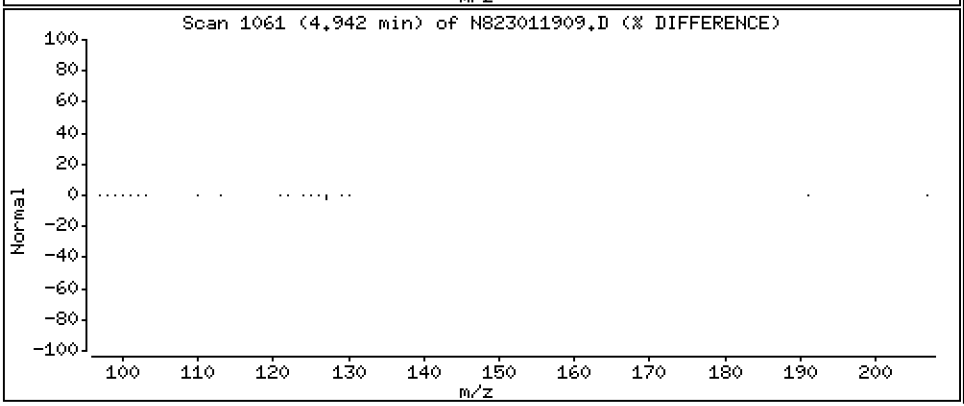












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

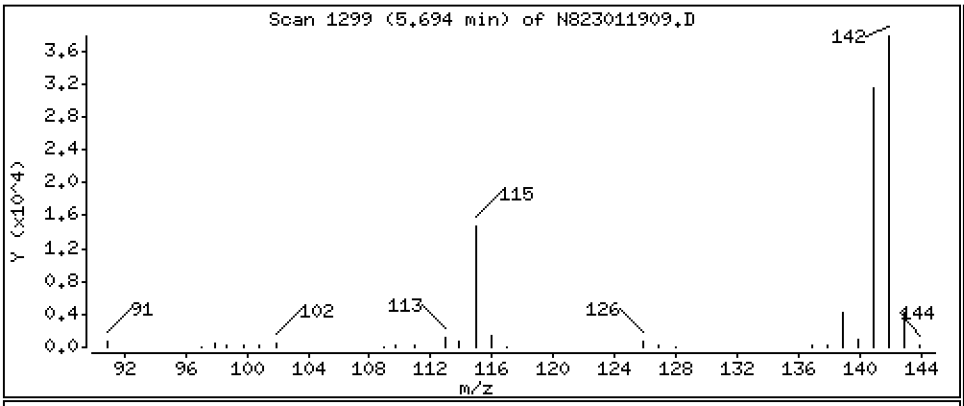
Operator: JZ

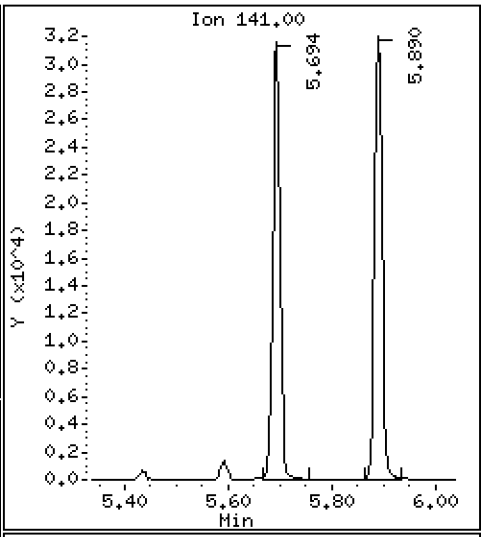
Column phase: Rxi-17sil

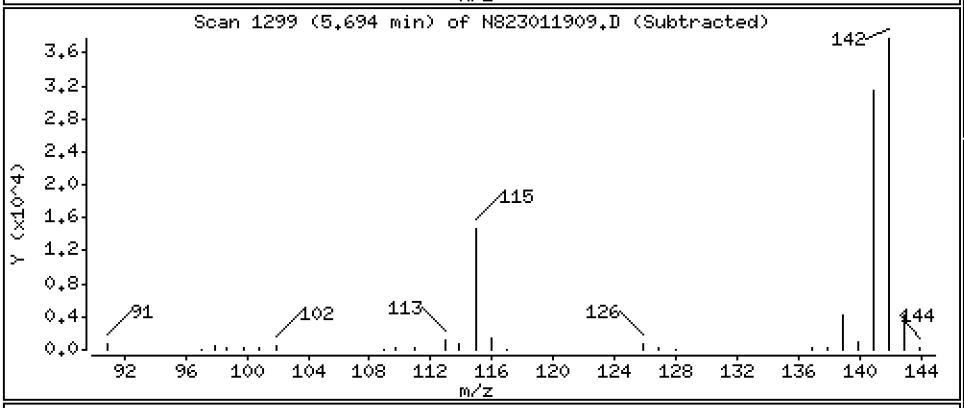
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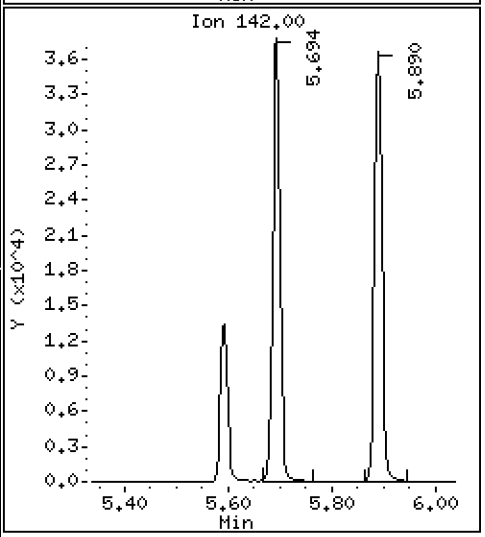
4 2-Methylnaphthalene

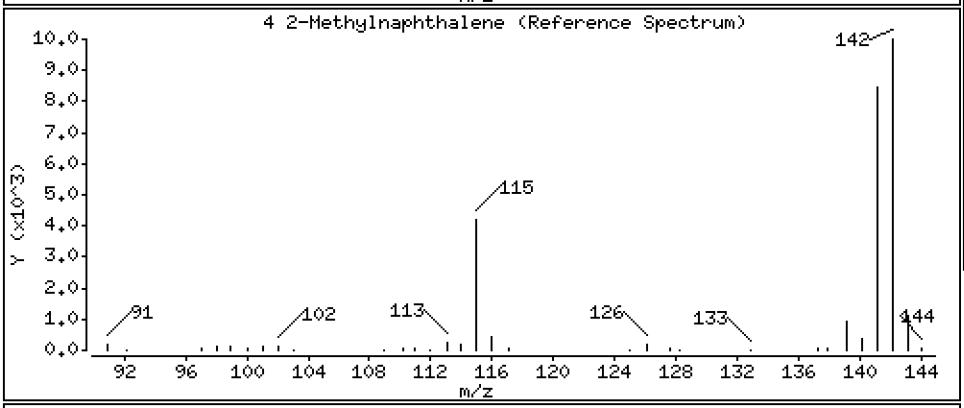
Concentration: 2.670 ug/L

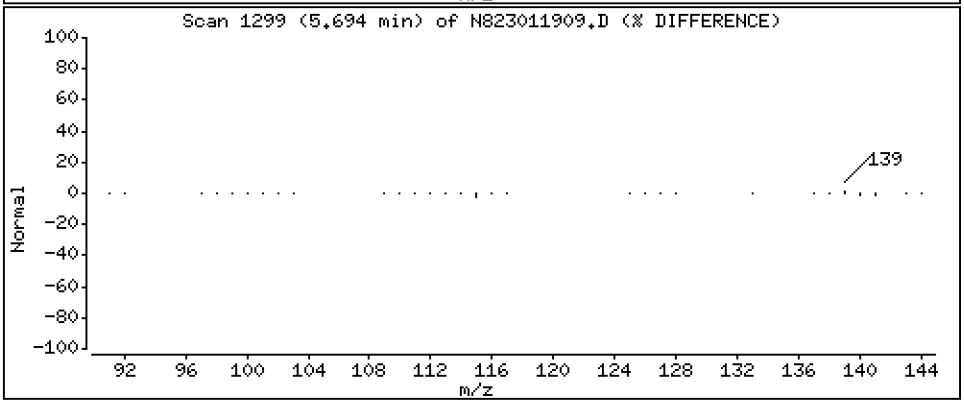












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

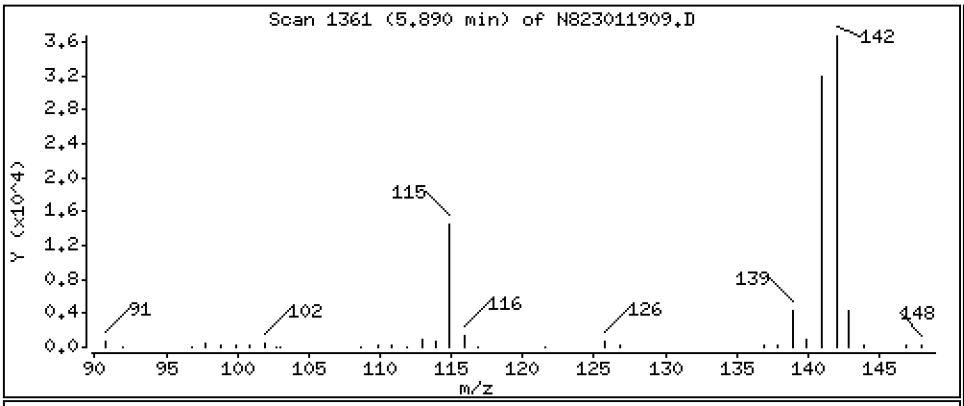
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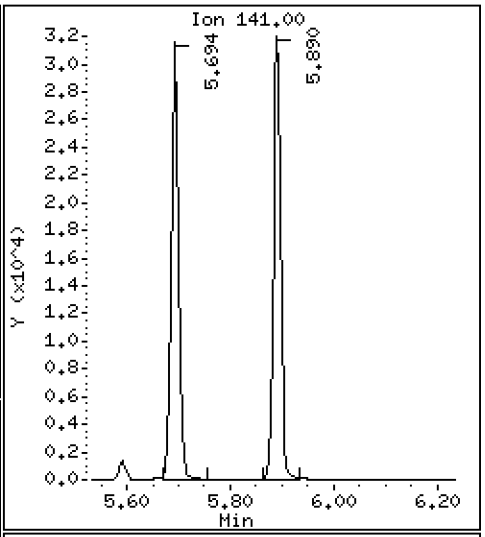
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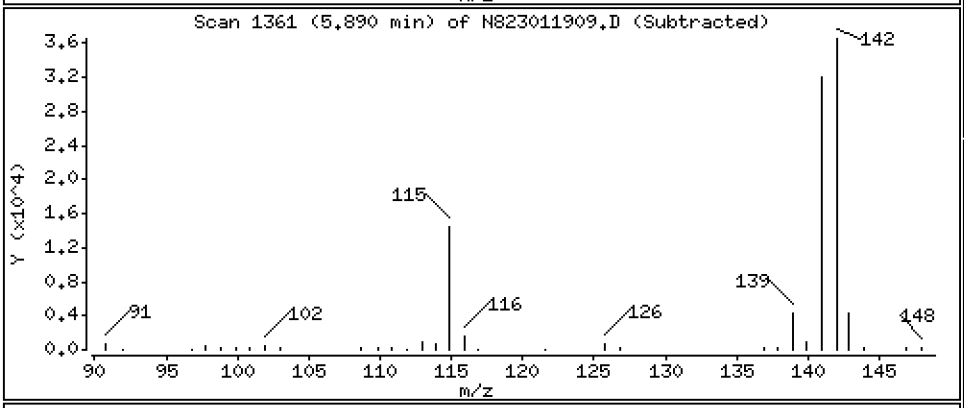
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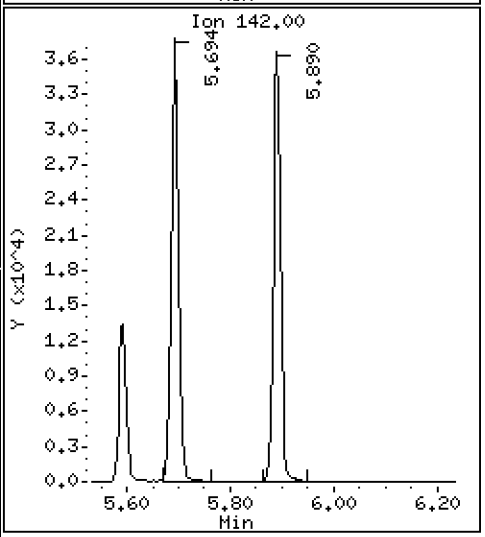
5 1-methylnaphthalene

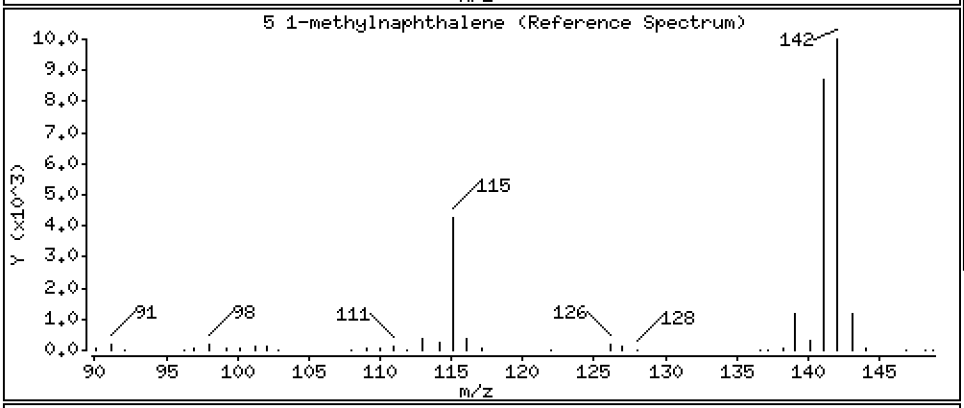
Concentration: 2.649 ug/L

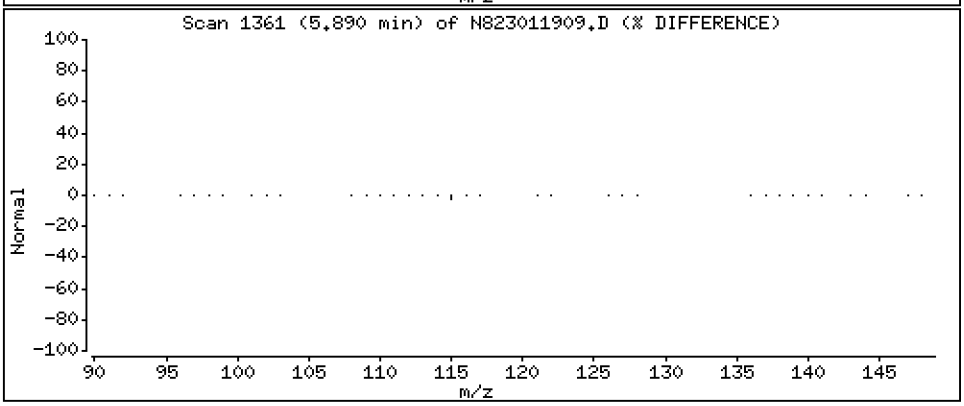












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

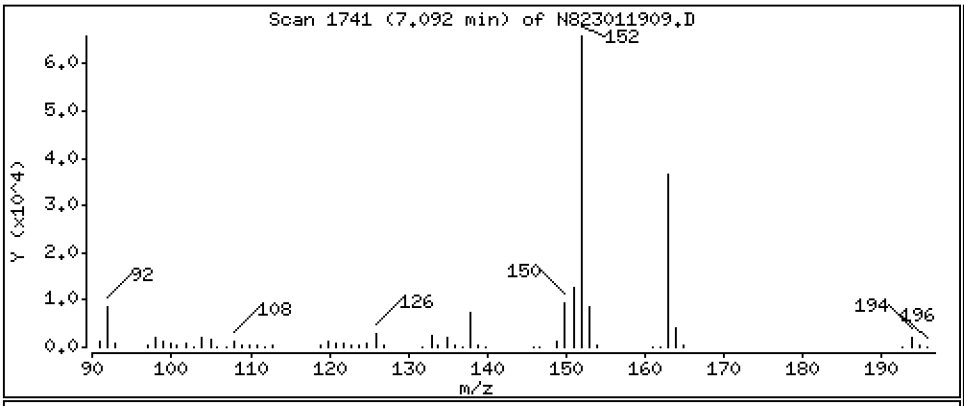
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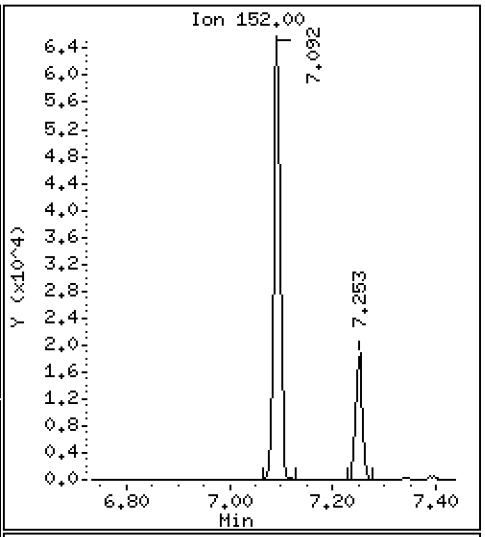
Column phase: Rxi-17sil

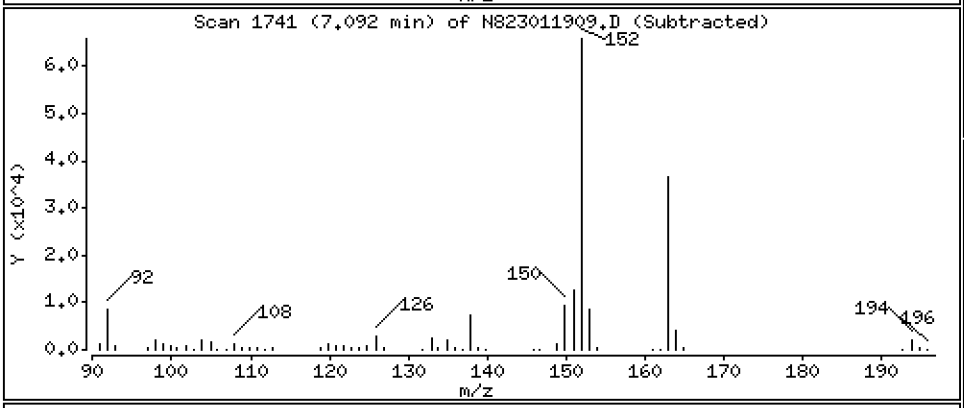
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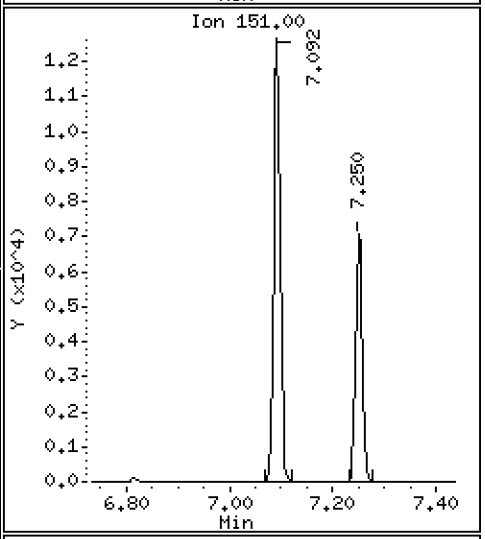
9 Acenaphthylene

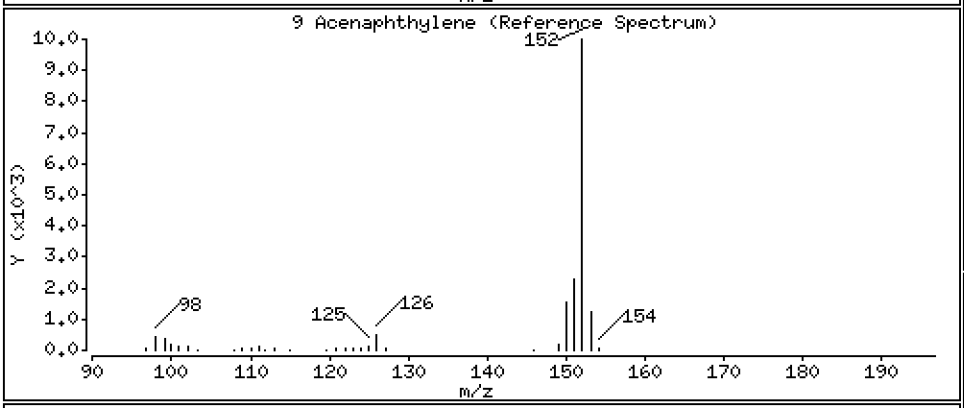
Concentration: 2.821 ug/L

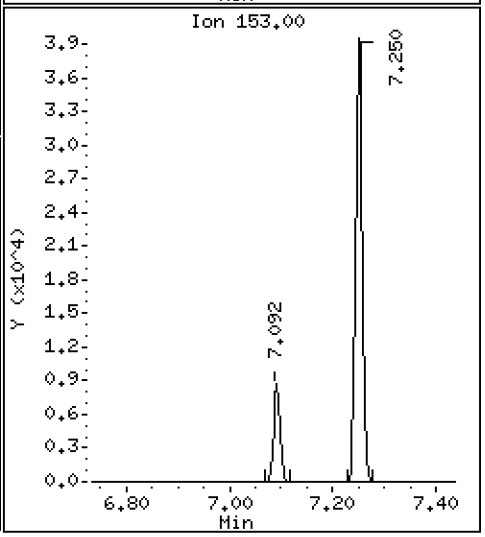


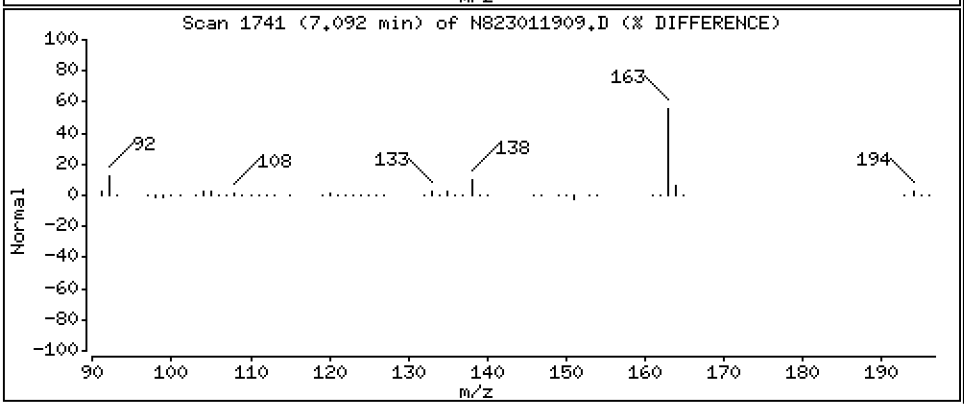












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

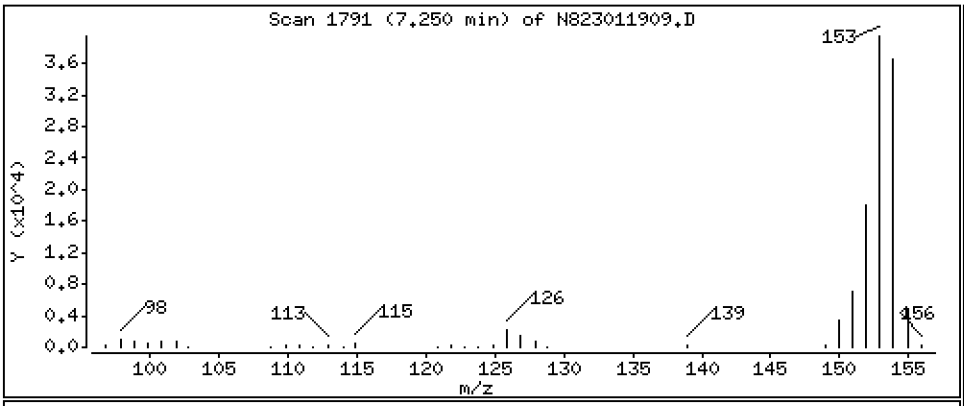
Operator: JZ

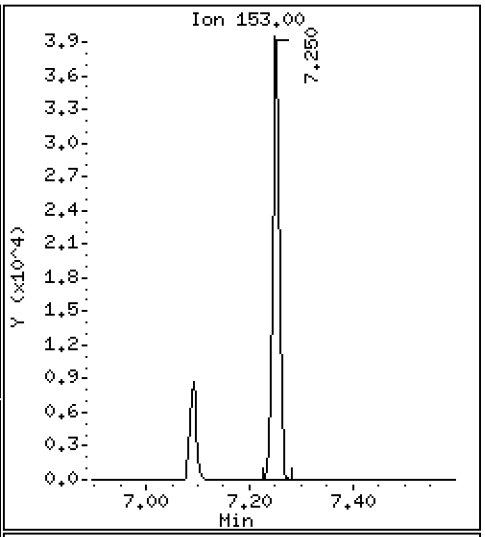
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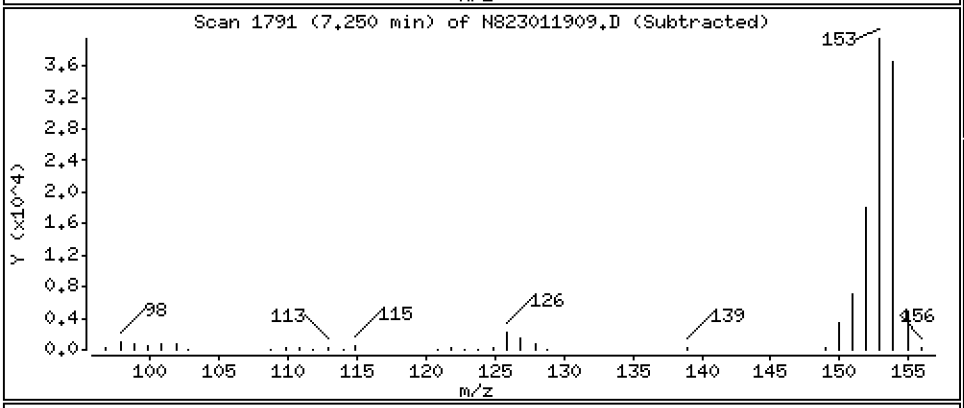
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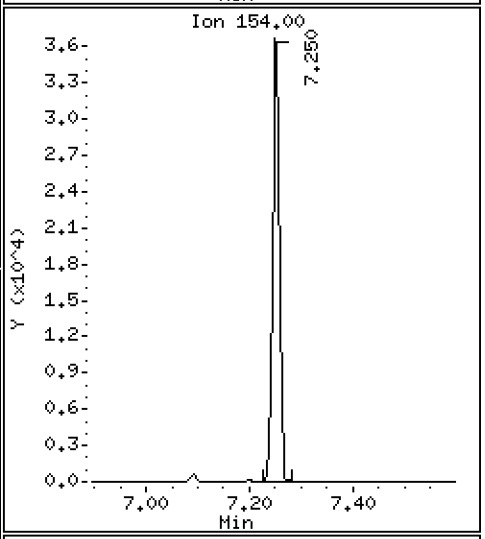
11 Acenaphthene

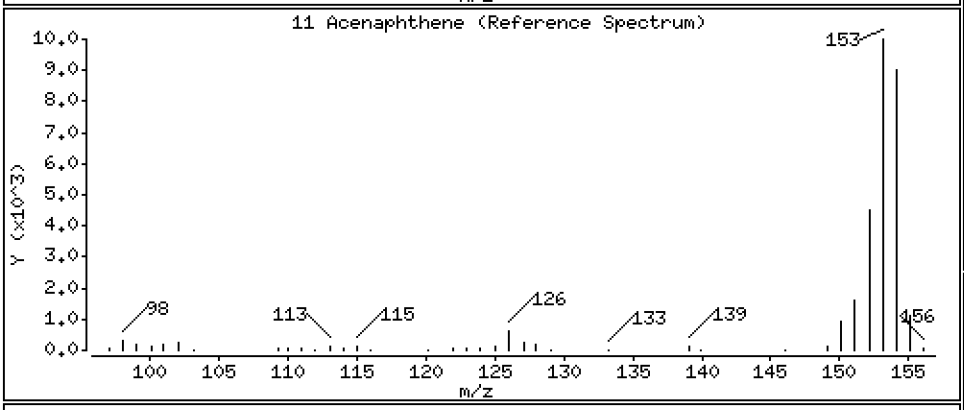
Concentration: 2.600 ug/L

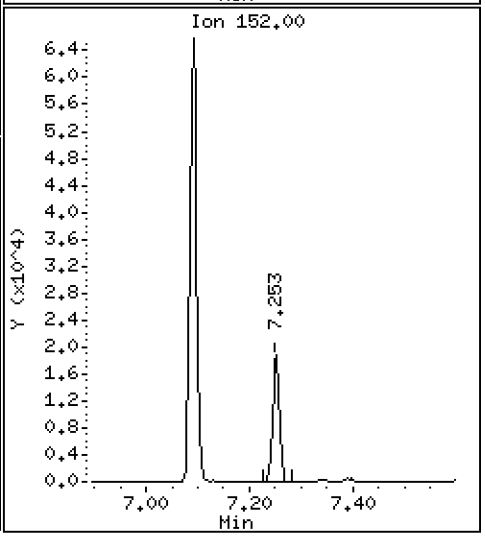


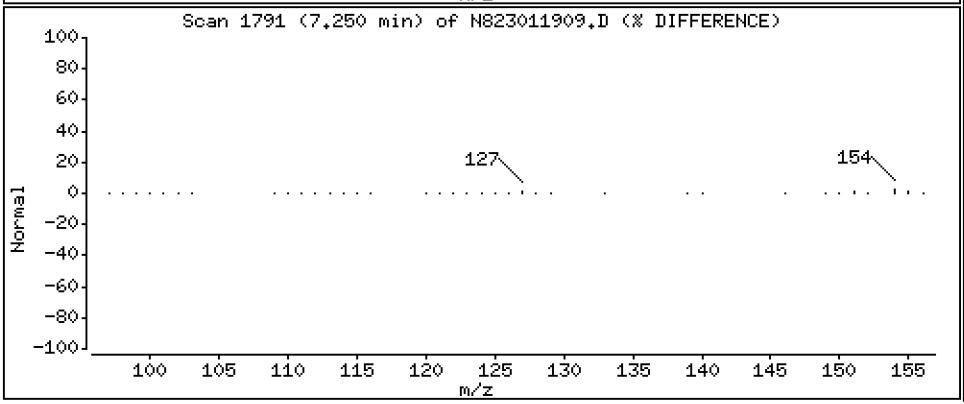












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

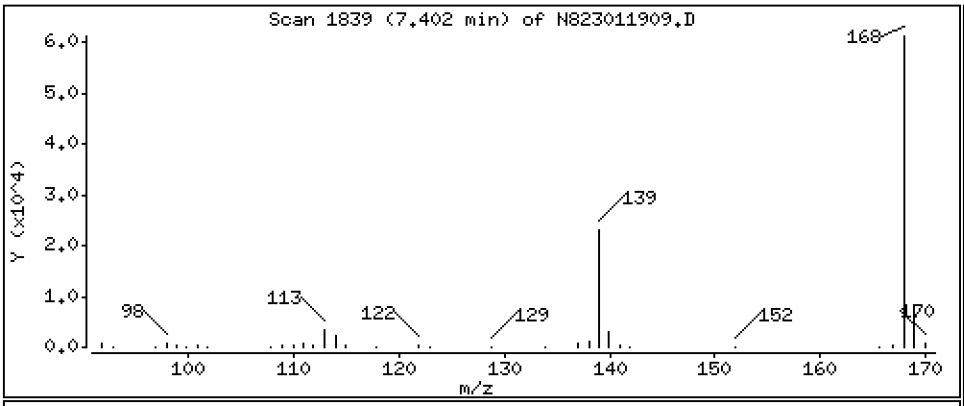
Operator: JZ

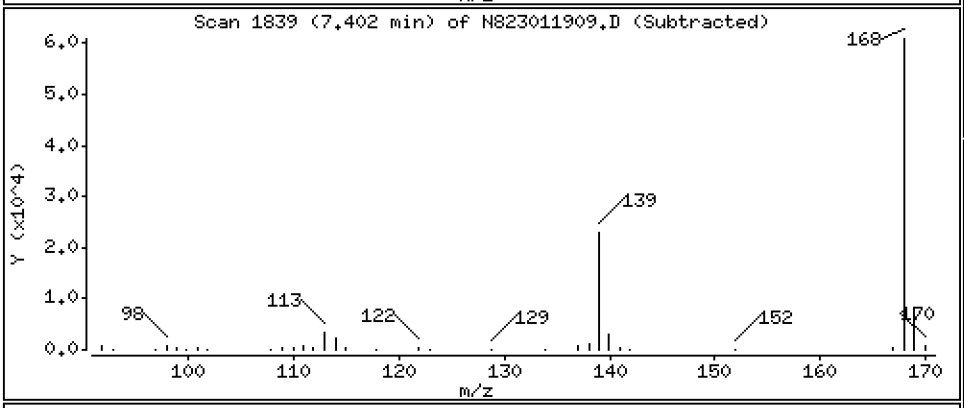
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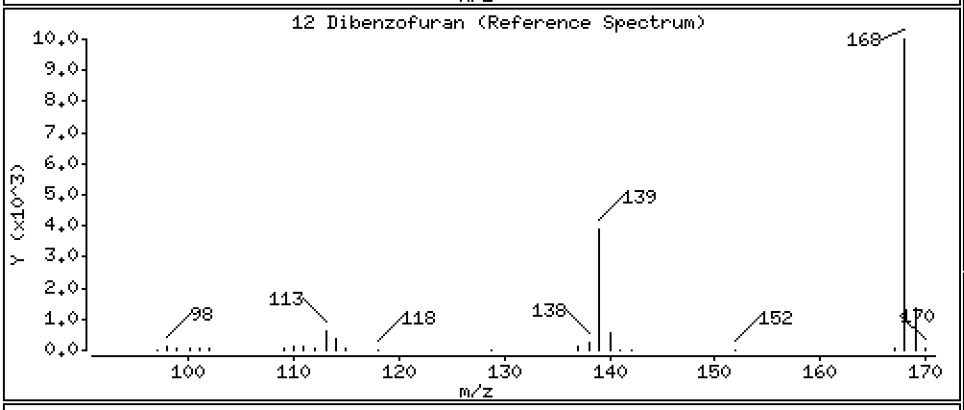
Column diameter: 0.25

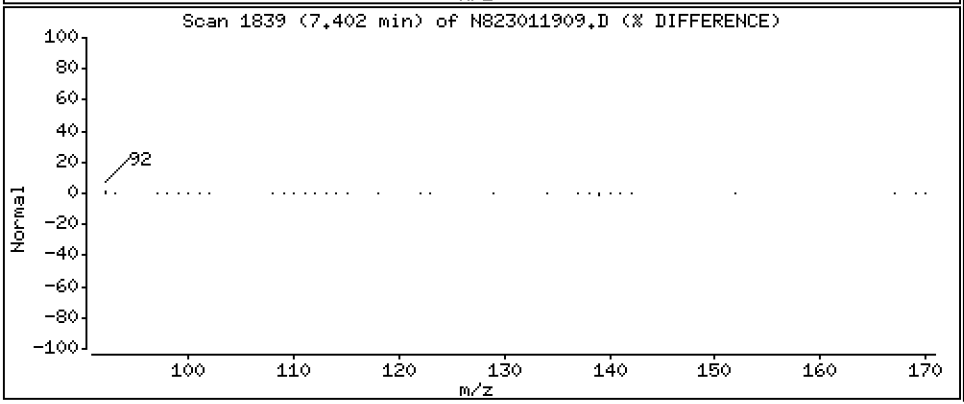
12 Dibenzofuran

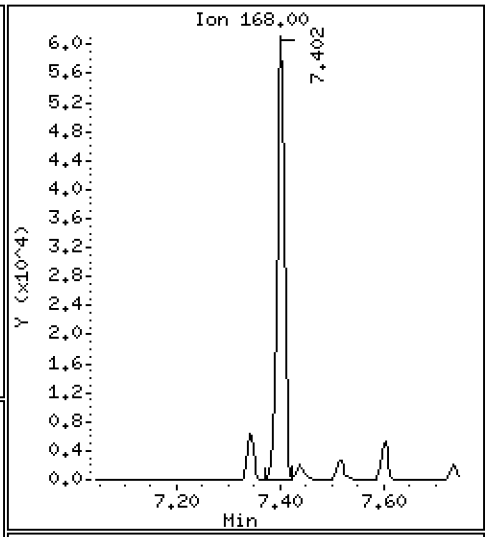
Concentration: 2.860 ug/L

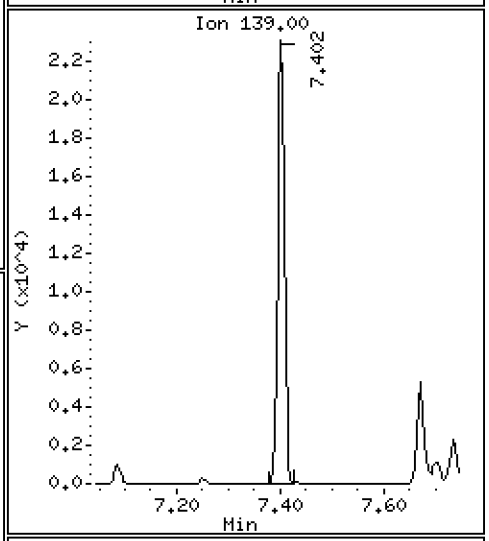


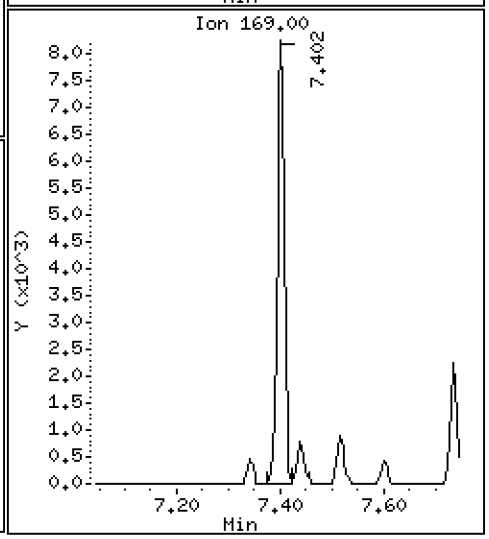












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

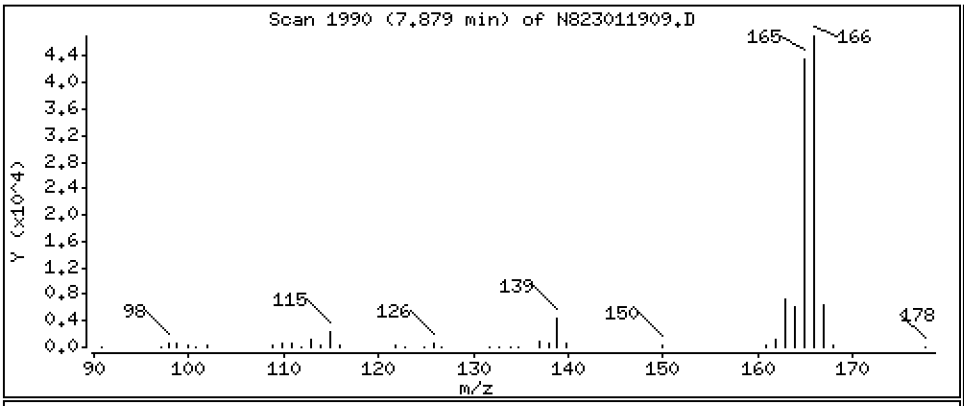
Operator: JZ

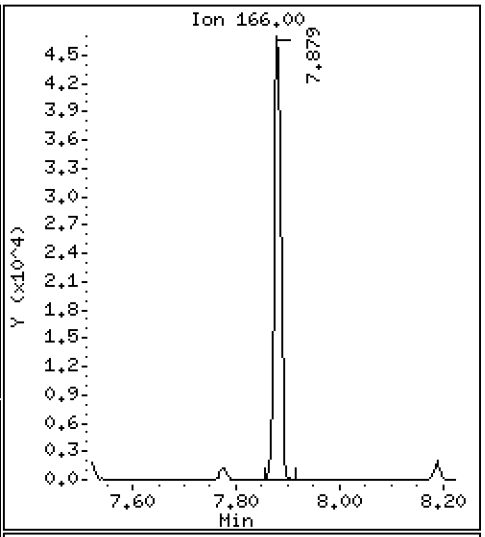
Column phase: Rxi-17sil

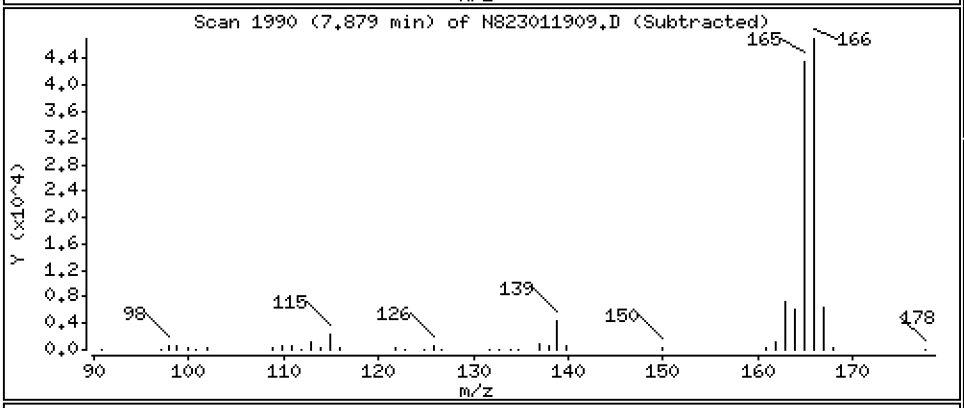
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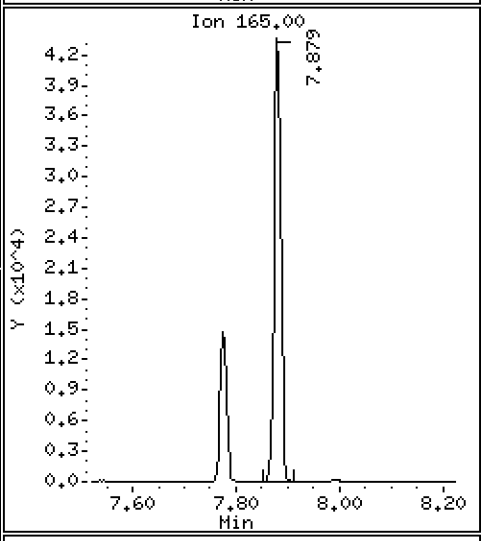
14 Fluorene

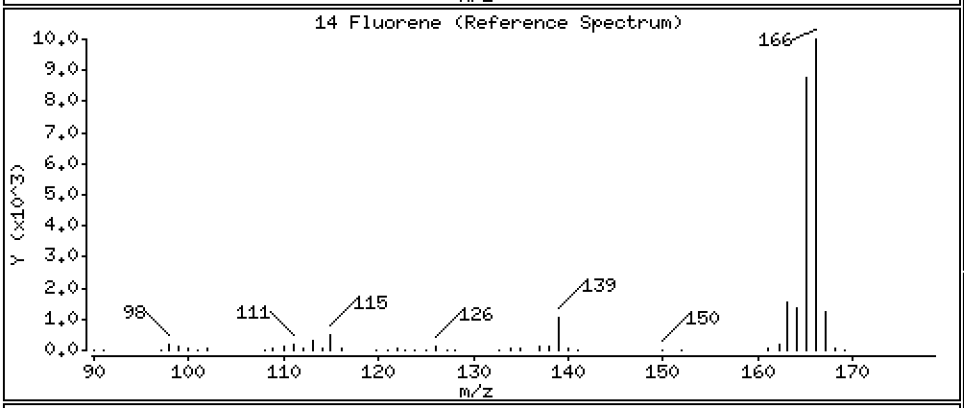
Concentration: 2.631 ug/L

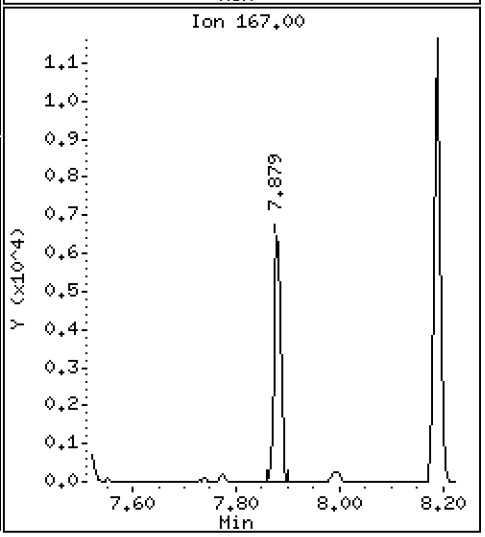


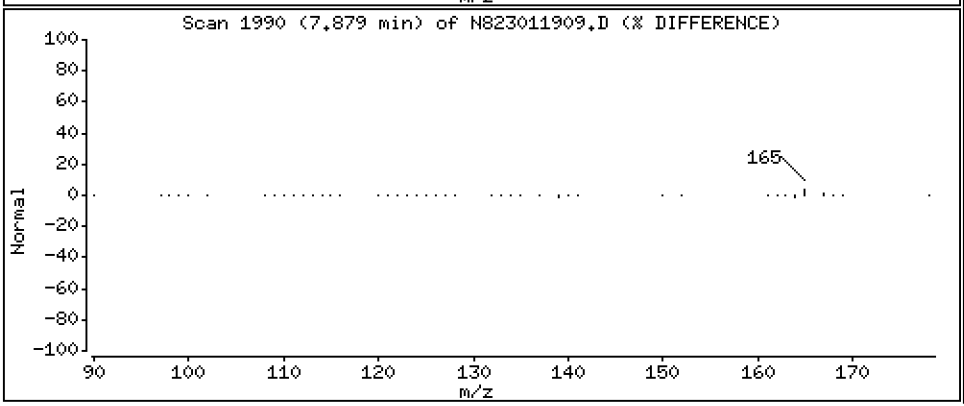












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

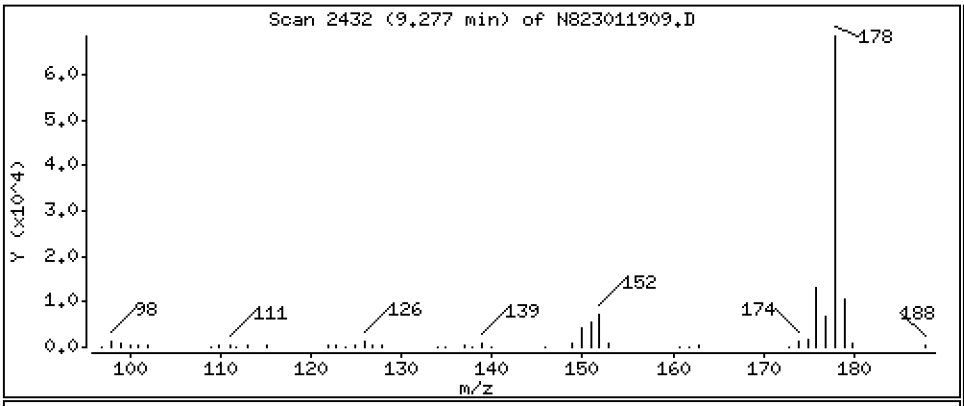
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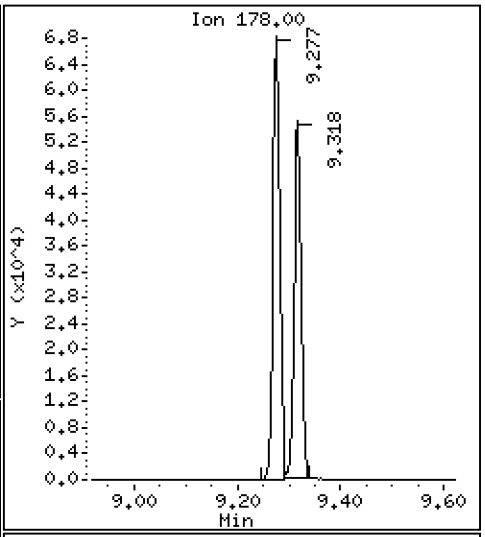
Column phase: Rxi-17sil

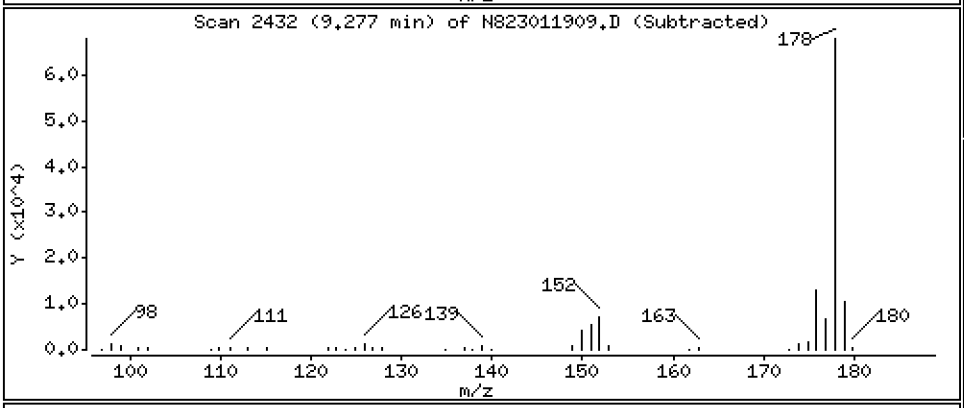
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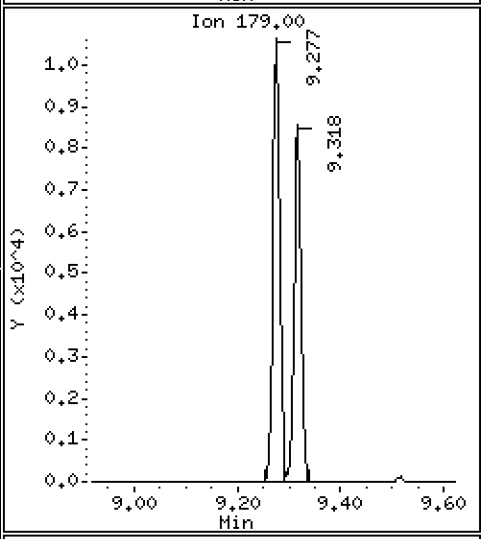
16 Phenanthrene

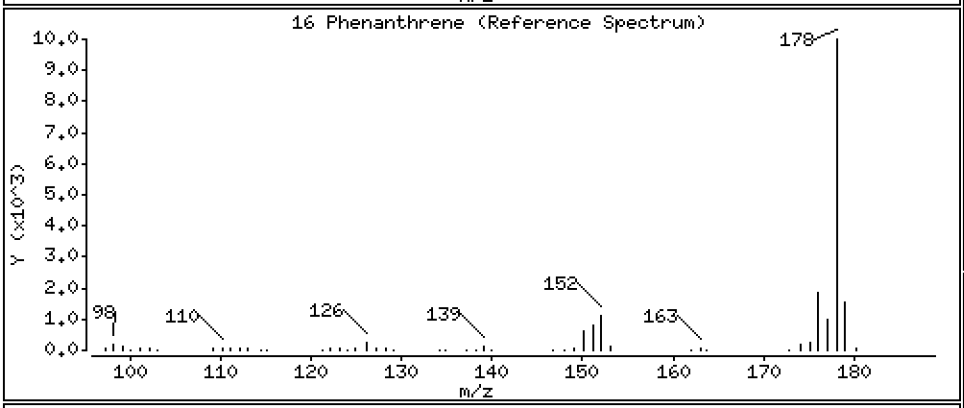
Concentration: 2.448 ug/L

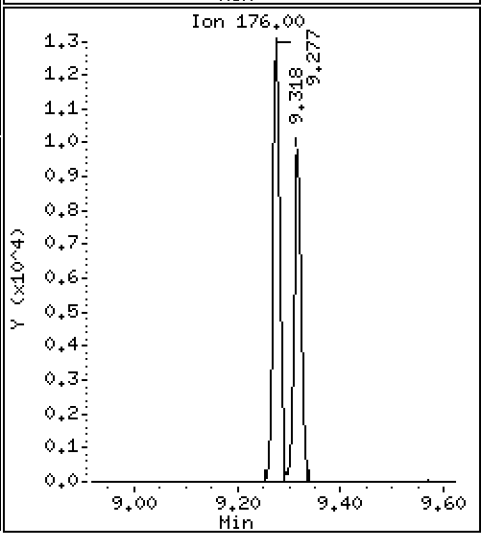


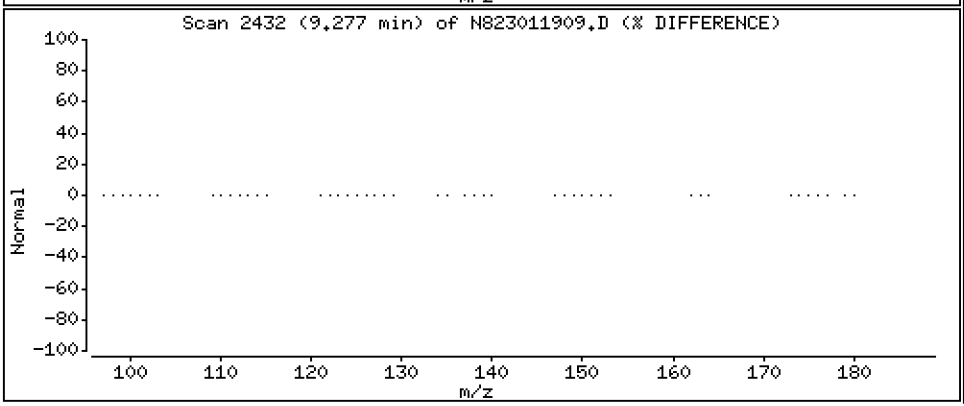












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

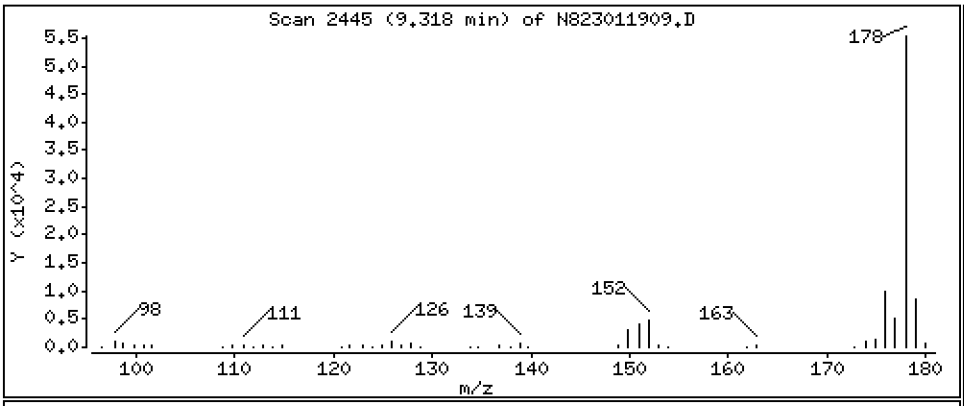
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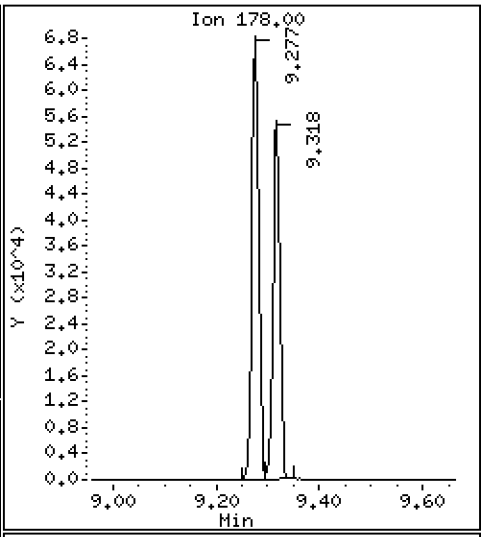
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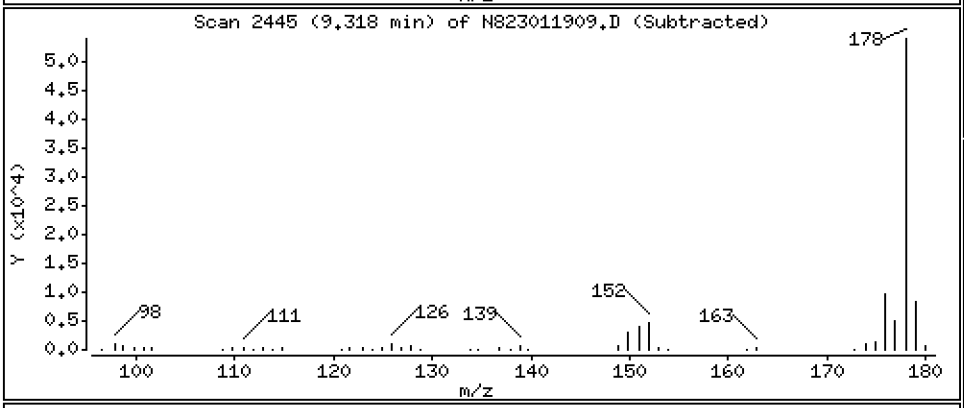
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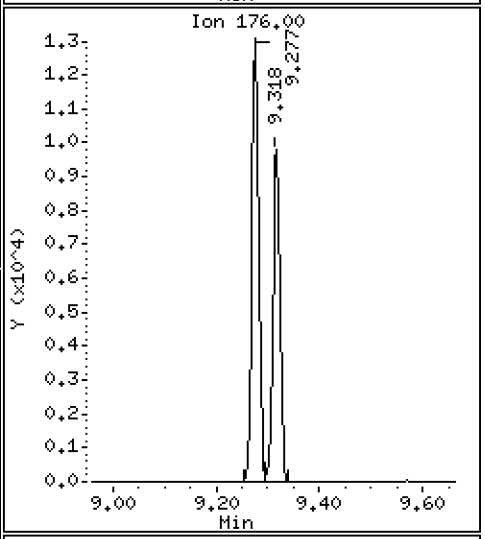
17 Anthracene

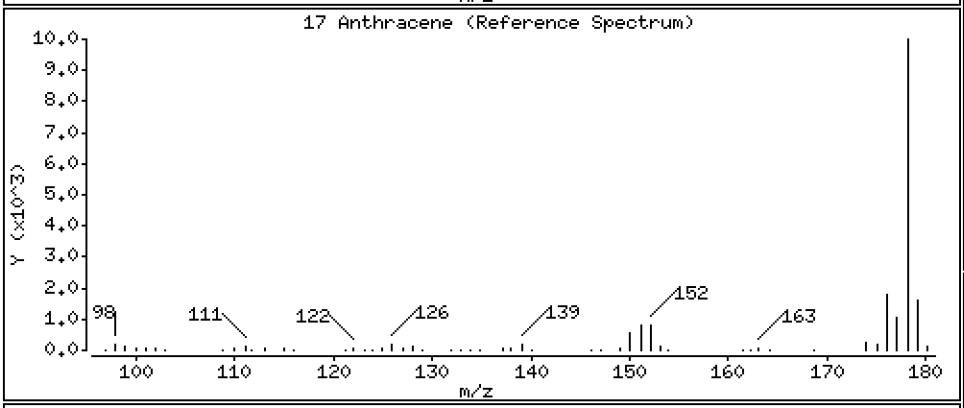
Concentration: 2.270 ug/L

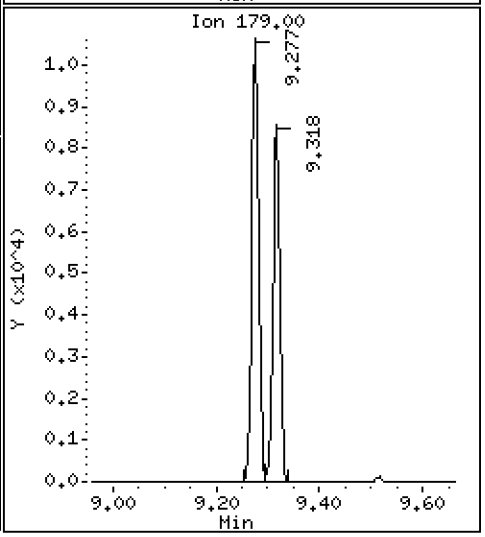


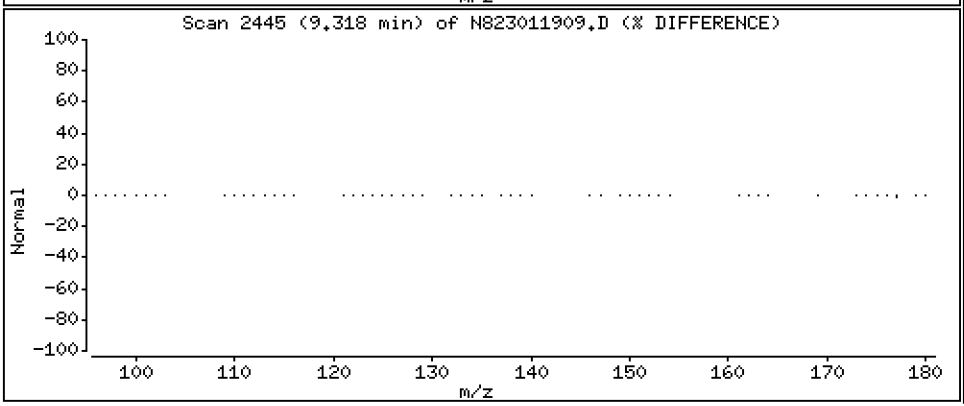












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Instrument: nt8.i

Sample Info: SCV230119

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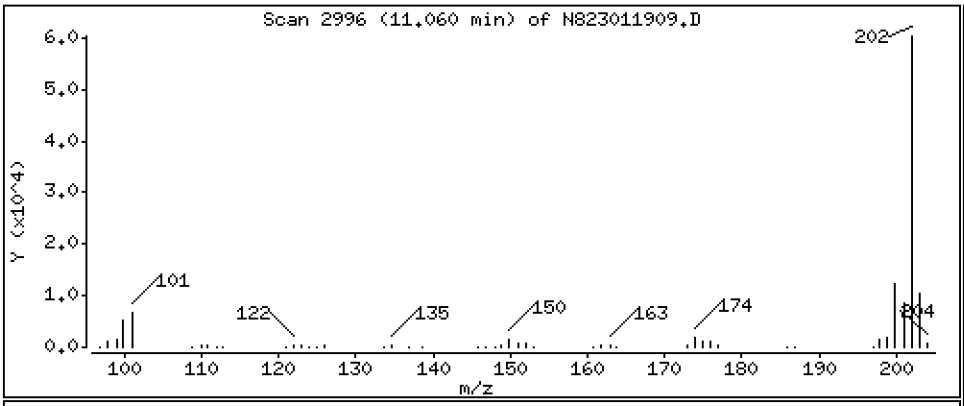
Operator: JZ

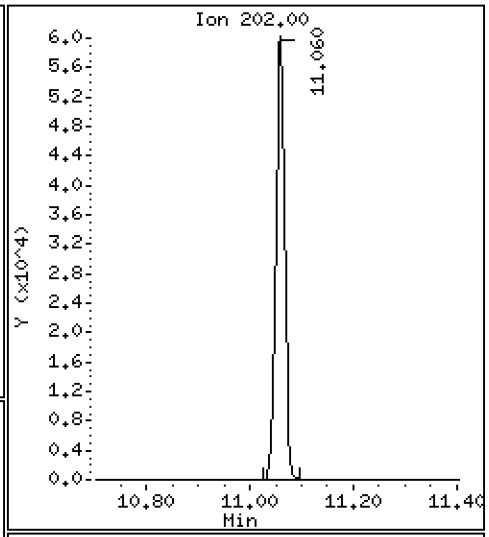
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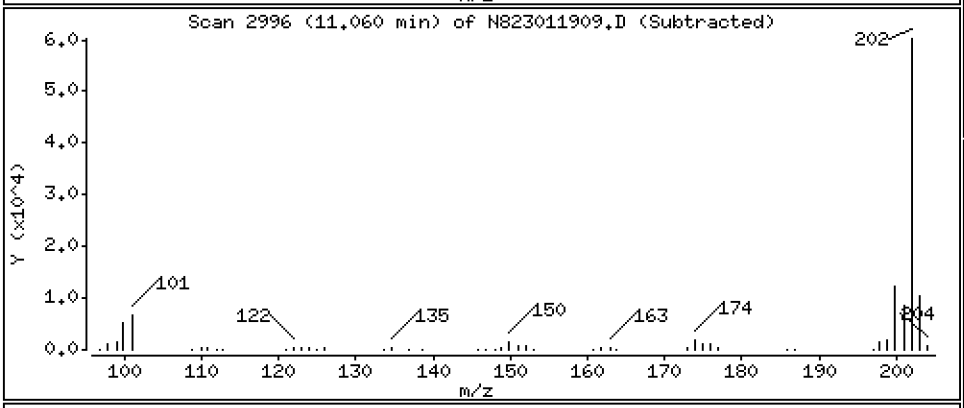
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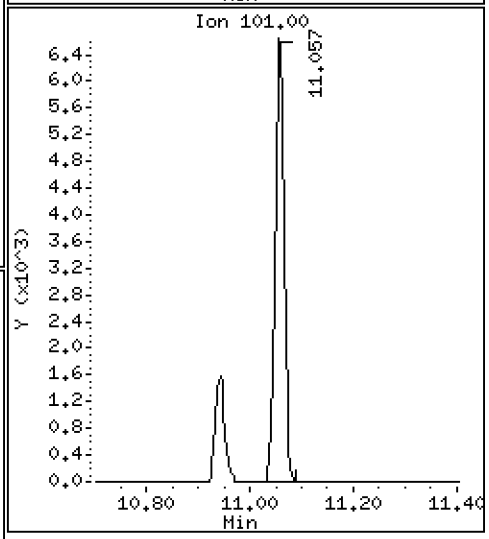
22 Fluoranthene

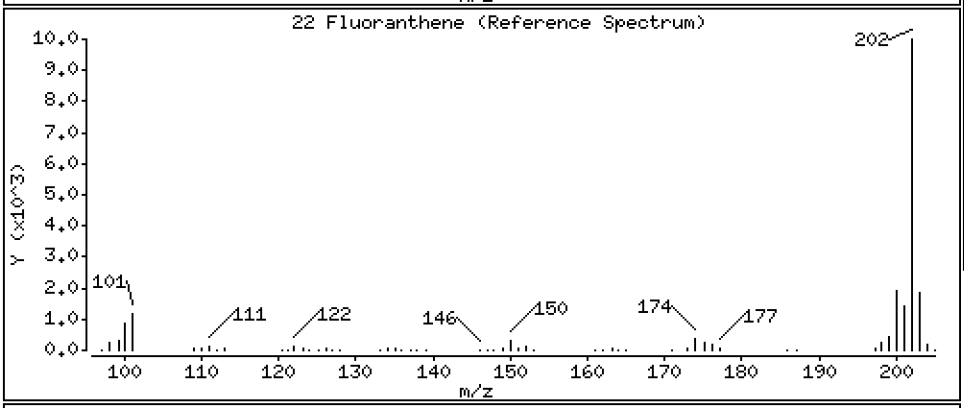
Concentration: 2.653 ug/L

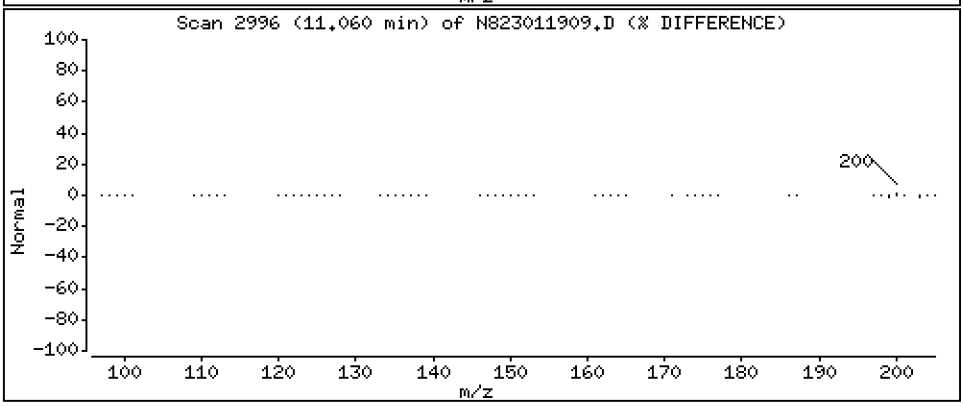












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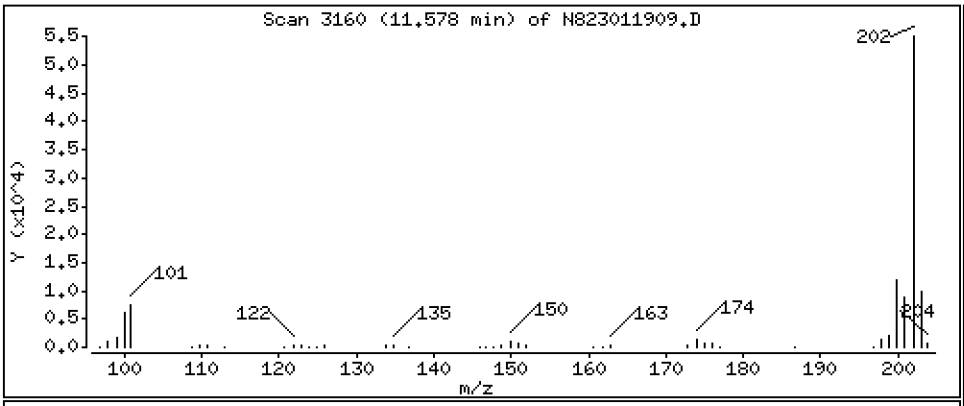
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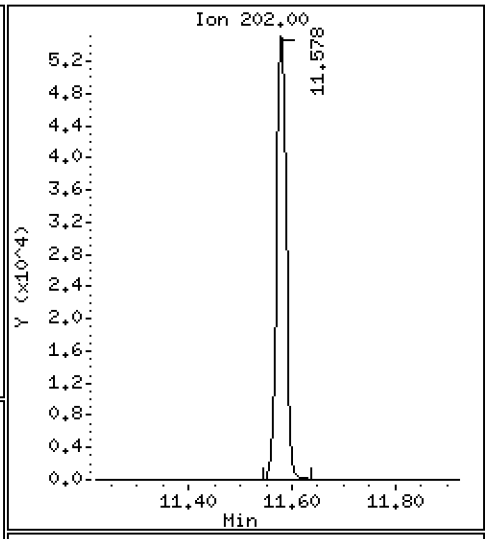
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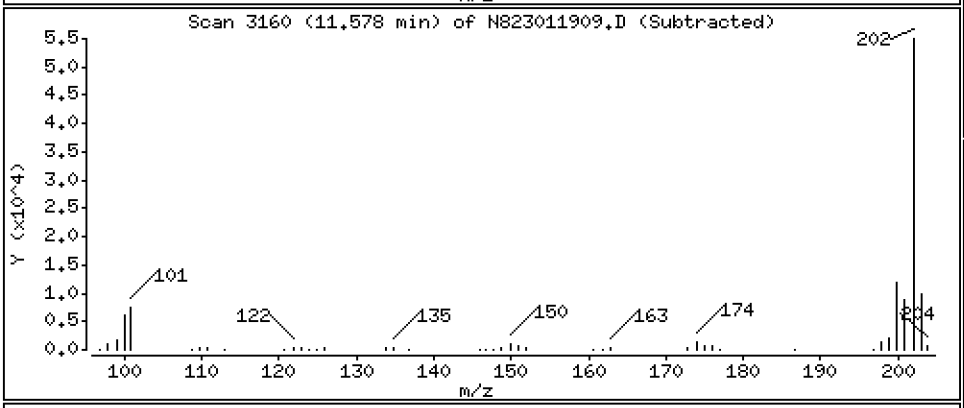
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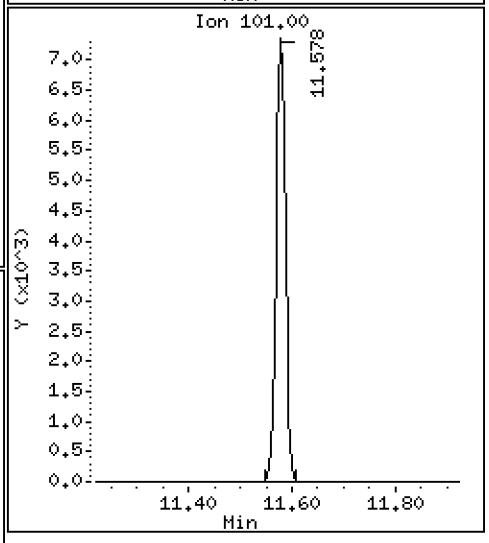
23 Pyrene

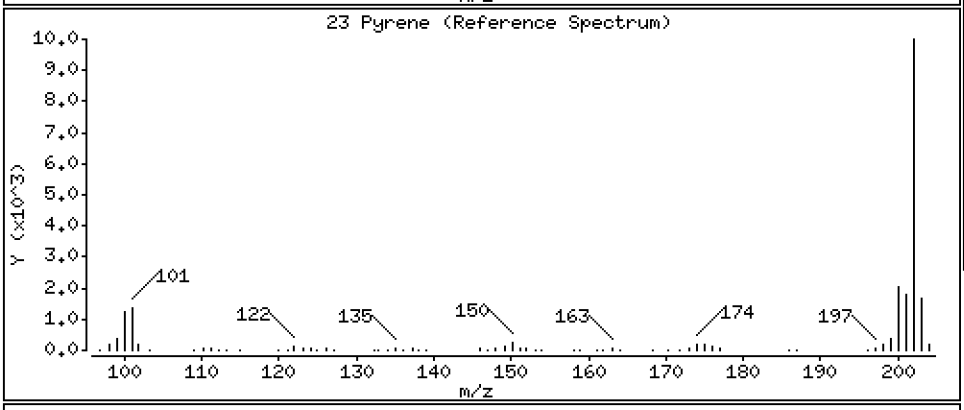
Concentration: 2.462 ug/L

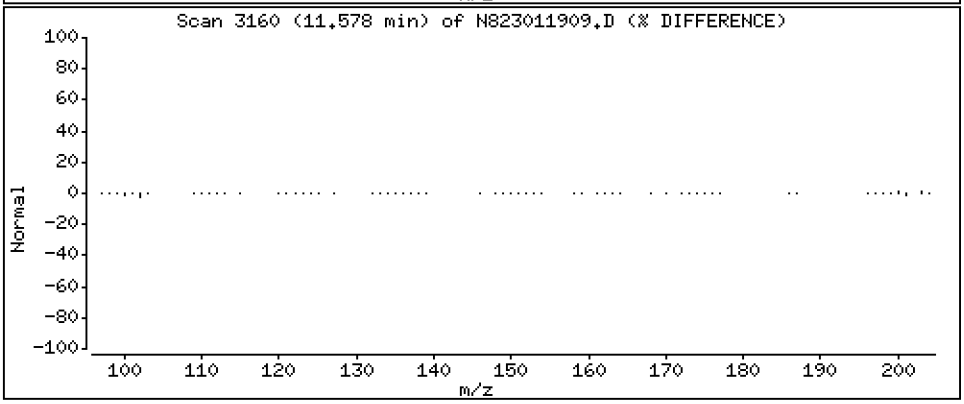












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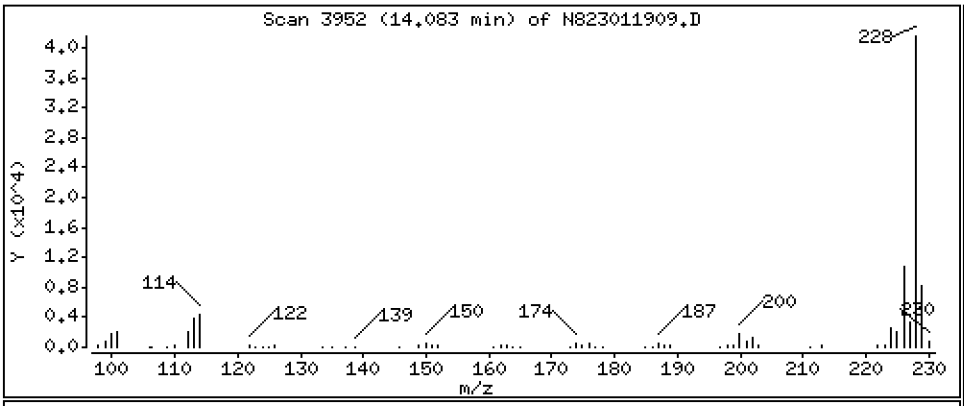
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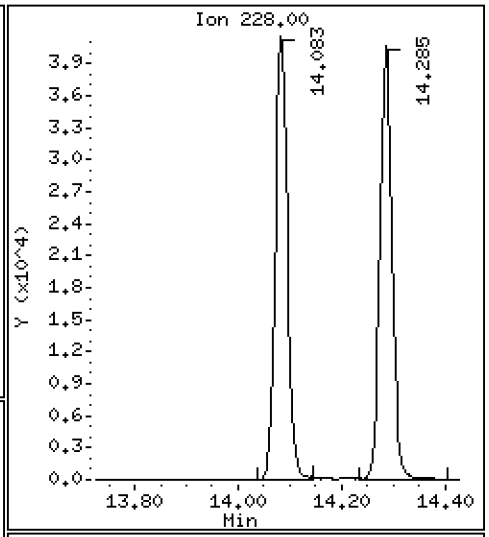
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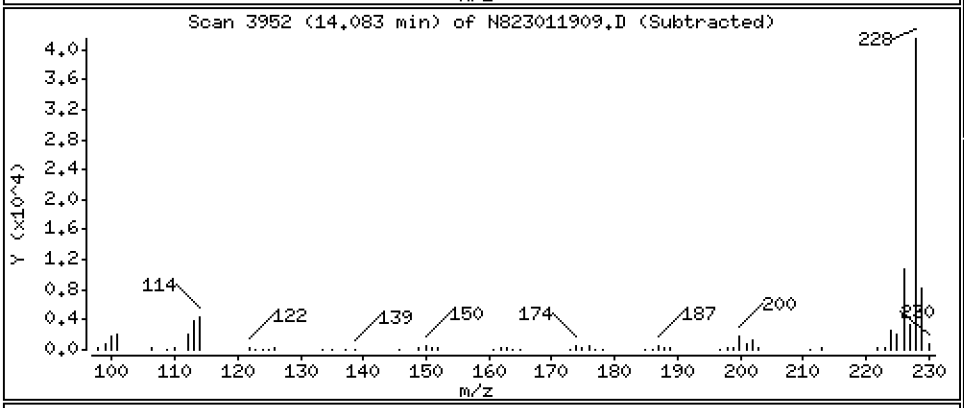
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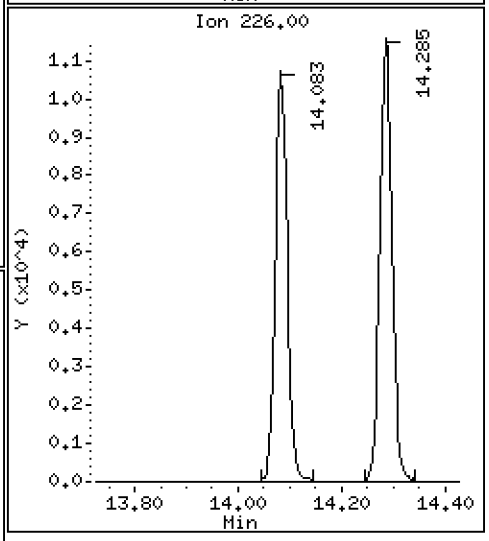
24 Benzo(a)anthracene

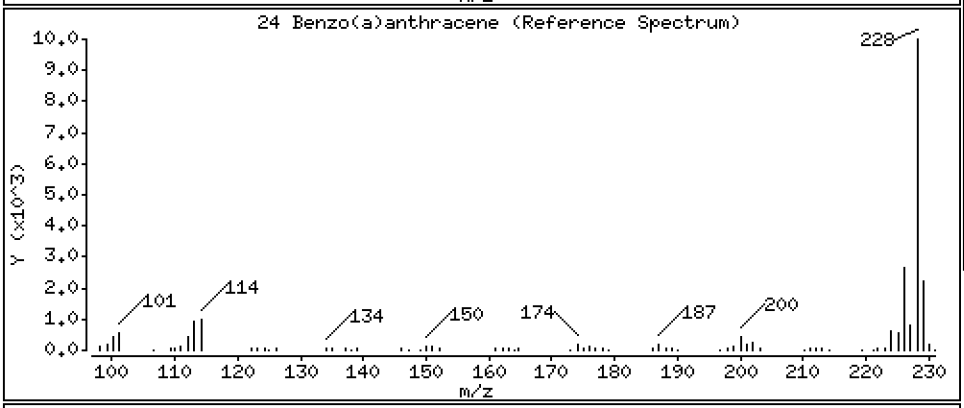
Concentration: 2.587 ug/L

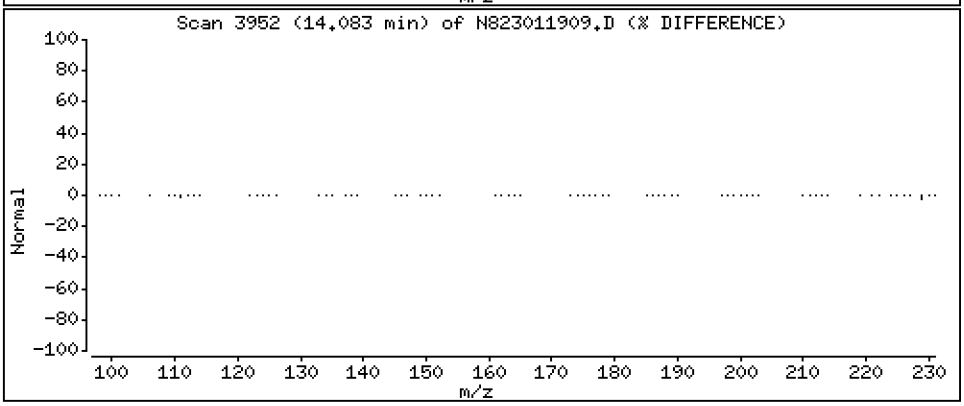












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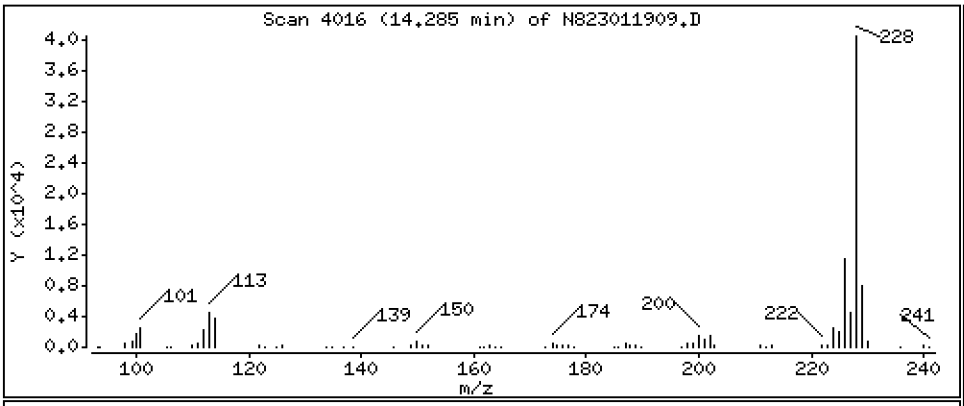
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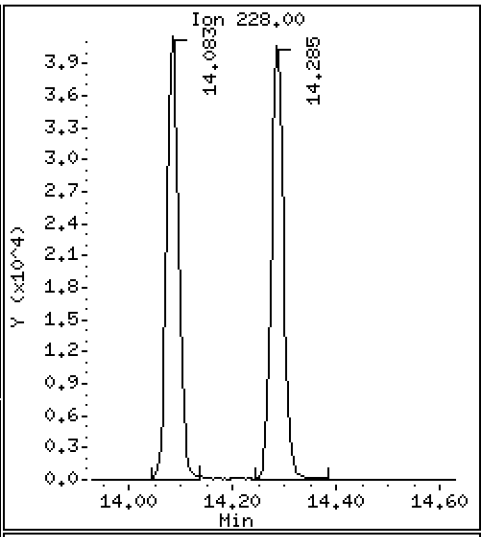
Column phase: Rxi-17sil

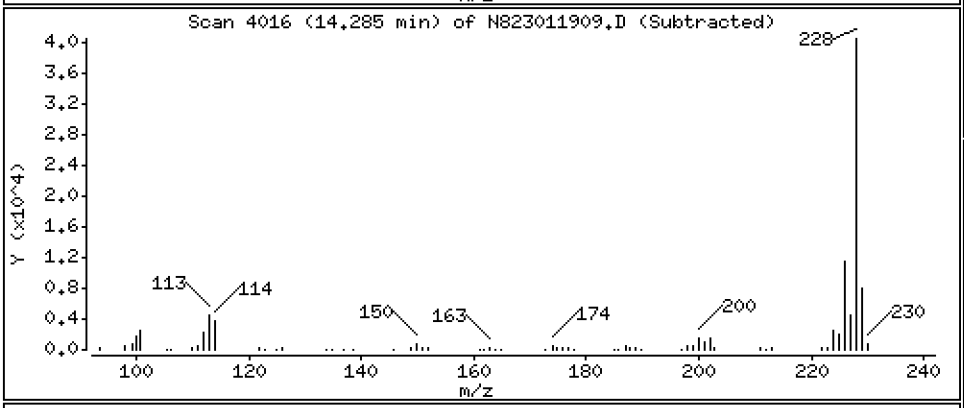
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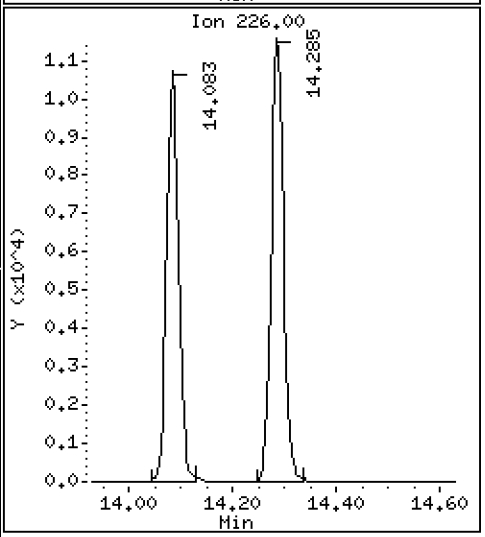
27 Chrysene

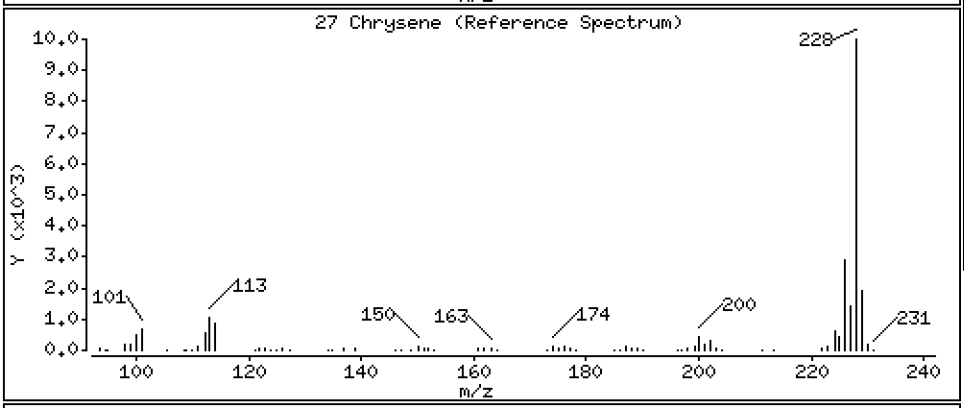
Concentration: 2.400 ug/L

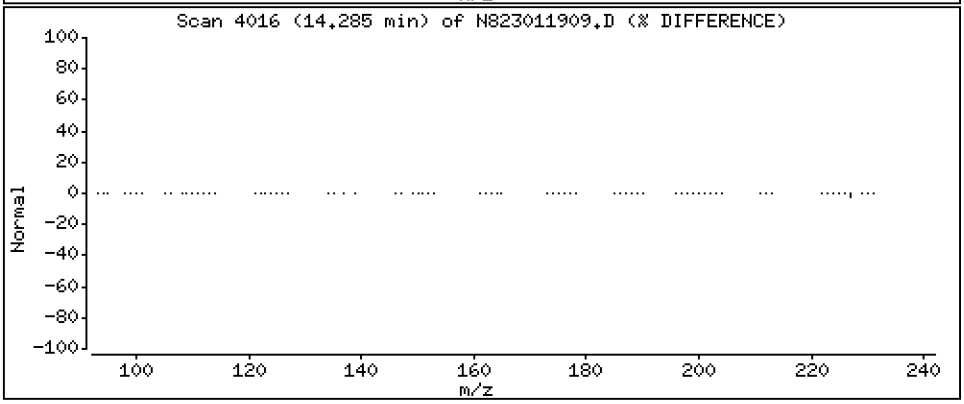












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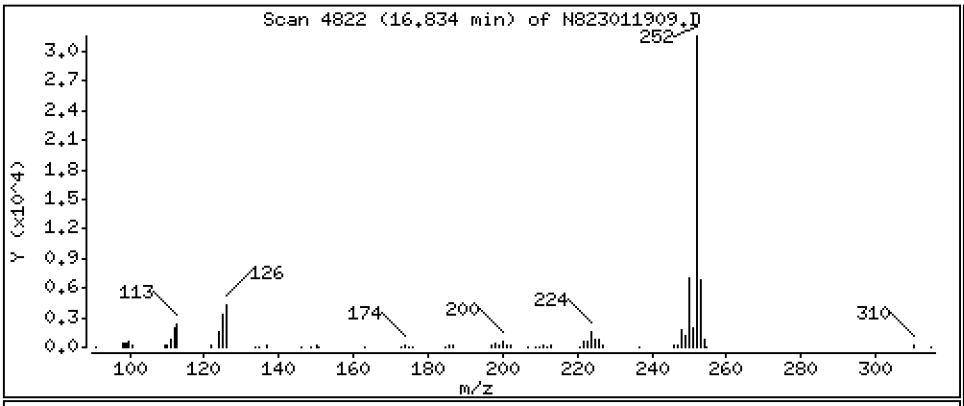
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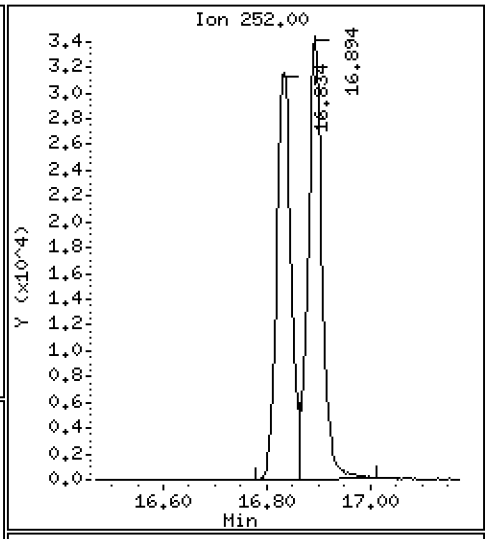
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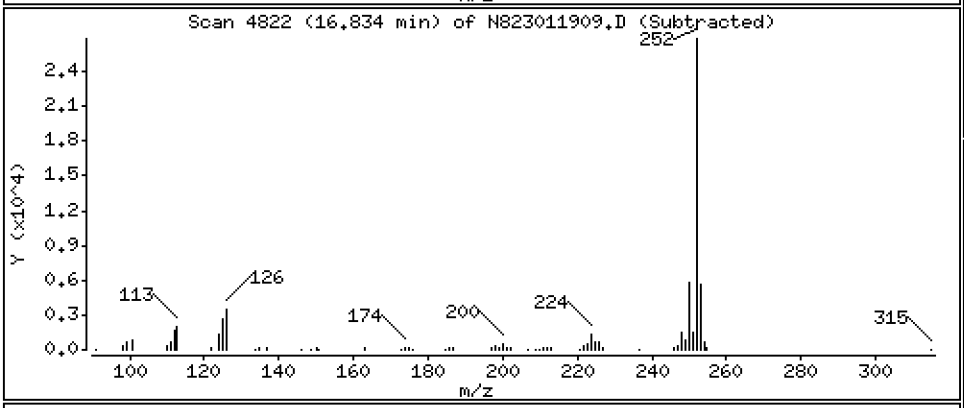
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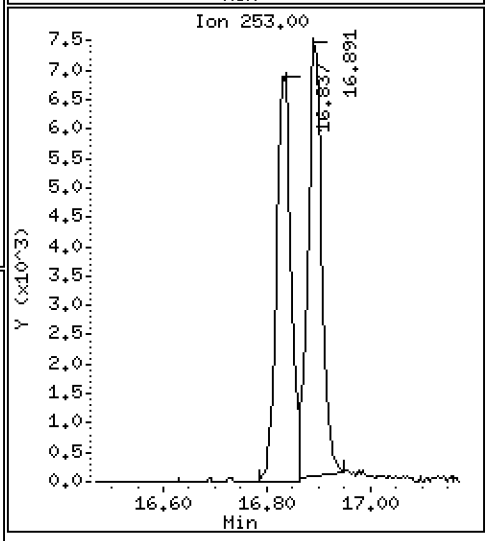
28 Benzo(b)fluoranthene

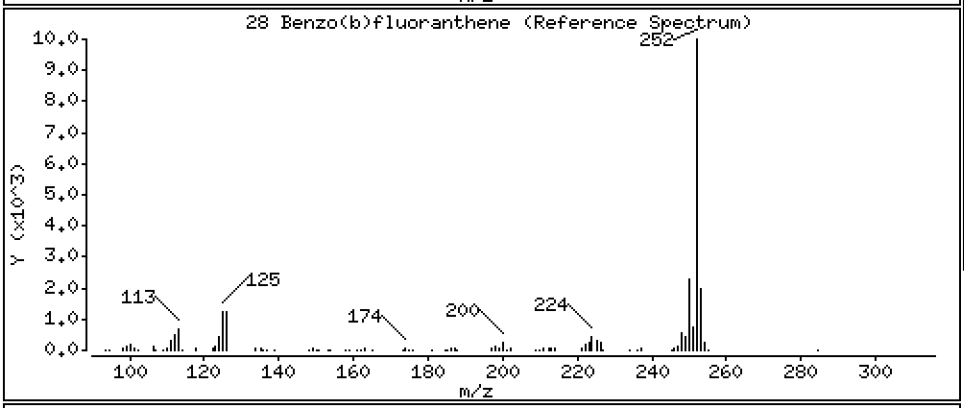
Concentration: 2.507 ug/L

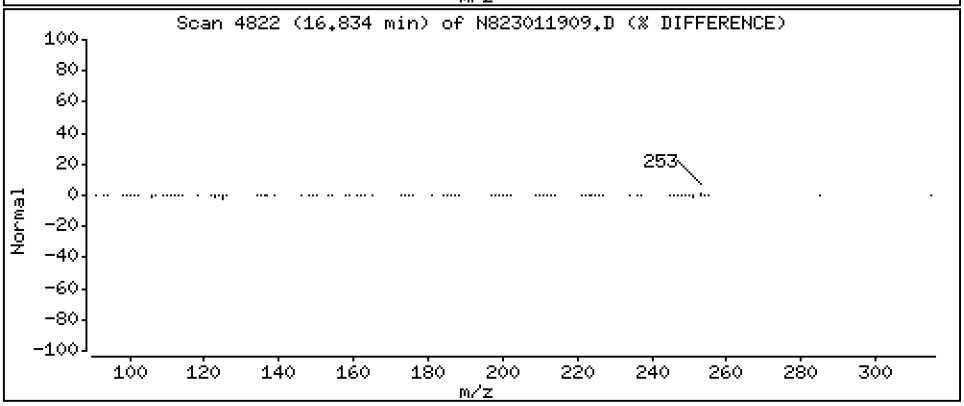












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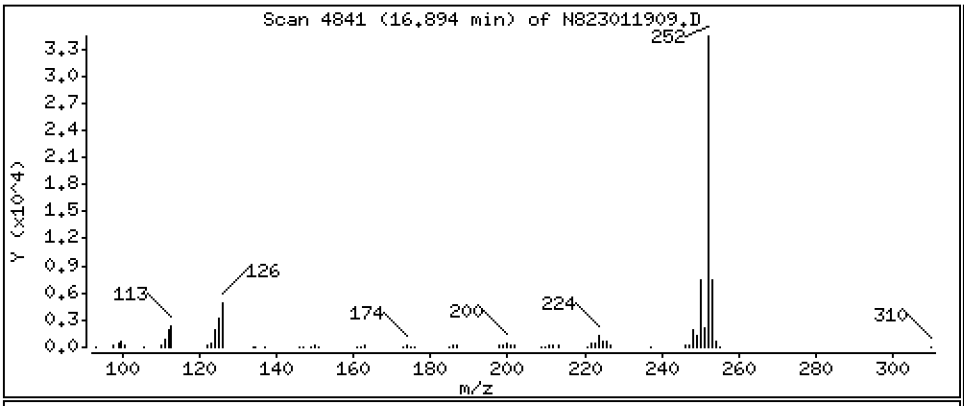
Operator: JZ

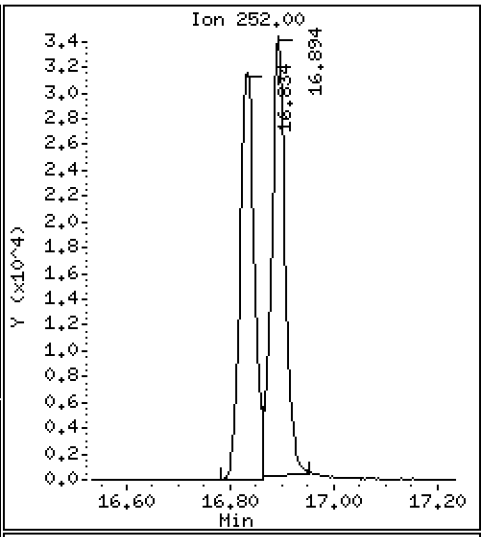
Column phase: Rxi-17sil

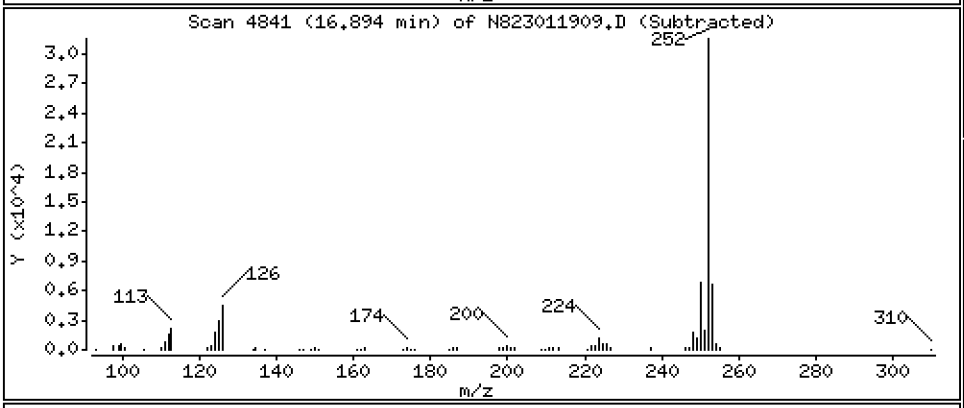
Column diameter: 0.25

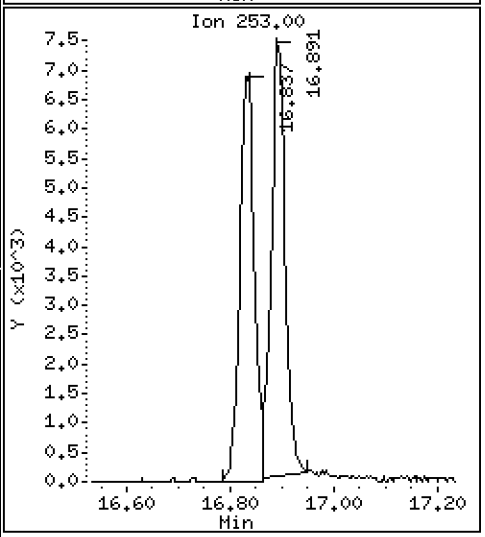
29 Benzo(k)fluoranthene

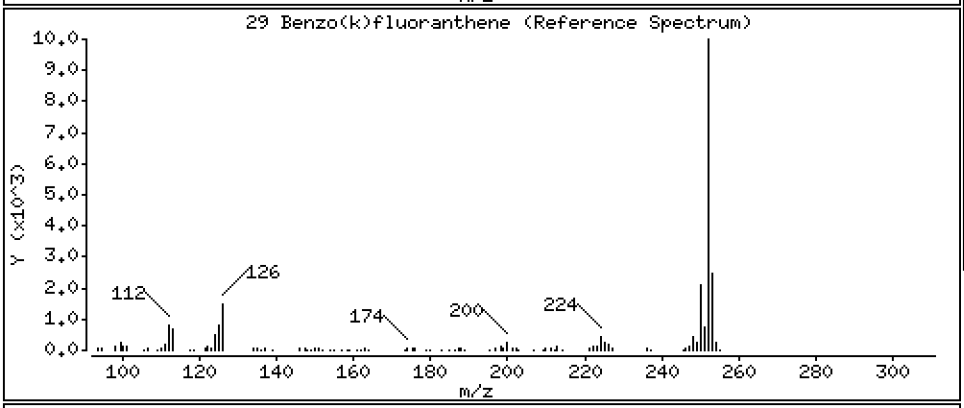
Concentration: 2.656 ug/L

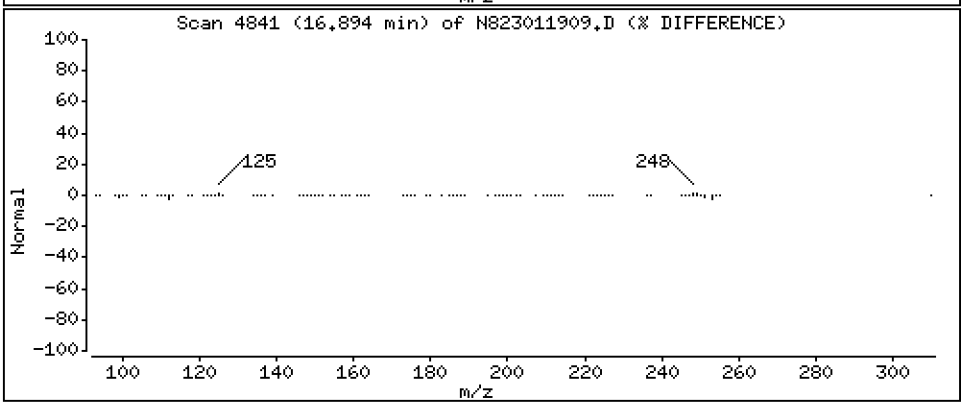












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

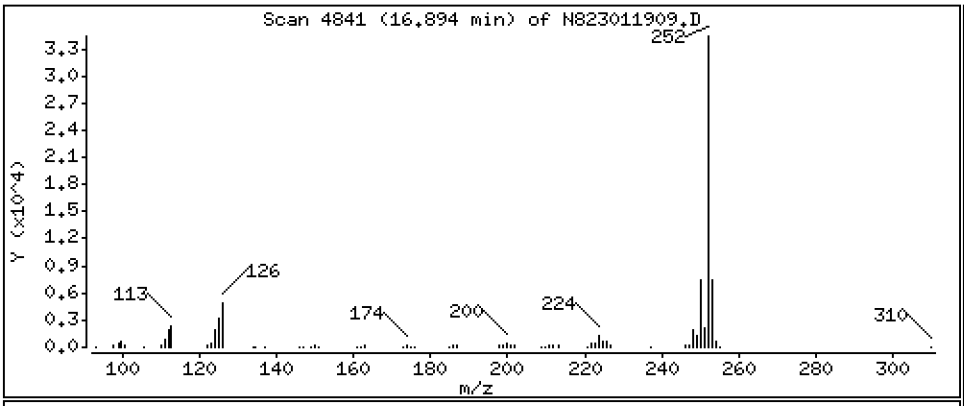
Operator: JZ

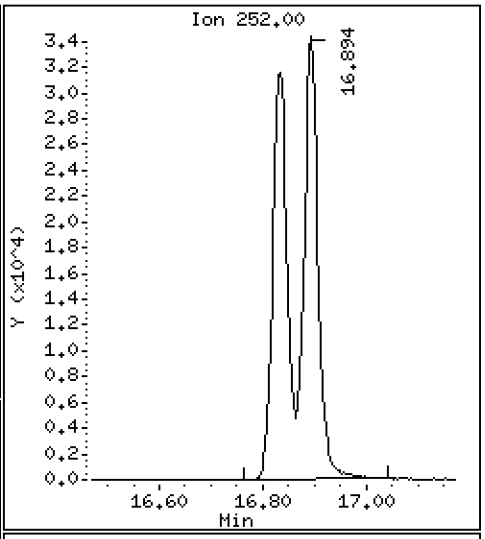
Column phase: Rxi-17sil

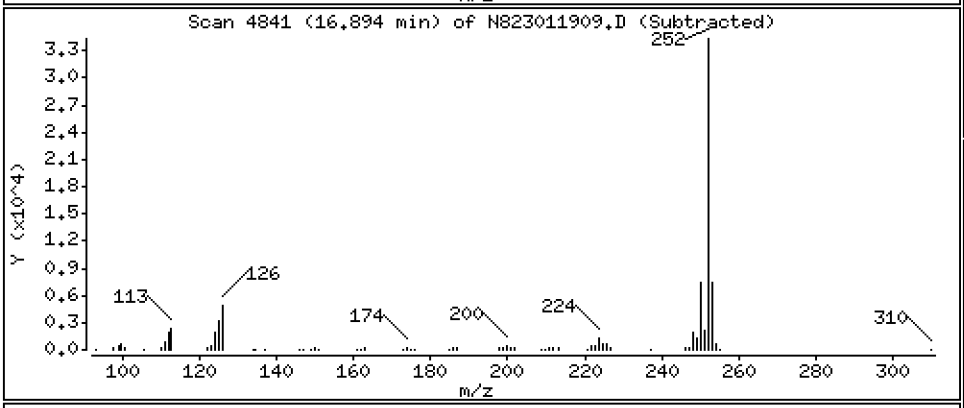
Column diameter: 0.25

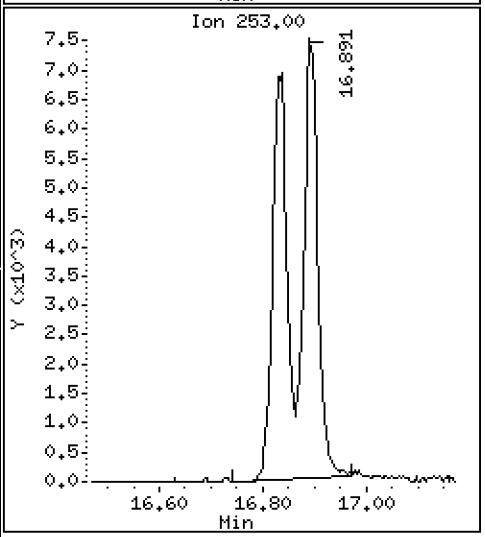
31 Total Benzofluoranthenes

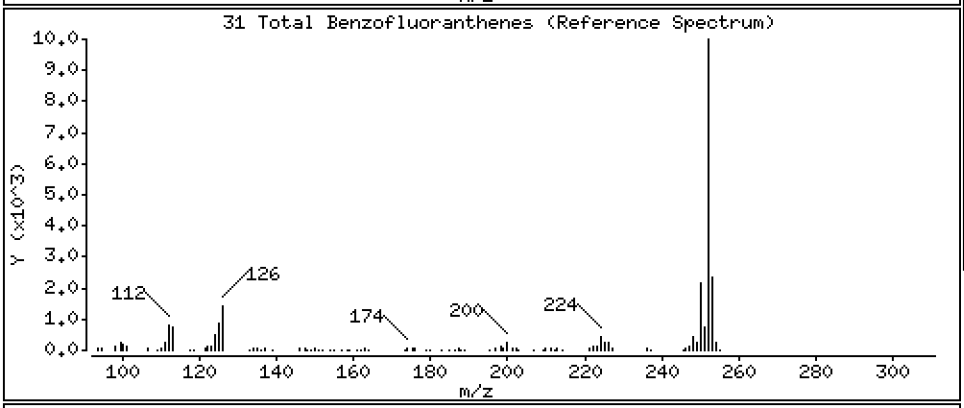
Concentration: 5.480 ug/L

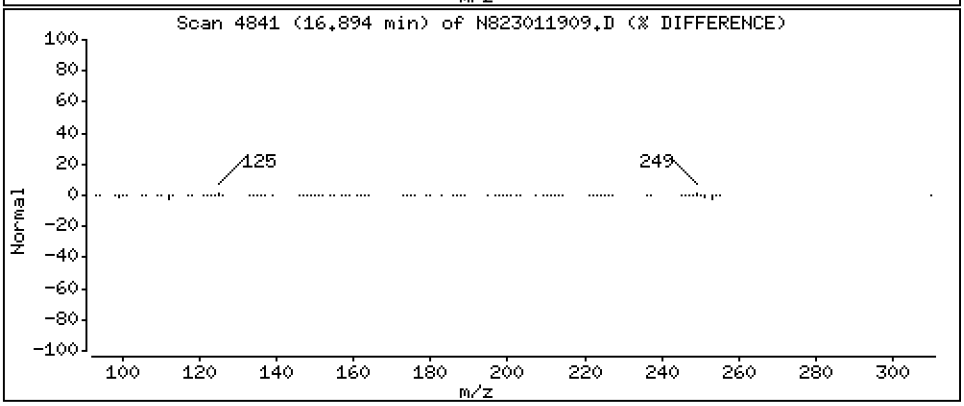












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

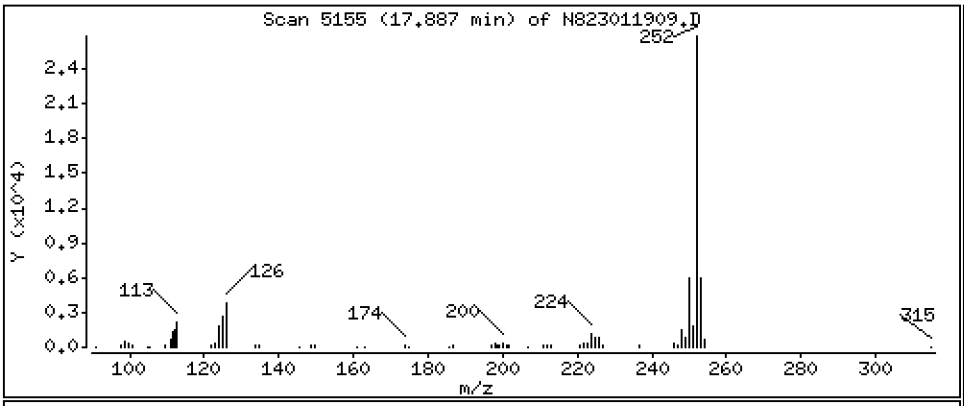
Operator: JZ

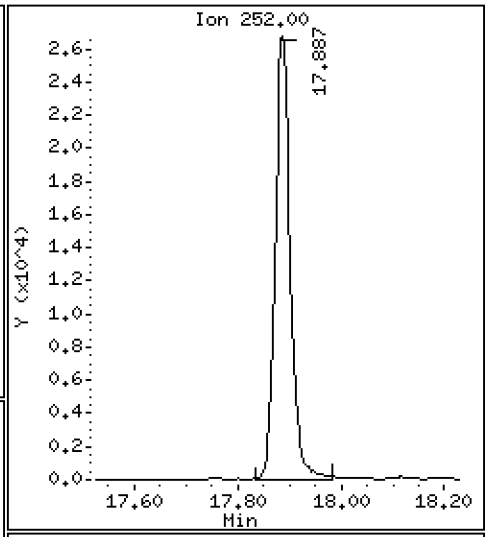
Column phase: Rxi-17sil

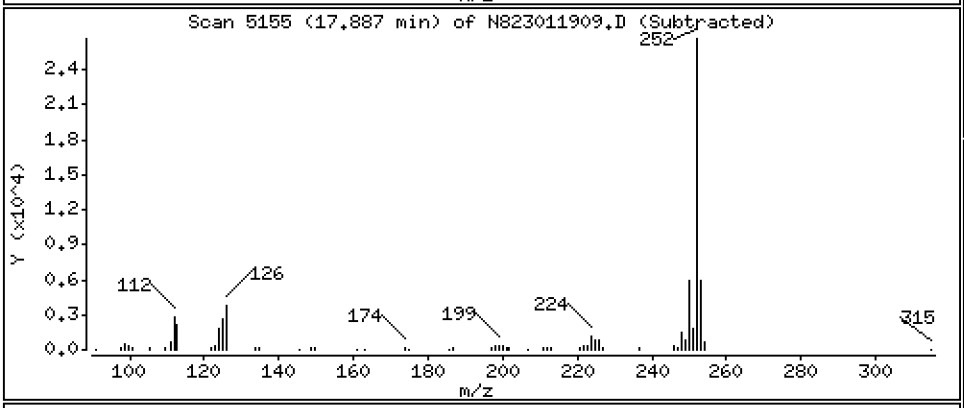
Column diameter: 0.25

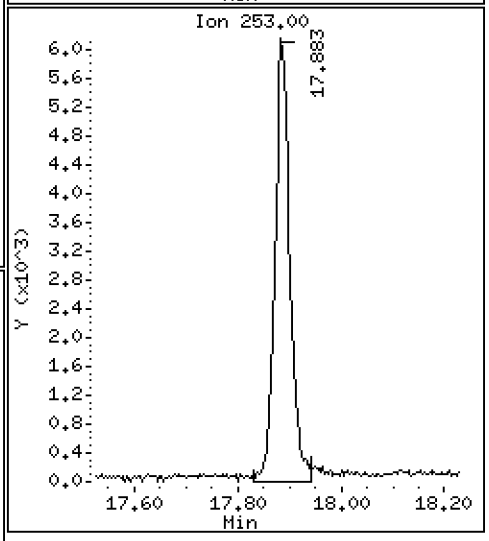
32 Benzo(a)pyrene

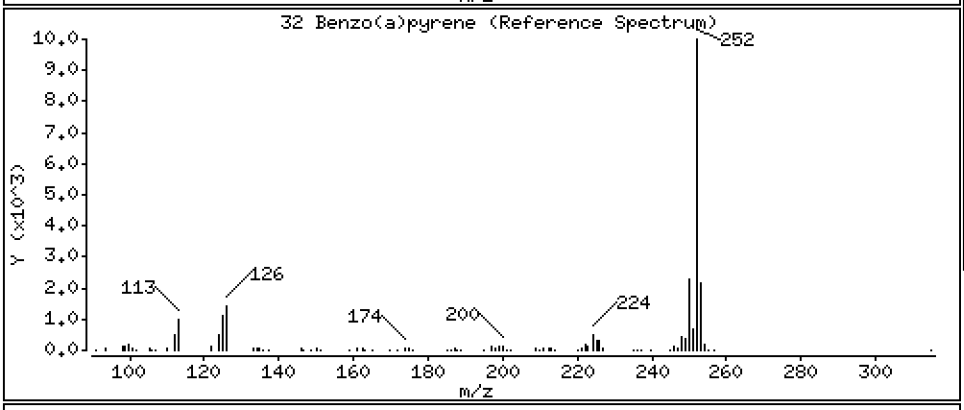
Concentration: 2.572 ug/L

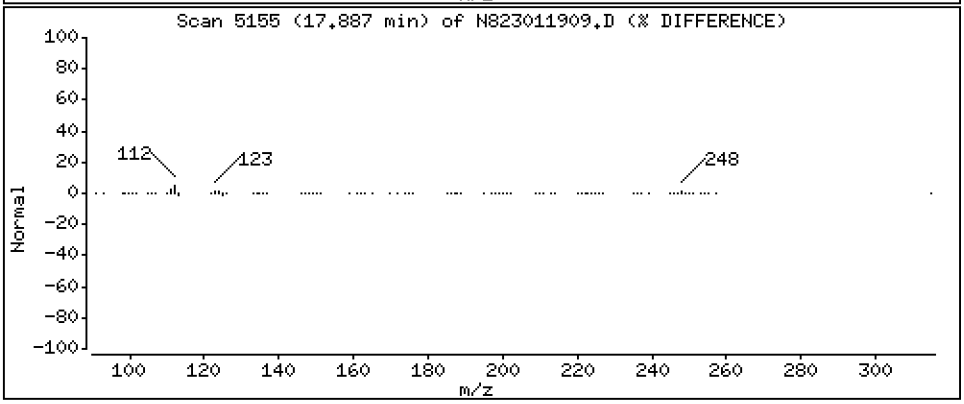












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

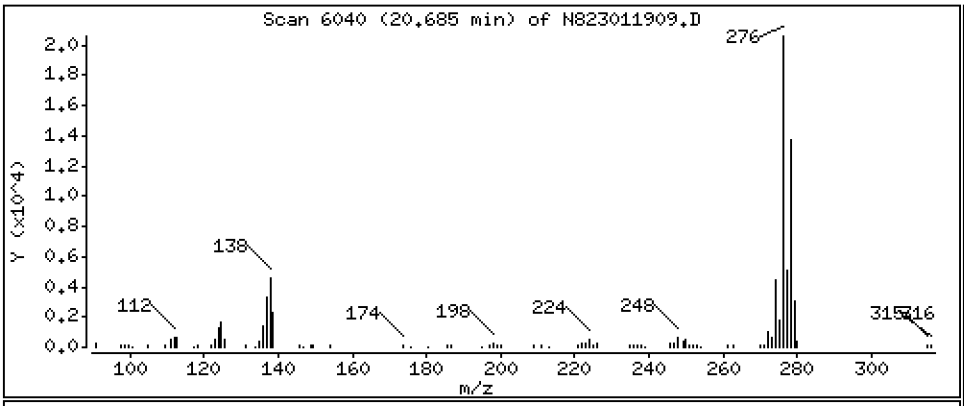
Operator: JZ

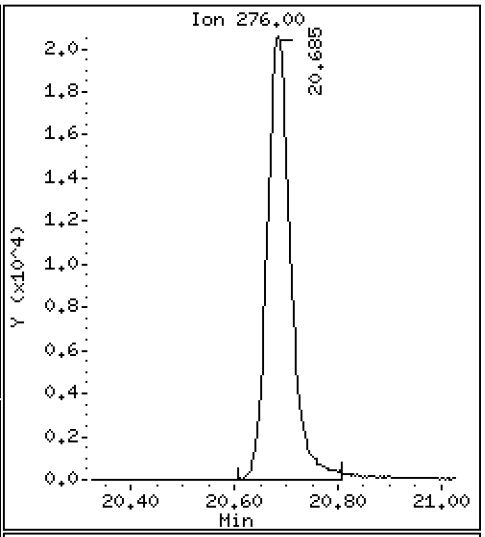
Column phase: Rxi-17sil

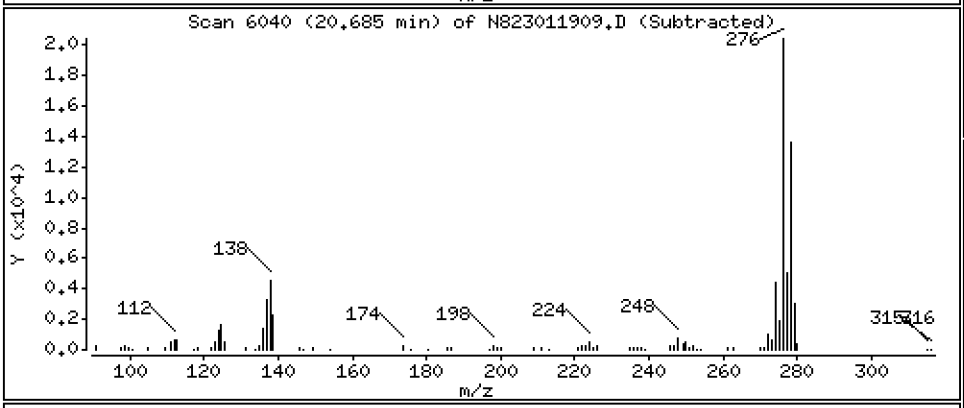
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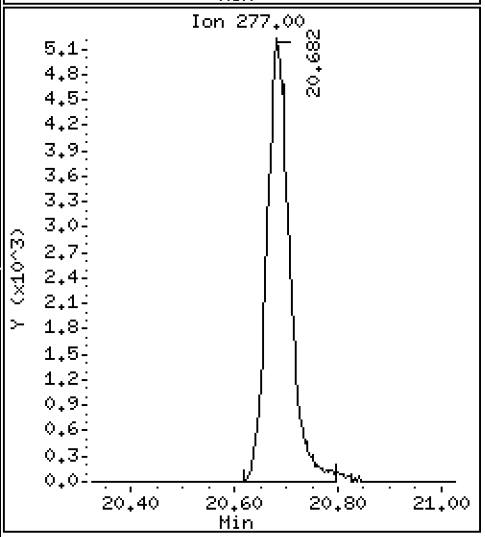
37 Indeno(1,2,3-cd)pyrene

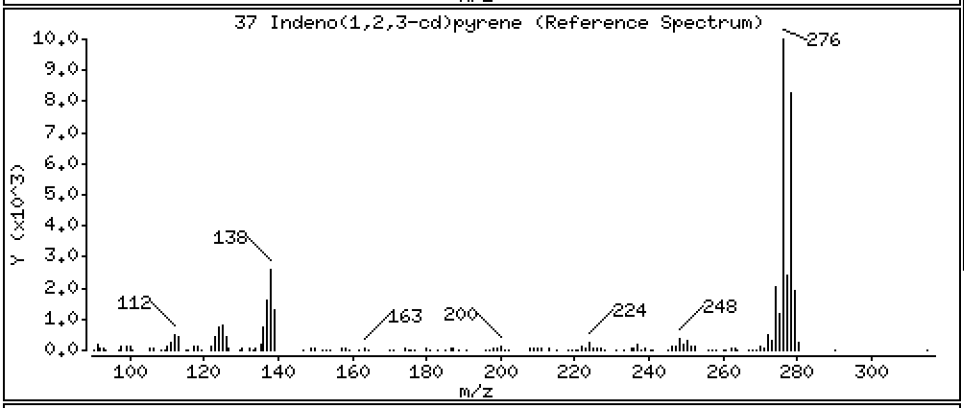
Concentration: 2.689 ug/L

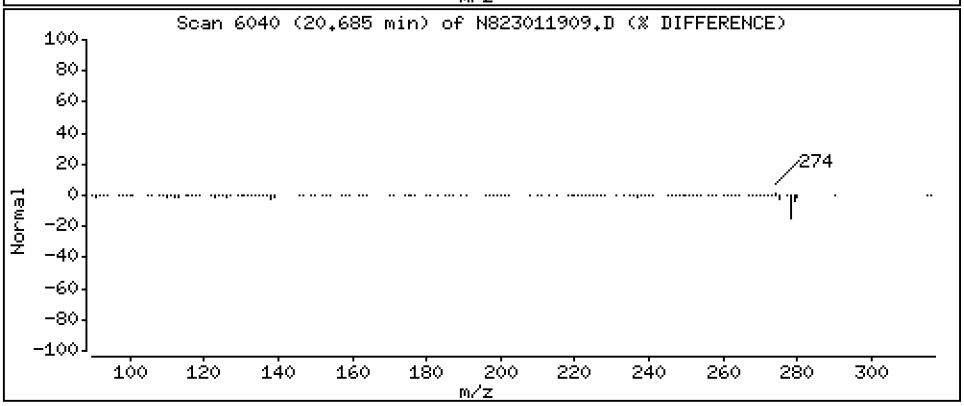












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

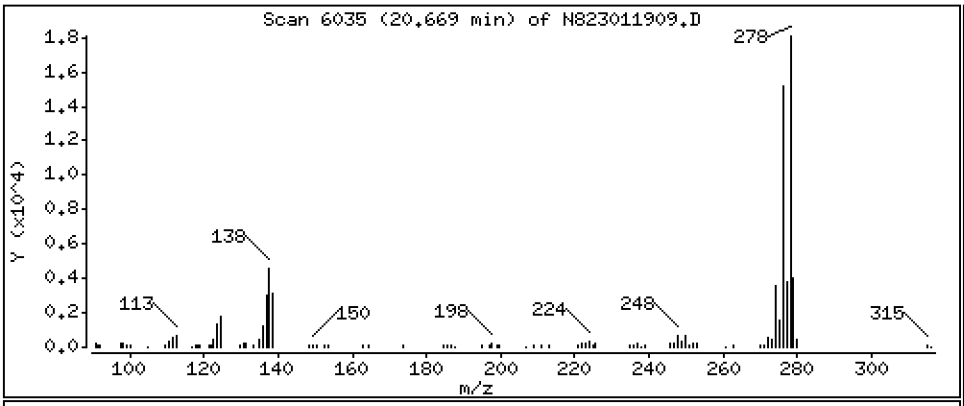
Operator: JZ

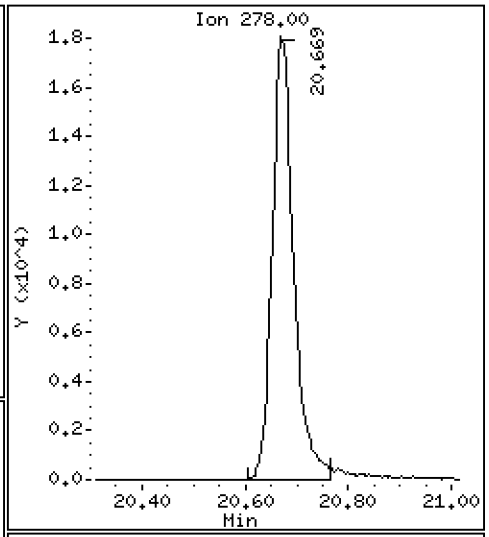
Column phase: Rxi-17sil

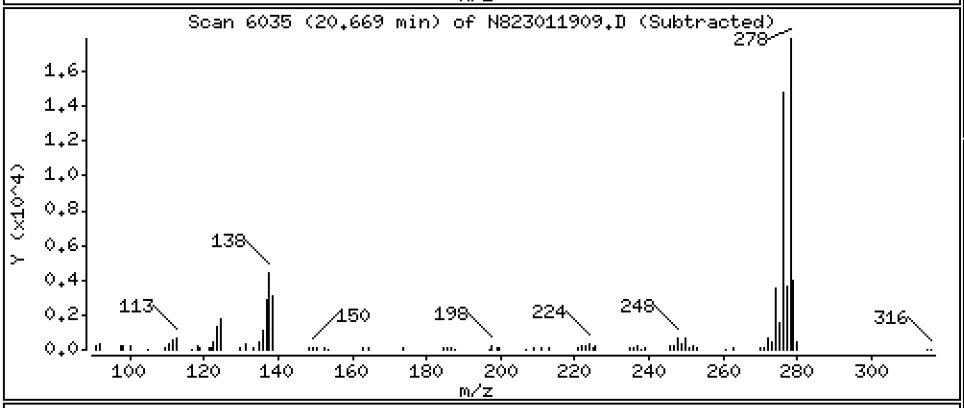
Column diameter: 0.25

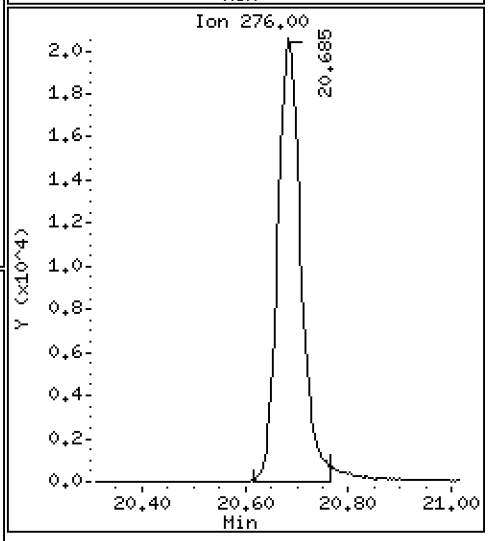
38 Dibenzo(a,h)anthracene

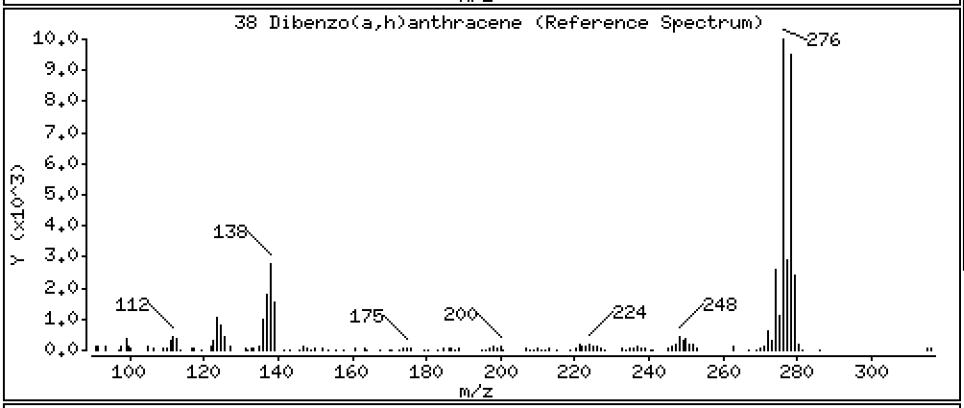
Concentration: 2.493 ug/L

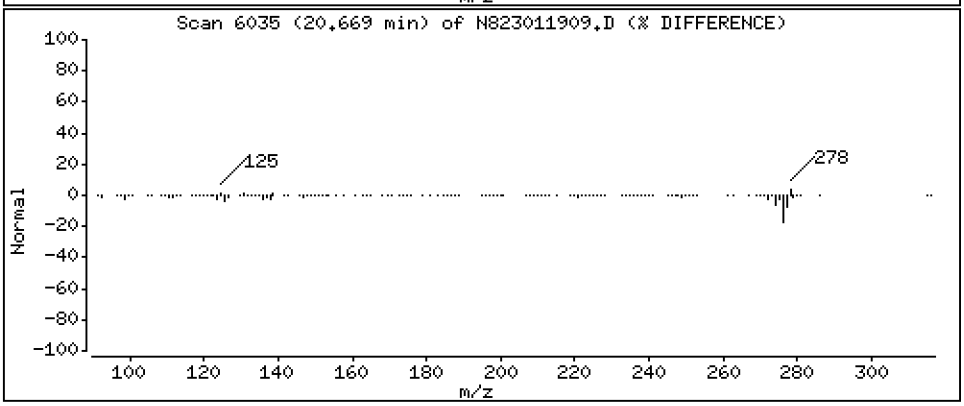












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

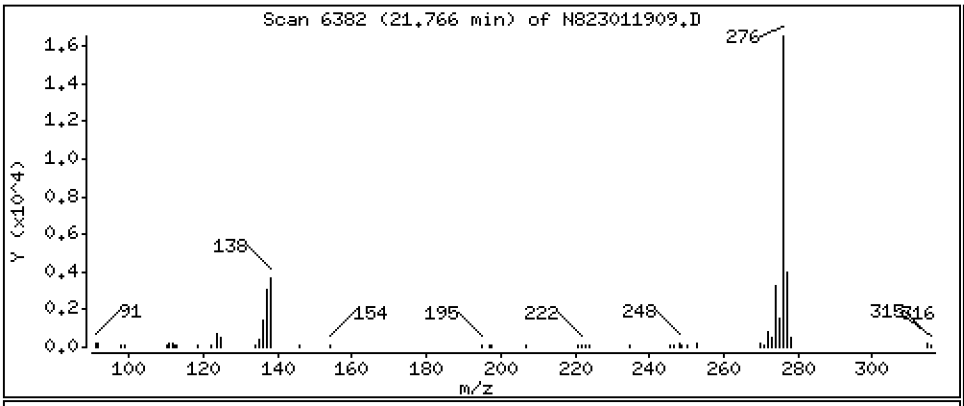
Operator: JZ

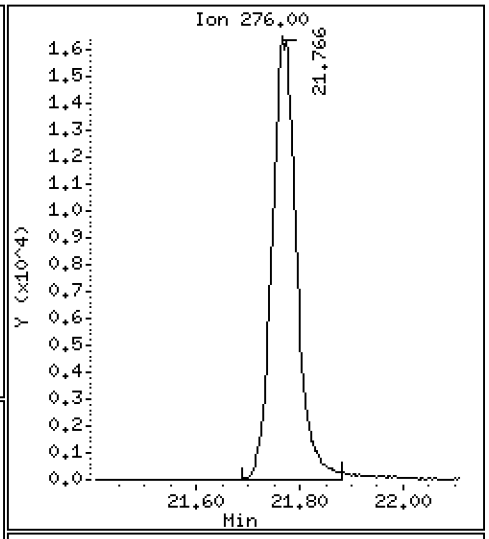
Column phase: Rxi-17sil

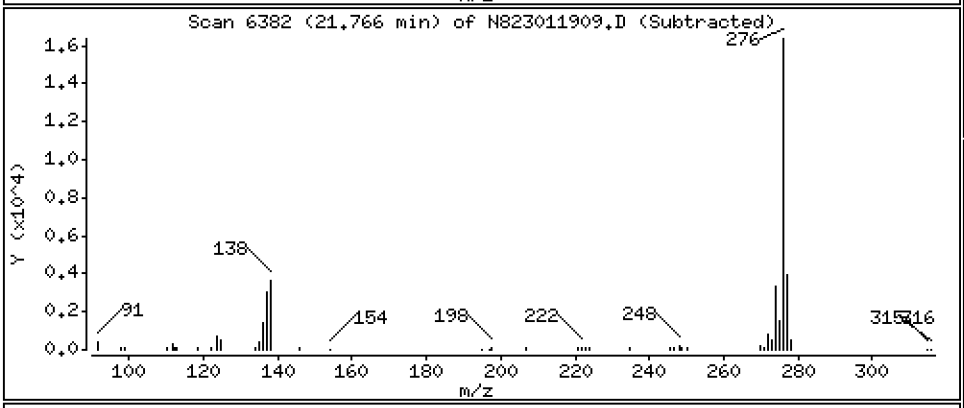
Column diameter: 0.25

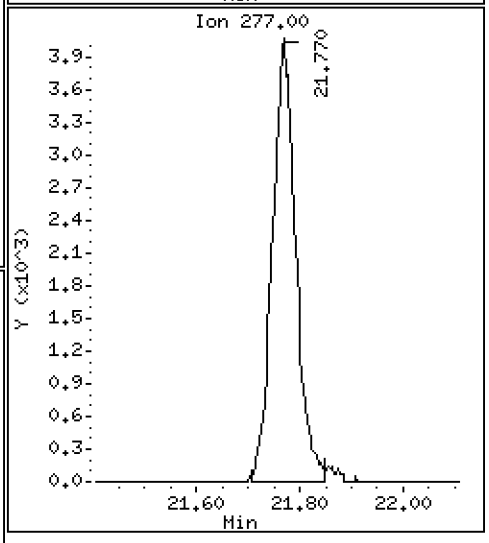
39 Benzo(g,h,i)perylene

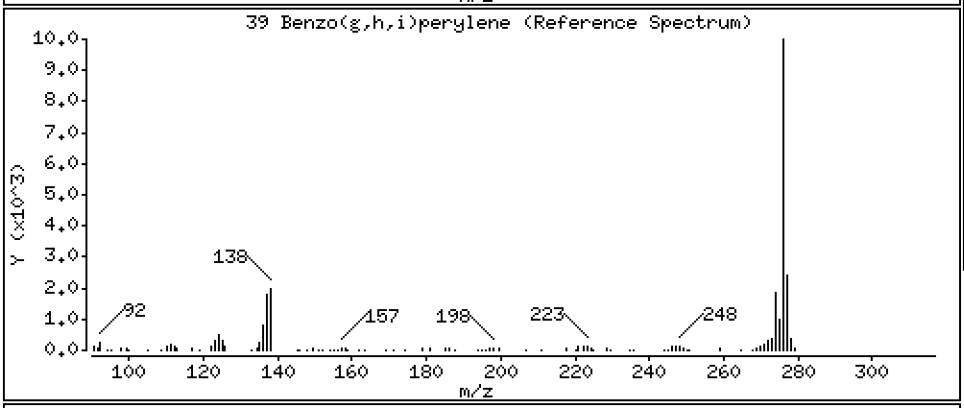
Concentration: 2.483 ug/L

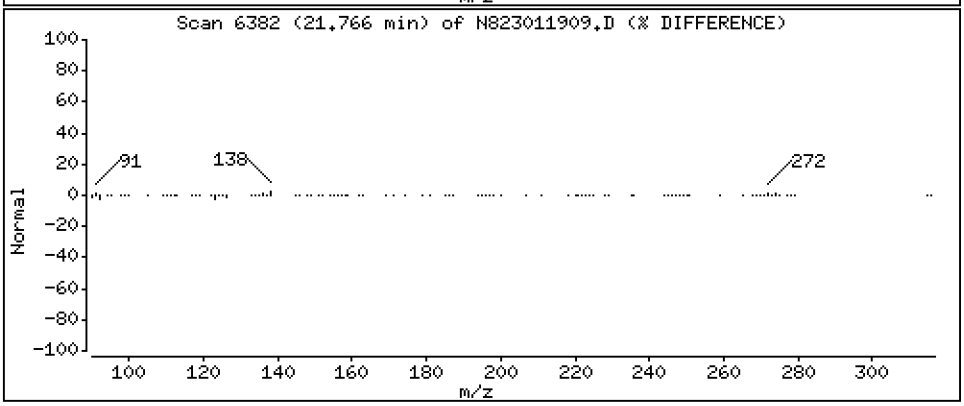












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 25-Jan-2023 21:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

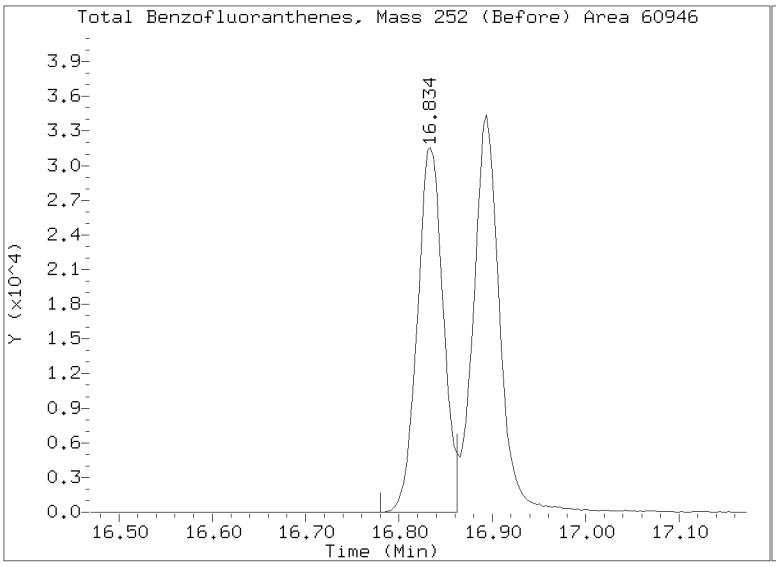
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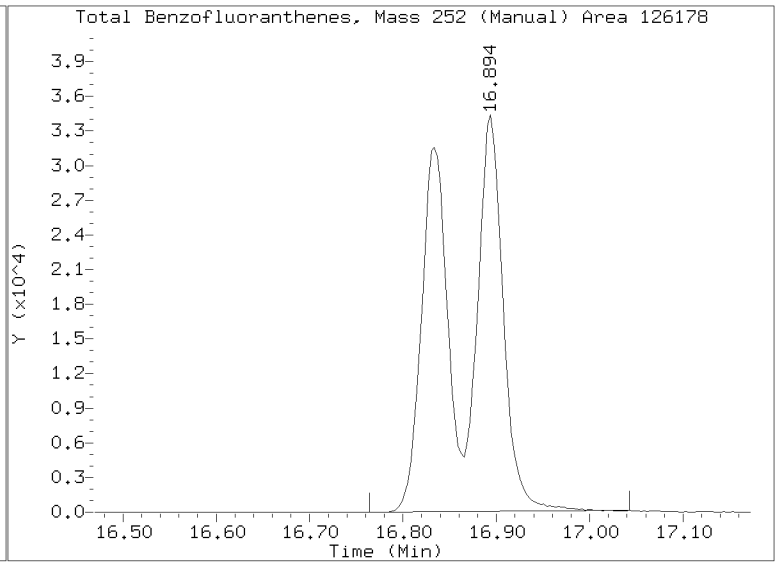
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/25/2023 22:00





Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GA00050
Laboratory ID: SLA0213-SCV1
Sequence: SLA0213
Standard ID: L000686

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Naphthalene	2.5000	2.63	5.0	
2-Methylnaphthalene	2.5000	2.67	6.8	
1-Methylnaphthalene	2.5000	2.65	6.0	
Acenaphthylene	2.5000	2.82	12.8	
Acenaphthene	2.5000	2.60	4.0	
Dibenzofuran	2.5000	2.86	14.4	
Fluorene	2.5000	2.63	5.2	
Phenanthrene	2.5000	2.45	-2.1	
Anthracene	2.5000	2.27	-9.2	
Fluoranthene	2.5000	2.65	6.1	
Pyrene	2.5000	2.46	-1.5	
Benzo(a)anthracene	2.5000	2.59	3.5	
Chrysene	2.5000	2.40	-4.0	
Benzo(b)fluoranthene	2.5000	2.51	0.3	
Benzo(k)fluoranthene	2.5000	2.66	6.2	
Benzofluoranthenes, Total	5.0000	5.48	9.6	
Benzo(a)pyrene	2.5000	2.57	2.9	
Indeno(1,2,3-cd)pyrene	2.5000	2.69	7.6	
Dibenzo(a,h)anthracene	2.5000	2.49	-0.3	
Benzo(g,h,i)perylene	2.5000	2.48	-0.7	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

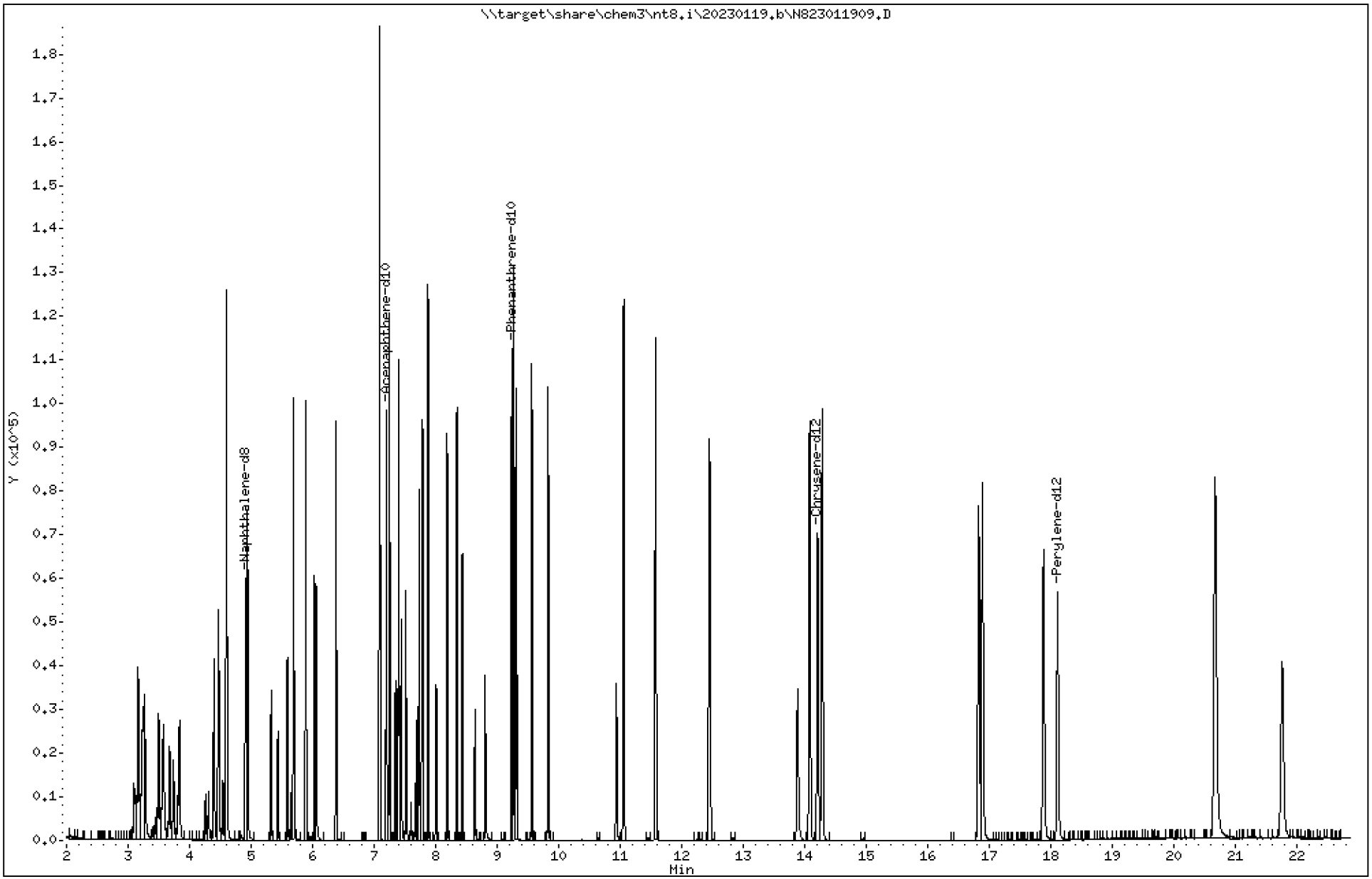
Sample Info: SCV230119

Volume Injected (uL): 1.0

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



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Sample Info: SCV230119

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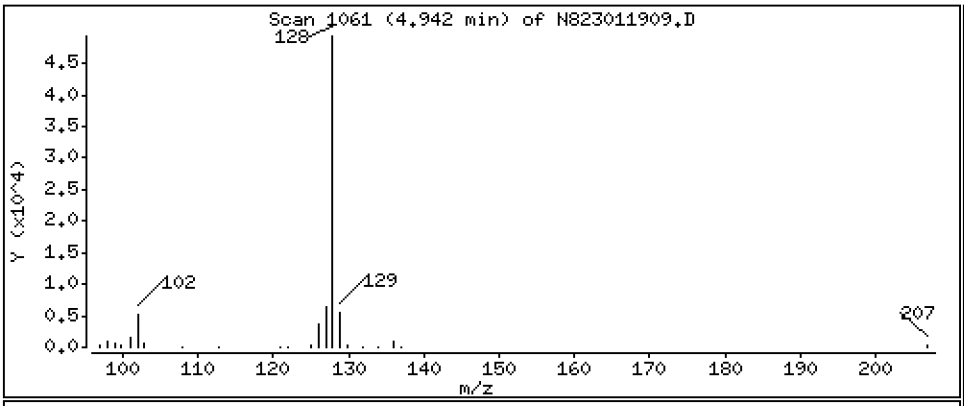
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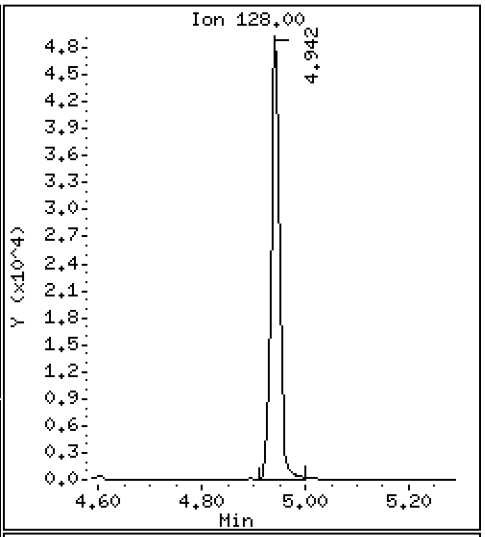
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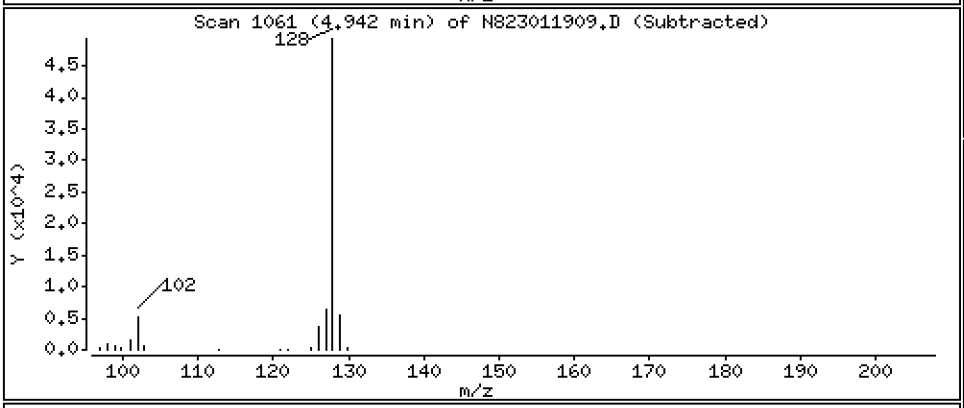
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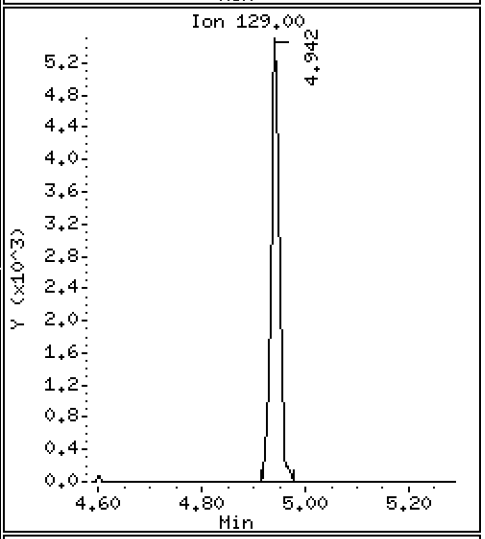
2 Naphthalene

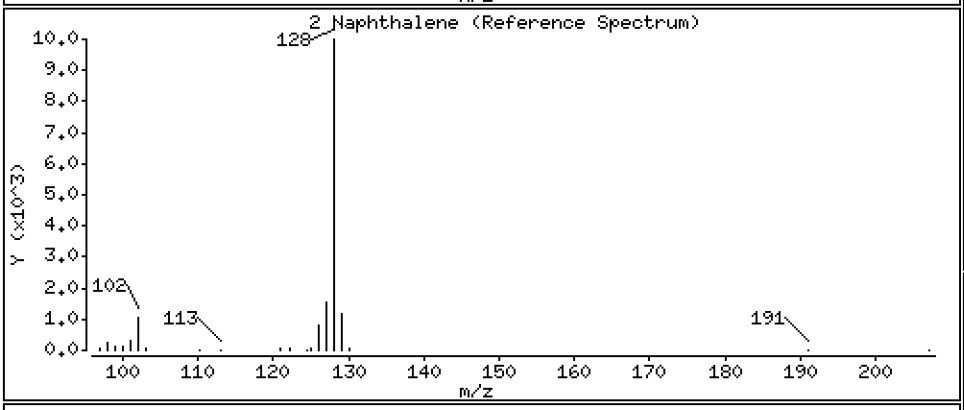
Concentration: 2.626 ug/L

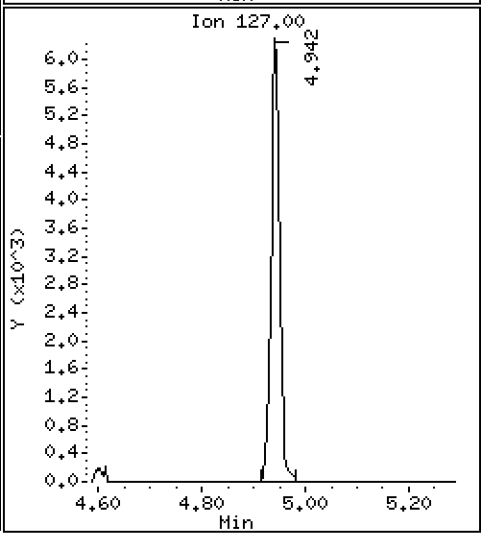


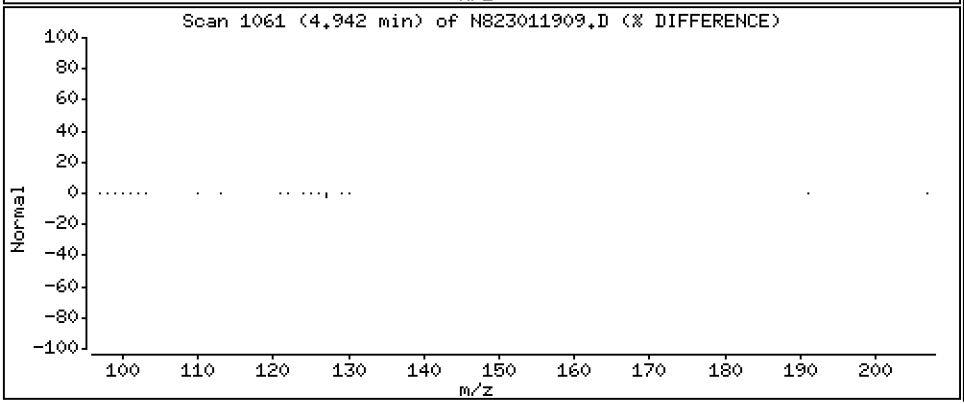












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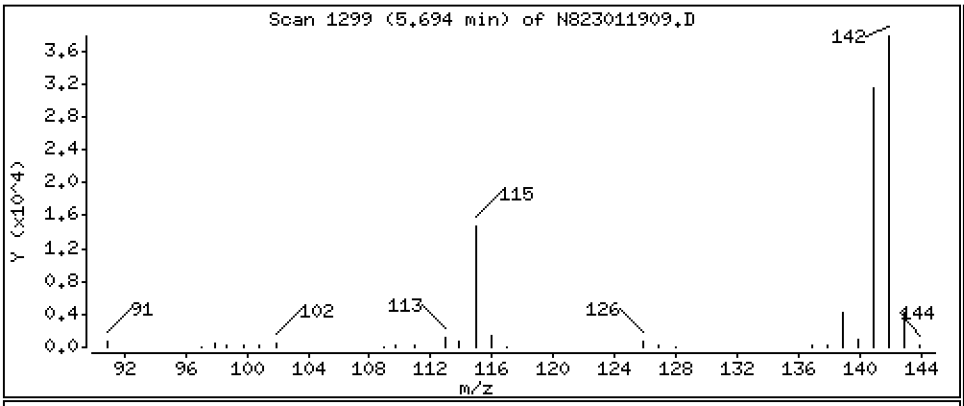
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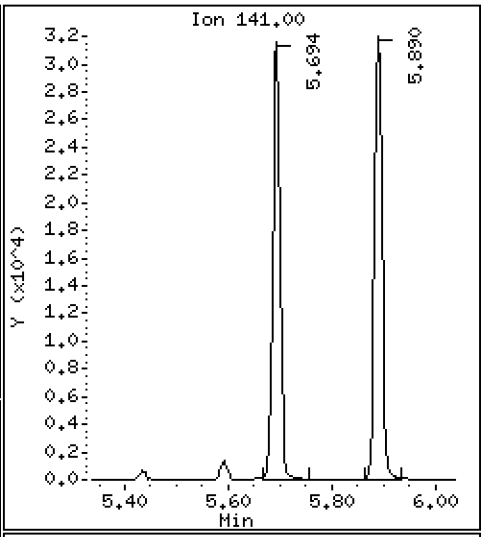
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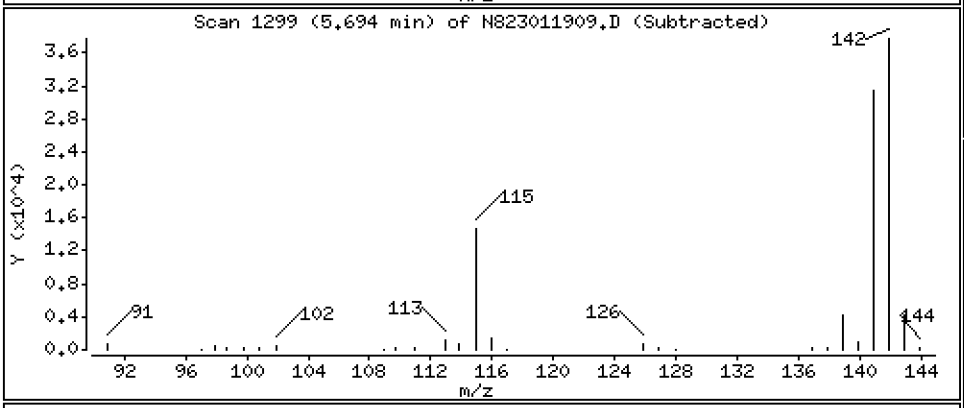
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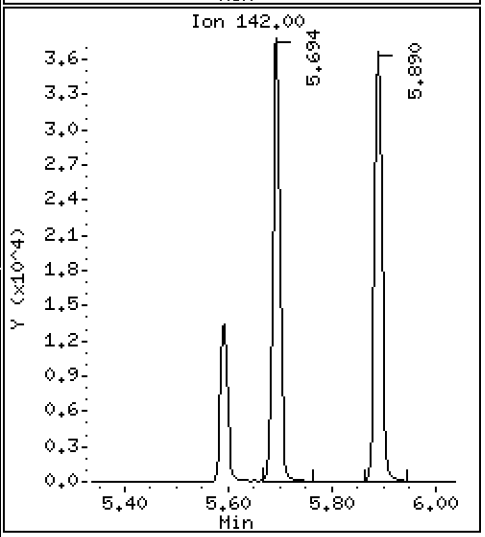
4 2-Methylnaphthalene

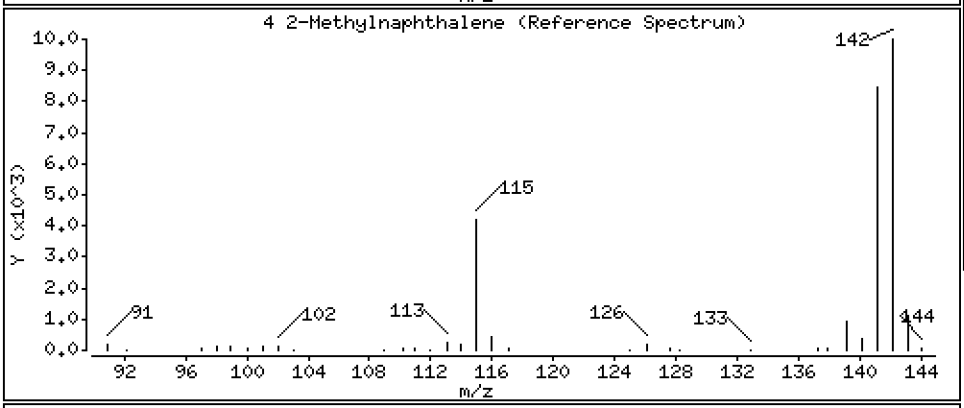
Concentration: 2.670 ug/L

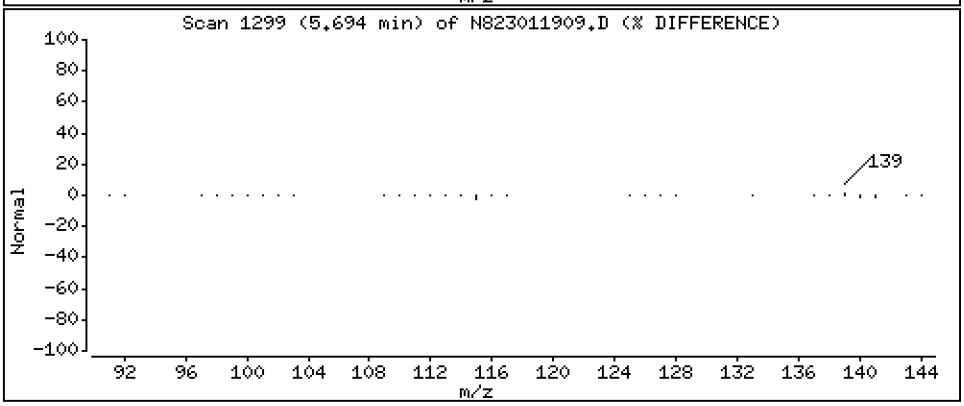












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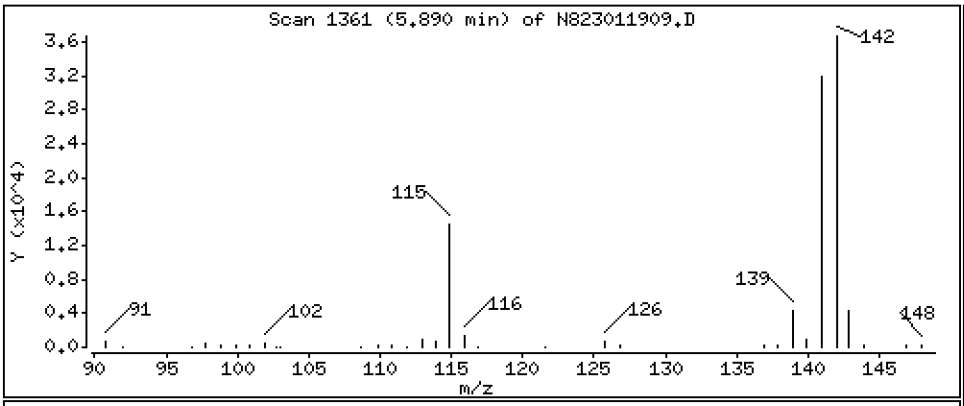
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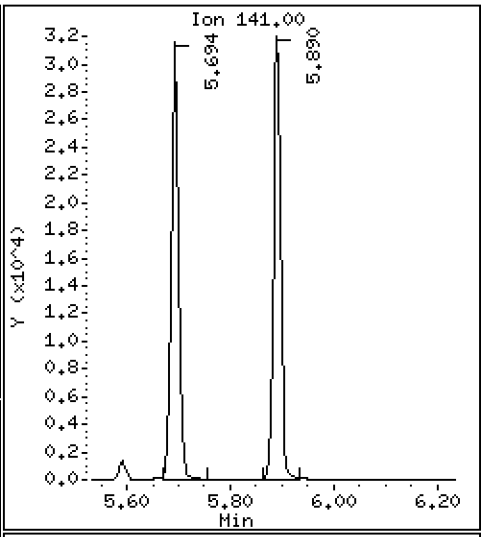
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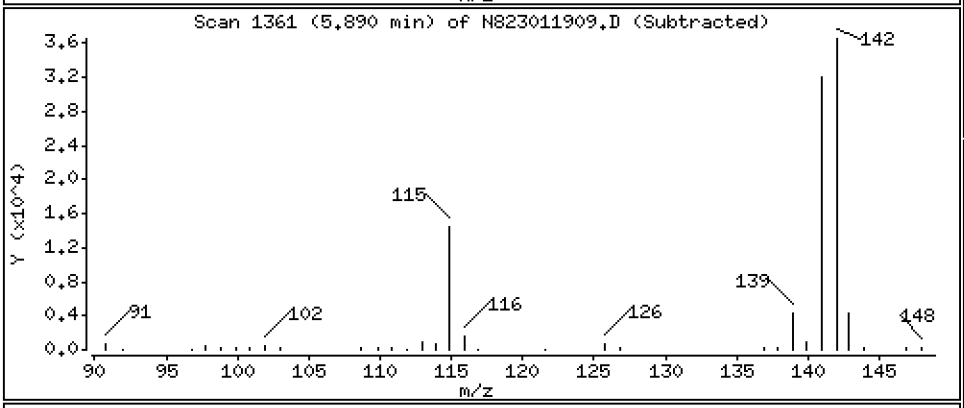
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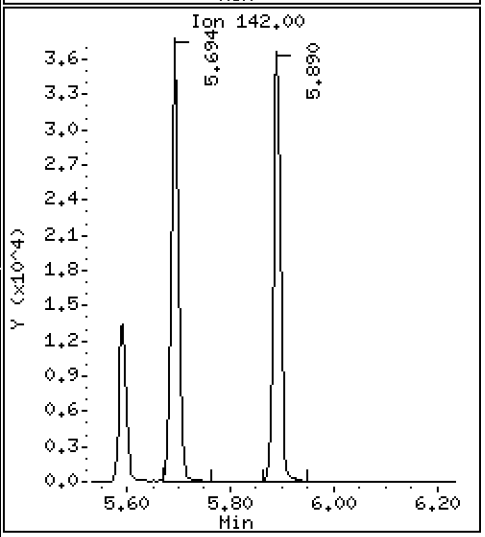
5 1-methylnaphthalene

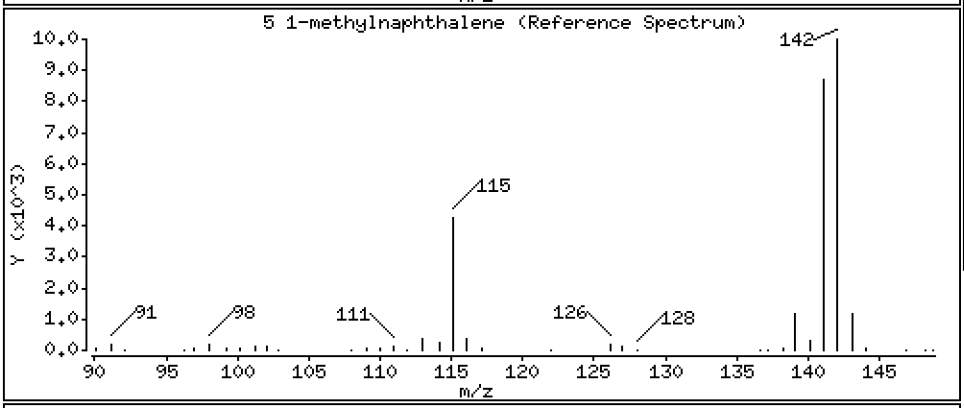
Concentration: 2.649 ug/L

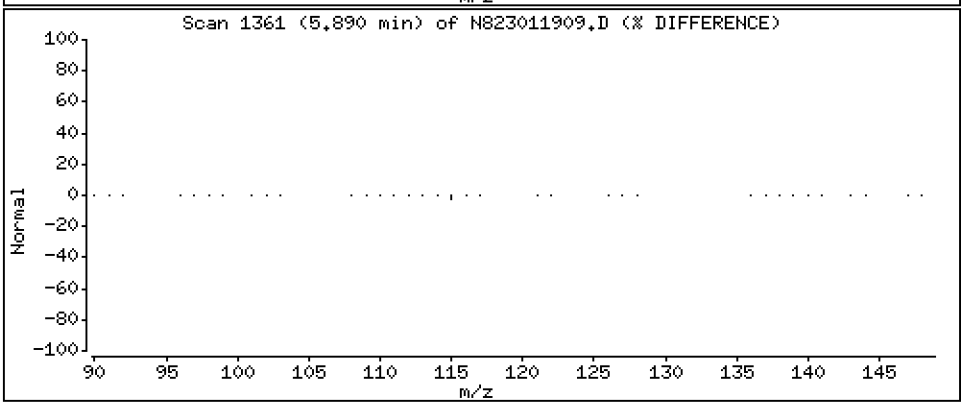












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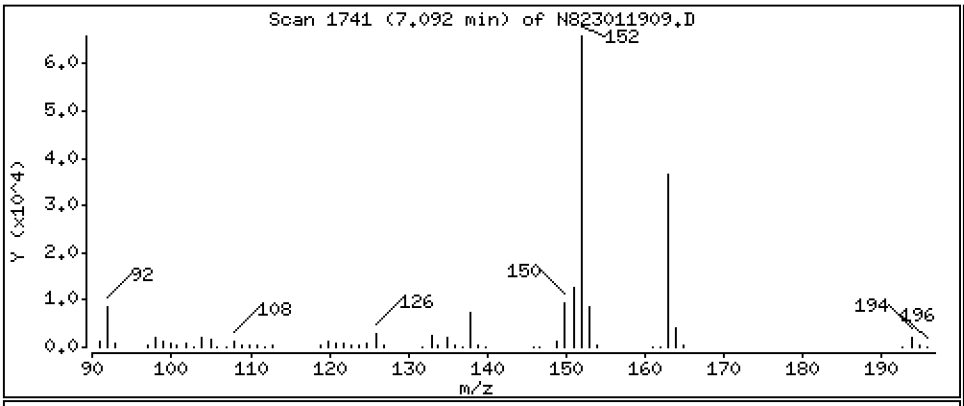
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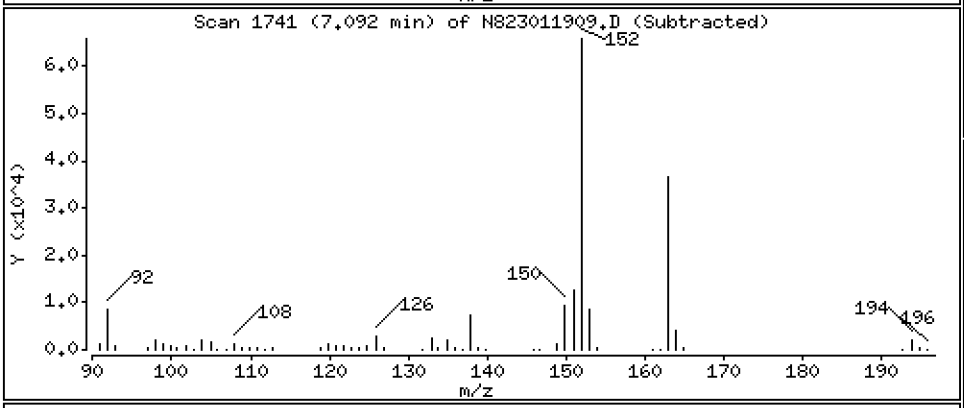
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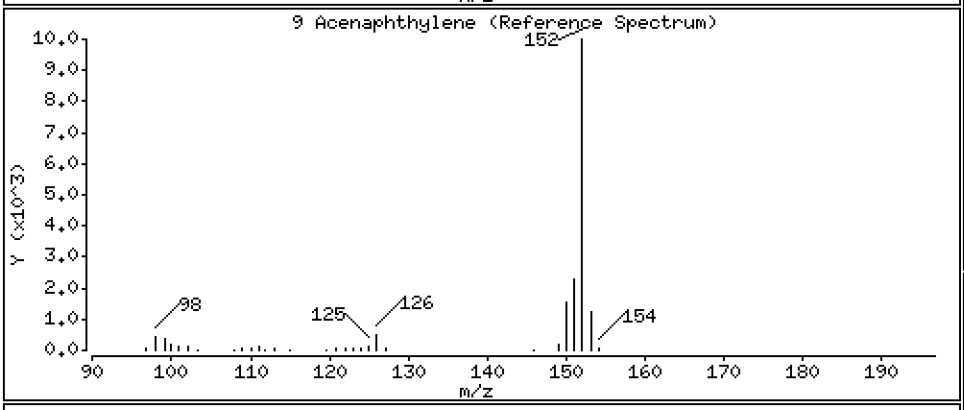
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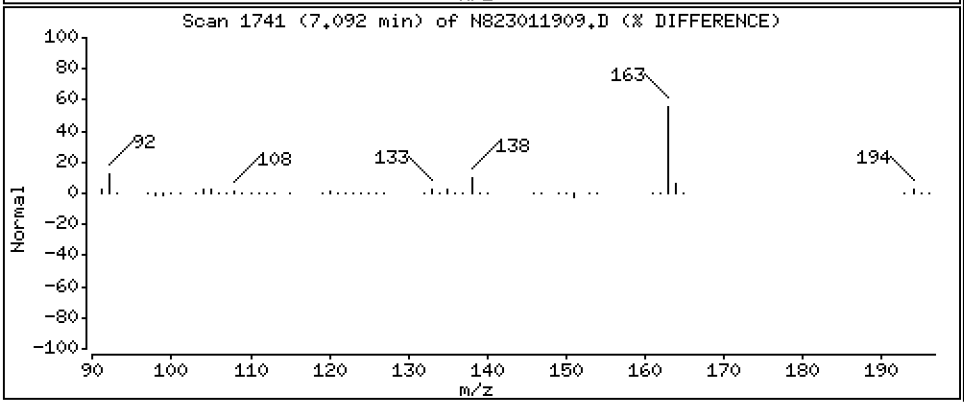
9 Acenaphthylene

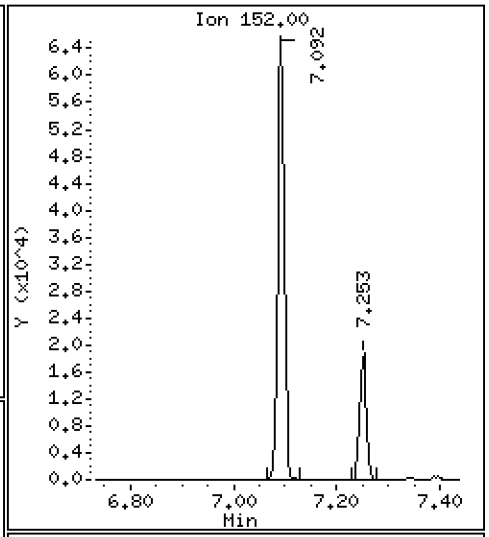
Concentration: 2.821 ug/L

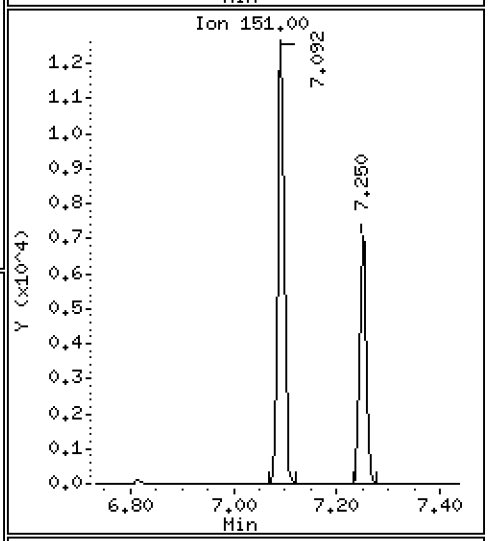


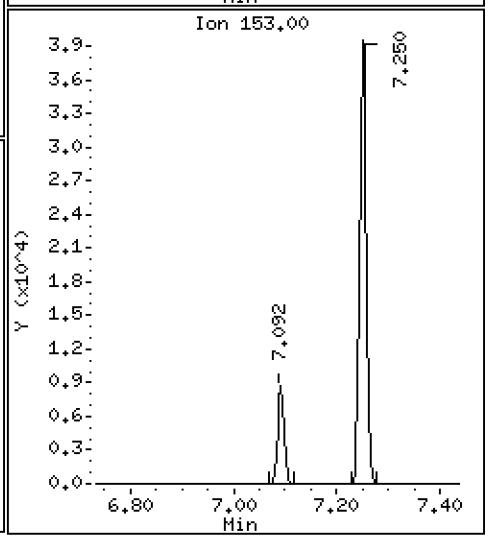












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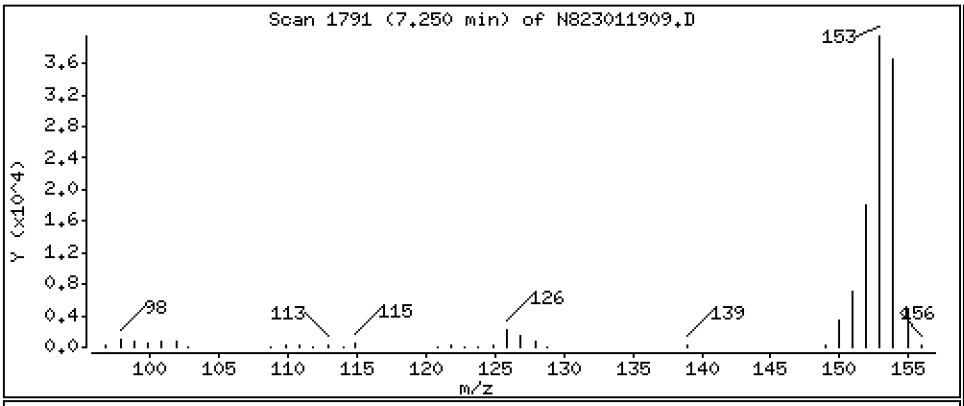
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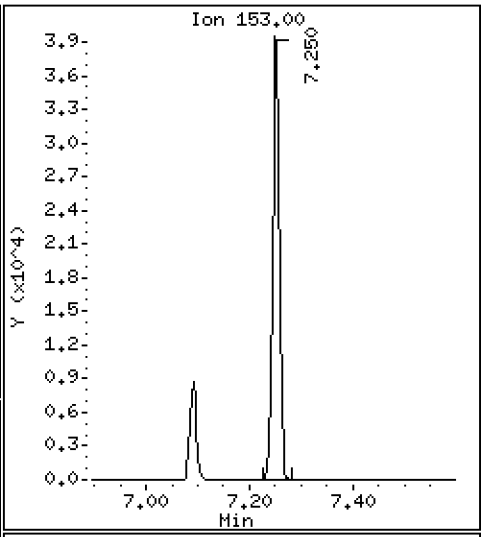
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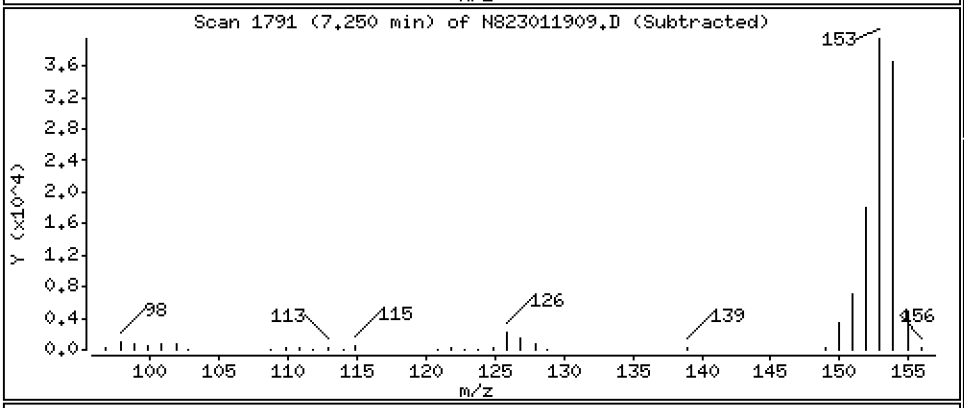
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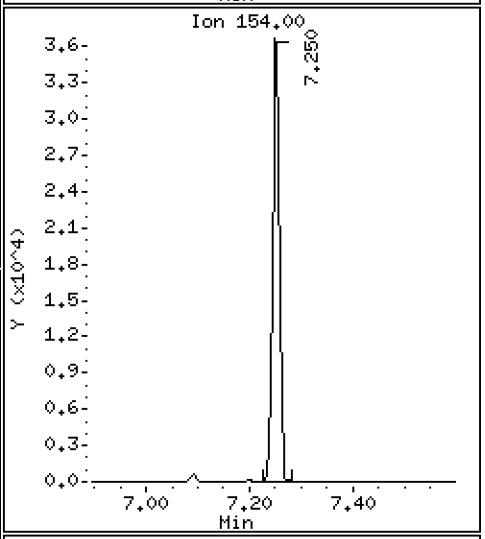
11 Acenaphthene

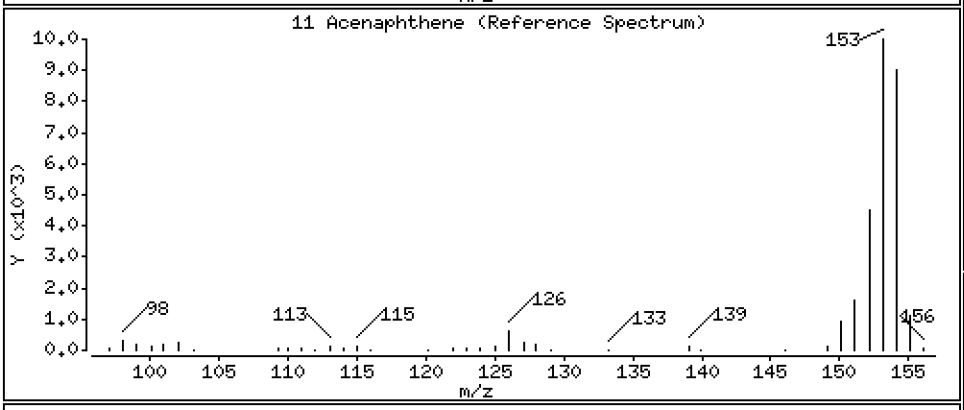
Concentration: 2.600 ug/L

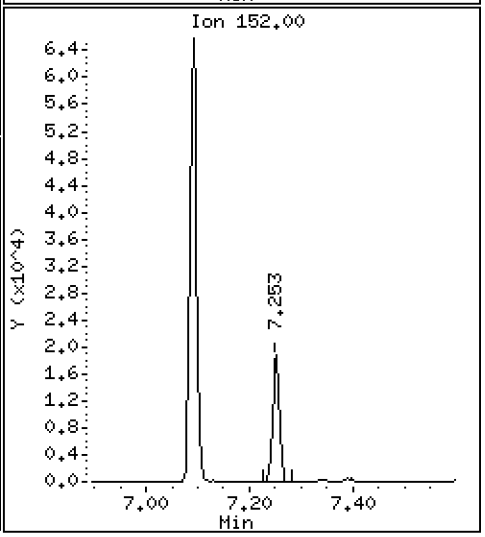


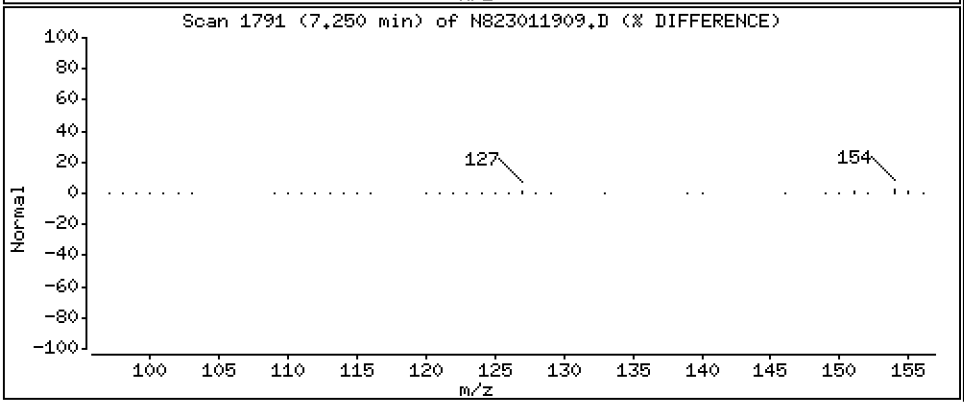












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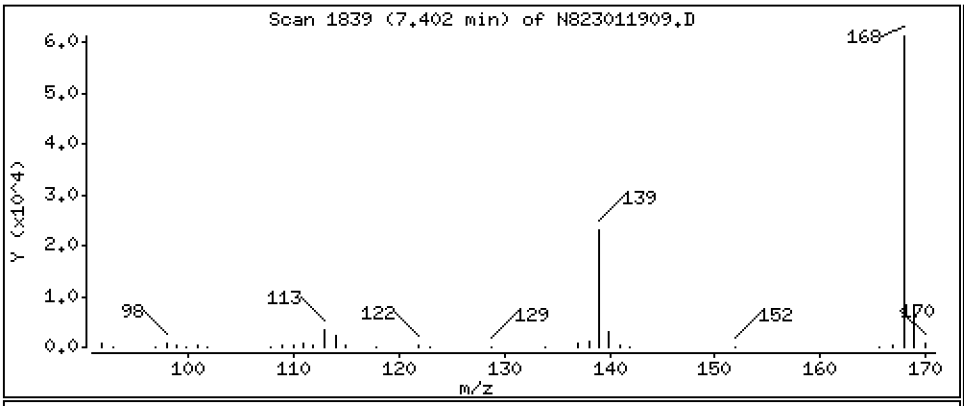
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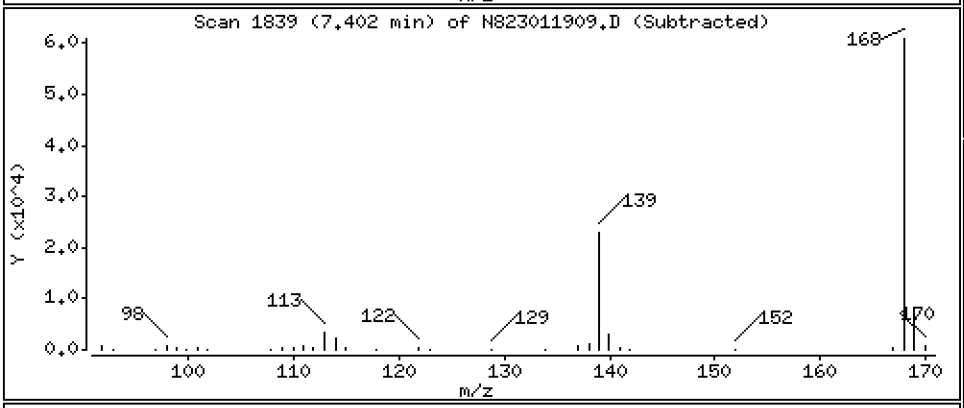
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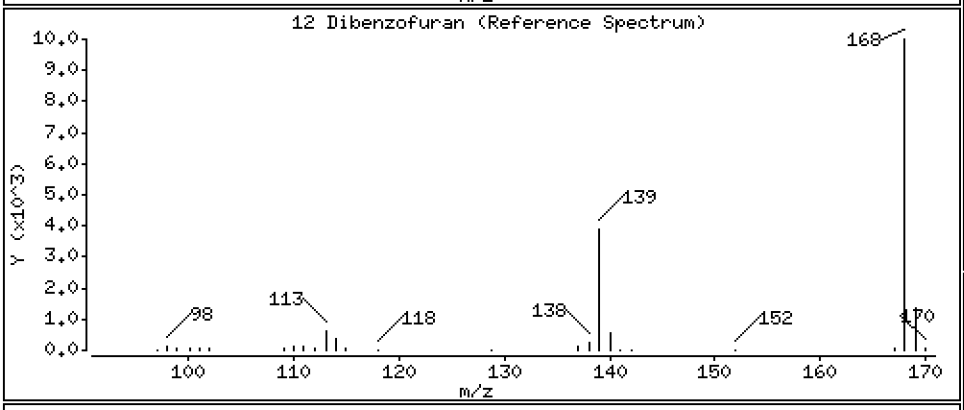
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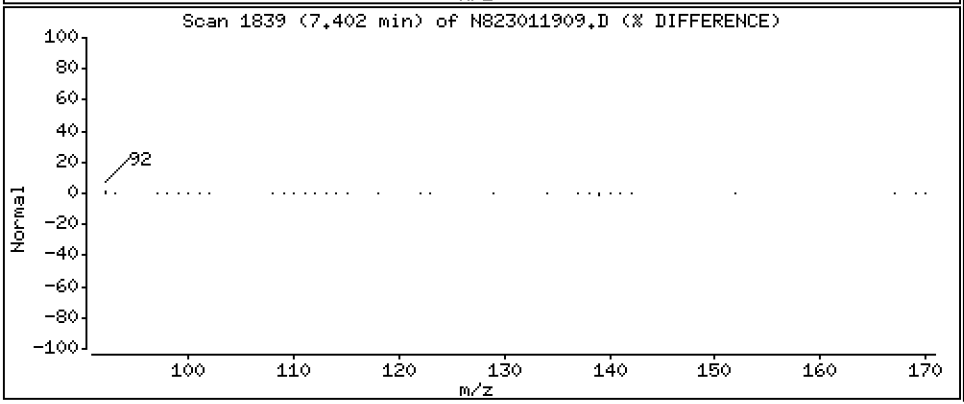
12 Dibenzofuran

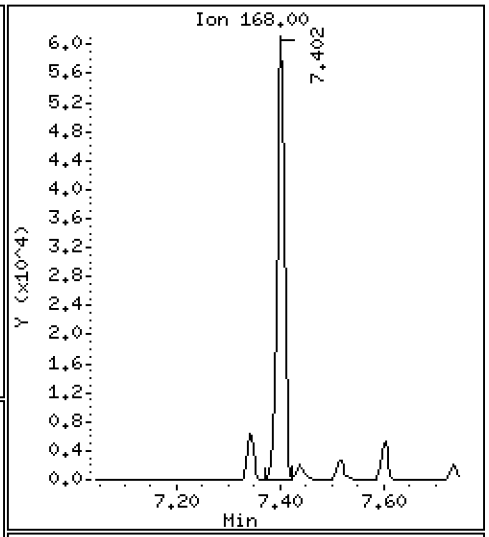
Concentration: 2.860 ug/L

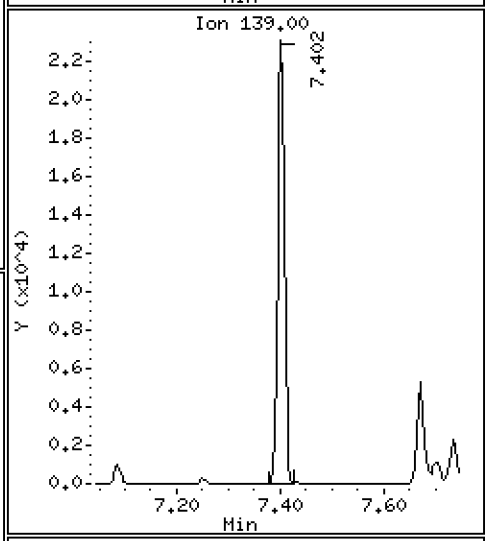


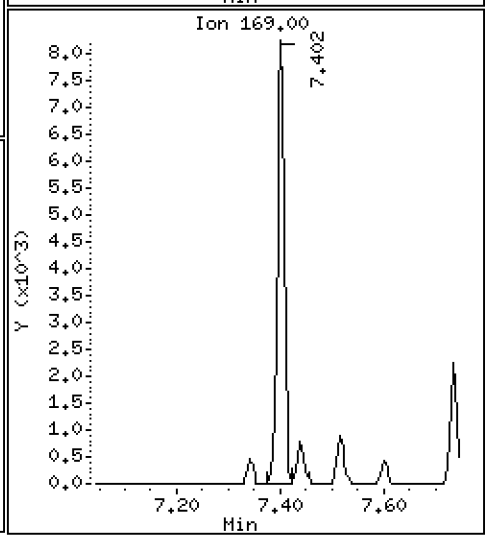












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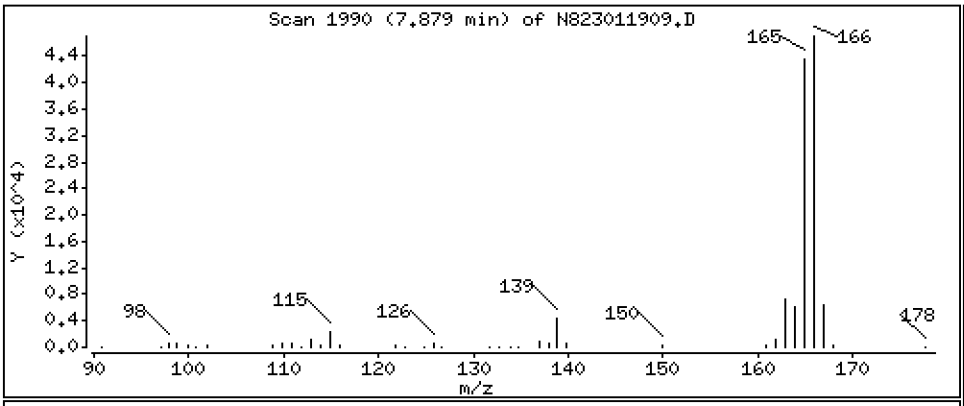
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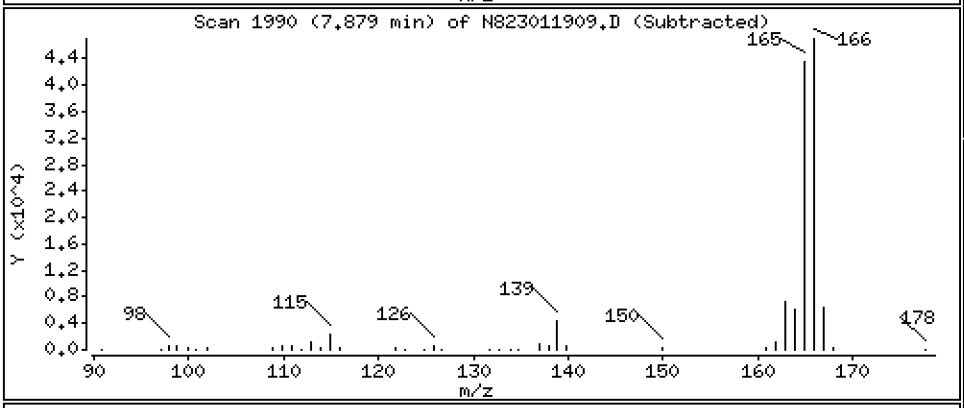
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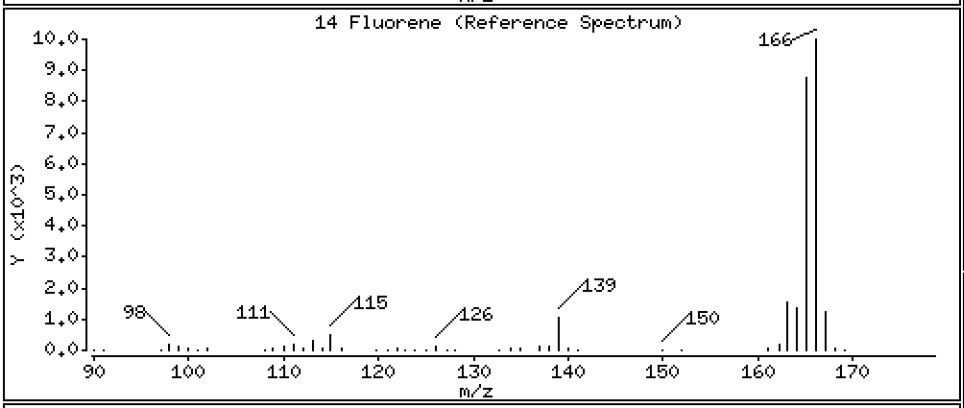
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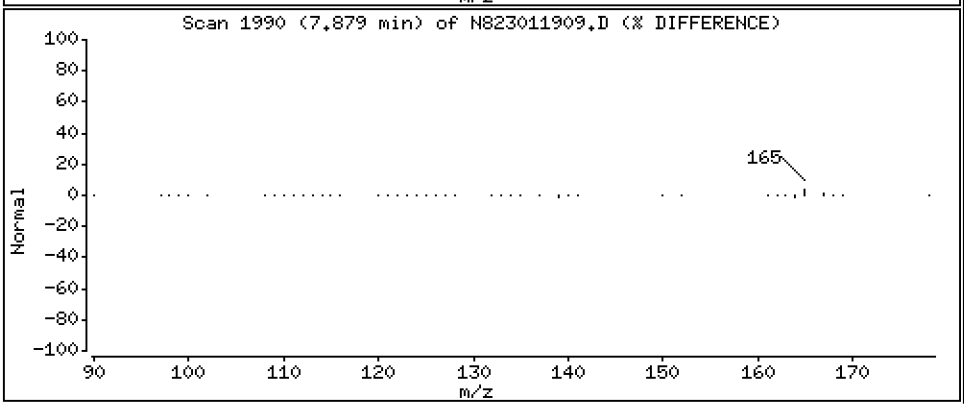
14 Fluorene

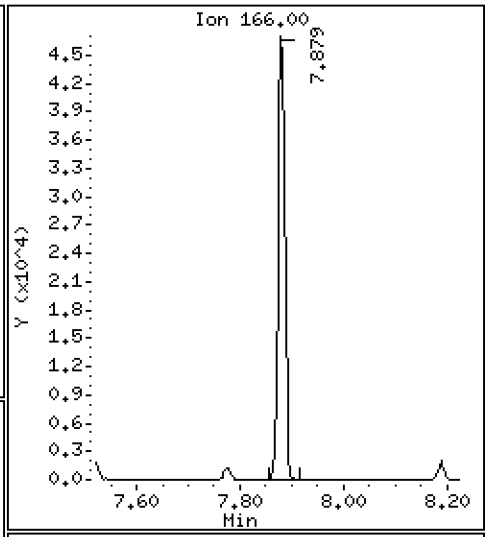
Concentration: 2.631 ug/L

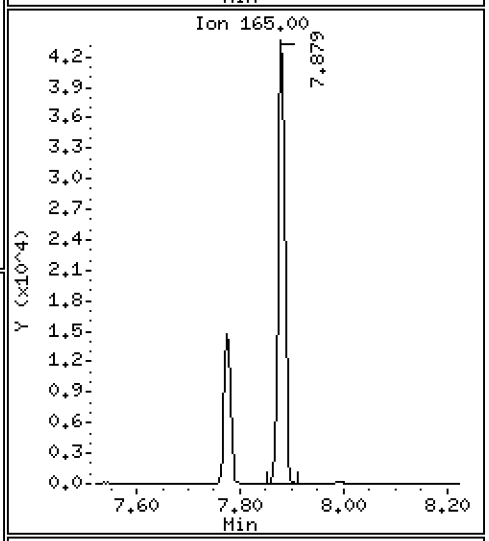


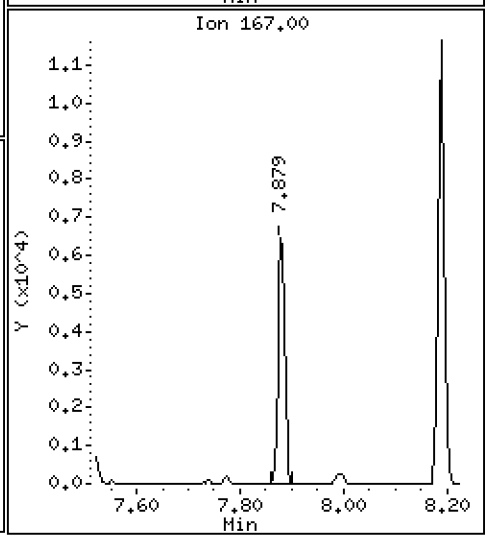












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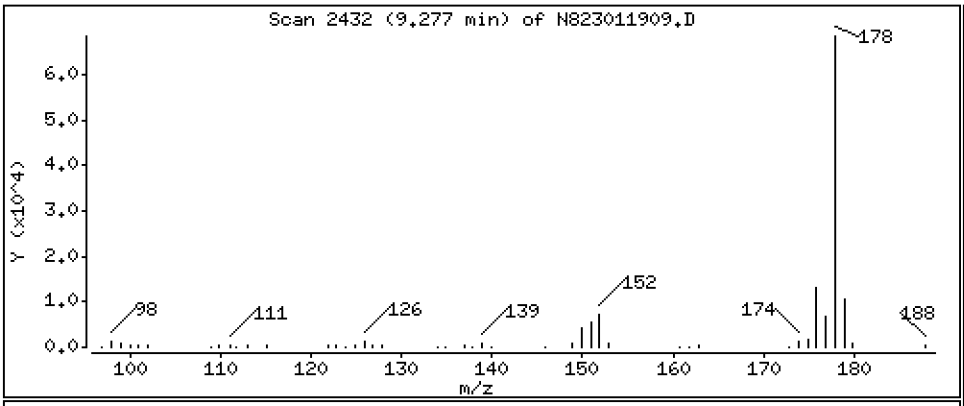
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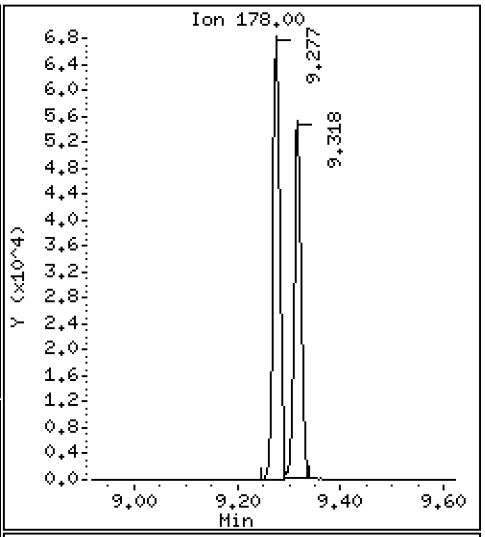
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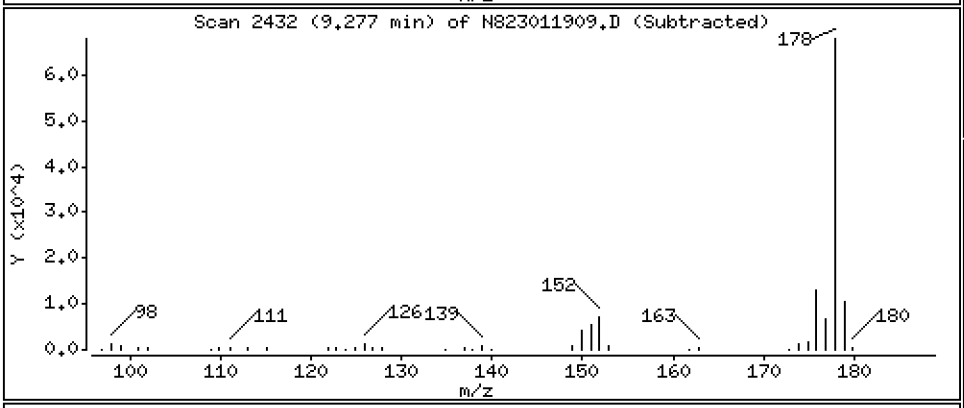
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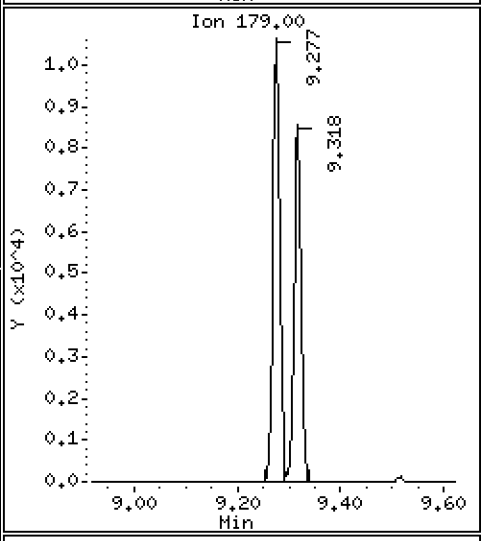
16 Phenanthrene

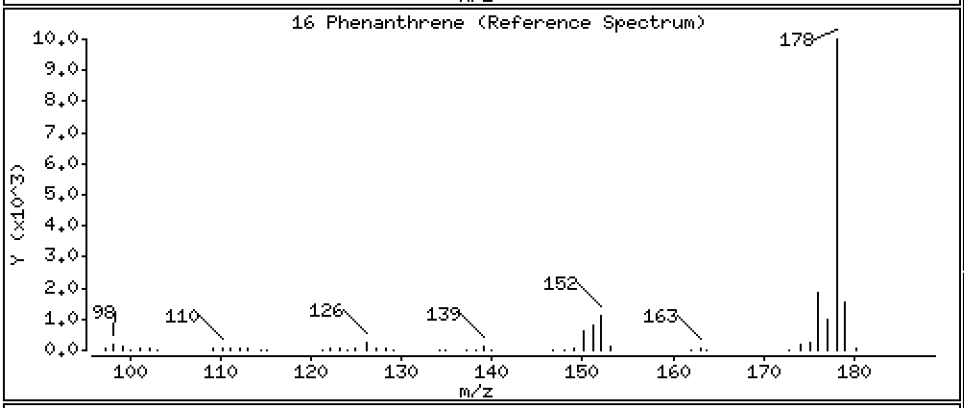
Concentration: 2.448 ug/L

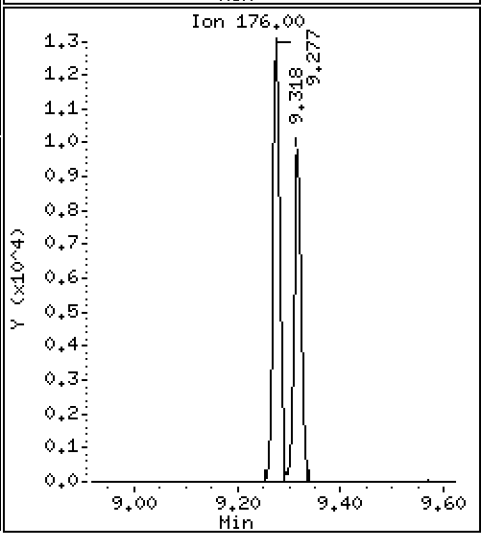


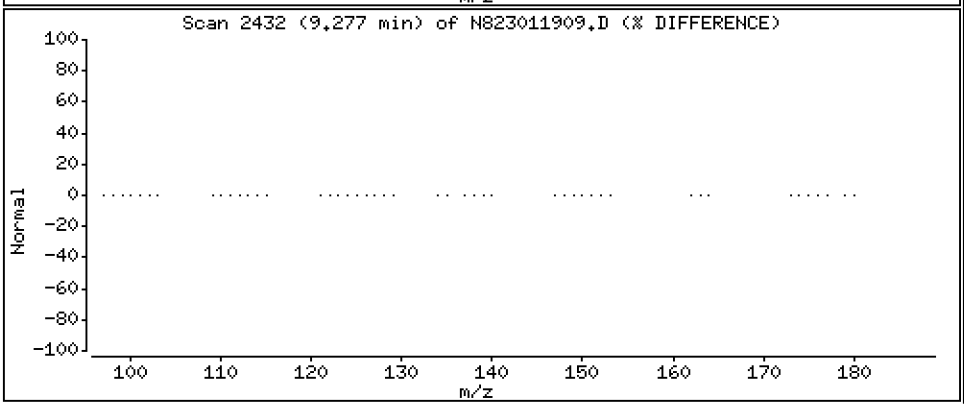












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

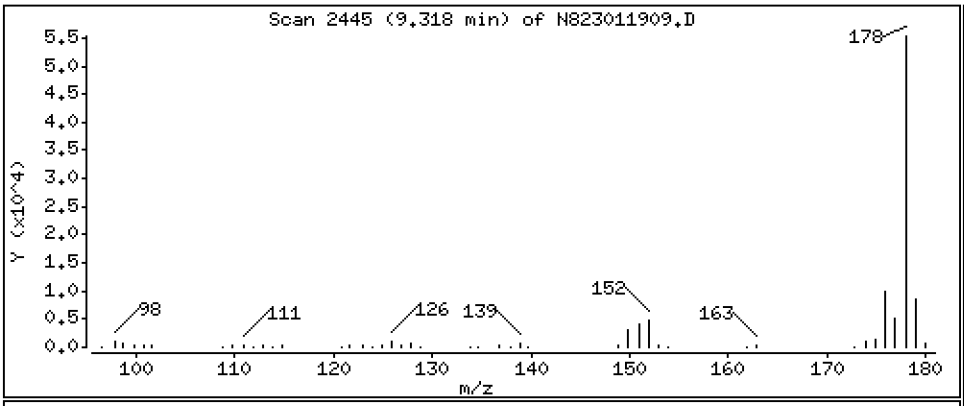
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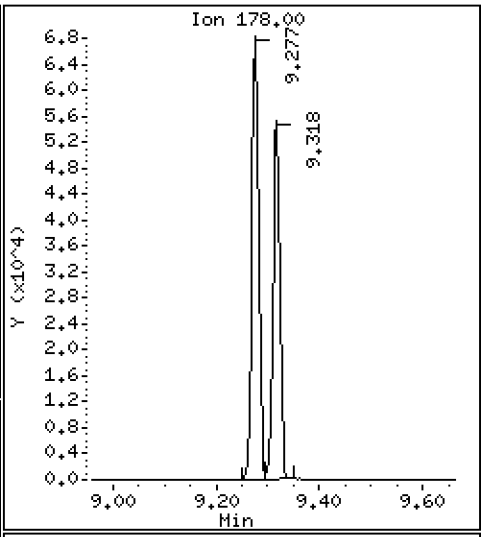
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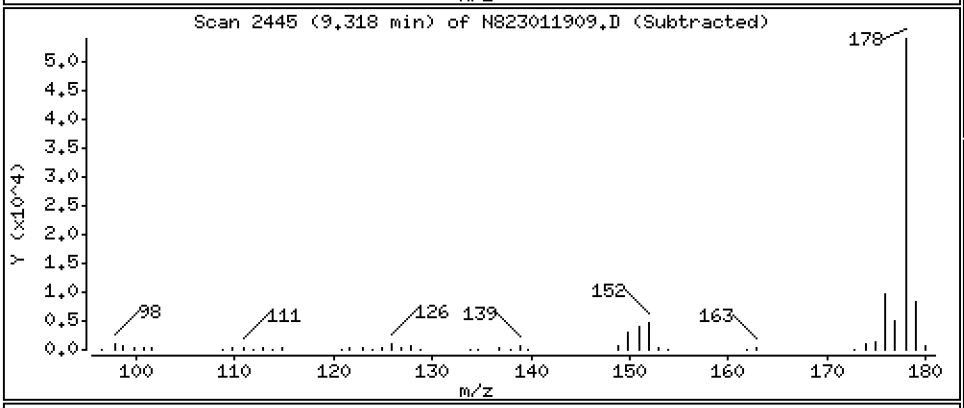
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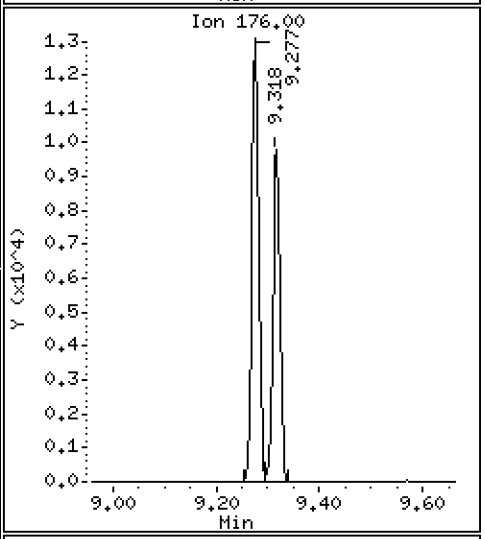
17 Anthracene

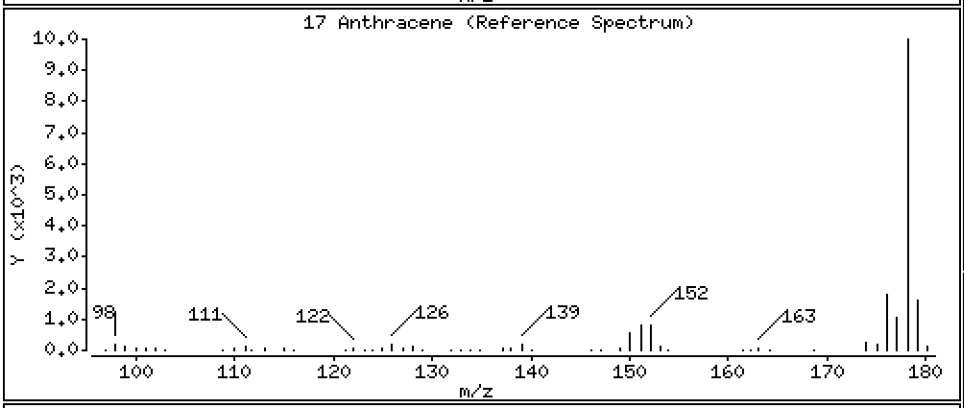
Concentration: 2.270 ug/L

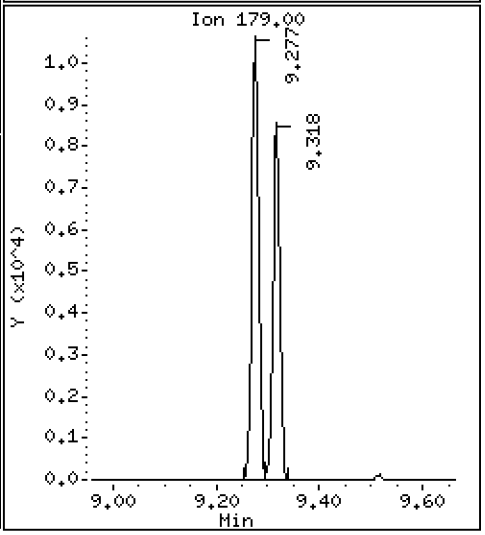


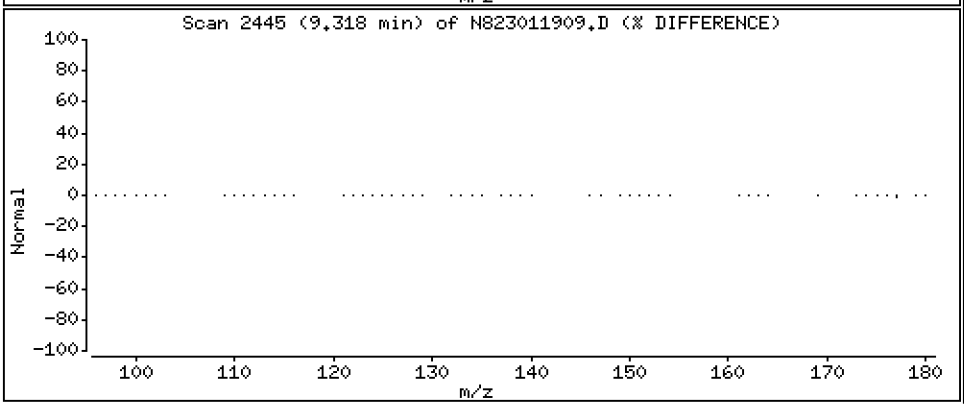












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Date : 19-JAN-2023 14:58

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Sample Info: SCV230119

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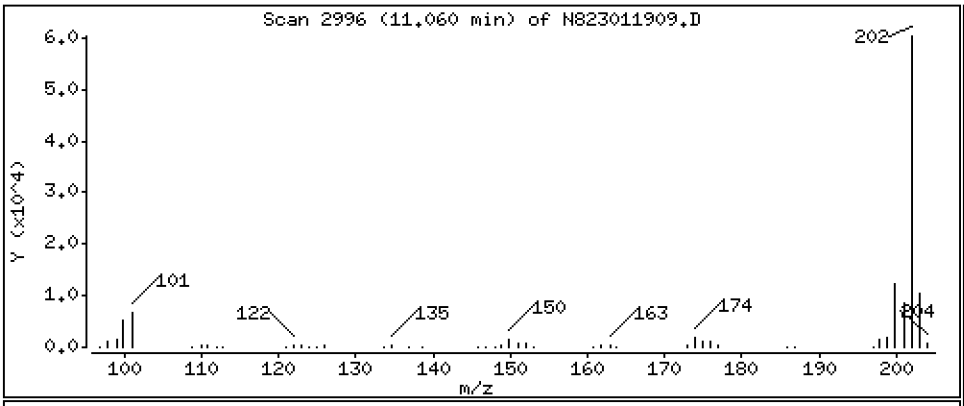
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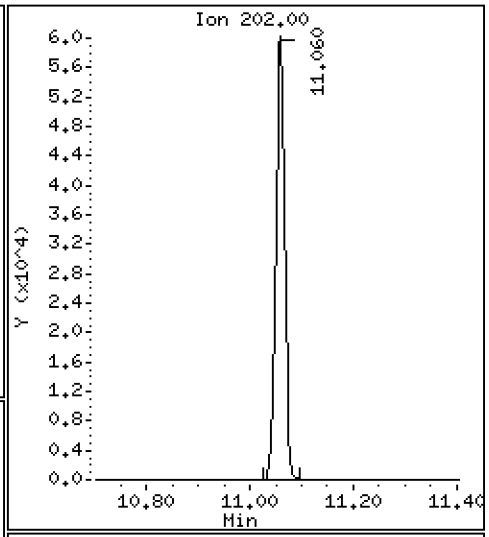
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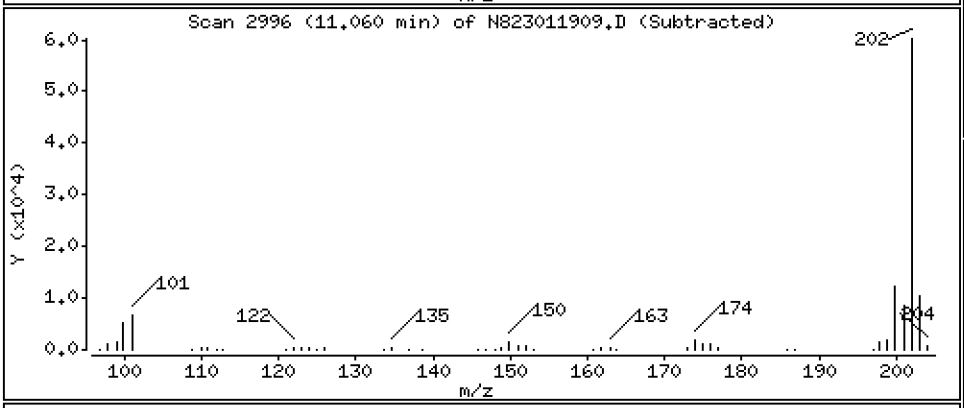
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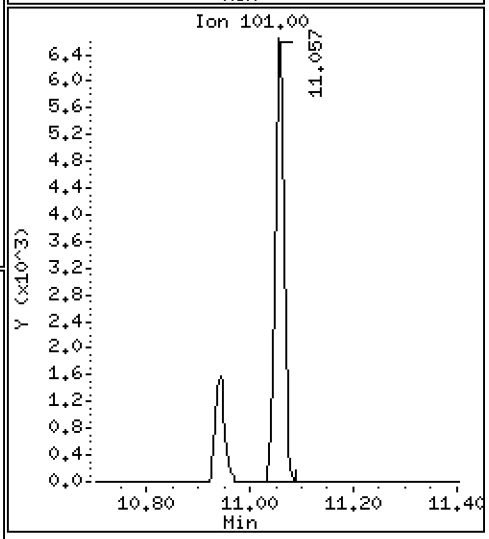
22 Fluoranthene

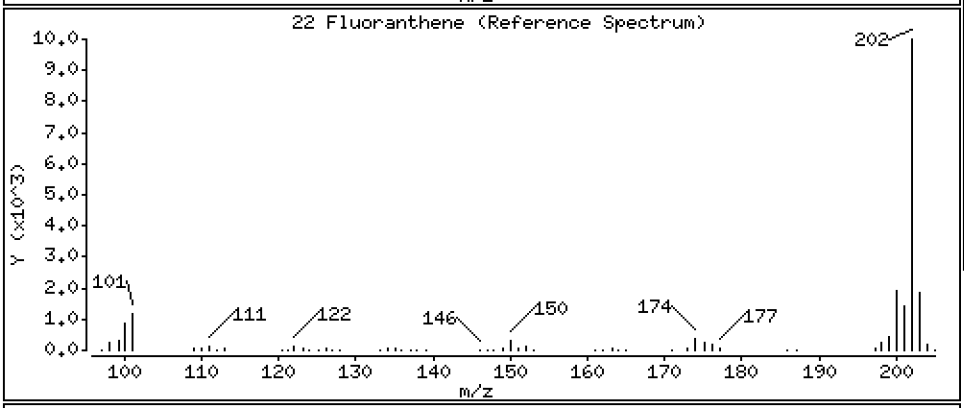
Concentration: 2.653 ug/L

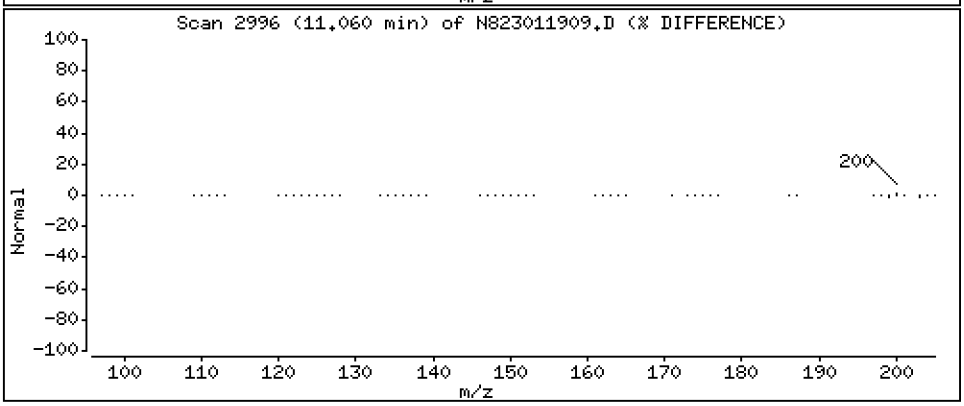












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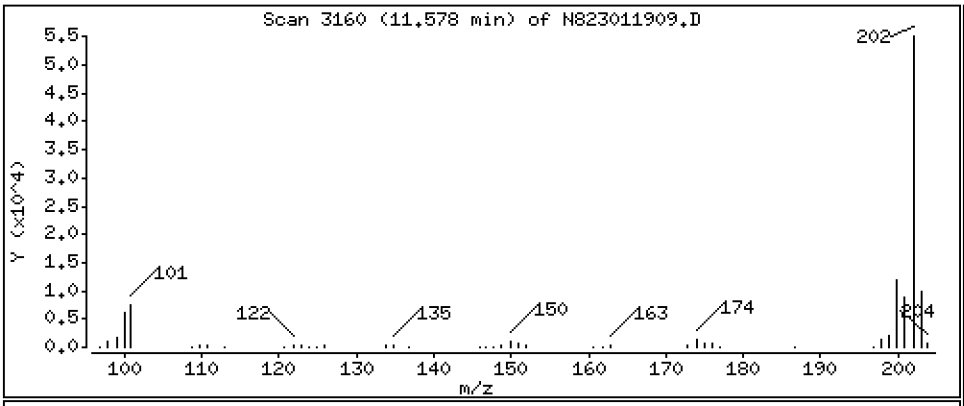
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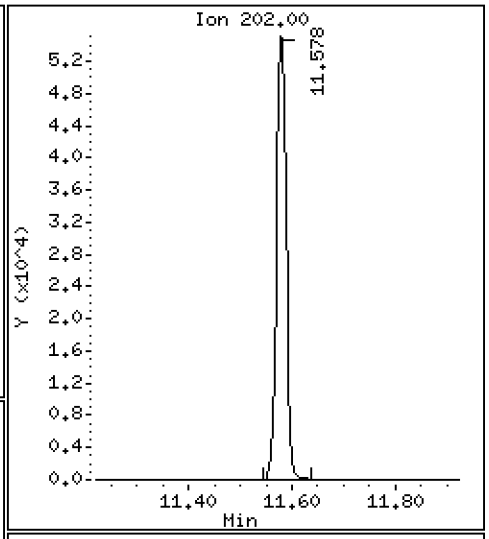
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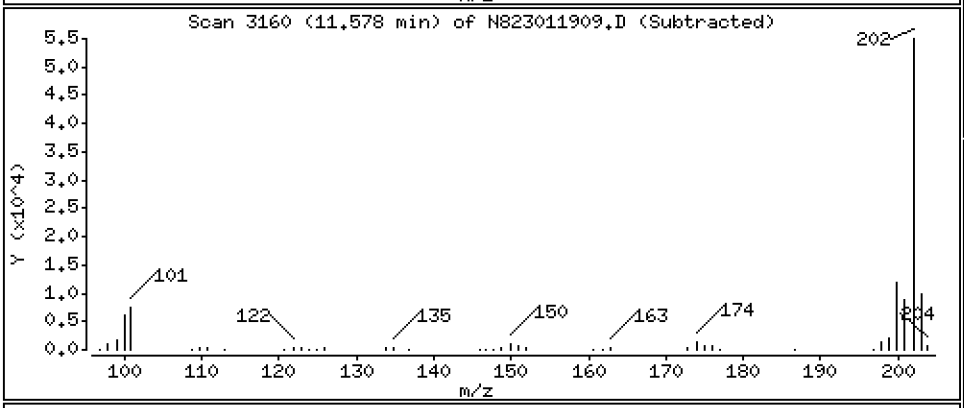
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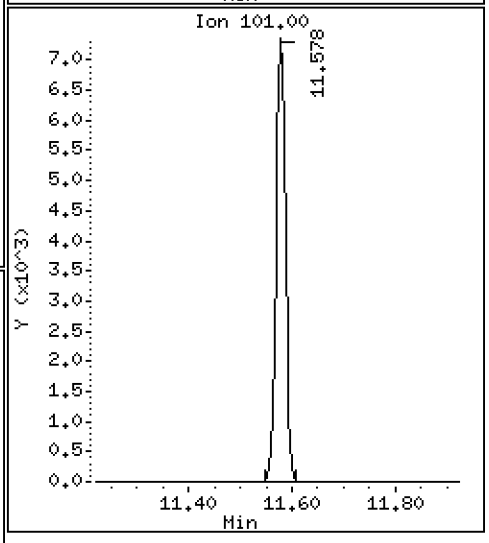
23 Pyrene

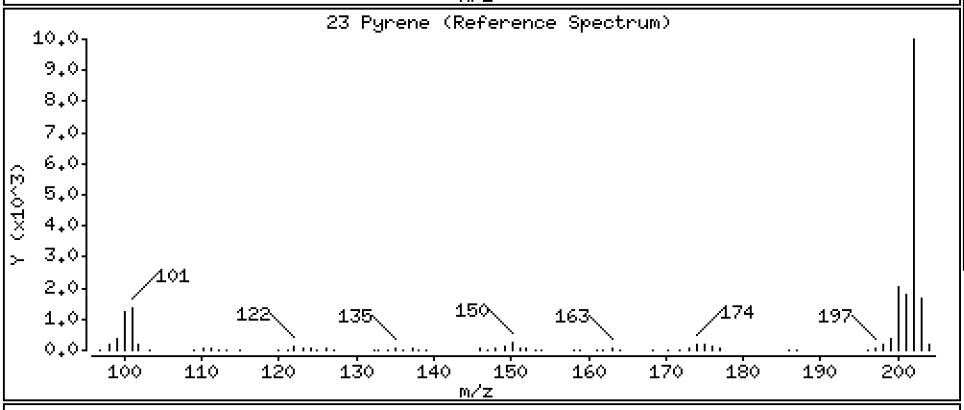
Concentration: 2.462 ug/L

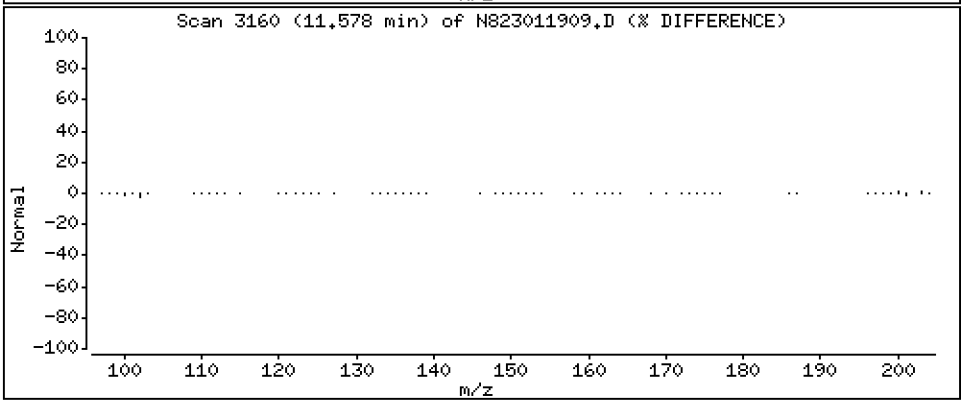












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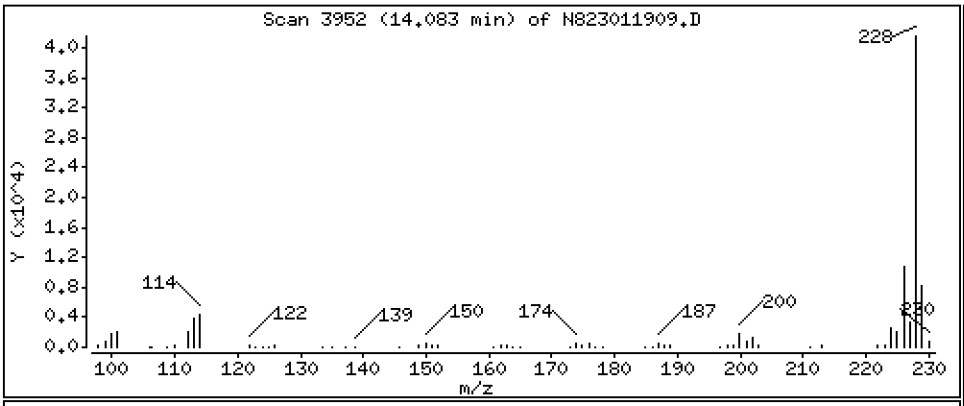
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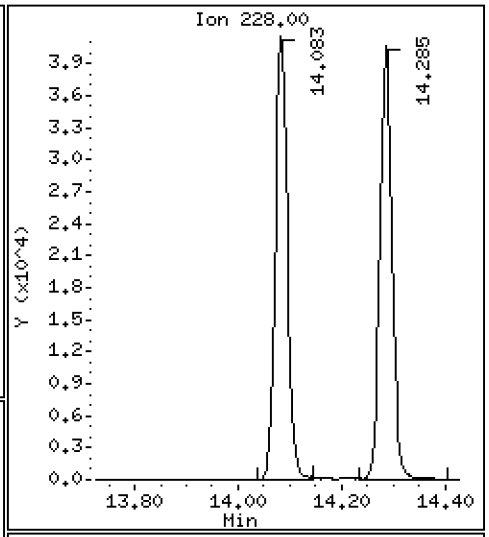
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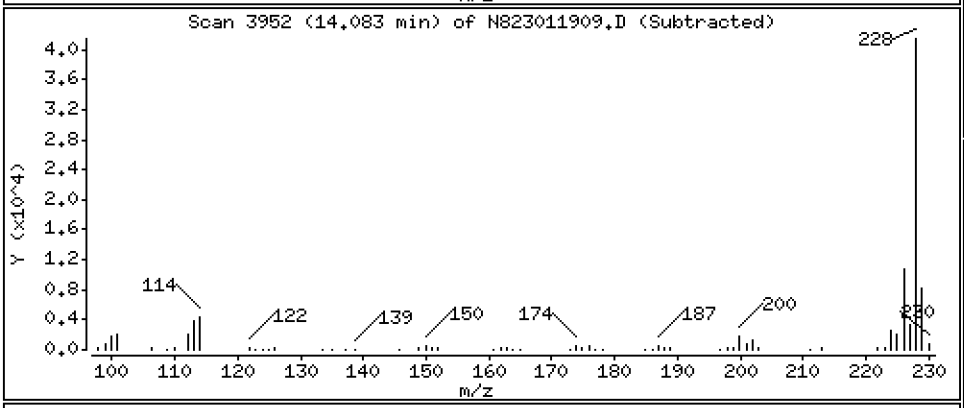
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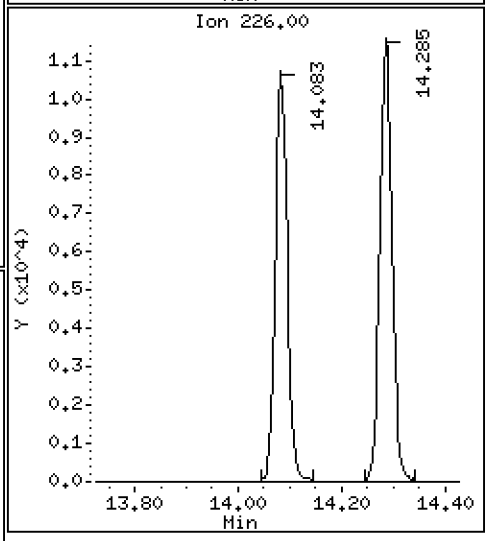
24 Benzo(a)anthracene

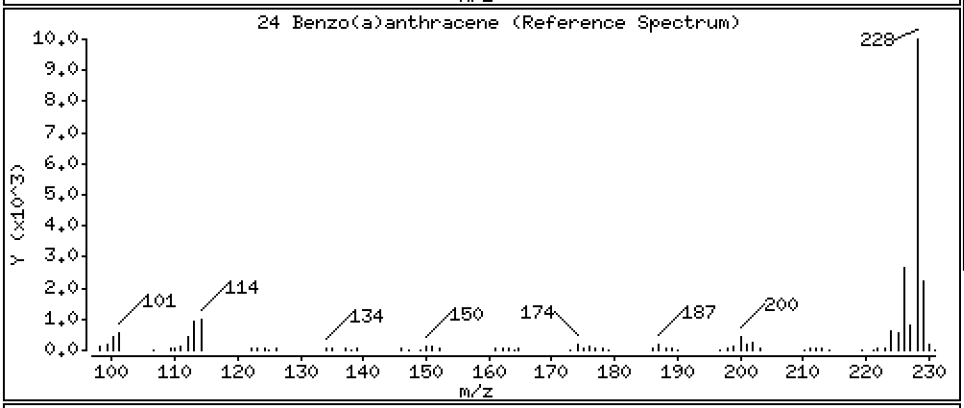
Concentration: 2.587 ug/L

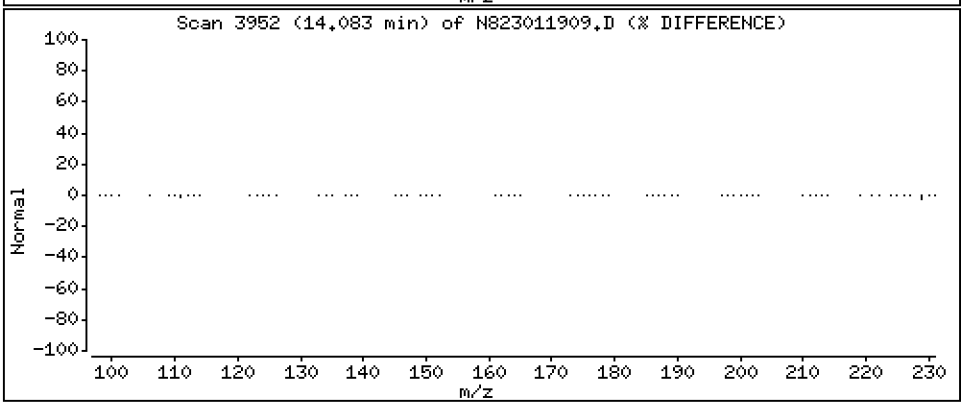












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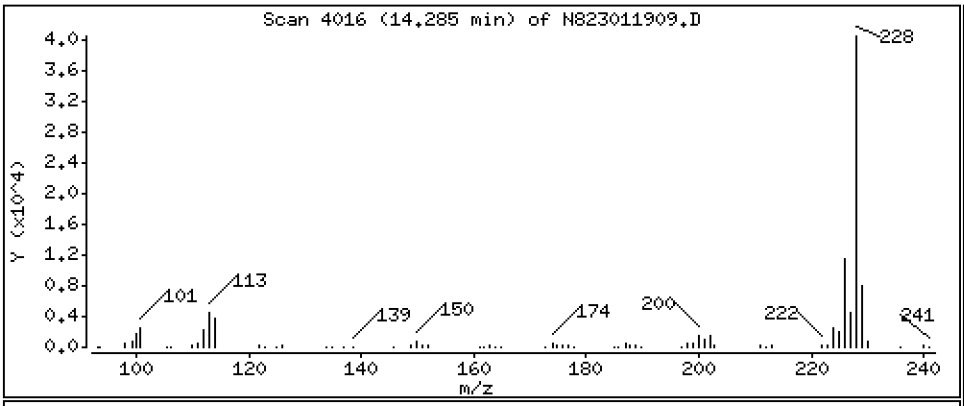
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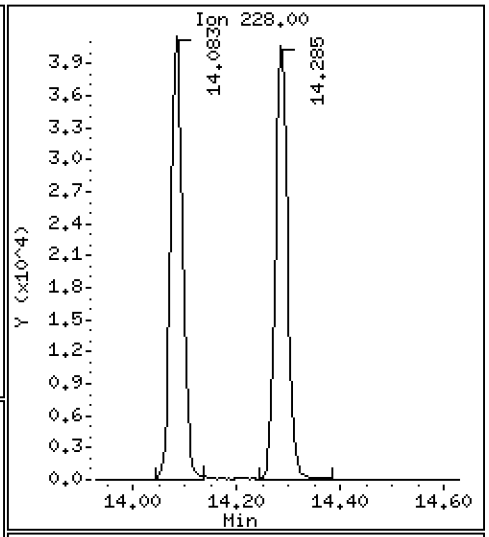
Column phase: Rxi-17sil

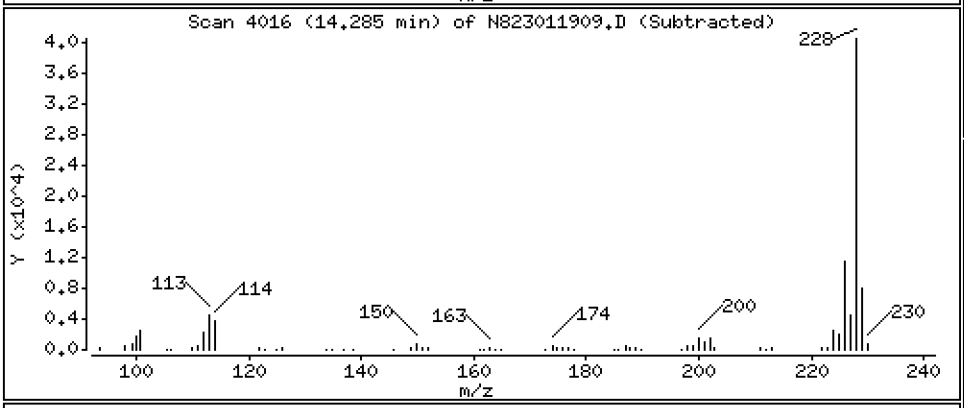
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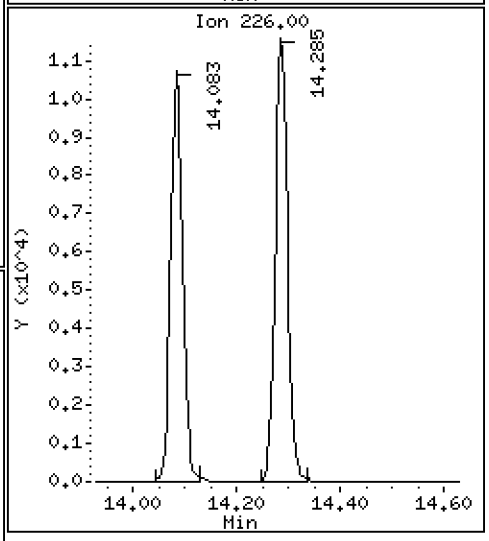
27 Chrysene

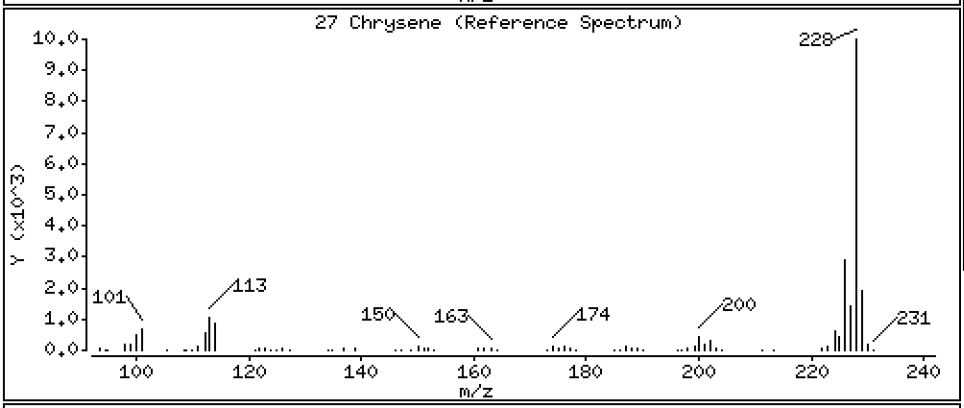
Concentration: 2.400 ug/L

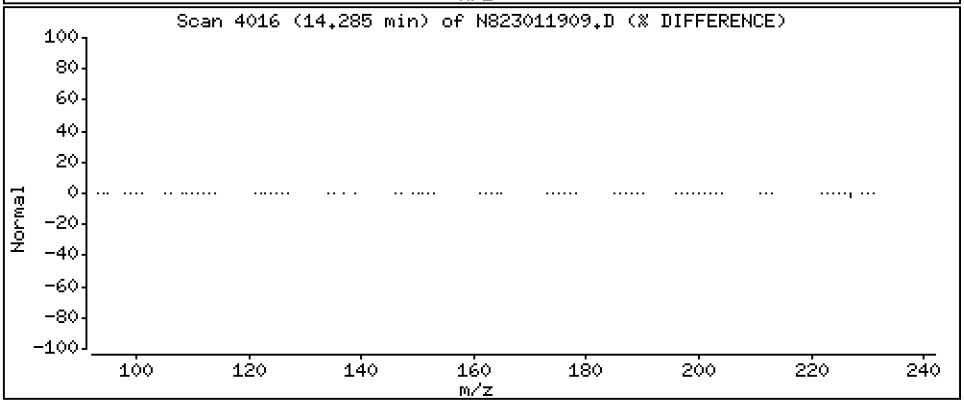












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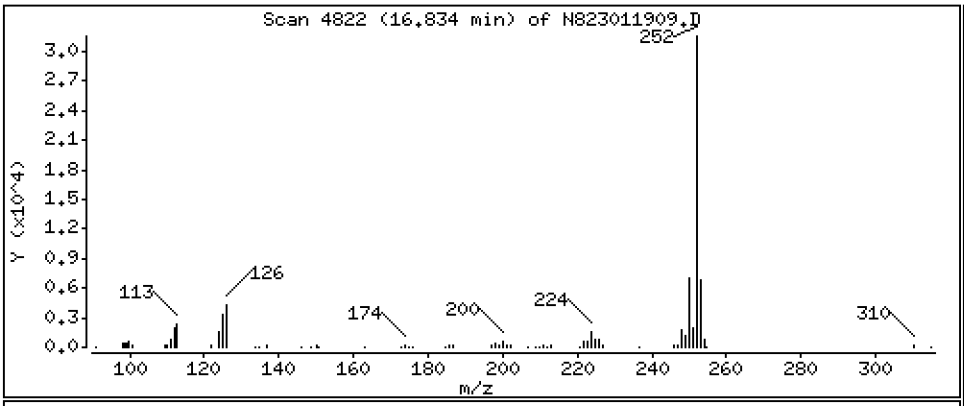
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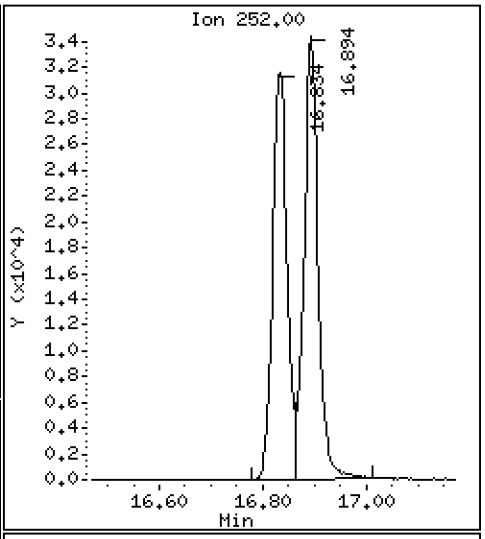
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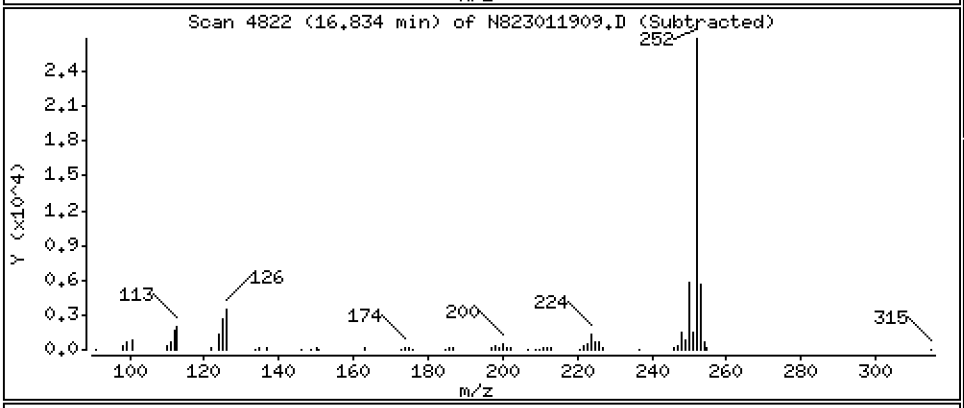
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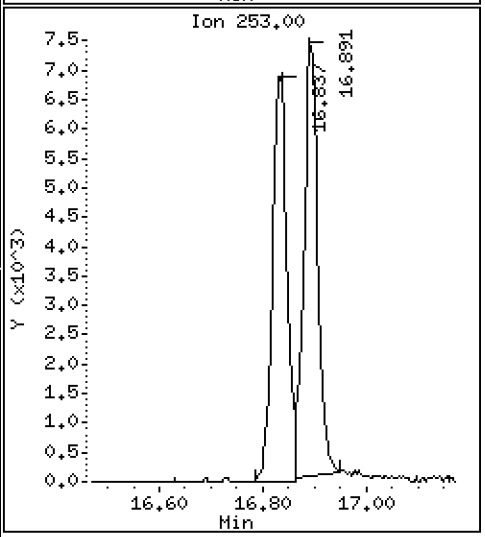
28 Benzo(b)fluoranthene

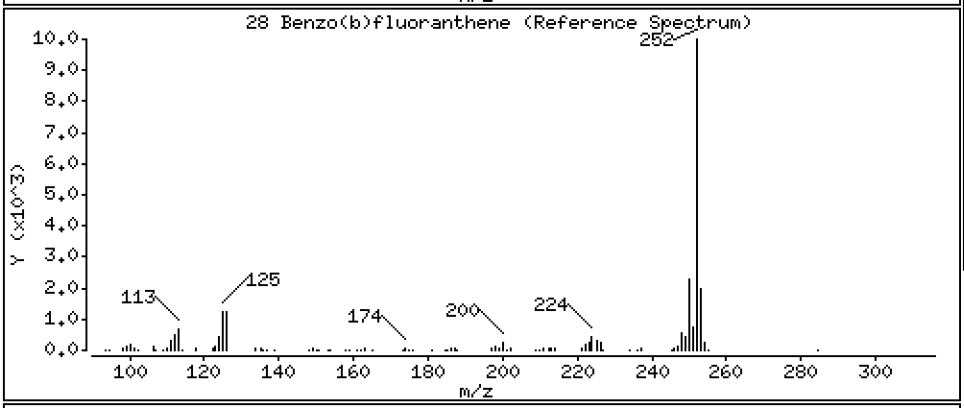
Concentration: 2.507 ug/L

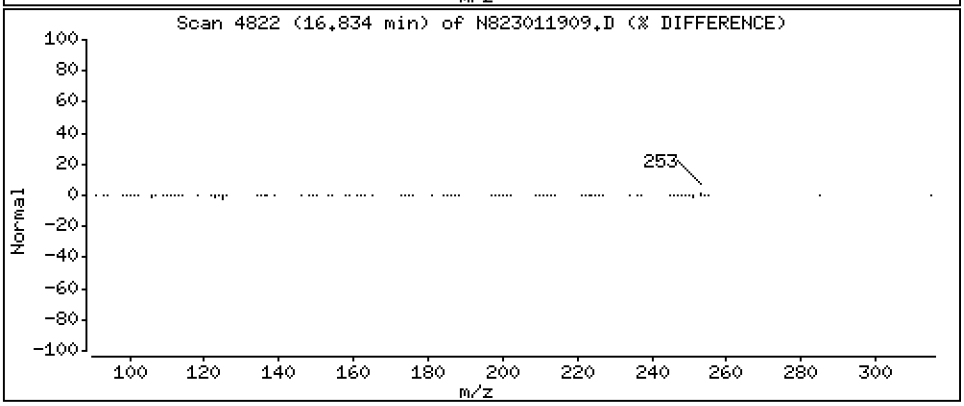












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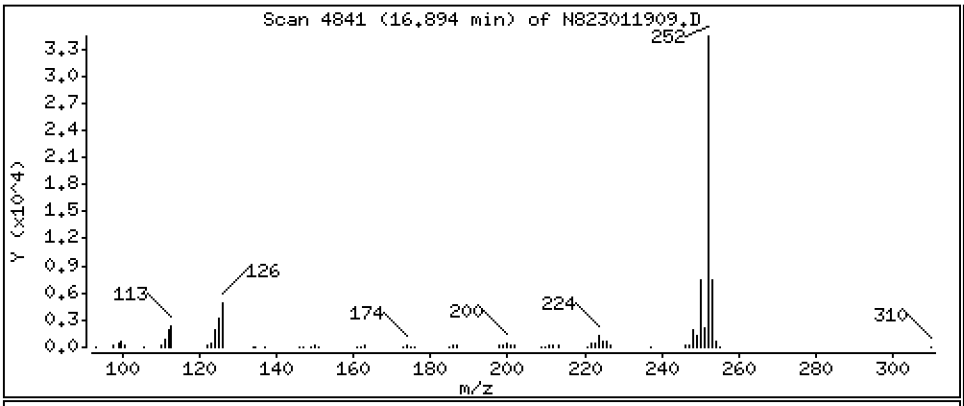
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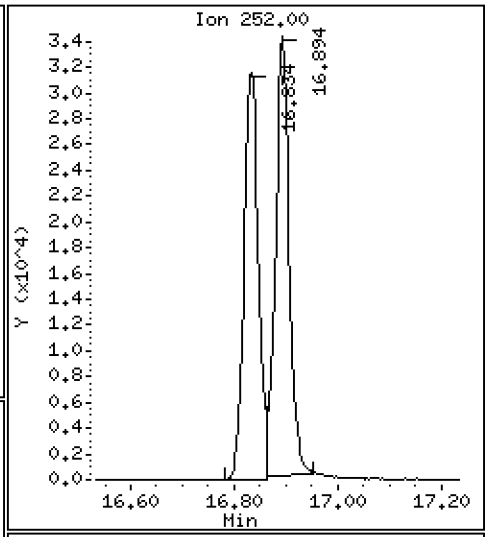
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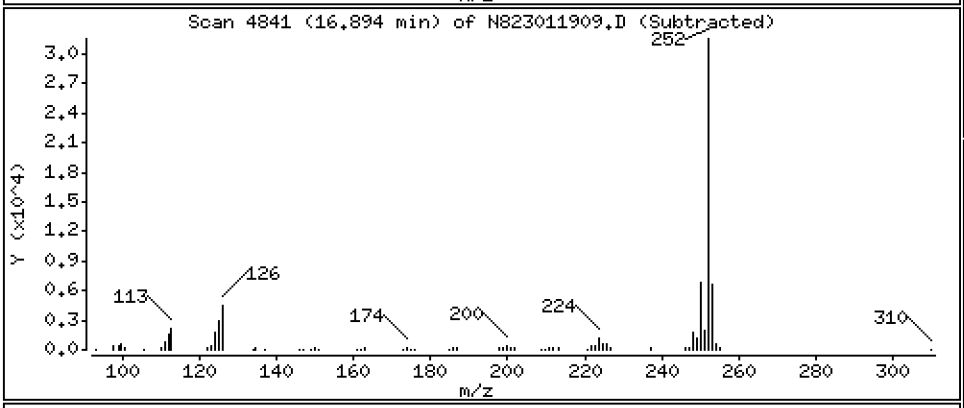
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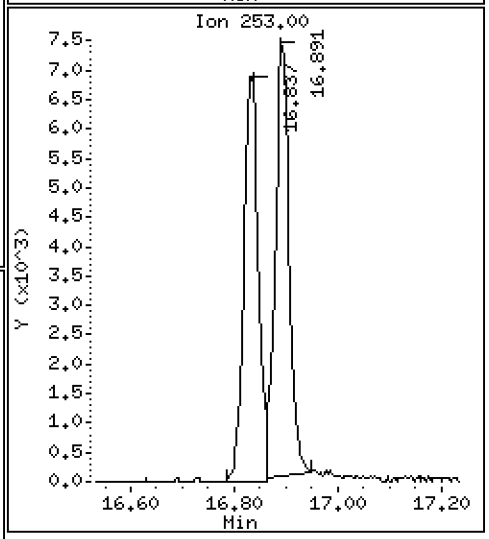
29 Benzo(k)fluoranthene

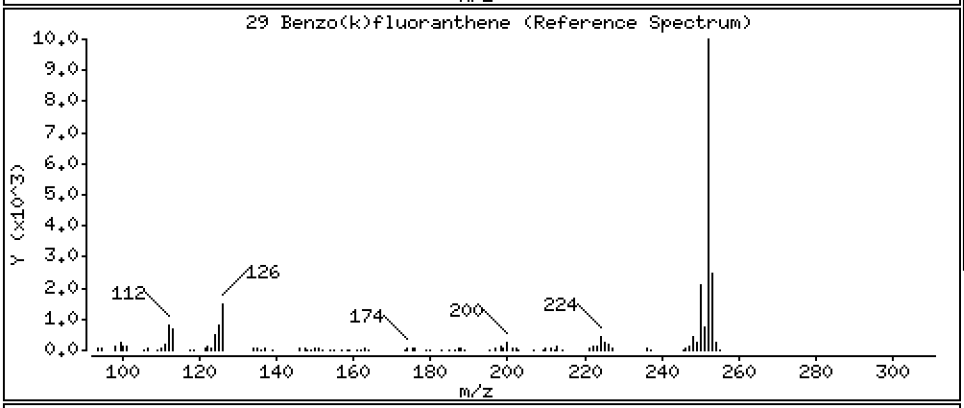
Concentration: 2.656 ug/L

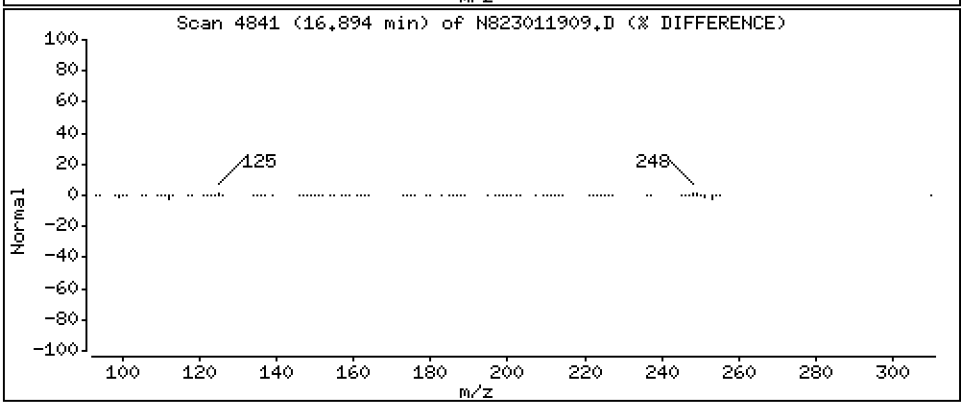












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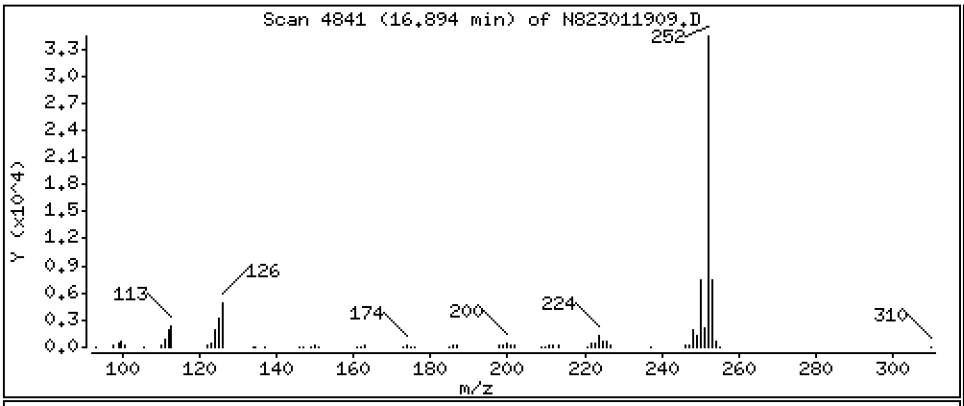
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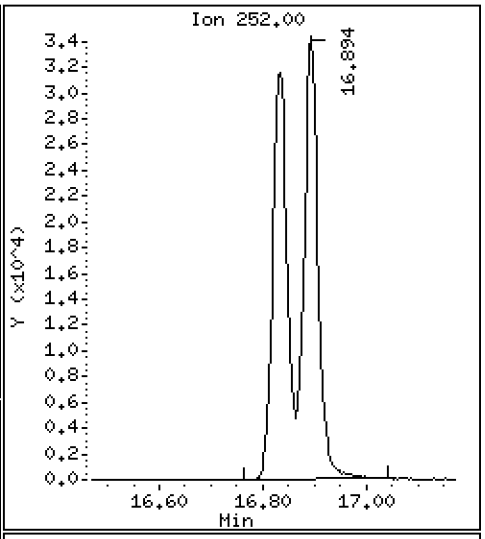
Column phase: Rxi-17sil

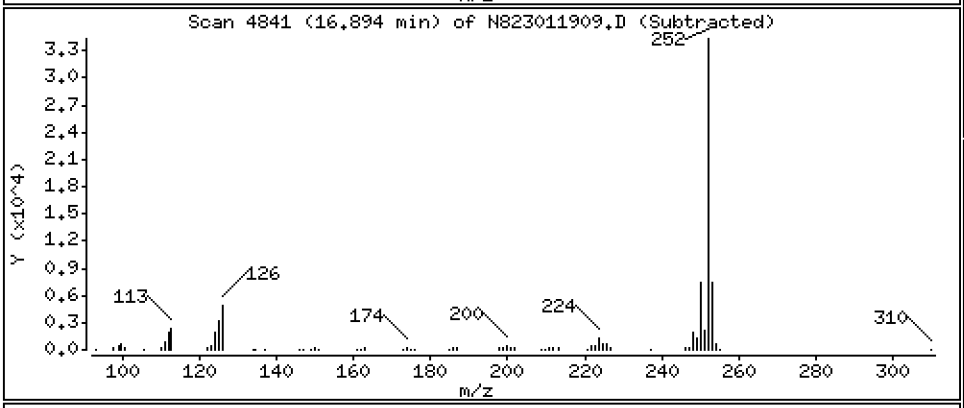
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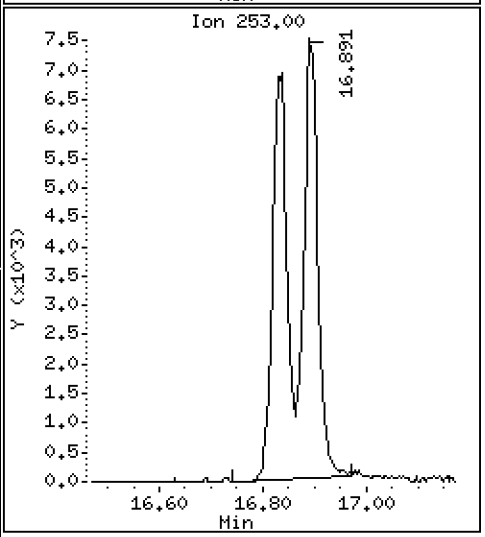
31 Total Benzofluoranthenes

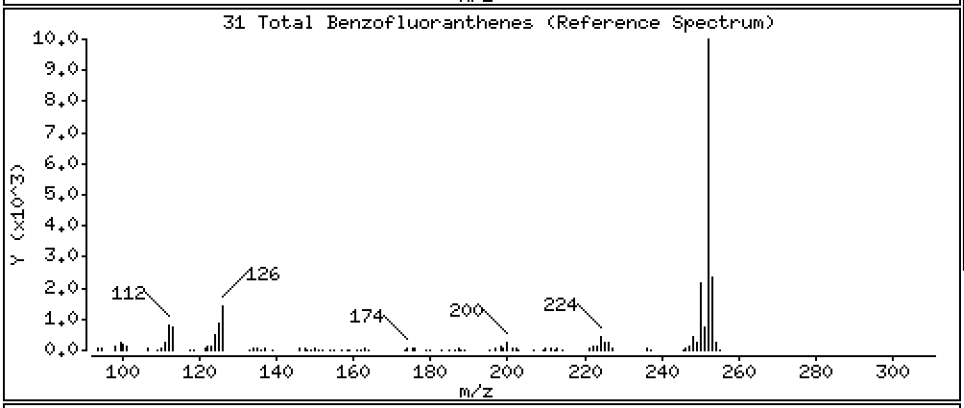
Concentration: 5.480 ug/L

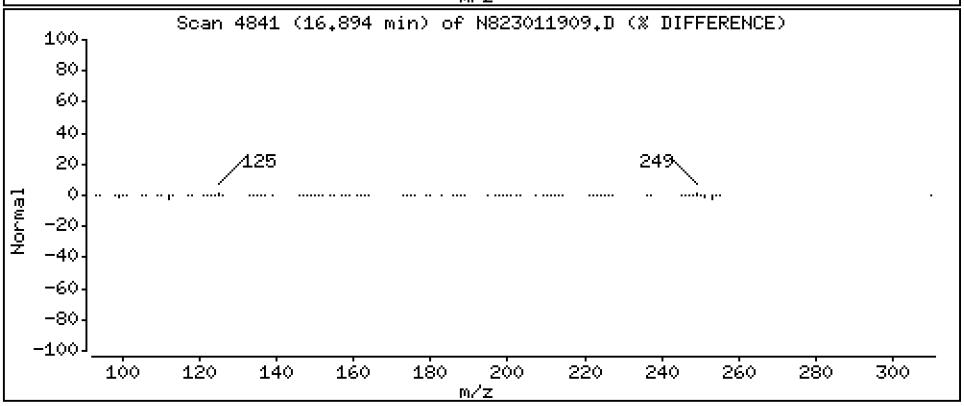












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

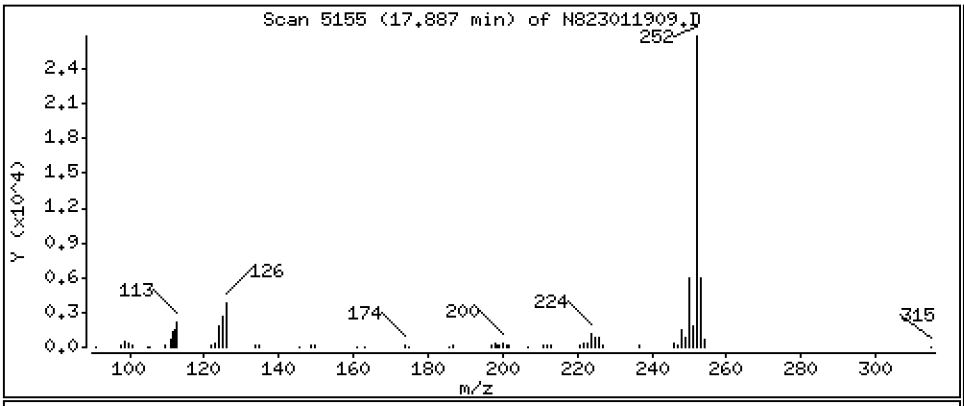
Operator: JZ

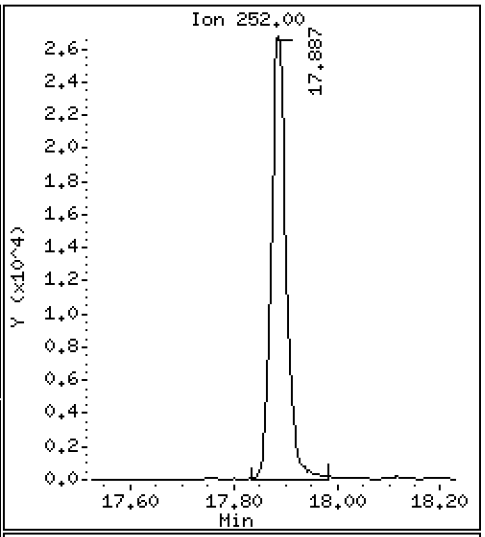
Column phase: Rxi-17sil

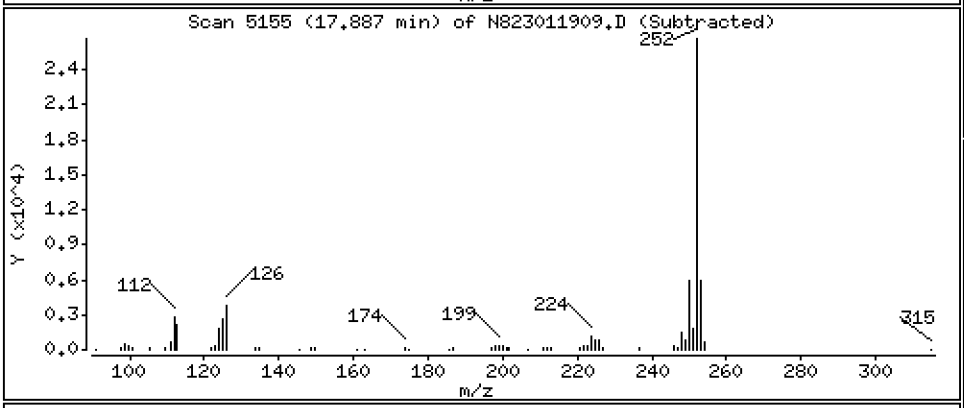
Column diameter: 0.25

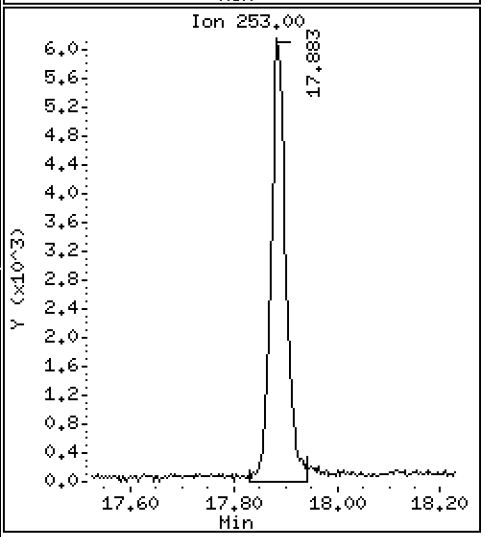
32 Benzo(a)pyrene

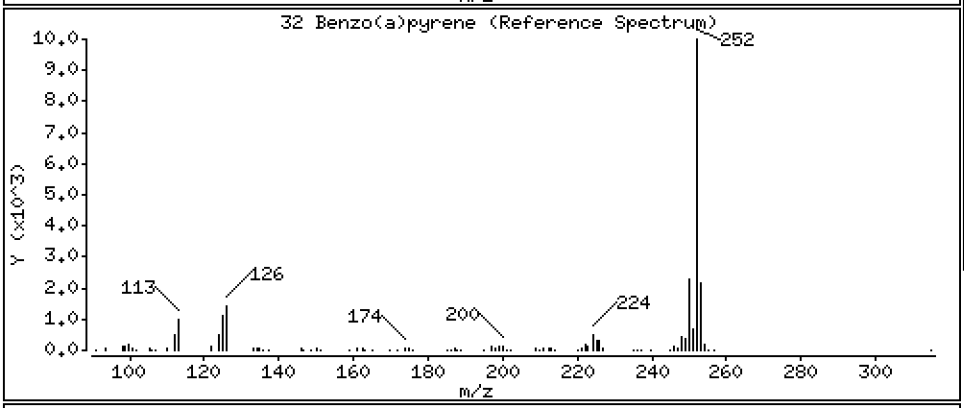
Concentration: 2.572 ug/L

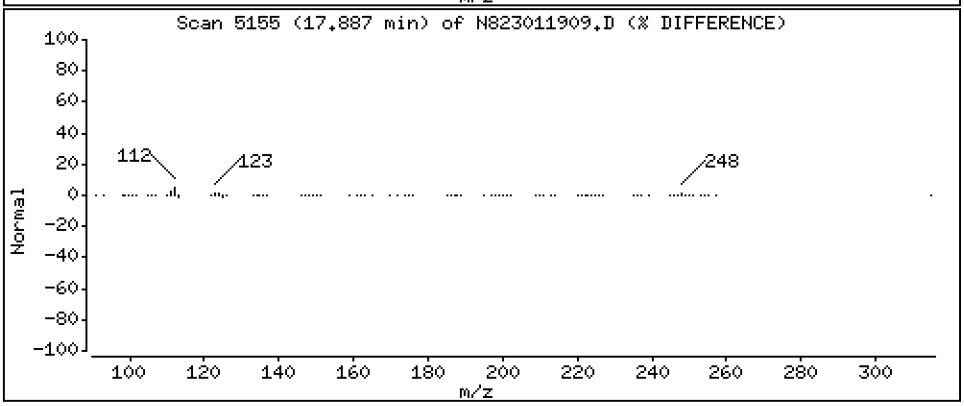












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

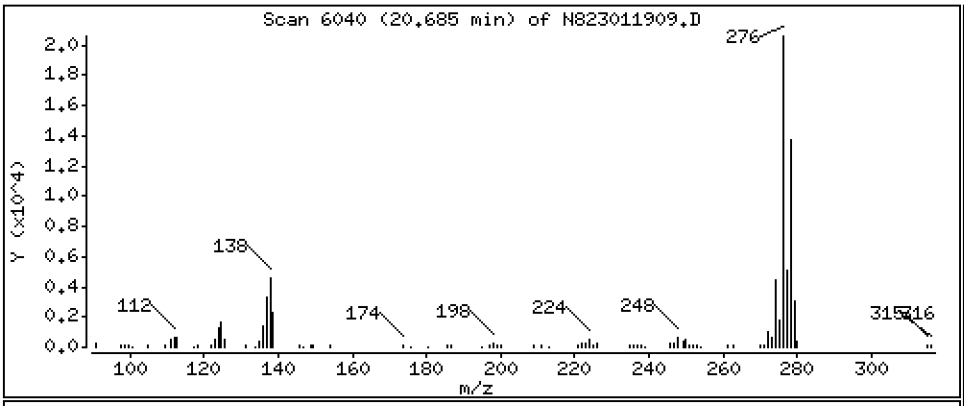
Operator: JZ

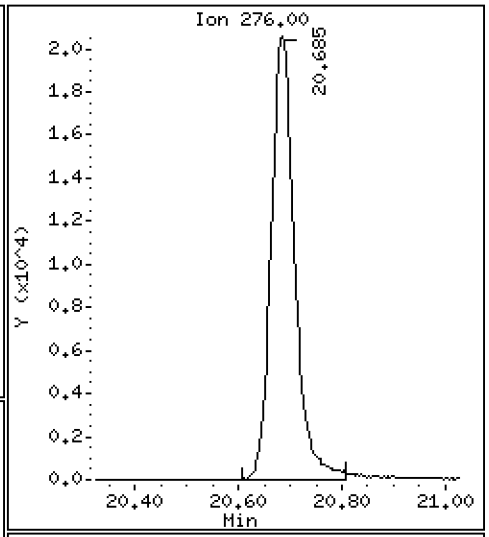
Column phase: Rxi-17sil

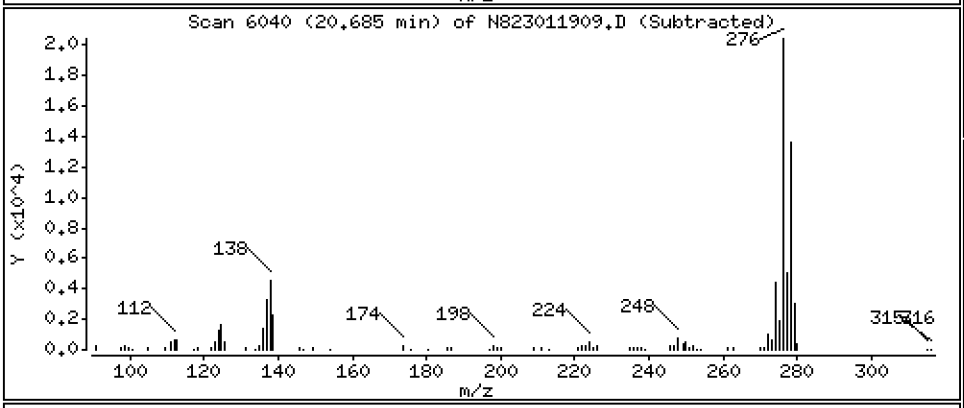
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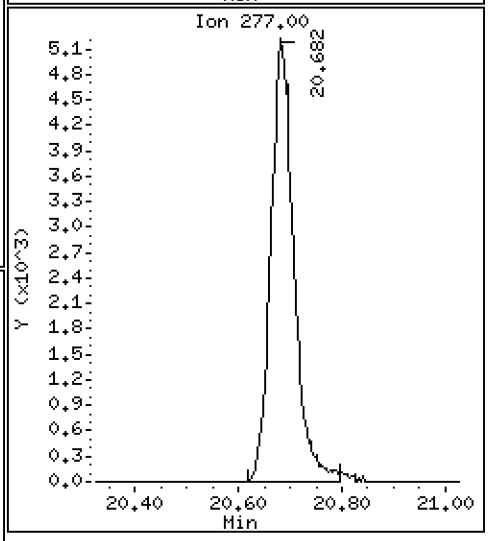
37 Indeno(1,2,3-cd)pyrene

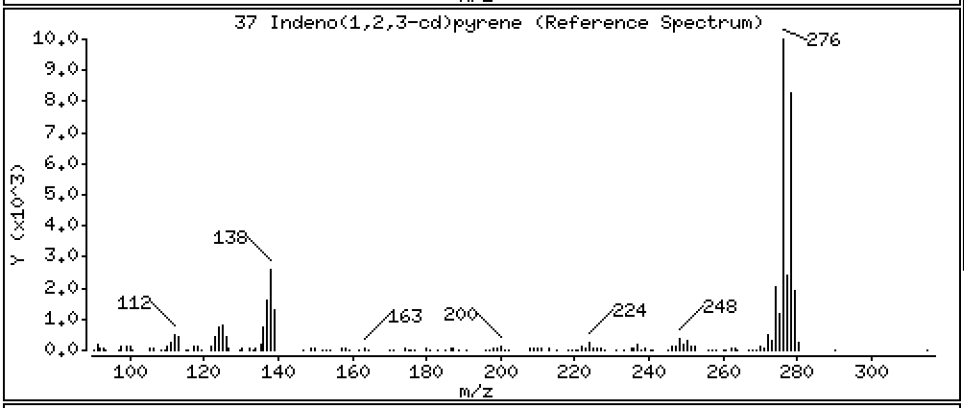
Concentration: 2.689 ug/L

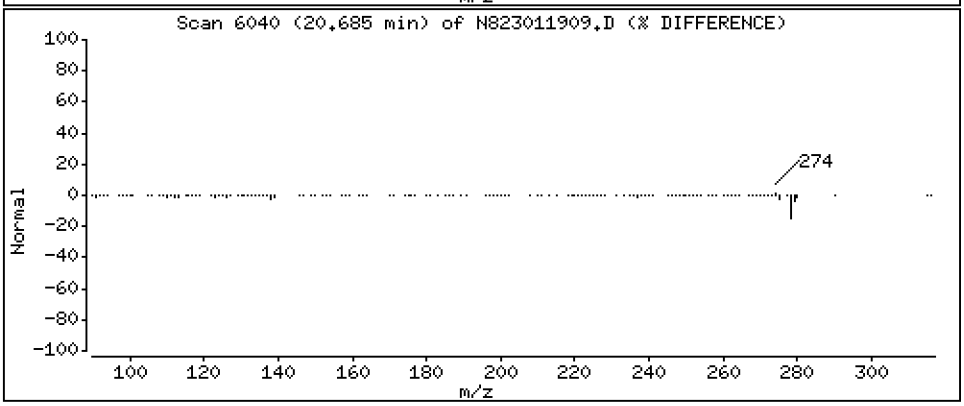












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

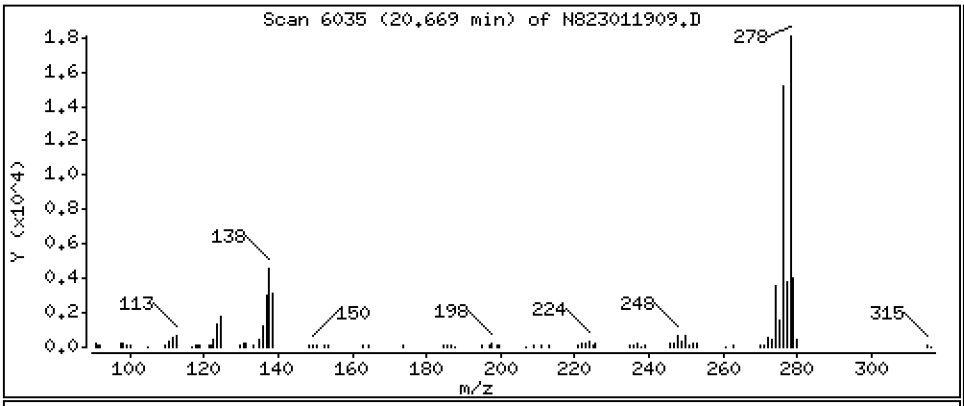
Operator: JZ

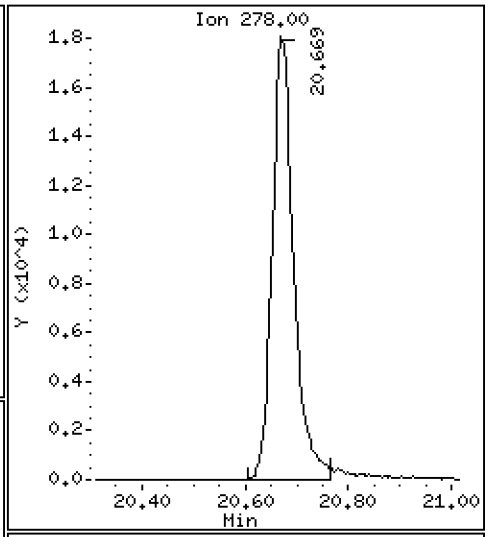
Column phase: Rxi-17sil

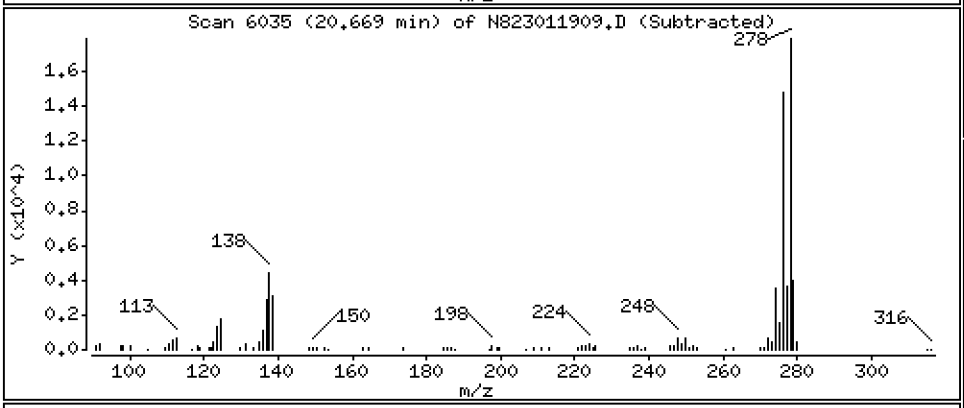
Column diameter: 0.25

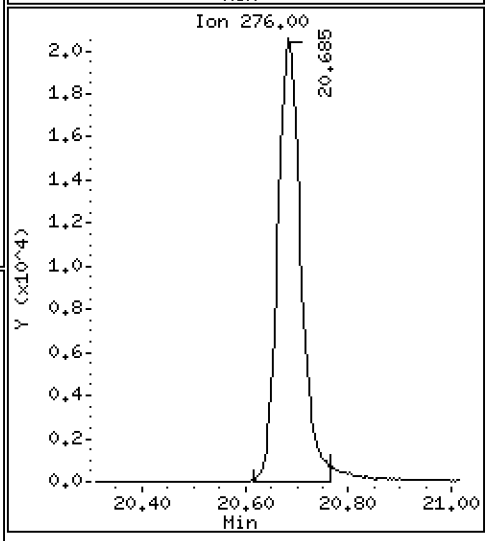
38 Dibenzo(a,h)anthracene

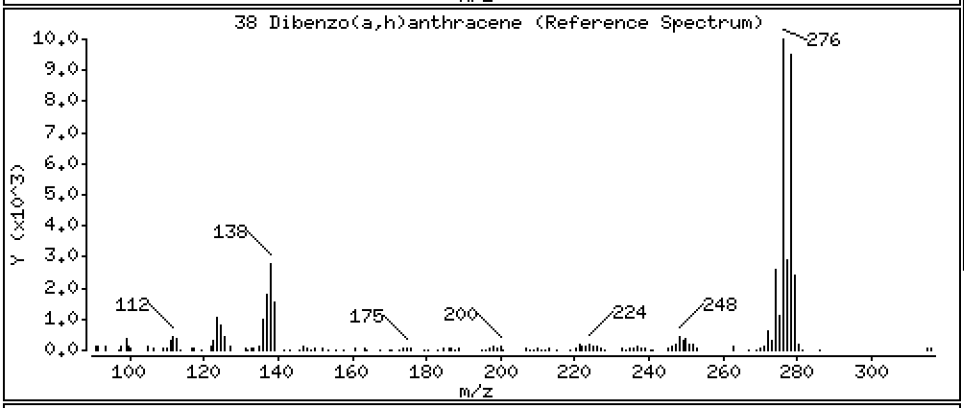
Concentration: 2.493 ug/L

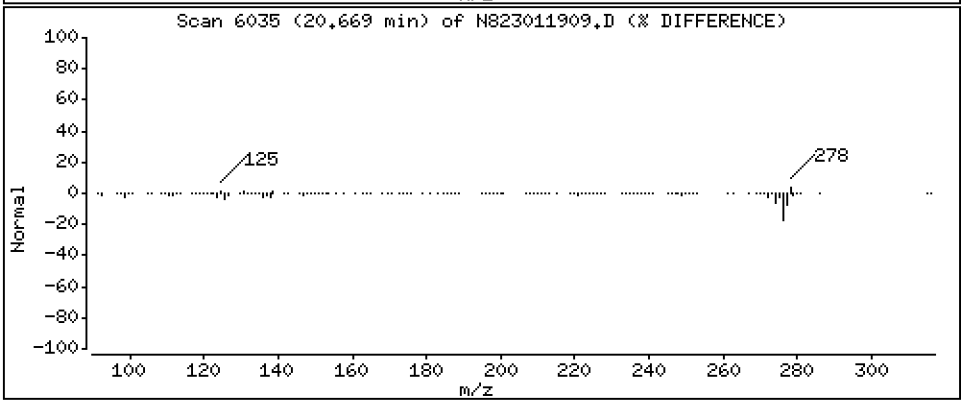












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

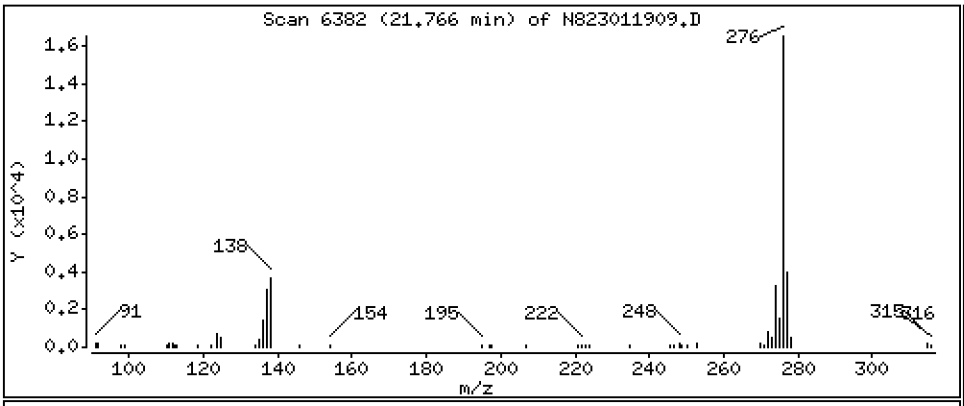
Operator: JZ

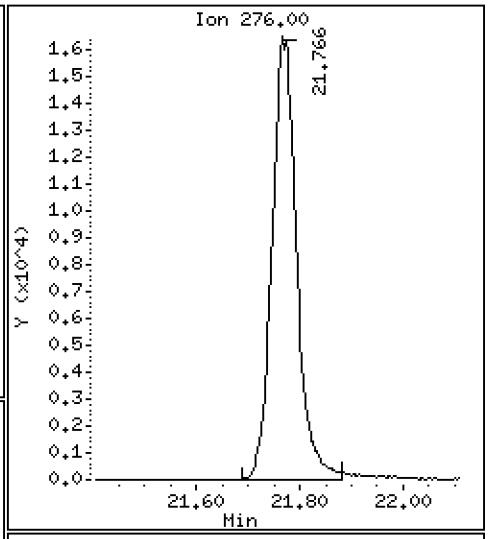
Column phase: Rxi-17sil

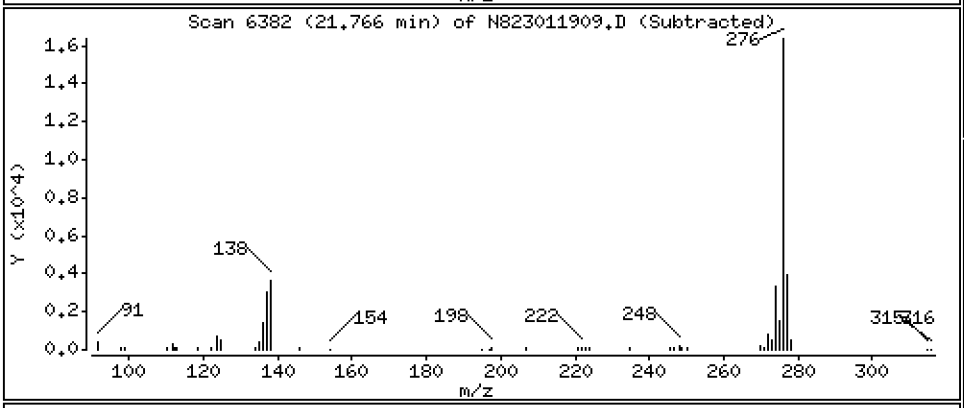
Column diameter: 0.25

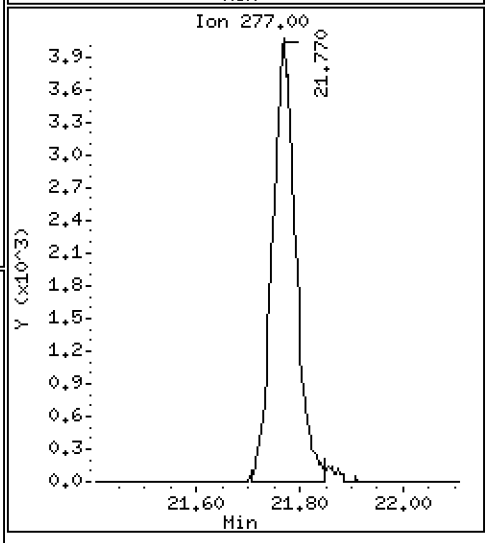
39 Benzo(g,h,i)perylene

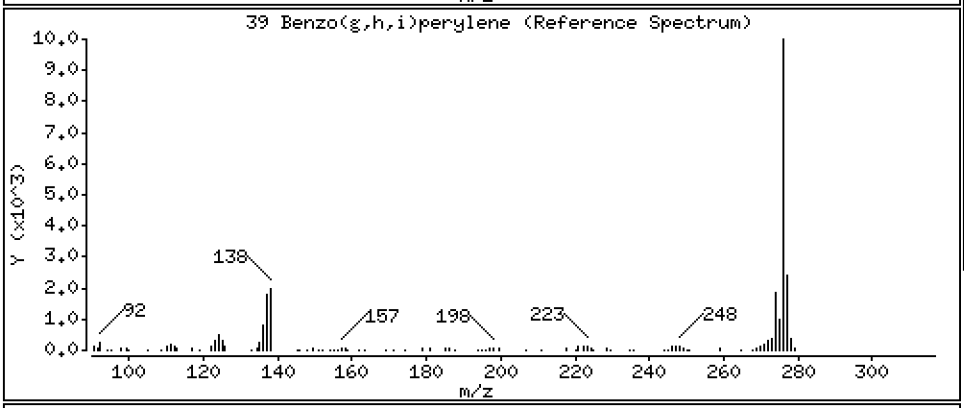
Concentration: 2.483 ug/L

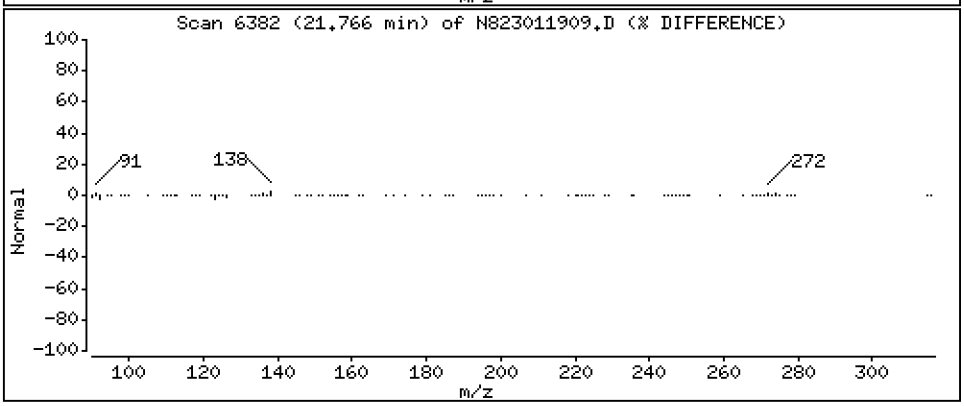












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 25-Jan-2023 21:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

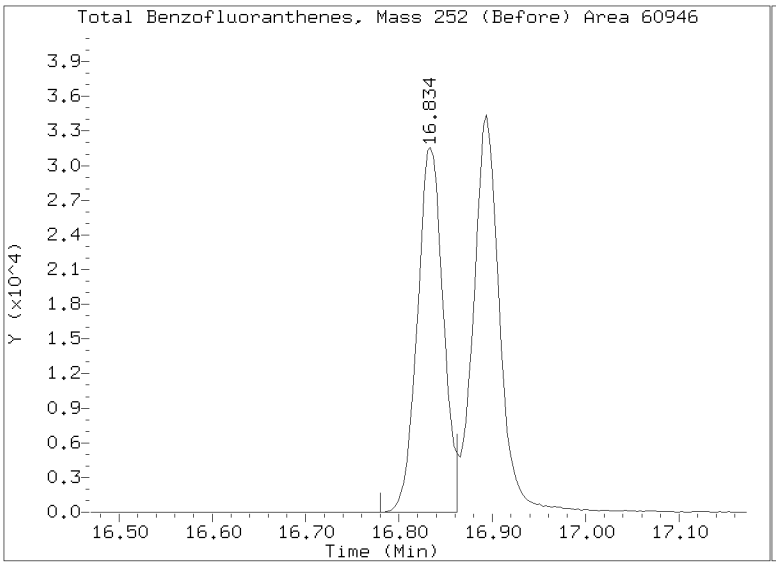
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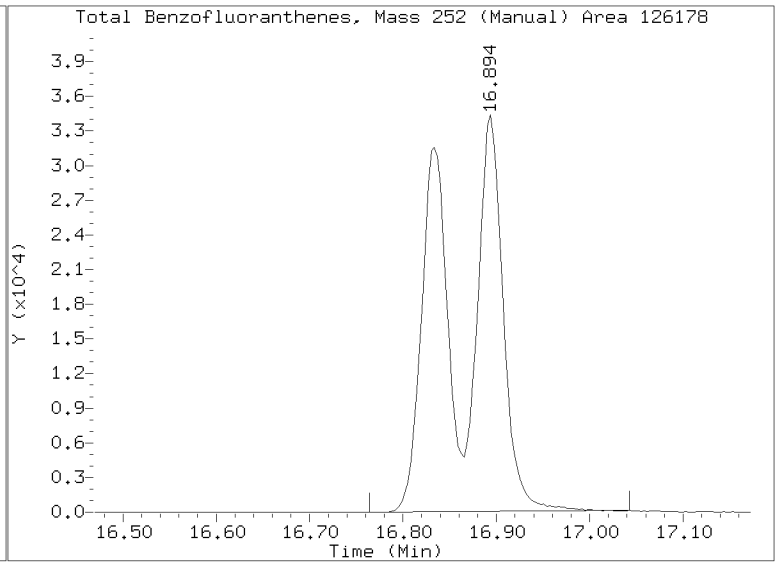
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/25/2023 22:00





Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823021515.D	Calibration Date:	01/19/2023
Sequence:	SLB0206	Injection Date:	02/15/23
Lab Sample ID:	SLB0206-ICV1	Injection Time:	17:35
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Benzo(a)anthracene	A	2.5000	2.76	1.1238870	1.2390130		10.2	+/-20
Chrysene	A	2.5000	2.54	1.1964350	1.2167560		1.7	+/-20
Benzo(b)fluoranthene	A	2.5000	2.45	1.1648110	1.1396510		-2.2	+/-20
Benzo(k)fluoranthene	A	2.5000	2.40	1.1409370	1.0942830		-4.1	+/-20
Benzo(a)pyrene	A	2.5000	2.50	1.0250270	1.0265640		0.2	+/-20
Indeno(1,2,3-cd)pyrene	A	2.5000	2.64	1.1677520	1.2307040		5.4	+/-20
Dibenzo(a,h)anthracene	A	2.5000	2.69	1.0049440	1.0797660		7.4	+/-20
Benzo(g,h,i)perylene	A	2.5000	2.64	1.0580110	1.1160010		5.5	+/-20
2-Methylnaphthalene-d10	A	2.5000	2.68	0.5454499	0.5842972		7.1	+/-20
Dibenzo[a,h]anthracene-d14	A	2.5000	2.42	0.6679424	0.7590124		-3.2	+/-20
Fluoranthene-d10	A	2.5000	2.74	0.8823923	0.9665126		9.5	+/-20
Naphthalene-d8	A	2.0000	2.00	22973.6700	1.0000		0.0	
Acenaphthene-d10	A	2.0000	2.00	13579.2500	1.0000		0.0	
Phenanthrene-d10	A	2.0000	2.00	25616.1700	1.0000		0.0	
Chrysene-d12	A	2.0000	2.00	22313.2500	1.0000		0.0	
Perylene-d12	A	2.0000	2.00	21012.9200	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021515.D

Date : 15-FEB-2023 17:35

Client ID:

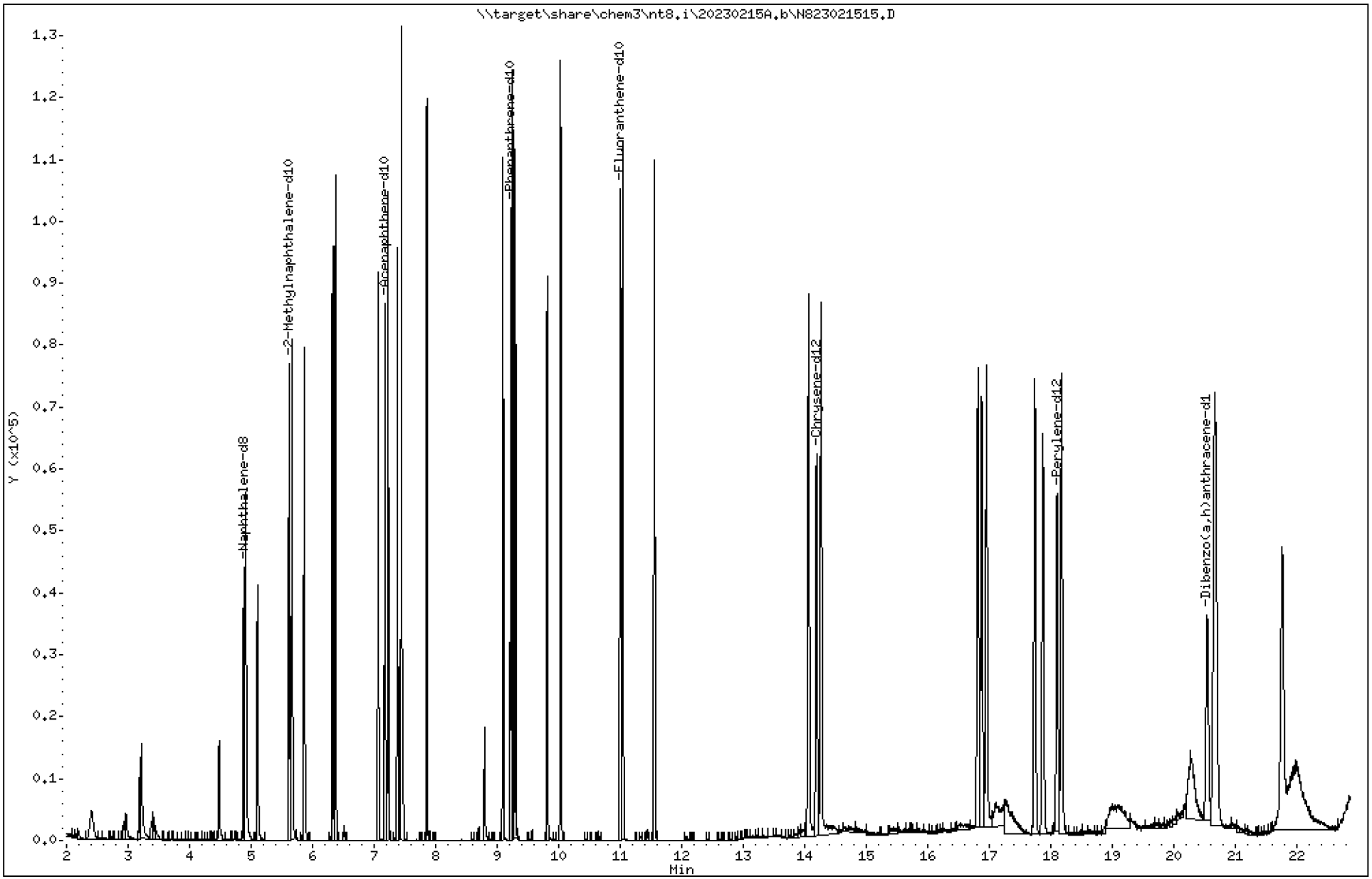
Instrument: nt8.i

Sample Info: ICV230215

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 417 of 1233

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230215A.b\N823021515.D
Lab Smp Id: SLB0206-ICV1
Inj Date : 15-FEB-2023 17:35
Operator : JZ Inst ID: nt8.i
Smp Info : ICV230215
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Meth Date : 17-Feb-2023 22:24 Jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.884	4.884	(1.000)	42744	2.00000	
	2 Naphthalene	128	4.913	4.913	(1.006)	51082	2.50000	2.570
$	3 2-Methylnaphthalene-d10	152	5.618	5.618	(1.150)	31219	2.50000	2.678
	4 2-Methylnaphthalene	141	5.665	5.665	(1.160)	28824	2.50000	2.637
	5 1-methylnaphthalene	141	5.865	5.865	(1.201)	28694	2.50000	2.586
	7 Biphenyl	154	6.326	6.326	(0.881)	43014	2.50000	2.584
	8 2,6-Dimethylnaphthalene	156	6.370	6.370	(0.887)	31642	2.50000	2.685
	9 Acenaphthylene	152	7.069	7.069	(0.985)	52712	2.50000	2.766
*	10 Acenaphthene-d10	164	7.180	7.180	(1.000)	25236	2.00000	
	11 Acenaphthene	153	7.227	7.227	(1.007)	33197	2.50000	2.600
	12 Dibenzofuran	168	7.379	7.379	(1.028)	49716	2.50000	2.564
	13 1,6,7-Trimethylnaphthalene	170	7.446	7.446	(1.037)	33020	2.50000	2.700
	14 Fluorene	166	7.860	7.860	(1.095)	40513	2.50000	2.690
	18 Dibenzothiophene	184	9.096	9.096	(0.986)	54420	2.50000	2.576
*	15 Phenanthrene-d10	188	9.223	9.223	(1.000)	47809	2.00000	
	16 Phenanthrene	178	9.257	9.257	(1.004)	59195	2.50000	2.535
	17 Anthracene	178	9.298	9.298	(1.008)	56762	2.50000	2.676
	19 Carbazole	167	9.814	9.814	(1.064)	50238	2.50000	2.583
	20 1-Methylphenanthrene	192	10.035	10.035	(1.088)	44932	2.50000	2.670
	22 Fluoranthene	202	11.041	11.041	(1.197)	67302	2.50000	2.648
$	21 Fluoranthene-d10	212	11.003	11.003	(1.193)	57760	2.50000	2.738
	23 Pyrene	202	11.559	11.559	(0.814)	68542	2.50000	2.705
	24 Benzo(a)anthracene	228	14.067	14.067	(0.991)	63295	2.50000	2.756
*	25 Chrysene-d12	240	14.196	14.196	(1.000)	40868	2.00000	
	27 Chrysene	228	14.266	14.266	(1.005)	62158	2.50000	2.542
	28 Benzo(b)fluoranthene	252	16.821	16.821	(0.929)	61393	2.50000	2.446
	29 Benzo(k)fluoranthene	252	16.881	16.881	(0.932)	58949	2.50000	2.398
	30 Benzo(j)fluoranthene	252	16.960	16.960	(0.937)	54700	2.50000	2.472
	31 Total Benzofluoranthenes	252	16.821	16.821	(0.929)	174142	7.50000	7.326(M)
	34 Benzo(e)pyrene	252	17.744	17.744	(0.980)	59287	2.50000	2.369
	32 Benzo(a)pyrene	252	17.877	17.877	(0.987)	55301	2.50000	2.504
*	33 Perylene-d12	264	18.108	18.108	(1.000)	43096	2.00000	
	35 Perylene	252	18.180	18.180	(1.004)	58738	2.50000	2.478

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.546	20.546	(1.135)	40888	2.50000	2.421
37 Indeno(1,2,3-cd)pyrene	276	20.688	20.688	(1.142)	66298	2.50000	2.635
38 Dibenzo(a,h)anthracene	278	20.666	20.666	(1.141)	58167	2.50000	2.686
39 Benzo(g,h,i)perylene	276	21.766	21.766	(1.202)	60119	2.50000	2.637

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021515.D
Lab Smp Id: SLB0206-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 10:56
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	42744	-4.38
10 Acenaphthene-d10	26411	13206	52822	25236	-4.45
15 Phenanthrene-d10	49210	24605	98420	47809	-2.85
25 Chrysene-d12	42994	21497	85988	40868	-4.94
33 Perylene-d12	40520	20260	81040	43096	6.36

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	0.00
10 Acenaphthene-d10	7.18	6.68	7.68	7.18	0.00
15 Phenanthrene-d10	9.22	8.72	9.72	9.22	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021515.D

Lab ID: SLB0206-ICV1
nt8.i, 20230215A.b\FSIMPNA230119.m,   15-FEB-2023 17:35

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

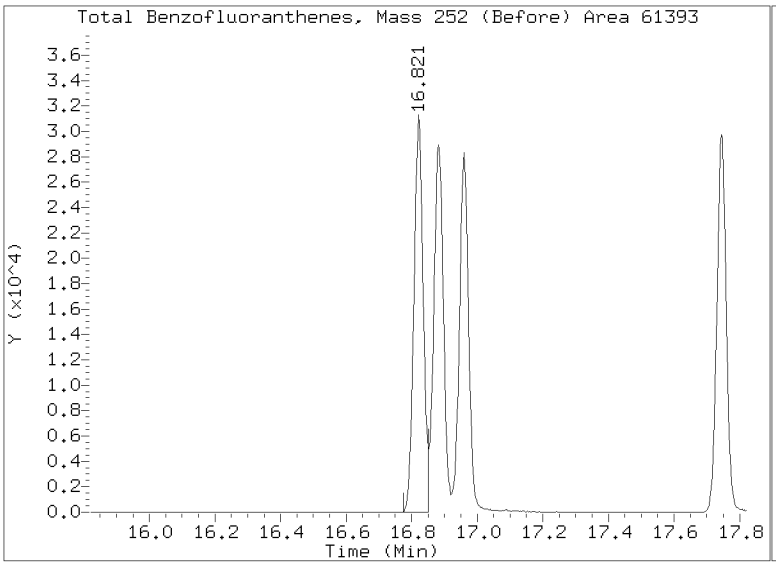
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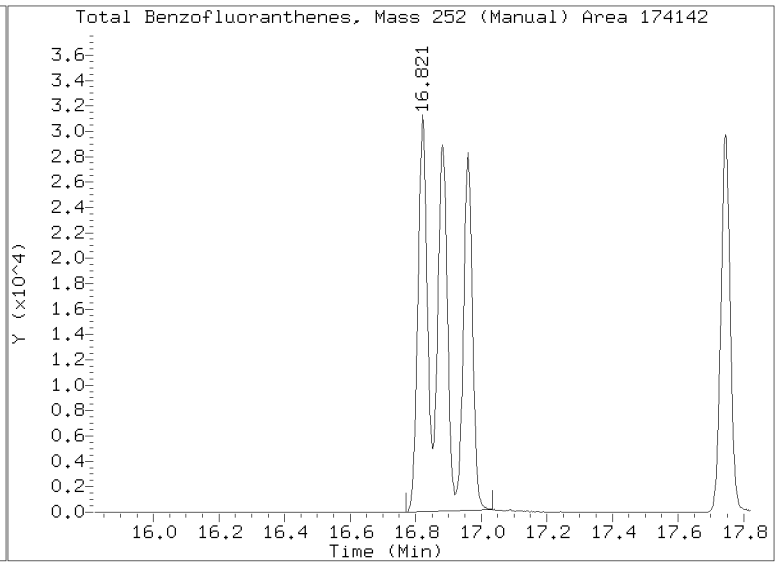
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* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230215A.b/N823021515.D
Injection Date: 15-FEB-2023 17:35
Lab ID:SLB0206-ICV1 Client ID:
Report Date: 02/17/2023 22:24





Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230215A.b

Instrument: nt8.i Date: 15-FEB-2023 Method: 20230215A.b\FSIMPNA230119.m

INITIAL CAL: 19-JAN-2023

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N823021515.D 15-FEB-2023 17:35

Compound	%D
NO Q-FLAGS	

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823021702.D	Calibration Date:	01/19/2023
Sequence:	SLB0244	Injection Date:	02/17/23
Lab Sample ID:	SLB0244-ICV1	Injection Time:	11:25
Sequence Name:	Initial Cal Check		

		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Benzo(a)anthracene	A	2.5000	2.86	1.1238870	1.2847280		14.3	+/-20
Chrysene	A	2.5000	2.46	1.1964350	1.1793740		-1.4	+/-20
Benzo(b)fluoranthene	A	2.5000	2.69	1.1648110	1.2542040		7.7	+/-20
Benzo(k)fluoranthene	A	2.5000	2.63	1.1409370	1.2017690		5.3	+/-20
Benzo(a)pyrene	A	2.5000	2.58	1.0250270	1.0580100		3.2	+/-20
Indeno(1,2,3-cd)pyrene	A	2.5000	2.60	1.1677520	1.2140330		4.0	+/-20
Dibenzo(a,h)anthracene	A	2.5000	2.66	1.0049440	1.0678630		6.3	+/-20
Benzo(g,h,i)perylene	A	2.5000	2.81	1.0580110	1.1874350		12.2	+/-20
2-Methylnaphthalene-d10	A	2.5000	2.71	0.5454499	0.5906238		8.3	+/-20
Dibenzo[a,h]anthracene-d14	A	2.5000	2.46	0.6679424	0.7697861		-1.8	+/-20
Fluoranthene-d10	A	2.5000	2.54	0.8823923	0.8973543		1.7	+/-20
Naphthalene-d8	A	2.0000	2.00	22973.6700	1.0000		0.0	
Acenaphthene-d10	A	2.0000	2.00	13579.2500	1.0000		0.0	
Phenanthrene-d10	A	2.0000	2.00	25616.1700	1.0000		0.0	
Chrysene-d12	A	2.0000	2.00	22313.2500	1.0000		0.0	
Perylene-d12	A	2.0000	2.00	21012.9200	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230217.b\N823021702.D

Date : 17-FEB-2023 11:25

Client ID:

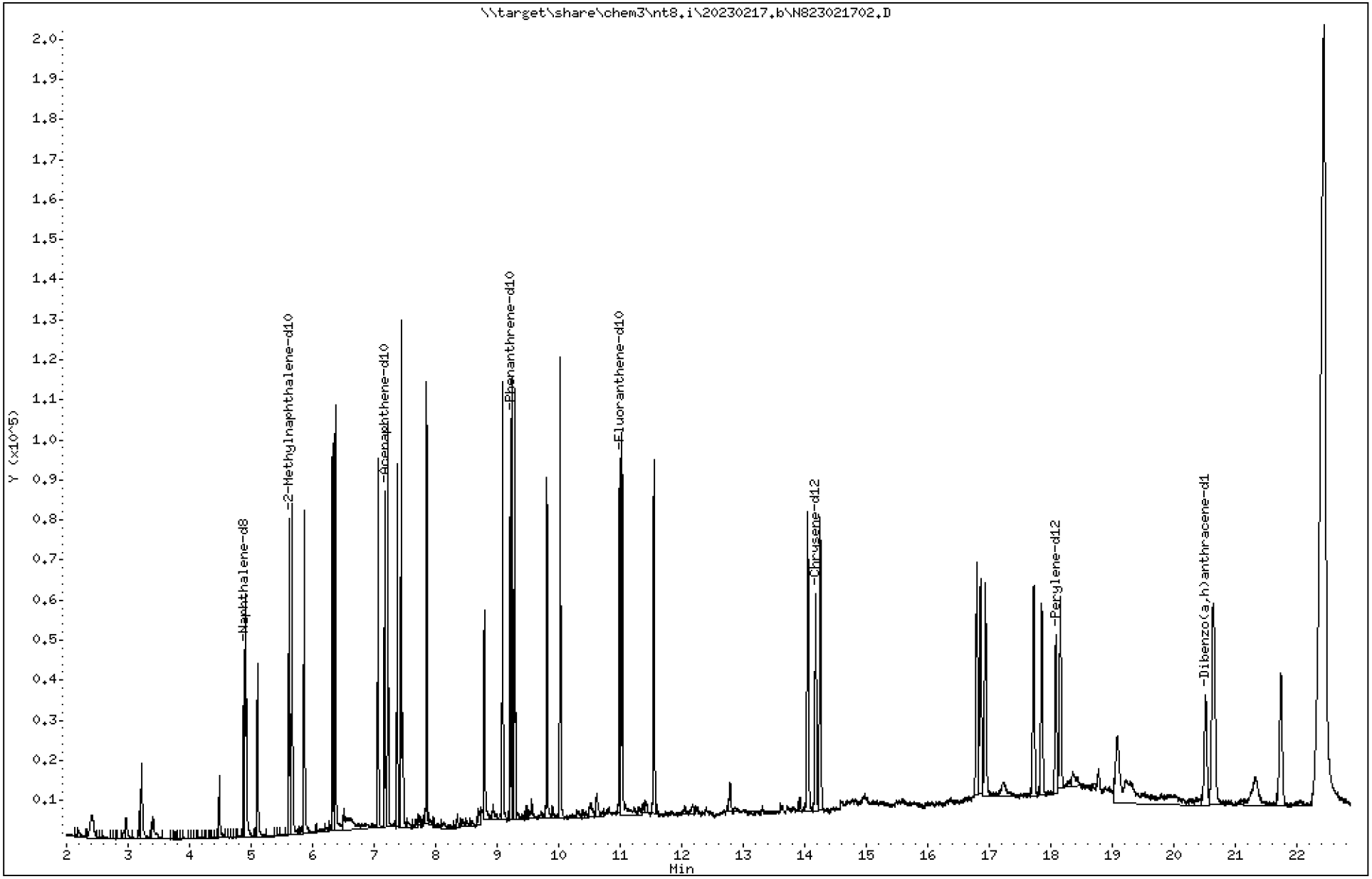
Instrument: nt8.i

Sample Info: ICV230217

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 425 of 1233

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230217.b\N823021702.D
Lab Smp Id: SLB0244-ICV1
Inj Date : 17-FEB-2023 11:25
Operator : JZ Inst ID: nt8.i
Smp Info : ICV230217
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 20:08 Jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.884	4.884	(1.000)	41552	2.00000	
	2 Naphthalene	128	4.916	4.916	(1.006)	49374	2.50000	2.556
$	3 2-Methylnaphthalene-d10	152	5.621	5.621	(1.151)	30677	2.50000	2.707
	4 2-Methylnaphthalene	141	5.669	5.669	(1.161)	27892	2.50000	2.625
	5 1-methylnaphthalene	141	5.865	5.865	(1.201)	27995	2.50000	2.596
	7 Biphenyl	154	6.326	6.326	(0.881)	41730	2.50000	2.529
	8 2,6-Dimethylnaphthalene	156	6.370	6.370	(0.888)	30824	2.50000	2.639
	9 Acenaphthylene	152	7.066	7.066	(0.985)	52396	2.50000	2.774
*	10 Acenaphthene-d10	164	7.177	7.177	(1.000)	25012	2.00000	
	11 Acenaphthene	153	7.224	7.224	(1.007)	32479	2.50000	2.566
	12 Dibenzofuran	168	7.376	7.376	(1.028)	48503	2.50000	2.523
	13 1,6,7-Trimethylnaphthalene	170	7.442	7.442	(1.037)	32546	2.50000	2.685
	14 Fluorene	166	7.857	7.857	(1.095)	40476	2.50000	2.711
	18 Dibenzothiophene	184	9.090	9.090	(0.986)	51563	2.50000	2.607
*	15 Phenanthrene-d10	188	9.216	9.216	(1.000)	44752	2.00000	
	16 Phenanthrene	178	9.251	9.251	(1.004)	54514	2.50000	2.494
	17 Anthracene	178	9.292	9.292	(1.008)	52579	2.50000	2.648
	19 Carbazole	167	9.811	9.811	(1.064)	46615	2.50000	2.561
	20 1-Methylphenanthrene	192	10.029	10.029	(1.088)	39779	2.50000	2.525
	22 Fluoranthene	202	11.031	11.031	(1.197)	55361	2.50000	2.327
$	21 Fluoranthene-d10	212	10.996	10.996	(1.193)	50198	2.50000	2.542
	23 Pyrene	202	11.553	11.553	(0.815)	56947	2.50000	2.661
	24 Benzo(a)anthracene	228	14.054	14.054	(0.991)	55436	2.50000	2.858
*	25 Chrysene-d12	240	14.181	14.181	(1.000)	34520	2.00000	
	27 Chrysene	228	14.253	14.253	(1.005)	50890	2.50000	2.464
	28 Benzo(b)fluoranthene	252	16.802	16.802	(0.929)	47862	2.50000	2.692
	29 Benzo(k)fluoranthene	252	16.862	16.862	(0.932)	45861	2.50000	2.633
	30 Benzo(j)fluoranthene	252	16.941	16.941	(0.937)	40558	2.50000	2.587
	31 Total Benzofluoranthenes	252	16.802	16.802	(0.929)	132886	7.50000	7.892(M)
	34 Benzo(e)pyrene	252	17.728	17.728	(0.980)	42728	2.50000	2.410
	32 Benzo(a)pyrene	252	17.858	17.858	(0.987)	40375	2.50000	2.580
*	33 Perylene-d12	264	18.086	18.086	(1.000)	30529	2.00000	
	35 Perylene	252	18.158	18.158	(1.004)	39580	2.50000	2.357

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.523	20.523	(1.135)	29376	2.50000	2.456
37 Indeno(1,2,3-cd)pyrene	276	20.663	20.663	(1.142)	46329	2.50000	2.599
38 Dibenzo(a,h)anthracene	278	20.637	20.637	(1.141)	40751	2.50000	2.657
39 Benzo(g,h,i)perylene	276	21.747	21.747	(1.202)	45314	2.50000	2.806

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021702.D
Lab Smp Id: SLB0244-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 17:35
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	41552	-7.05
10 Acenaphthene-d10	26411	13206	52822	25012	-5.30
15 Phenanthrene-d10	49210	24605	98420	44752	-9.06
25 Chrysene-d12	42994	21497	85988	34520	-19.71
33 Perylene-d12	40520	20260	81040	30529	-24.66

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	0.00
10 Acenaphthene-d10	7.18	6.68	7.68	7.18	0.00
15 Phenanthrene-d10	9.22	8.72	9.72	9.22	0.00
25 Chrysene-d12	14.18	13.68	14.68	14.18	0.00
33 Perylene-d12	18.09	17.59	18.59	18.09	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021702.D

Lab ID: SLB0244-ICV1
nt8.i, 20230217.b\FSIMPNA230119.m,   17-FEB-2023 11:25

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

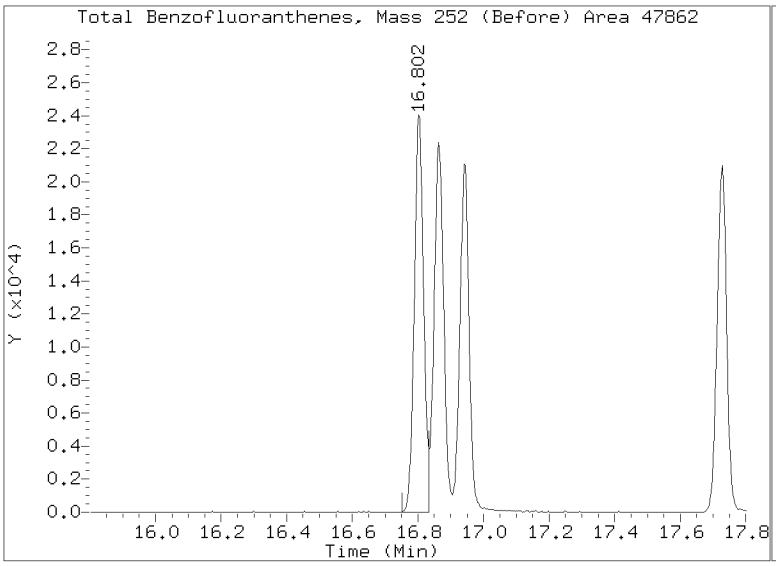
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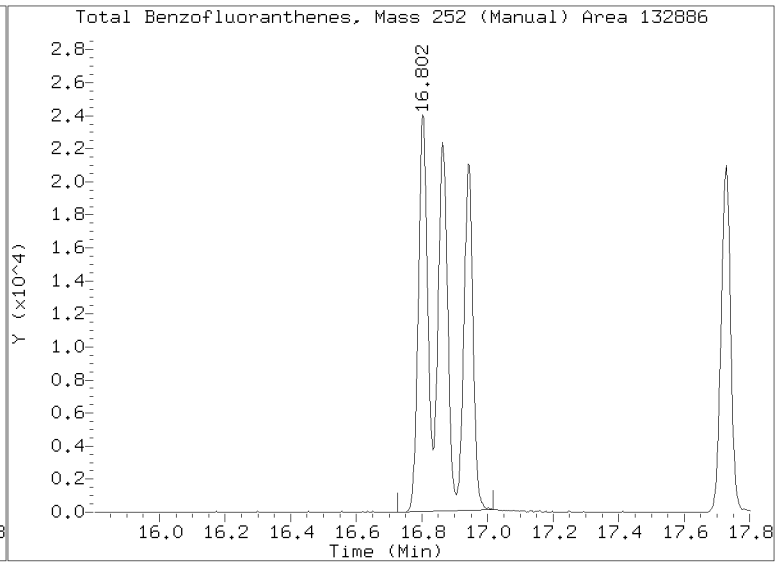
On Column LOD for nt8.i, 20230217.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230217.b/N823021702.D
Injection Date: 17-FEB-2023 11:25
Lab ID:SLB0244-ICV1 Client ID:
Report Date: 02/19/2023 20:08





Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230217.b

Instrument: nt8.i Date: 17-FEB-2023 Method: 20230217.b\FSIMPNA230119.m

INITIAL CAL: 19-JAN-2023

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N823021702.D 17-FEB-2023 11:25

Compound	%D
NO Q-FLAGS	

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8270E-SIM

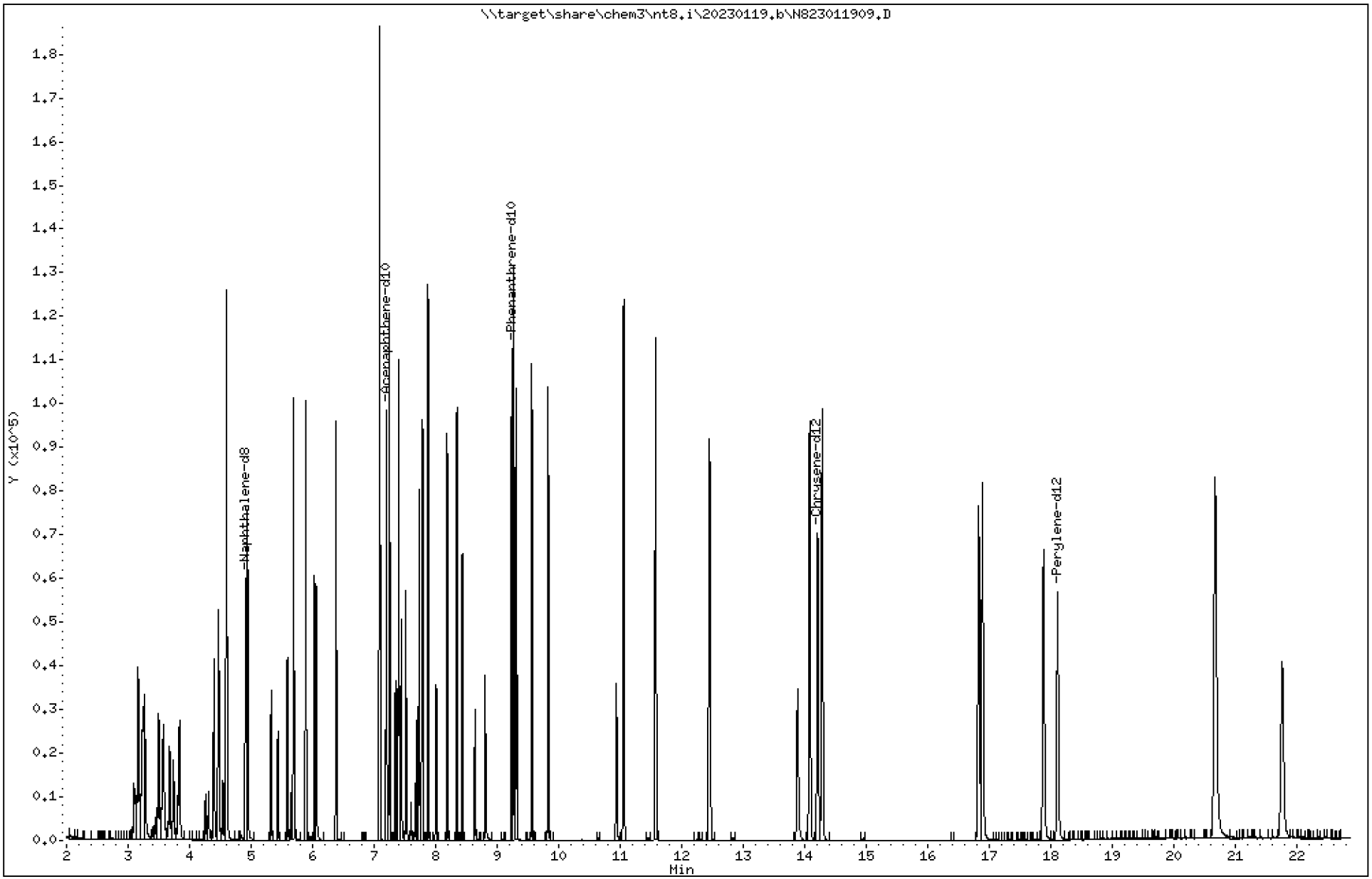
Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823011909.D	Calibration Date:	01/19/2023
Sequence:	SLA0213	Injection Date:	01/19/23
Lab Sample ID:	SLA0213-SCV1	Injection Time:	14:58
Sequence Name:	8270 SIM PNA SCV		

		CONC. (ug/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Naphthalene	A	2.5000	2.63	0.9299181	0.9767747		5.0	
2-Methylnaphthalene	A	2.5000	2.67	0.5115033	0.5463255		6.8	
1-Methylnaphthalene	A	2.5000	2.65	0.5191318	0.5501748		6.0	
Acenaphthylene	A	2.5000	2.82	1.5102600	1.7039370		12.8	
Acenaphthene	A	2.5000	2.60	1.0119150	1.0524810		4.0	
Dibenzofuran	A	2.5000	2.86	1.5369690	1.7582160		14.4	
Fluorene	A	2.5000	2.63	1.1937240	1.2561120		5.2	
Phenanthrene	A	2.5000	2.45	0.9769567	0.9567960		-2.1	
Anthracene	A	2.5000	2.27	0.8874960	0.8058663		-9.2	
Fluoranthene	A	2.5000	2.65	1.0634260	1.1284050		6.1	
Pyrene	A	2.5000	2.46	1.2399700	1.2213300		-1.5	
Benzo(a)anthracene	A	2.5000	2.59	1.1238870	1.1631100		3.5	
Chrysene	A	2.5000	2.40	1.1964350	1.1484610		-4.0	
Benzo(b)fluoranthene	A	2.5000	2.51	1.1648110	1.1680230		0.3	
Benzo(k)fluoranthene	A	2.5000	2.66	1.1409370	1.2121600		6.2	
Benzofluoranthenes, Total	A	5.0000	5.48	1.1031370	1.2090940		9.6	
Benzo(a)pyrene	A	2.5000	2.57	1.0250270	1.0545670		2.9	
Indeno(1,2,3-cd)pyrene	A	2.5000	2.69	1.1677520	1.2561630		7.6	
Dibenzo(a,h)anthracene	A	2.5000	2.49	1.0049440	1.0021900		-0.3	
Benzo(g,h,i)perylene	A	2.5000	2.48	1.0580110	1.0506380		-0.7	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Date : 19-JAN-2023 14:58
Client ID:
Sample Info: SCV230119
Volume Injected (uL): 1.0
Column phase: Rxi-17sil

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 433 of 1233

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

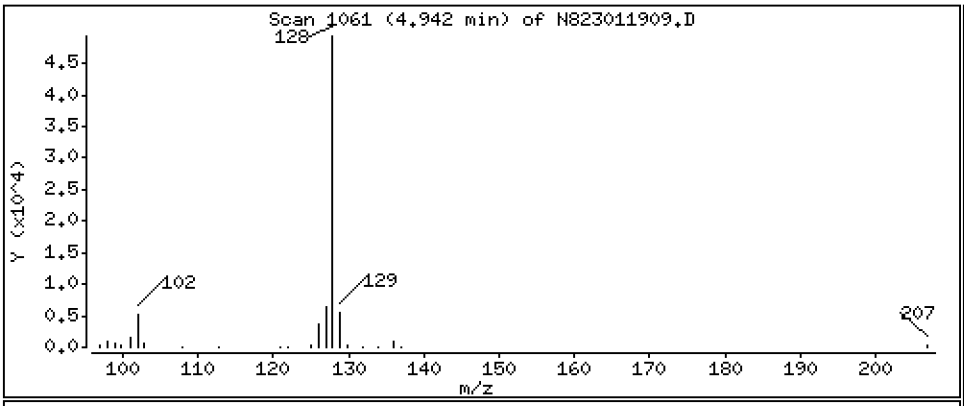
Operator: JZ

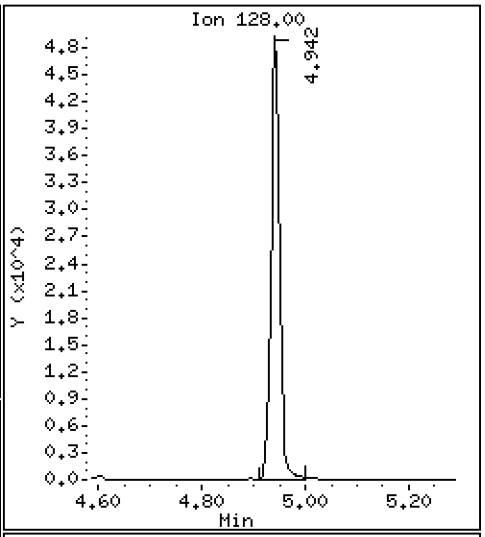
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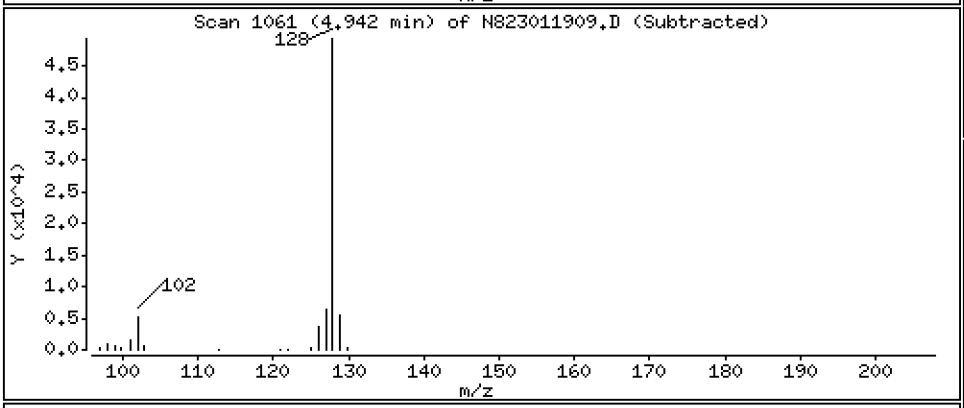
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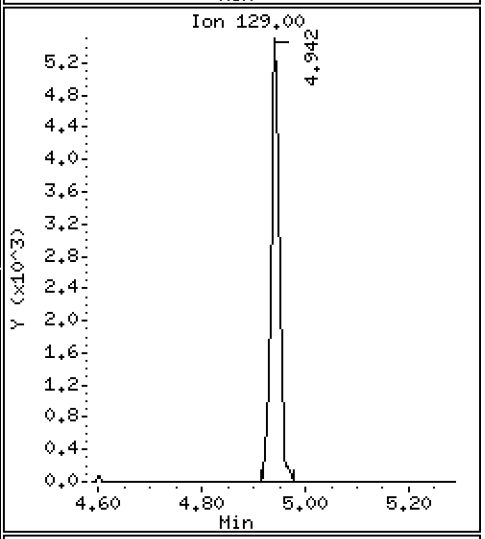
2 Naphthalene

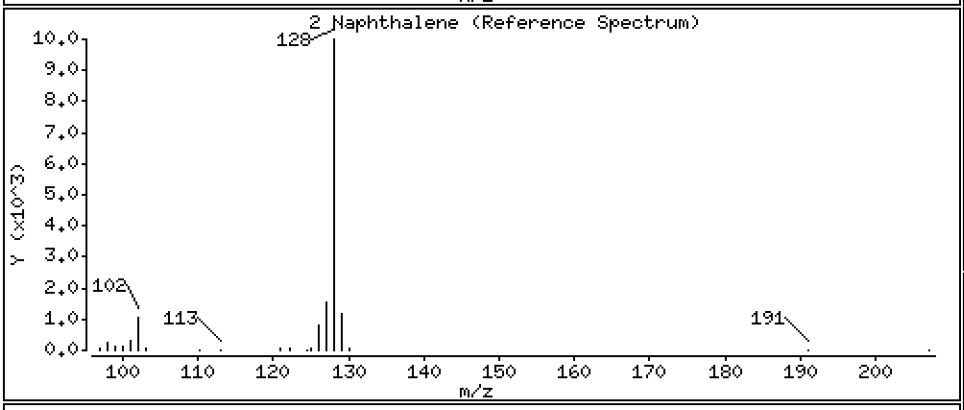
Concentration: 2.626 ug/L

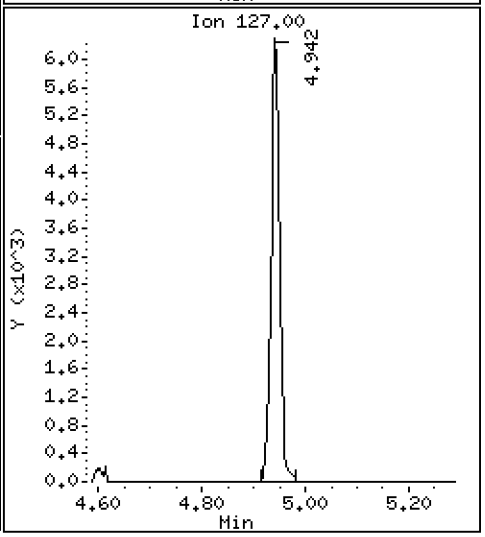


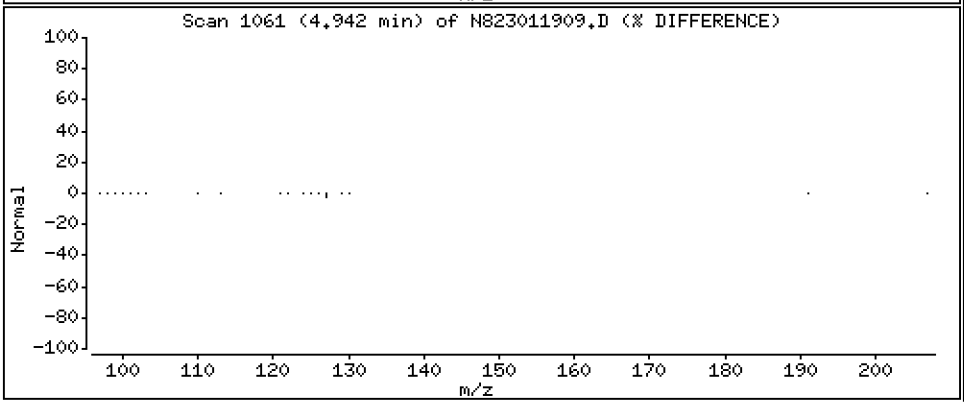












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

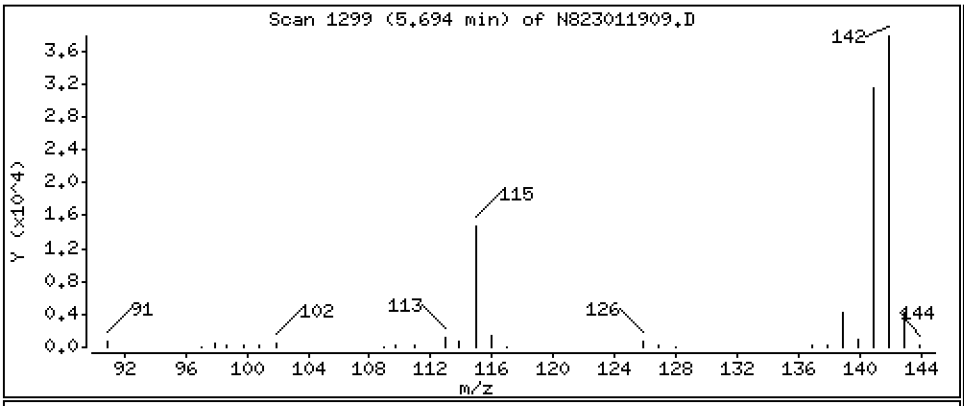
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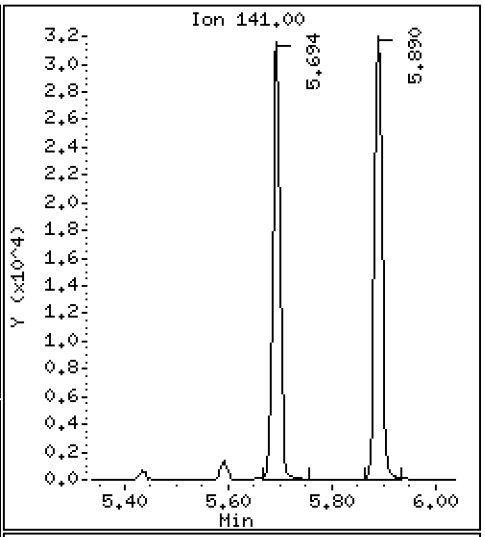
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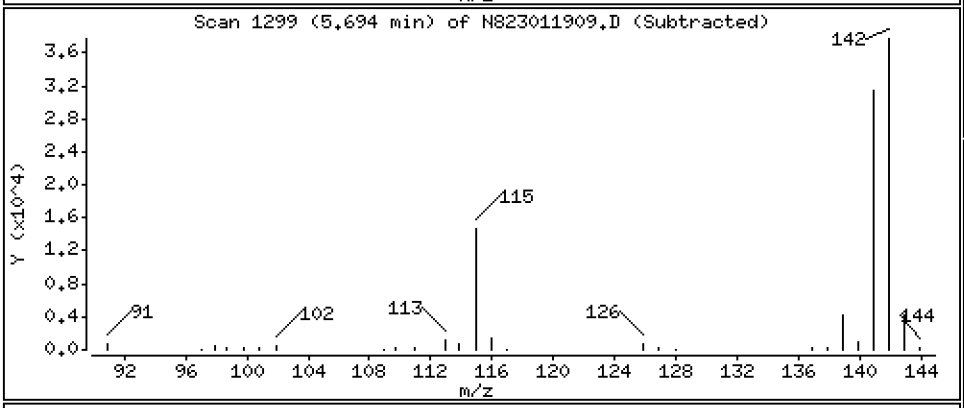
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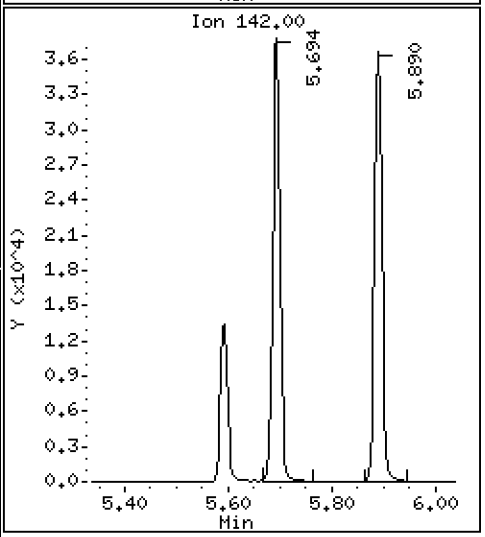
4 2-Methylnaphthalene

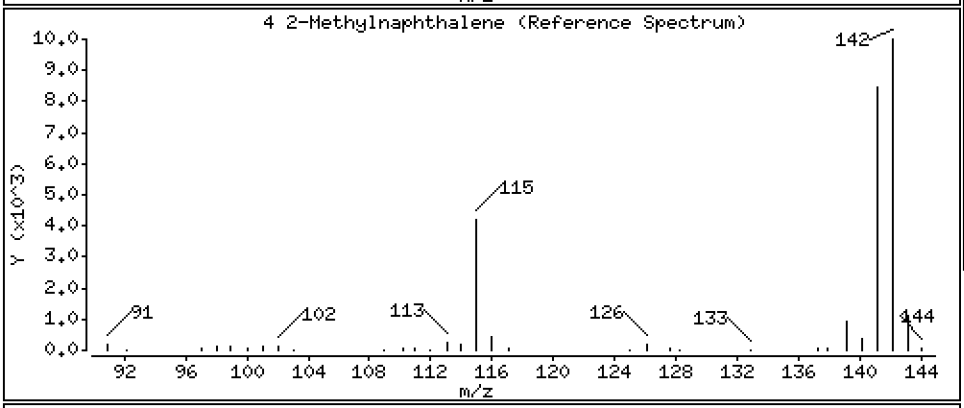
Concentration: 2.670 ug/L

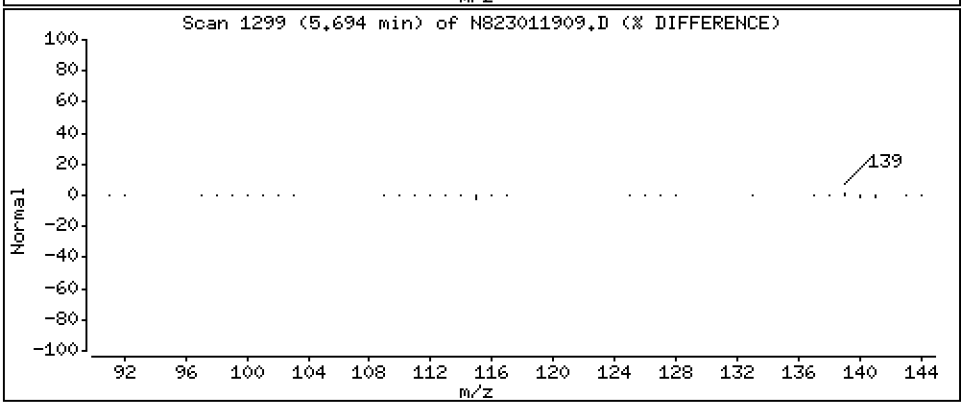












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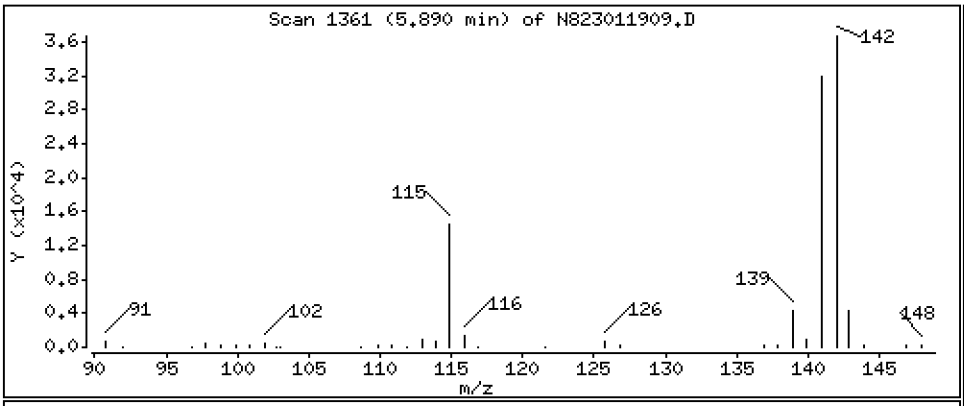
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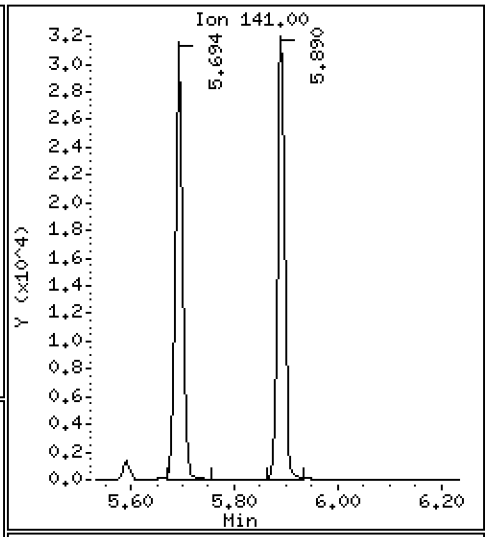
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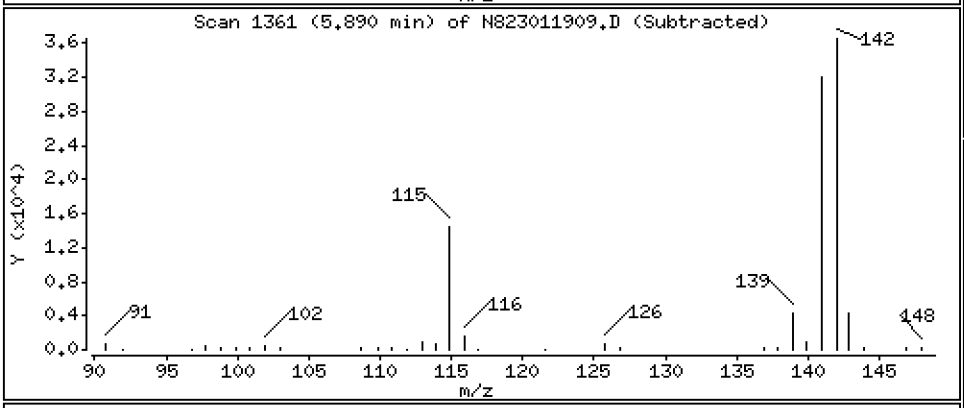
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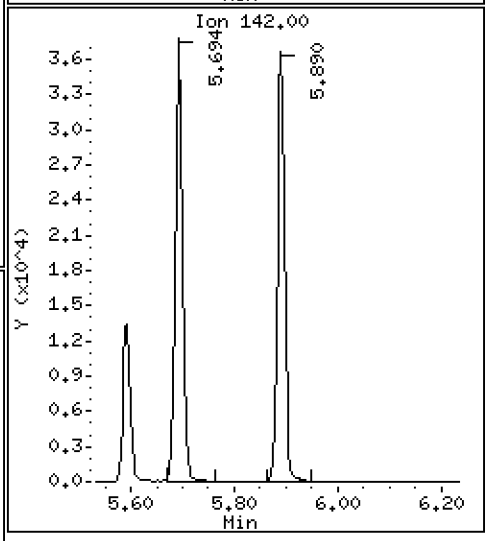
5 1-methylnaphthalene

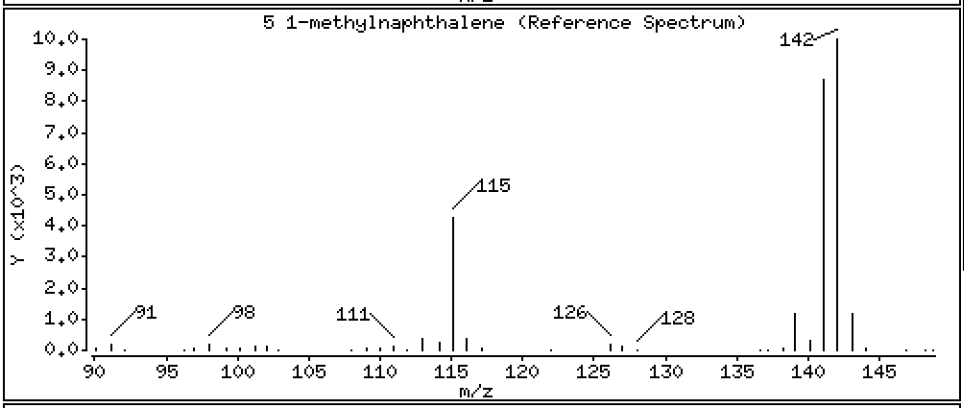
Concentration: 2.649 ug/L

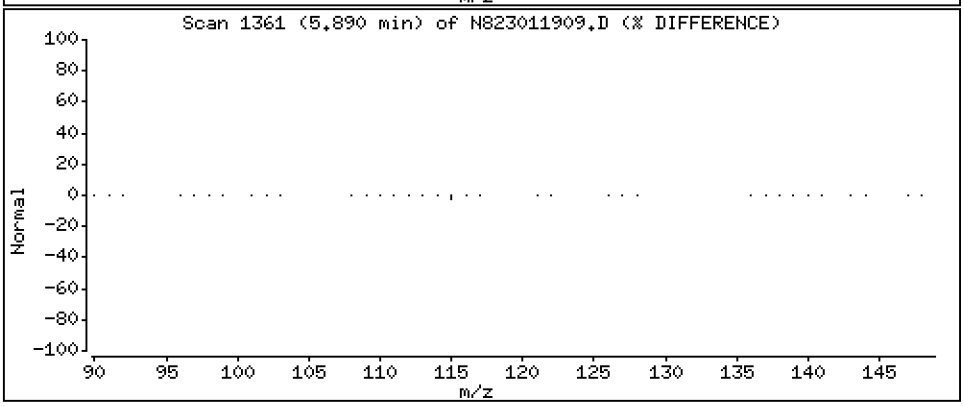












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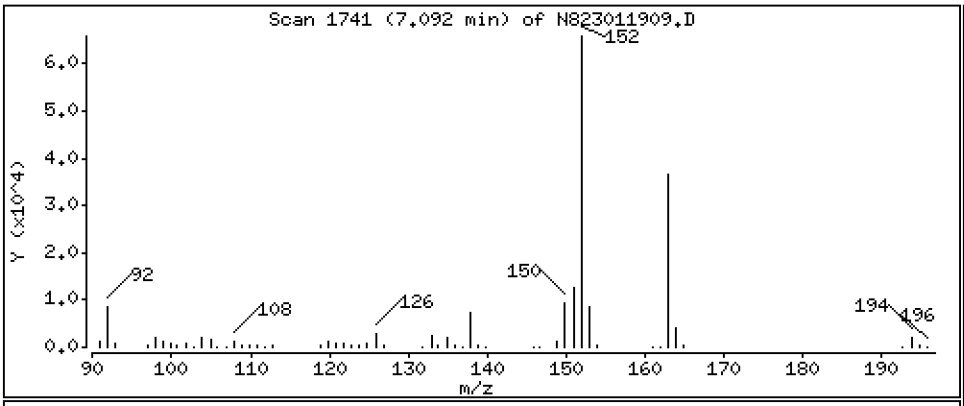
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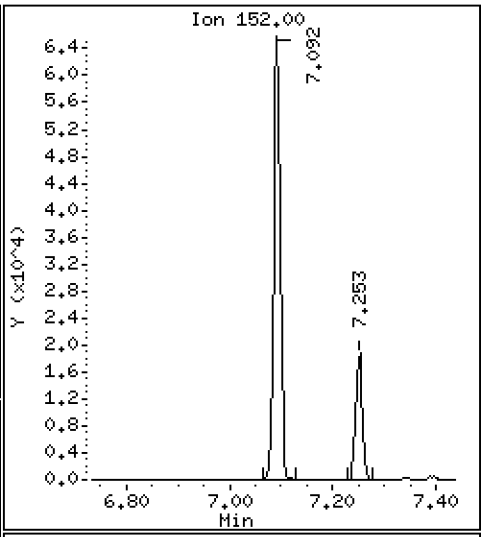
Column phase: Rxi-17sil

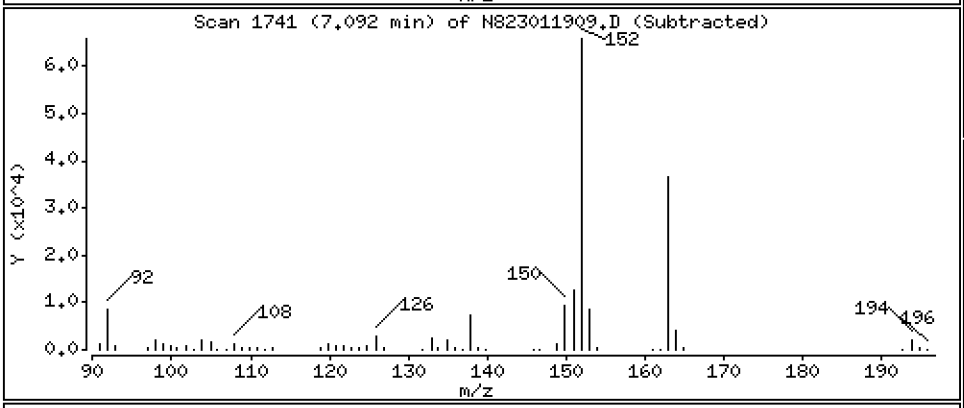
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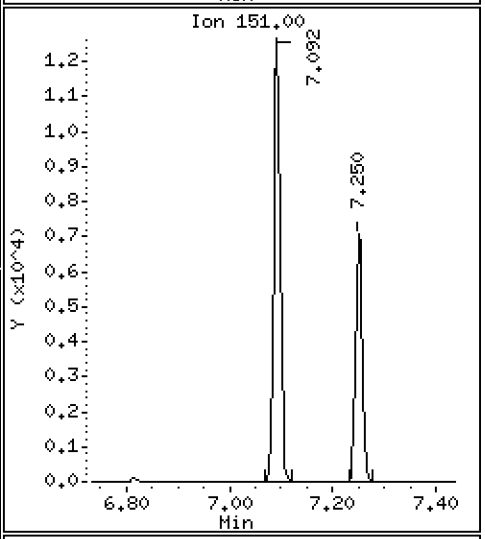
9 Acenaphthylene

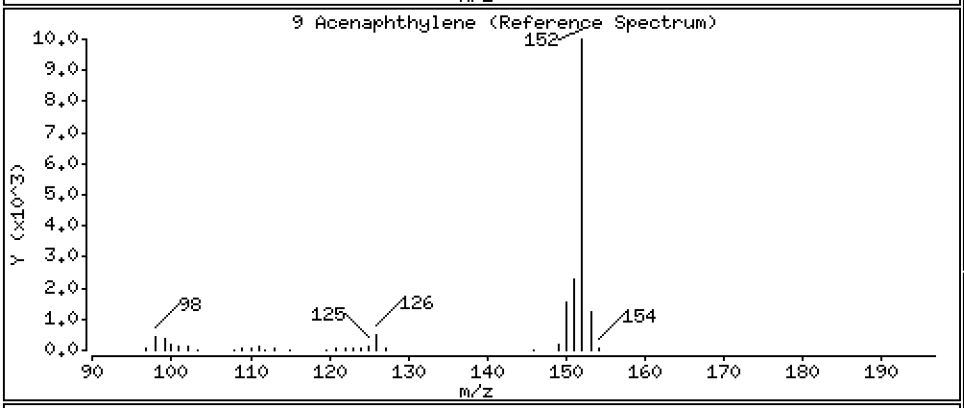
Concentration: 2.821 ug/L

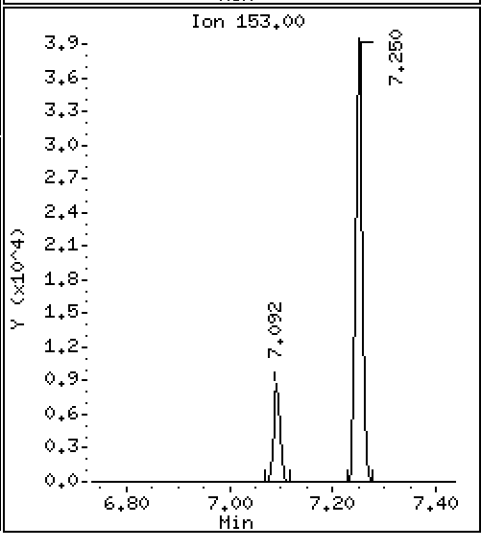


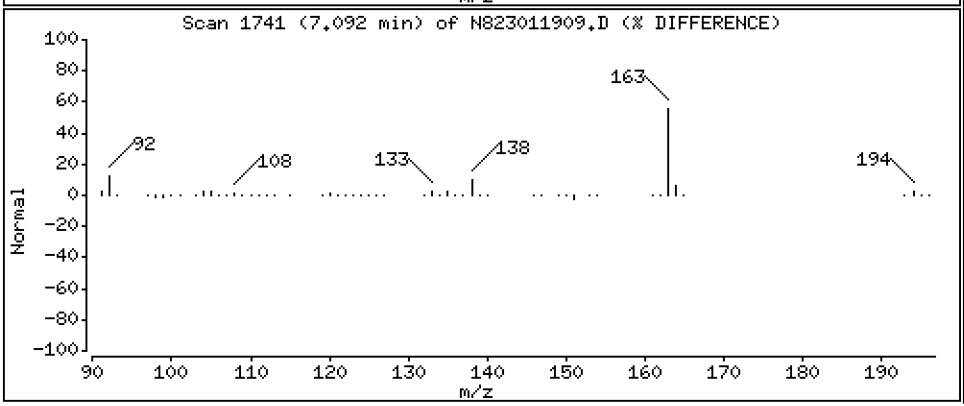












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Sample Info: SCV230119

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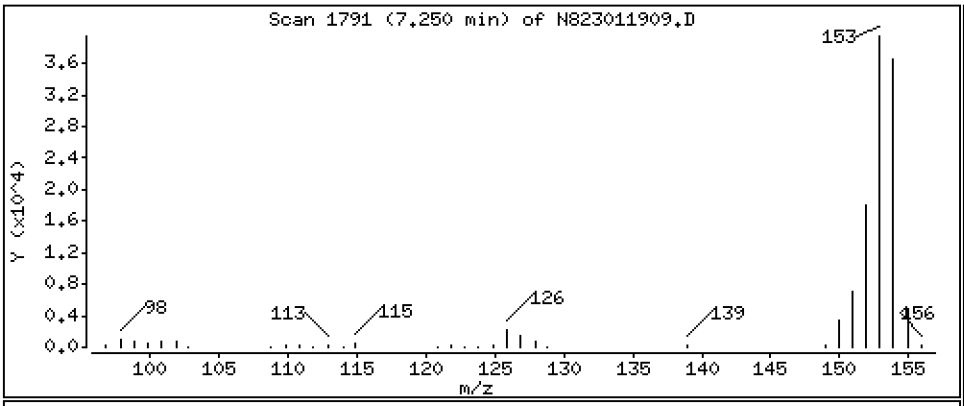
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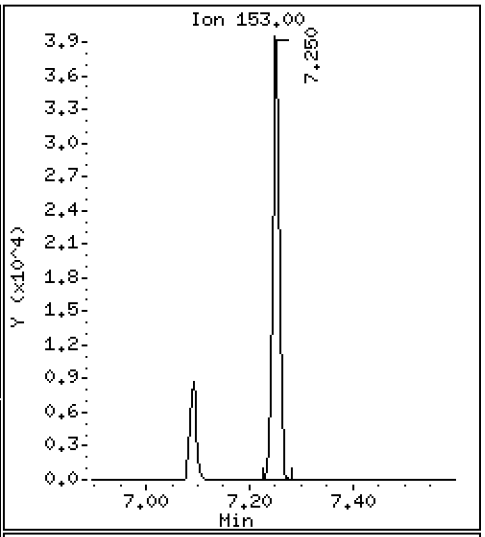
Column phase: Rxi-17sil

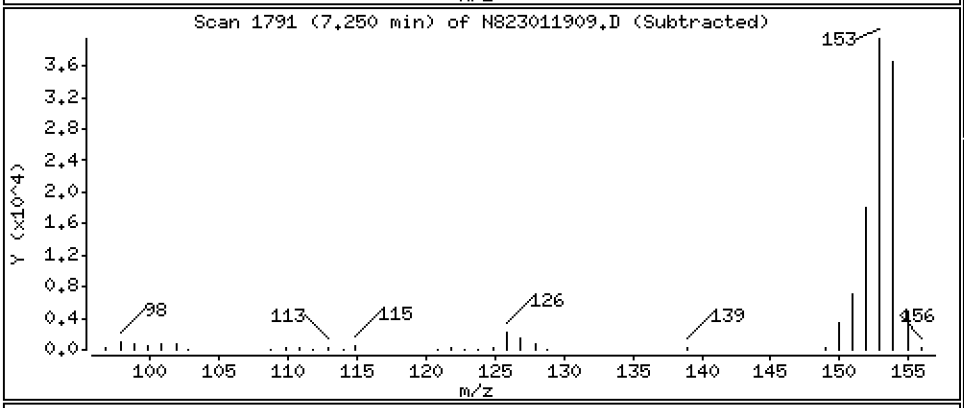
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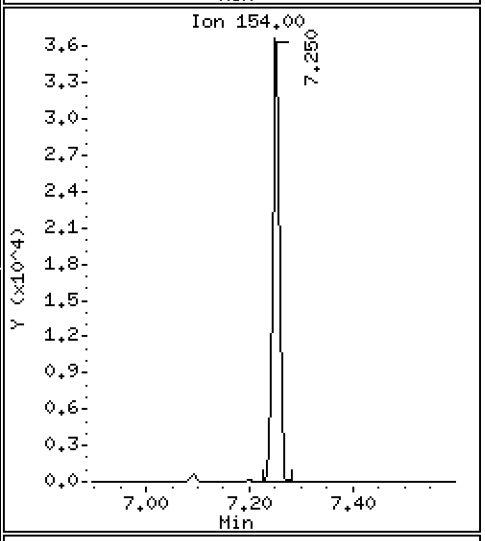
11 Acenaphthene

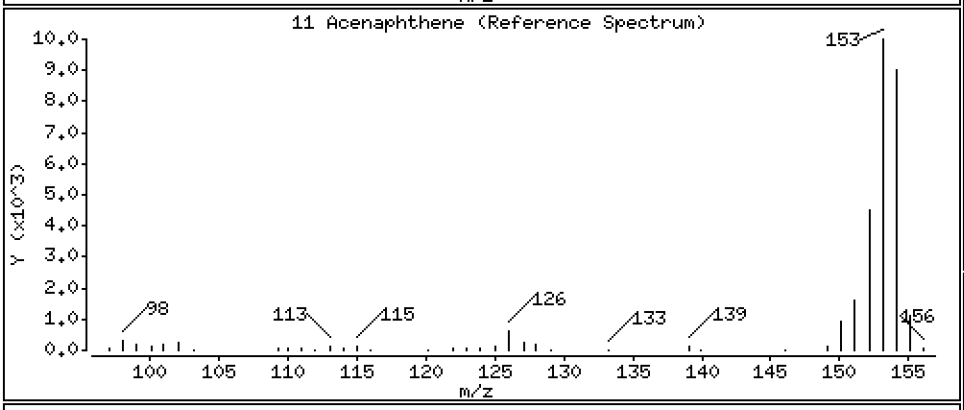
Concentration: 2.600 ug/L

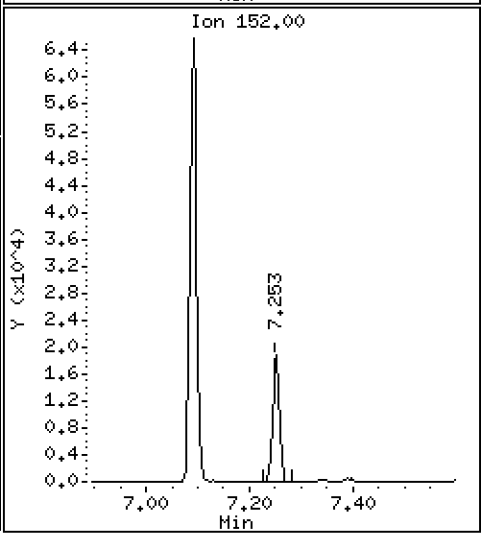


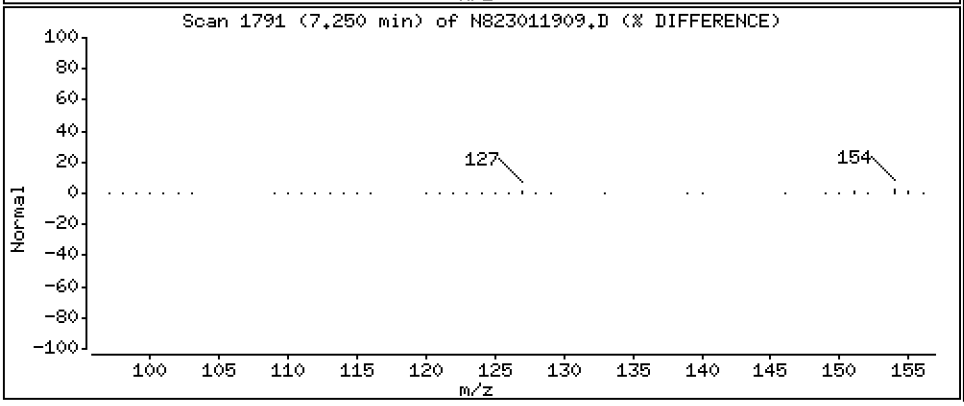












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Sample Info: SCV230119

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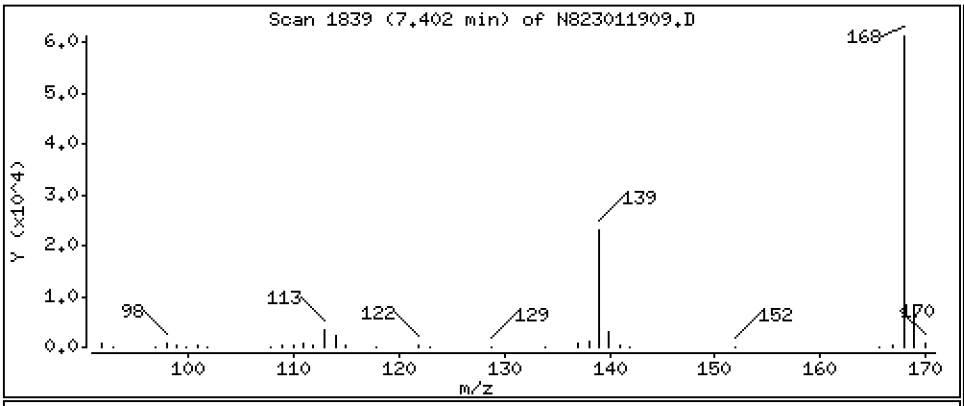
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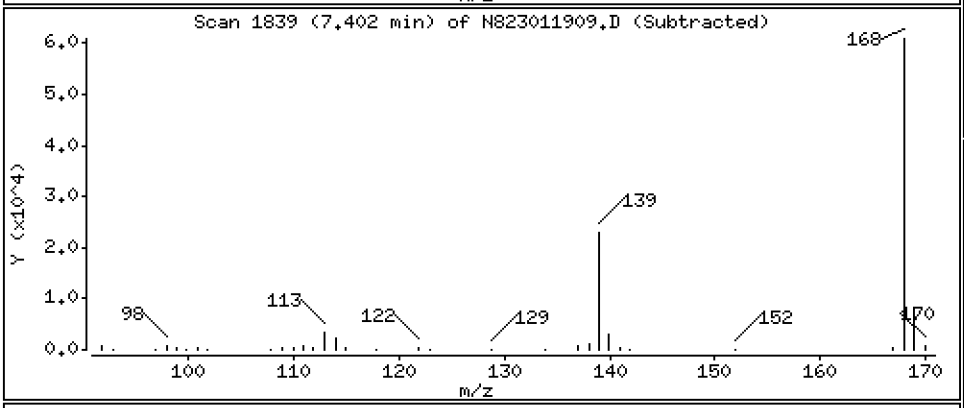
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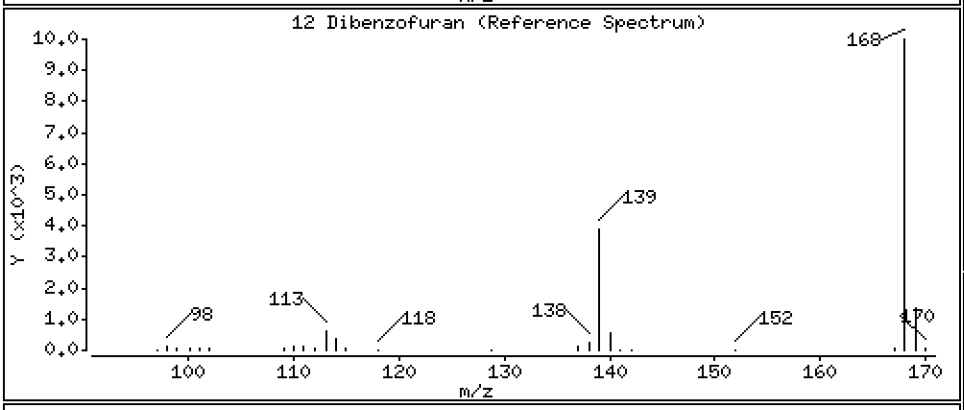
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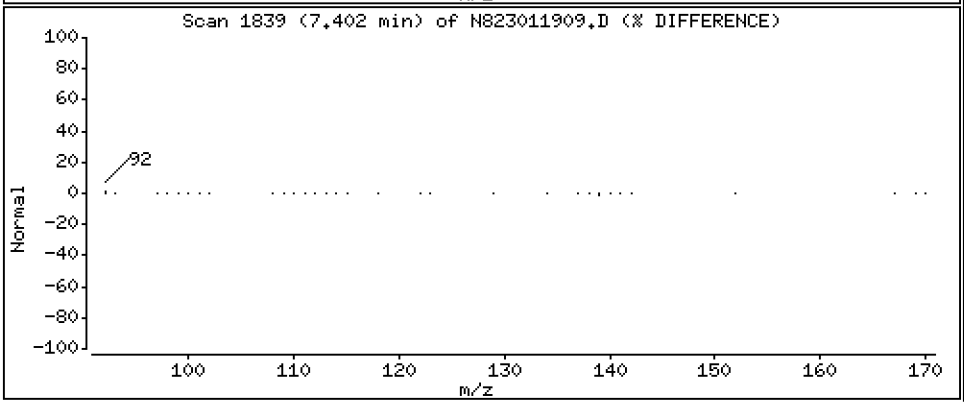
12 Dibenzofuran

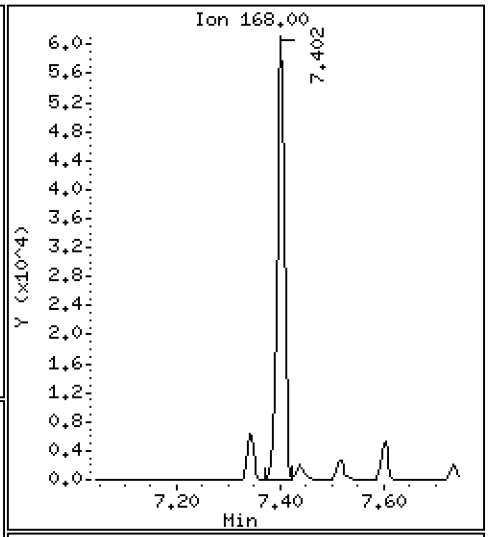
Concentration: 2.860 ug/L

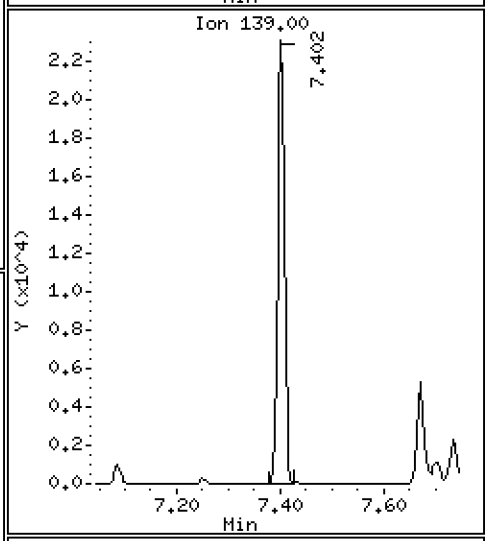


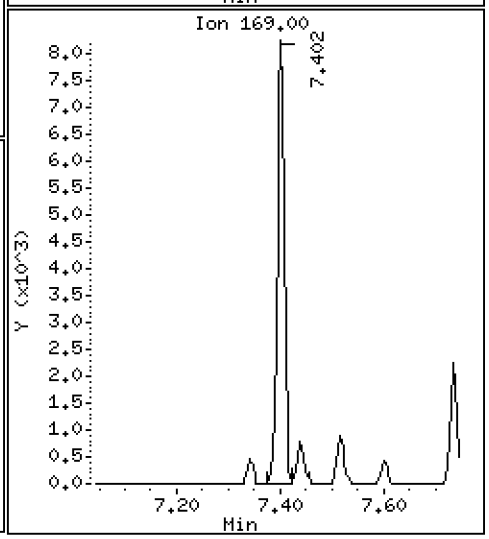












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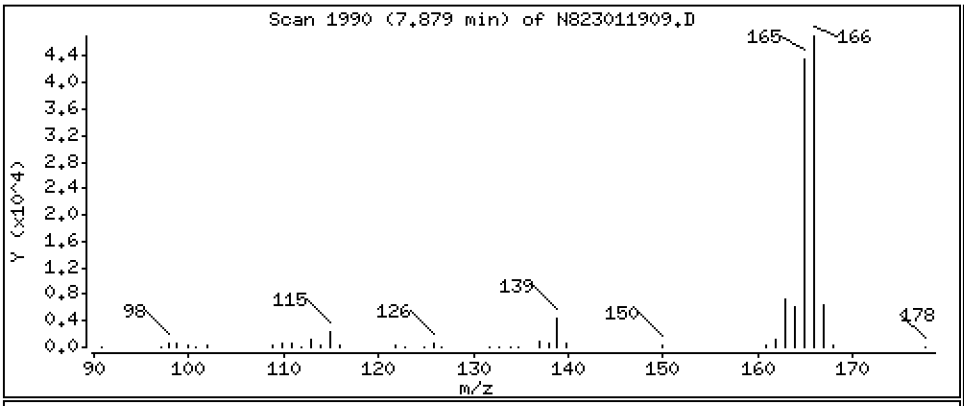
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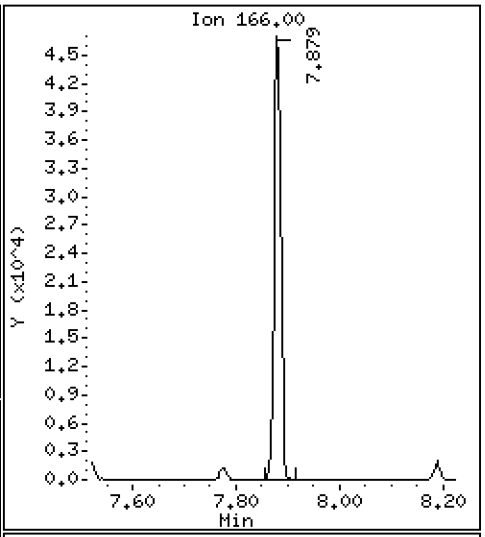
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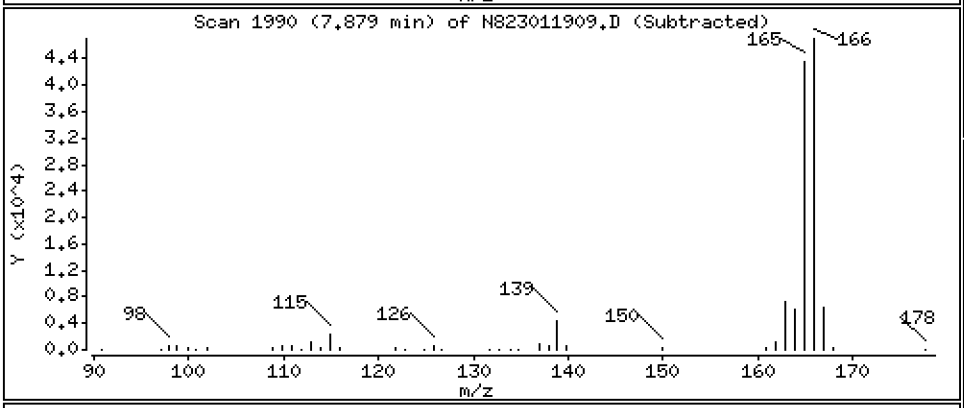
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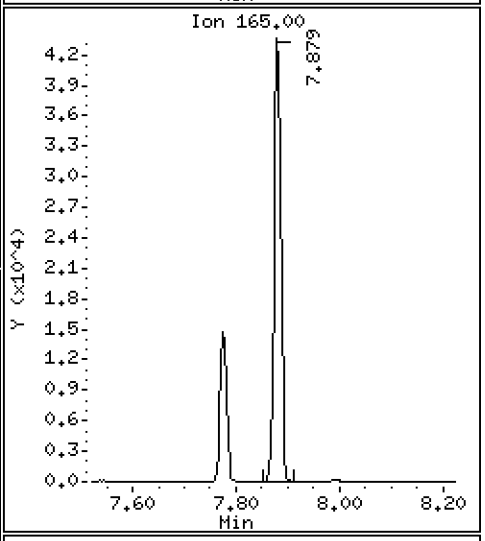
14 Fluorene

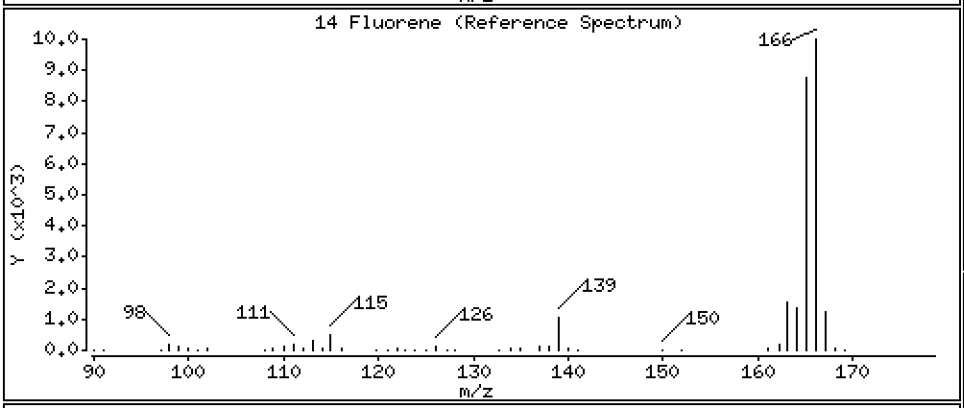
Concentration: 2.631 ug/L

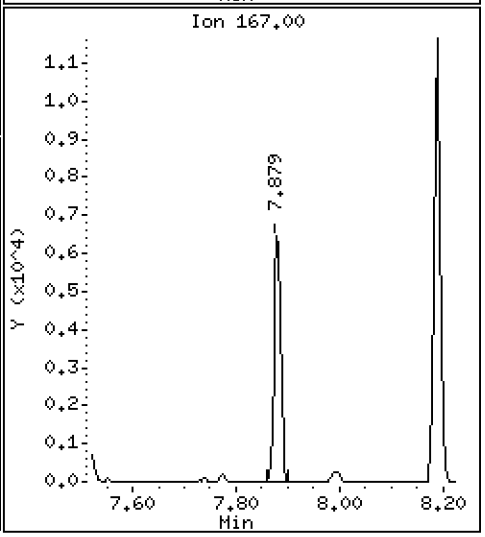


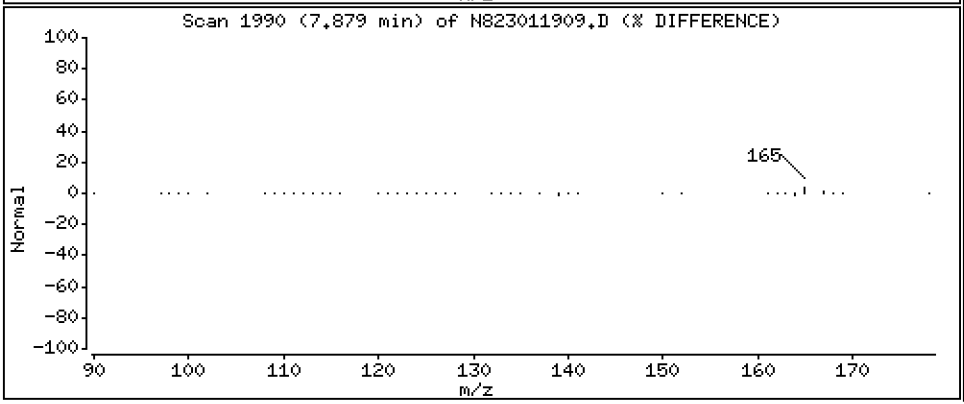












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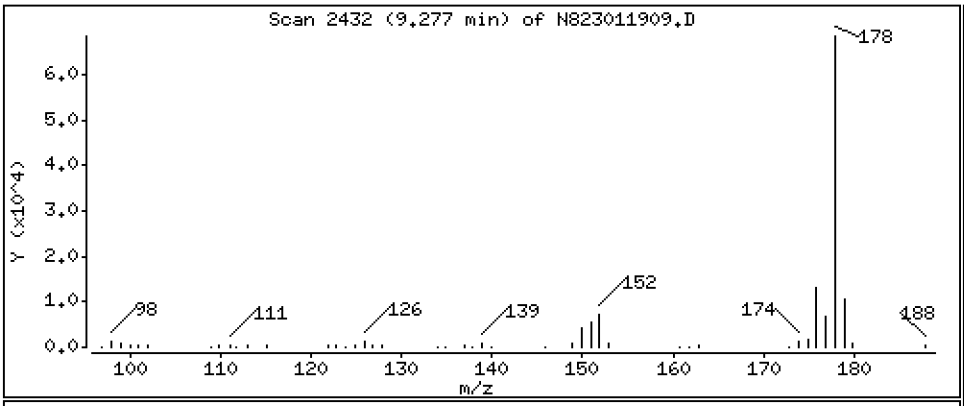
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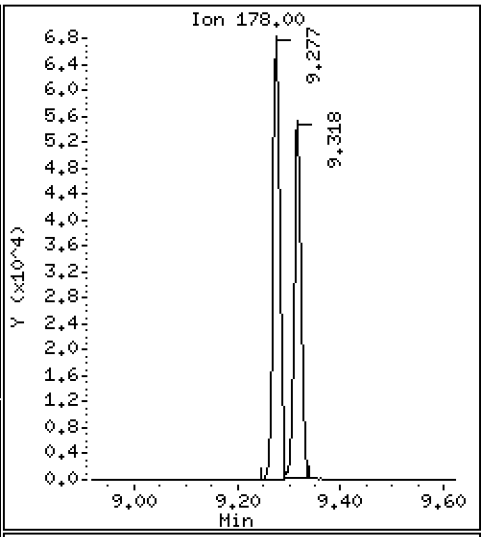
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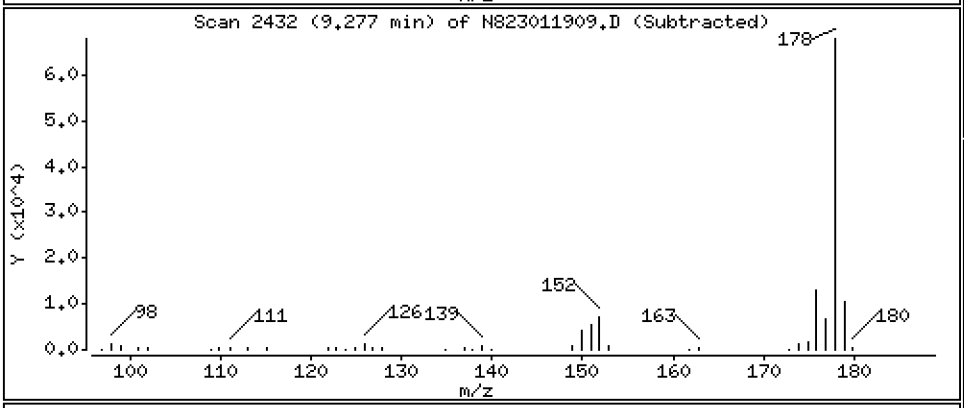
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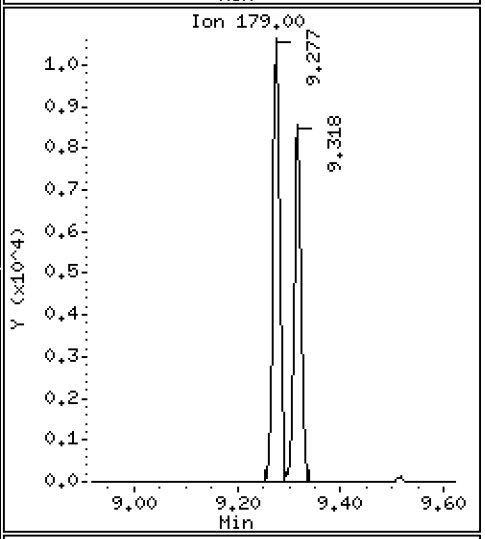
16 Phenanthrene

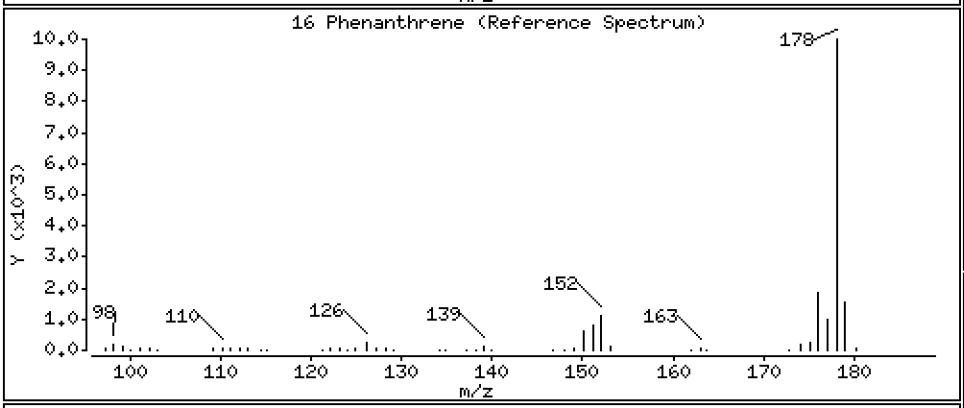
Concentration: 2.448 ug/L

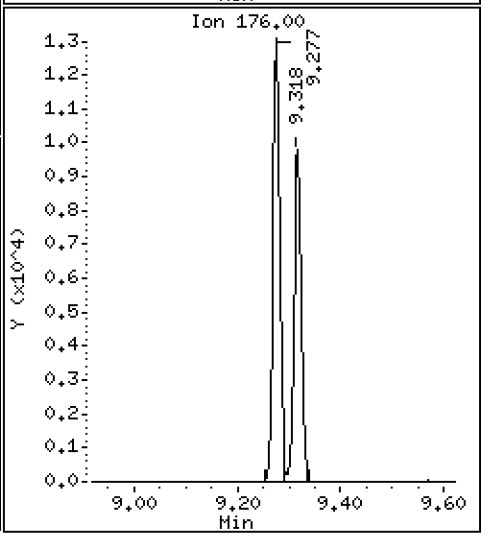


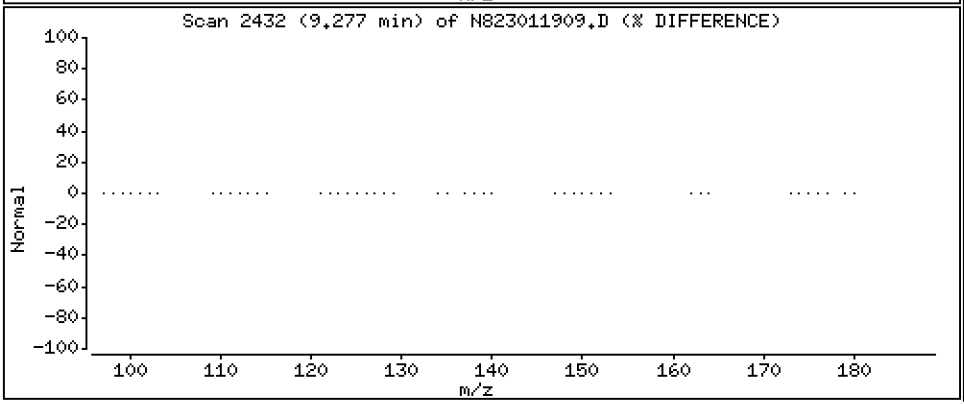












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Sample Info: SCV230119

Volume Injected (uL): 1.0

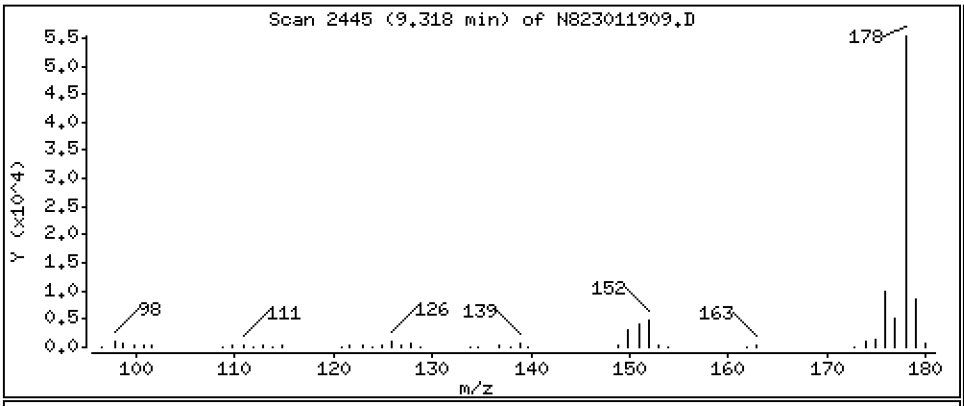
Operator: JZ

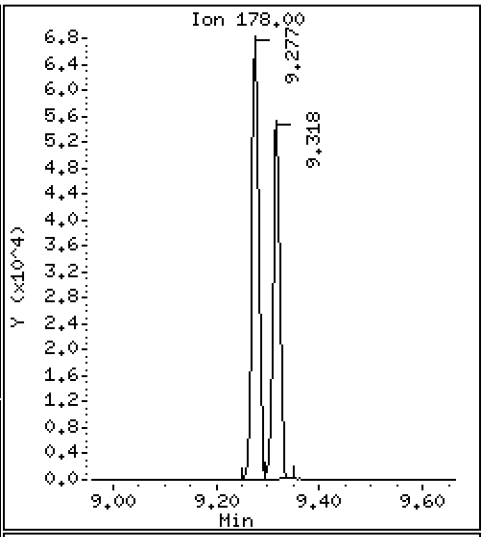
Column phase: Rxi-17sil

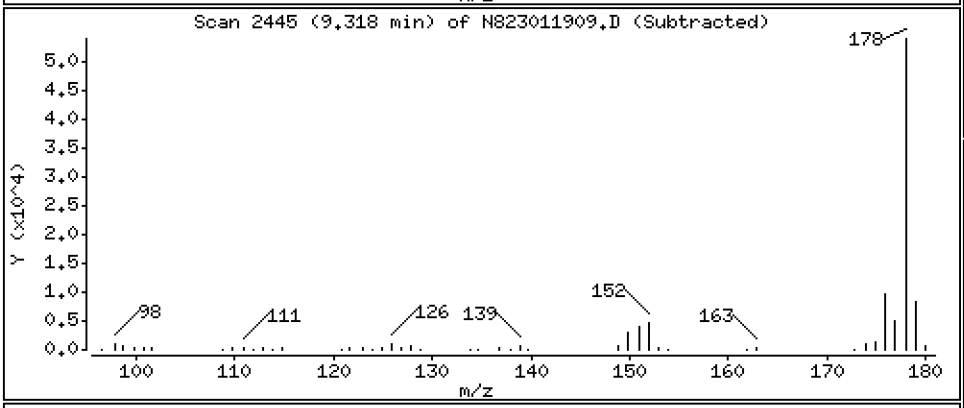
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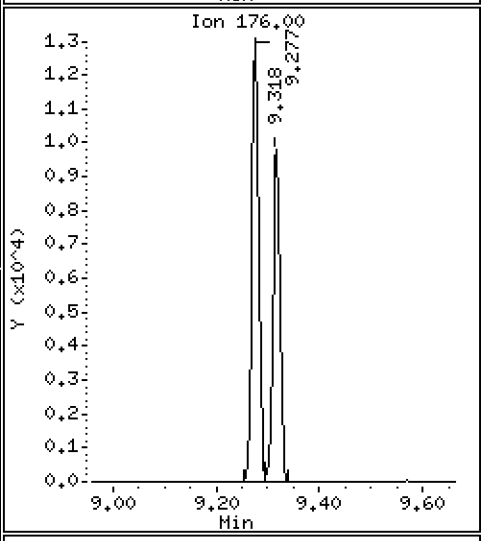
17 Anthracene

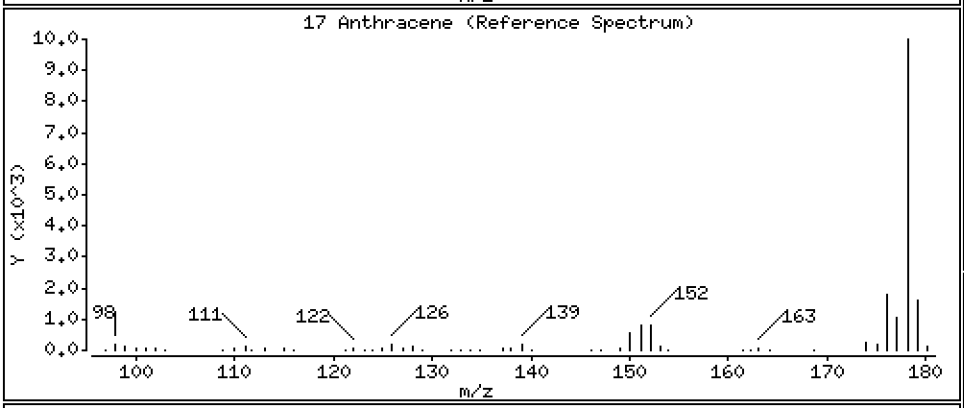
Concentration: 2.270 ug/L

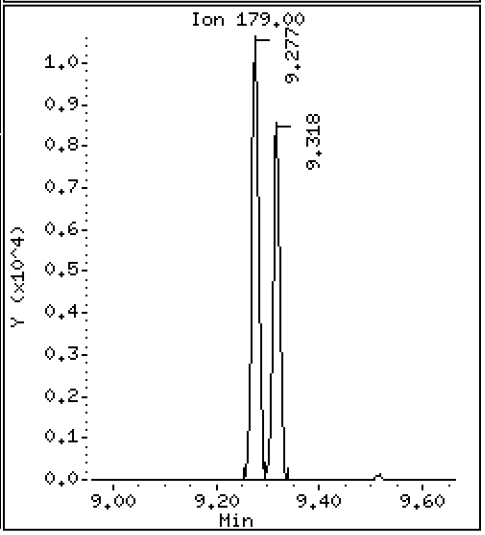


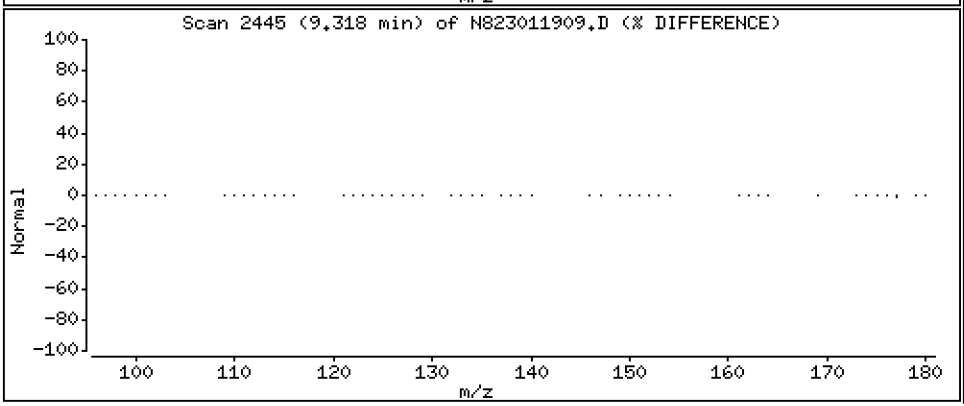












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

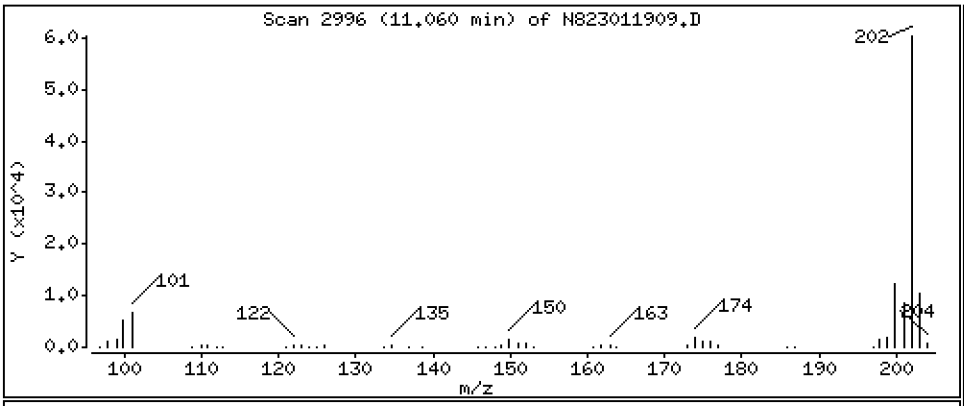
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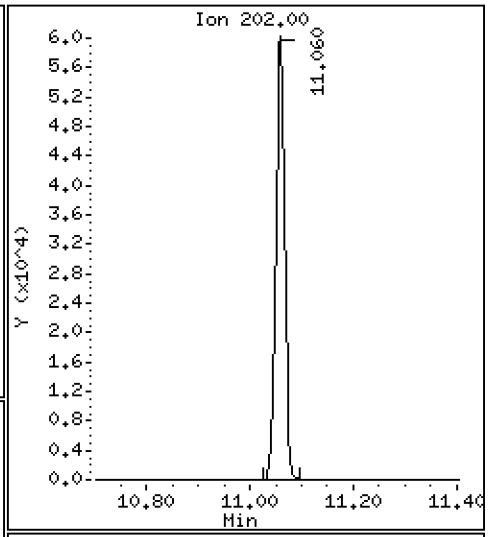
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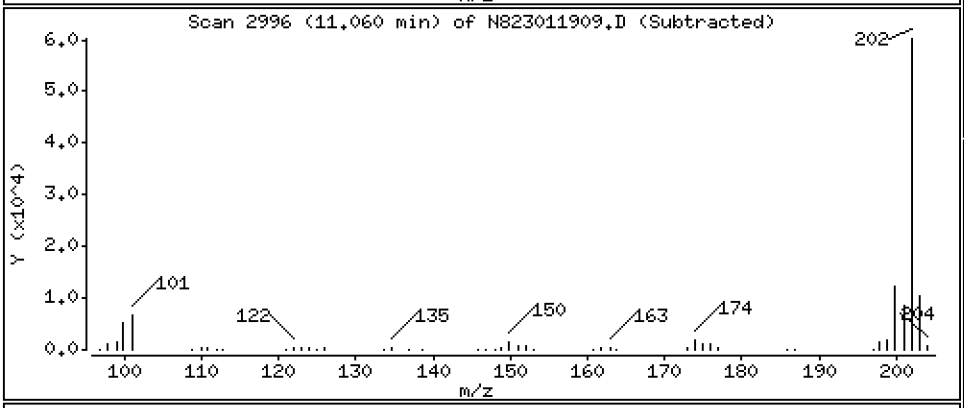
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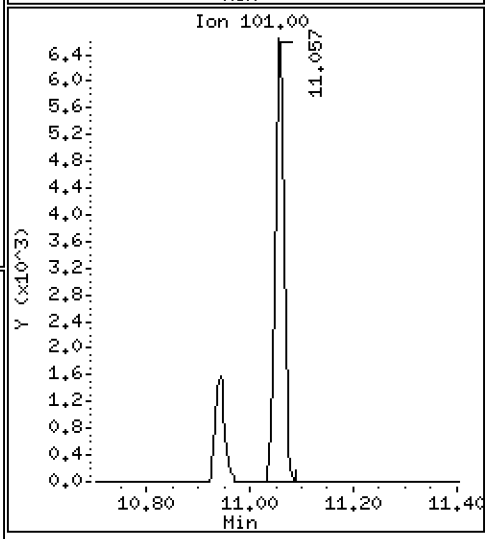
22 Fluoranthene

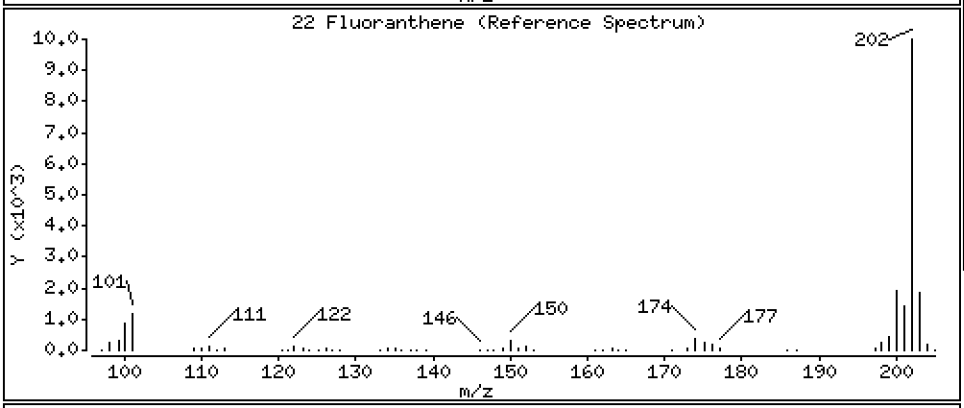
Concentration: 2.653 ug/L

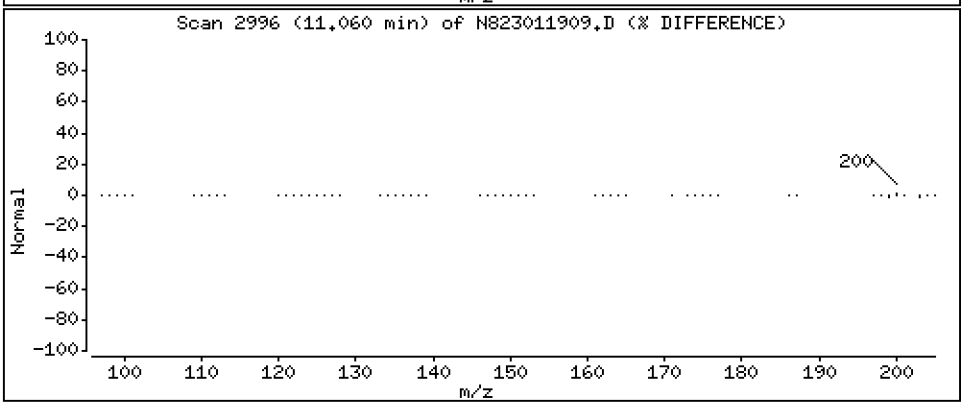












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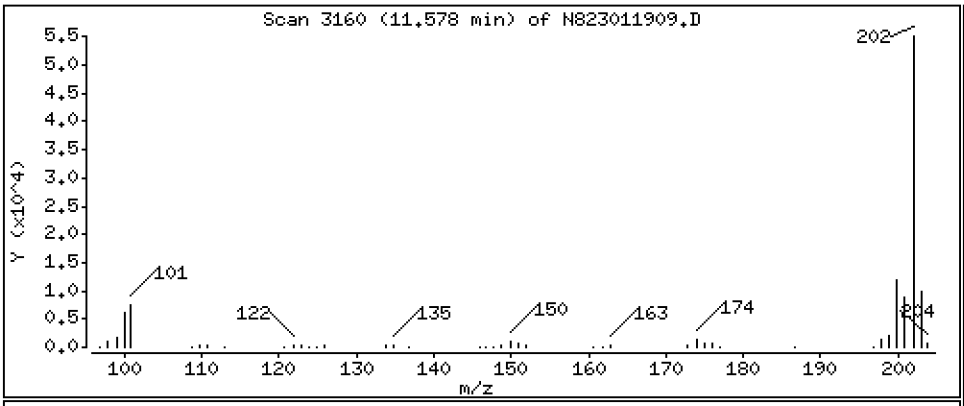
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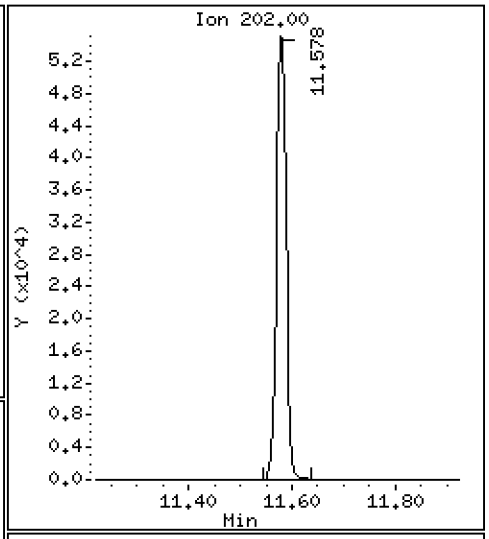
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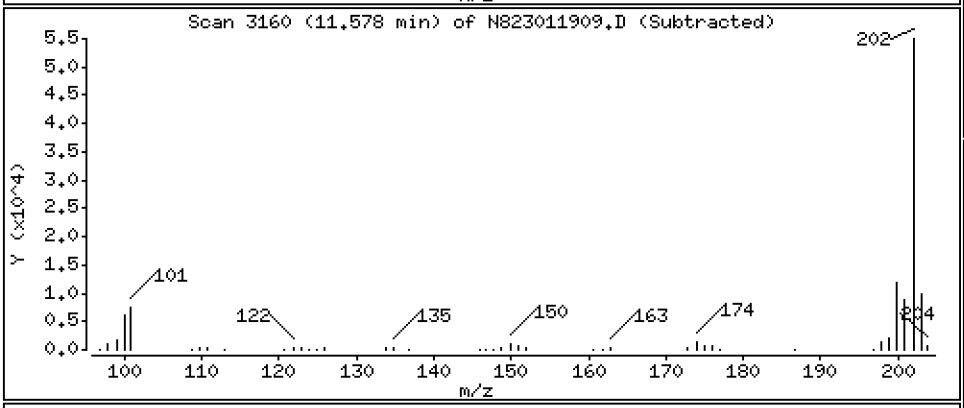
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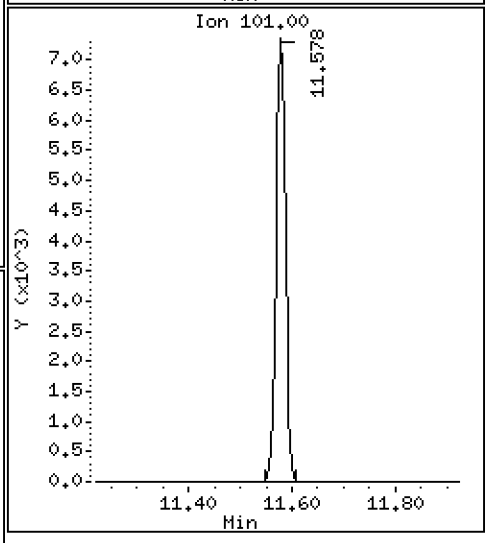
23 Pyrene

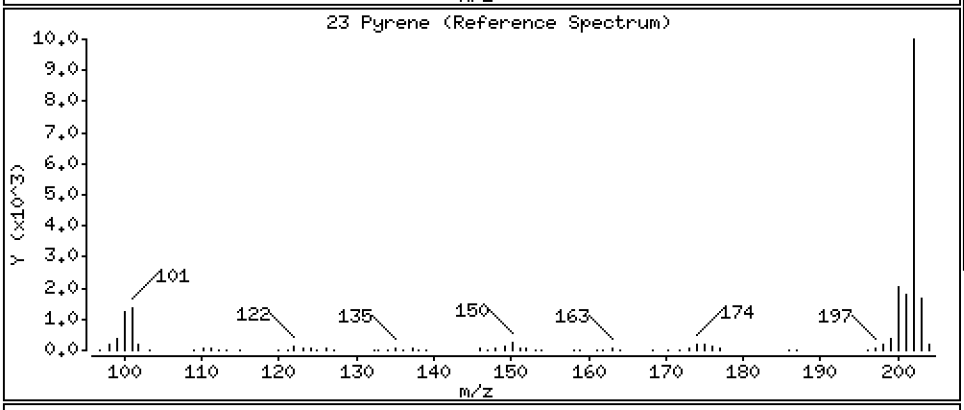
Concentration: 2.462 ug/L

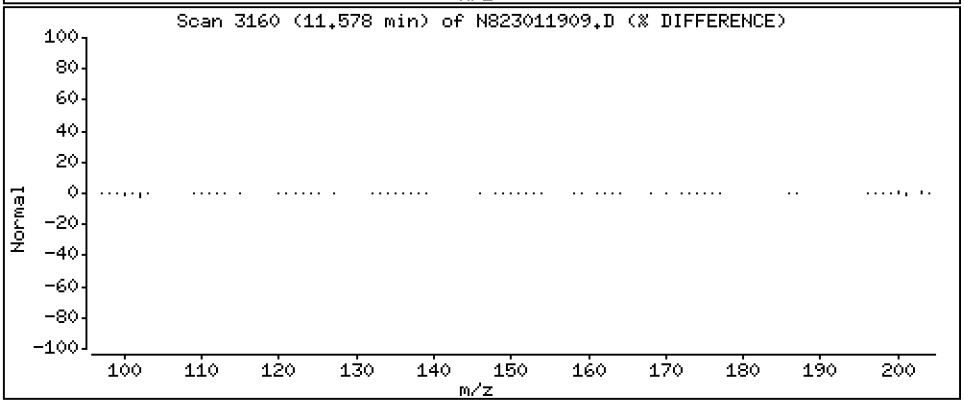












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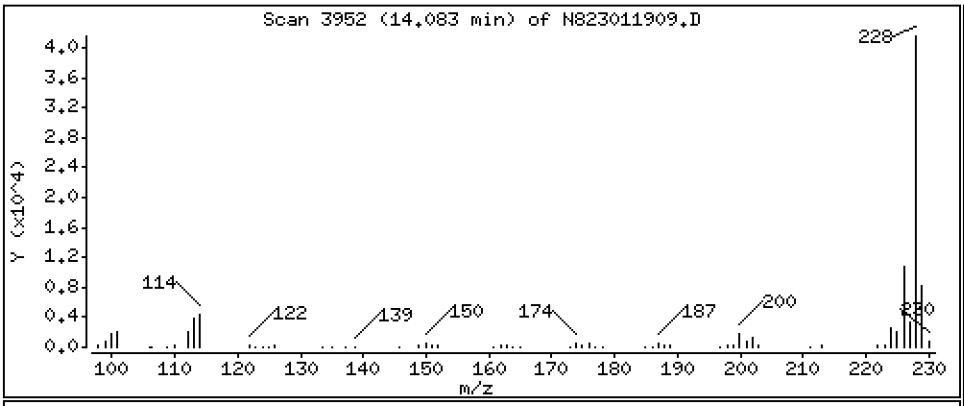
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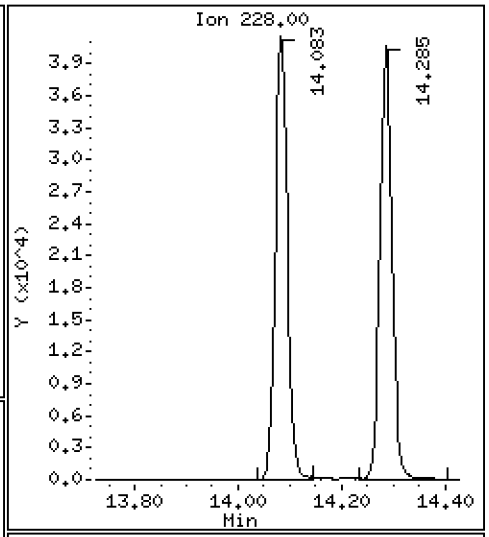
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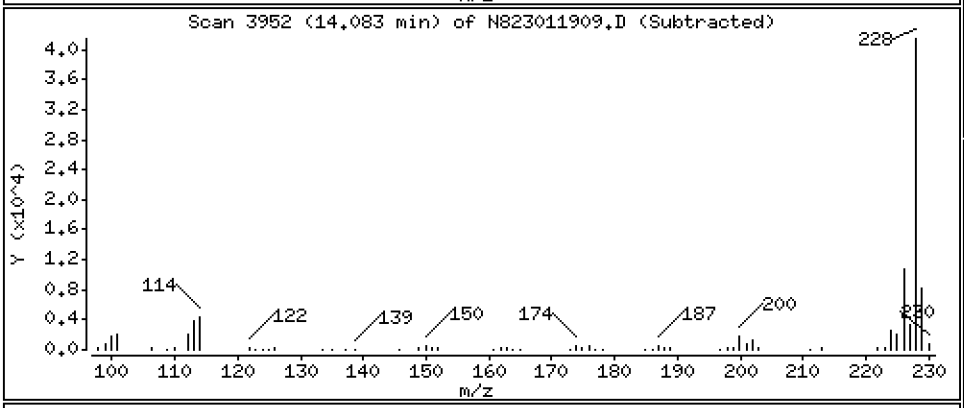
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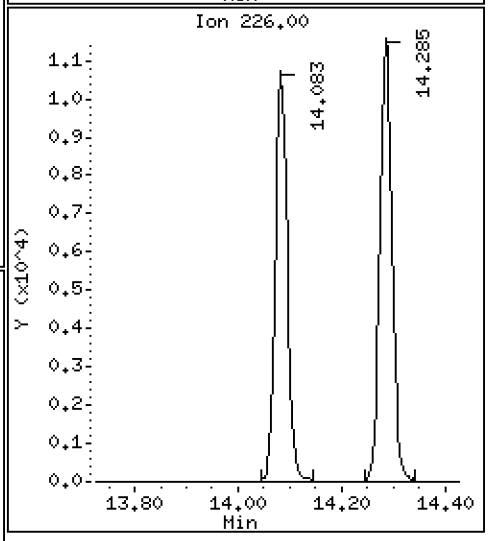
24 Benzo(a)anthracene

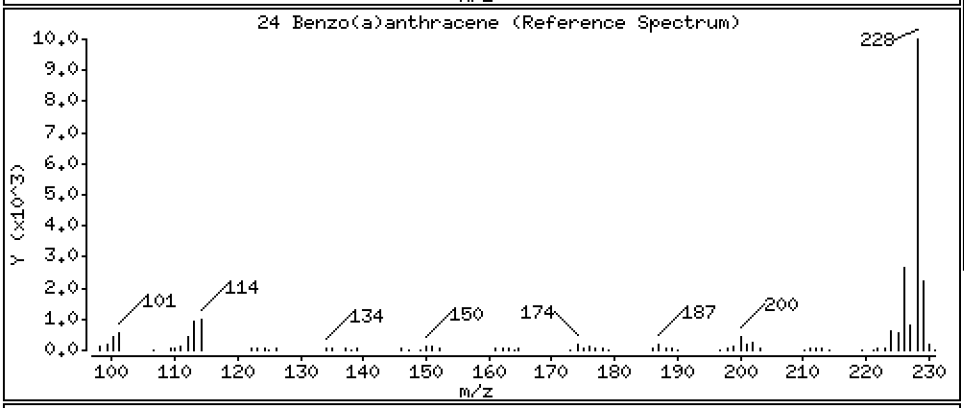
Concentration: 2.587 ug/L

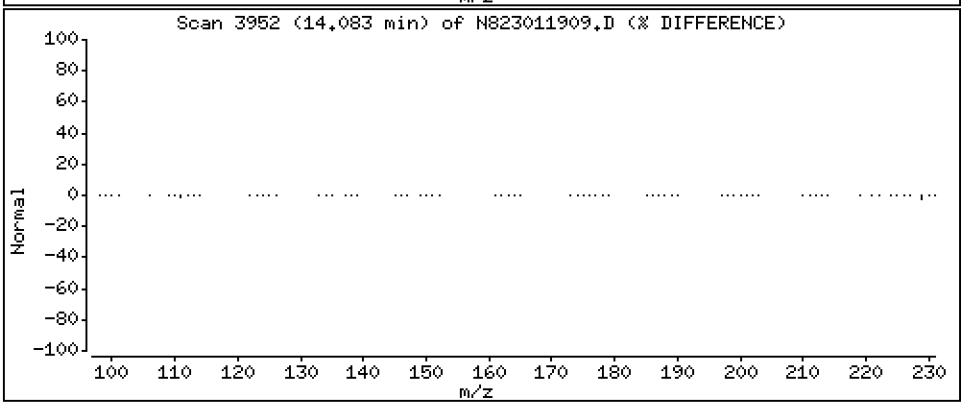












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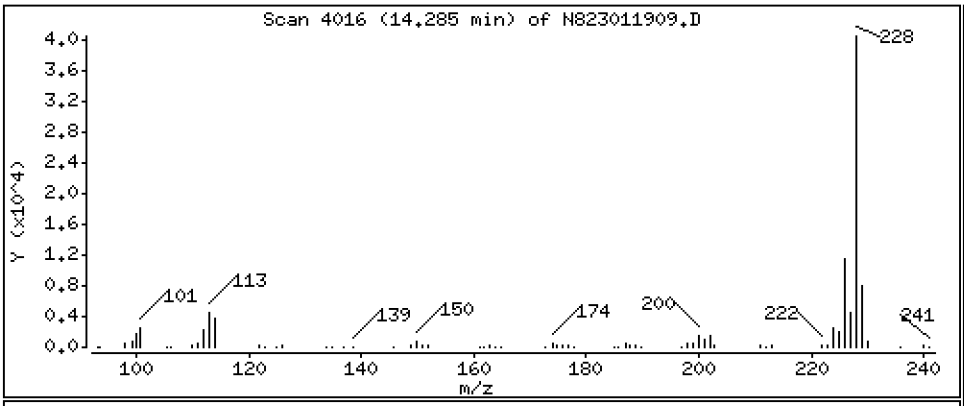
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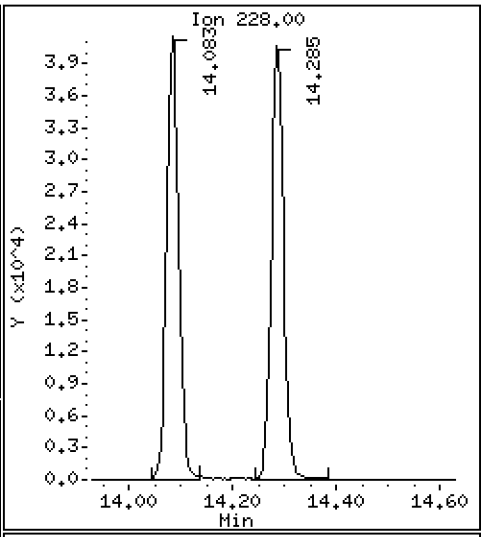
Column phase: Rxi-17sil

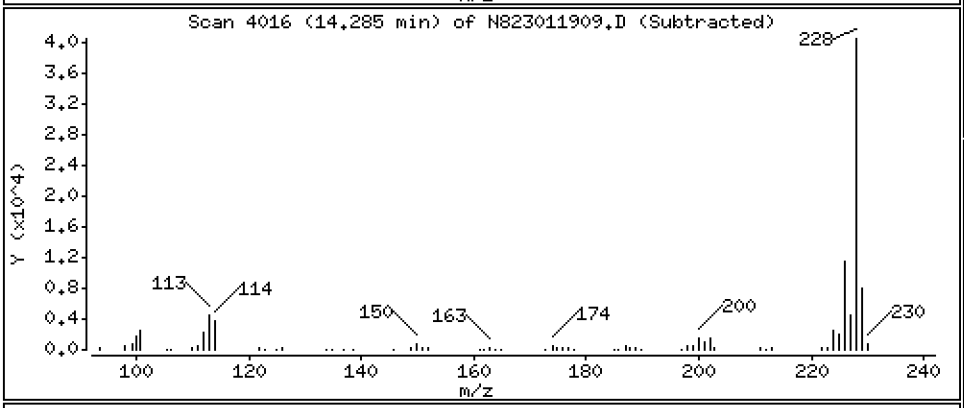
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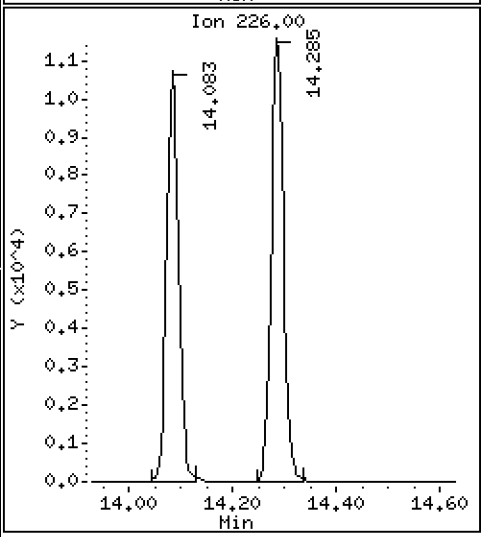
27 Chrysene

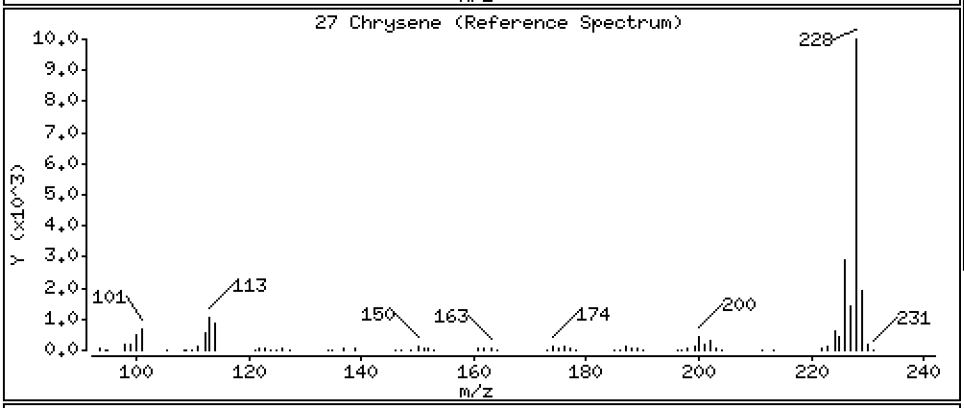
Concentration: 2.400 ug/L

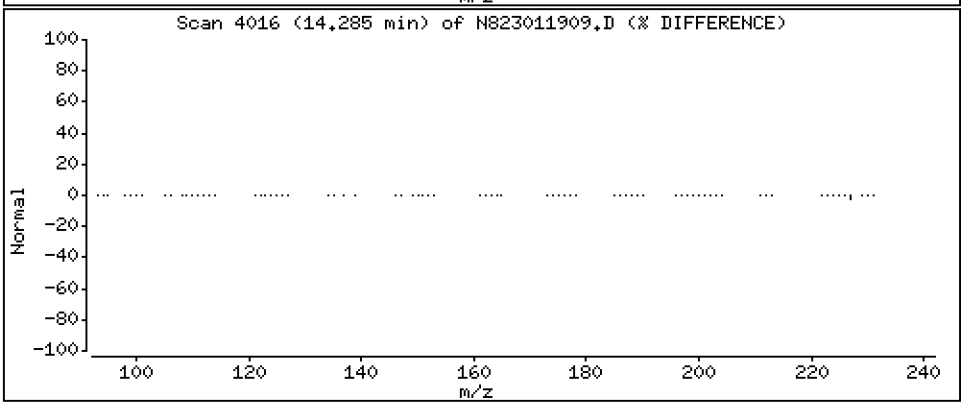












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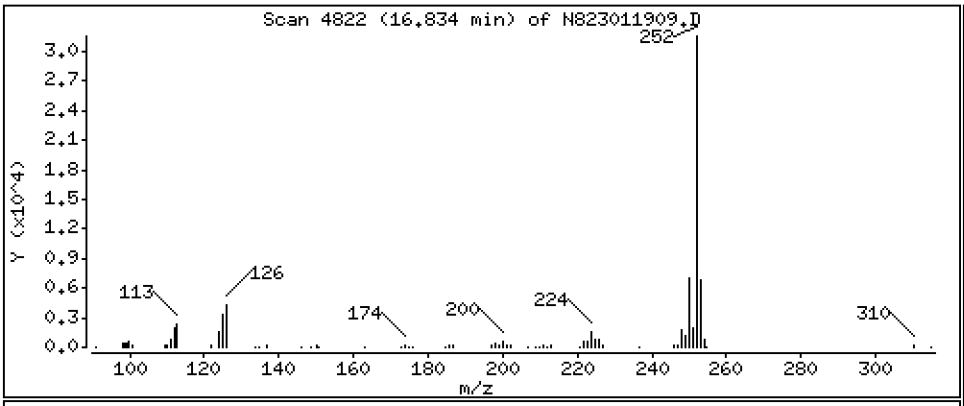
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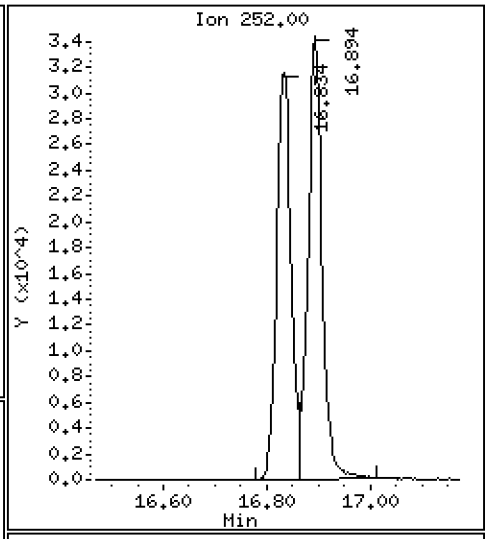
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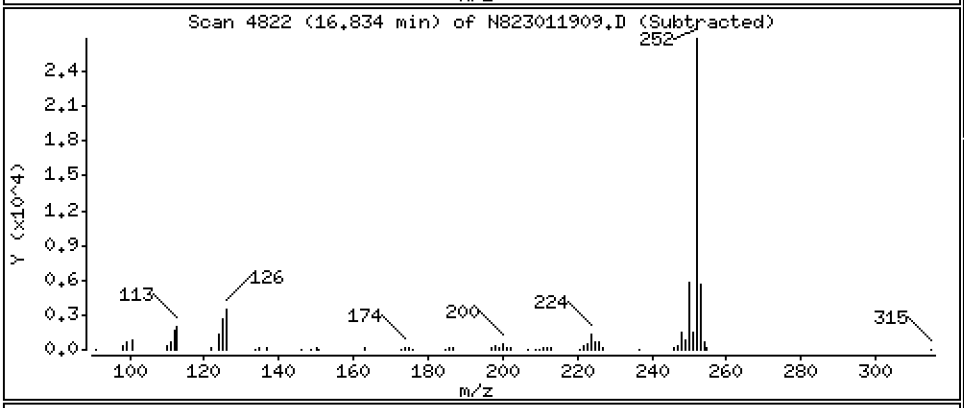
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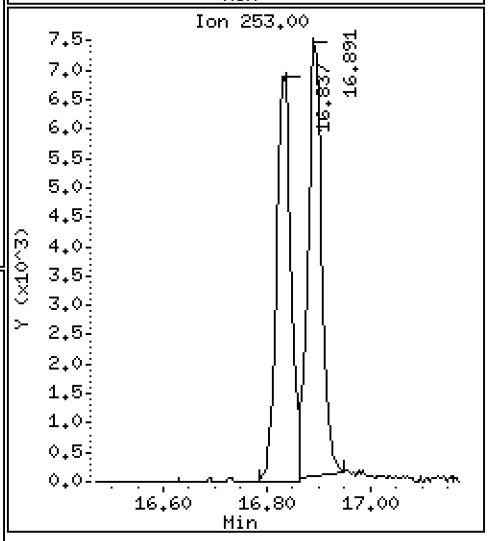
28 Benzo(b)fluoranthene

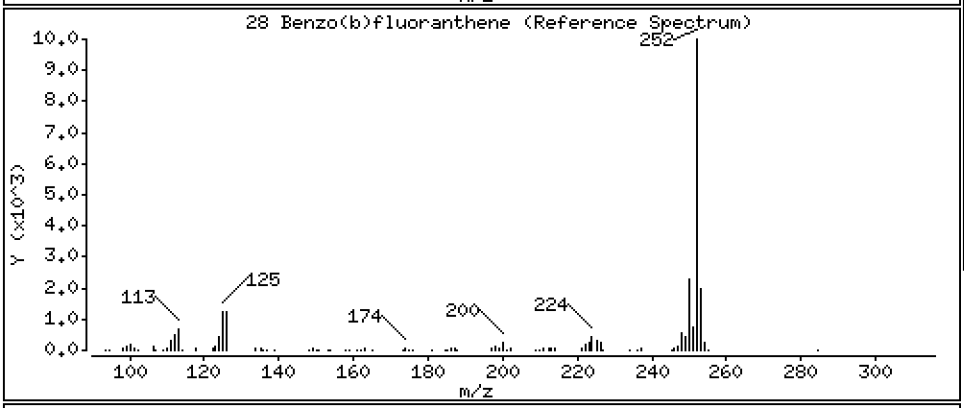
Concentration: 2.507 ug/L

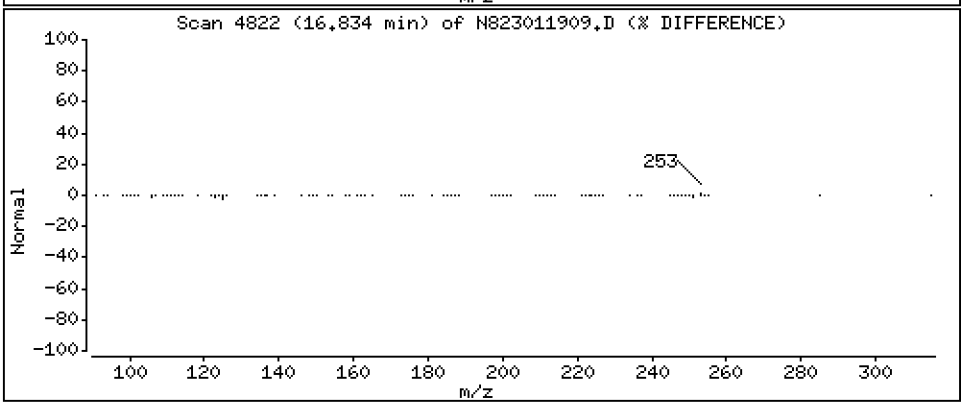












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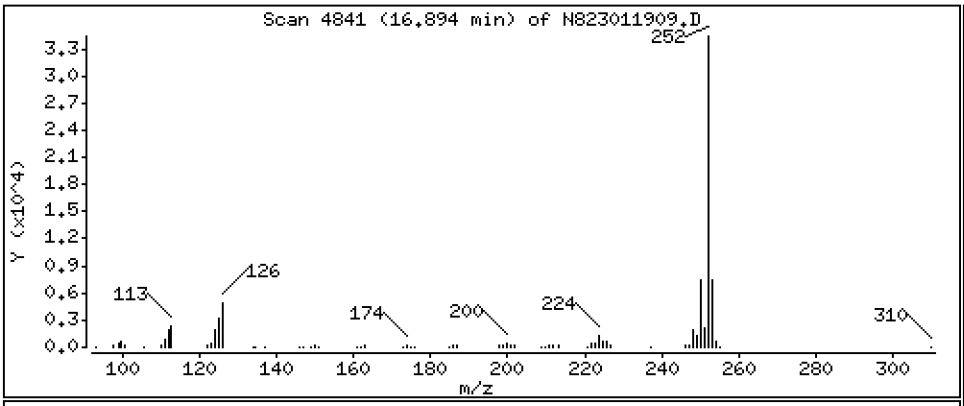
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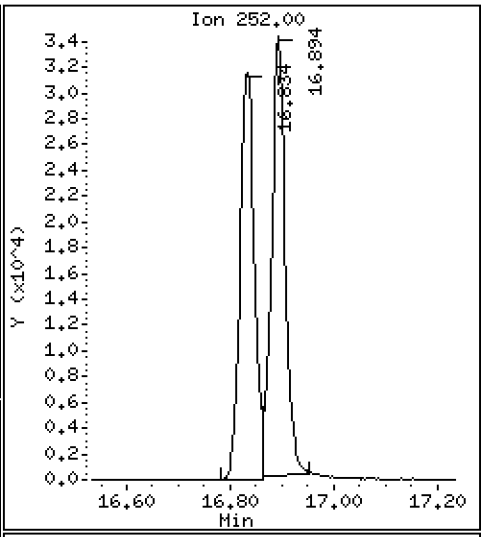
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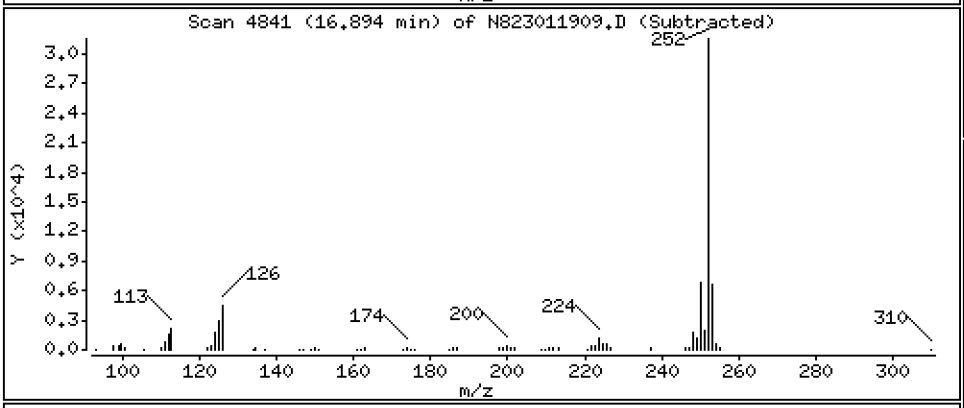
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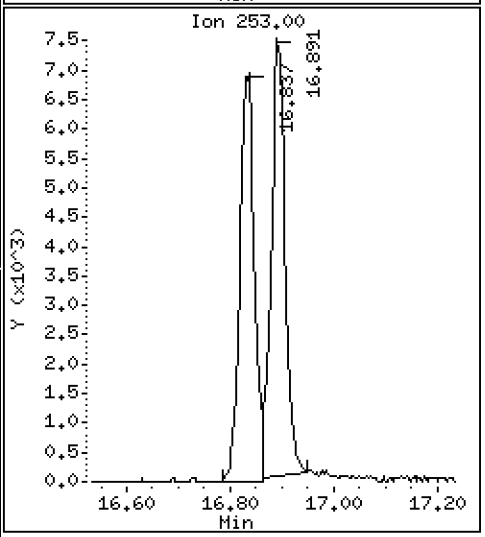
29 Benzo(k)fluoranthene

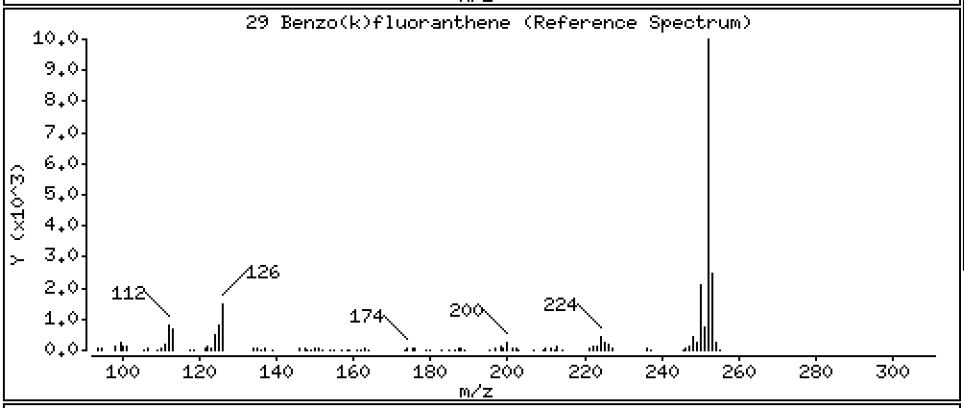
Concentration: 2.656 ug/L

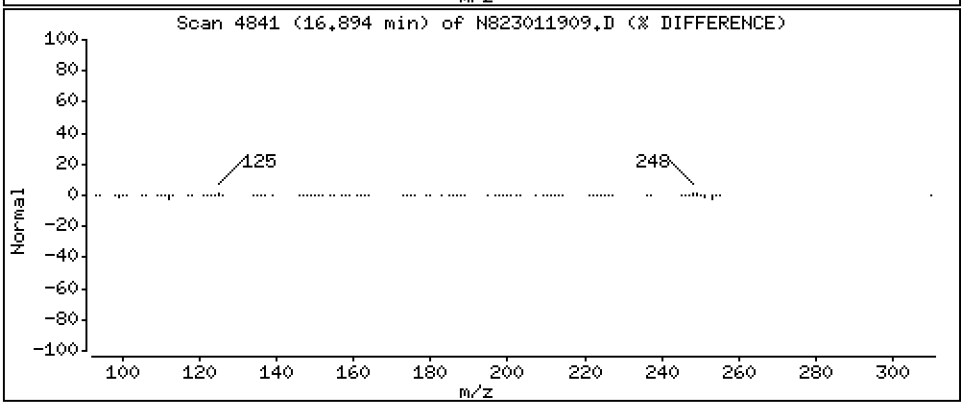












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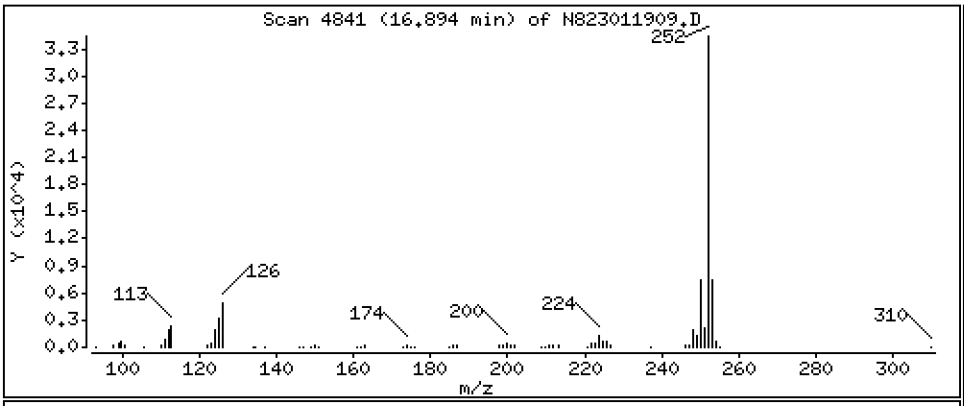
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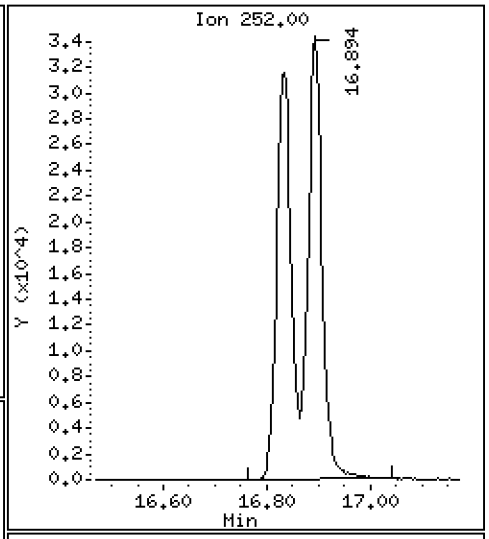
Column phase: Rxi-17sil

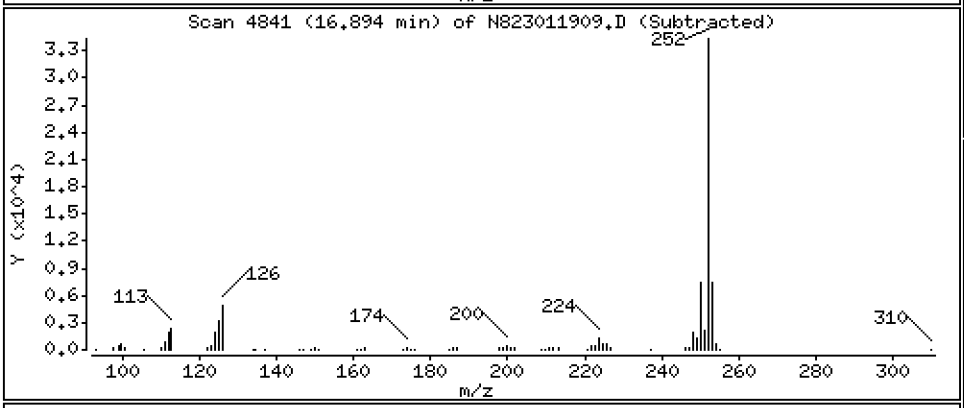
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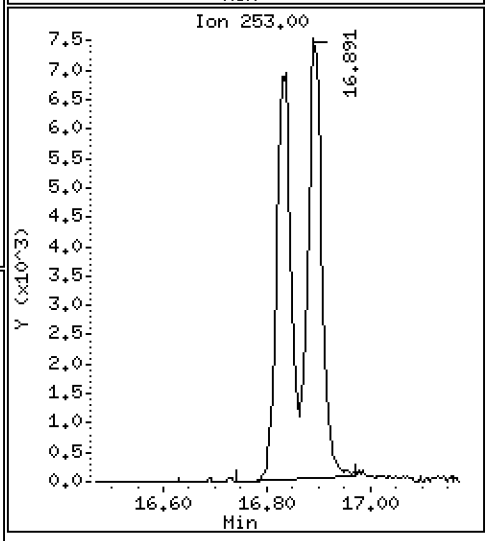
31 Total Benzofluoranthenes

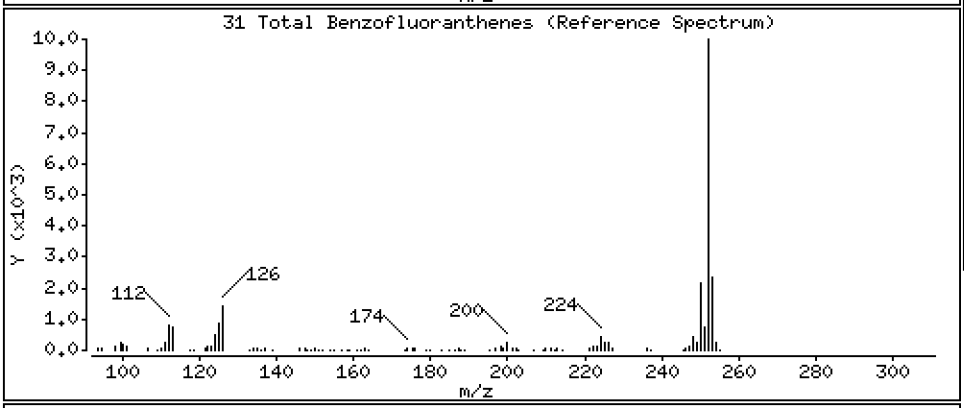
Concentration: 5.480 ug/L

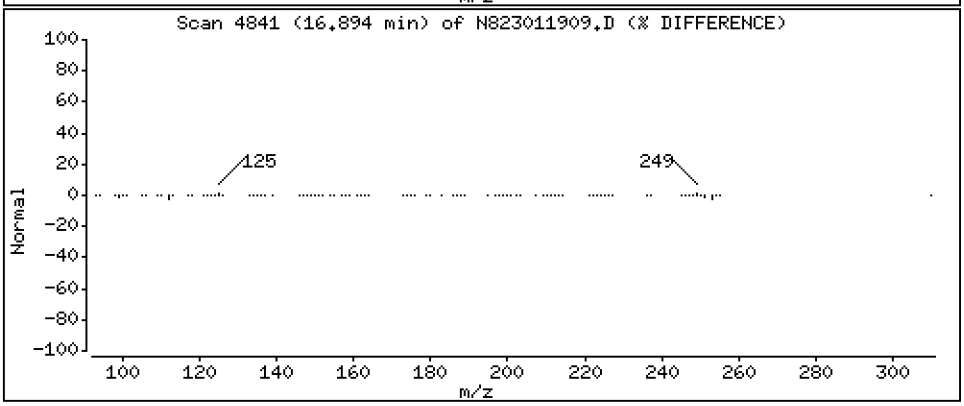












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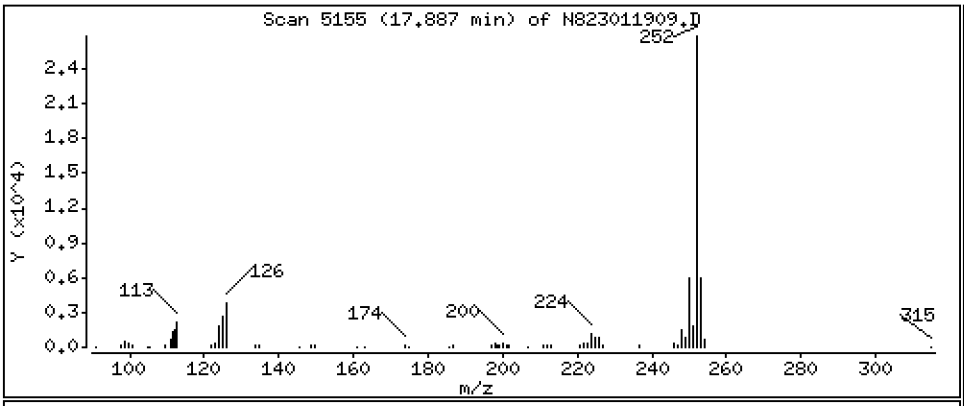
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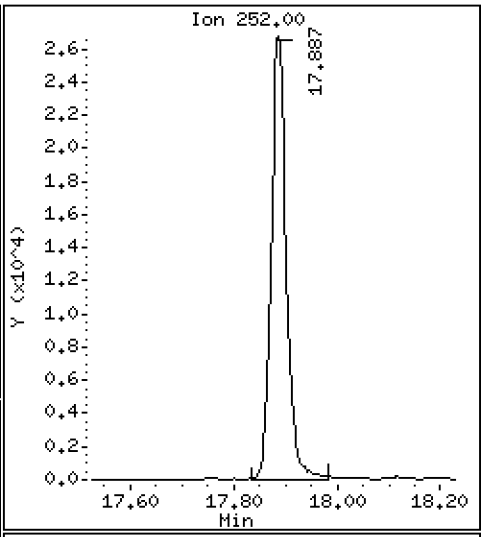
Column phase: Rxi-17sil

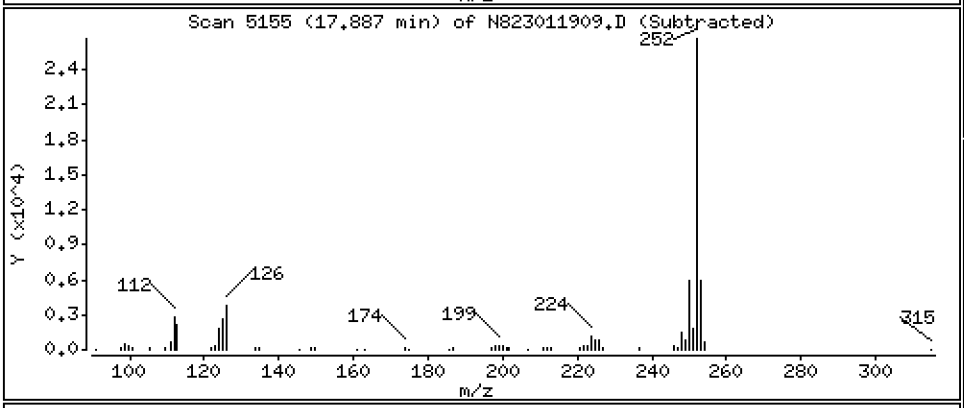
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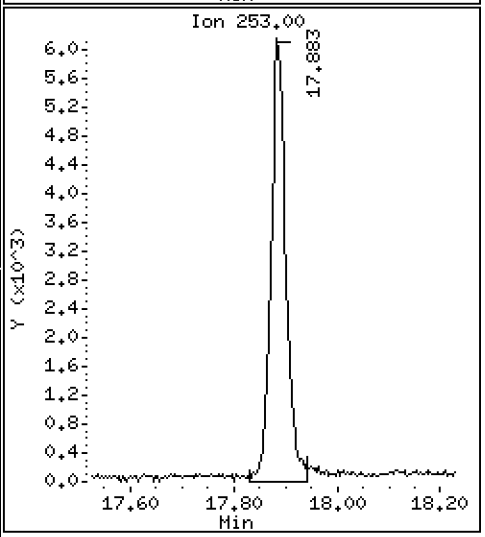
32 Benzo(a)pyrene

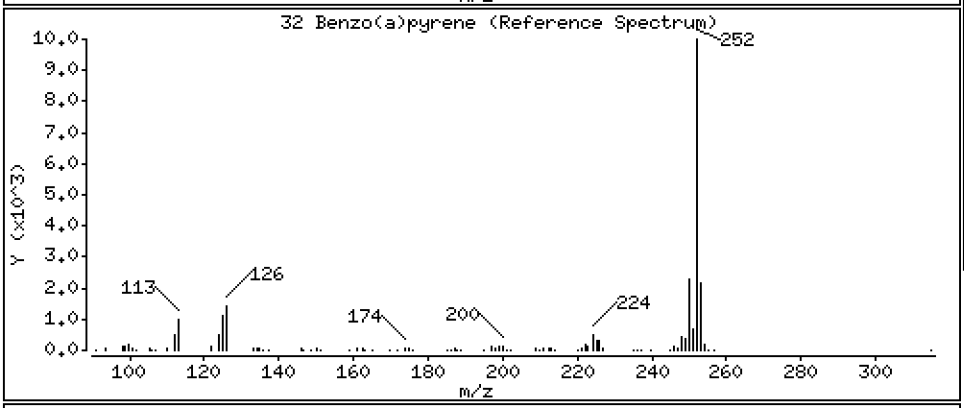
Concentration: 2.572 ug/L

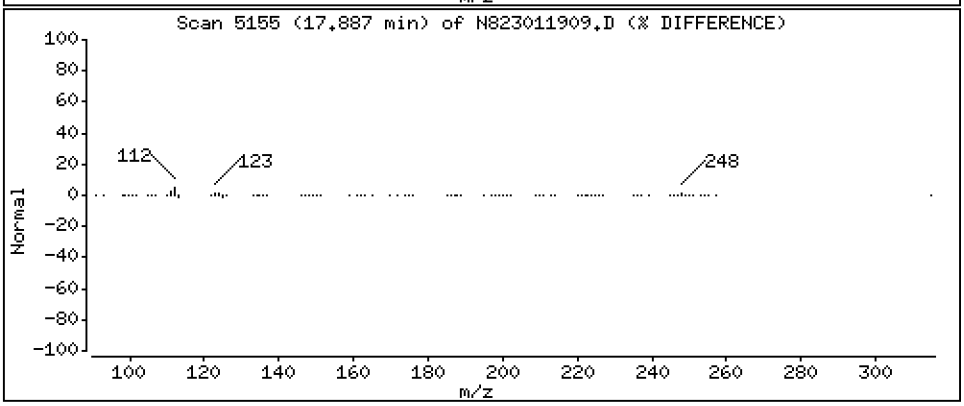












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

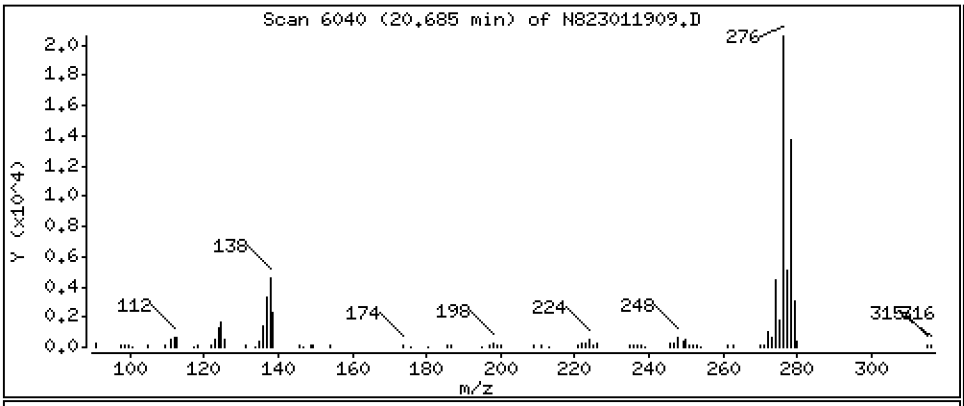
Operator: JZ

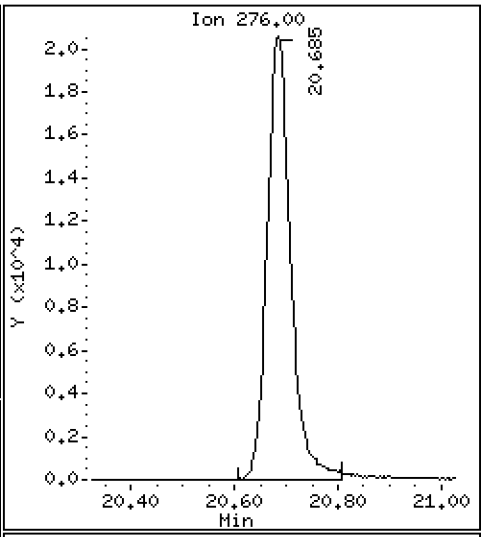
Column phase: Rxi-17sil

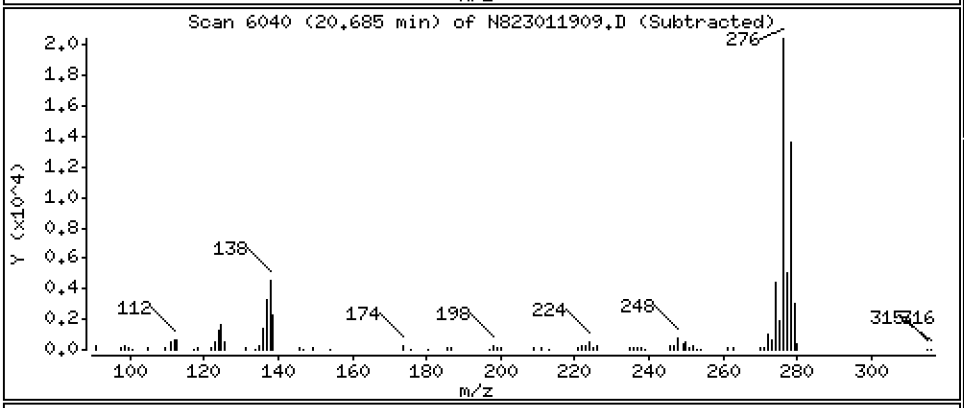
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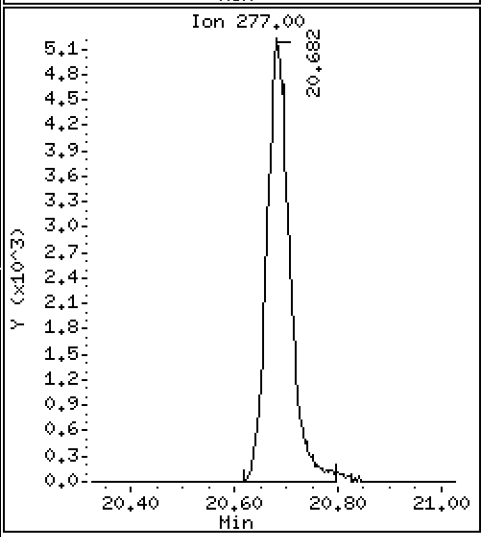
37 Indeno(1,2,3-cd)pyrene

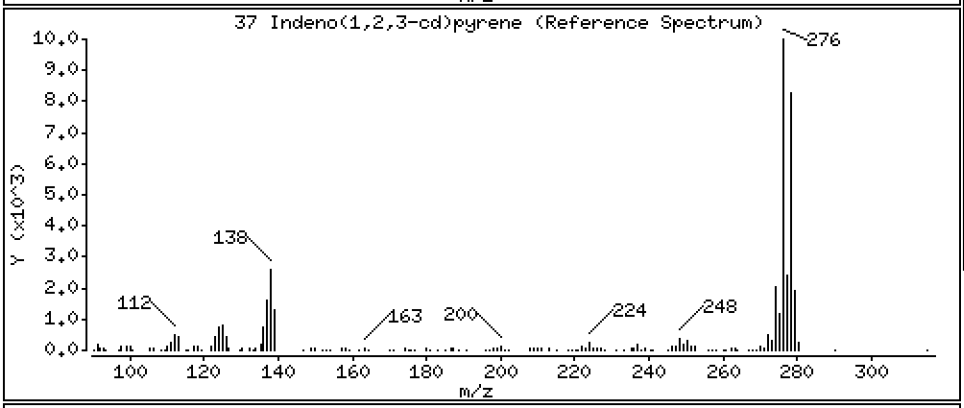
Concentration: 2.689 ug/L

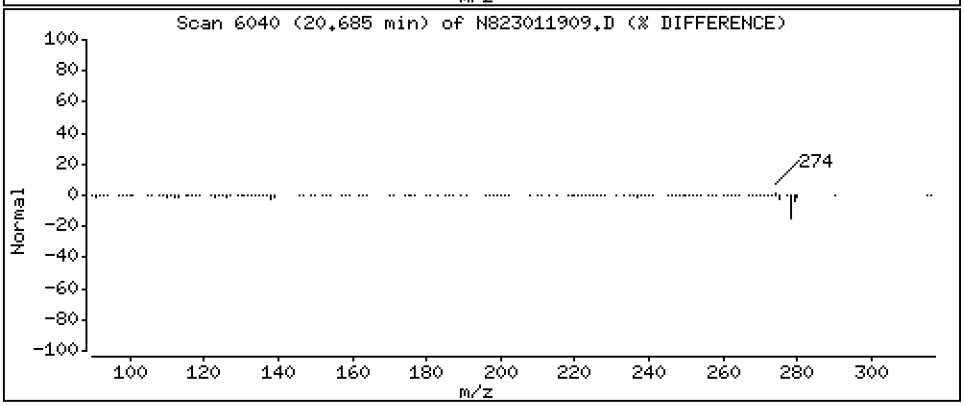












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

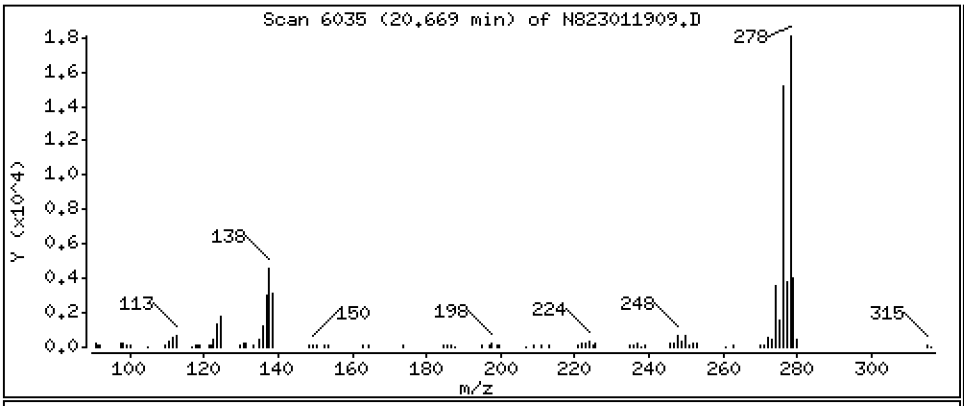
Operator: JZ

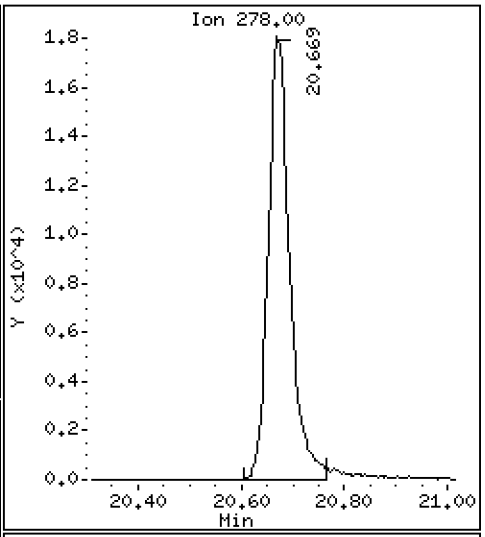
Column phase: Rxi-17sil

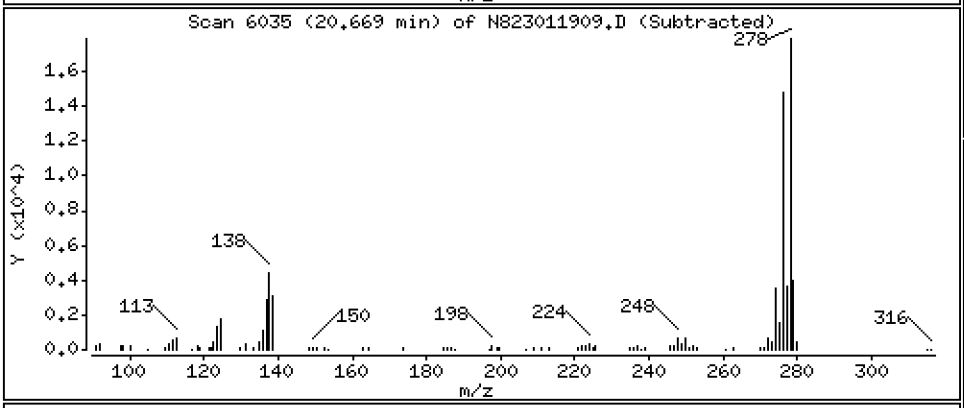
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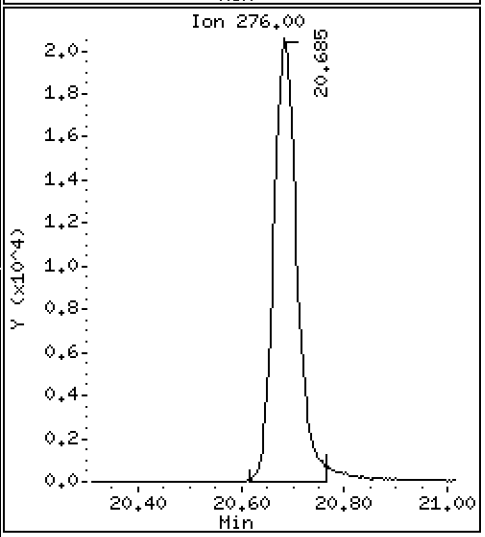
38 Dibenzo(a,h)anthracene

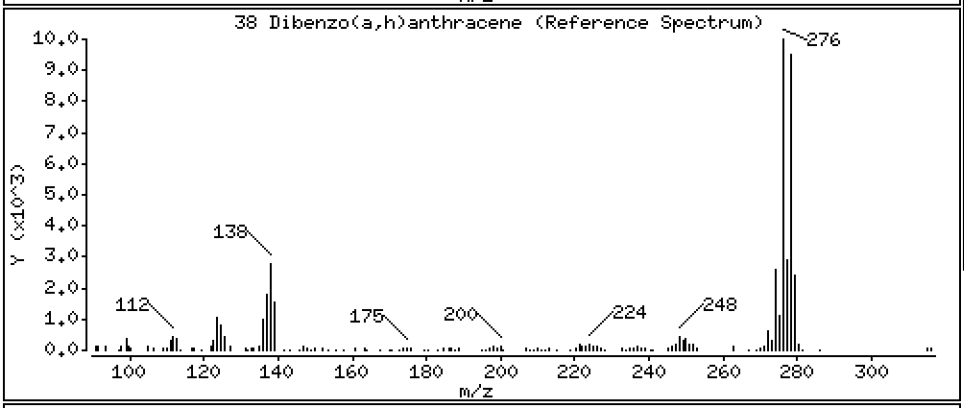
Concentration: 2.493 ug/L

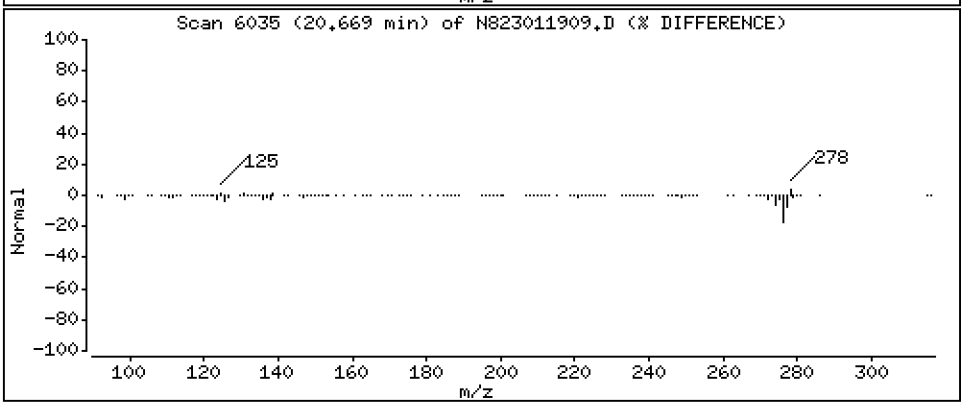












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

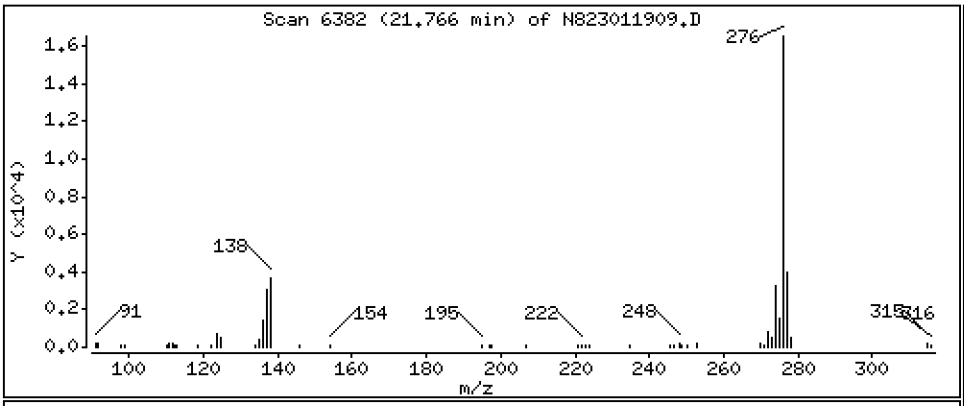
Operator: JZ

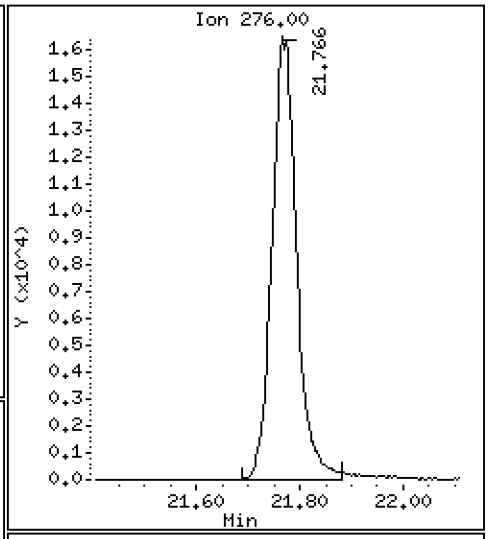
Column phase: Rxi-17sil

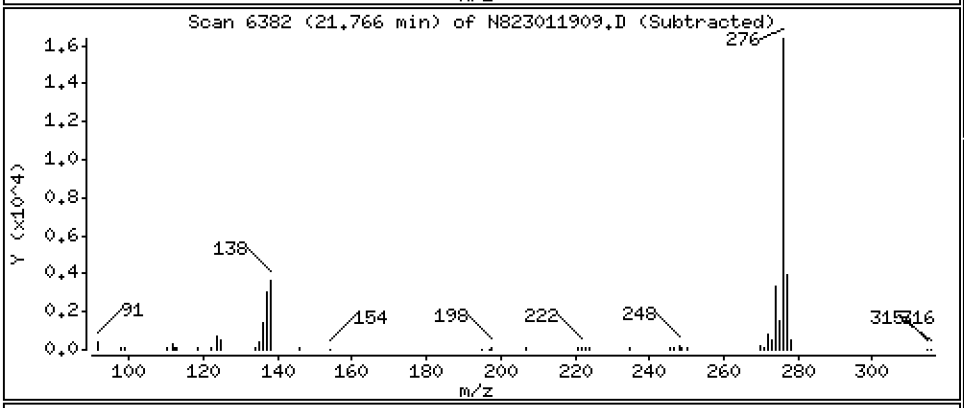
Column diameter: 0.25

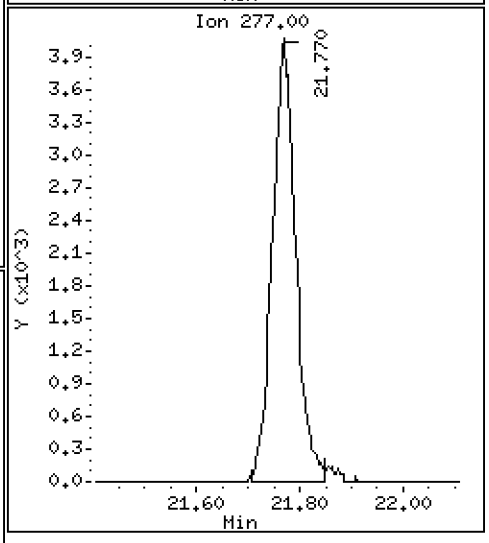
39 Benzo(g,h,i)perylene

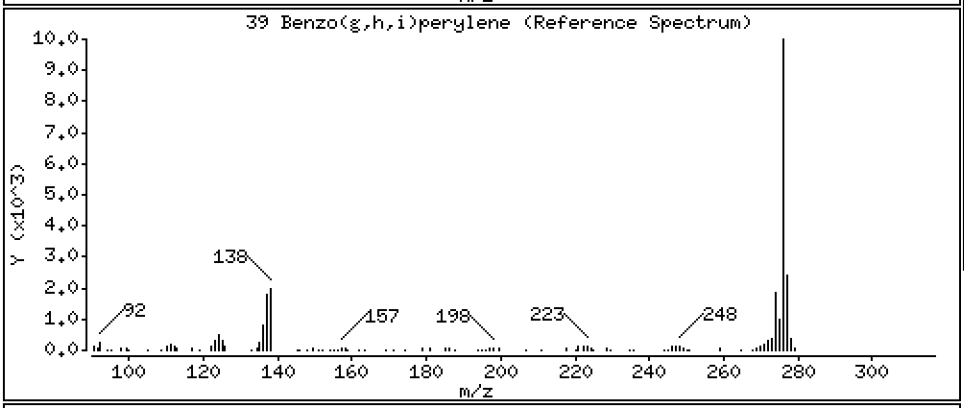
Concentration: 2.483 ug/L

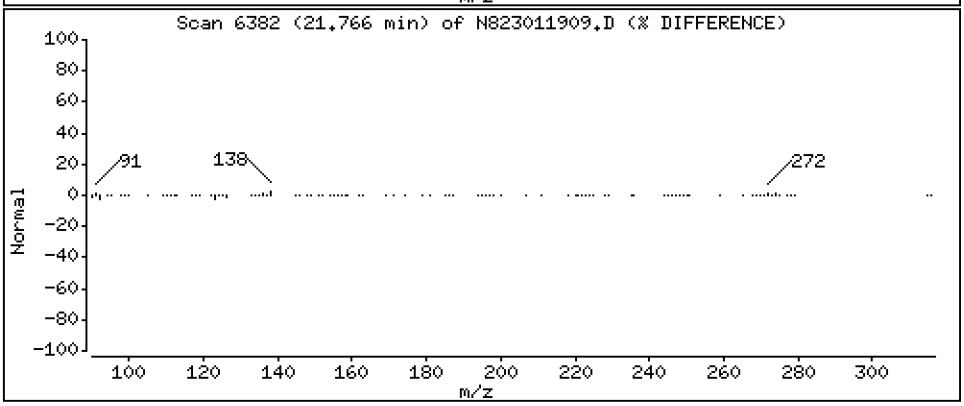












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 25-Jan-2023 21:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

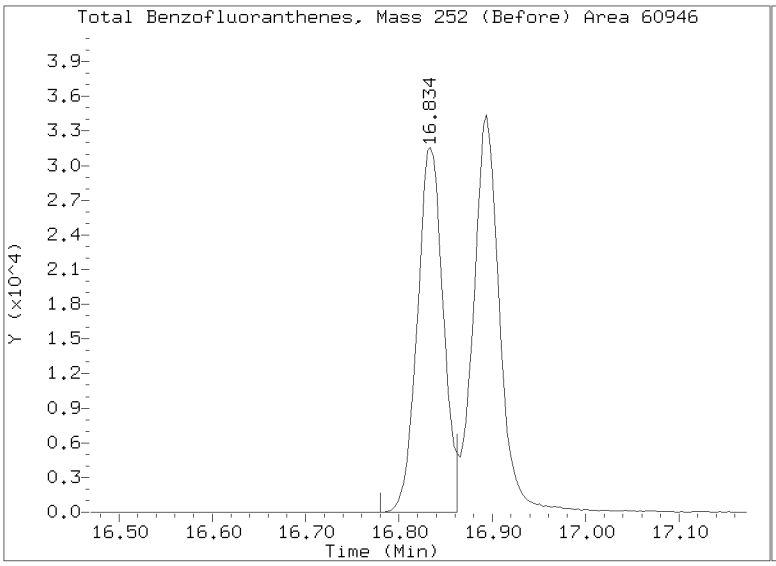
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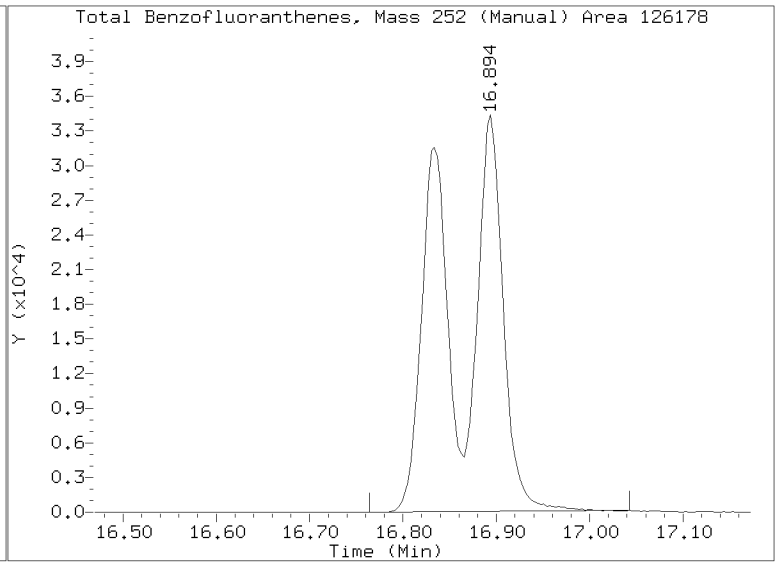
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/25/2023 22:00





Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823021542.D	Calibration Date:	01/19/2023
Sequence:	SLB0206	Injection Date:	02/16/23
Lab Sample ID:	SLB0206-CCV1	Injection Time:	06:07
Sequence Name:	Calibration Check		

		CONC. (ug/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Benzo(a)anthracene	A	2.5000	2.75	1.1238870	1.2382720		10.2	+/-50
Chrysene	A	2.5000	2.55	1.1964350	1.2215120		2.1	+/-50
Benzo(b)fluoranthene	A	2.5000	2.41	1.1648110	1.1207470		-3.8	+/-50
Benzo(k)fluoranthene	A	2.5000	2.39	1.1409370	1.0909350		-4.4	+/-50
Benzo(a)pyrene	A	2.5000	2.54	1.0250270	1.0395760		1.4	+/-50
Indeno(1,2,3-cd)pyrene	A	2.5000	2.67	1.1677520	1.2483090		6.9	+/-50
Dibenzo(a,h)anthracene	A	2.5000	2.64	1.0049440	1.0619350		5.7	+/-50
Benzo(g,h,i)perylene	A	2.5000	2.52	1.0580110	1.0667170		0.8	+/-50
2-Methylnaphthalene-d10	A	2.5000	2.62	0.5454499	0.5709030		4.7	+/-50
Dibenzo[a,h]anthracene-d14	A	2.5000	2.43	0.6679424	0.7632254		-2.6	+/-50
Fluoranthene-d10	A	2.5000	2.77	0.8823923	0.9779782		10.8	+/-50

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021542.D

Page 1

Date : 16-FEB-2023 06:07

Client ID:

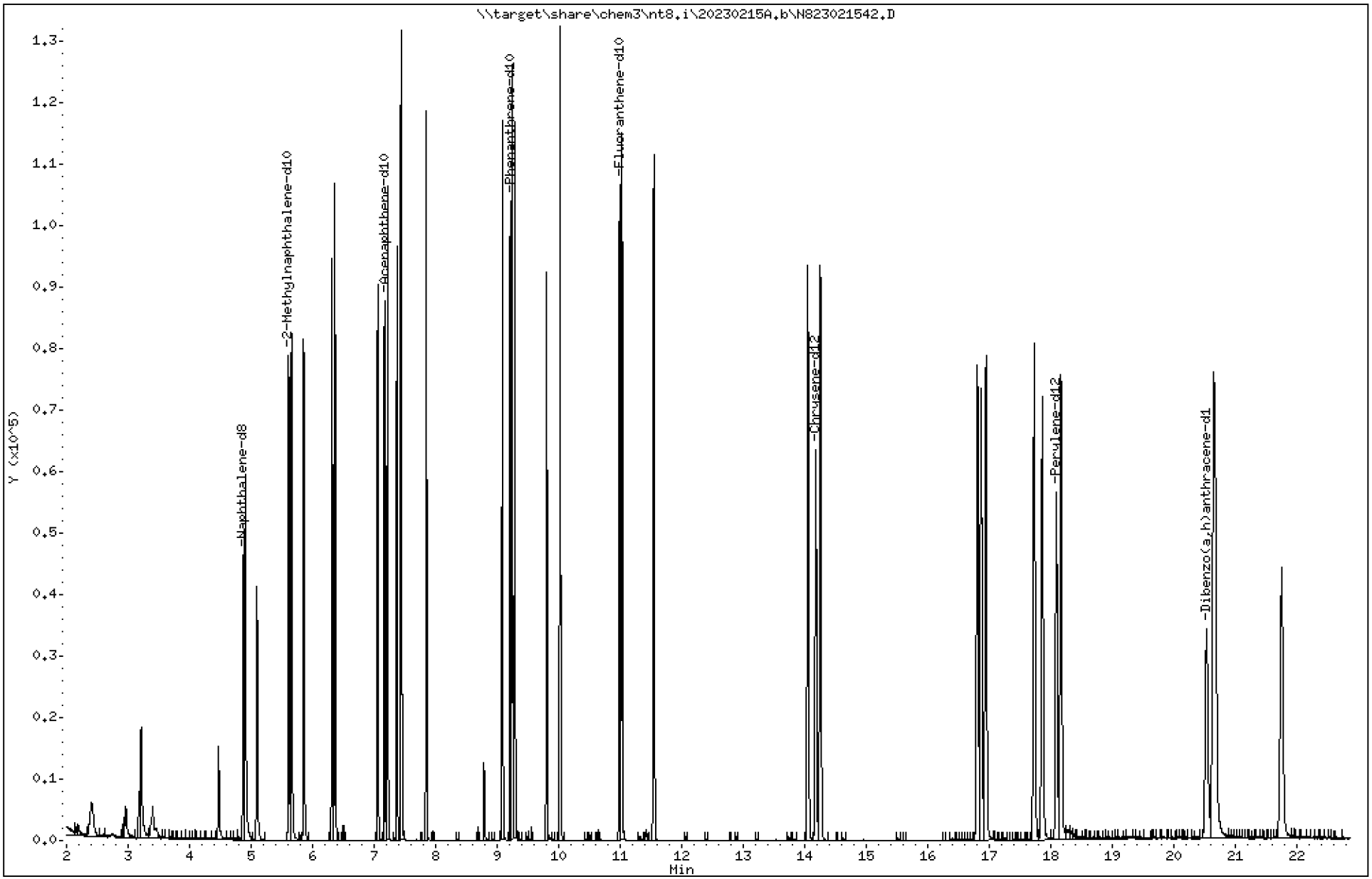
Instrument: nt8.i

Sample Info: CCV230215A

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23A0626 02/22/2023 Page 460 of 1233

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Date : 16-FEB-2023 06:07

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Instrument: nt8.i

Sample Info: CCV230215A

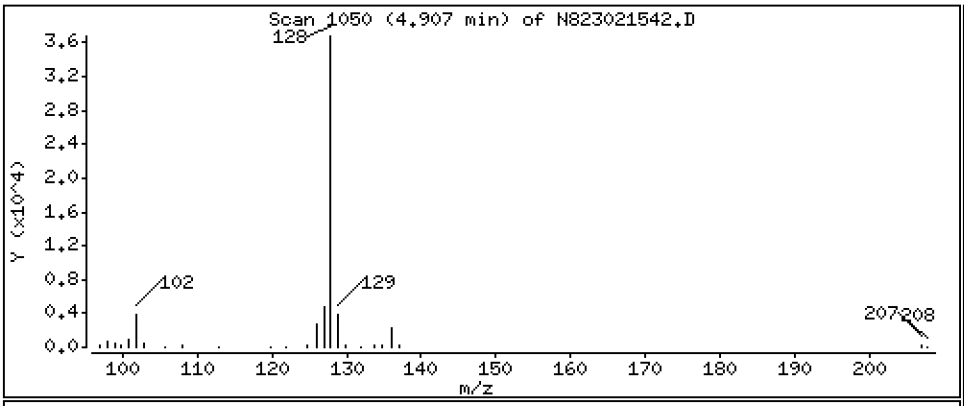
Operator: JZ

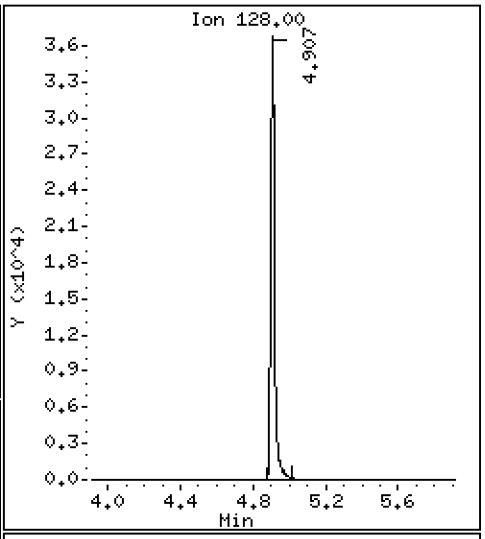
Column phase: Rxi-17sil

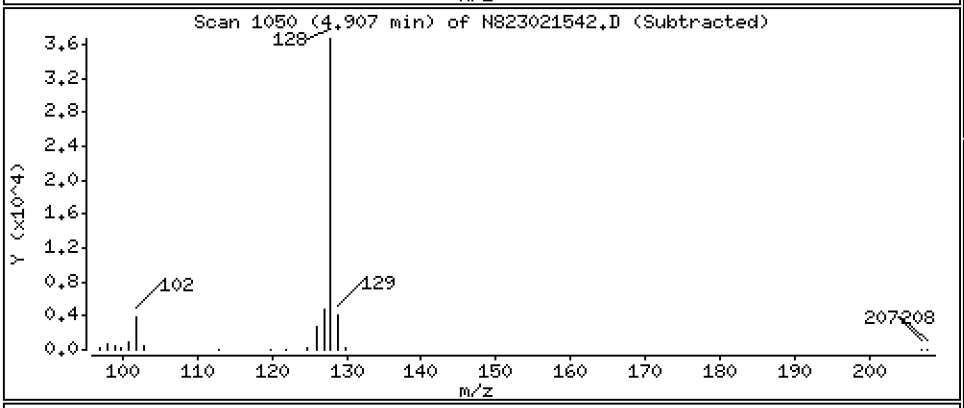
Column diameter: 0.25

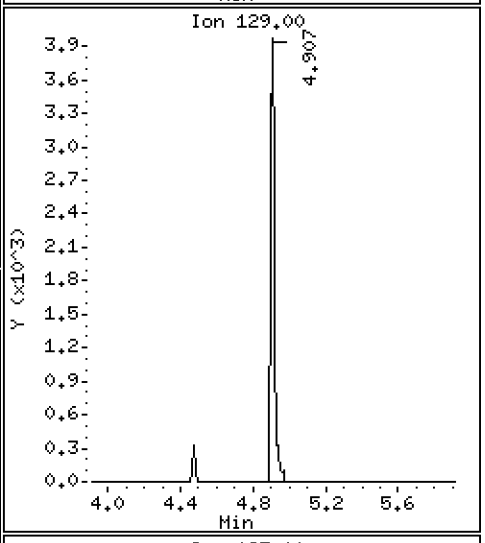
2 Naphthalene

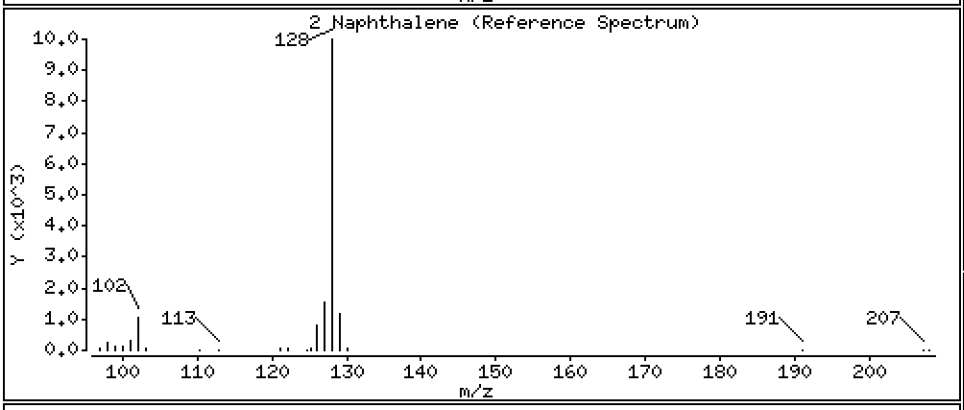
Concentration: 2.523 ug/mL

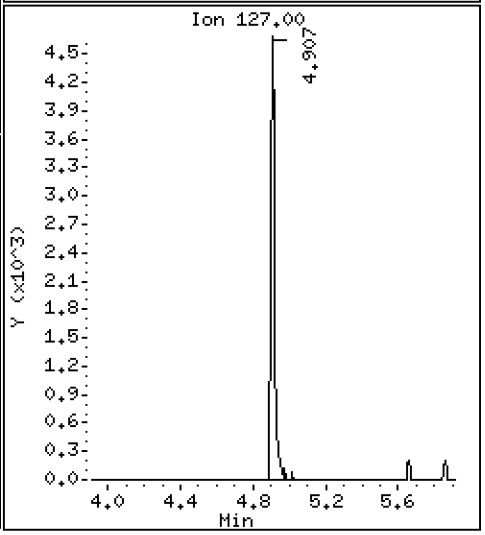


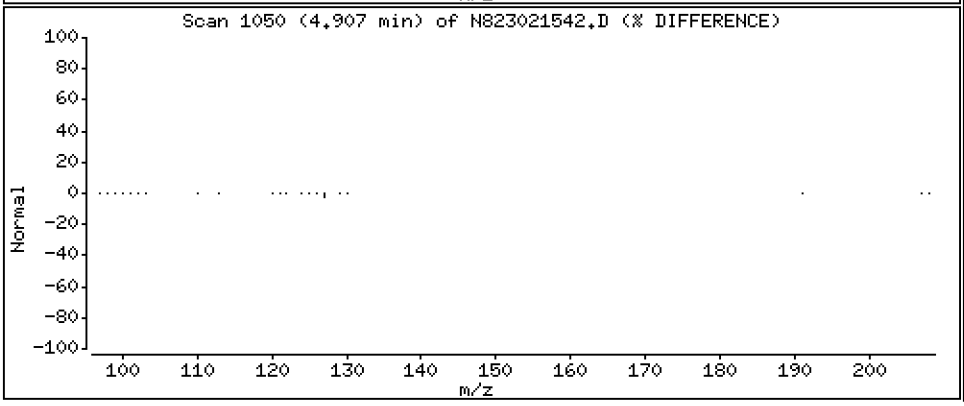












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021542.D

Date : 16-FEB-2023 06:07

Client ID:

Instrument: nt8.i

Sample Info: CCV230215A

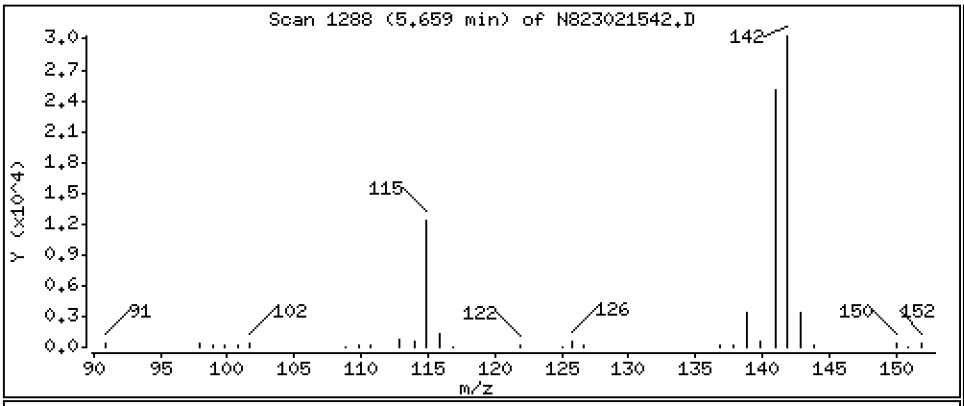
Operator: JZ

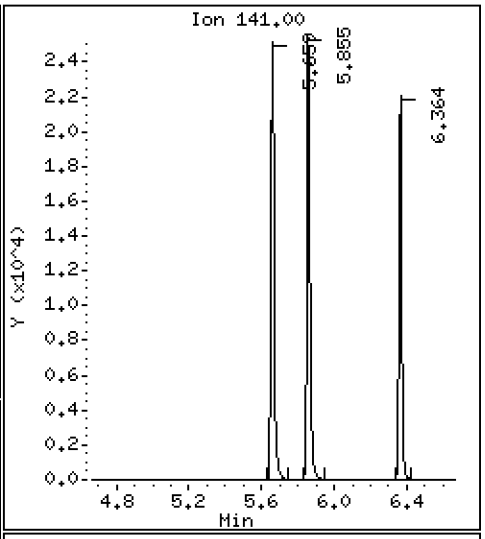
Column phase: Rxi-17sil

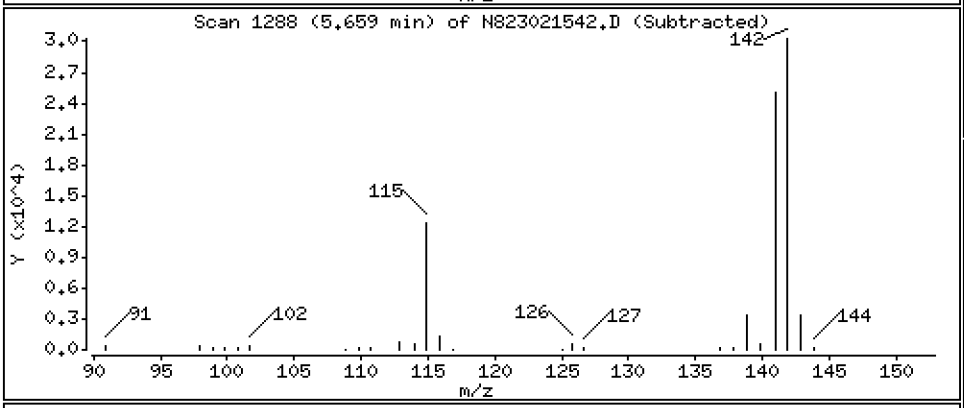
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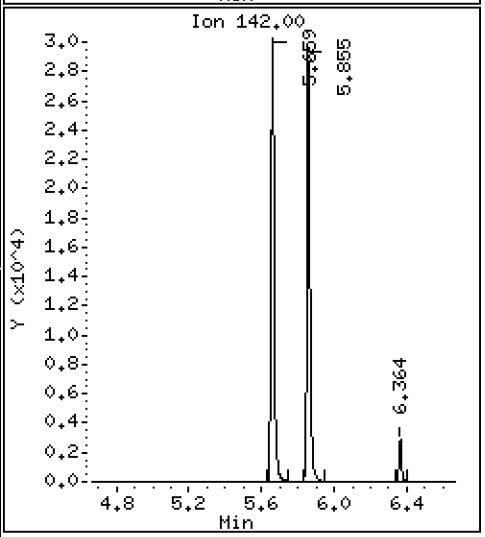
4 2-Methylnaphthalene

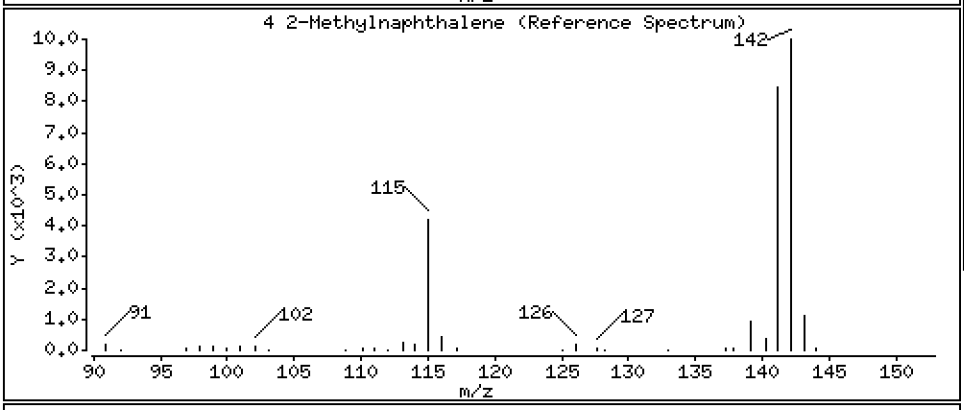
Concentration: 2.602 ug/mL

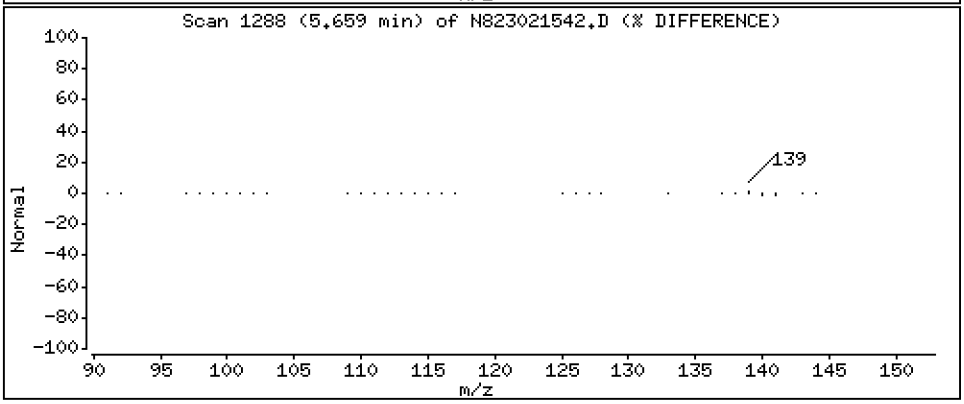












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Client ID:

Instrument: nt8.i

Sample Info: CCV230215A

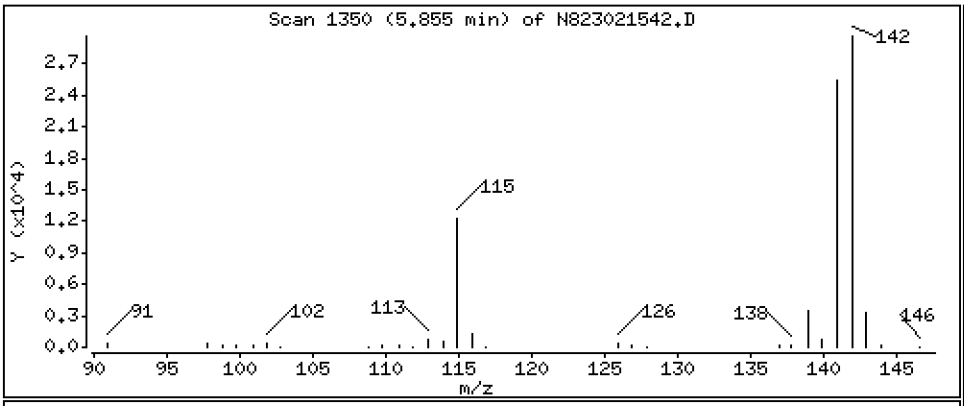
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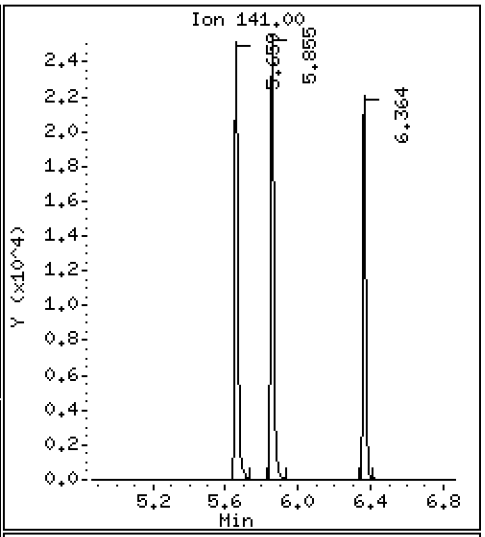
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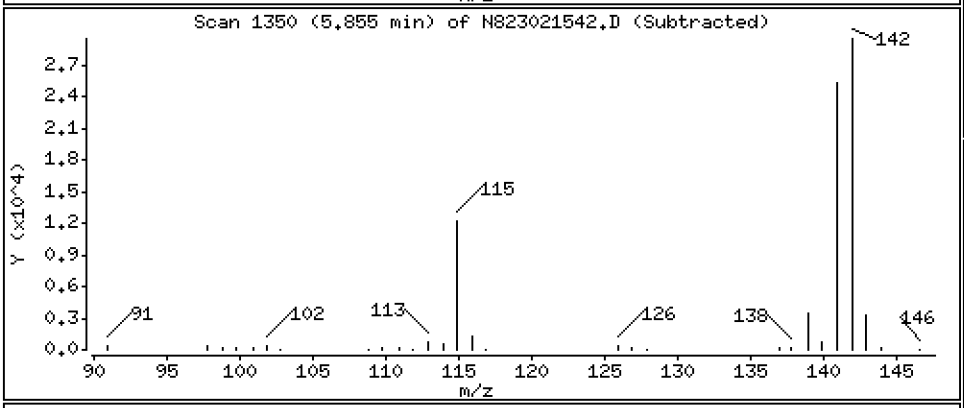
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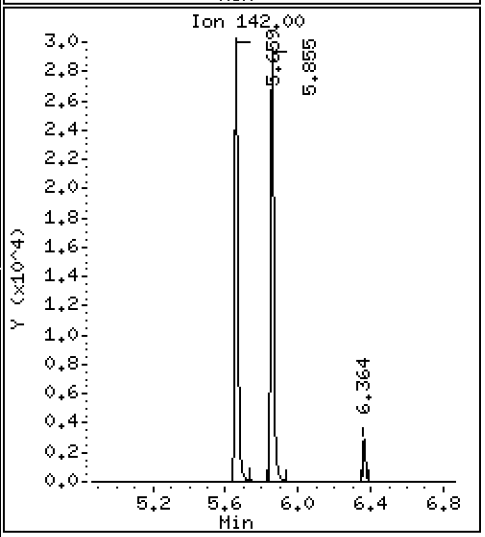
5 1-methylnaphthalene

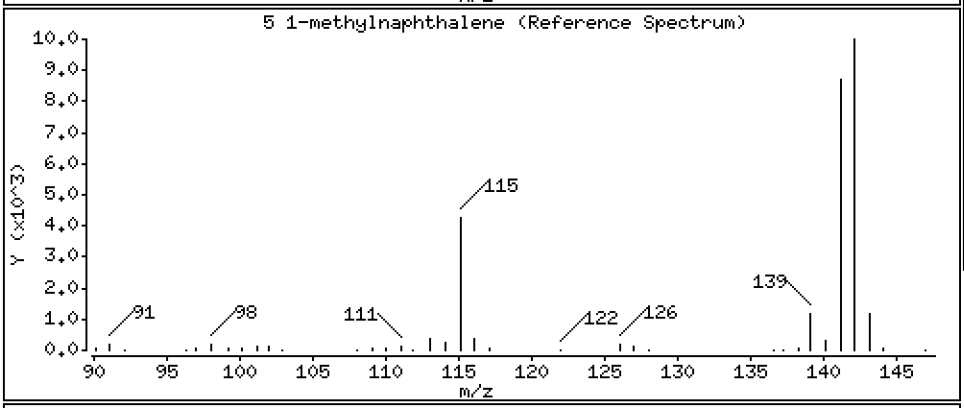
Concentration: 2.554 ug/mL

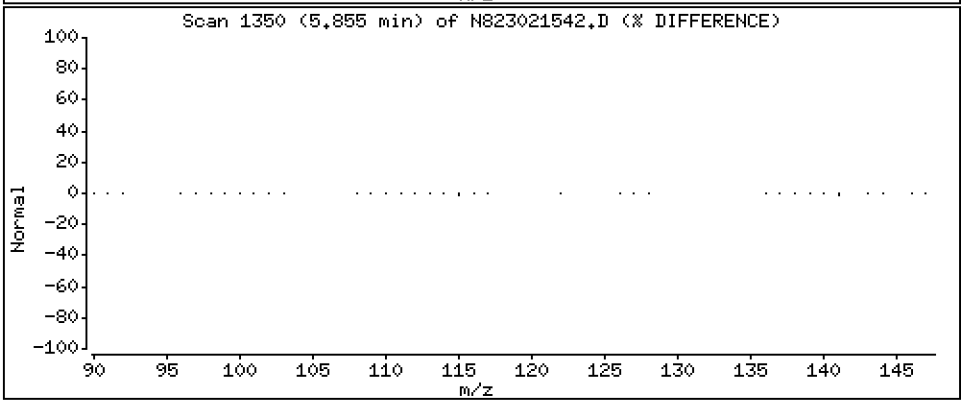












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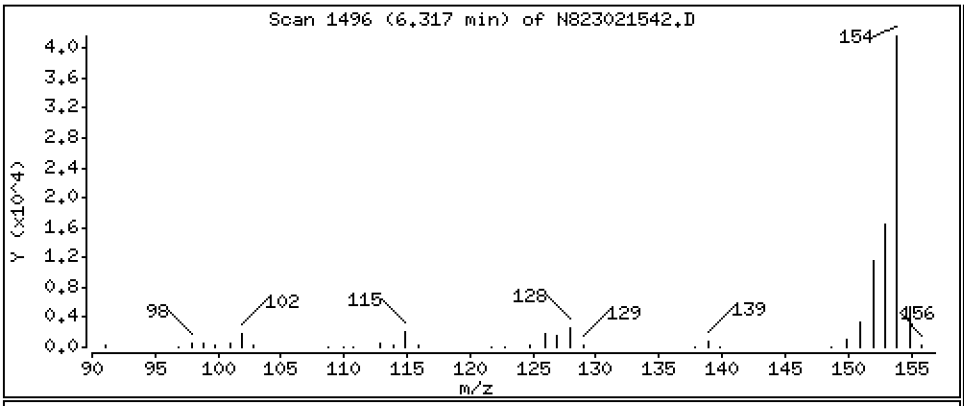
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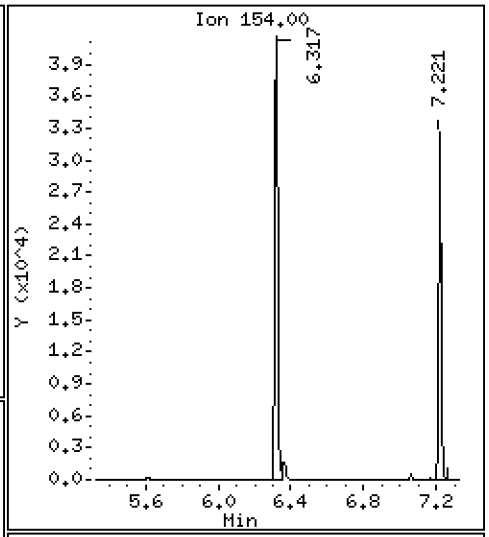
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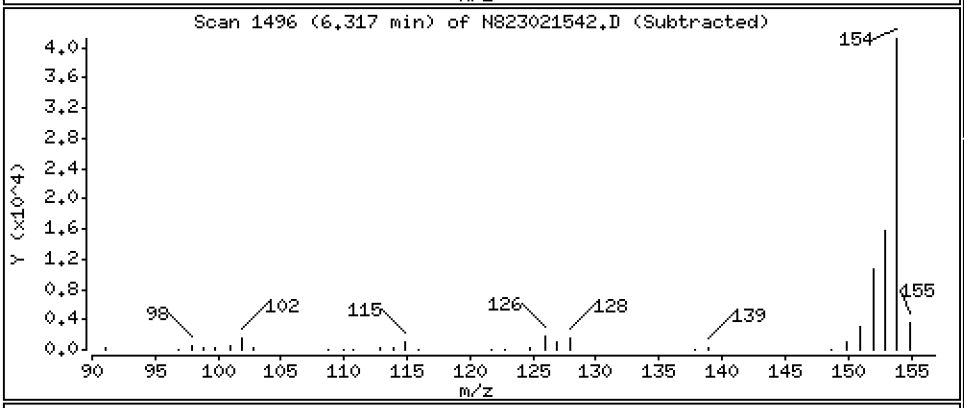
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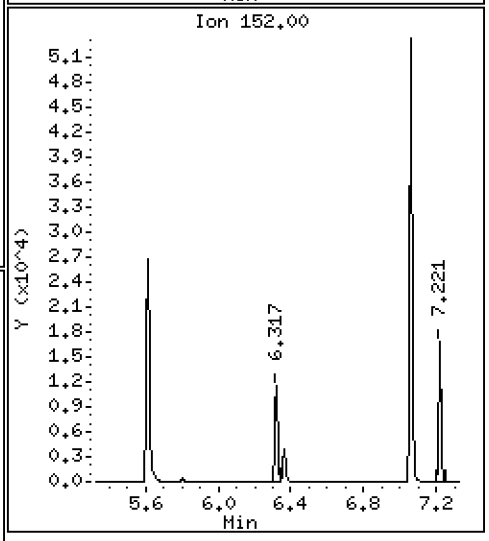
7 Biphenyl

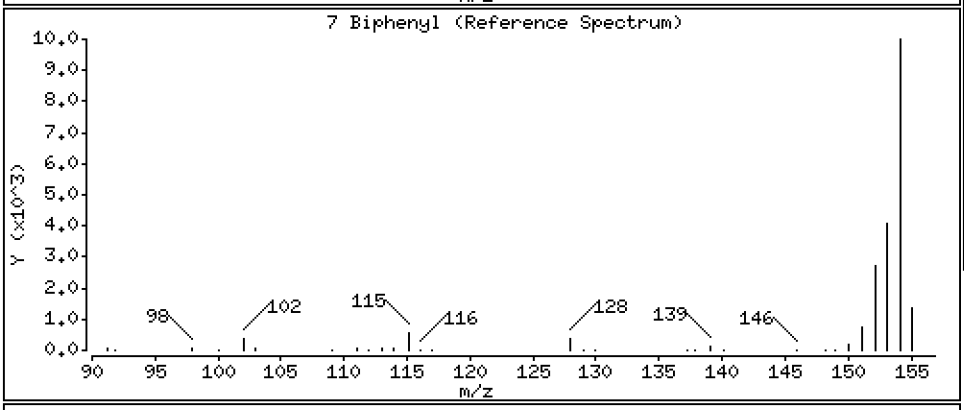
Concentration: 2.552 ug/mL

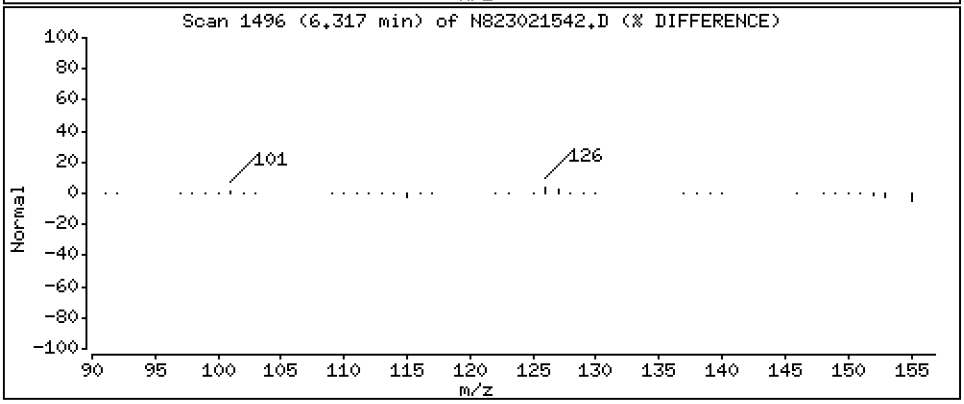












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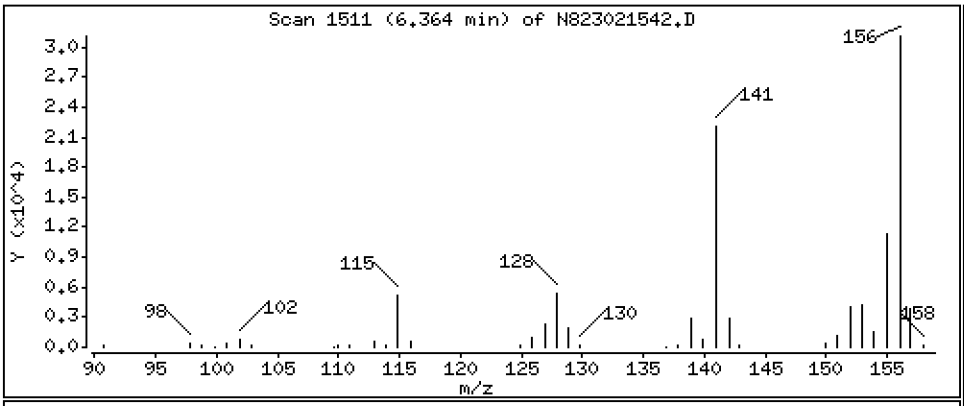
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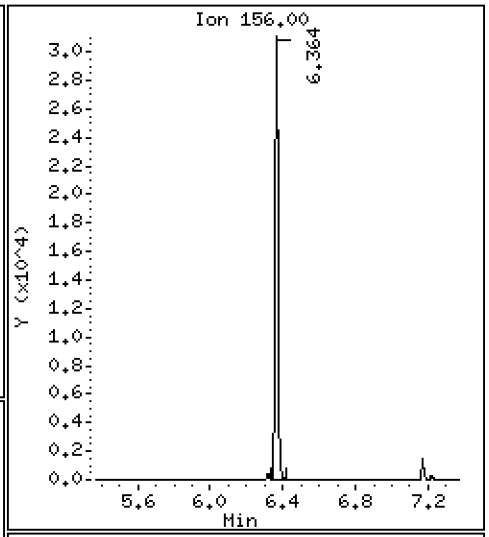
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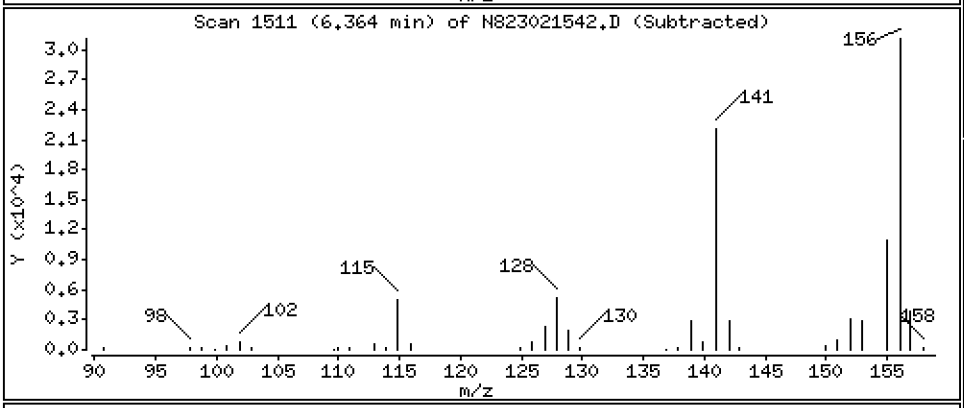
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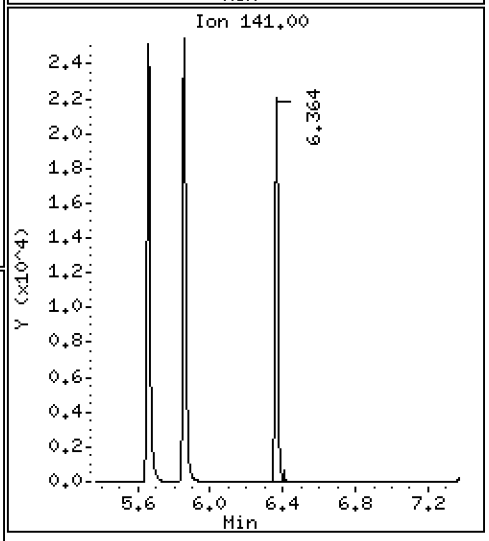
8 2,6-Dimethylnaphthalene

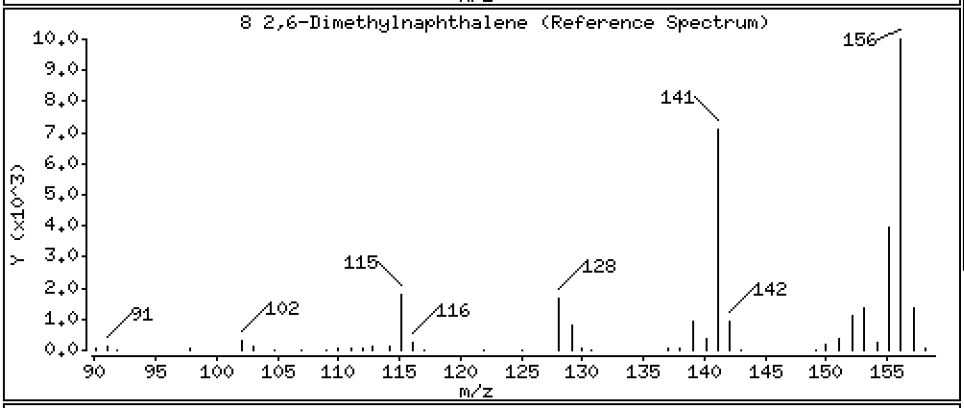
Concentration: 2.688 ug/mL

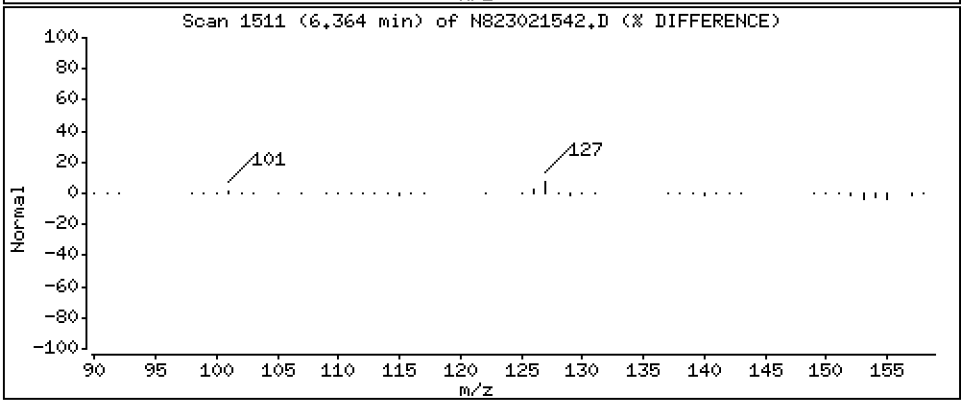












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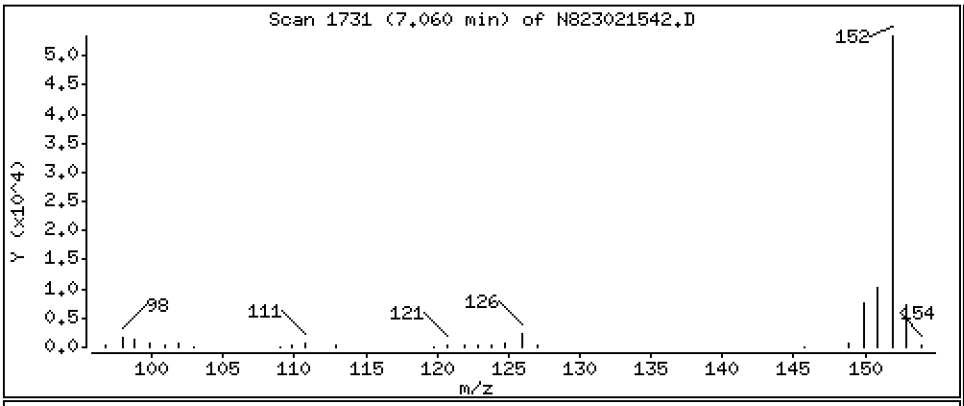
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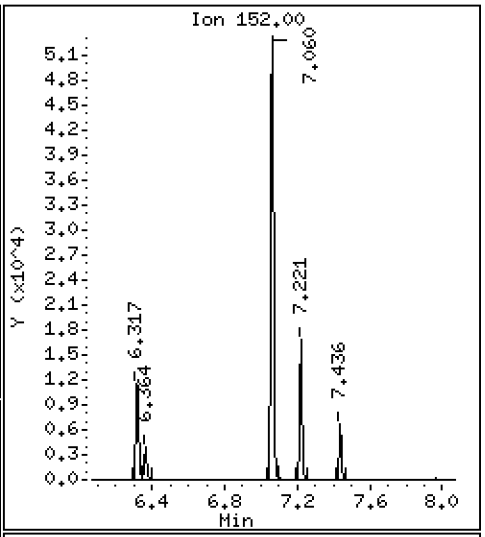
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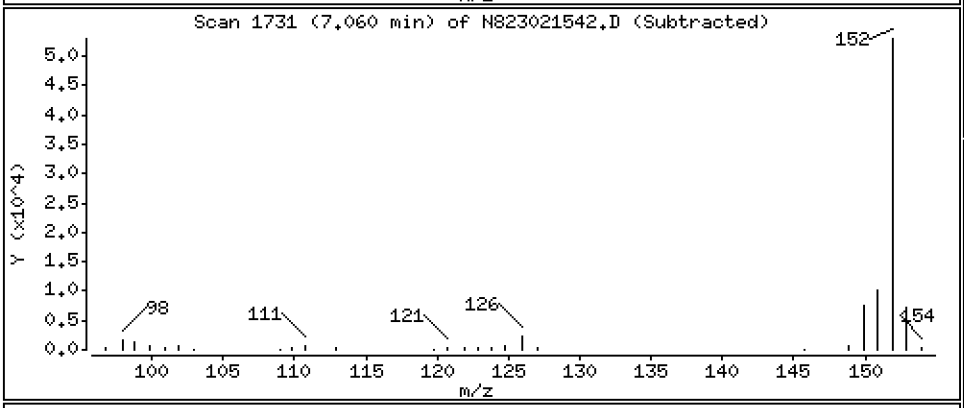
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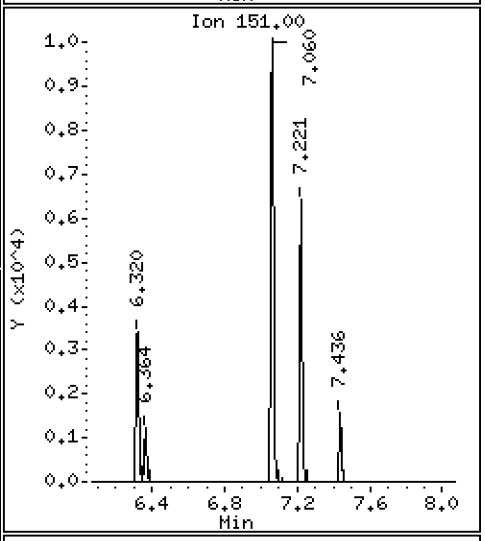
9 Acenaphthylene

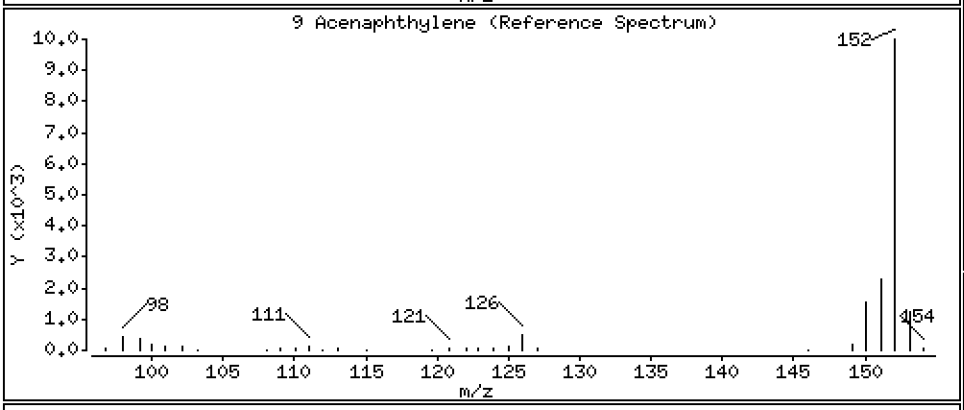
Concentration: 2.722 ug/mL

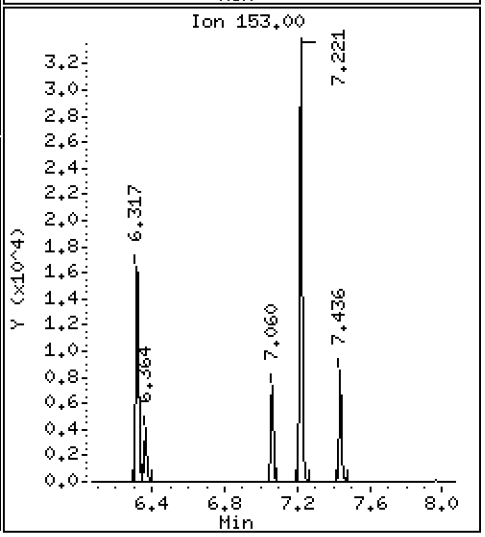


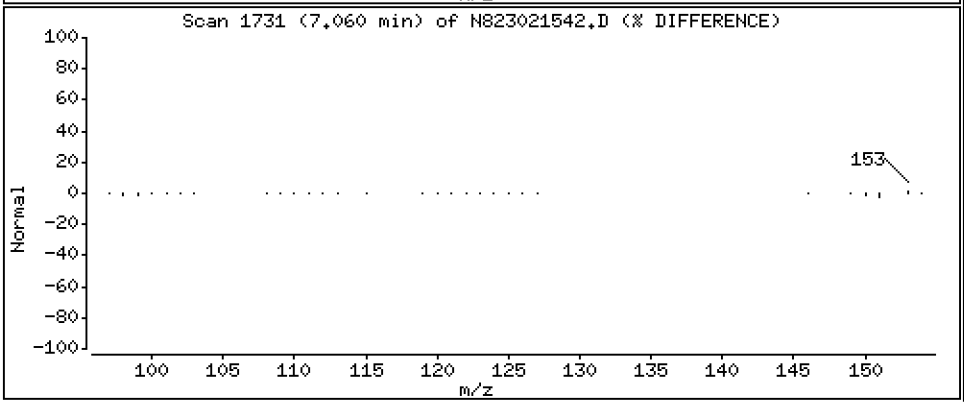












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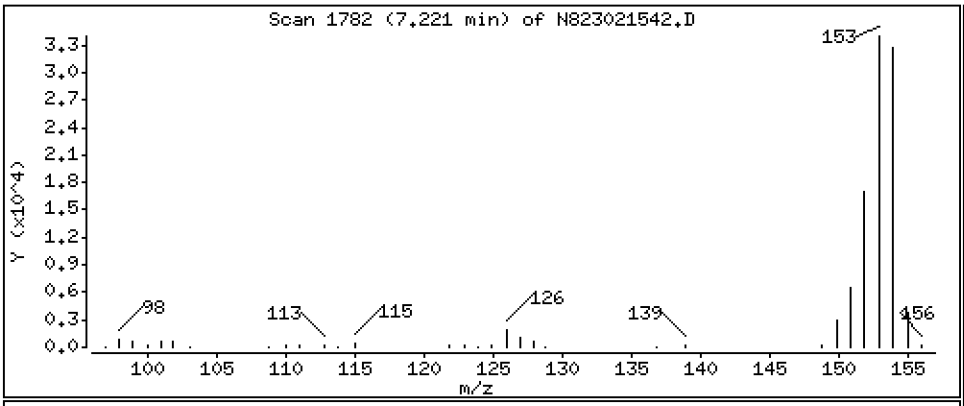
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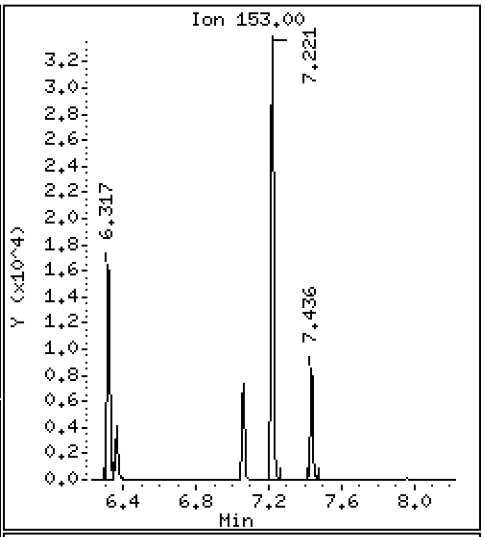
Column phase: Rxi-17sil

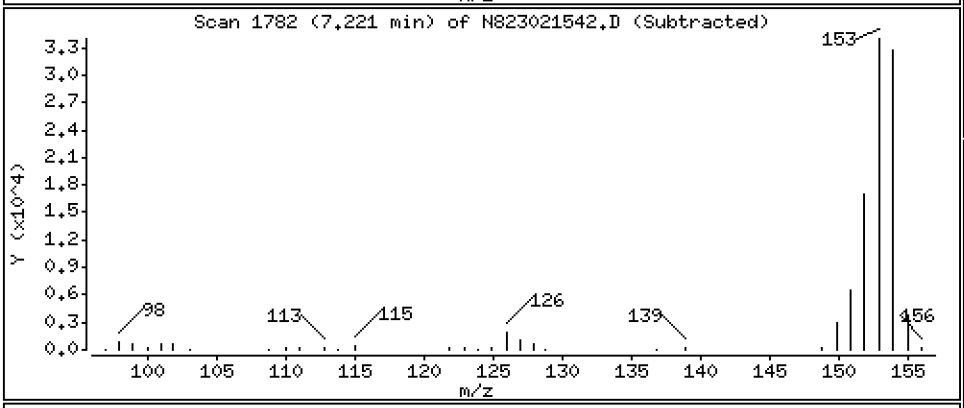
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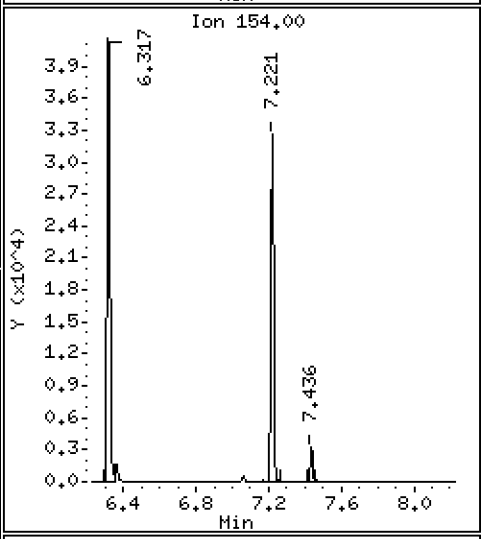
11 Acenaphthene

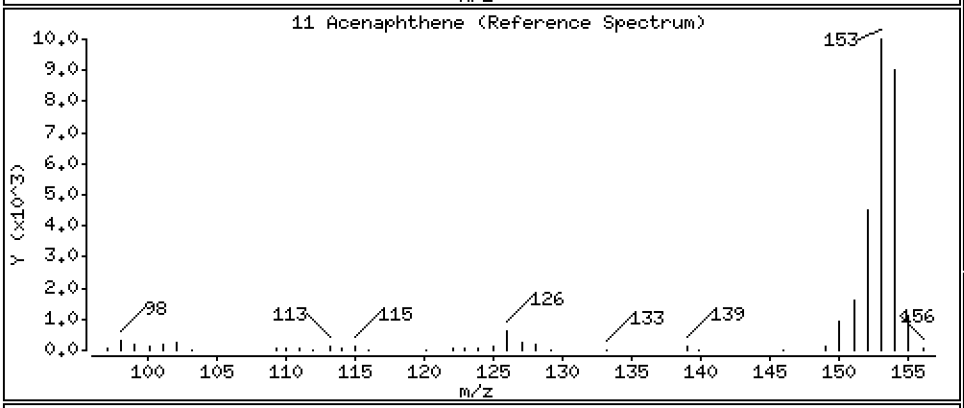
Concentration: 2.578 ug/mL

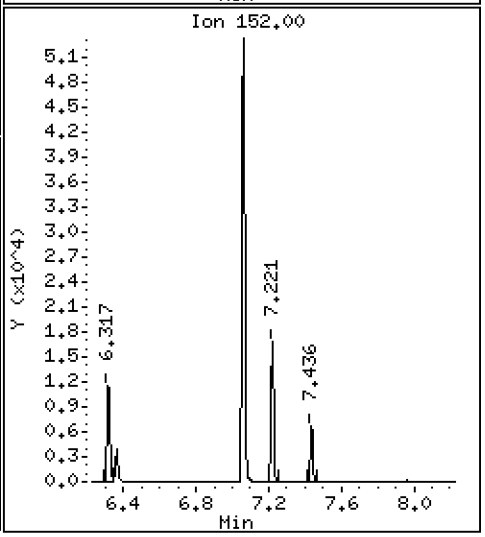


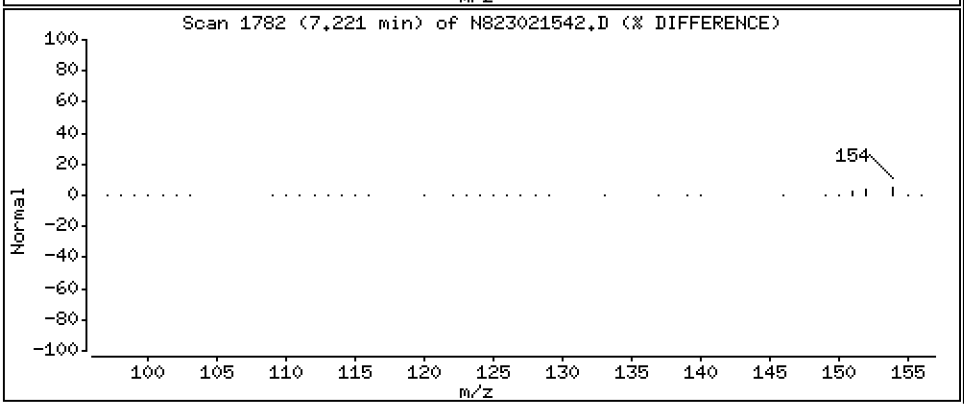












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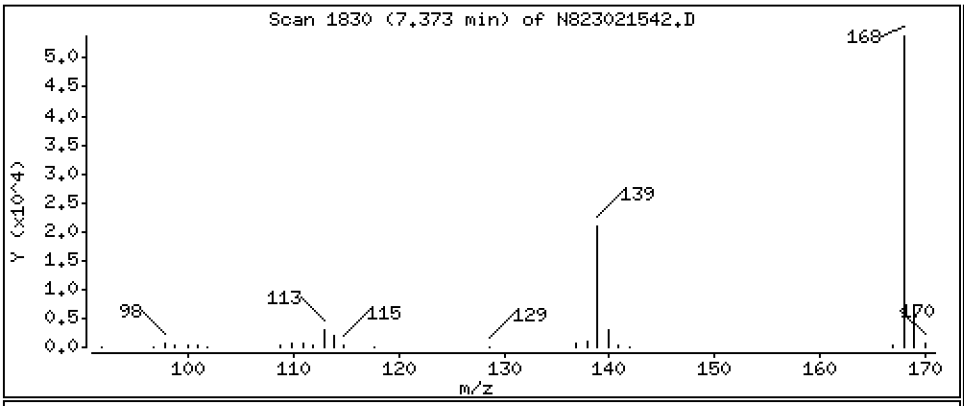
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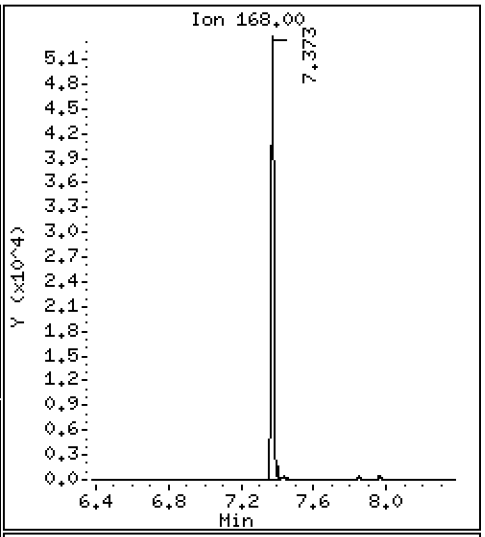
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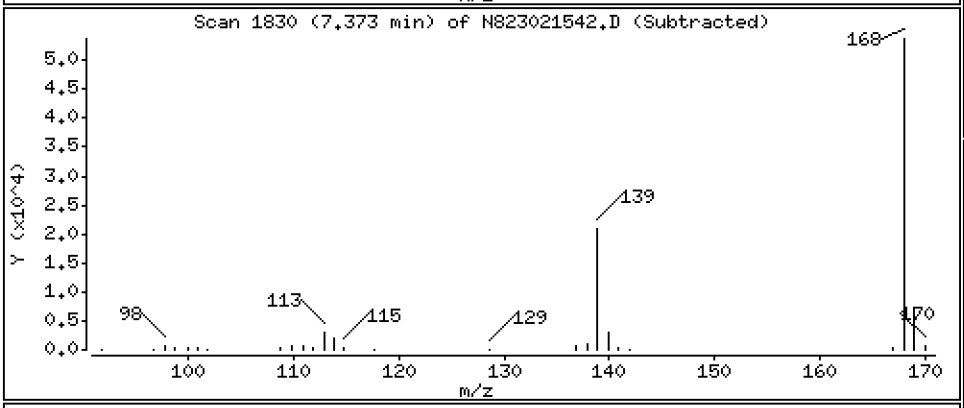
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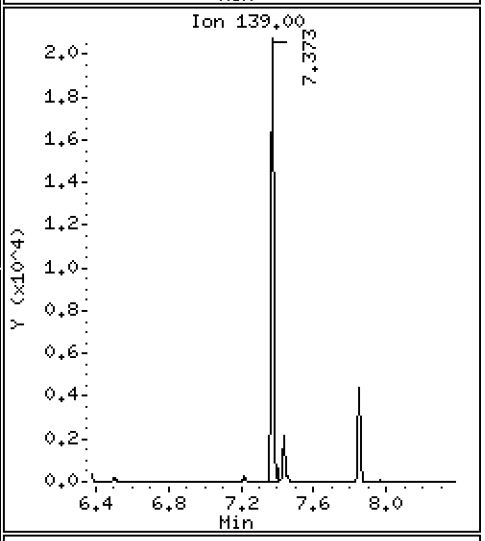
12 Dibenzofuran

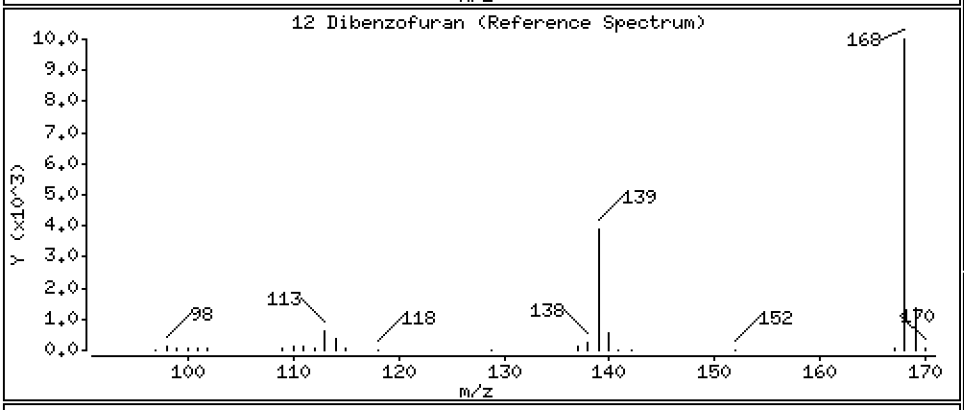
Concentration: 2.548 ug/mL

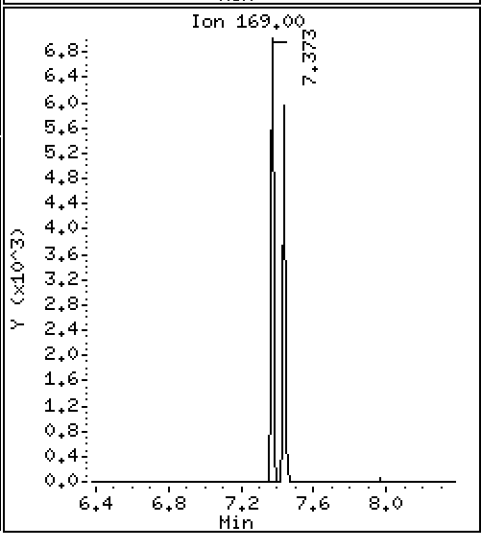


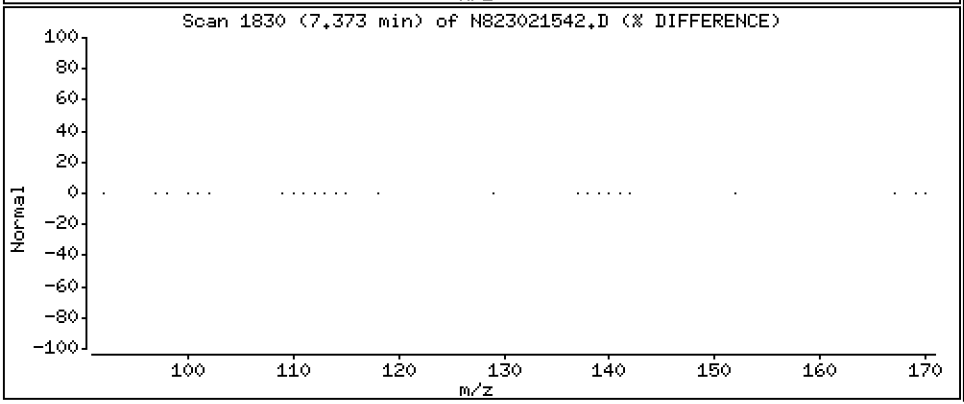












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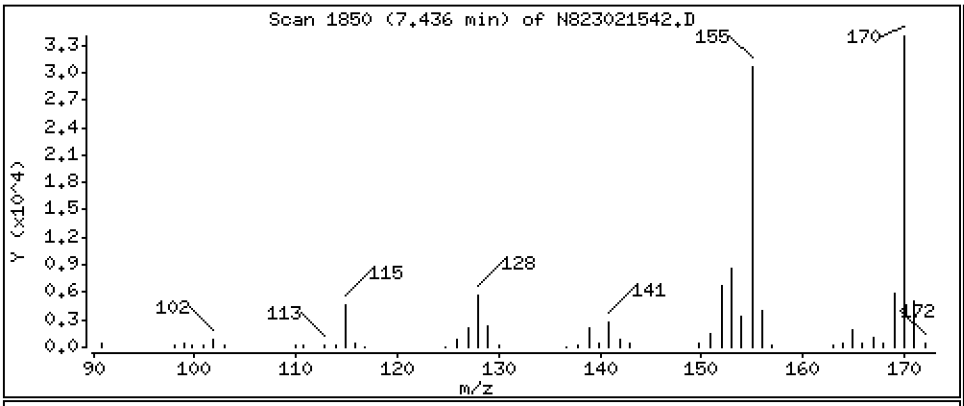
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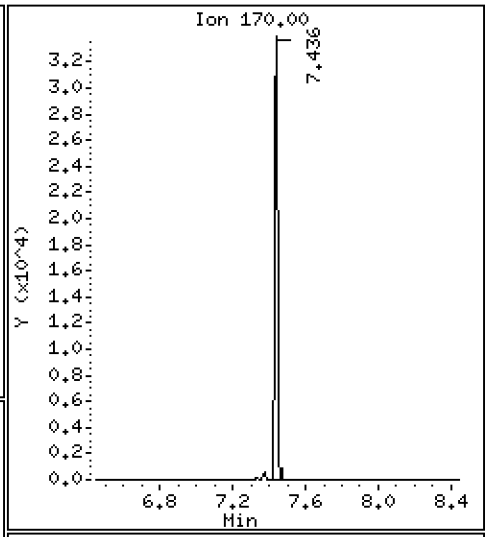
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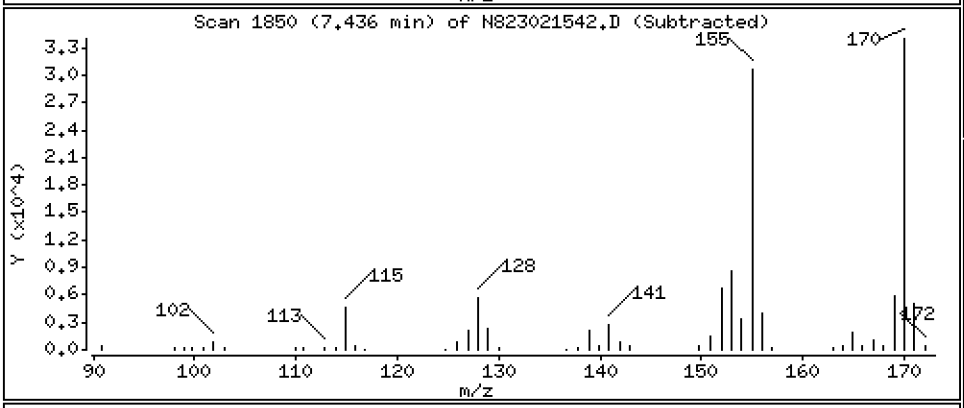
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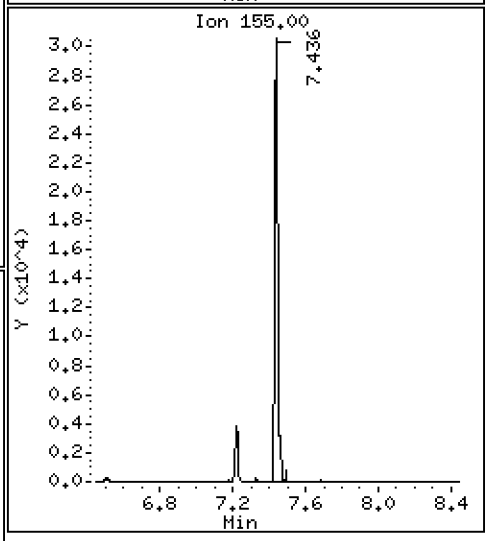
13 1,6,7-Trimethylnaphthalene

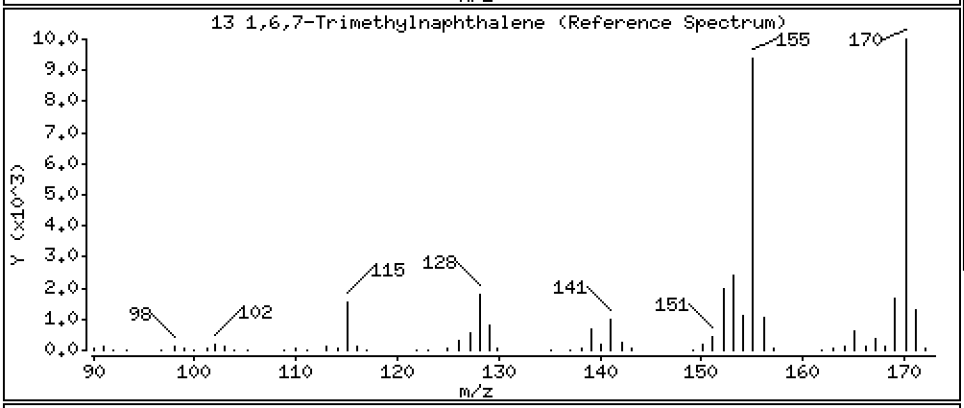
Concentration: 2.673 ug/mL

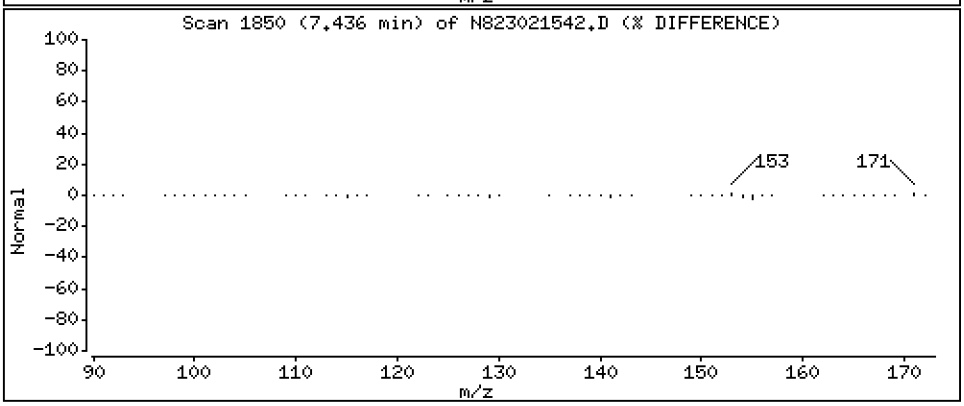












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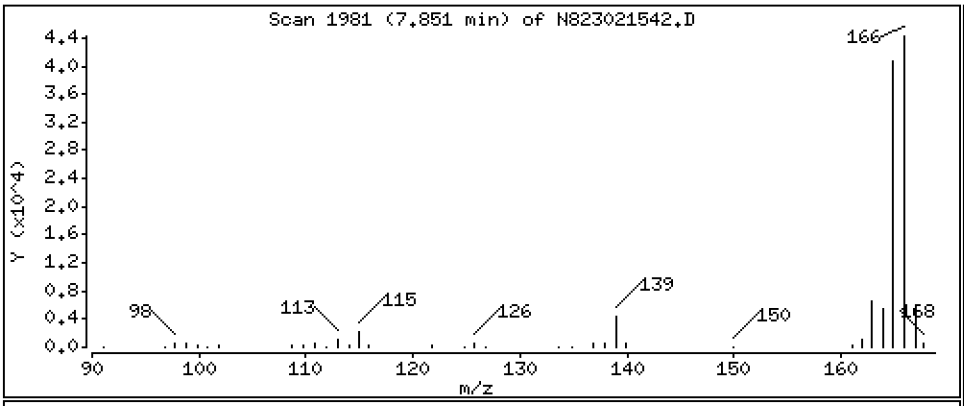
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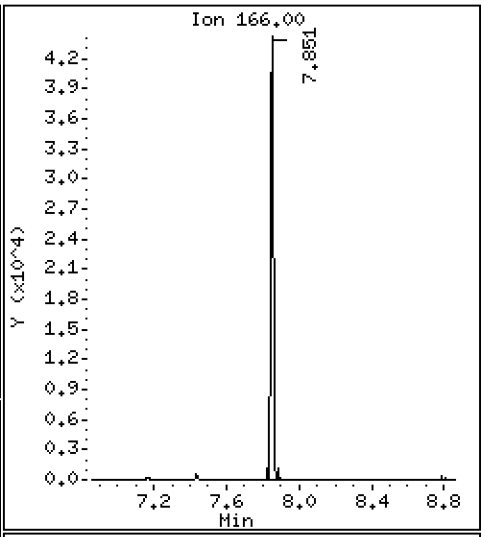
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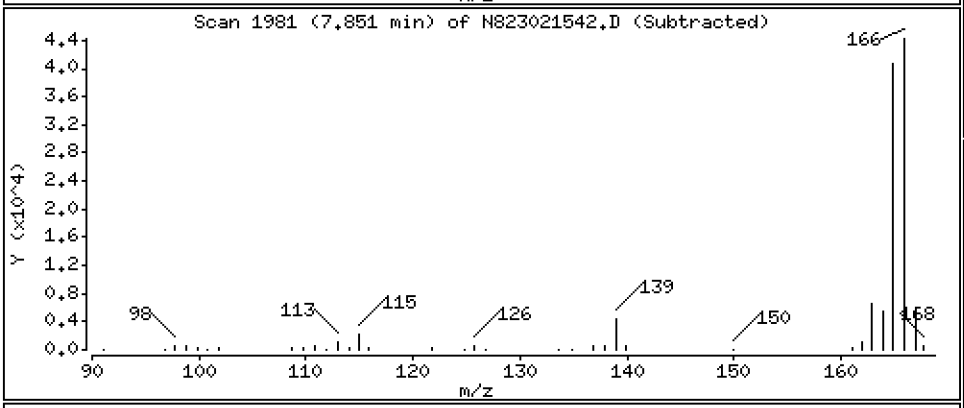
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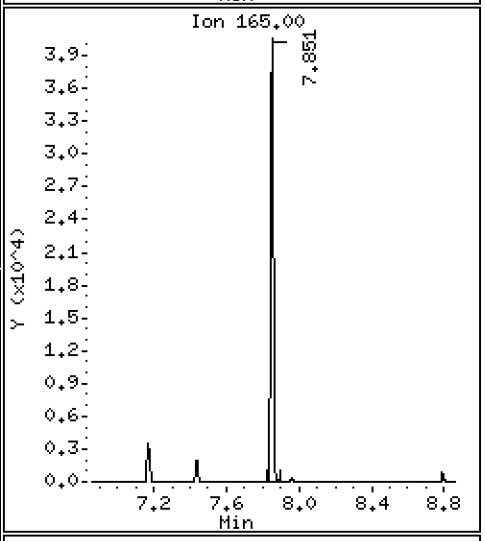
14 Fluorene

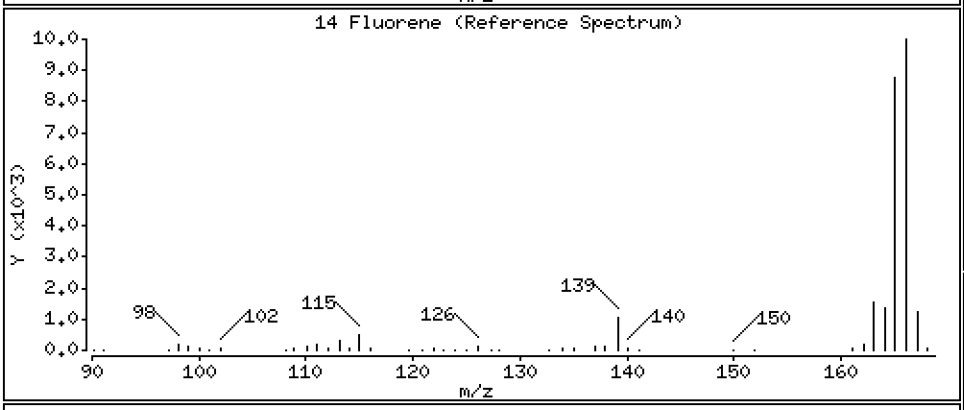
Concentration: 2.666 ug/mL

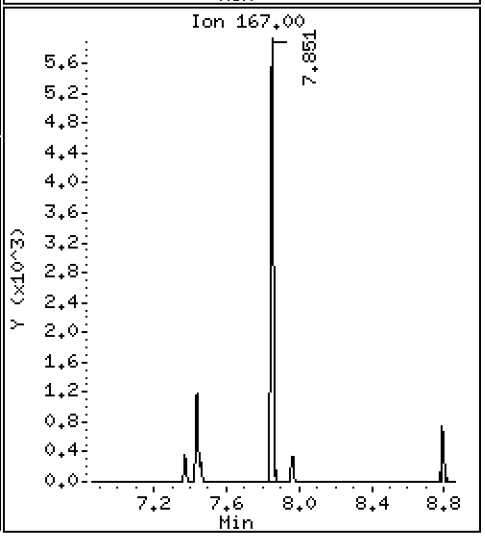


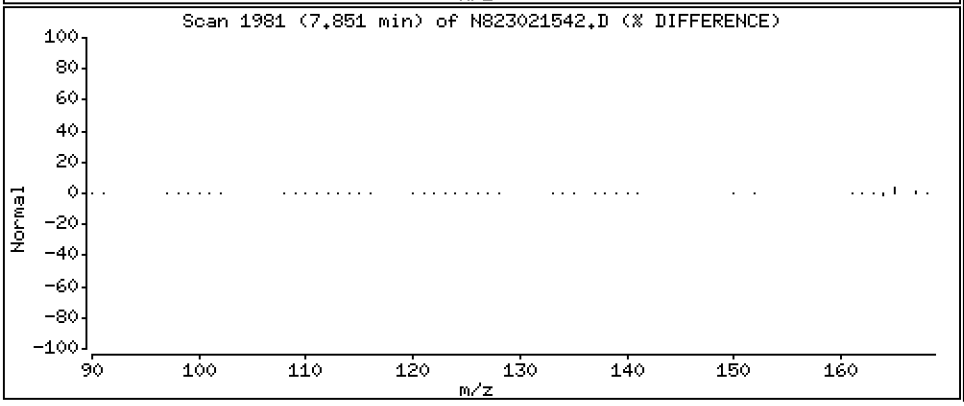












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Date : 16-FEB-2023 06:07

Client ID:

Instrument: nt8.i

Sample Info: CCV230215A

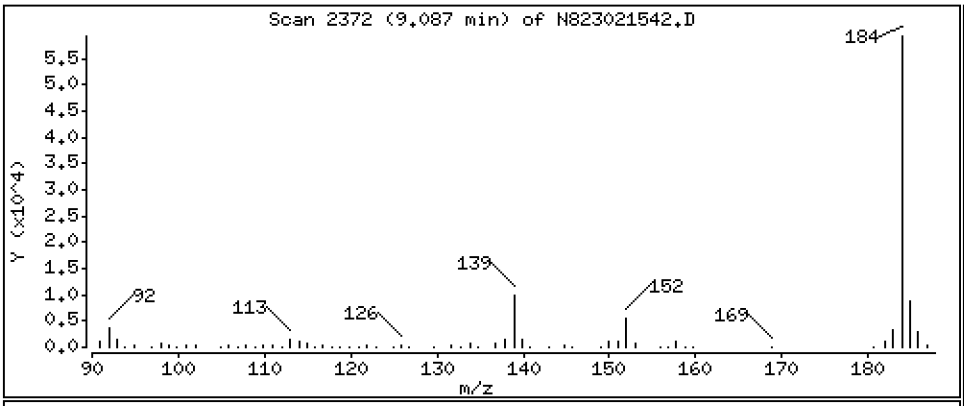
Operator: JZ

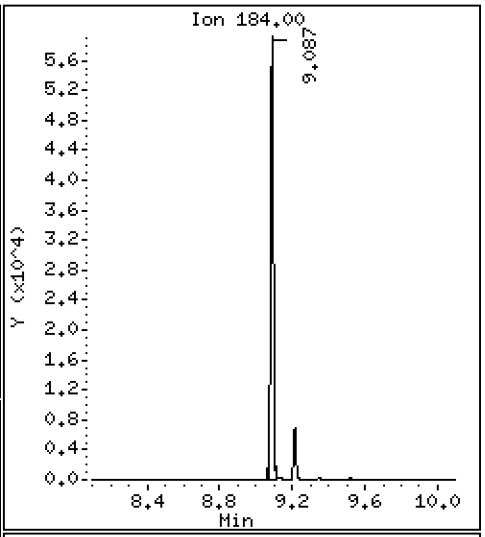
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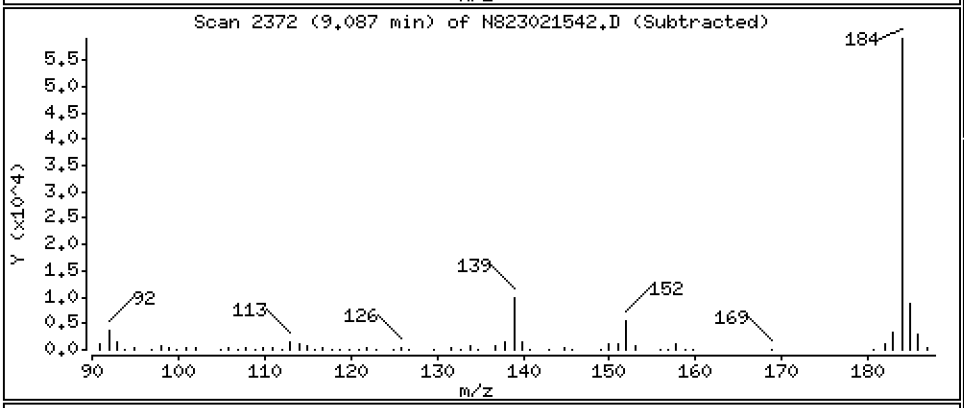
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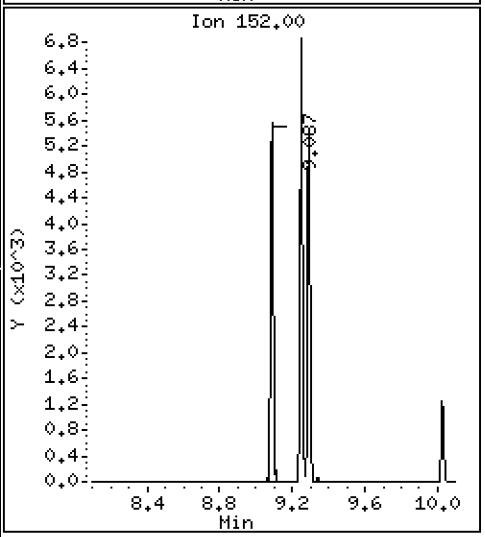
18 Dibenzothiophene

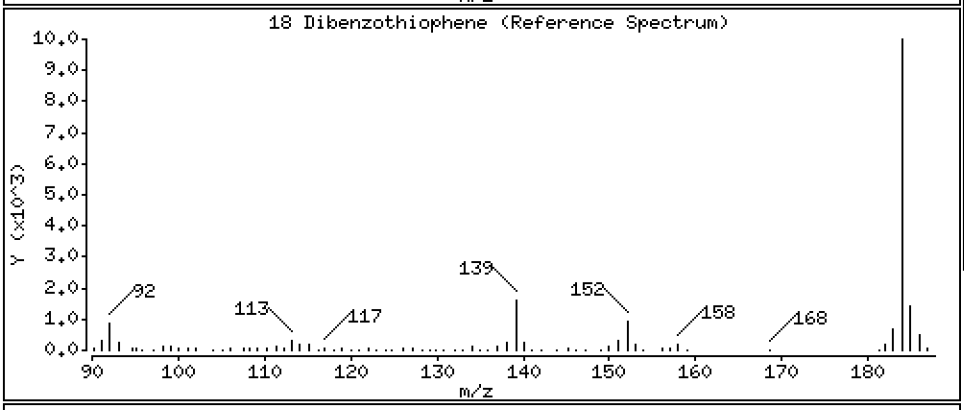
Concentration: 2.551 ug/mL

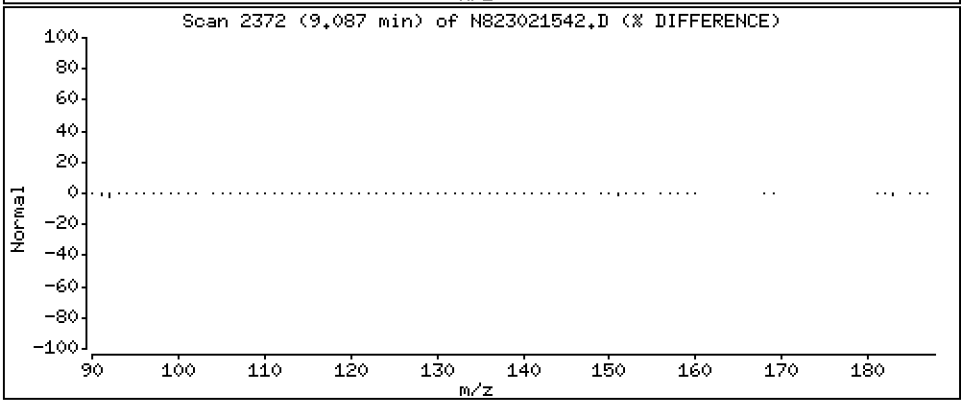












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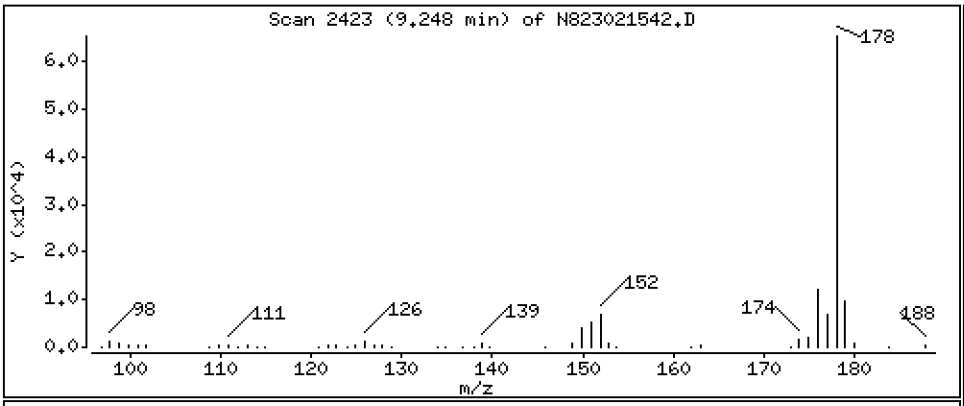
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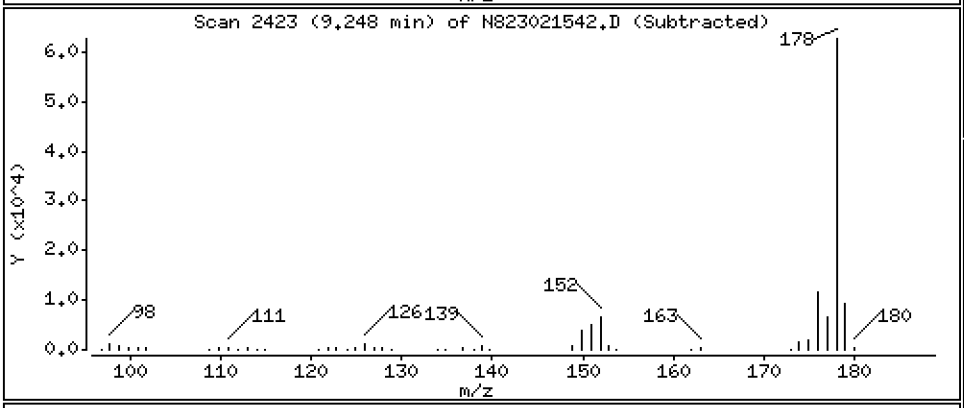
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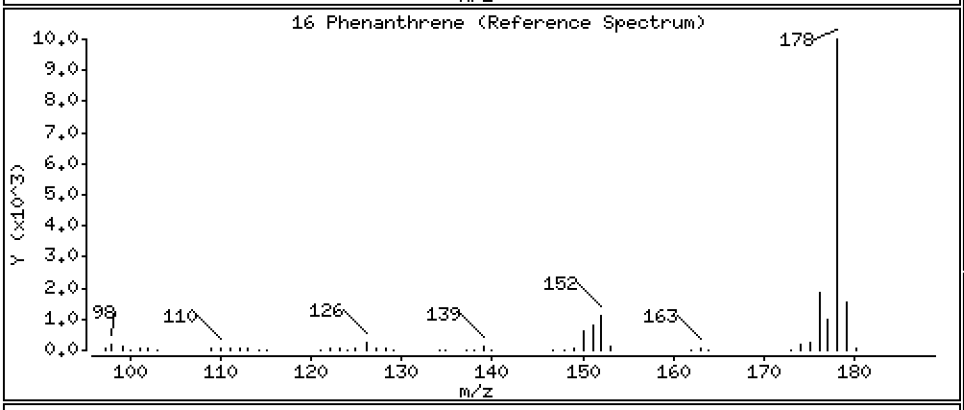
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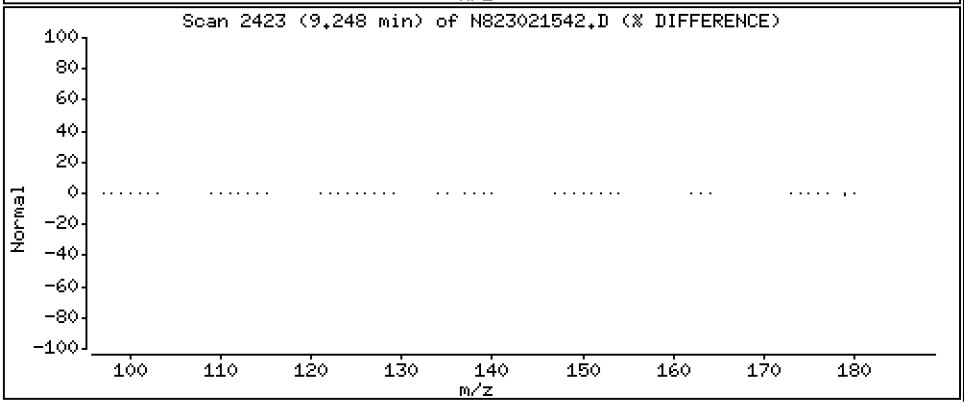
16 Phenanthrene

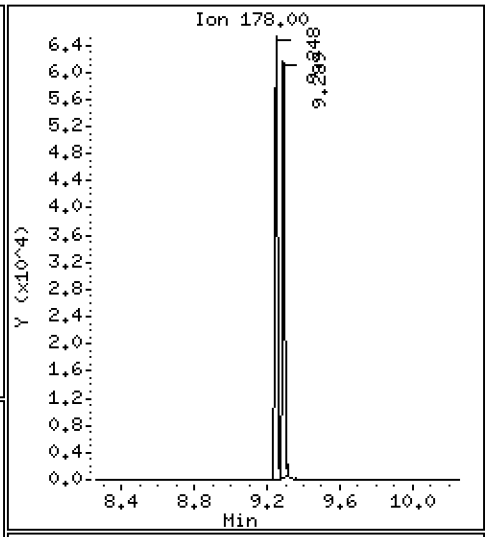
Concentration: 2.484 ug/mL

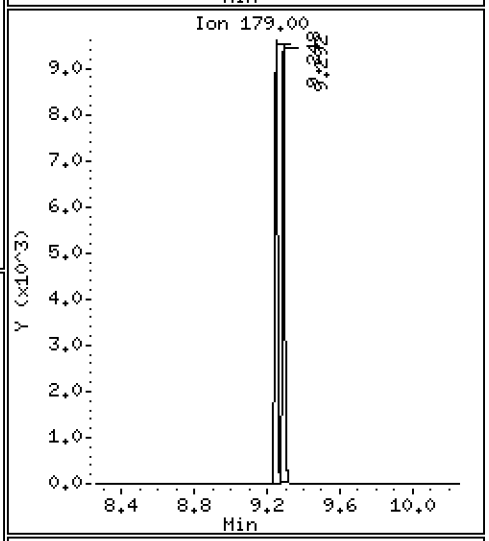


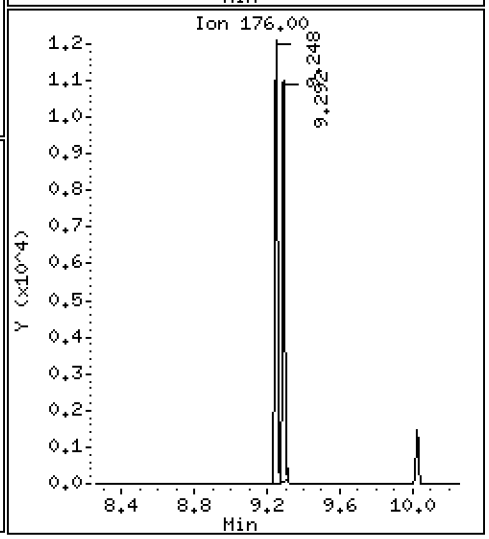












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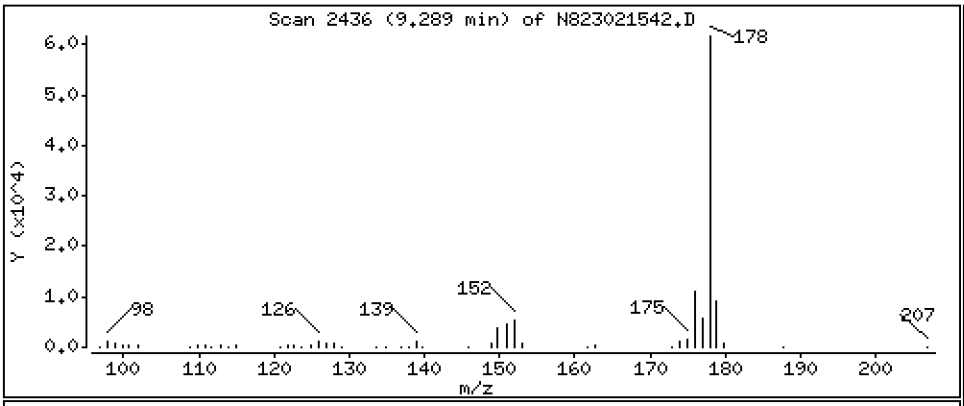
Operator: JZ

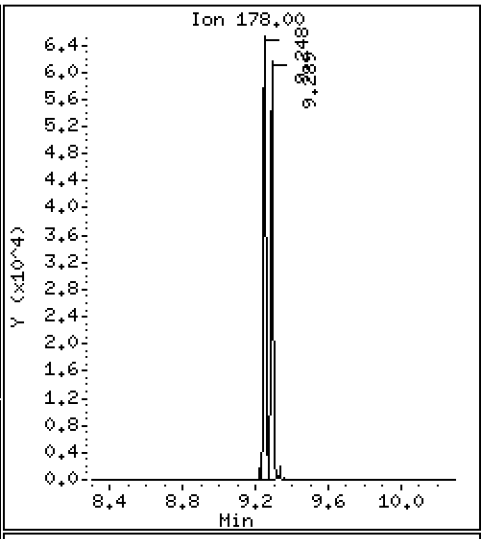
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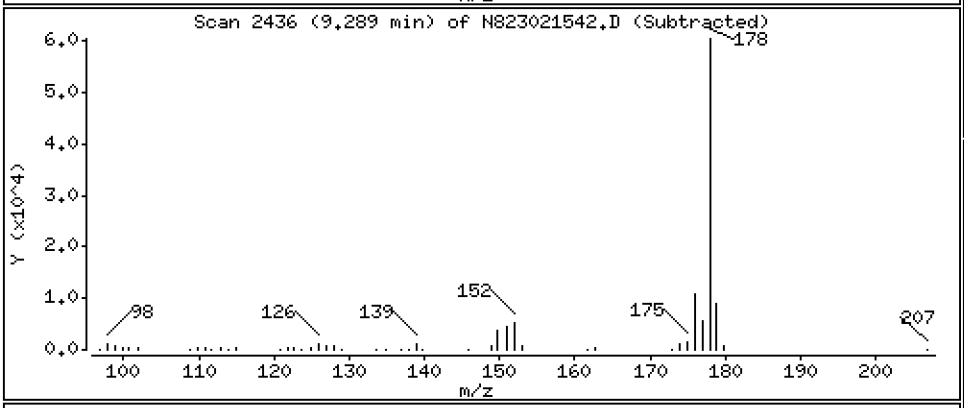
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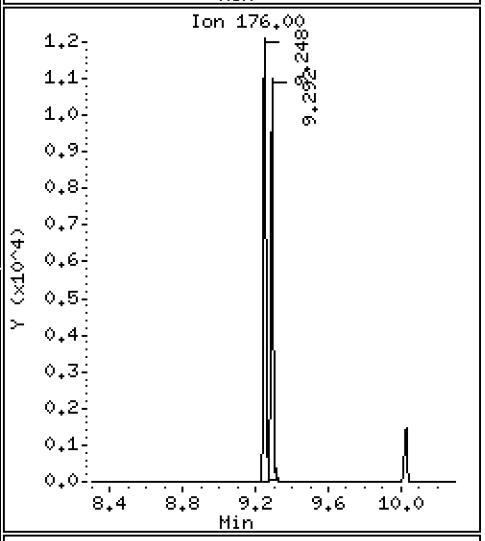
17 Anthracene

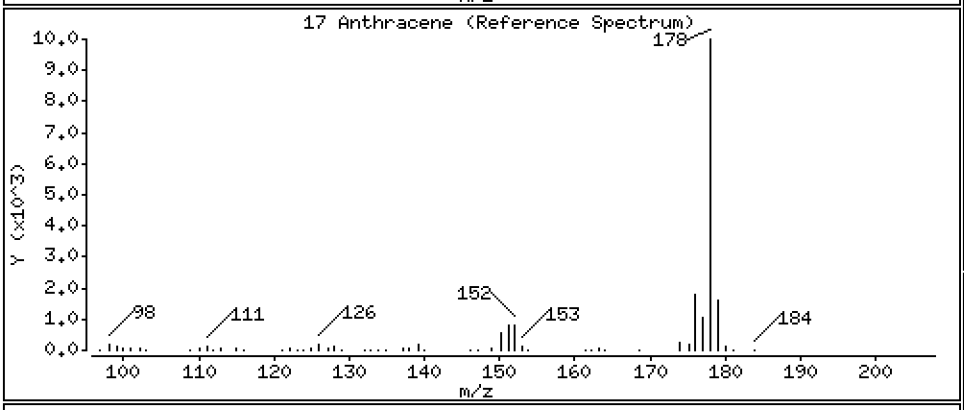
Concentration: 2.661 ug/mL

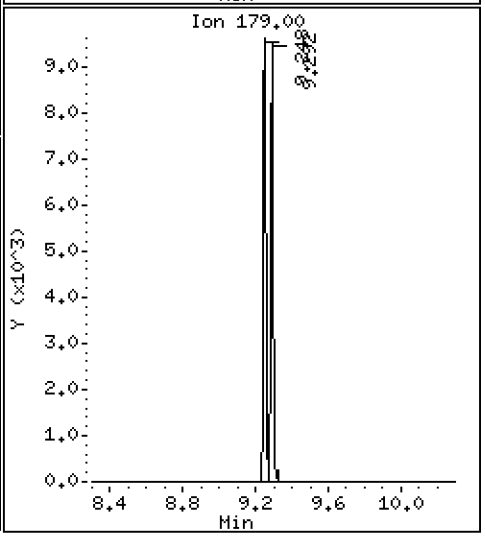


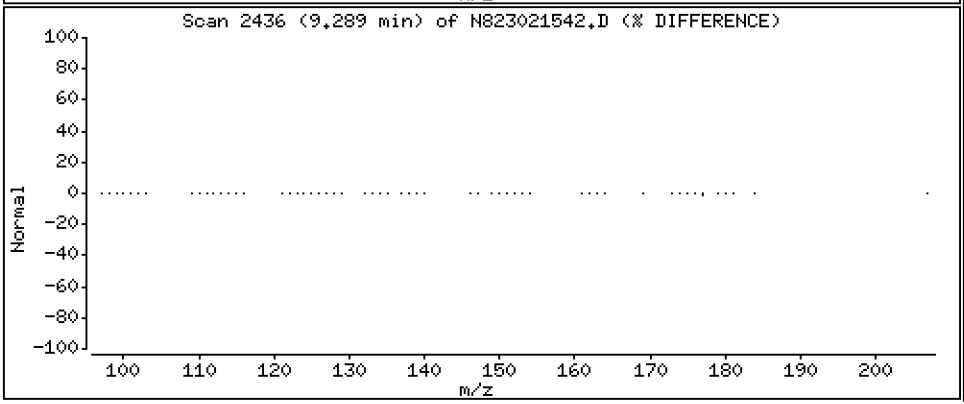












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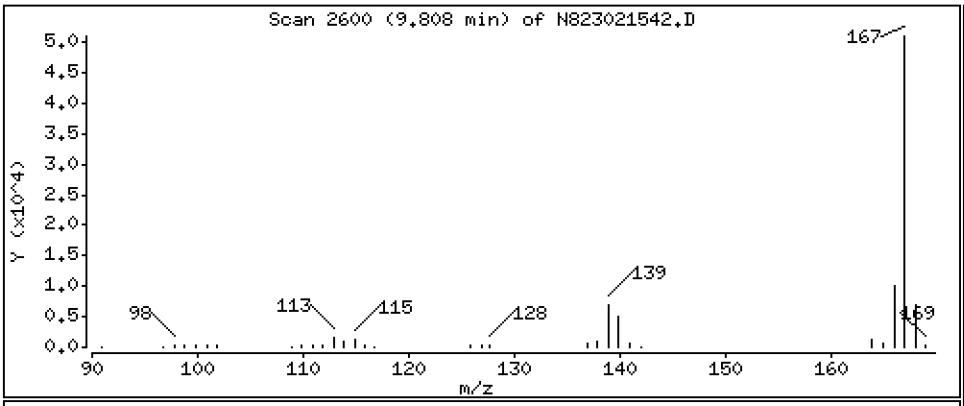
Operator: JZ

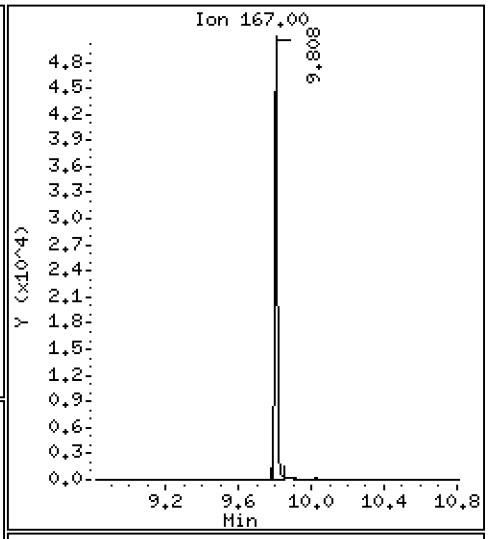
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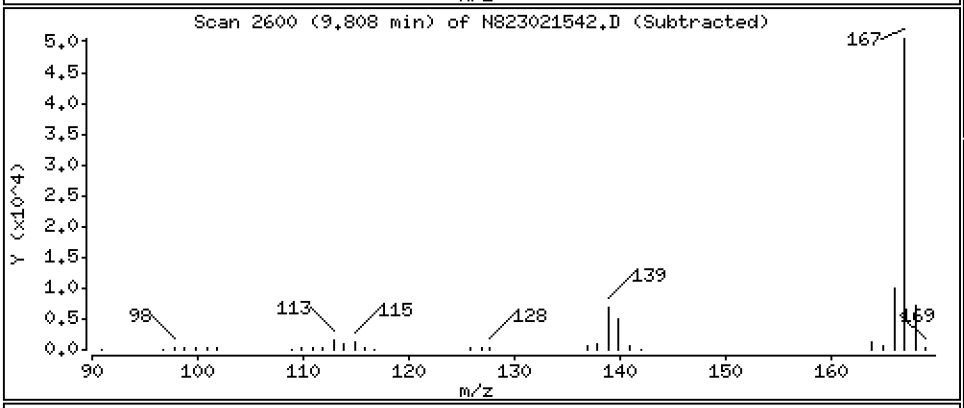
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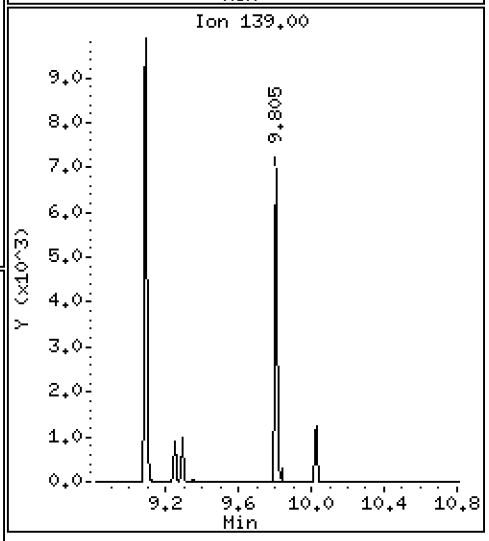
19 Carbazole

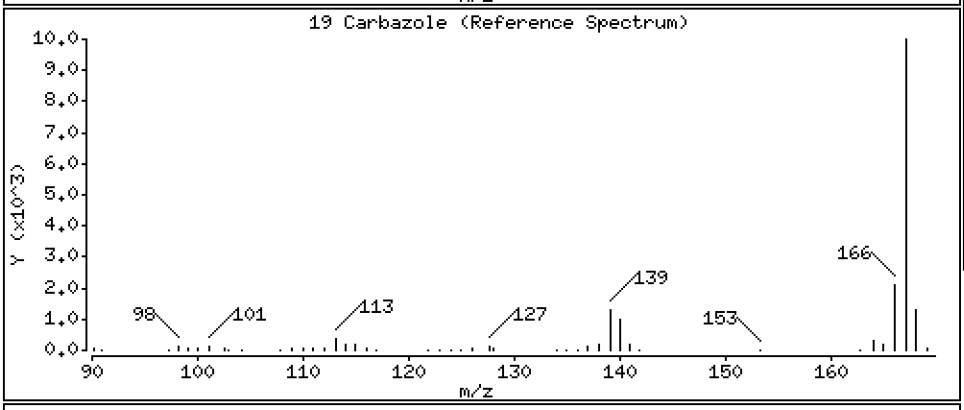
Concentration: 2.574 ug/mL

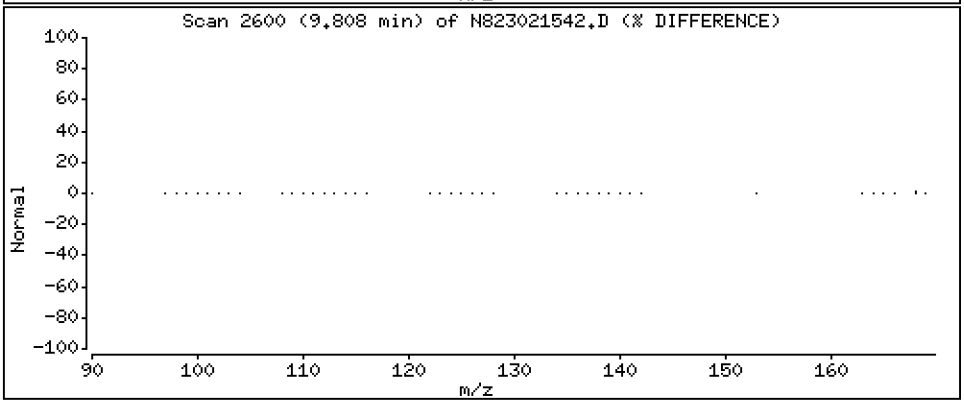












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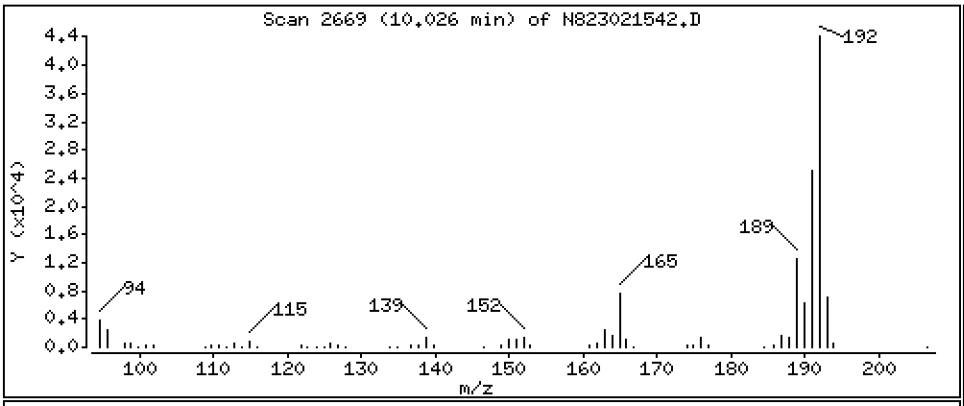
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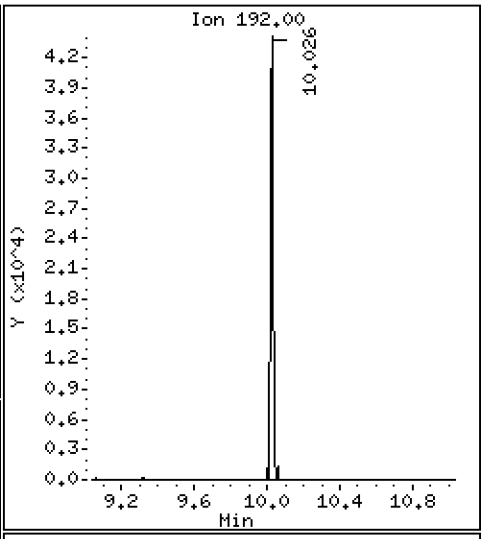
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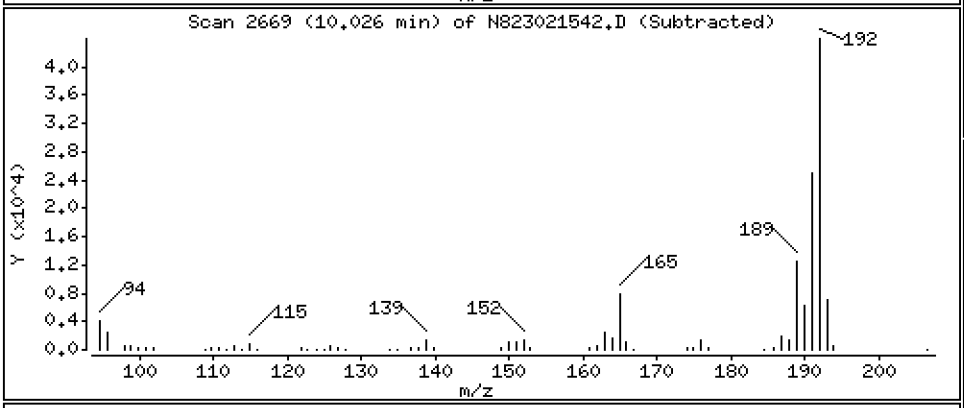
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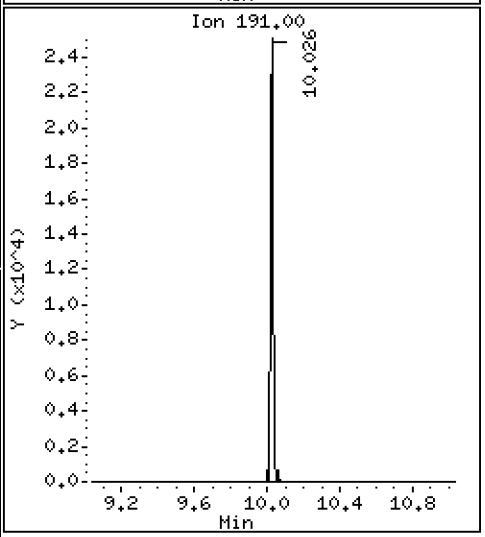
20 1-Methylphenanthrene

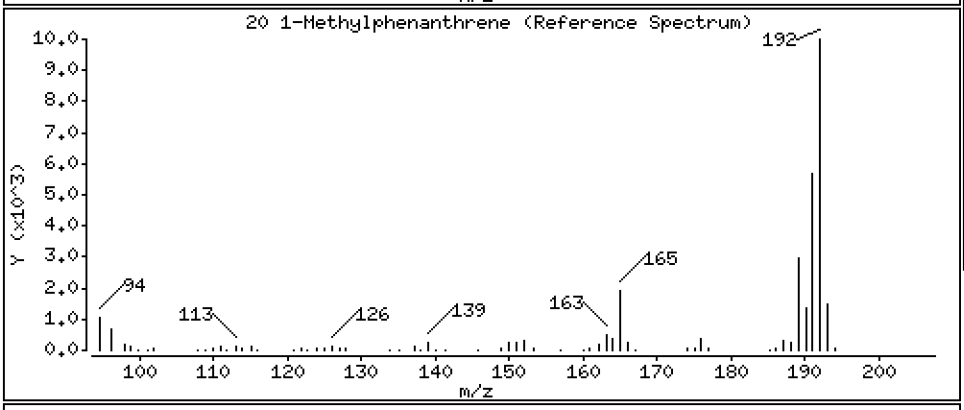
Concentration: 2.647 ug/mL

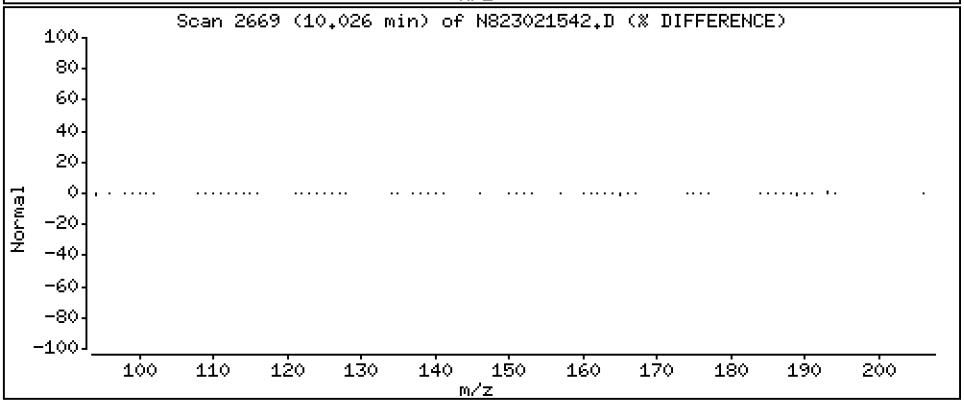












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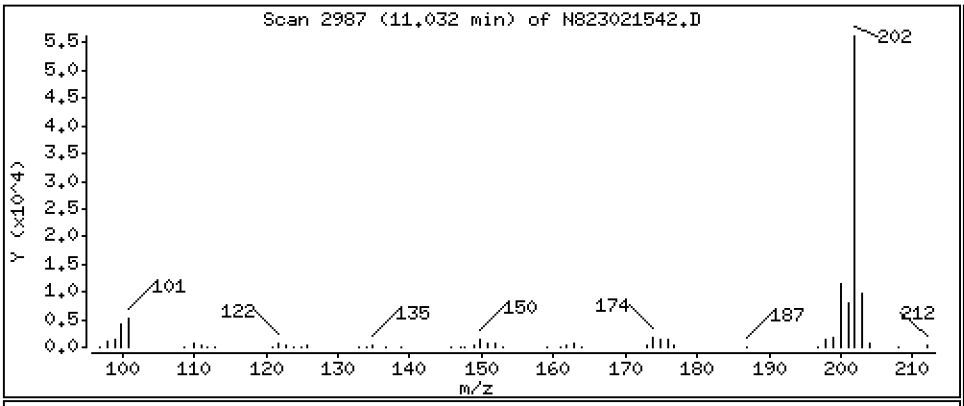
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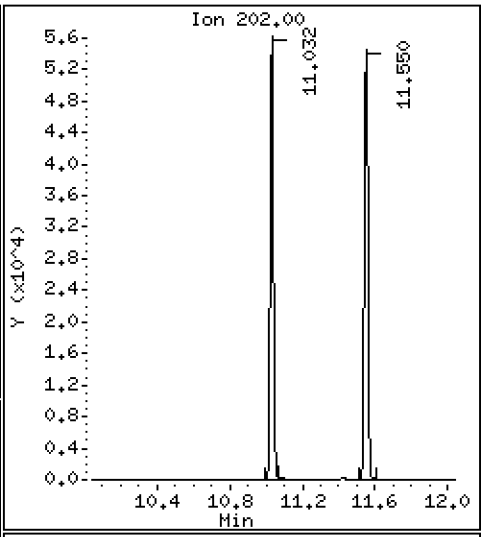
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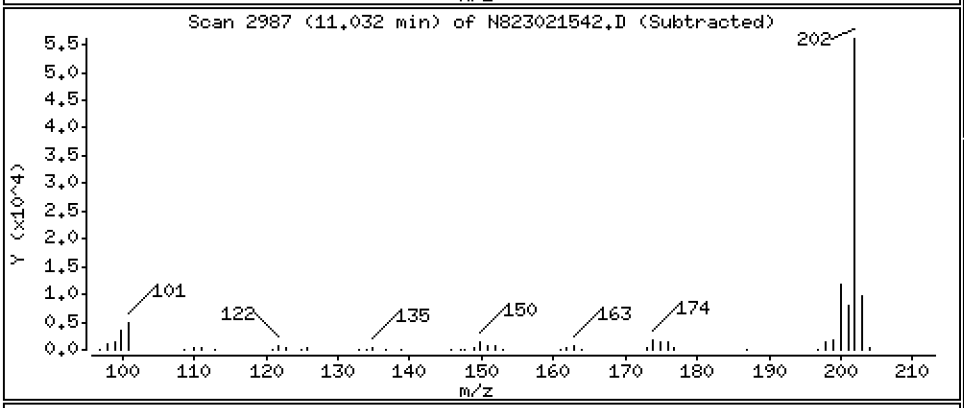
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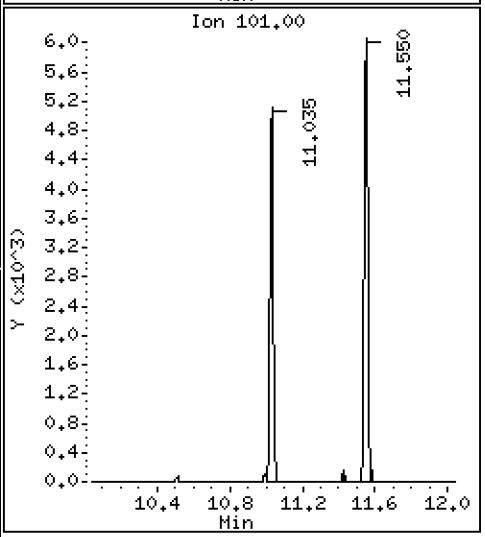
22 Fluoranthene

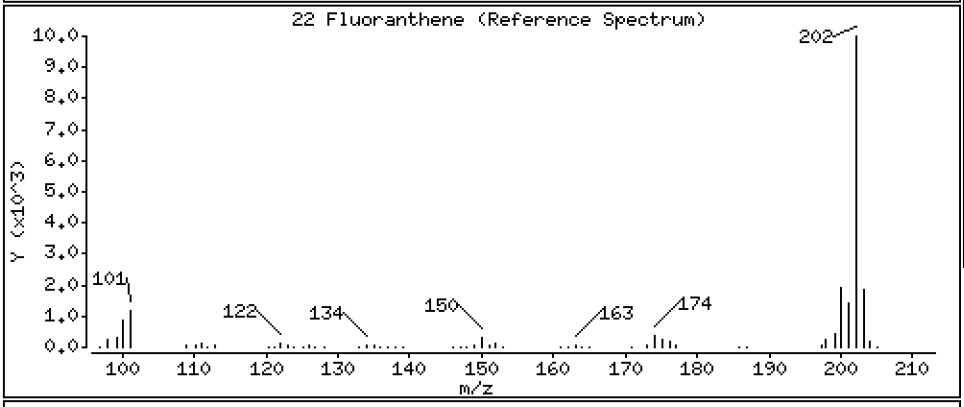
Concentration: 2.625 ug/mL

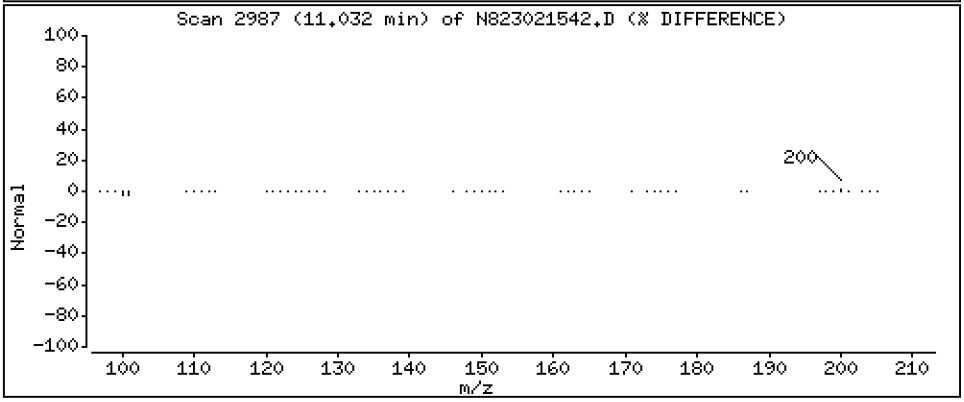












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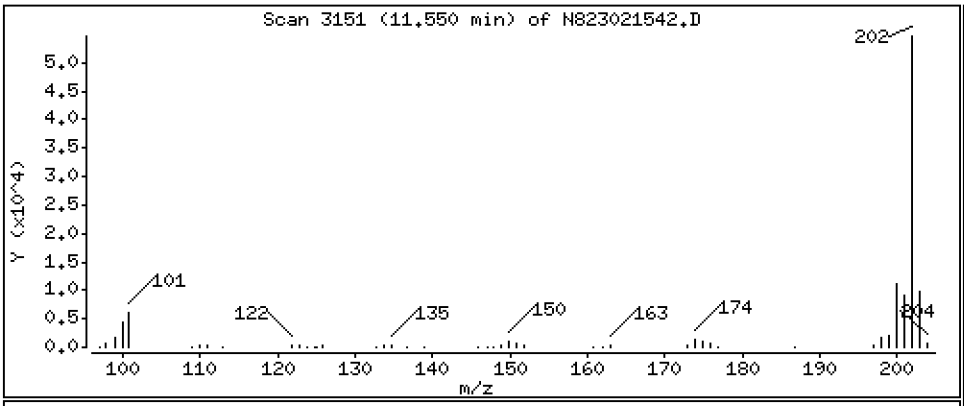
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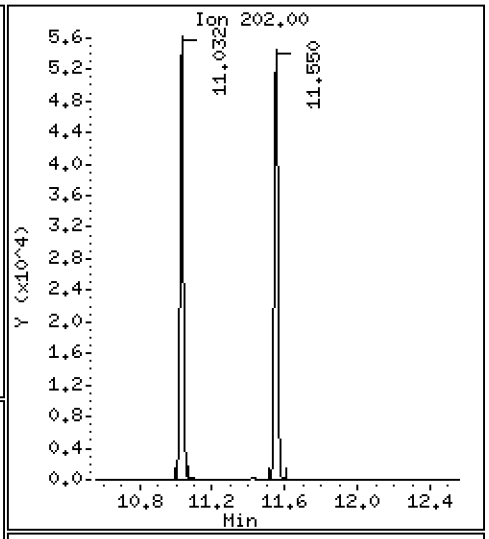
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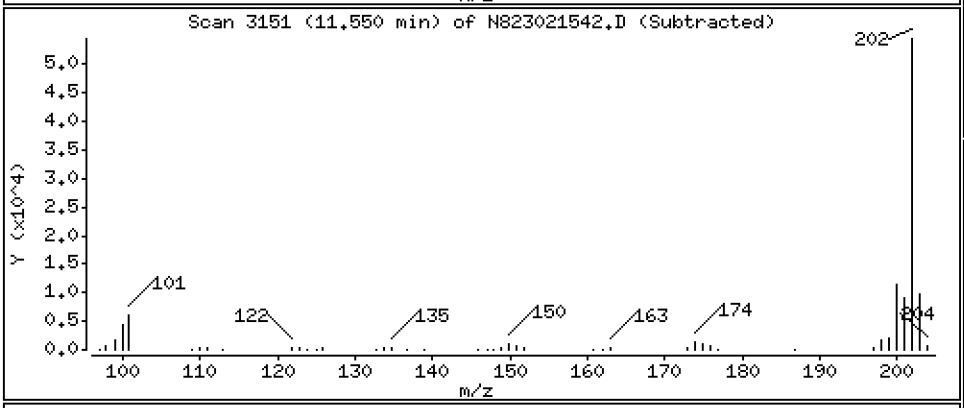
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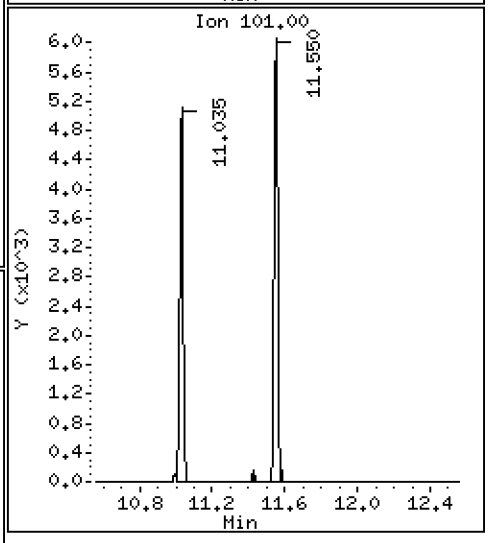
23 Pyrene

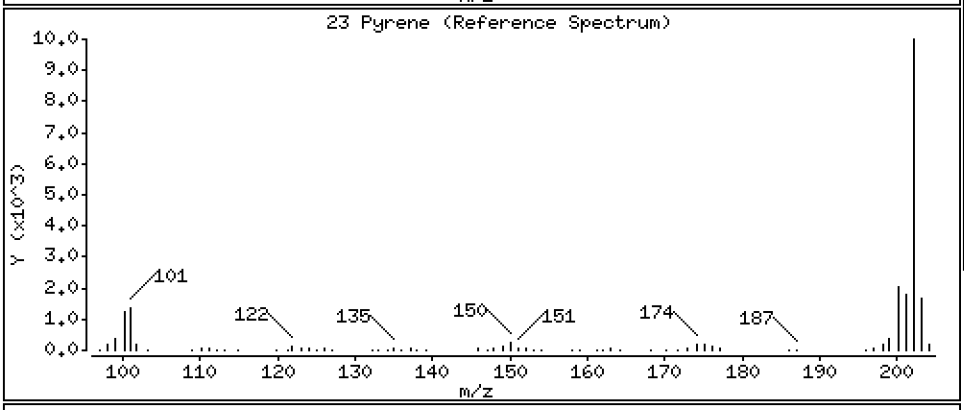
Concentration: 2.662 ug/mL

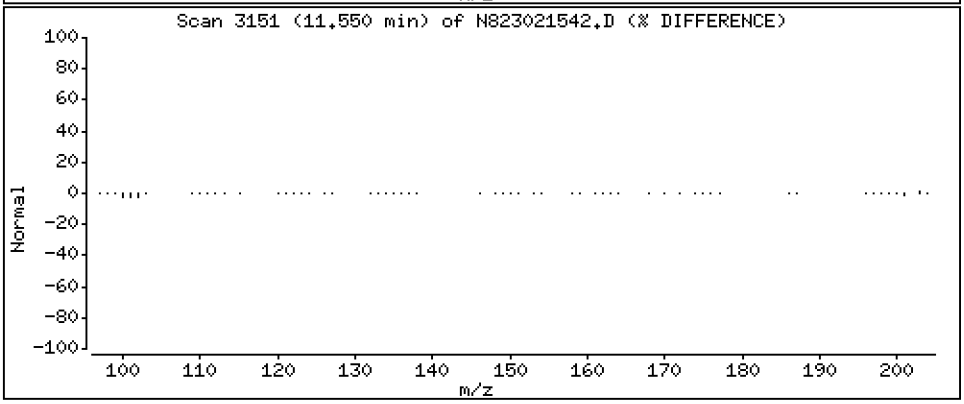












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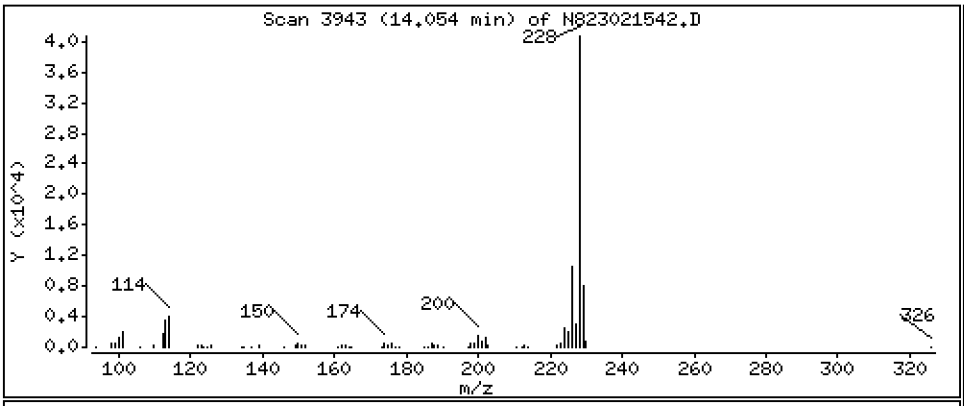
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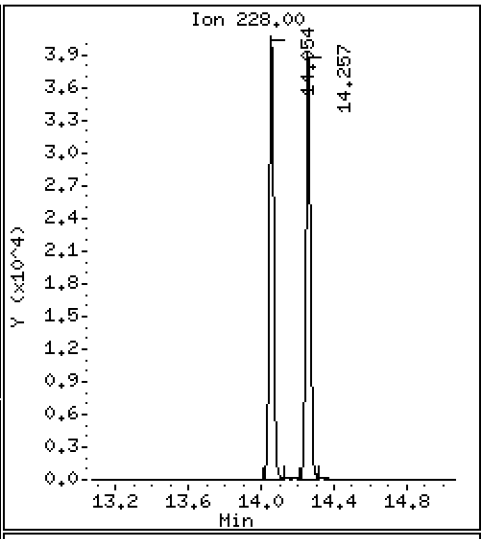
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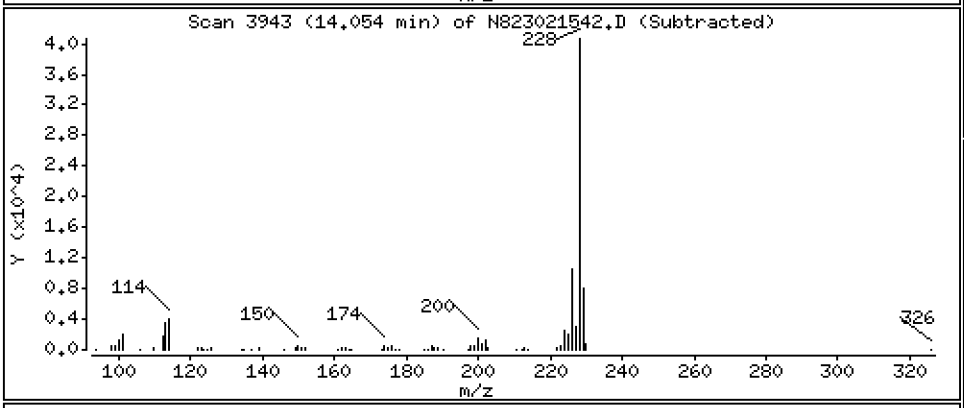
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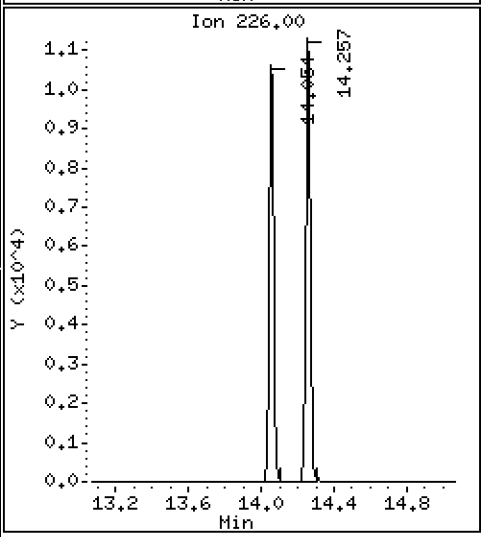
24 Benzo(a)anthracene

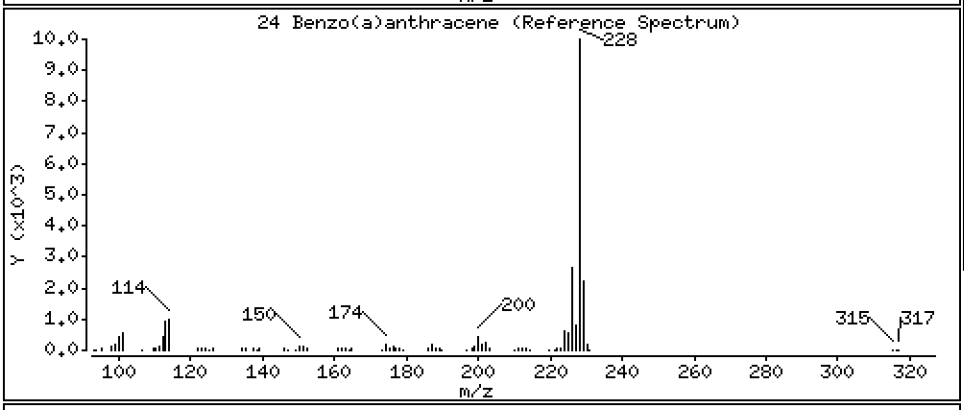
Concentration: 2.754 ug/mL

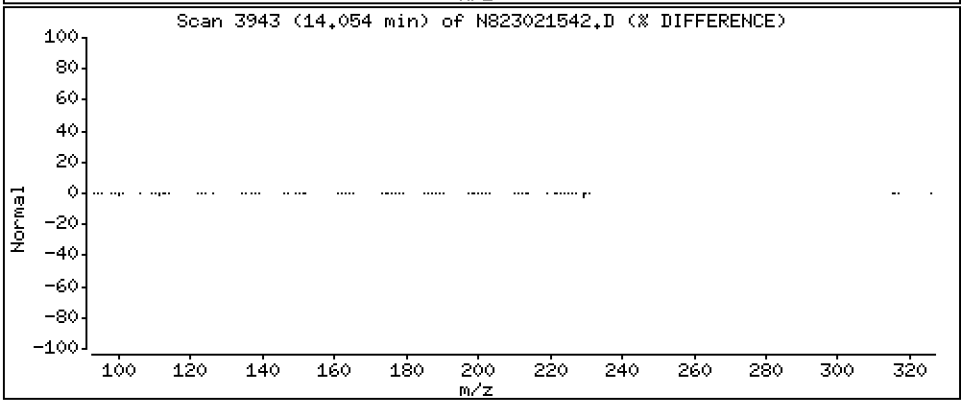












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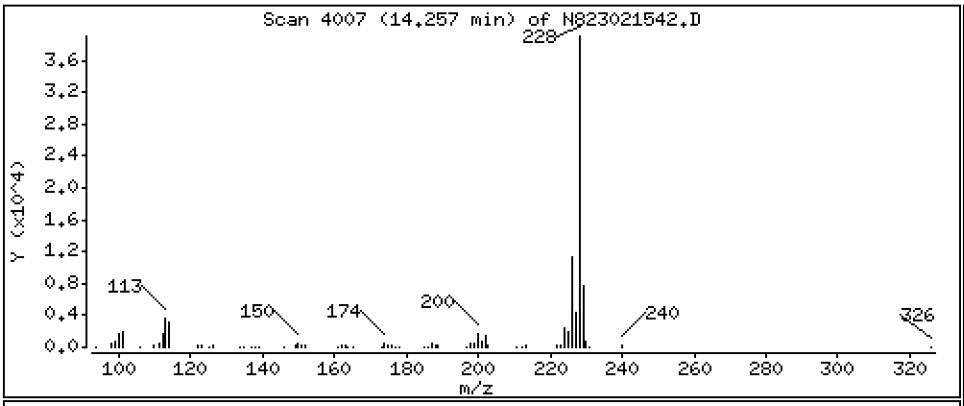
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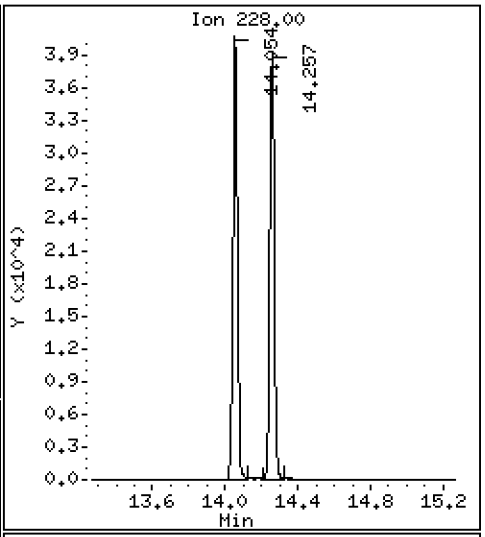
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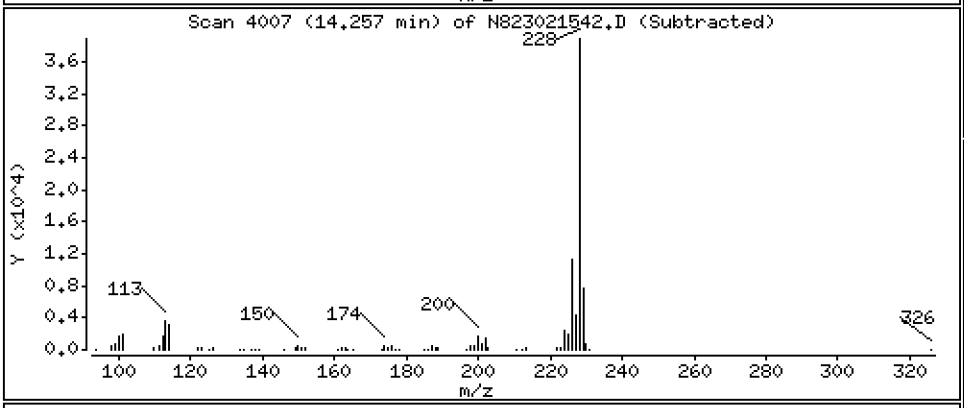
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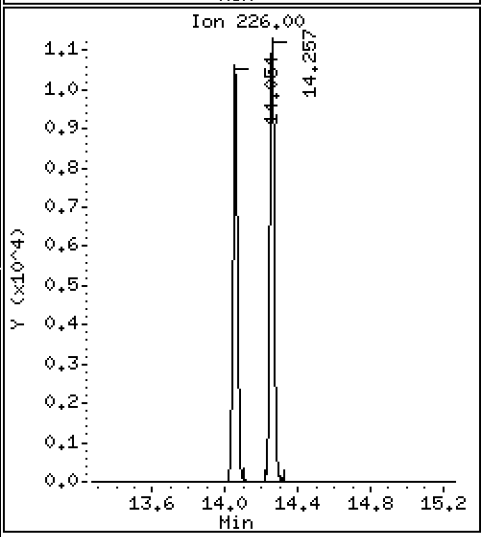
27 Chrysene

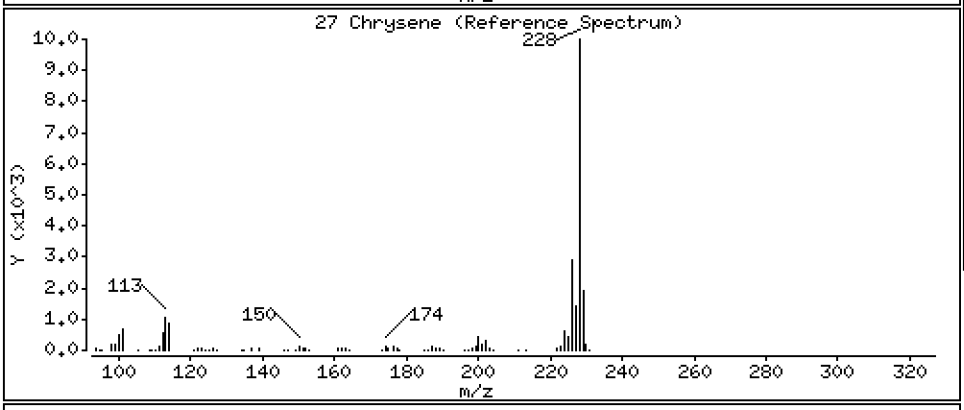
Concentration: 2.552 ug/mL

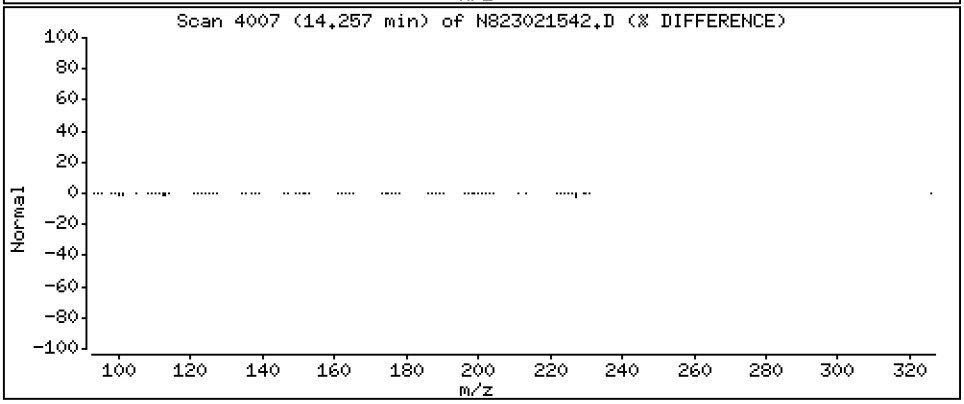












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Date : 16-FEB-2023 06:07

Client ID:

Instrument: nt8.i

Sample Info: CCV230215A

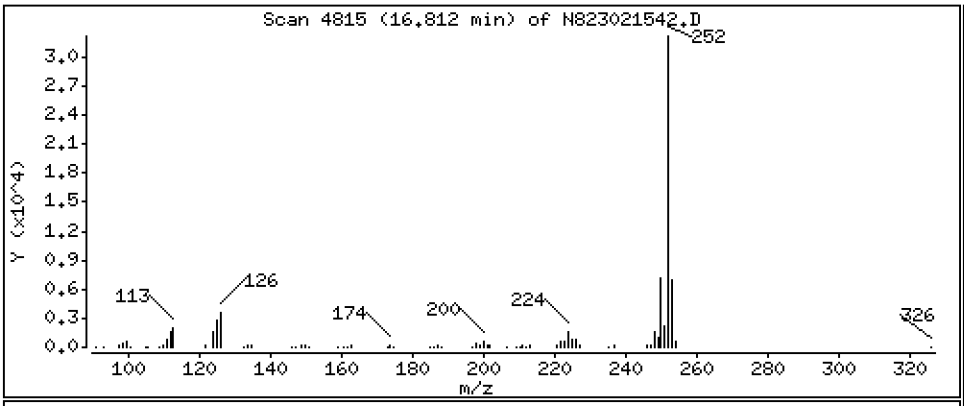
Operator: JZ

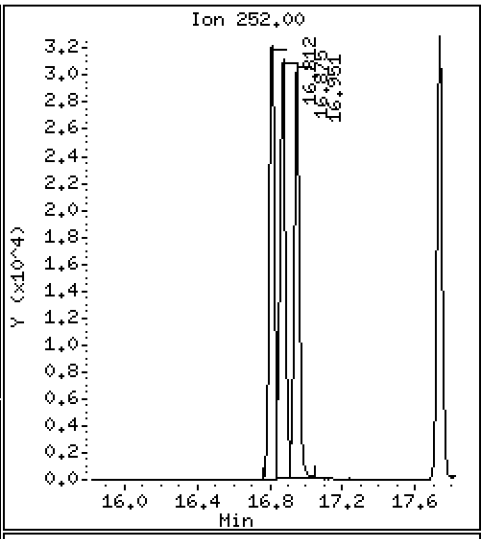
Column phase: Rxi-17sil

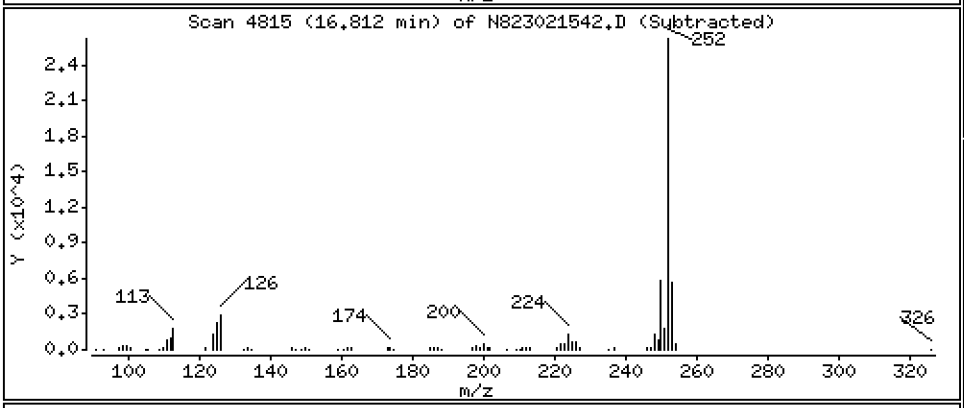
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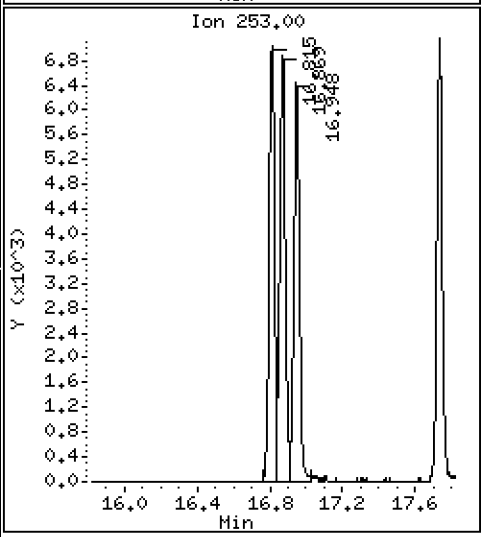
28 Benzo(b)fluoranthene

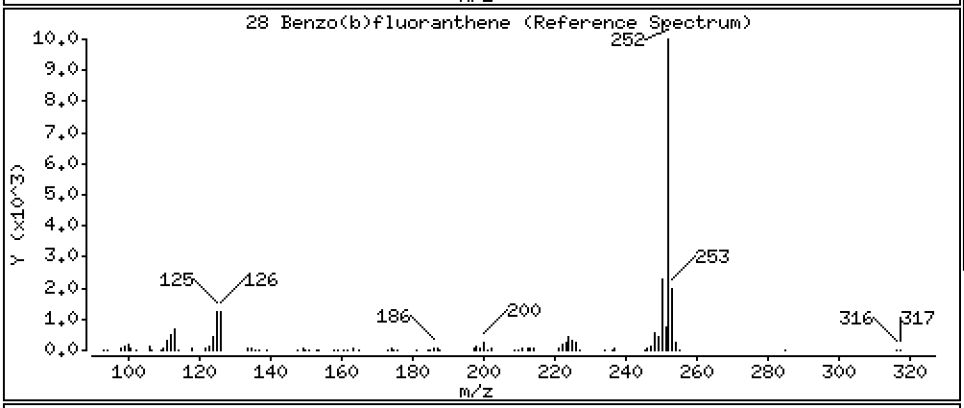
Concentration: 2.405 ug/mL

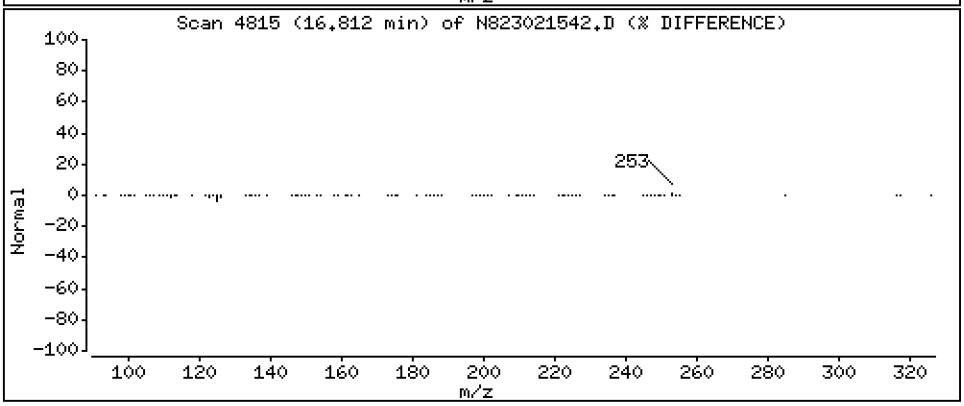












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Date : 16-FEB-2023 06:07

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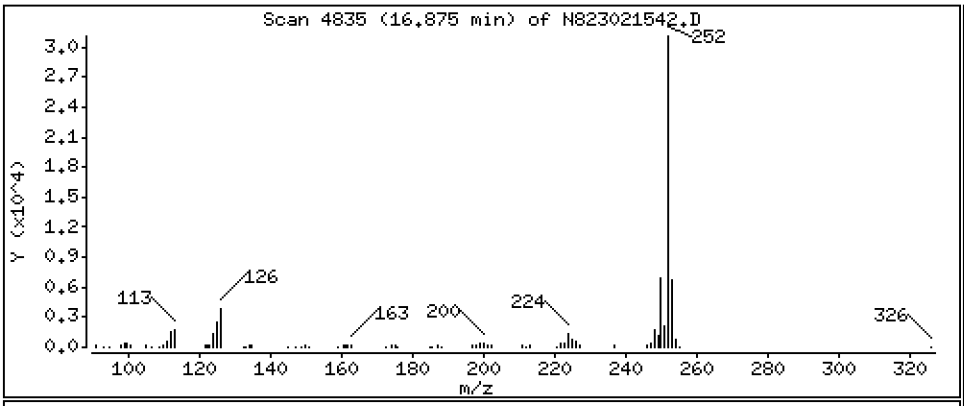
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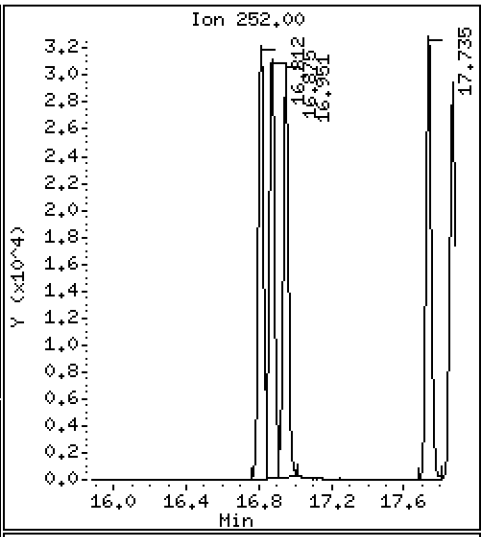
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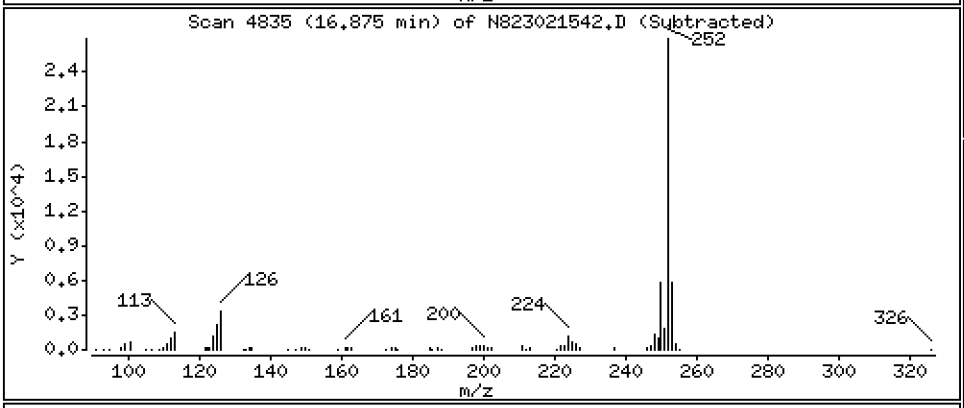
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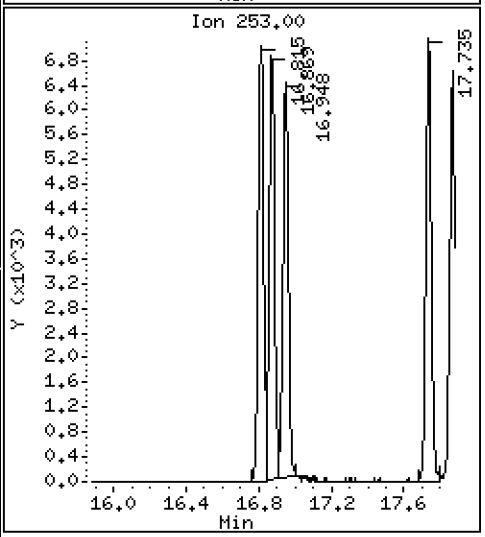
29 Benzo(k)fluoranthene

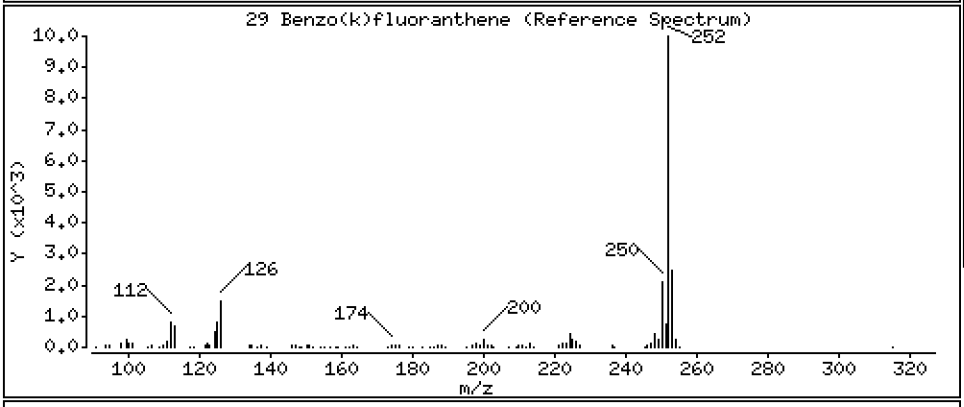
Concentration: 2.390 ug/mL

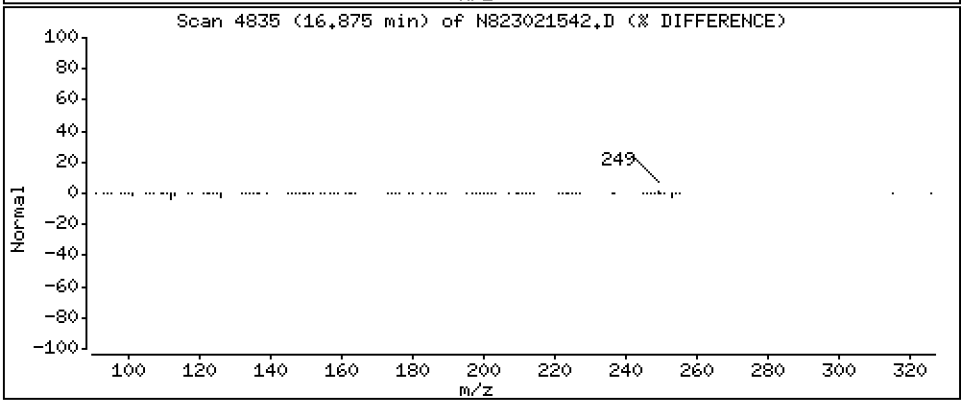












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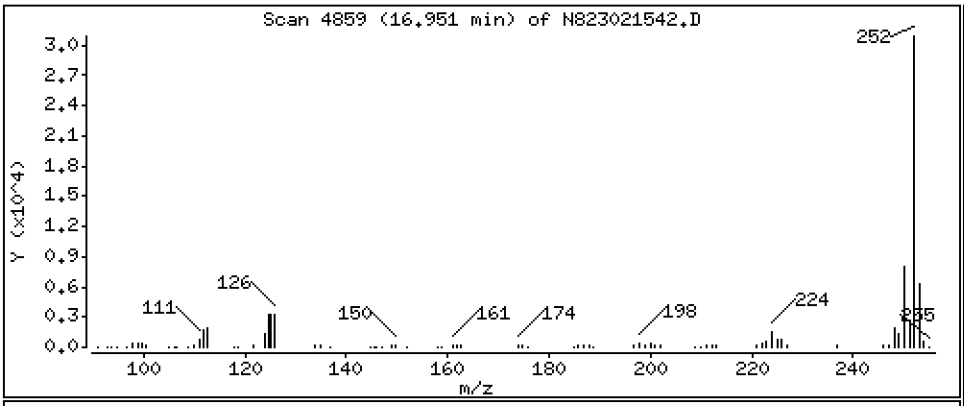
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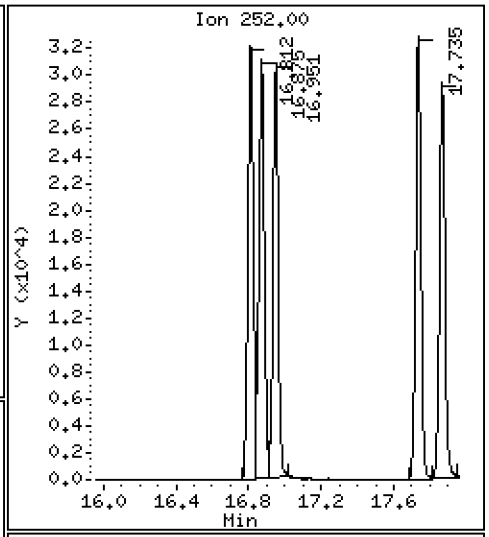
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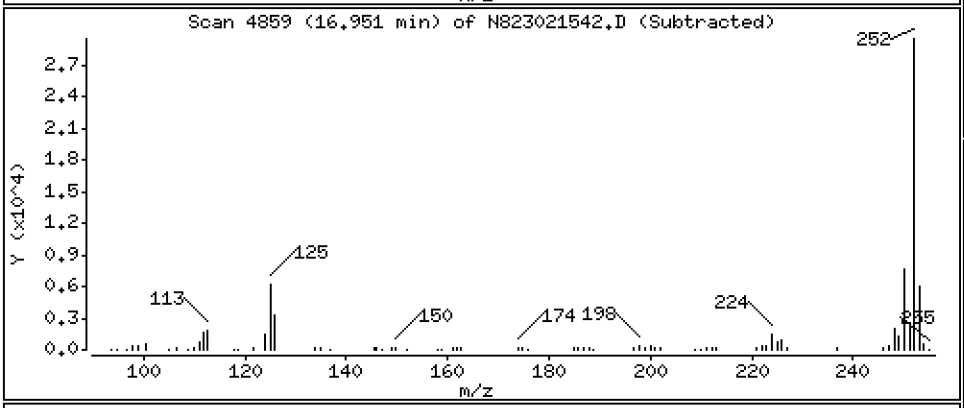
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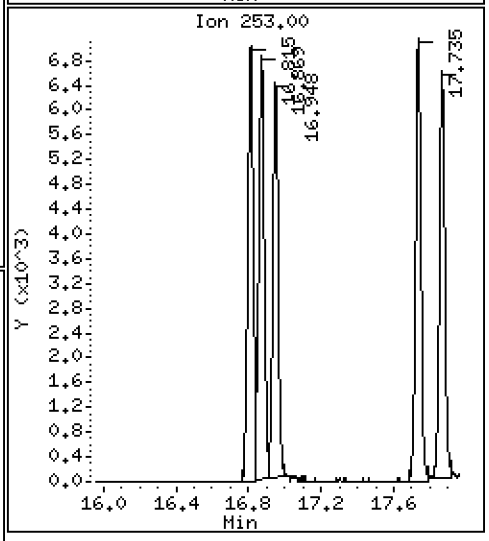
30 Benzo(j)fluoranthene

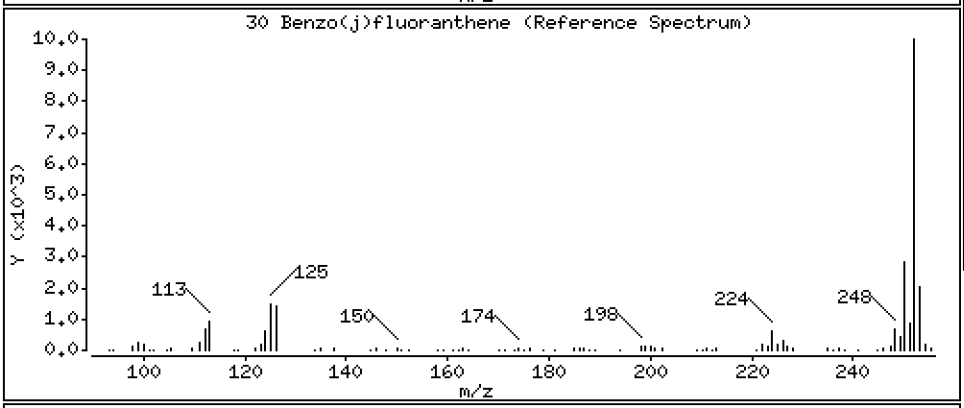
Concentration: 2.471 ug/mL

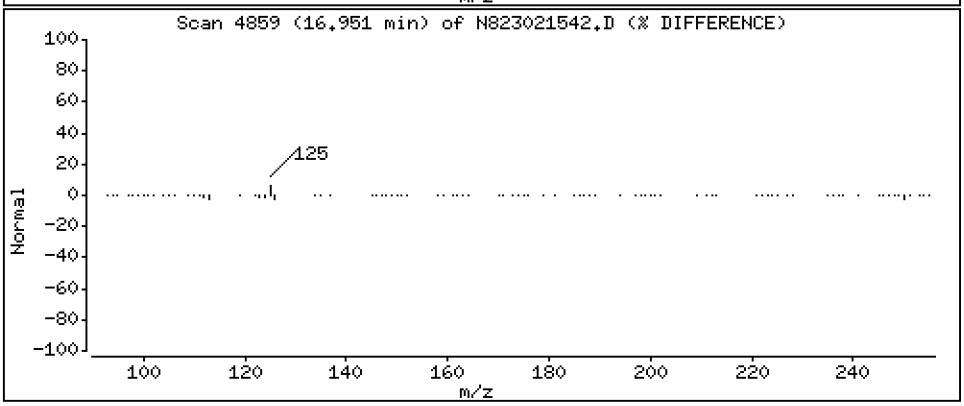












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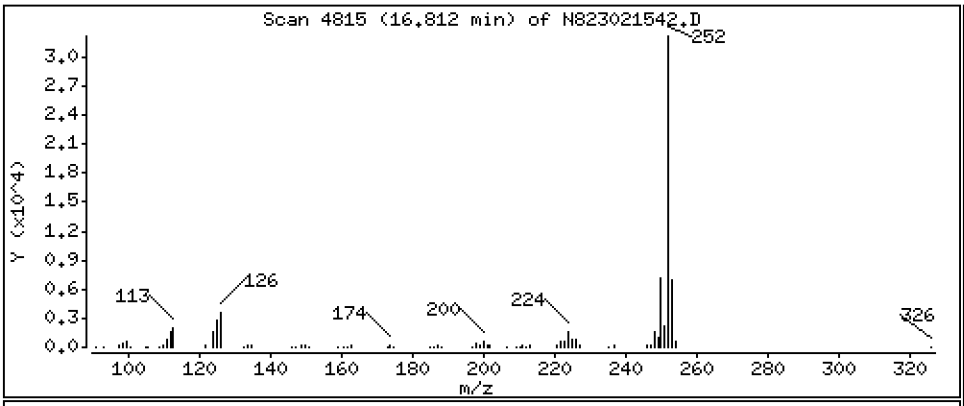
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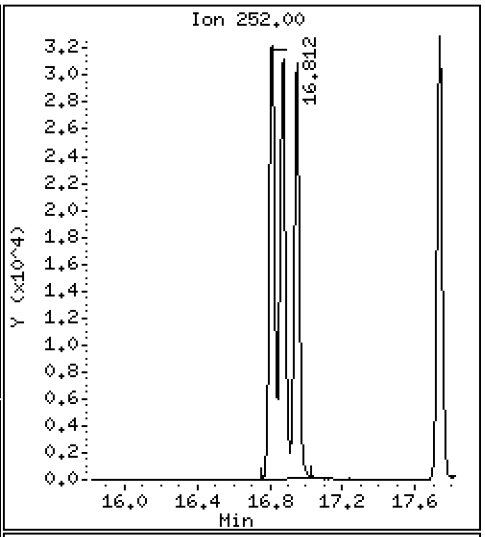
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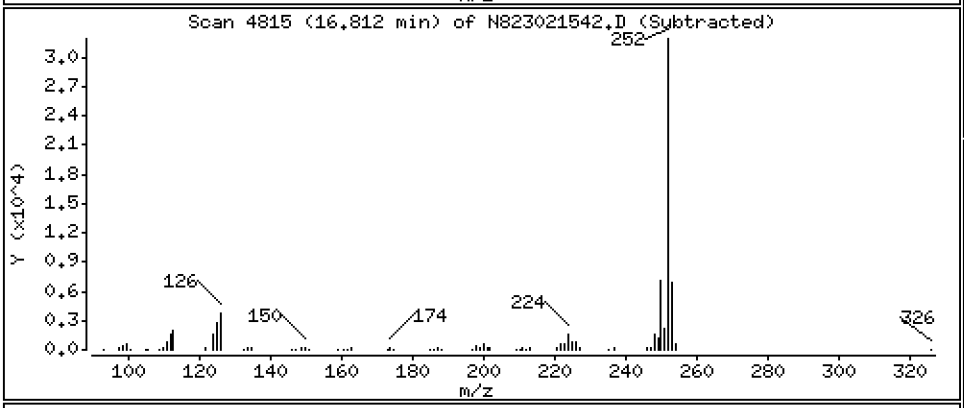
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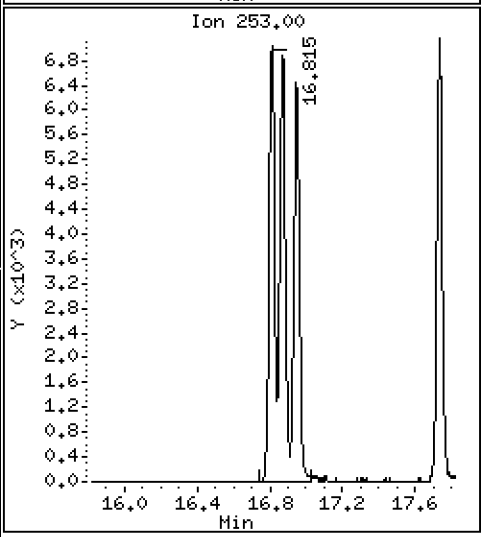
31 Total Benzofluoranthenes

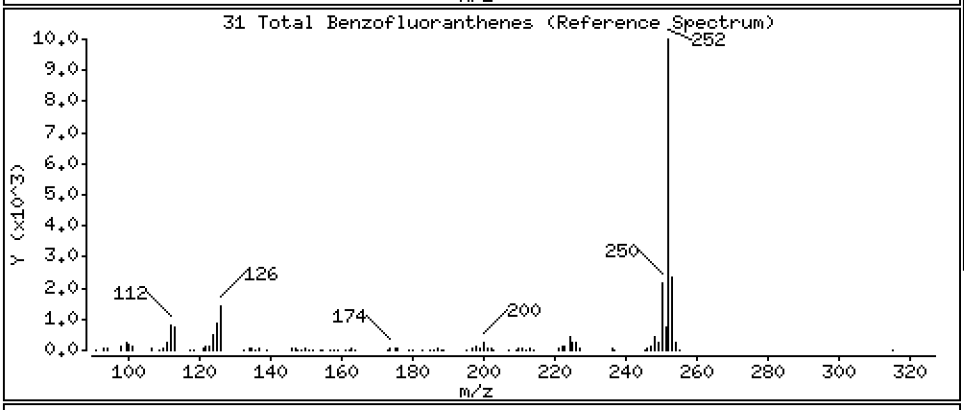
Concentration: 7.303 ug/mL

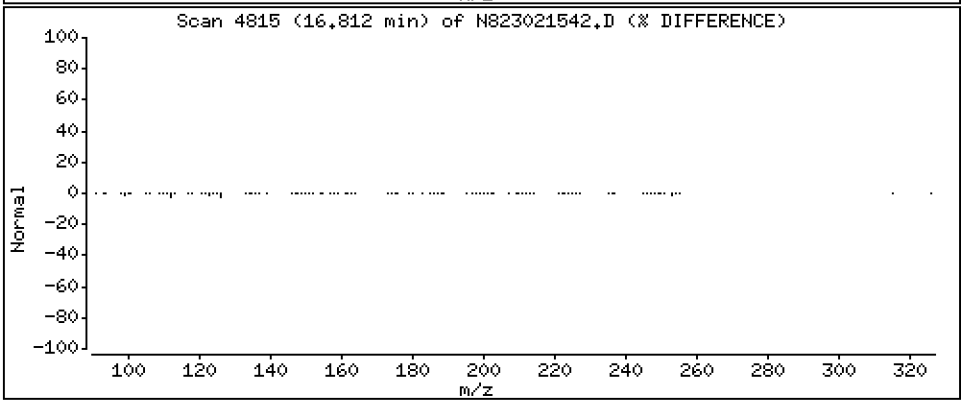












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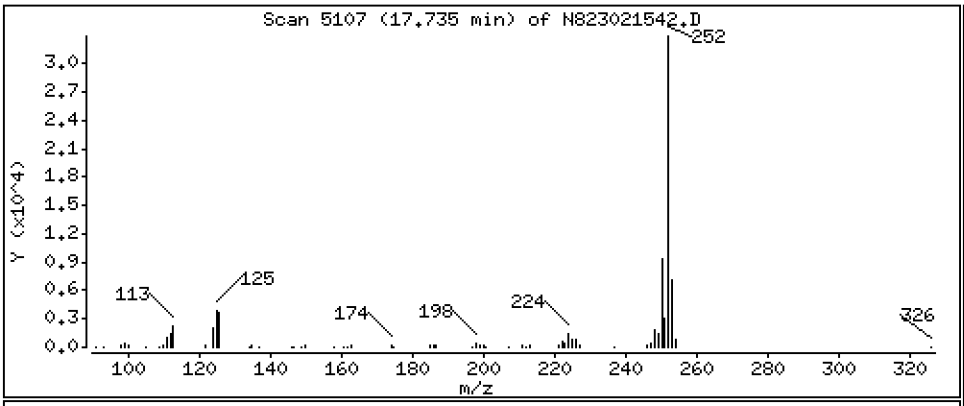
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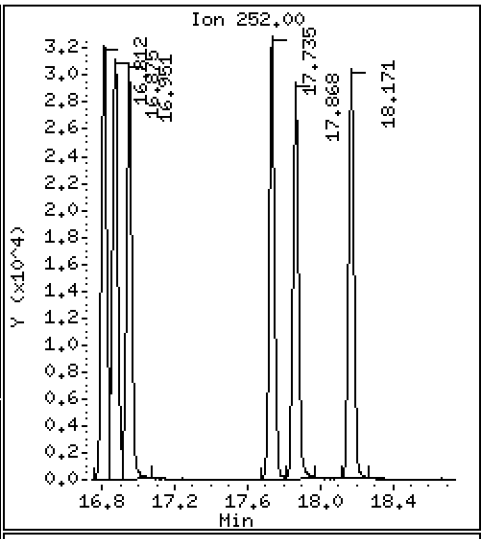
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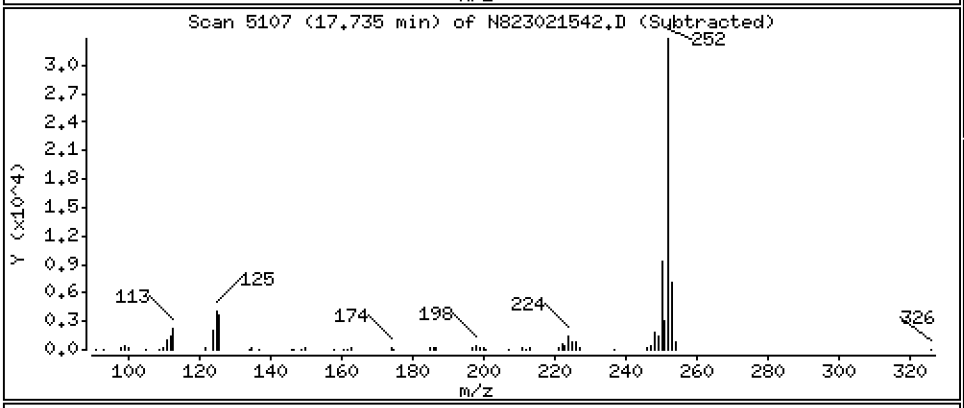
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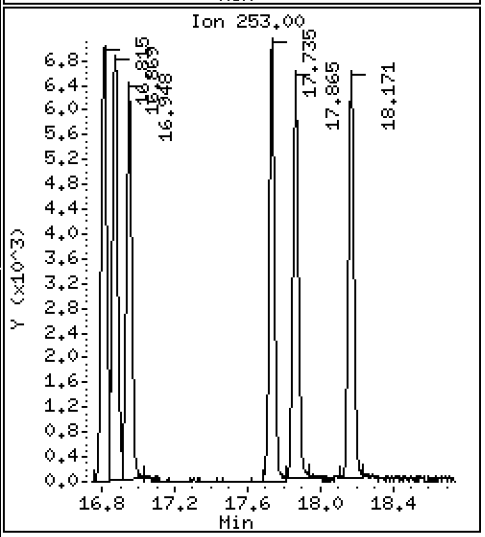
34 Benzo(e)pyrene

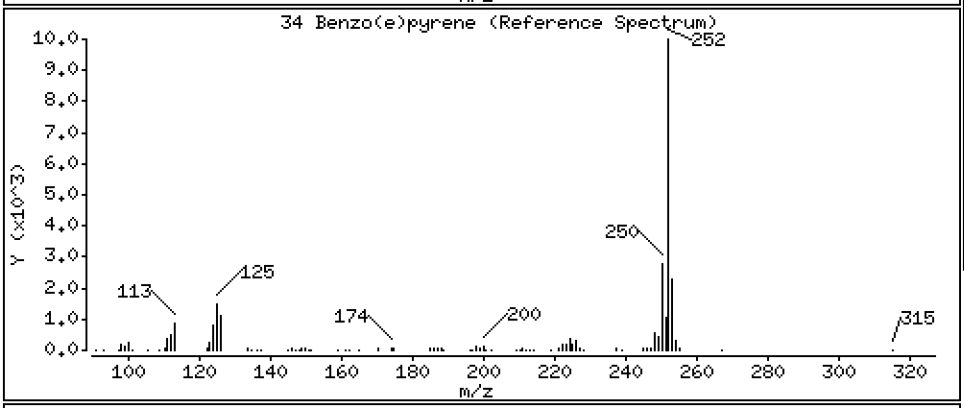
Concentration: 2.395 ug/mL

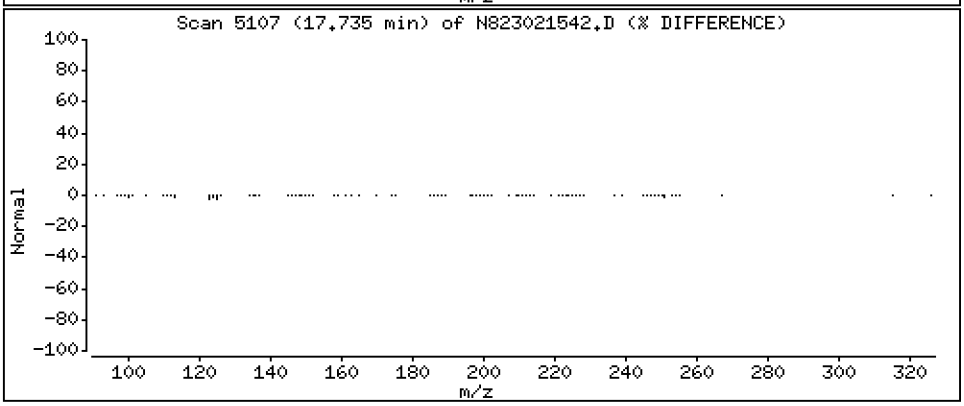












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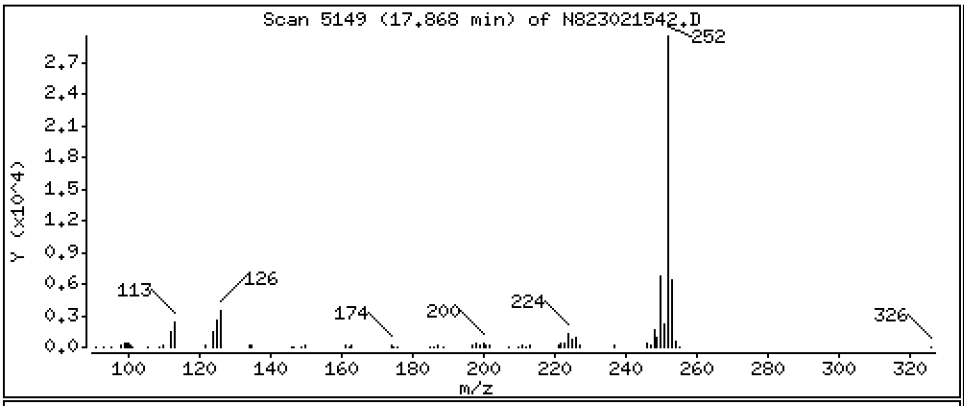
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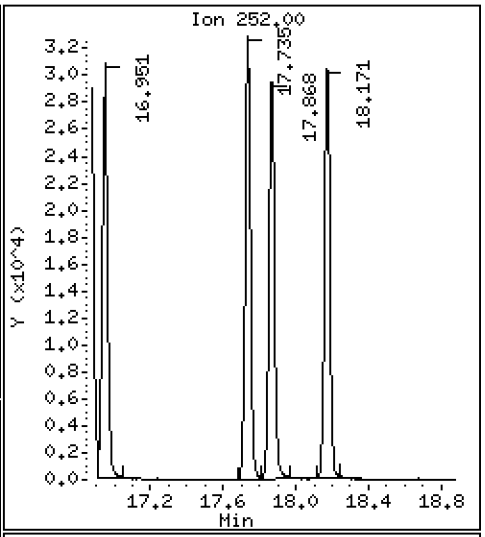
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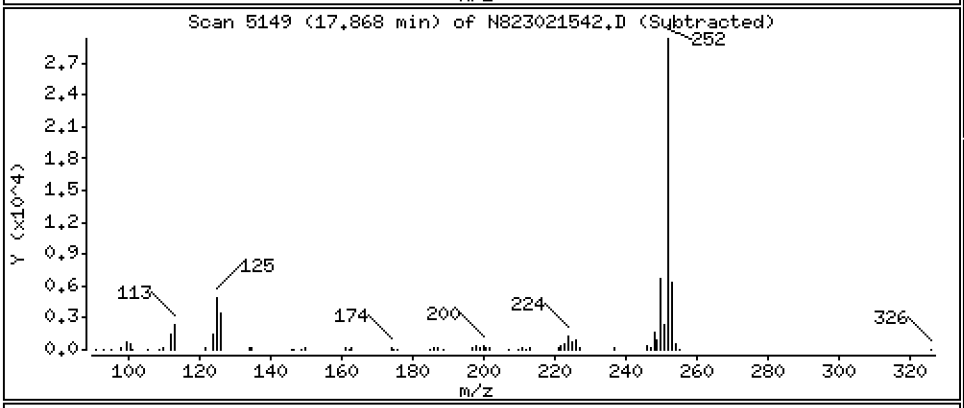
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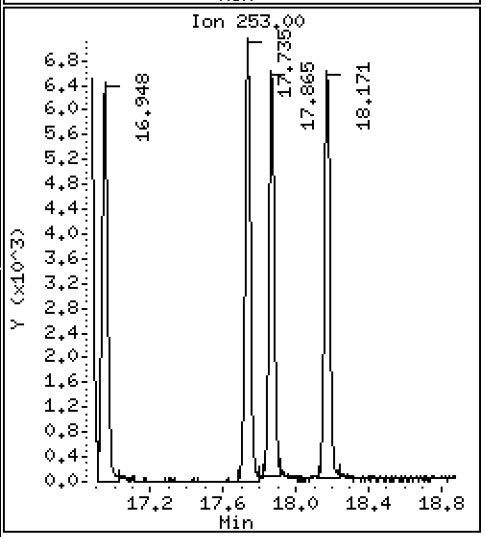
32 Benzo(a)pyrene

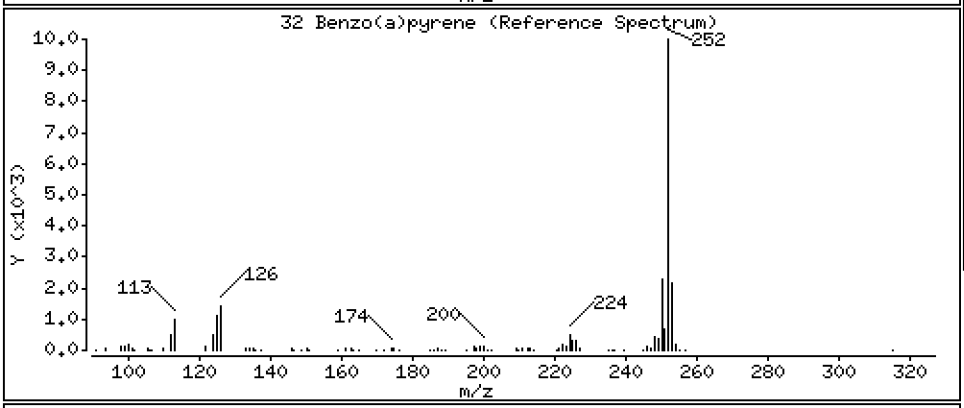
Concentration: 2.535 ug/mL

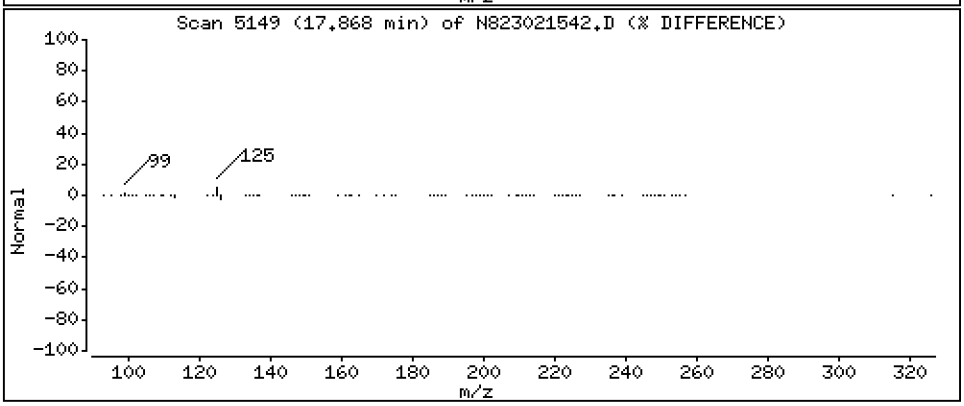












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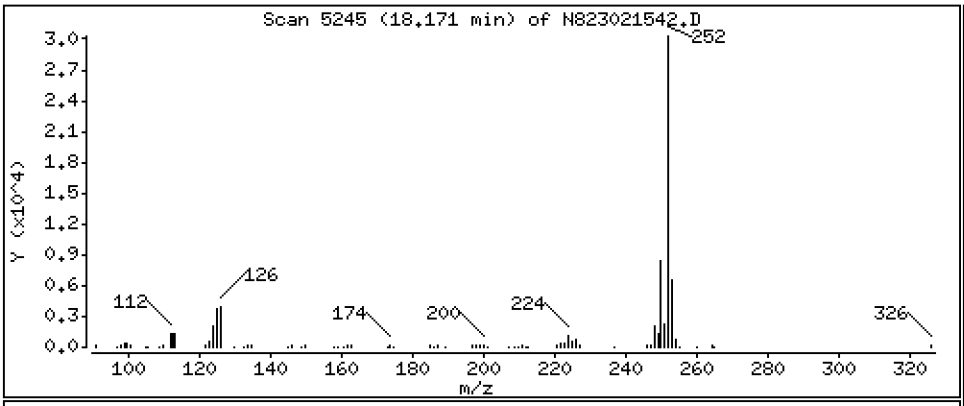
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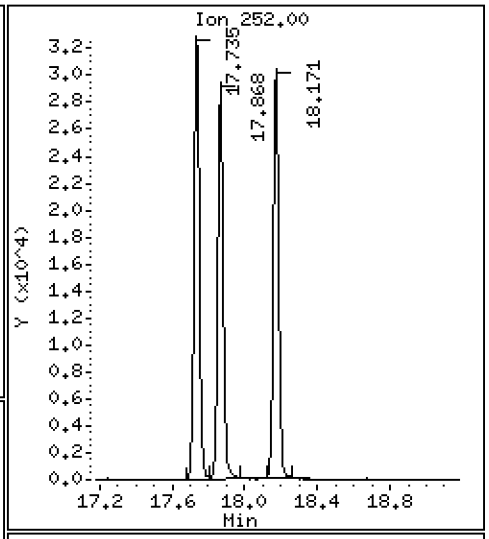
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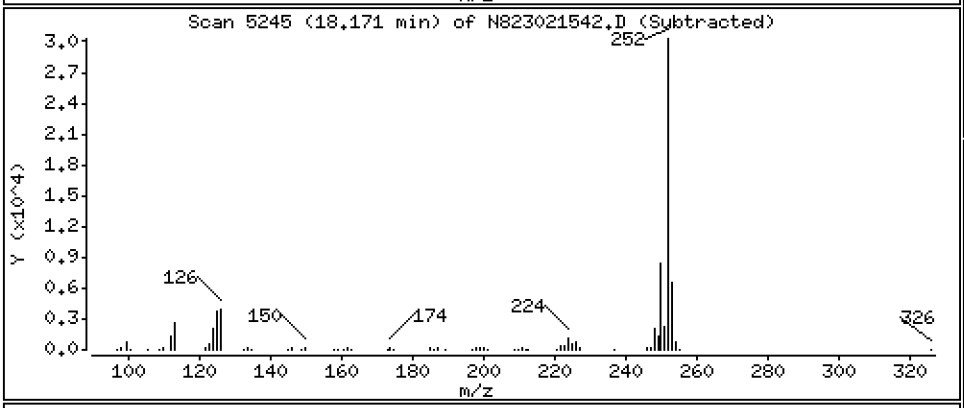
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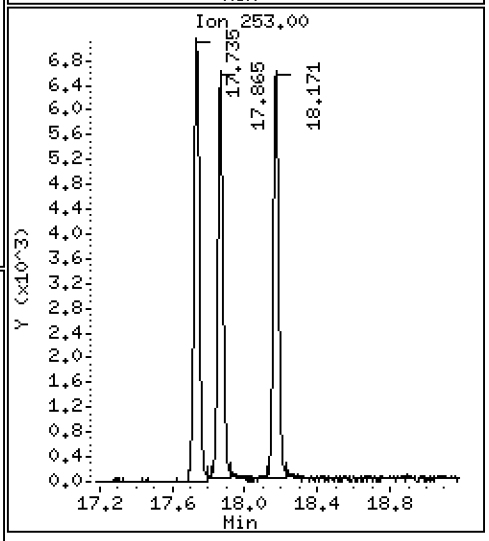
35 Perylene

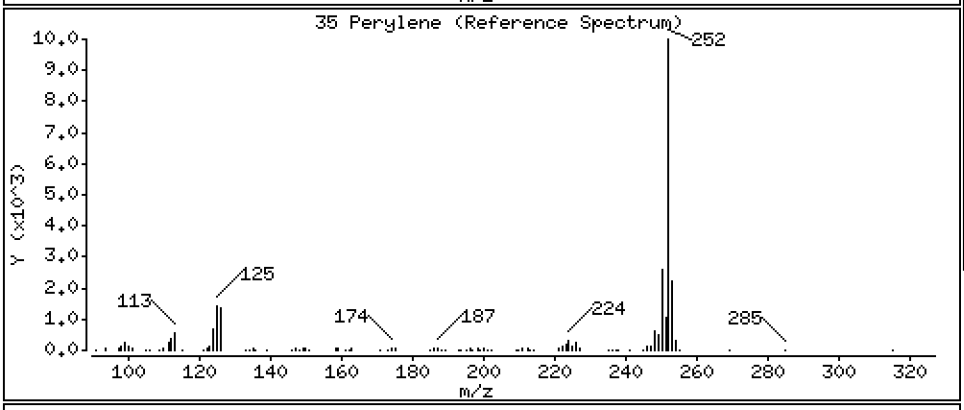
Concentration: 2.454 ug/mL

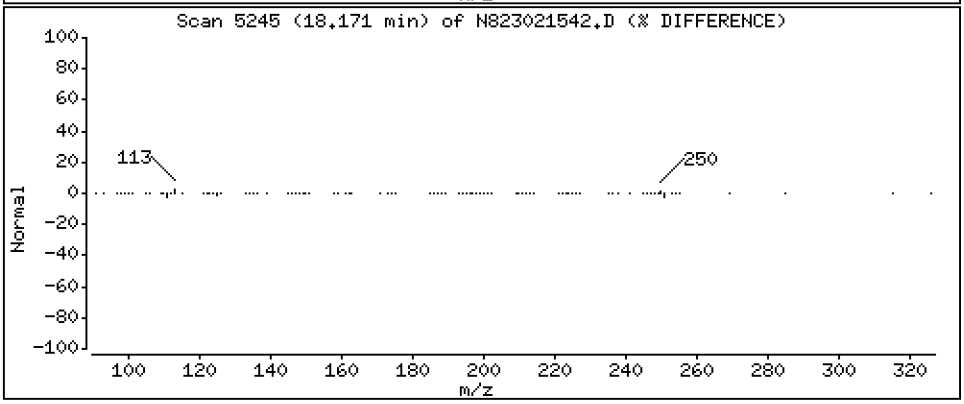












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Sample Info: CCV230215A

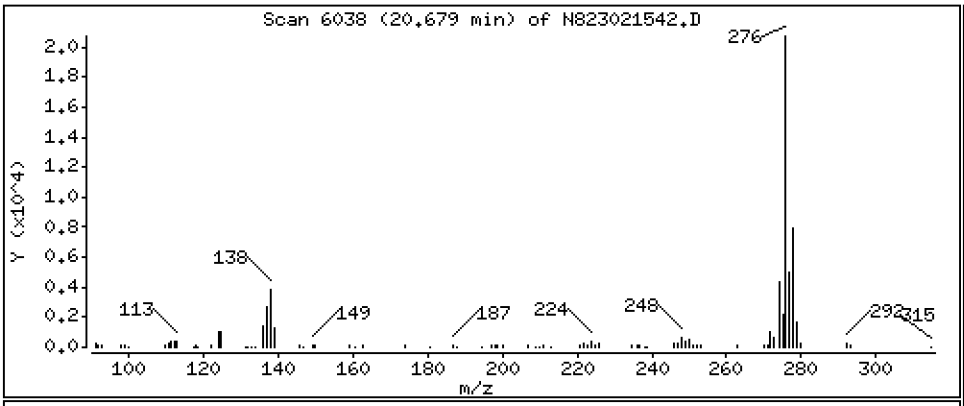
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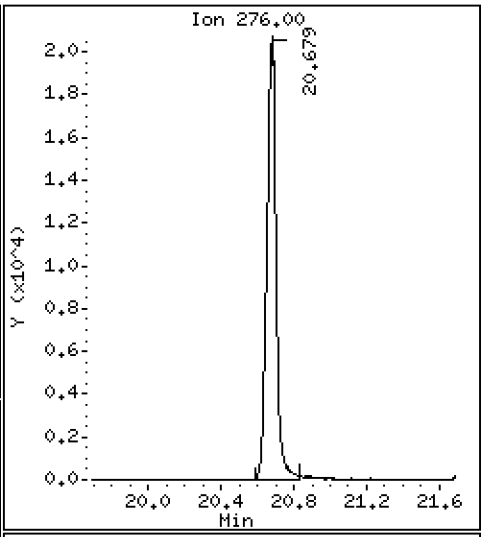
Column phase: Rxi-17sil

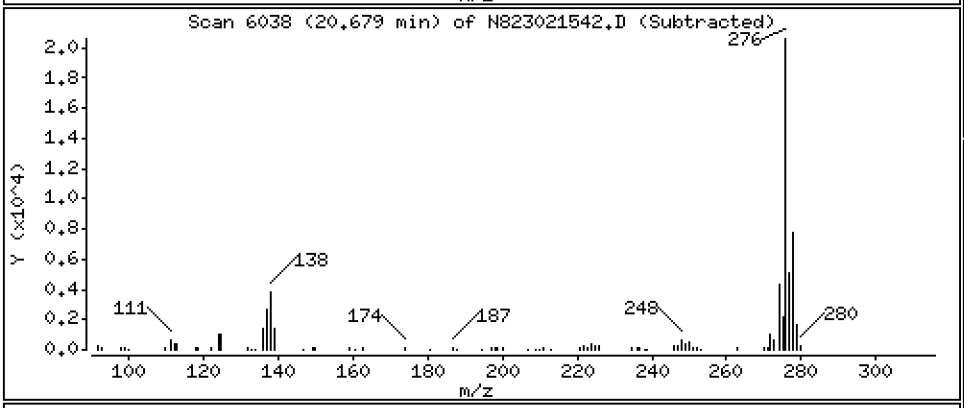
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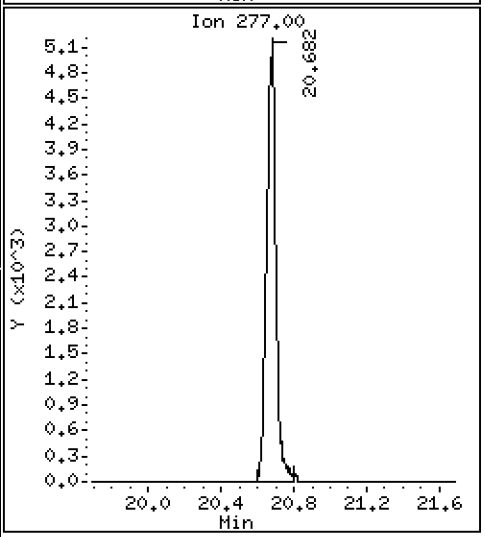
37 Indeno(1,2,3-cd)pyrene

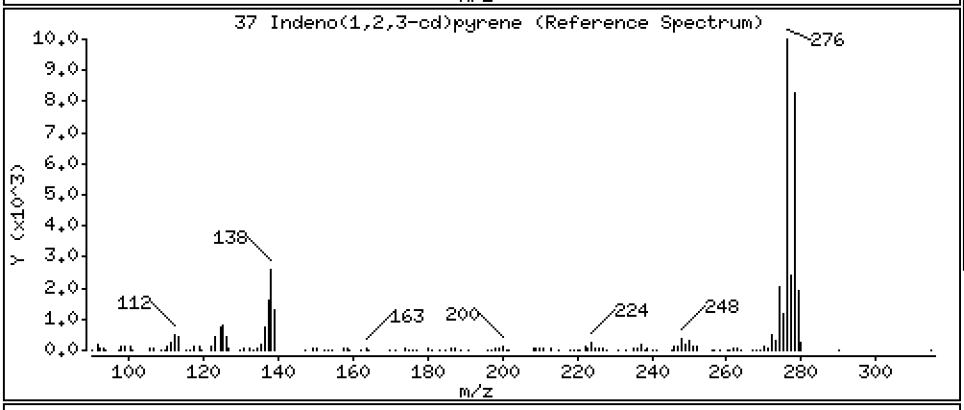
Concentration: 2.672 ug/mL

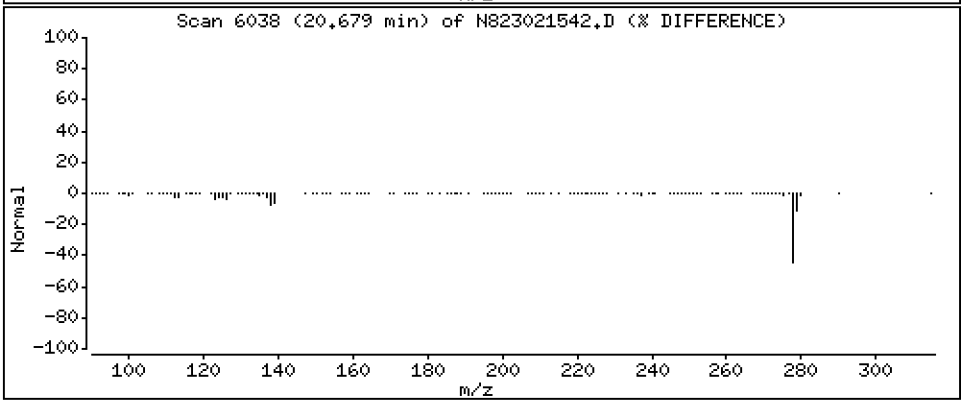












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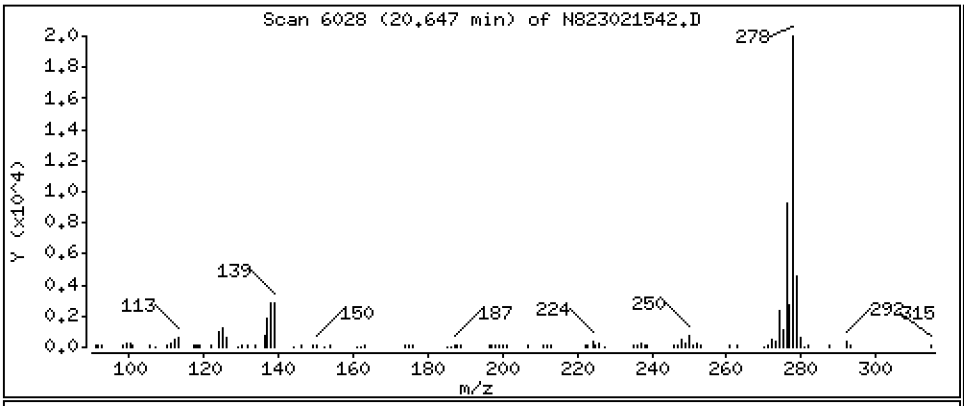
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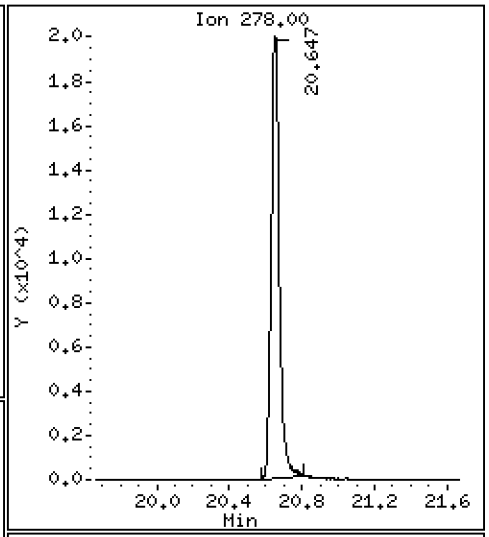
Column phase: Rxi-17sil

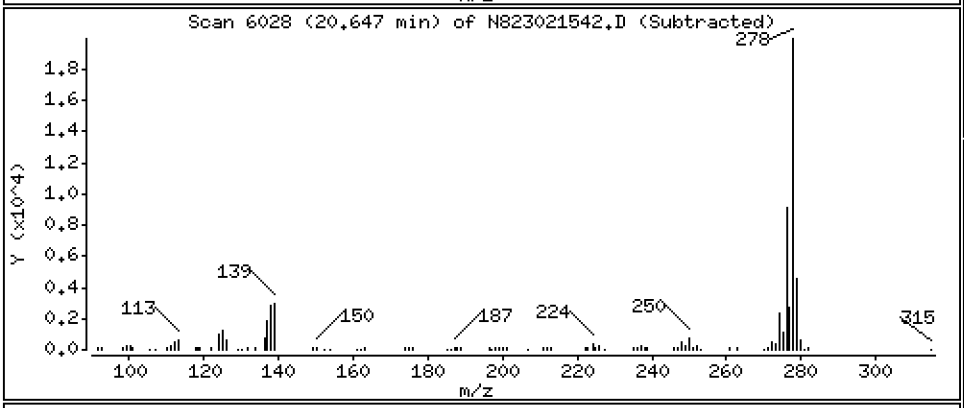
Column diameter: 0.25

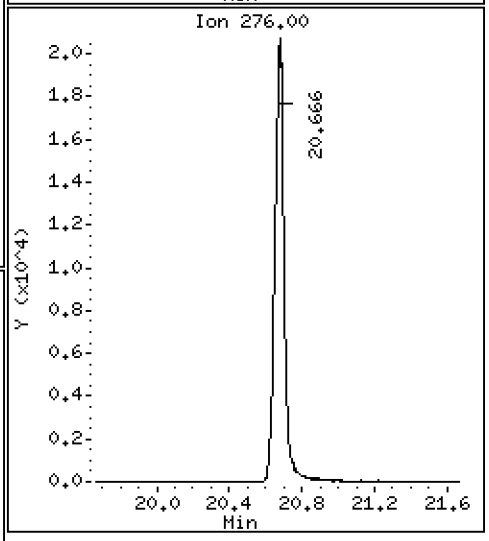
38 Dibenzo(a,h)anthracene

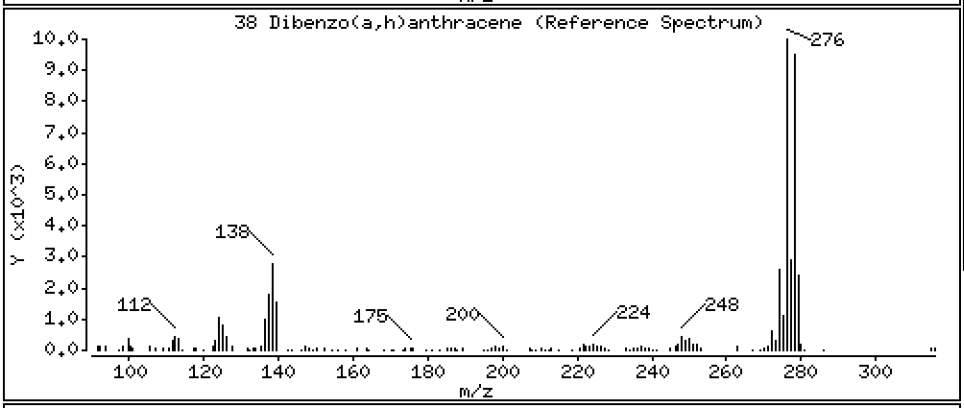
Concentration: 2.642 ug/mL

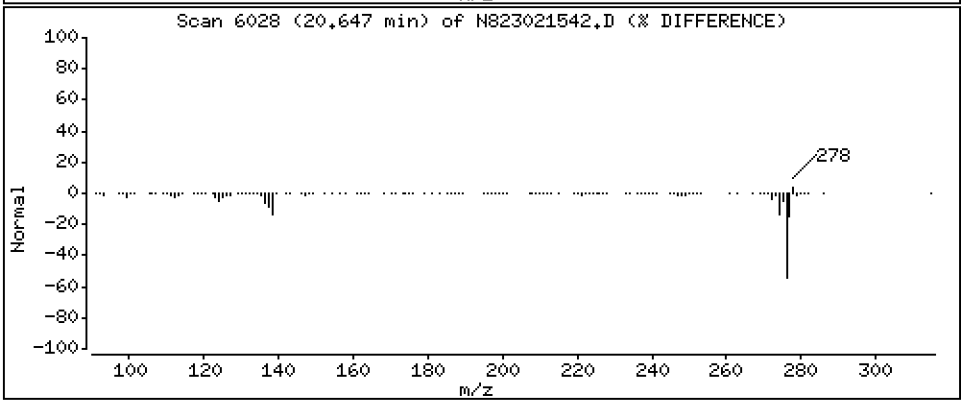












Data File: \\target\share\chem3\nt8.i\20230215A.b\N823021542.D

Date : 16-FEB-2023 06:07

Client ID:

Instrument: nt8.i

Sample Info: CCV230215A

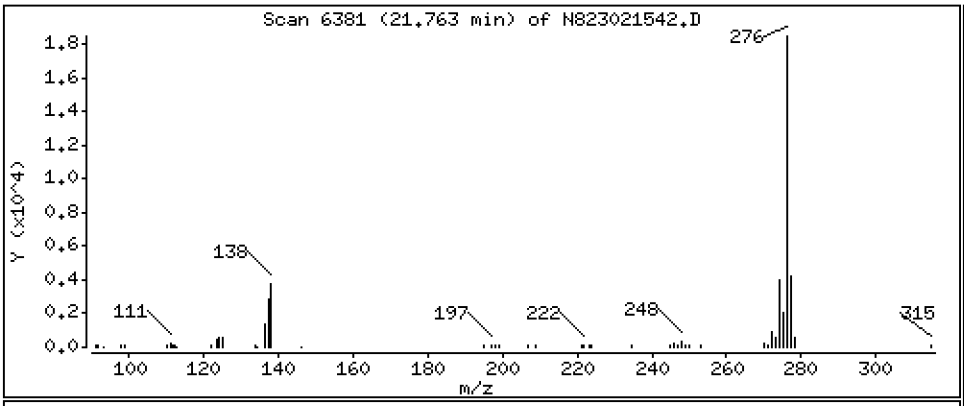
Operator: JZ

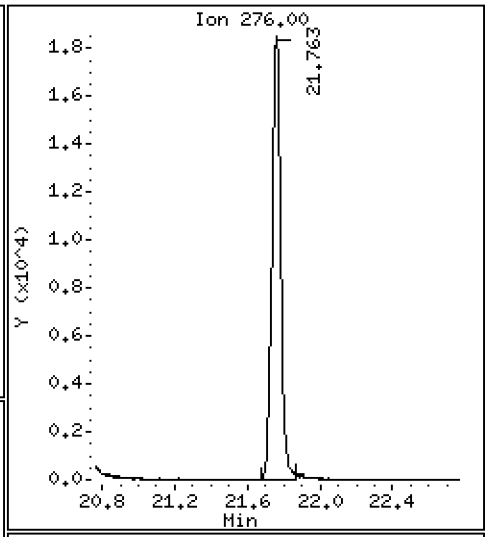
Column phase: Rxi-17sil

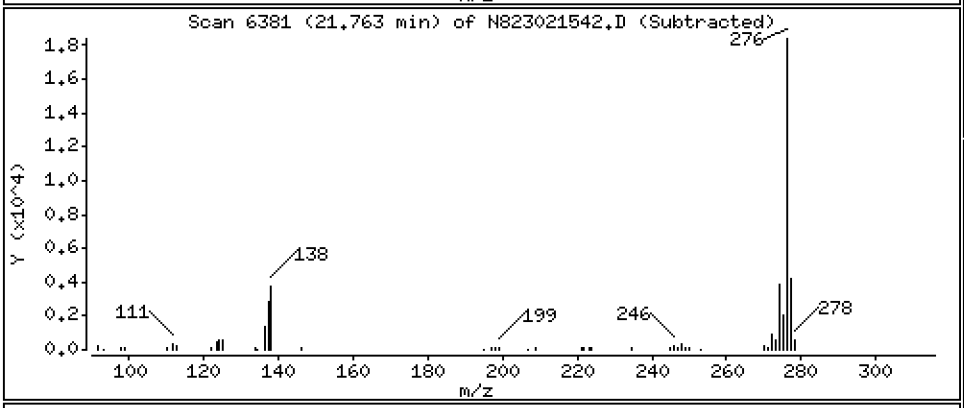
Column diameter: 0.25

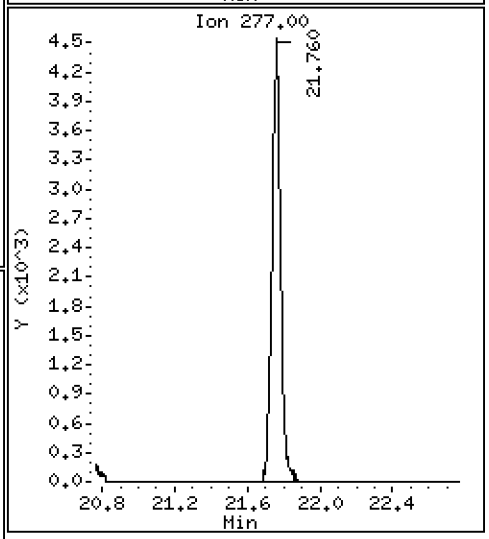
39 Benzo(g,h,i)perylene

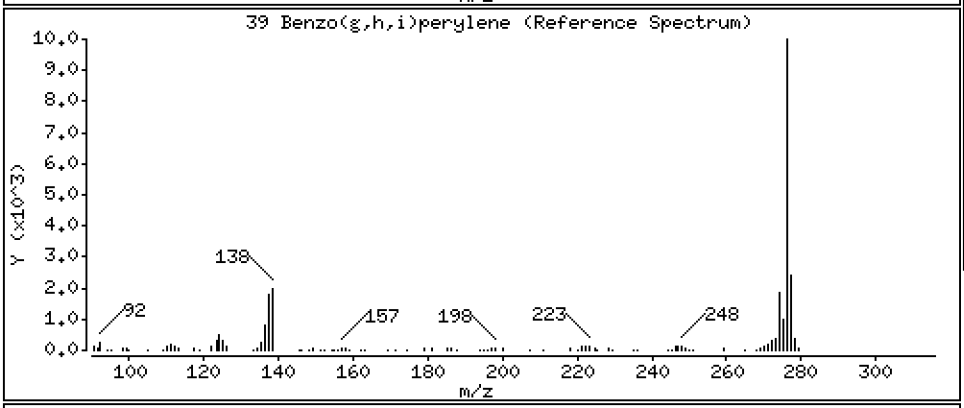
Concentration: 2.521 ug/mL

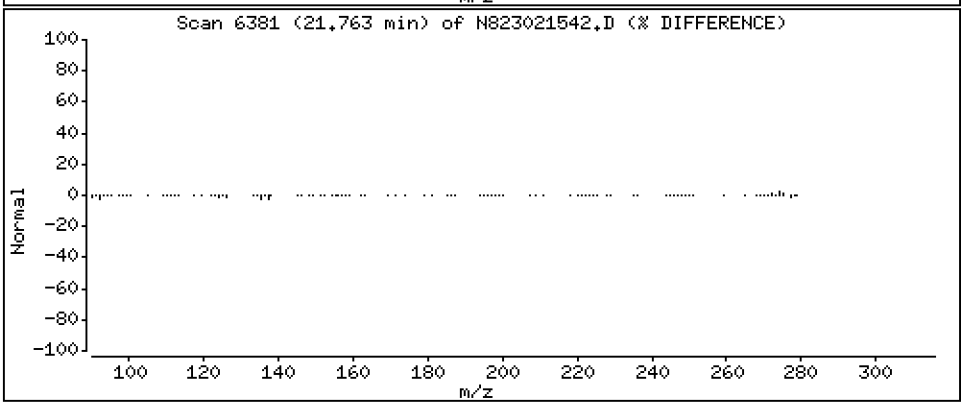












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230215A.b\N823021542.D
Lab Smp Id: SLB0206-CCV1
Inj Date : 16-FEB-2023 06:07
Operator : JZ Inst ID: nt8.i
Smp Info : CCV230215A
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Meth Date : 19-Feb-2023 14:27 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 29
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.878	4.884	(1.000)	45015	2.00000	
	2 Naphthalene	128	4.906	4.913	(1.006)	52811	2.52320	2.523
$	3 2-Methylnaphthalene-d10	152	5.611	5.618	(1.150)	32124	2.61666	2.617
	4 2-Methylnaphthalene	141	5.659	5.665	(1.160)	29957	2.60209	2.602
	5 1-methylnaphthalene	141	5.855	5.865	(1.200)	29846	2.55435	2.554
	7 Biphenyl	154	6.317	6.326	(0.881)	44523	2.55242	2.552
	8 2,6-Dimethylnaphthalene	156	6.364	6.370	(0.888)	33186	2.68808	2.688
	9 Acenaphthylene	152	7.060	7.069	(0.985)	54352	2.72218	2.722
*	10 Acenaphthene-d10	164	7.170	7.180	(1.000)	26441	2.00000	
	11 Acenaphthene	153	7.221	7.227	(1.007)	34490	2.57811	2.578
	12 Dibenzofuran	168	7.373	7.379	(1.028)	51765	2.54755	2.548
	13 1,6,7-Trimethylnaphthalene	170	7.436	7.446	(1.037)	34247	2.67277	2.673
	14 Fluorene	166	7.850	7.860	(1.095)	42068	2.66563	2.666
	18 Dibenzothiophene	184	9.086	9.096	(0.986)	56990	2.55131	2.551
*	15 Phenanthrene-d10	188	9.213	9.223	(1.000)	50550	2.00000	
	16 Phenanthrene	178	9.248	9.257	(1.004)	61327	2.48362	2.484
	17 Anthracene	178	9.289	9.298	(1.008)	59699	2.66140	2.661
	19 Carbazole	167	9.807	9.814	(1.065)	52923	2.57358	2.574
	20 1-Methylphenanthrene	192	10.026	10.035	(1.088)	47093	2.64656	2.647
	22 Fluoranthene	202	11.031	11.041	(1.197)	70550	2.62481	2.625
$	21 Fluoranthene-d10	212	10.993	11.003	(1.193)	61796	2.77081	2.771
	23 Pyrene	202	11.550	11.559	(0.814)	72957	2.66240	2.662
	24 Benzo(a)anthracene	228	14.054	14.067	(0.991)	68413	2.75444	2.754
*	25 Chrysene-d12	240	14.180	14.196	(1.000)	44199	2.00000	
	27 Chrysene	228	14.256	14.266	(1.005)	67487	2.55240	2.552
	28 Benzo(b)fluoranthene	252	16.811	16.821	(0.929)	66316	2.40543	2.405
	29 Benzo(k)fluoranthene	252	16.874	16.881	(0.932)	64552	2.39044	2.390
	30 Benzo(j)fluoranthene	252	16.950	16.960	(0.937)	60070	2.47098	2.471
	31 Total Benzofluoranthenes	252	16.811	16.821	(0.929)	190685	7.30325	7.303(M)
	34 Benzo(e)pyrene	252	17.734	17.744	(0.980)	65848	2.39517	2.395
	32 Benzo(a)pyrene	252	17.867	17.877	(0.987)	61513	2.53548	2.535
*	33 Perylene-d12	264	18.098	18.108	(1.000)	47337	2.00000	
	35 Perylene	252	18.171	18.180	(1.004)	63880	2.45368	2.454

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.539	20.546	(1.135)	45161	2.43486	2.435
37 Indeno(1,2,3-cd)pyrene	276	20.678	20.688	(1.143)	73864	2.67246	2.672
38 Dibenzo(a,h)anthracene	278	20.647	20.666	(1.141)	62836	2.64178	2.642(M)
39 Benzo(g,h,i)perylene	276	21.763	21.766	(1.202)	63119	2.52057	2.521

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021542.D
Lab Smp Id: SLB0206-CCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230215A.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 15-FEB-2023
Calibration Time: 17:35
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	42744	21372	85488	45015	5.31
10 Acenaphthene-d10	25236	12618	50472	26441	4.77
15 Phenanthrene-d10	47809	23905	95618	50550	5.73
25 Chrysene-d12	40868	20434	81736	44199	8.15
33 Perylene-d12	43096	21548	86192	47337	9.84

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	-0.13
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.21	-0.10
25 Chrysene-d12	14.20	13.70	14.70	14.18	-0.11
33 Perylene-d12	18.11	17.61	18.61	18.10	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021542.D

Lab ID: SLB0206-CCV1
nt8.i, 20230215A.b\FSIMPNA230119.m,   16-FEB-2023 06:07

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

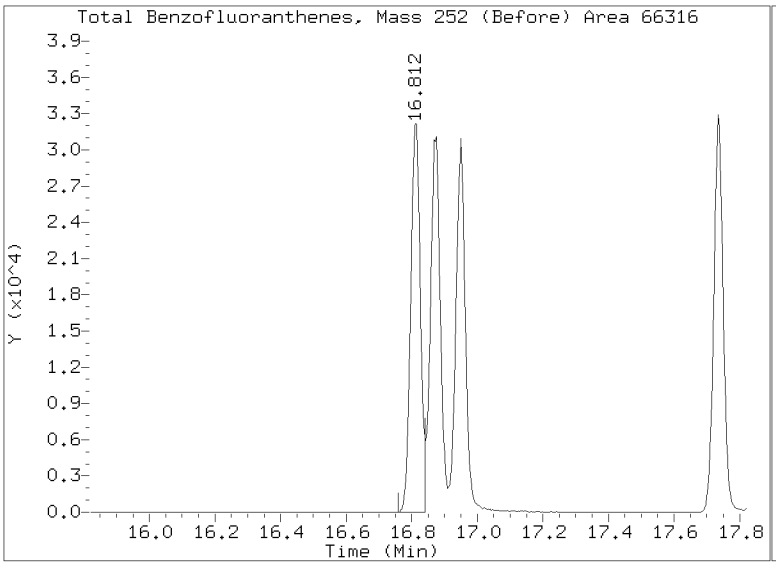
No RRT check performed

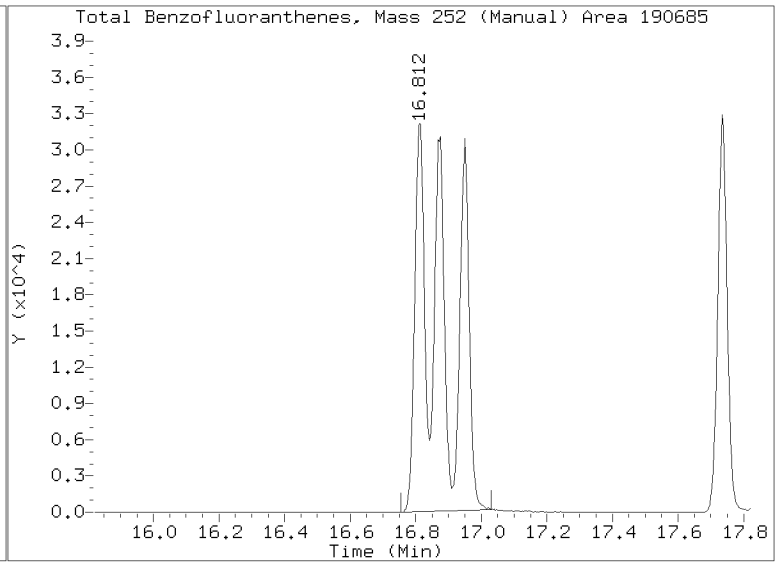
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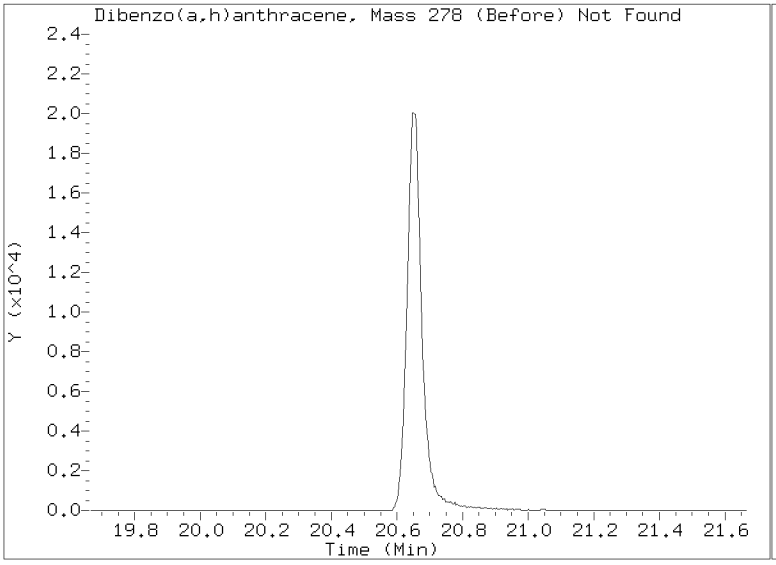
* Only compounds listed in the work order have been verified by the analyst *

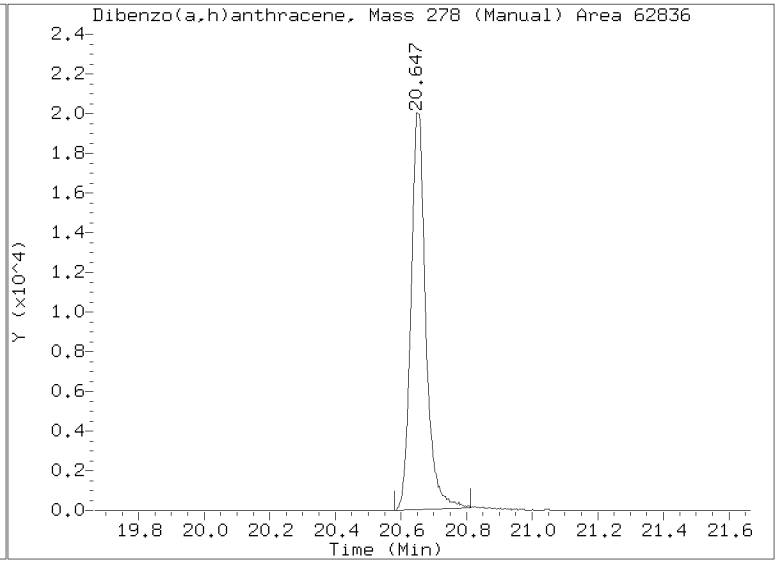
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230215A.b/N823021542.D
Injection Date: 16-FEB-2023 06:07
Lab ID:SLB0206-CCV1 Client ID:
Report Date: 02/19/2023 17:31









Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823021727.D	Calibration Date:	01/19/2023
Sequence:	SLB0244	Injection Date:	02/17/23
Lab Sample ID:	SLB0244-CCV1	Injection Time:	23:05
Sequence Name:	Calibration Check		

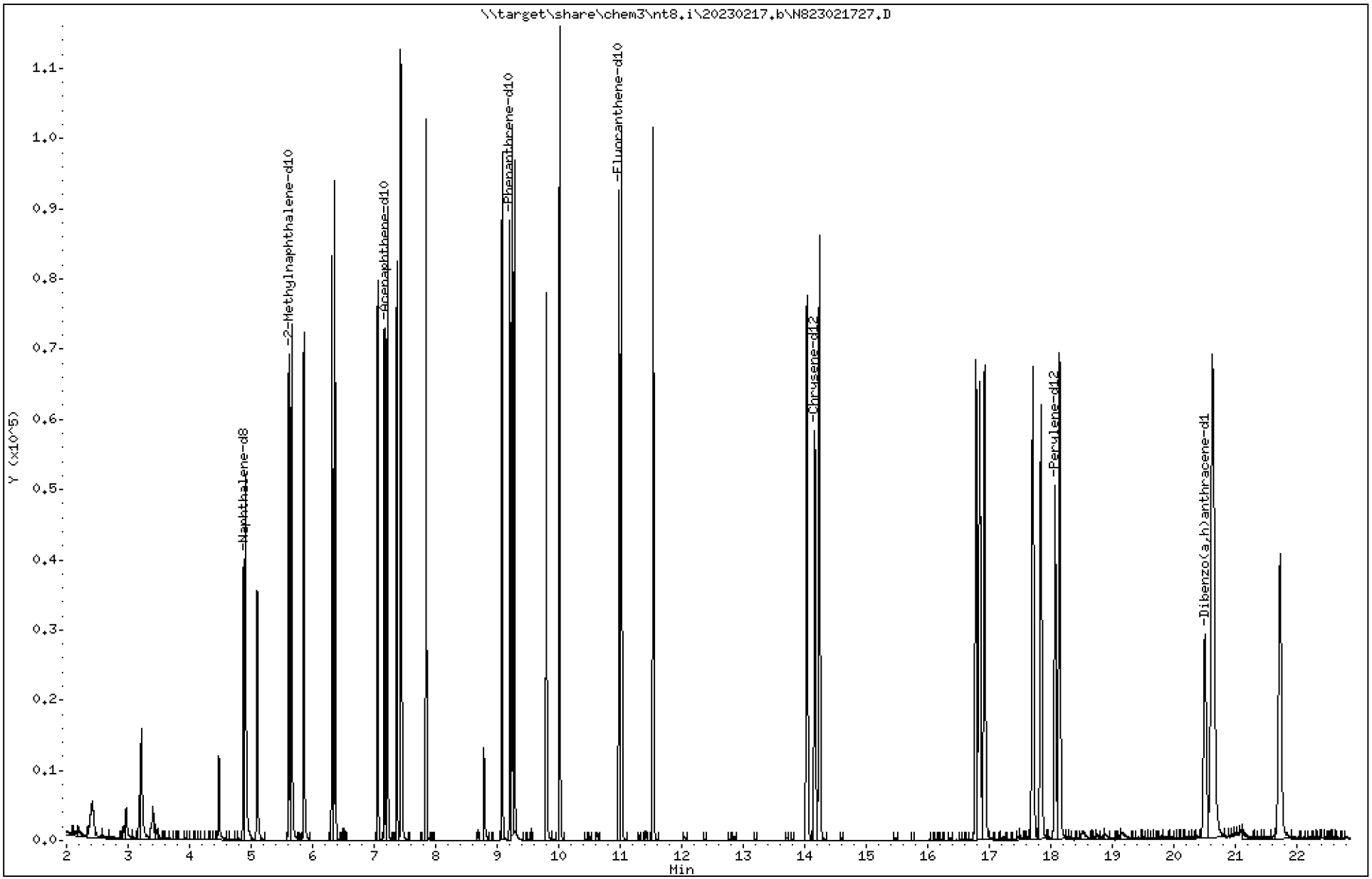
		CONC. (ug/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Benzo(a)anthracene	A	2.5000	2.70	1.1238870	1.2129880		7.9	+/-50
Chrysene	A	2.5000	2.53	1.1964350	1.2120490		1.3	+/-50
Benzo(b)fluoranthene	A	2.5000	2.49	1.1648110	1.1603190		-0.4	+/-50
Benzo(k)fluoranthene	A	2.5000	2.48	1.1409370	1.1301420		-0.9	+/-50
Benzo(a)pyrene	A	2.5000	2.56	1.0250270	1.0505450		2.5	+/-50
Indeno(1,2,3-cd)pyrene	A	2.5000	2.80	1.1677520	1.3065080		11.9	+/-50
Dibenzo(a,h)anthracene	A	2.5000	2.80	1.0049440	1.1252920		12.0	+/-50
Benzo(g,h,i)perylene	A	2.5000	2.63	1.0580110	1.1115040		5.1	+/-50
2-Methylnaphthalene-d10	A	2.5000	2.66	0.5454499	0.5806252		6.4	+/-50
Dibenzo[a,h]anthracene-d14	A	2.5000	2.45	0.6679424	0.7677505		-2.0	+/-50
Fluoranthene-d10	A	2.5000	2.82	0.8823923	0.9954942		12.8	+/-50

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D
Date : 17-FEB-2023 23:05
Client ID:
Sample Info: CCV230217,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23A0626 02/22/2023 Page 496 of 1233

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Instrument: nt8.i

Sample Info: CCV230217,

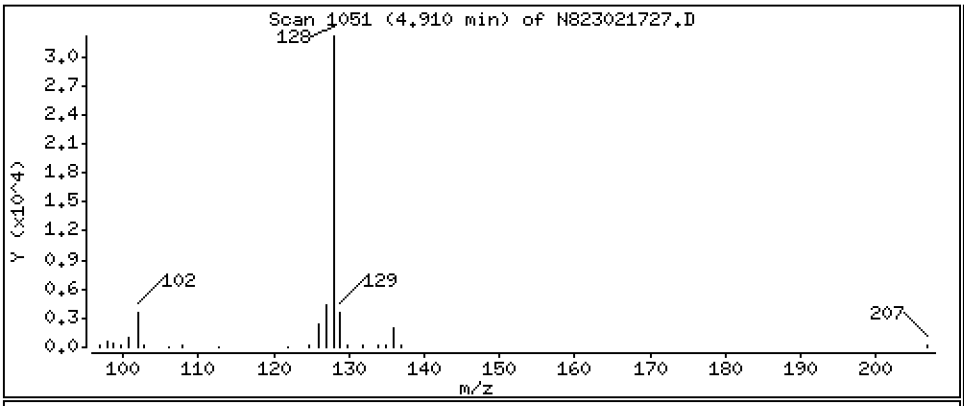
Operator: JZ

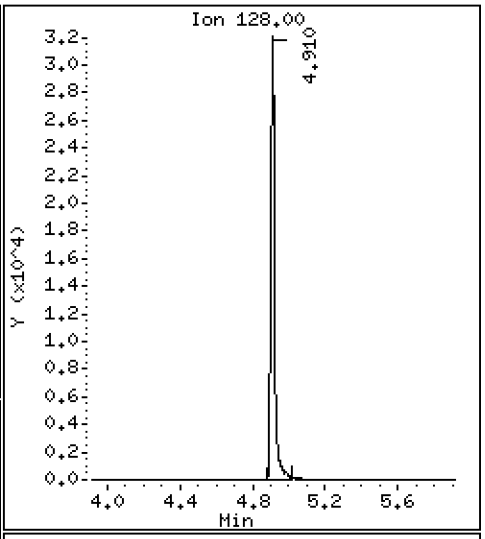
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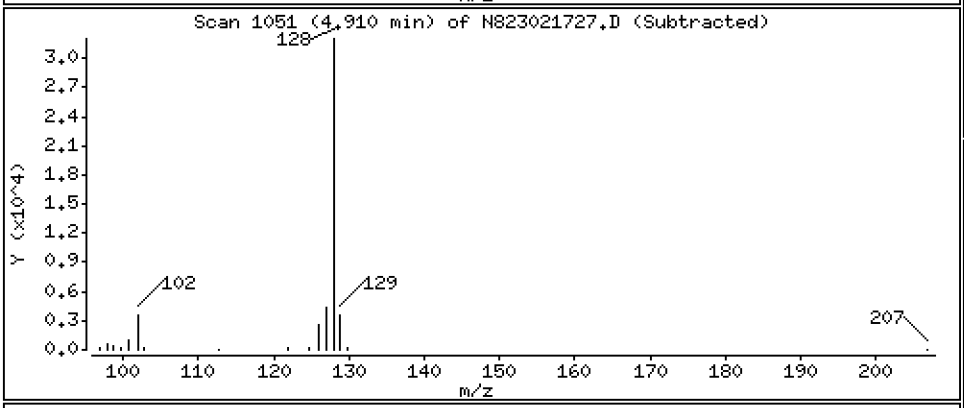
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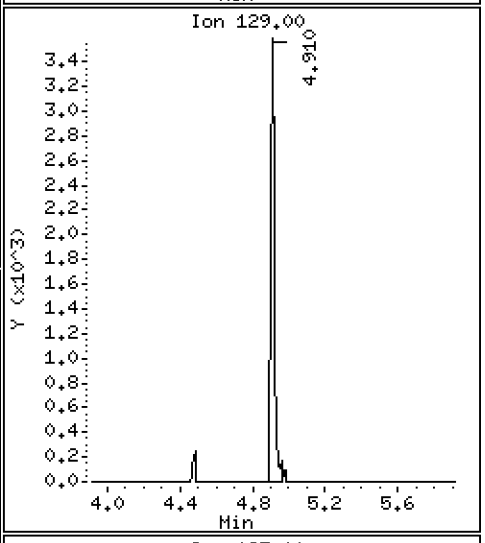
2 Naphthalene

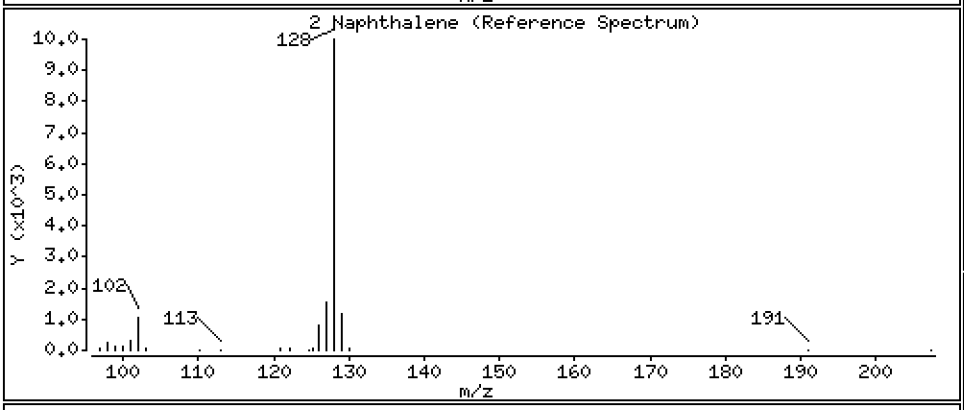
Concentration: 2.588 ug/mL

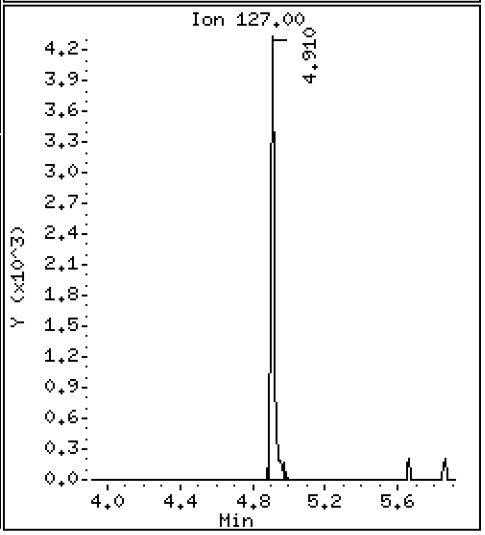


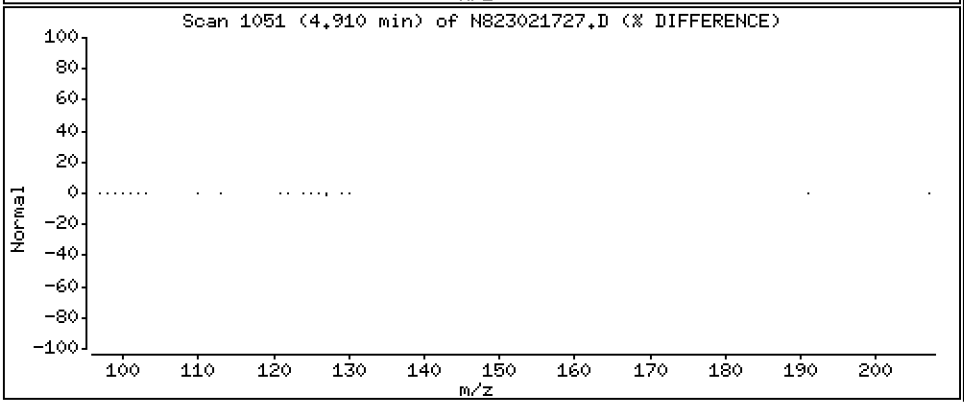












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Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

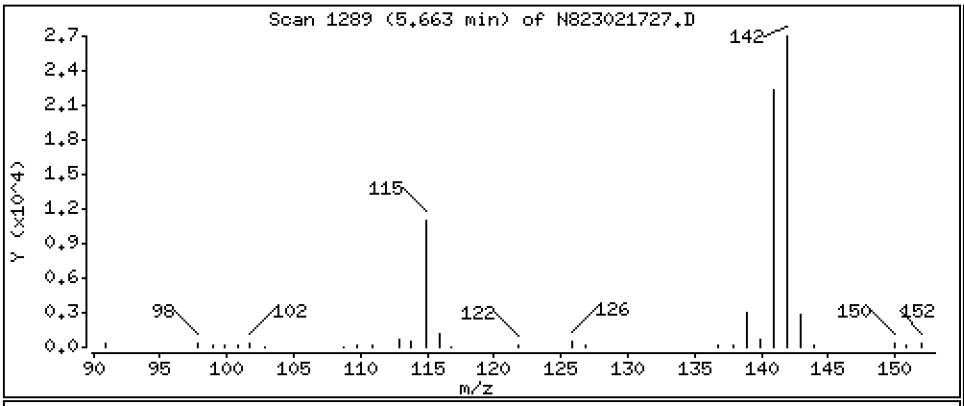
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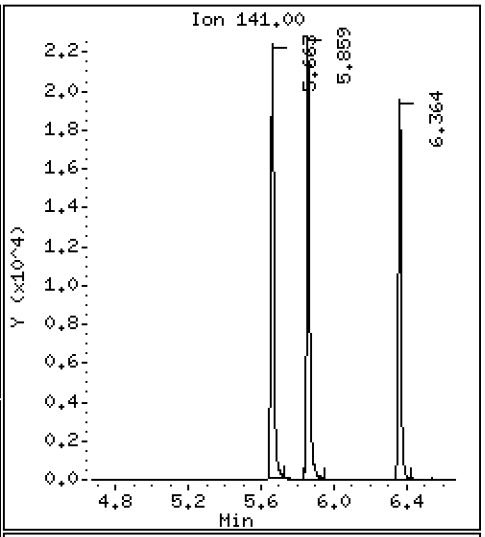
Column phase: Rxi-17sil

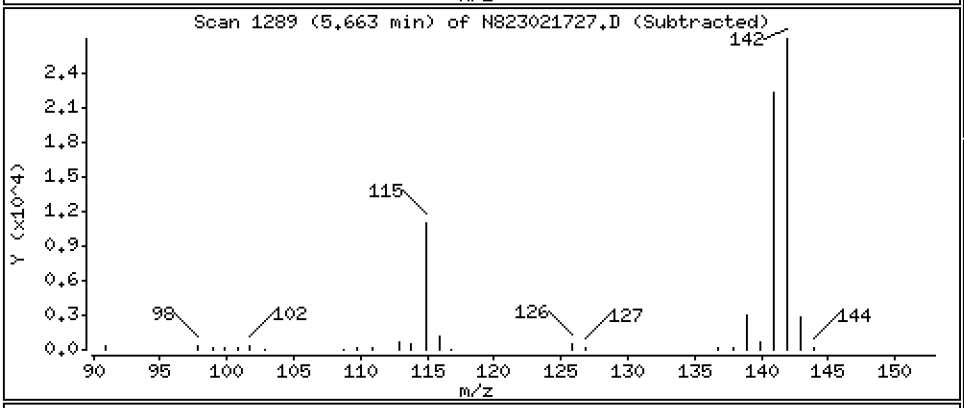
Column diameter: 0.25

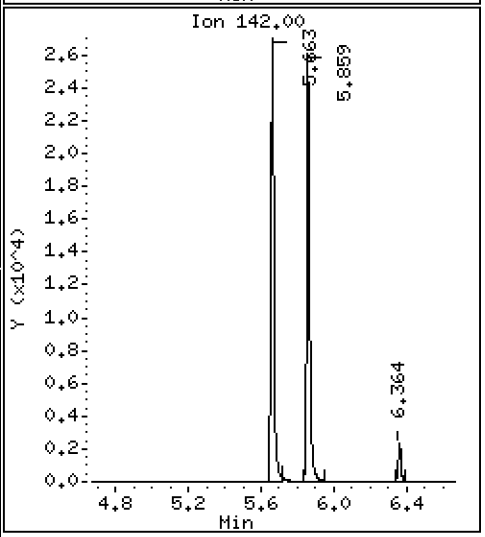
4 2-Methylnaphthalene

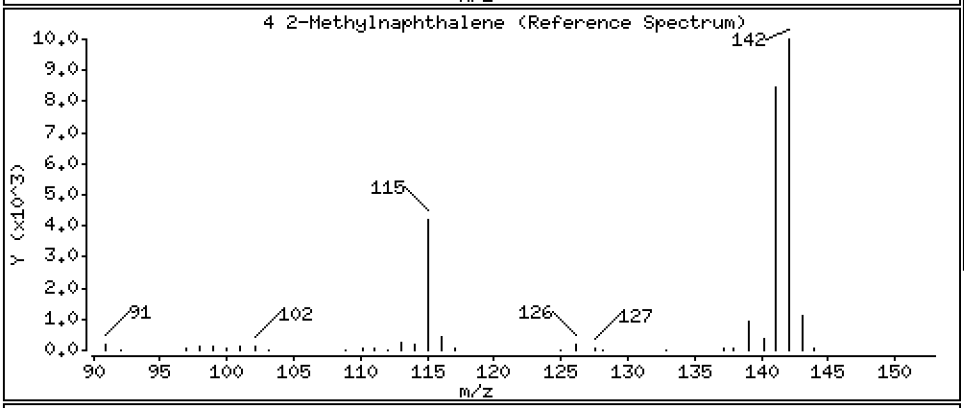
Concentration: 2.601 ug/mL

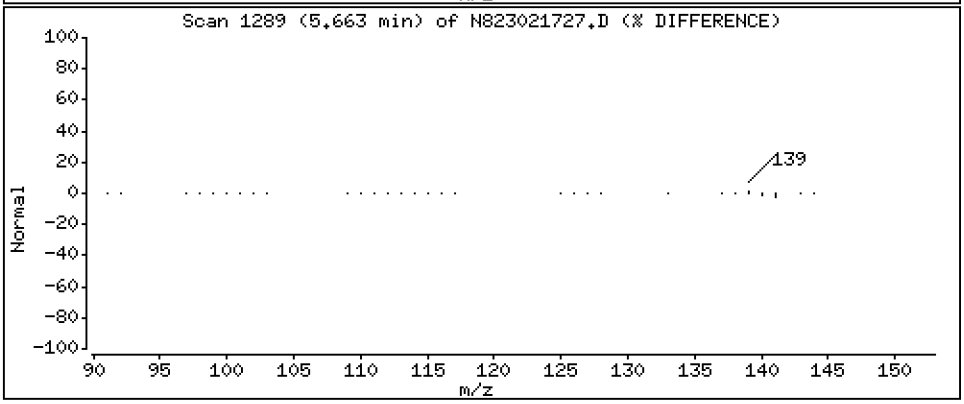












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

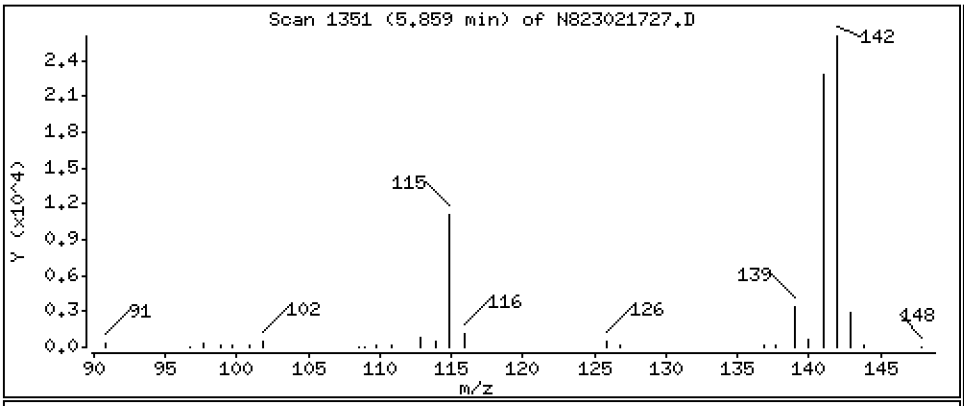
Operator: JZ

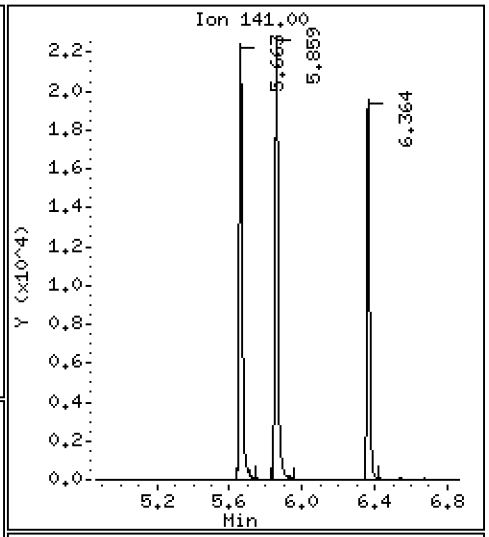
Column phase: Rxi-17sil

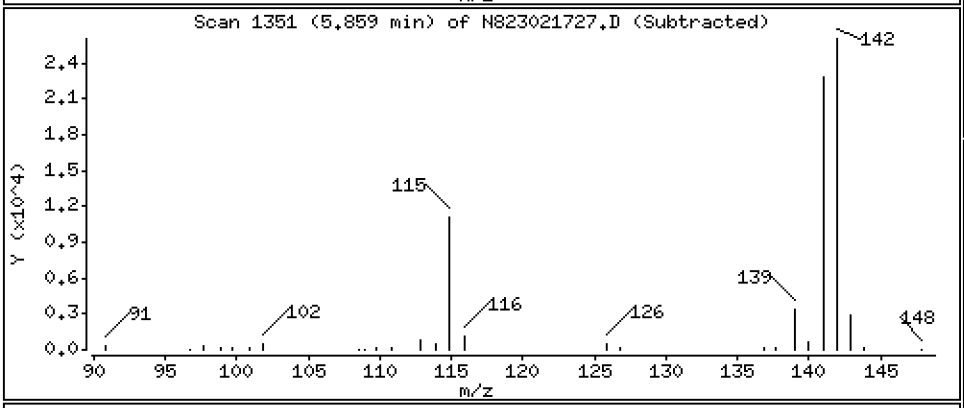
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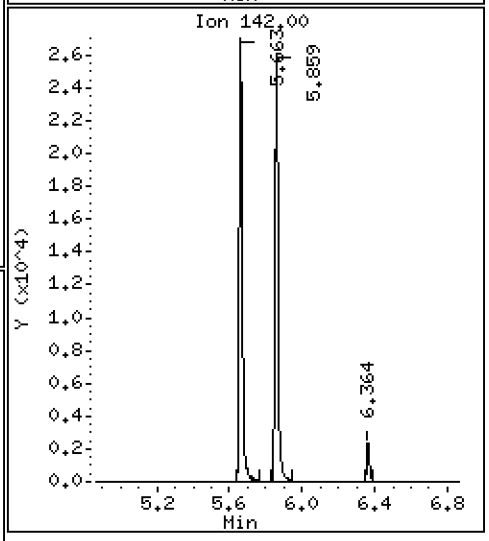
5 1-methylnaphthalene

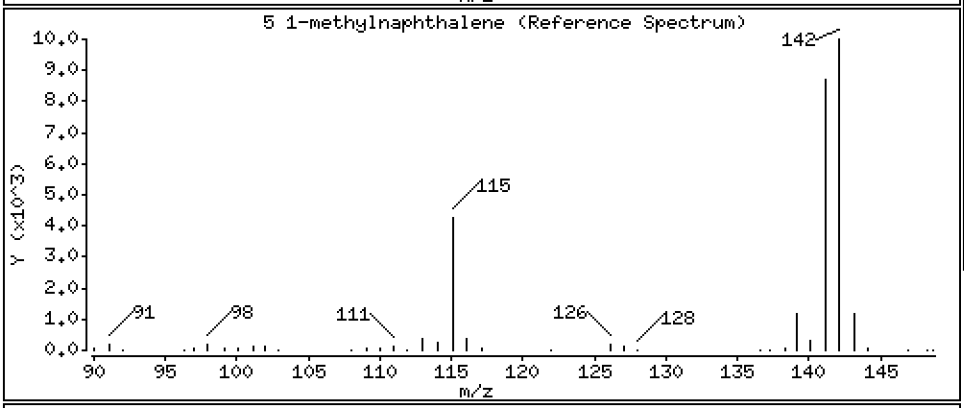
Concentration: 2.627 ug/mL

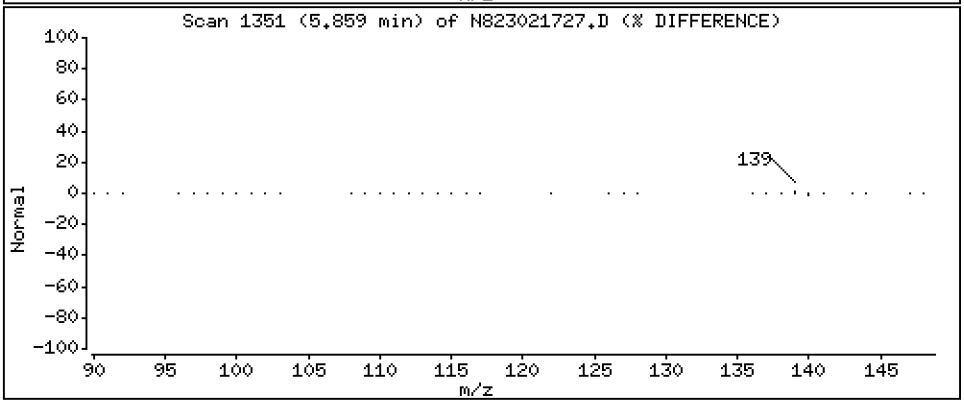












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Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

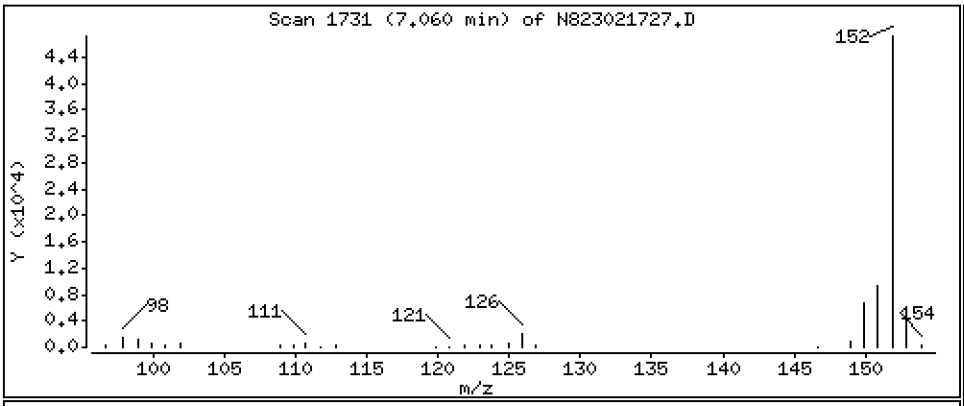
Operator: JZ

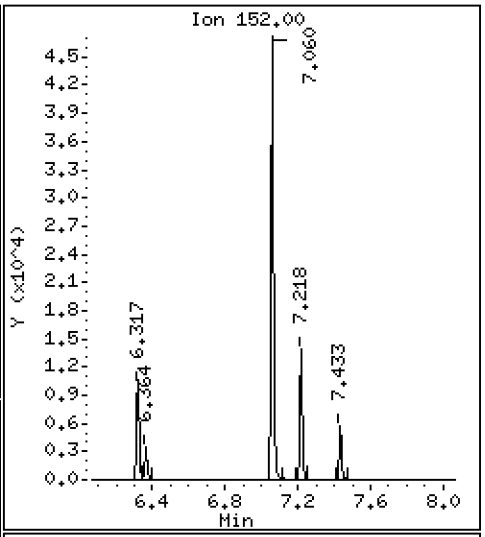
Column phase: Rxi-17sil

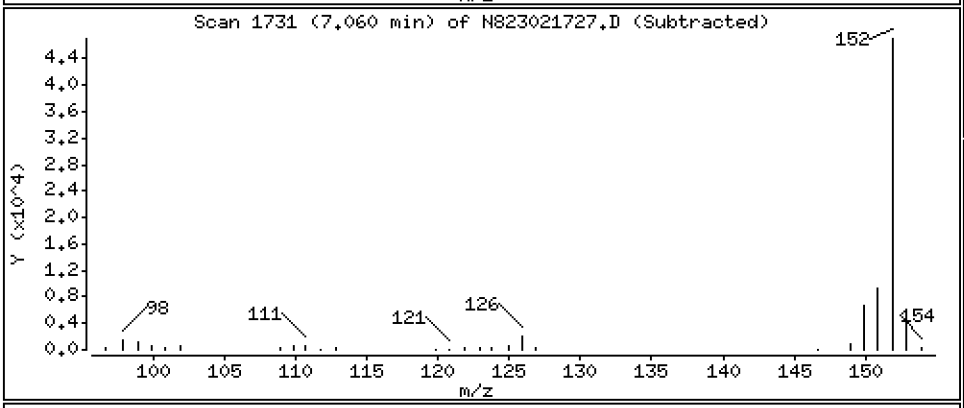
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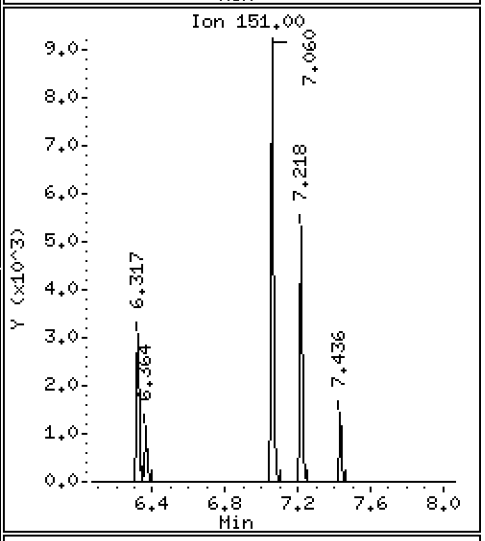
9 Acenaphthylene

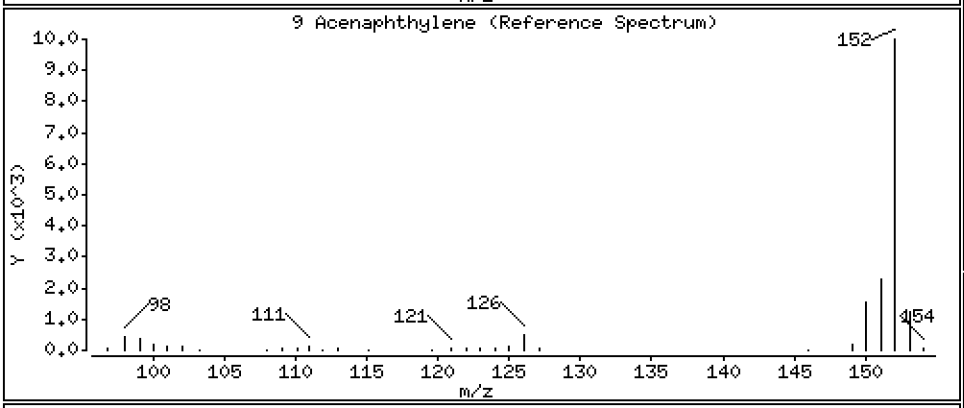
Concentration: 2.759 ug/mL

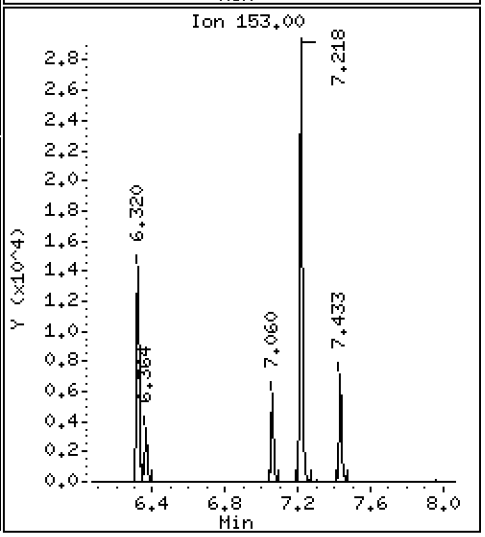


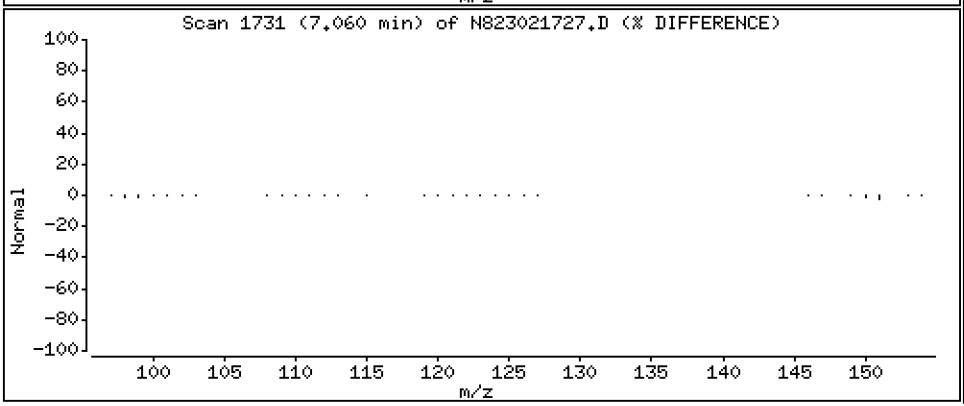












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Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

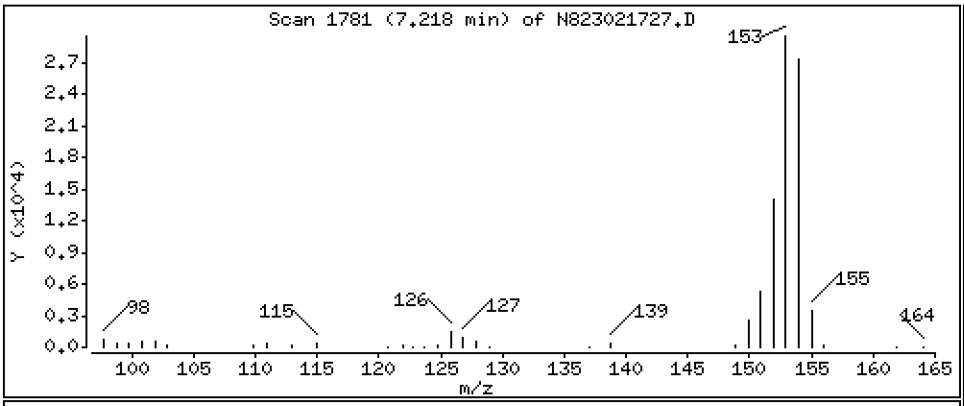
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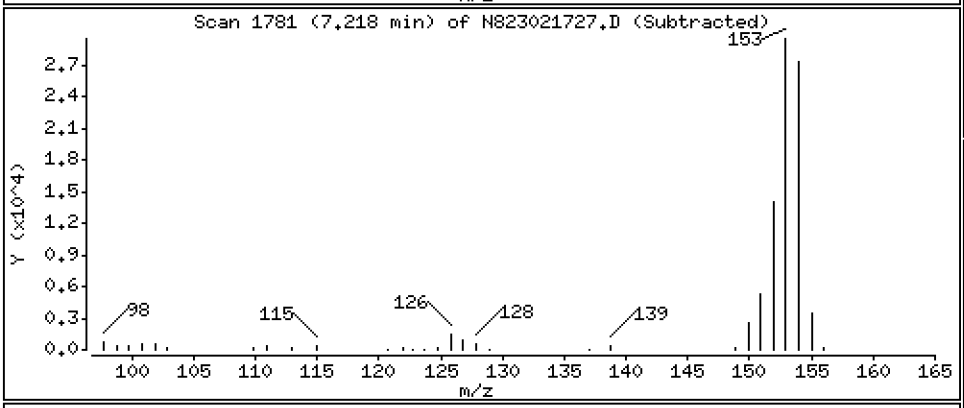
Column phase: Rxi-17sil

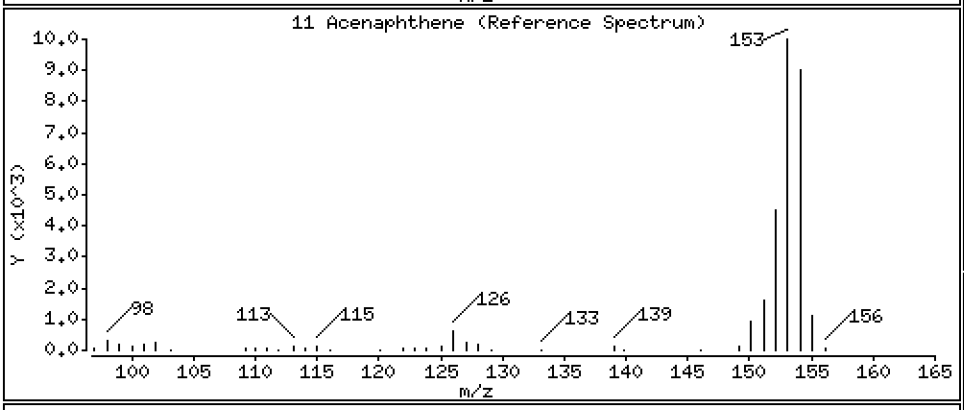
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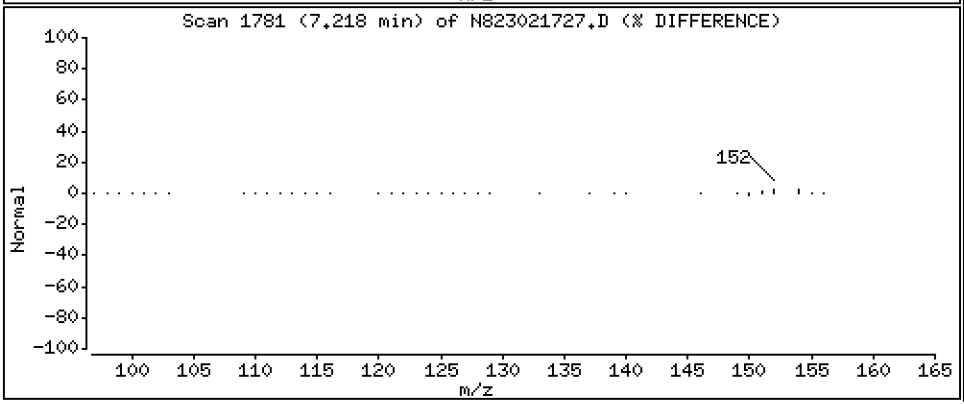
11 Acenaphthene

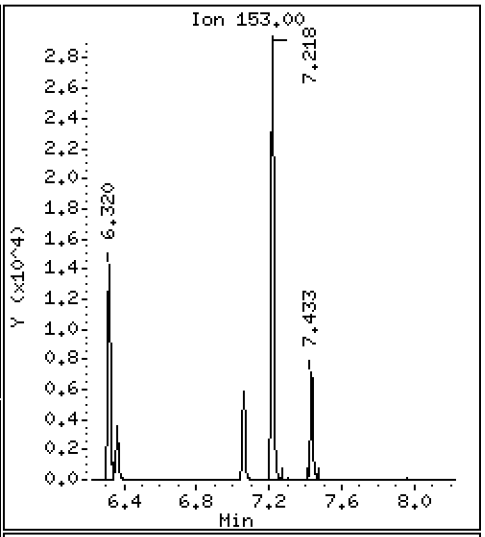
Concentration: 2.593 ug/mL

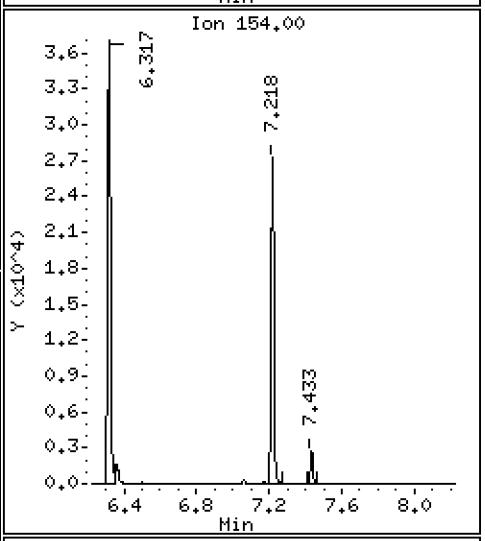


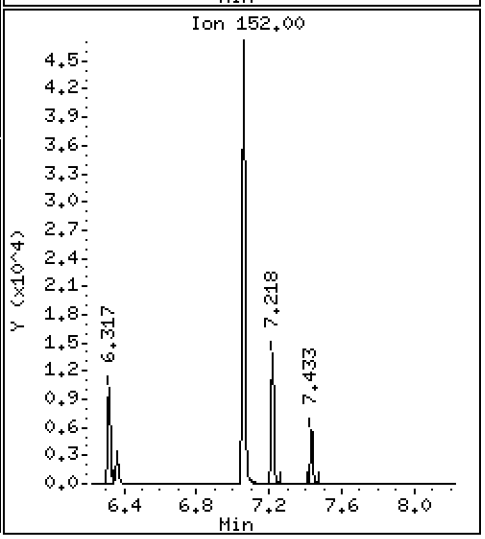












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Date : 17-FEB-2023 23:05

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Instrument: nt8.i

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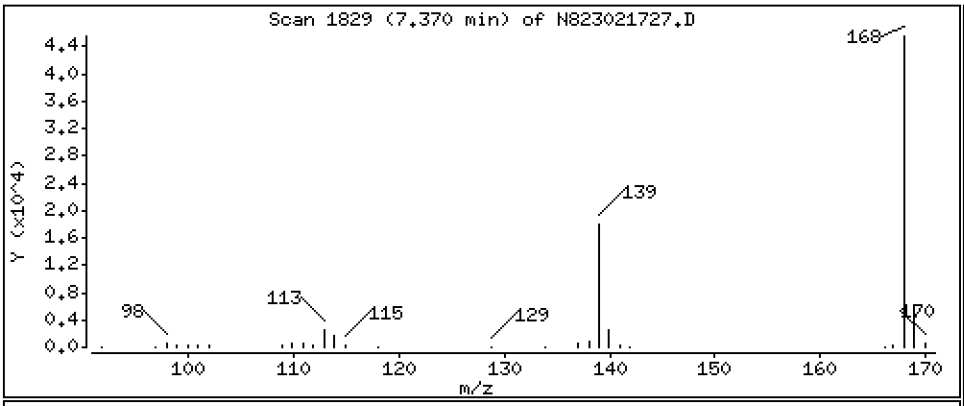
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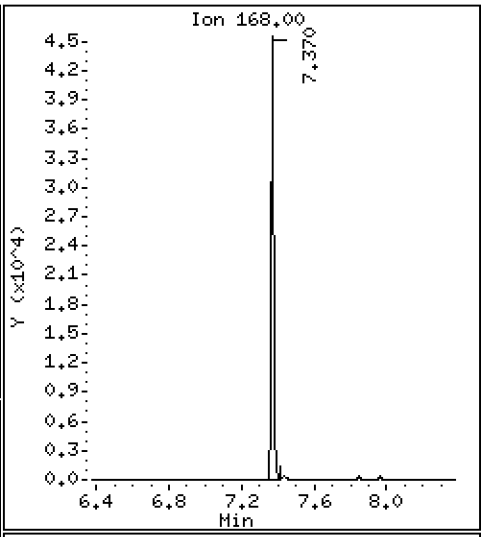
Column phase: Rxi-17sil

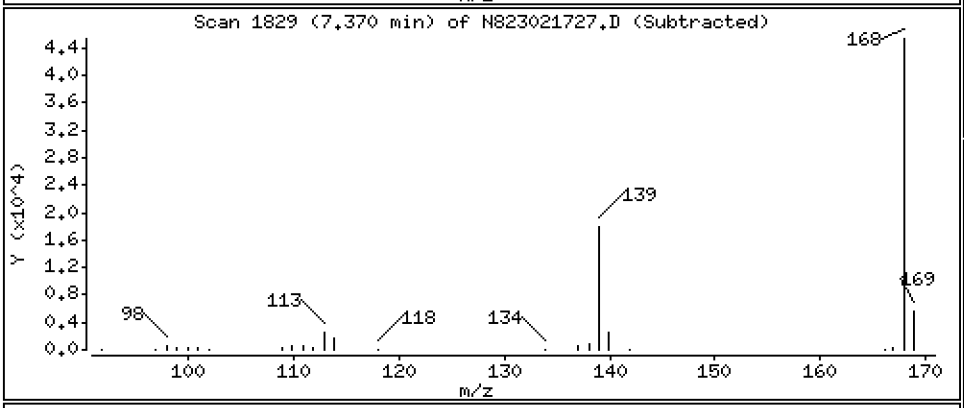
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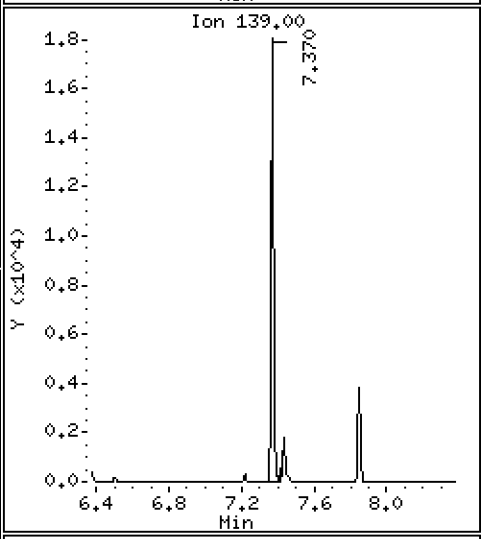
12 Dibenzofuran

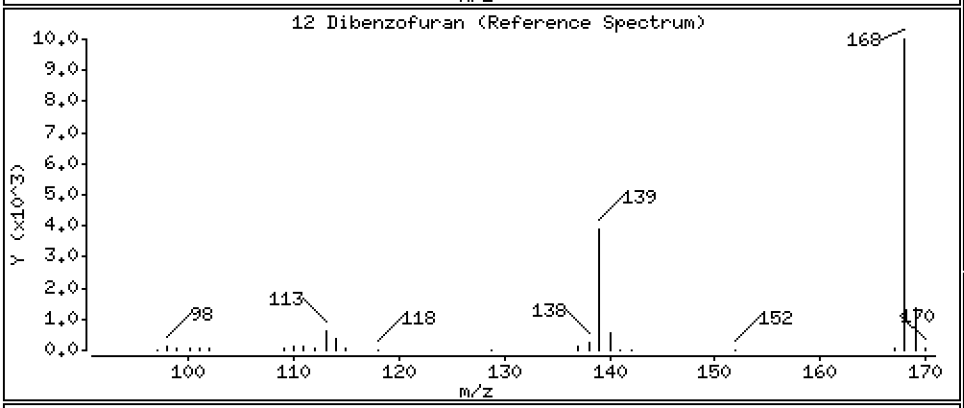
Concentration: 2.578 ug/mL

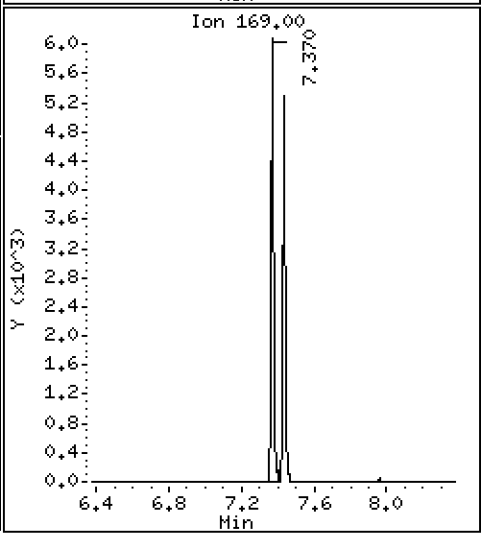


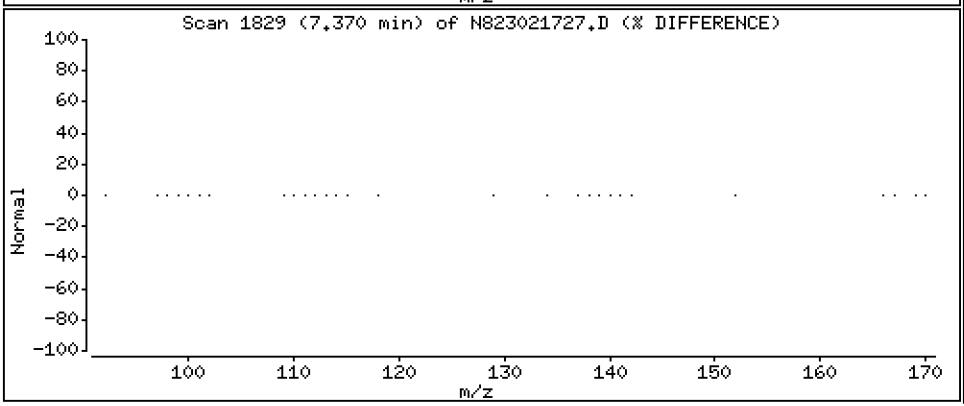












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Instrument: nt8.i

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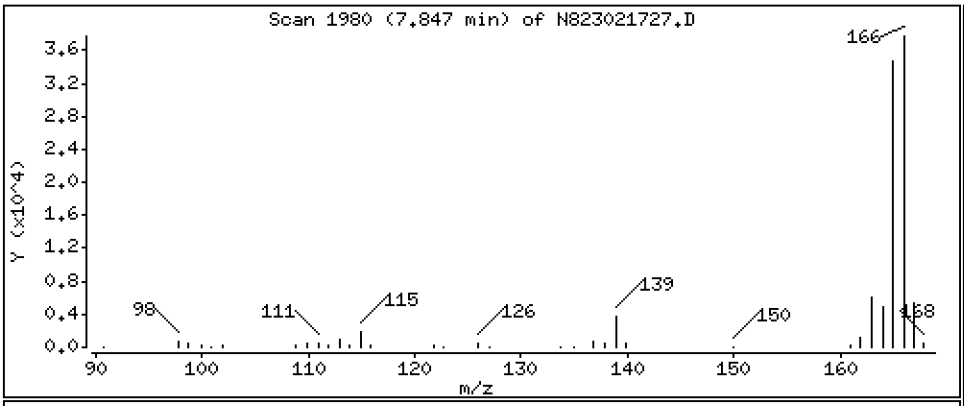
Operator: JZ

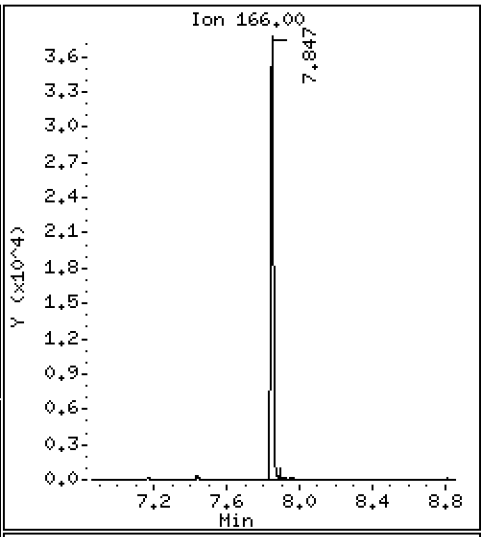
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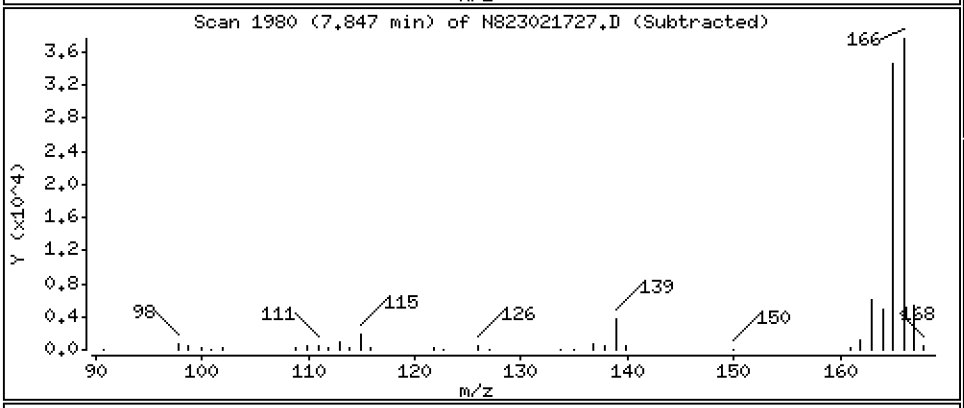
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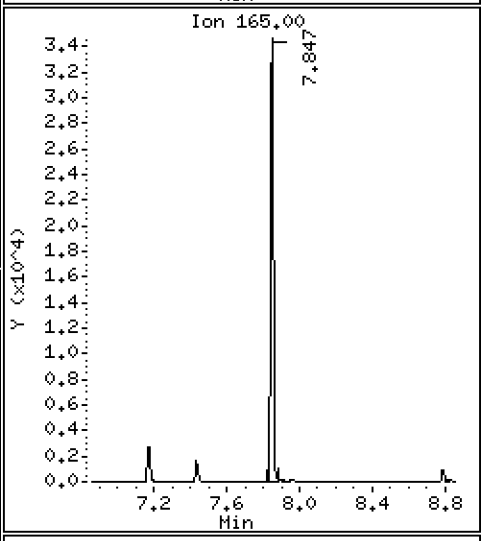
14 Fluorene

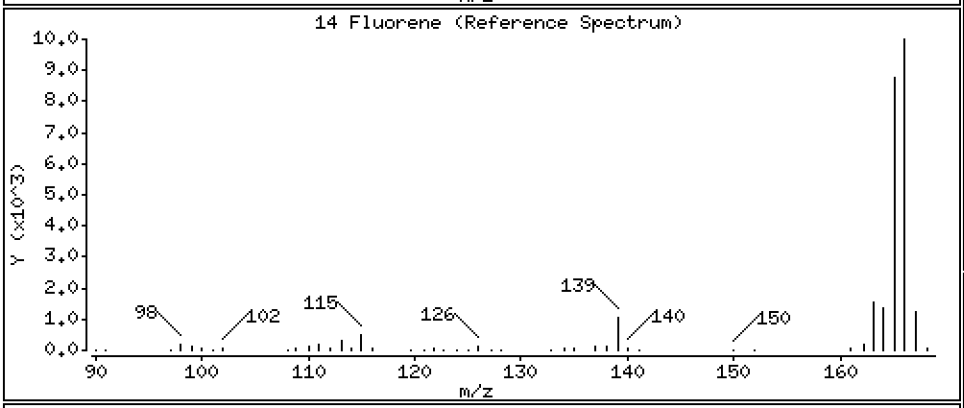
Concentration: 2.705 ug/mL

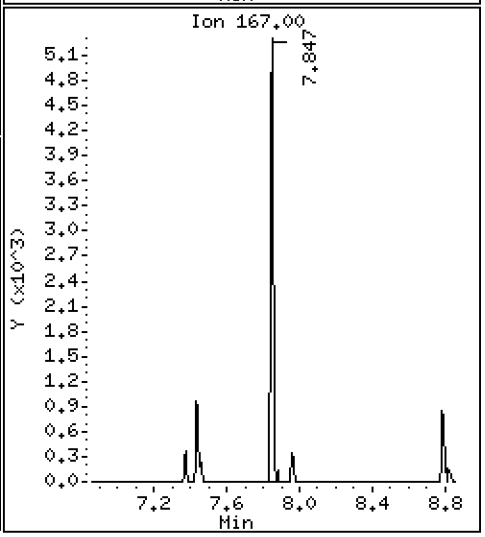


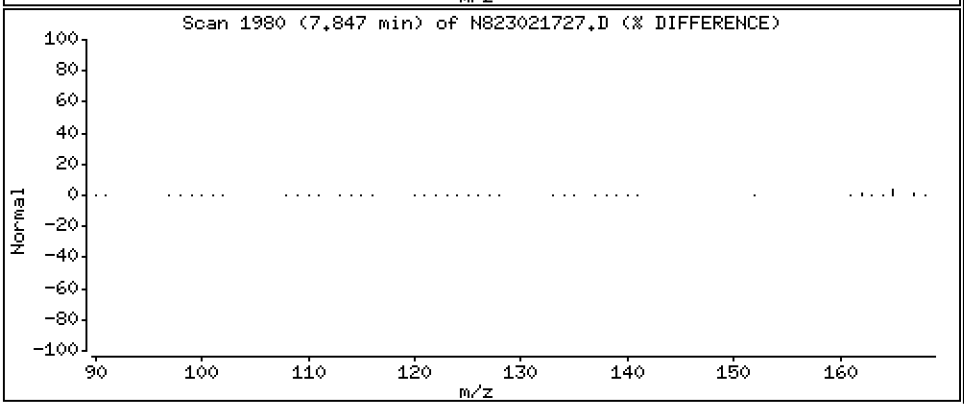












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Instrument: nt8.i

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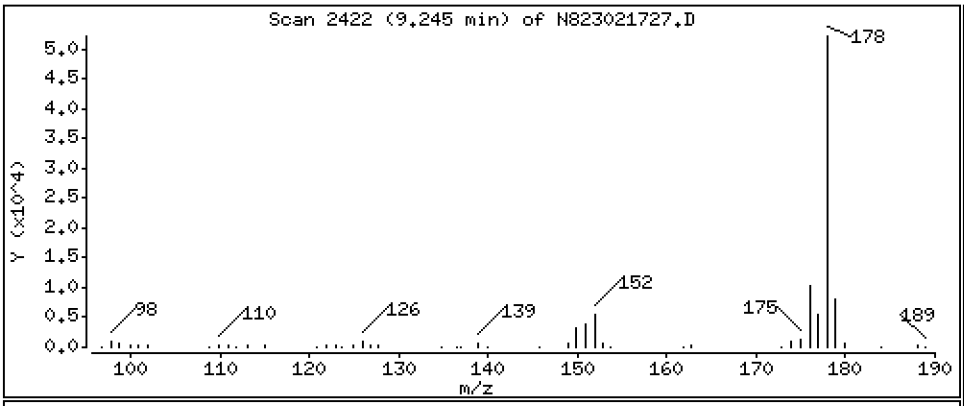
Operator: JZ

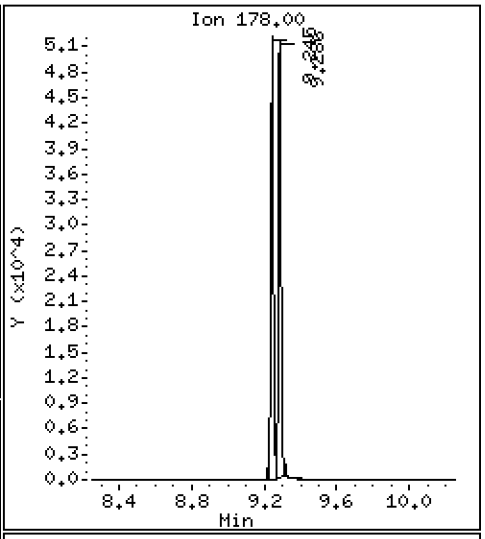
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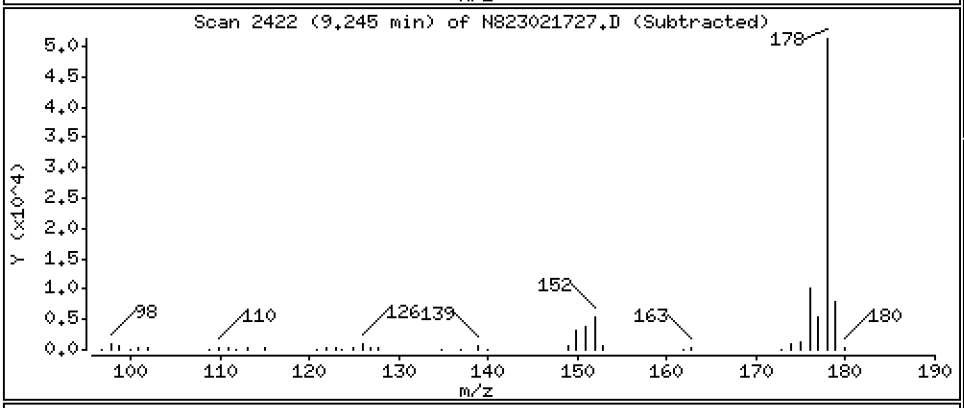
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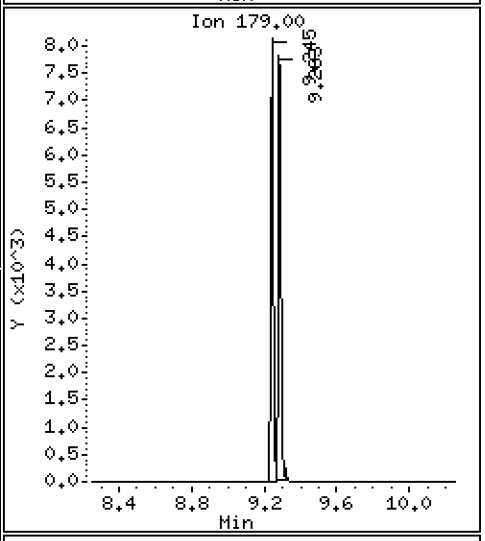
16 Phenanthrene

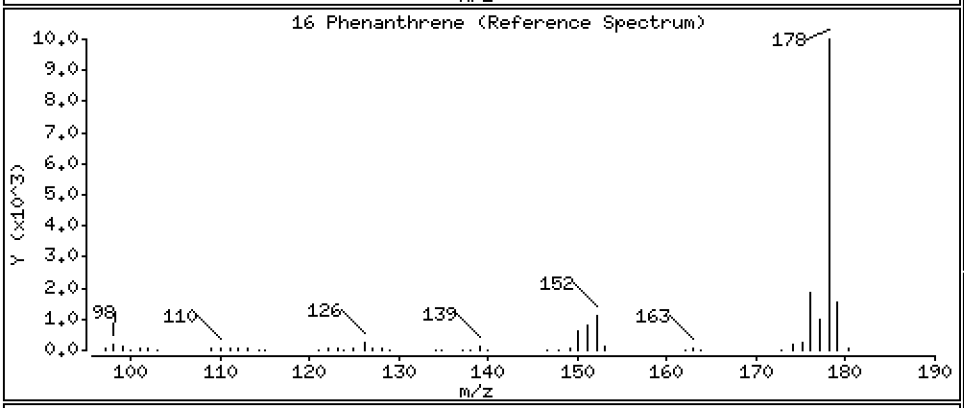
Concentration: 2.469 ug/mL

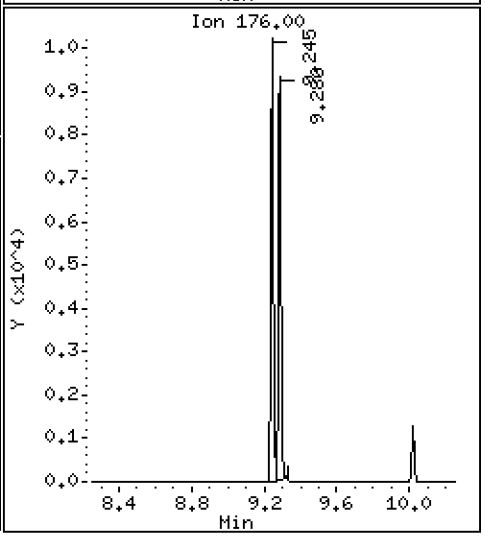


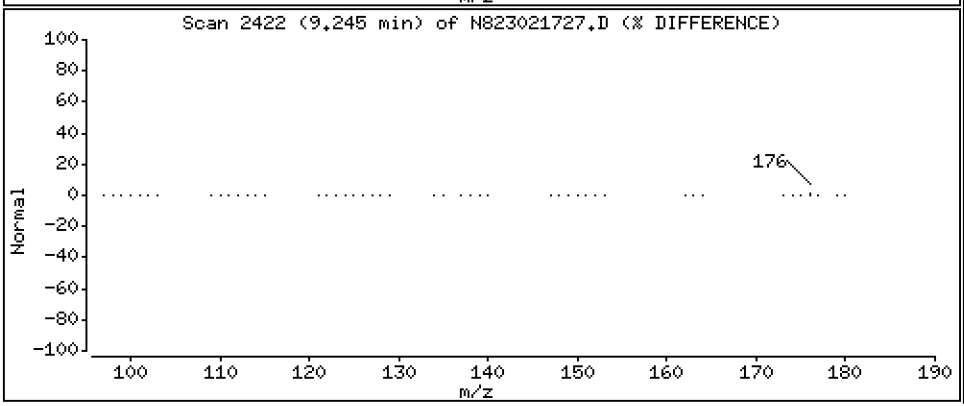












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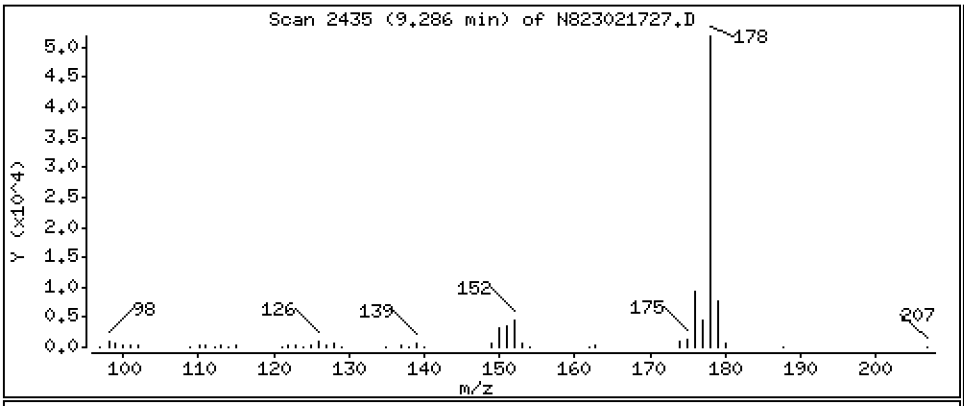
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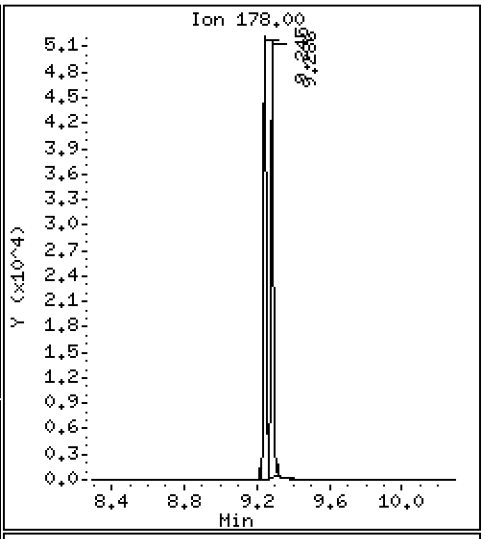
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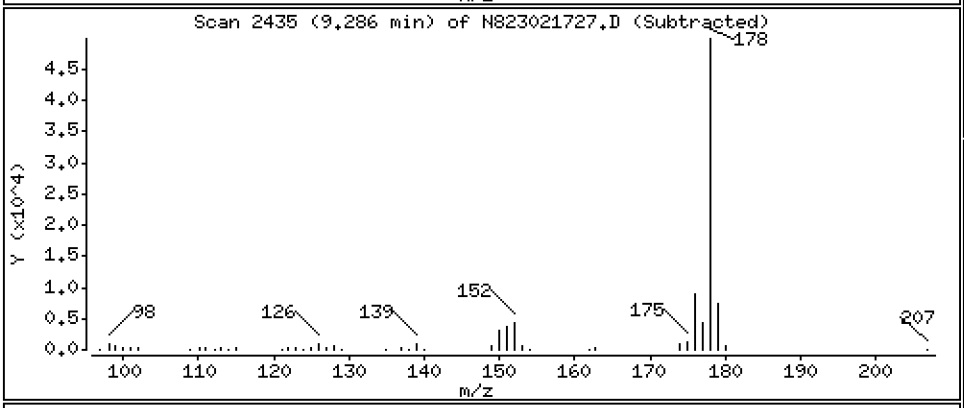
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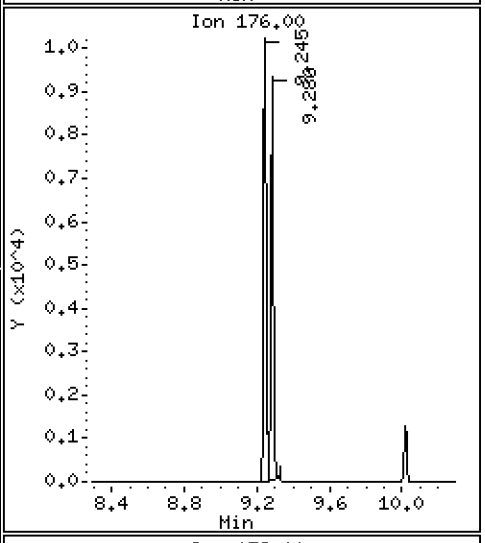
17 Anthracene

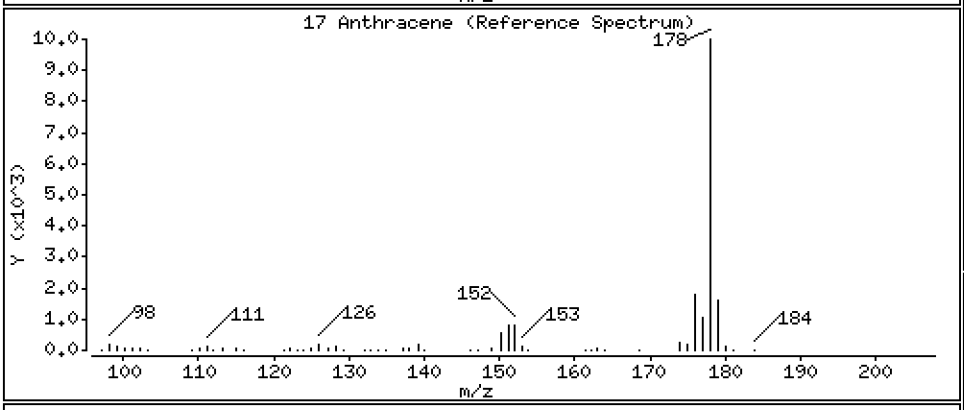
Concentration: 2.649 ug/mL

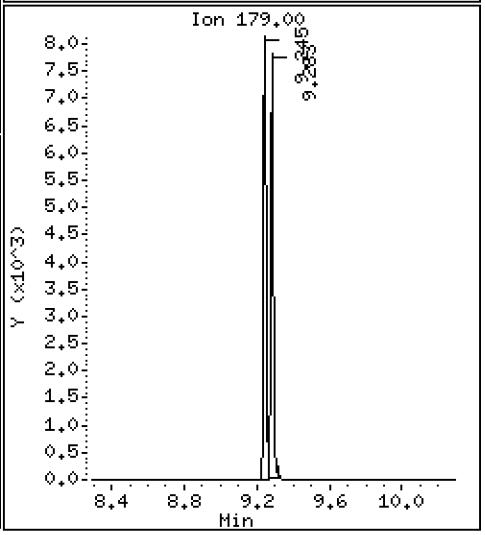


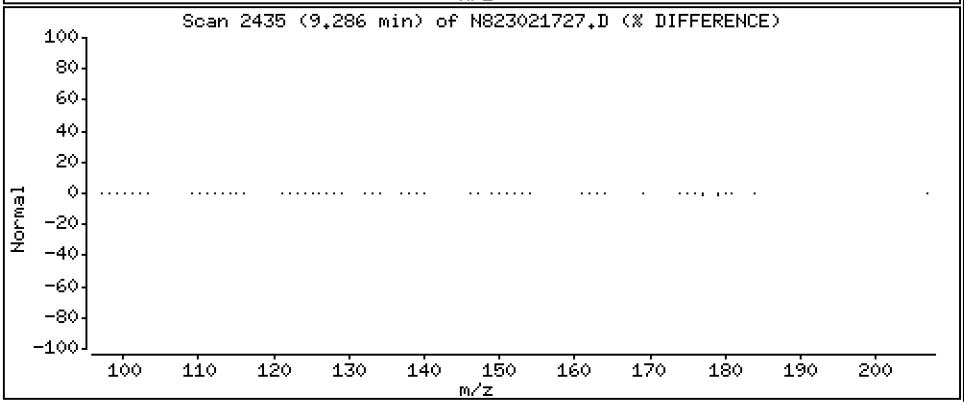












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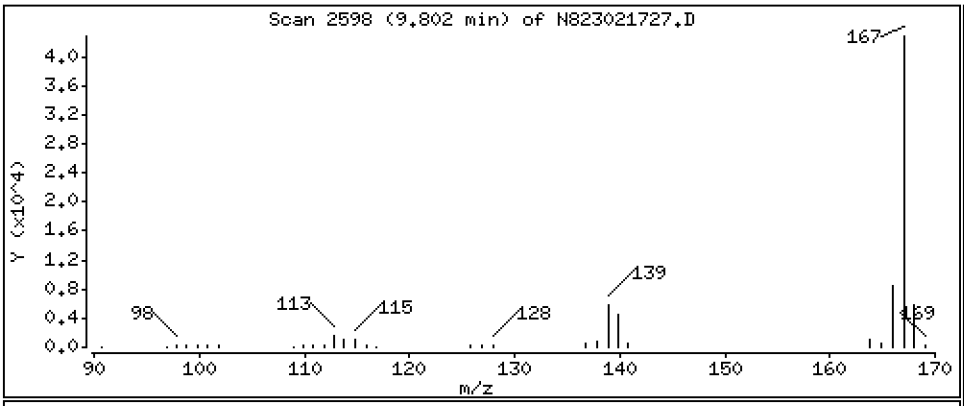
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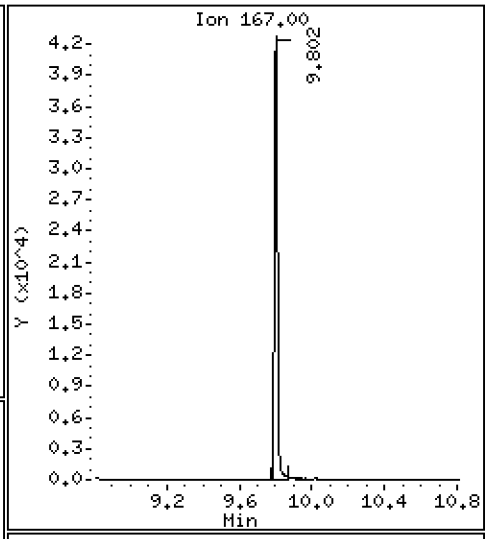
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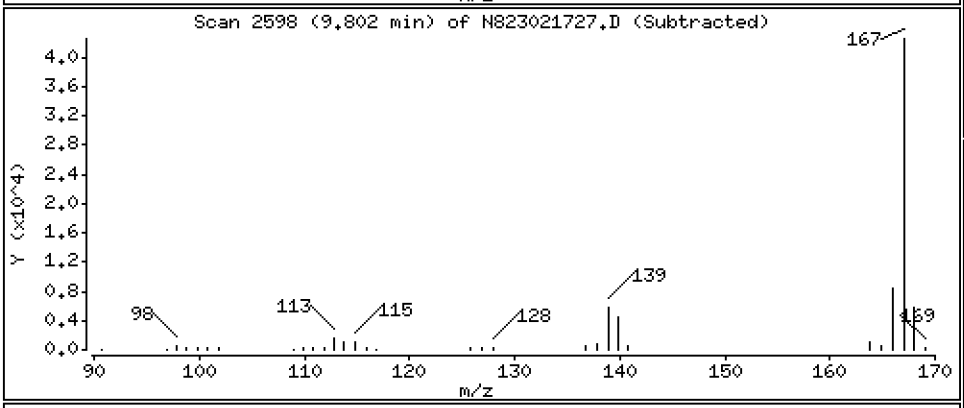
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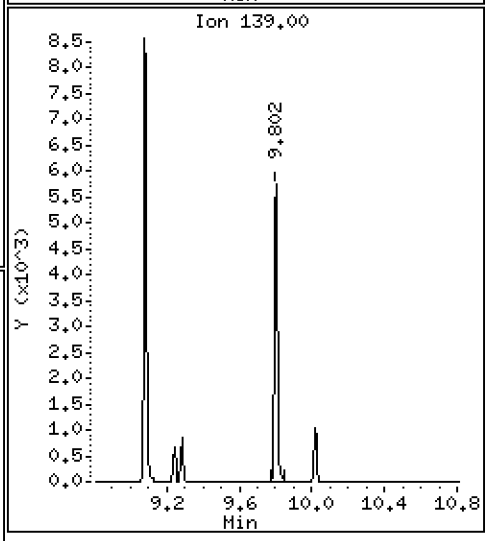
19 Carbazole

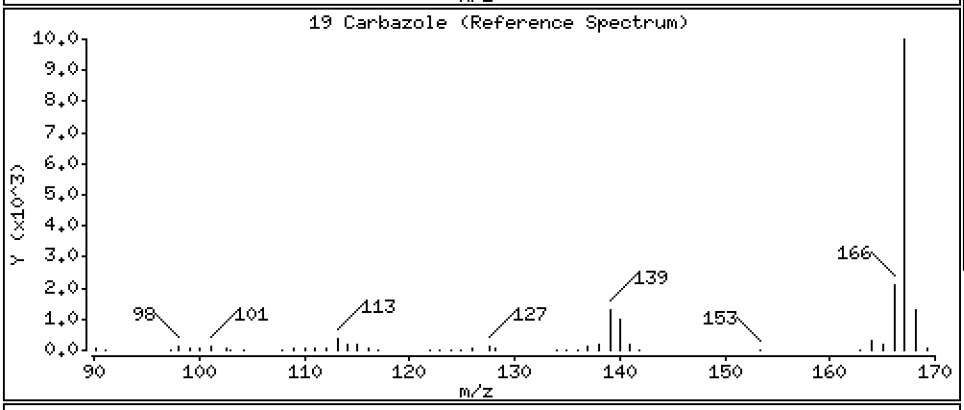
Concentration: 2.614 ug/mL

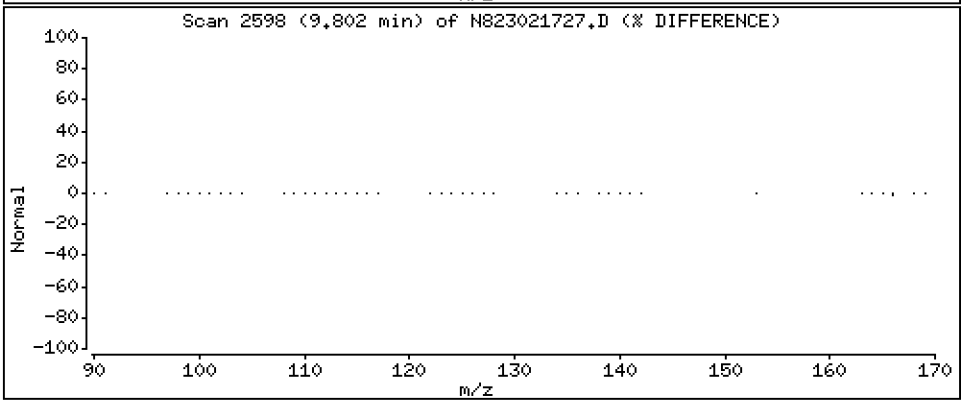












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Date : 17-FEB-2023 23:05

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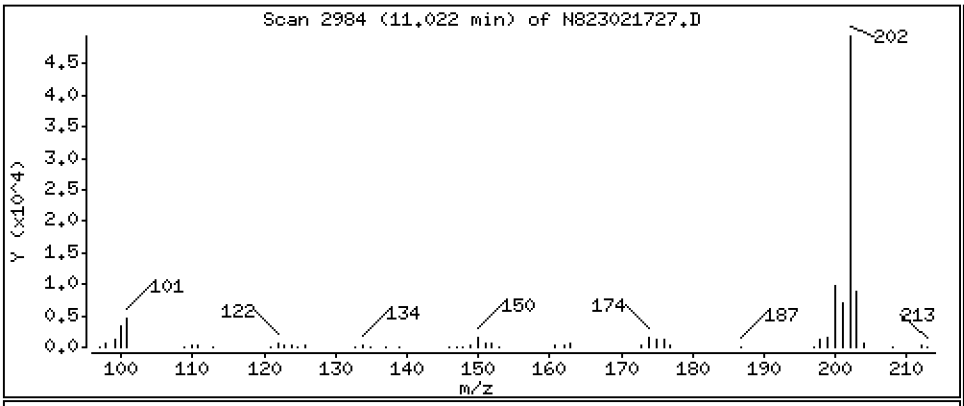
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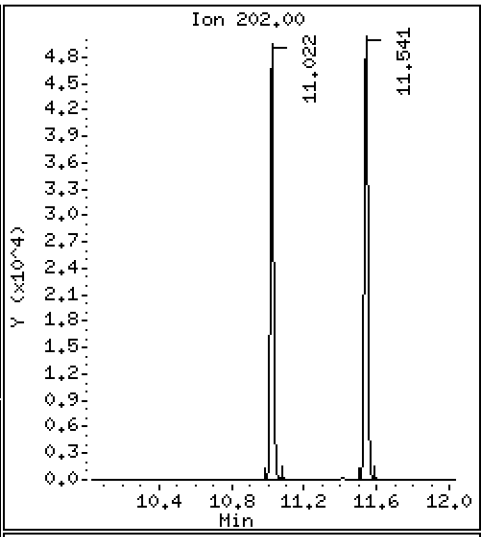
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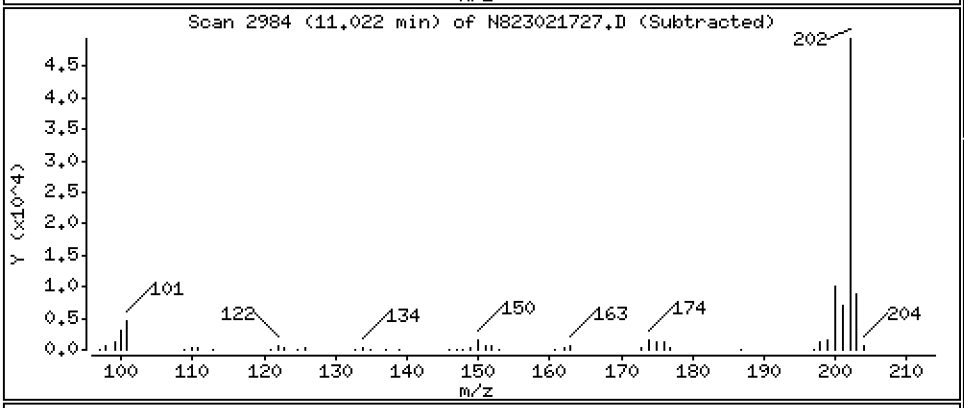
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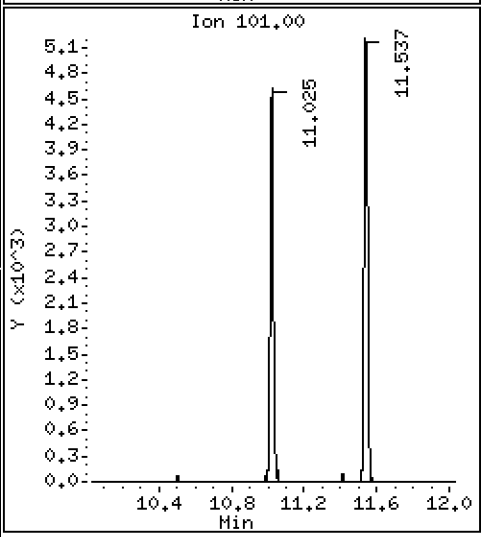
22 Fluoranthene

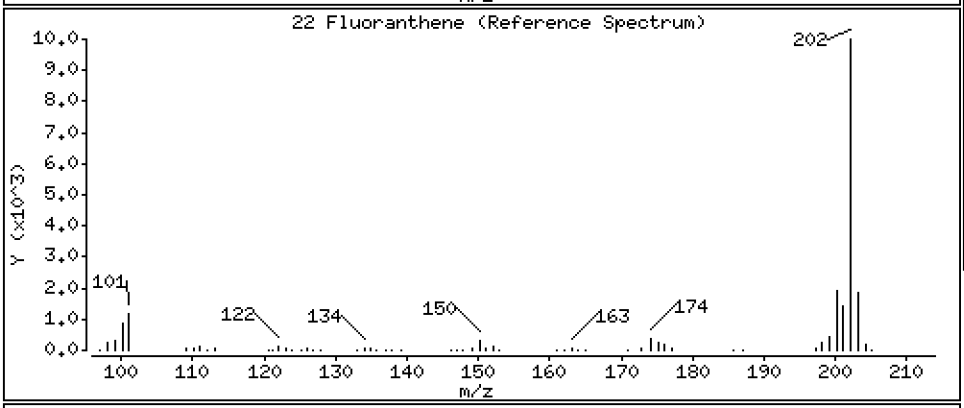
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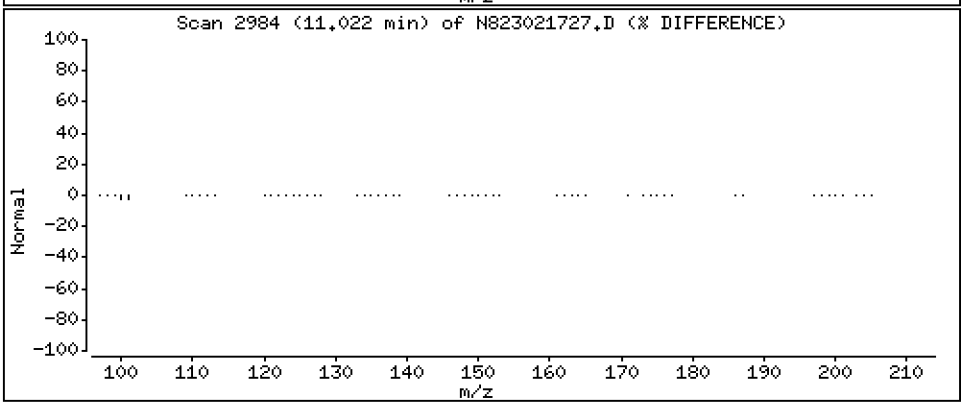












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Client ID:

Instrument: nt8.i

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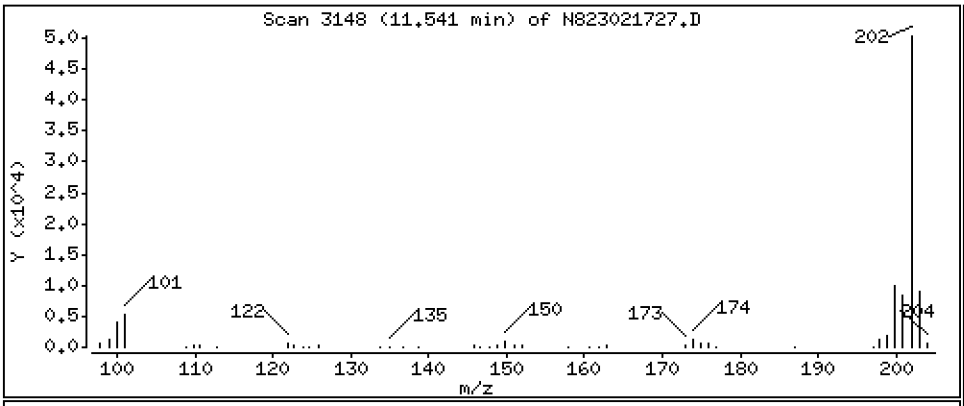
Operator: JZ

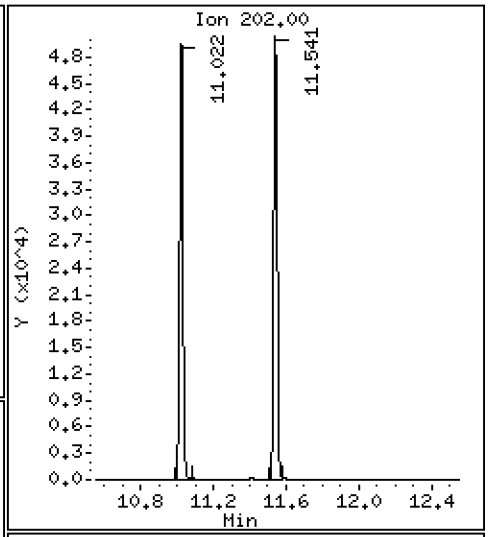
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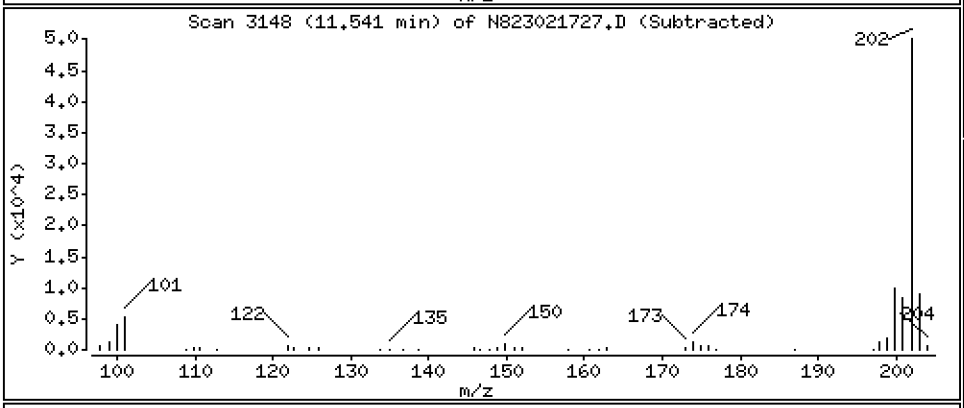
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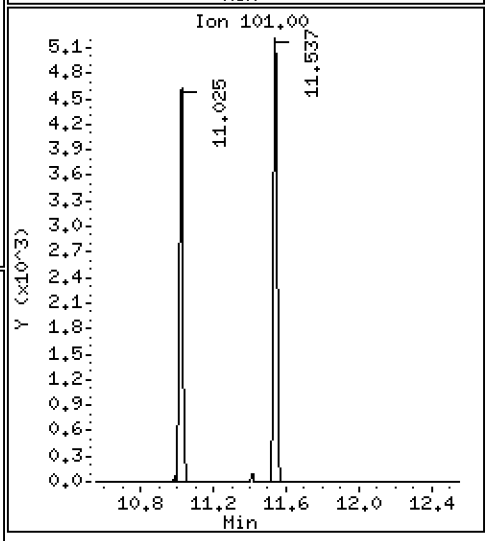
23 Pyrene

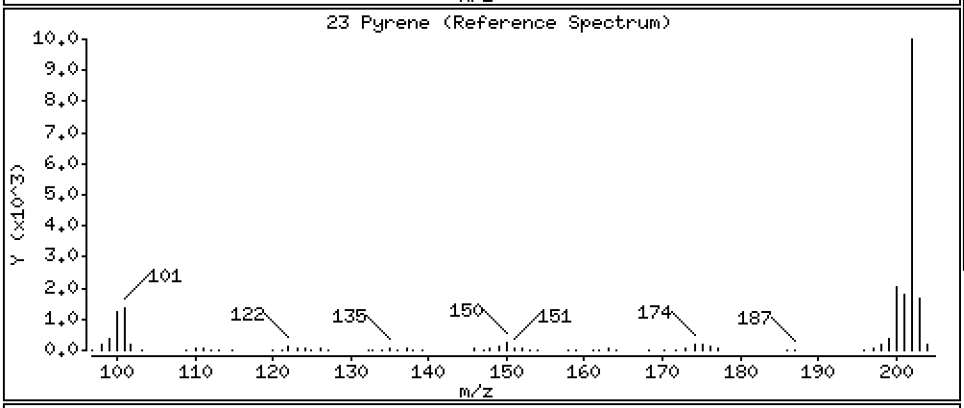
Concentration: 2.634 ug/mL

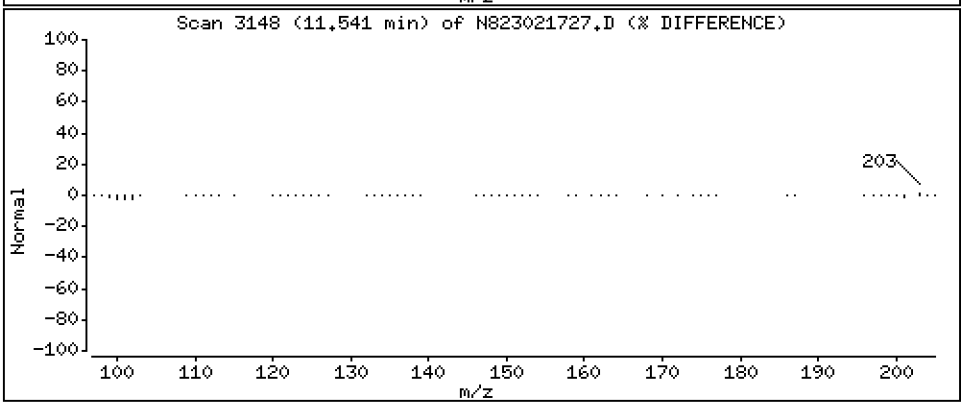












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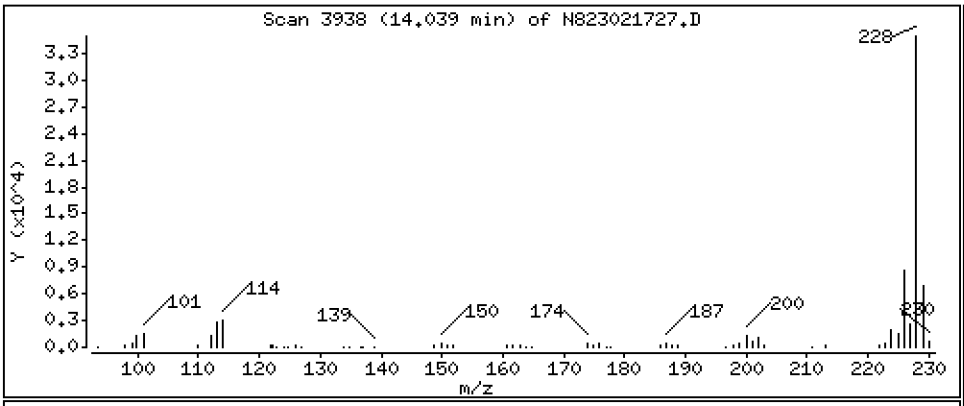
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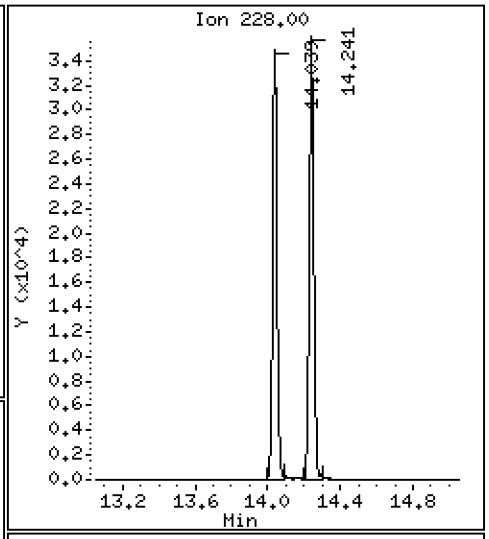
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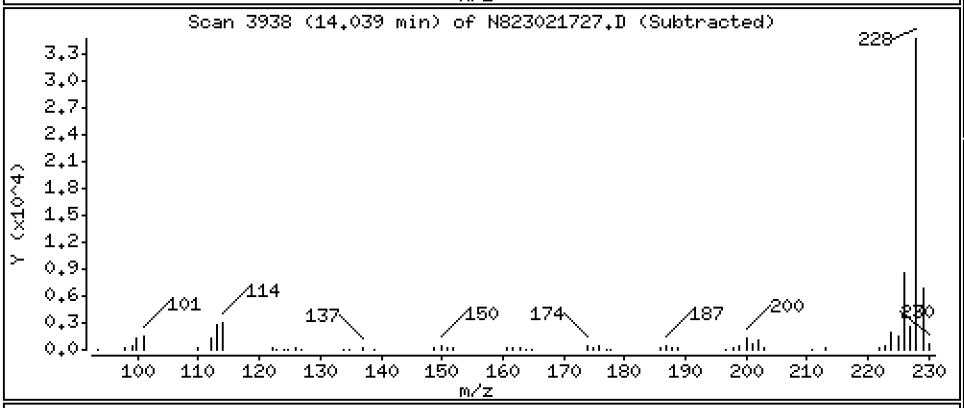
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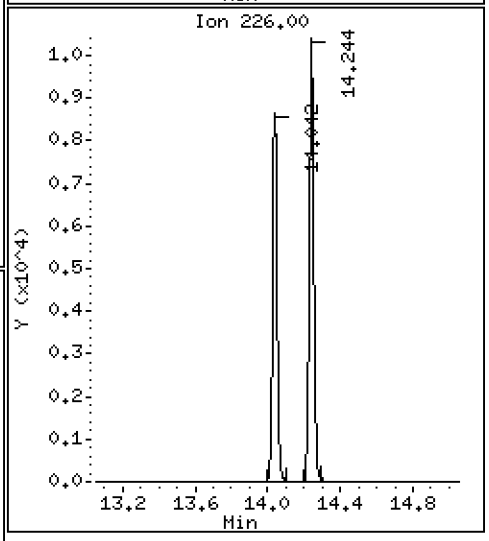
24 Benzo(a)anthracene

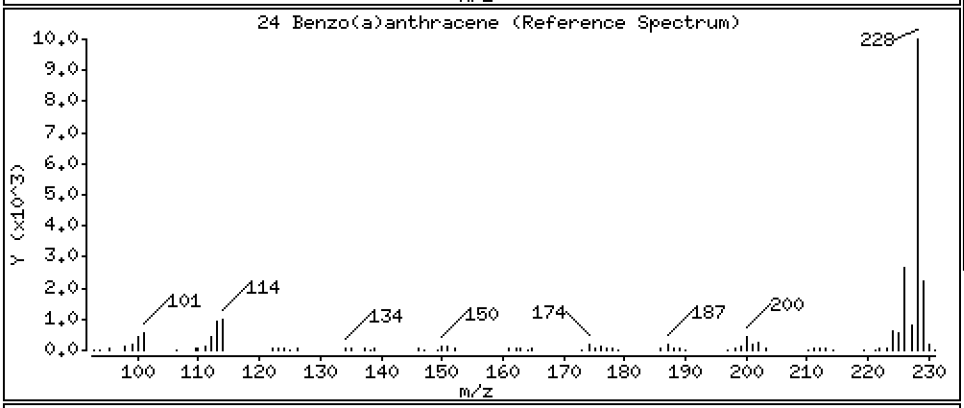
Concentration: 2.698 ug/mL

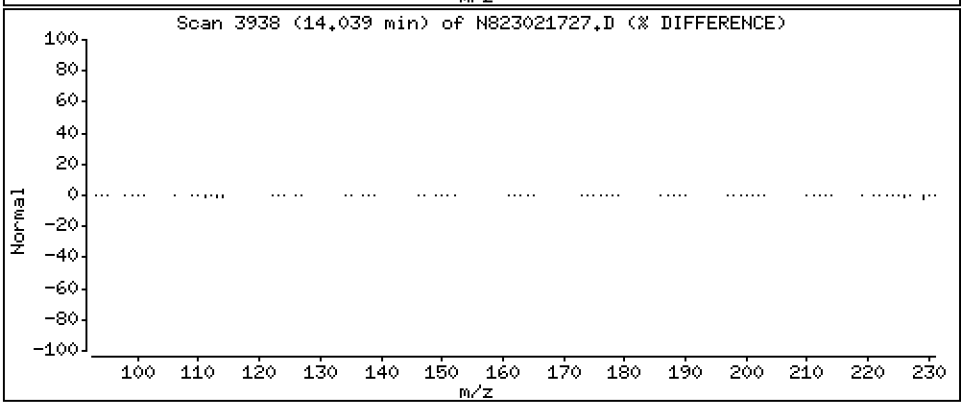












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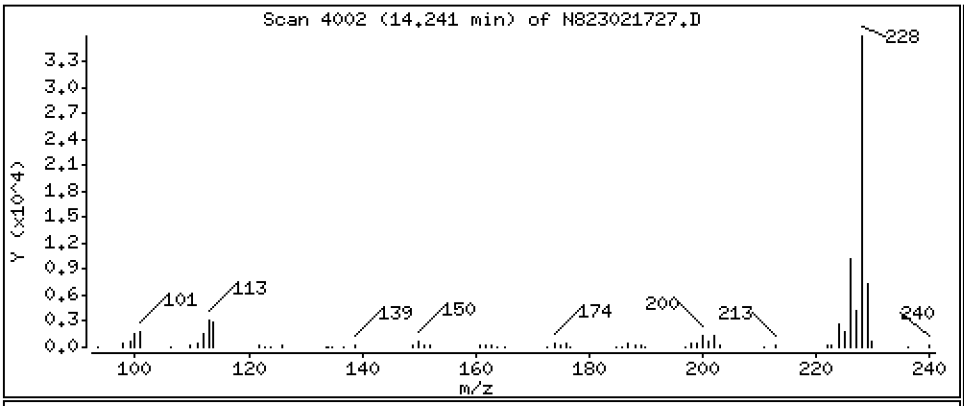
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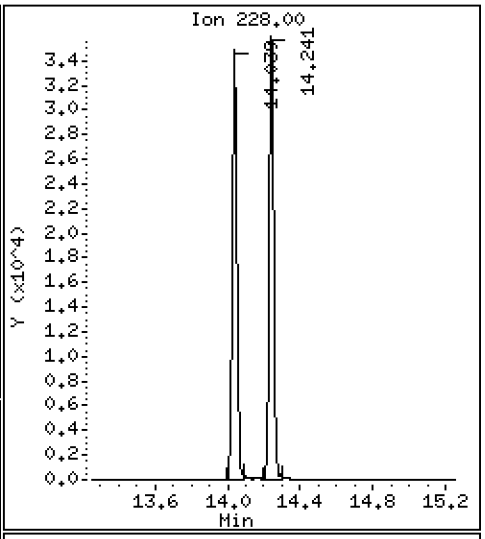
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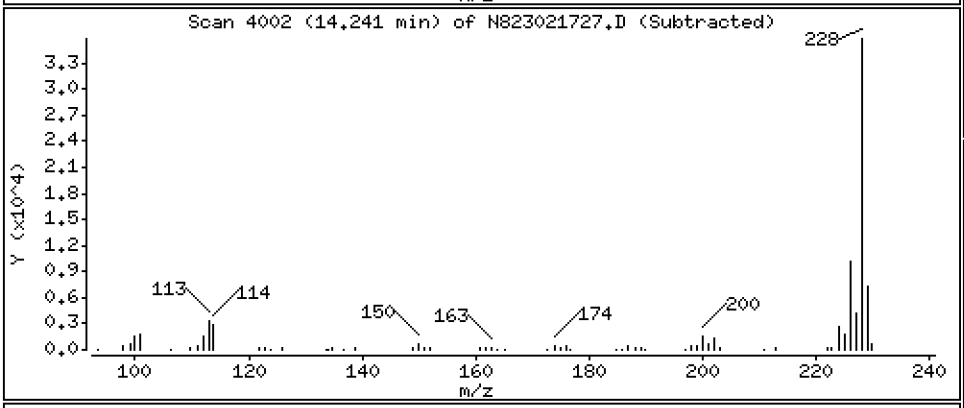
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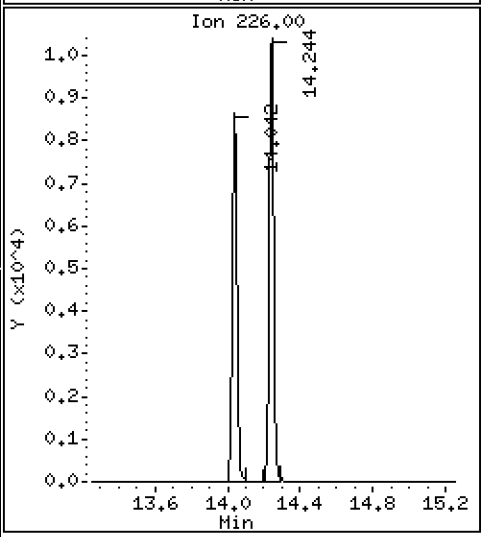
27 Chrysene

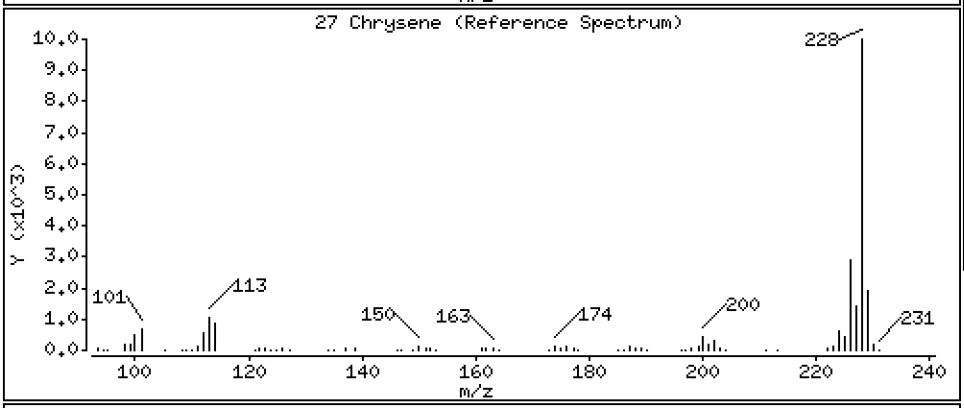
Concentration: 2.533 ug/mL

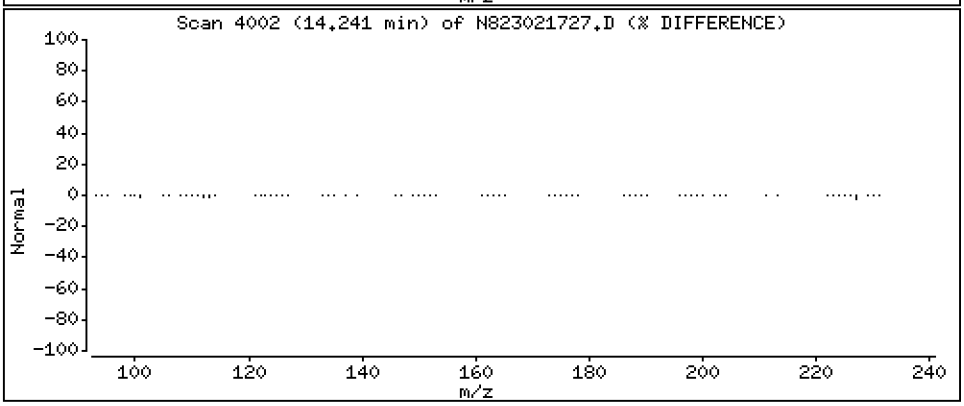












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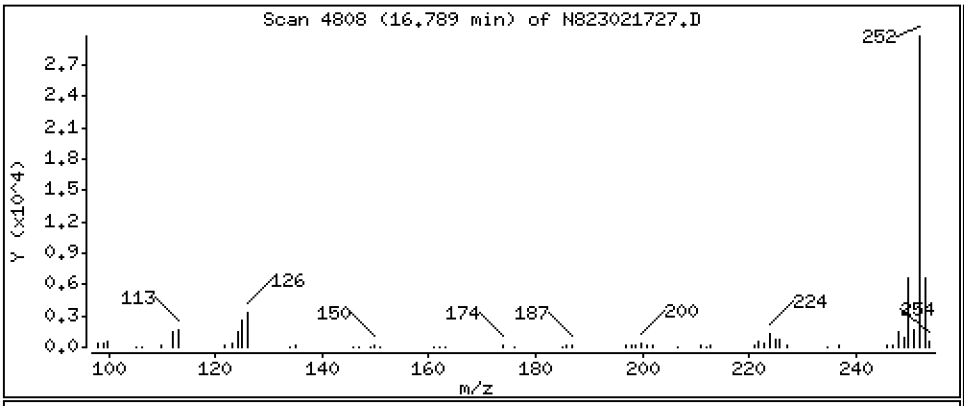
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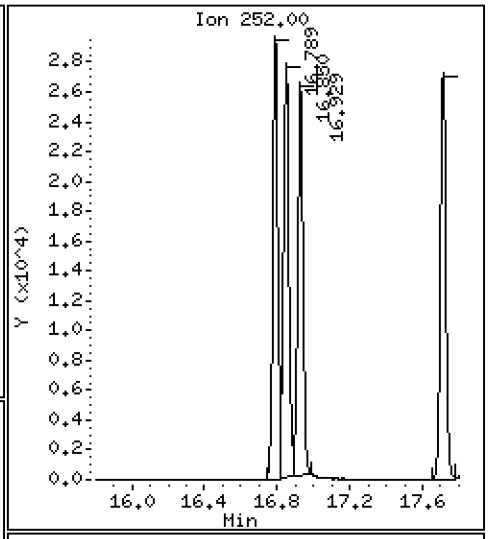
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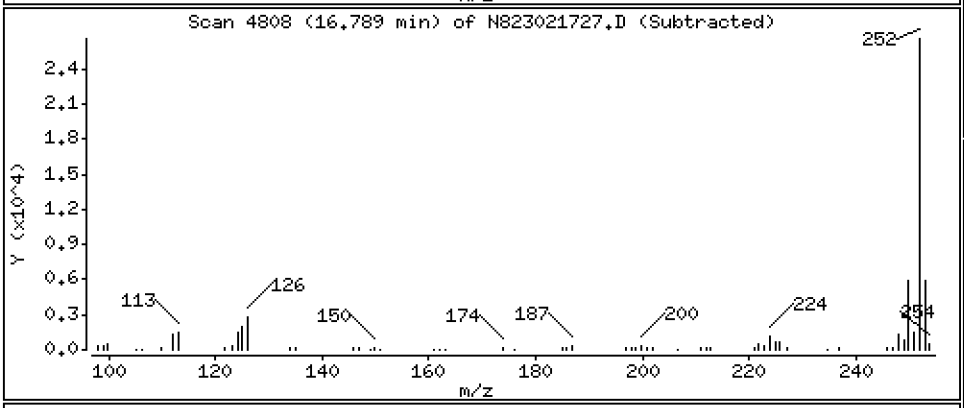
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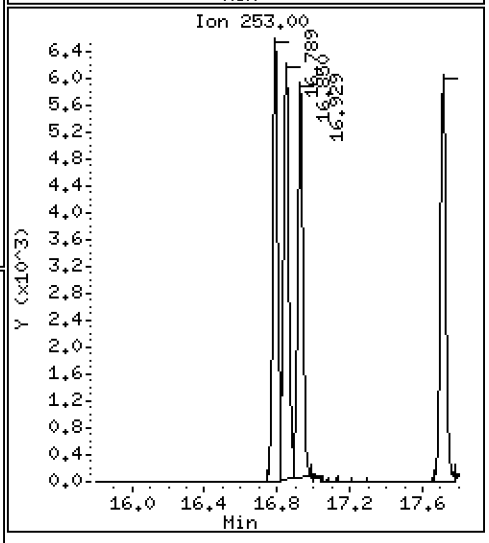
28 Benzo(b)fluoranthene

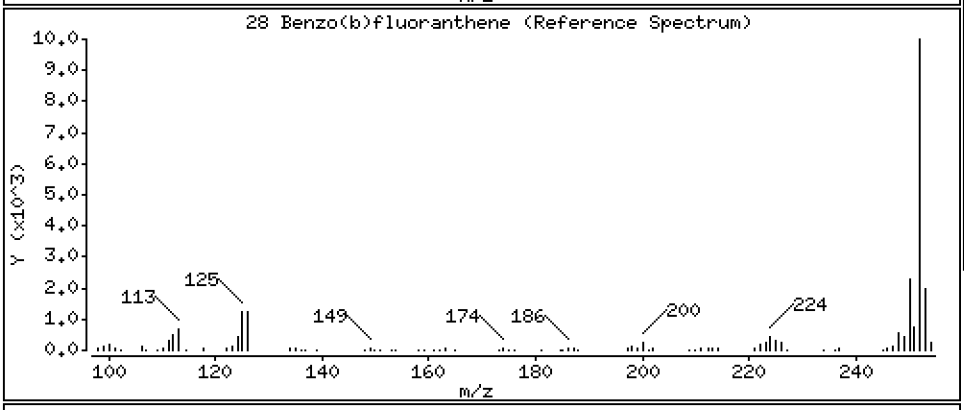
Concentration: 2.490 ug/mL

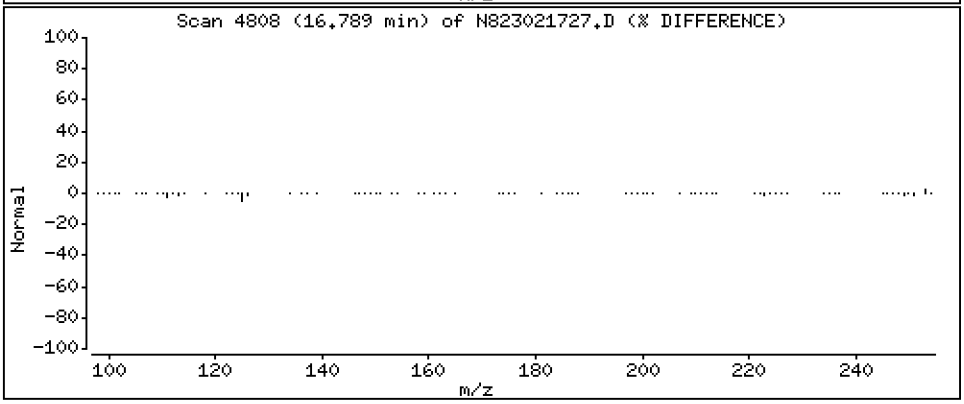












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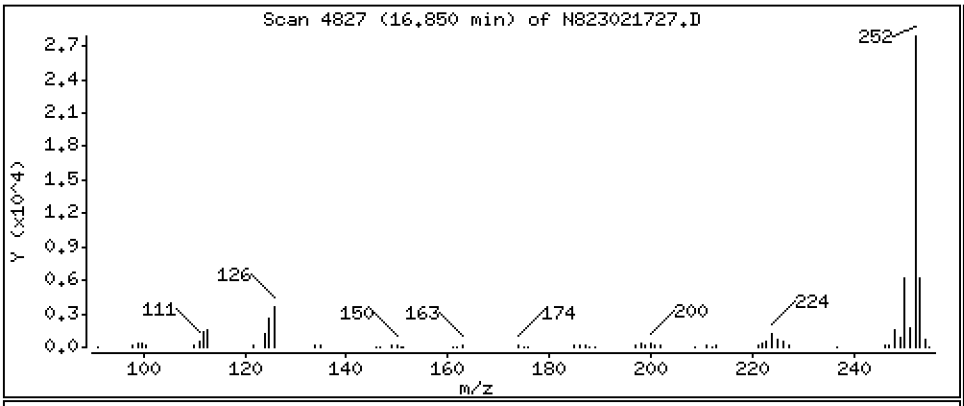
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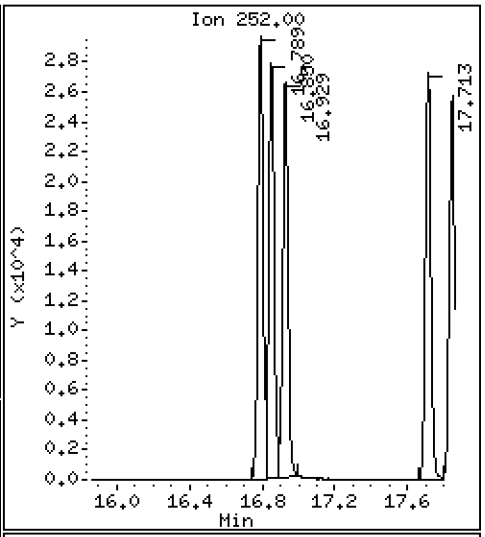
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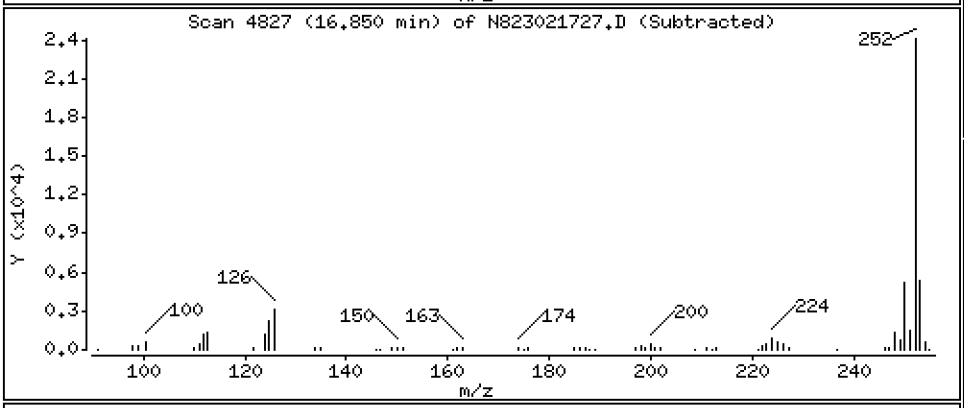
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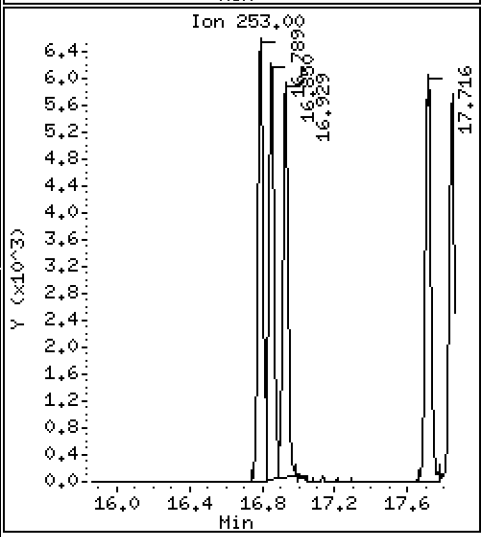
29 Benzo(k)fluoranthene

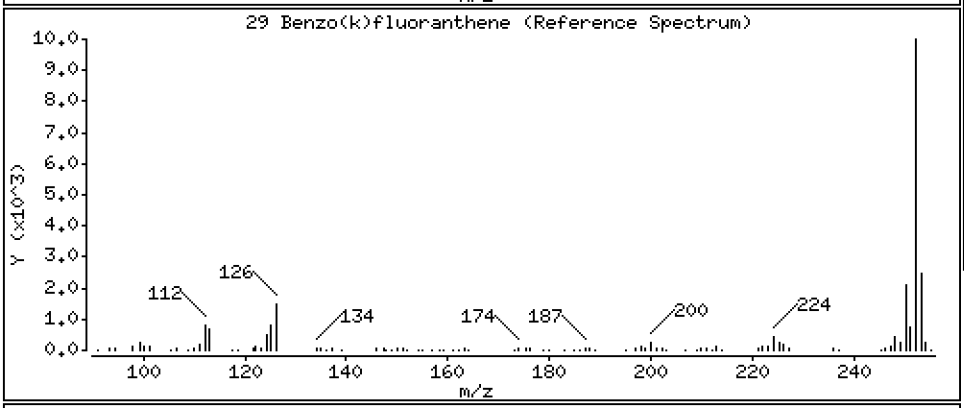
Concentration: 2.476 ug/mL

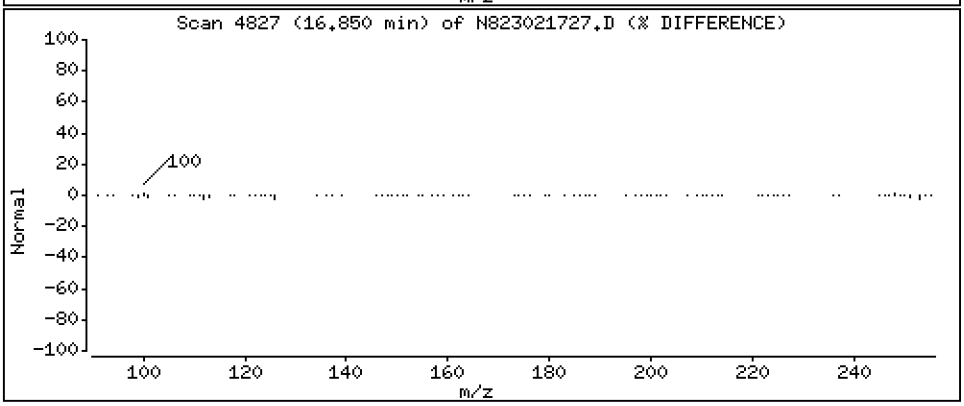












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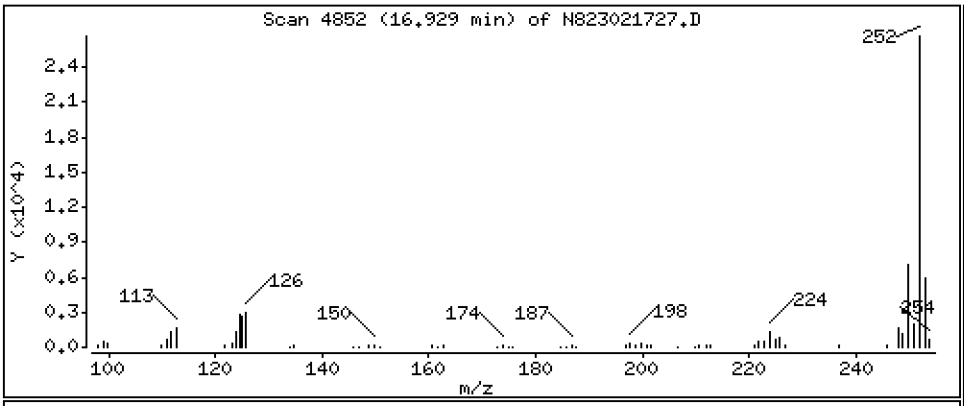
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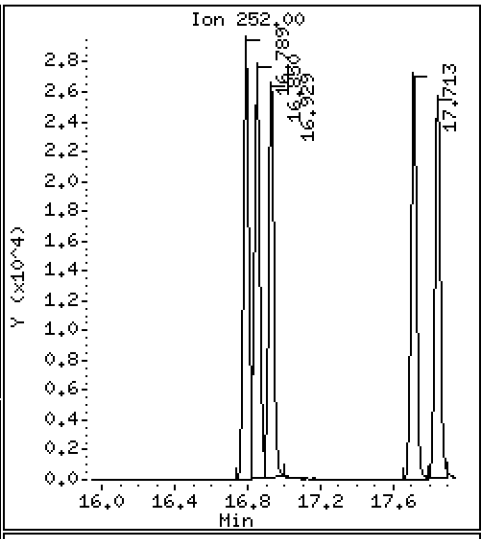
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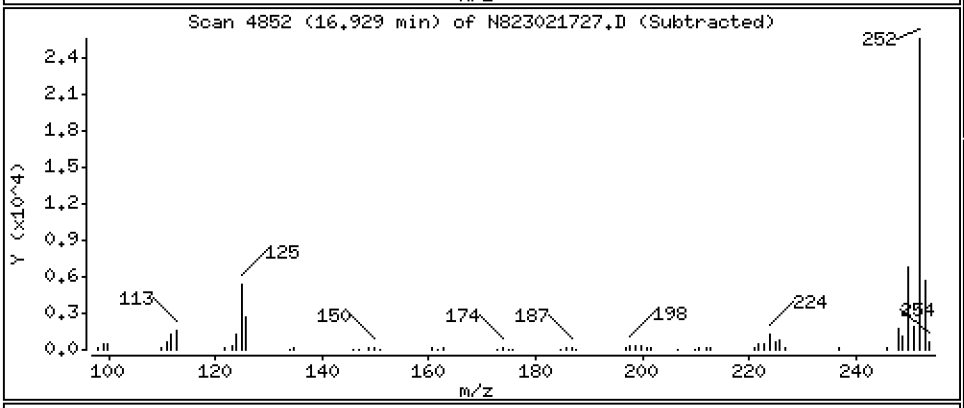
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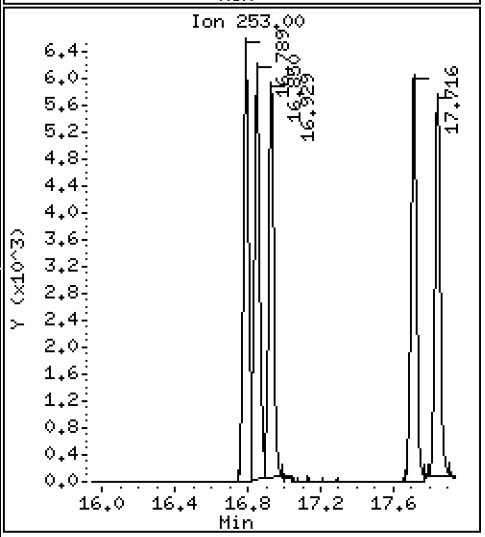
30 Benzo(j)fluoranthene

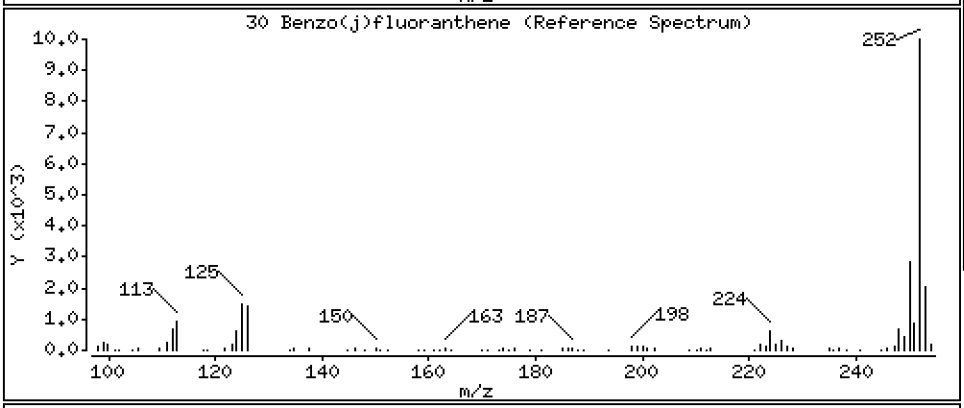
Concentration: 2.526 ug/mL

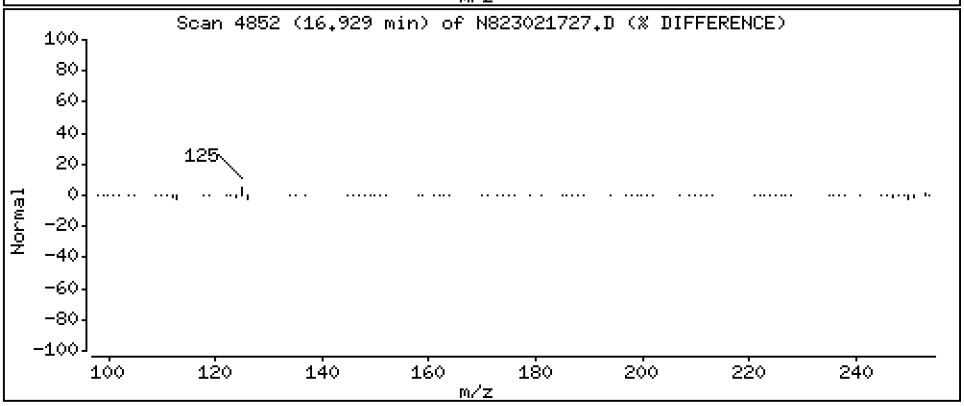












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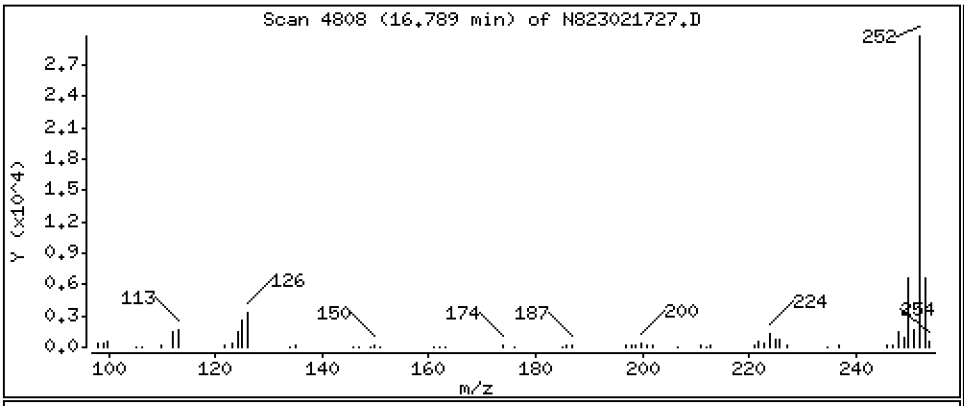
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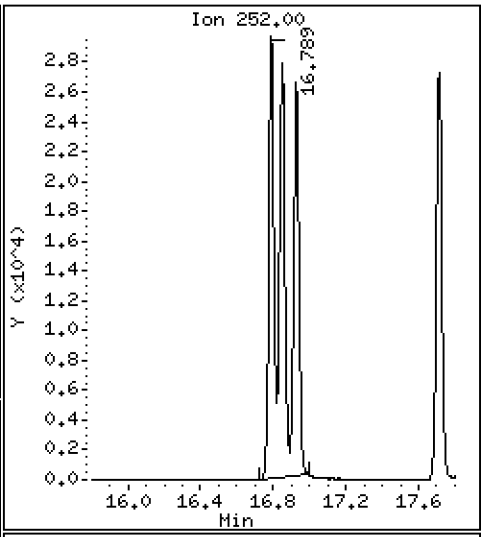
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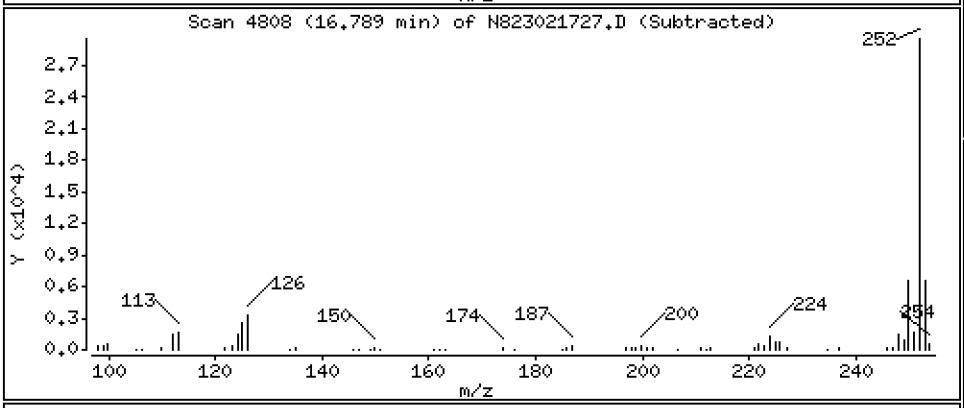
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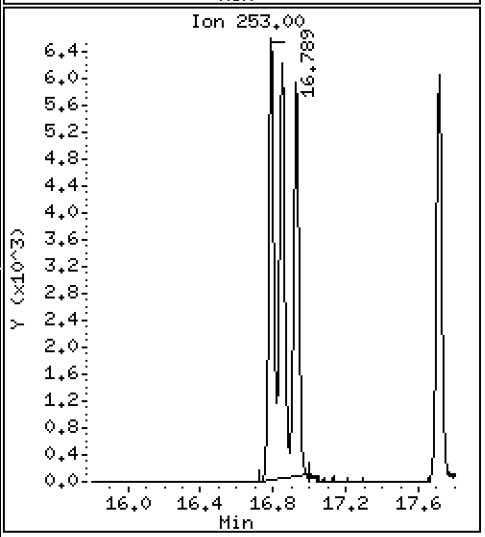
31 Total Benzofluoranthenes

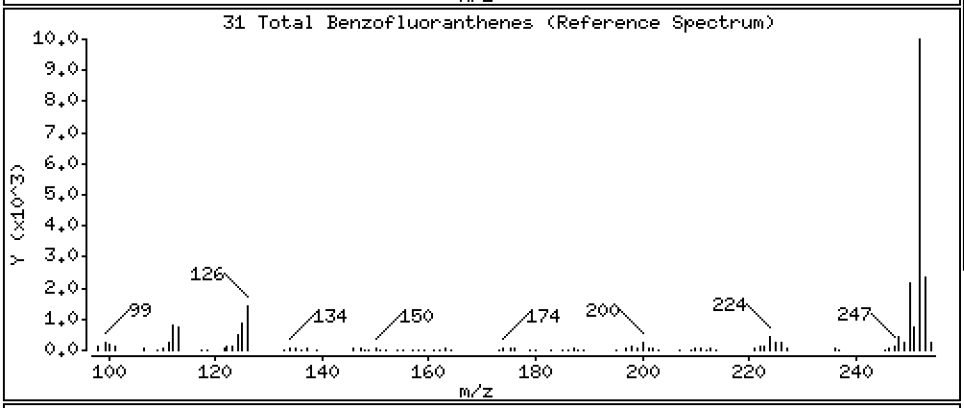
Concentration: 7.438 ug/mL

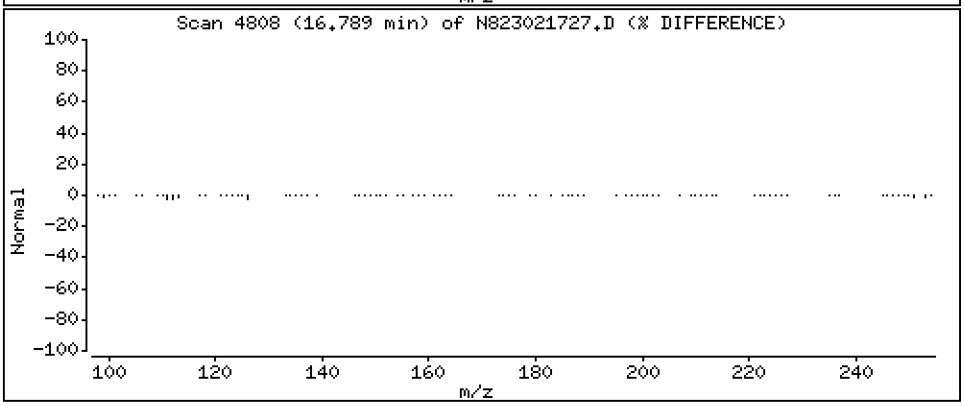












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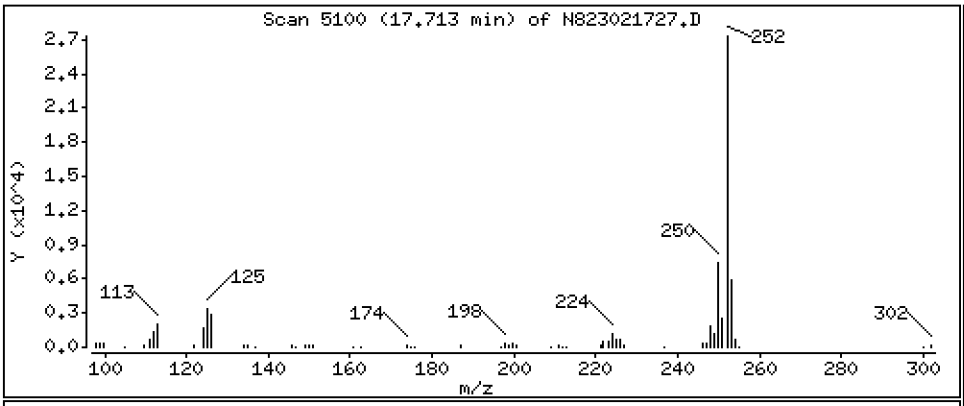
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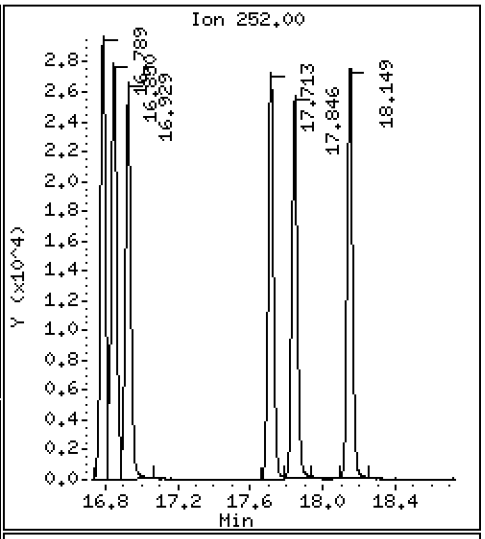
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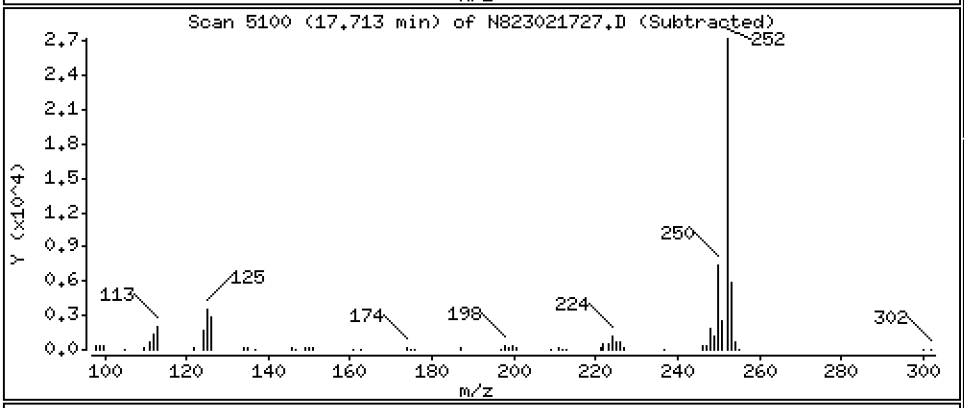
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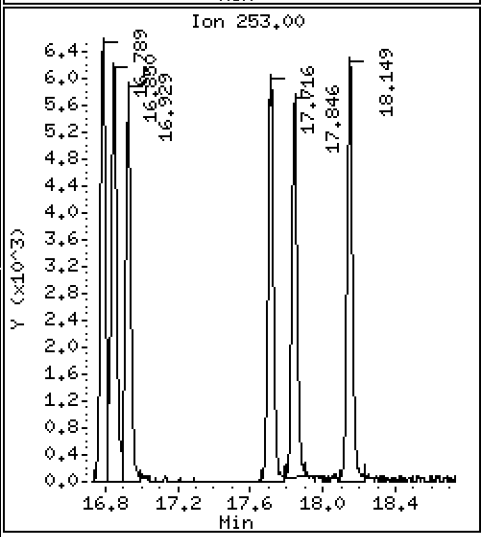
34 Benzo(e)pyrene

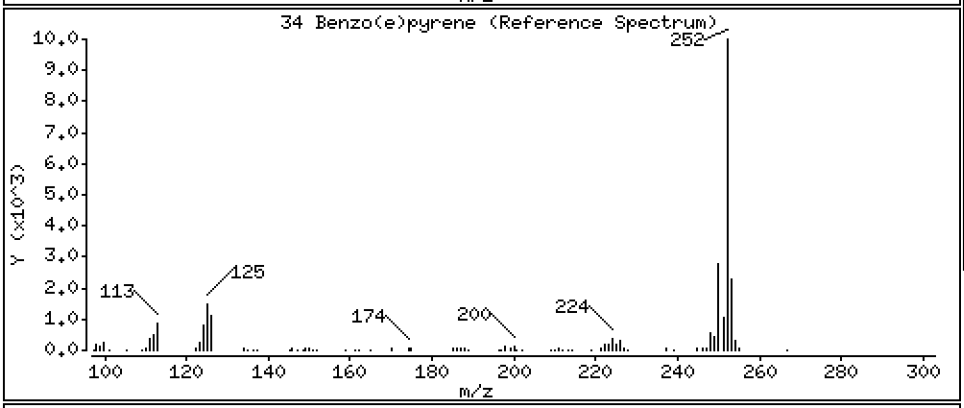
Concentration: 2.443 ug/mL

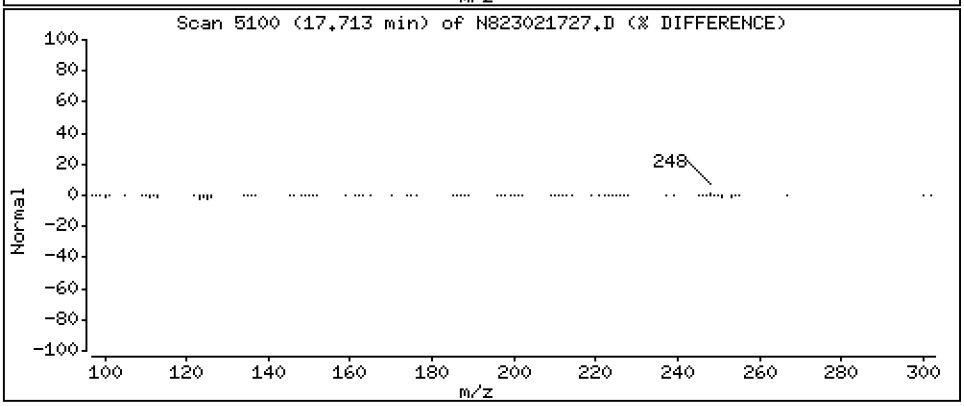












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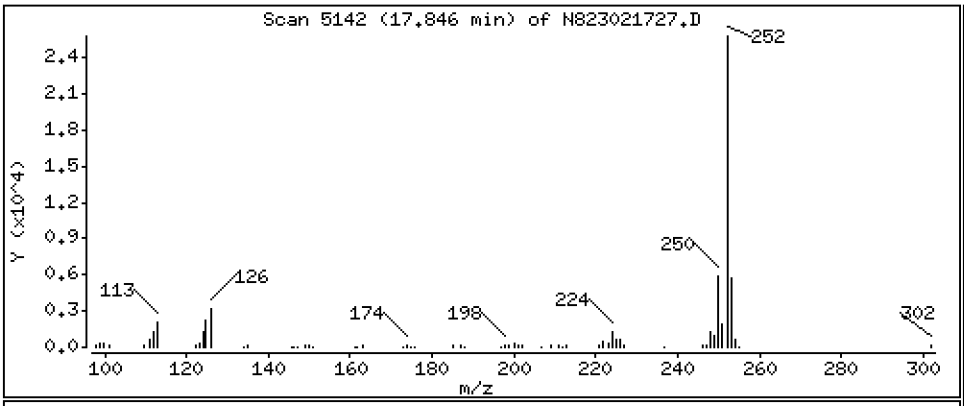
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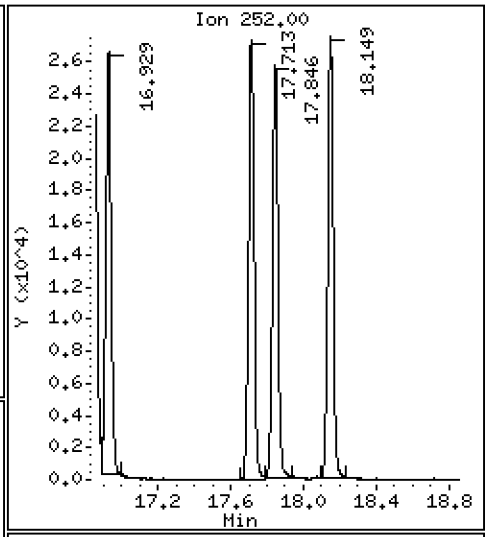
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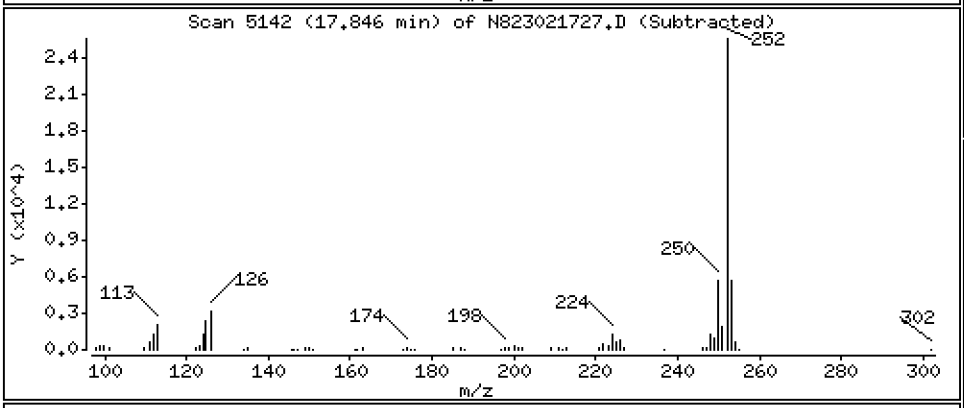
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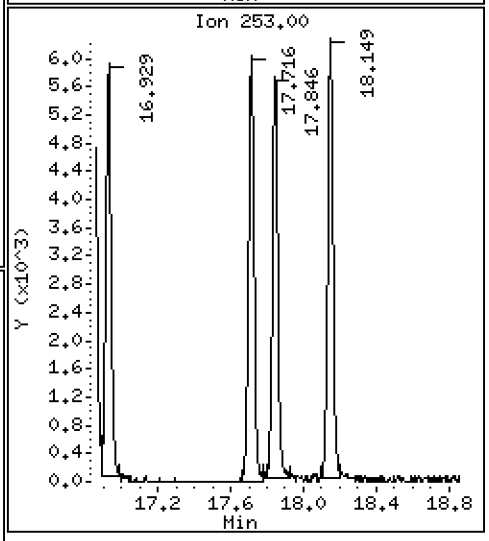
32 Benzo(a)pyrene

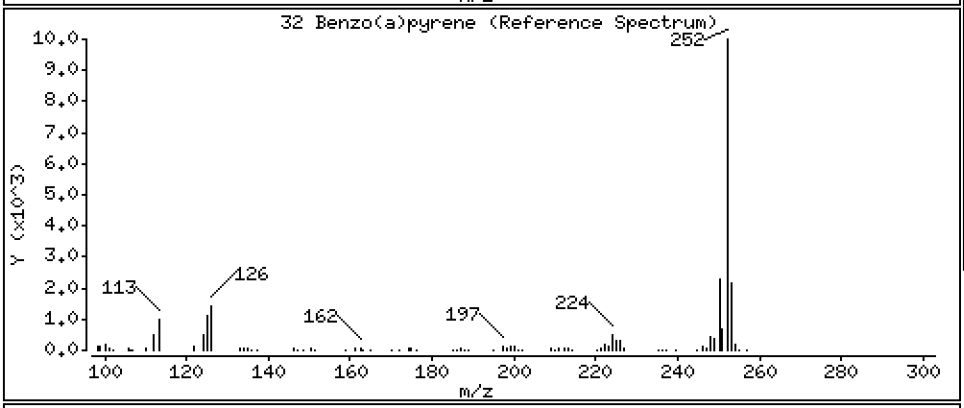
Concentration: 2.562 ug/mL

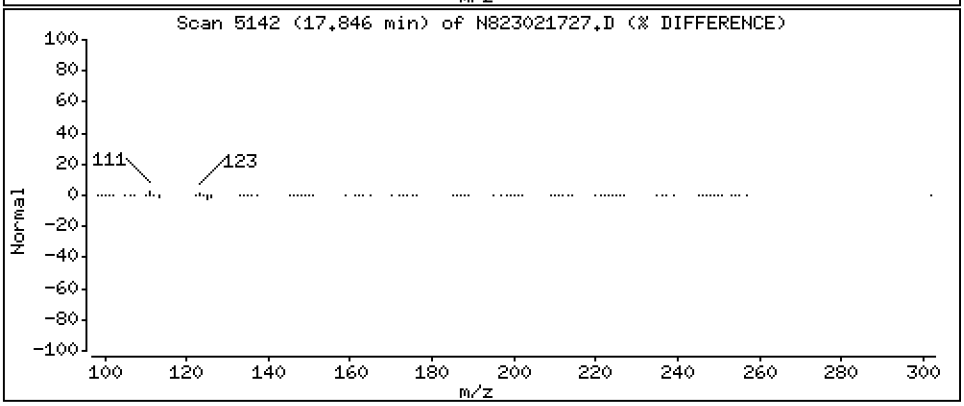












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Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

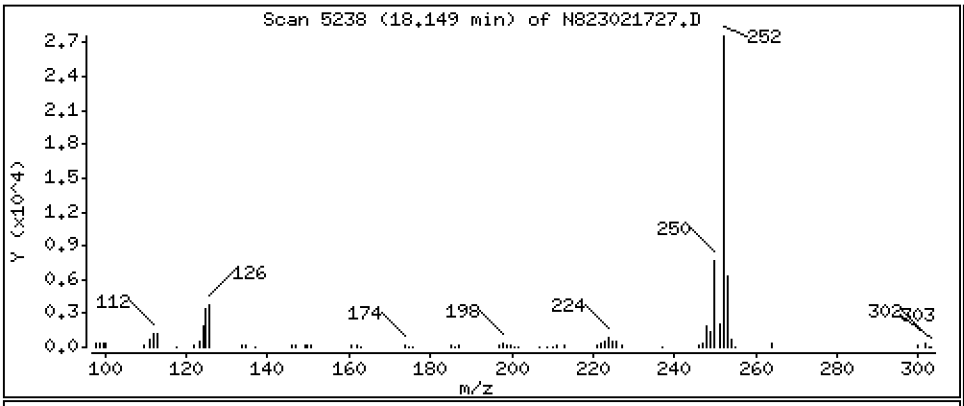
Operator: JZ

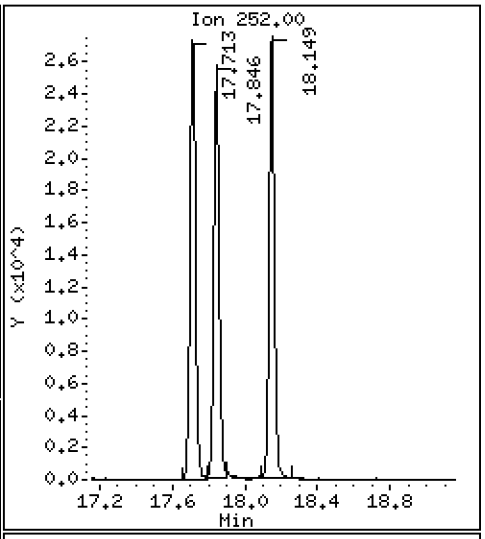
Column phase: Rxi-17sil

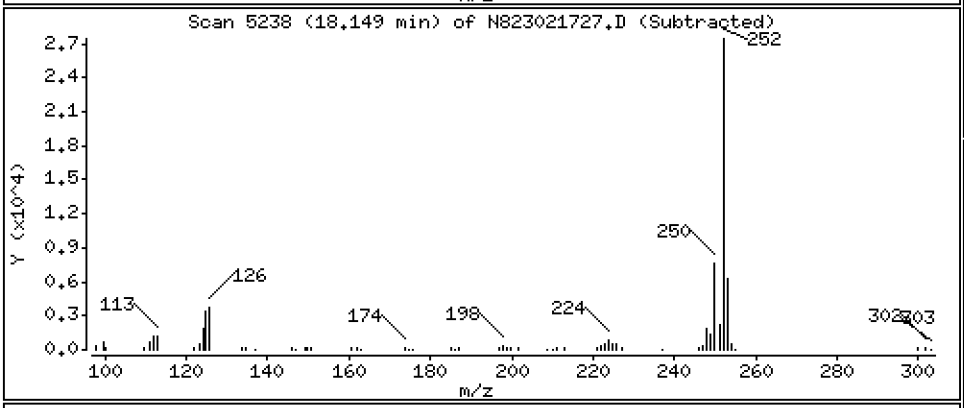
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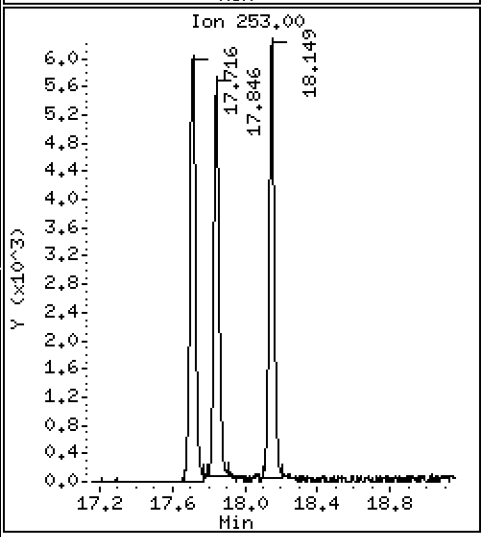
35 Perylene

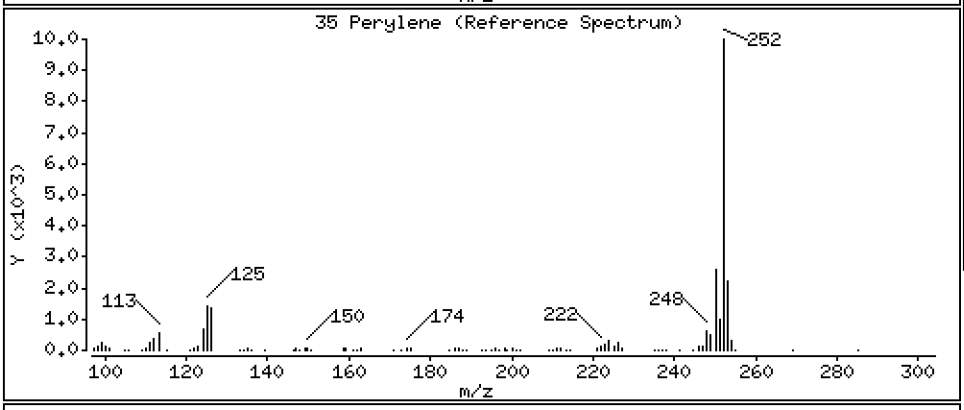
Concentration: 2.511 ug/mL

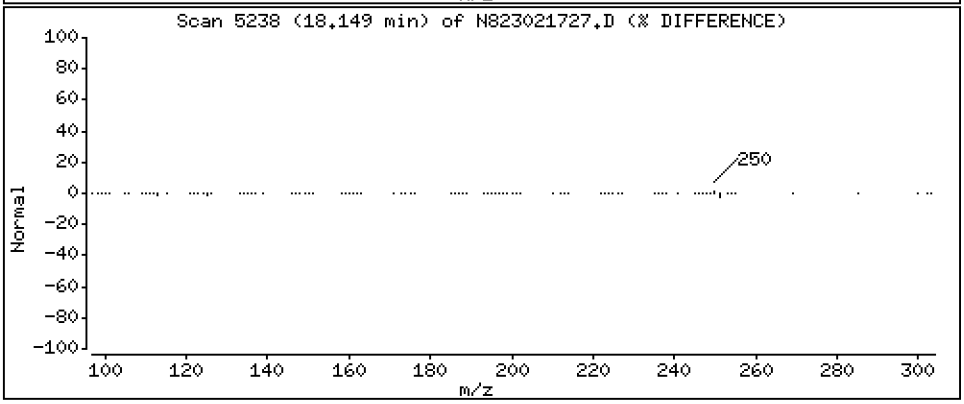












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Date : 17-FEB-2023 23:05

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Instrument: nt8.i

Sample Info: CCV230217,

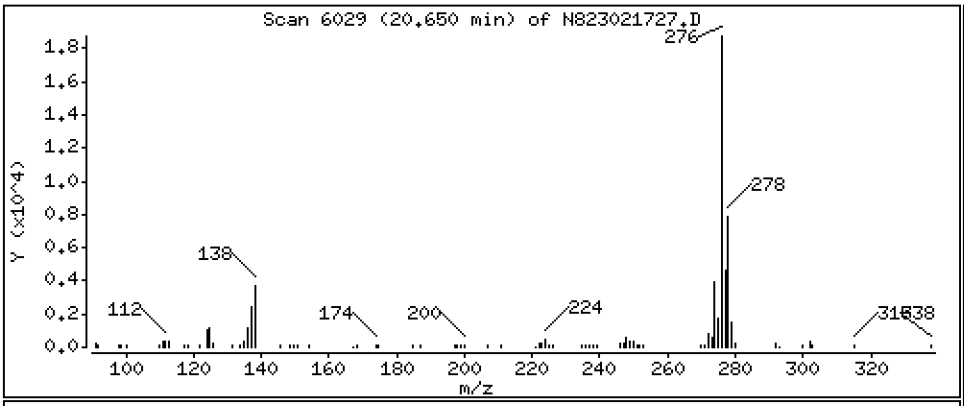
Operator: JZ

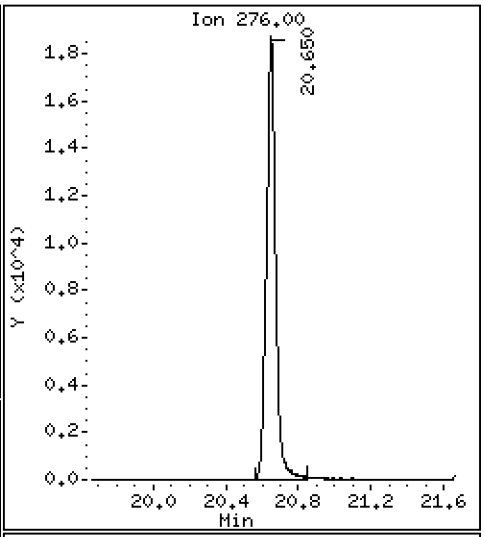
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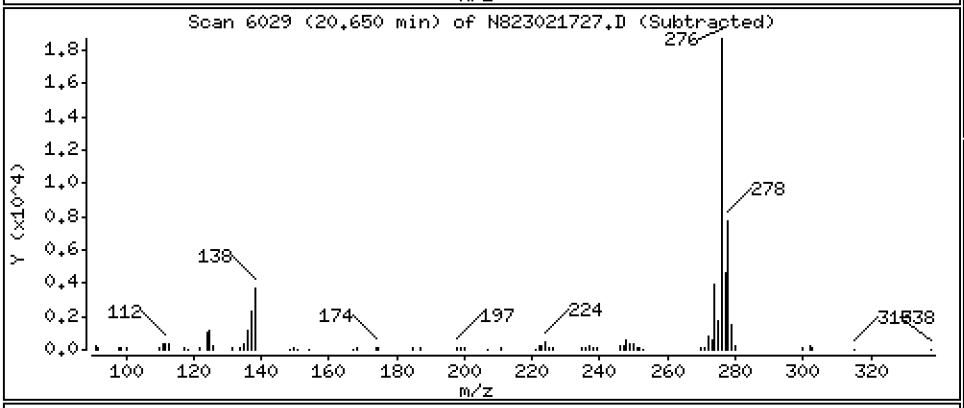
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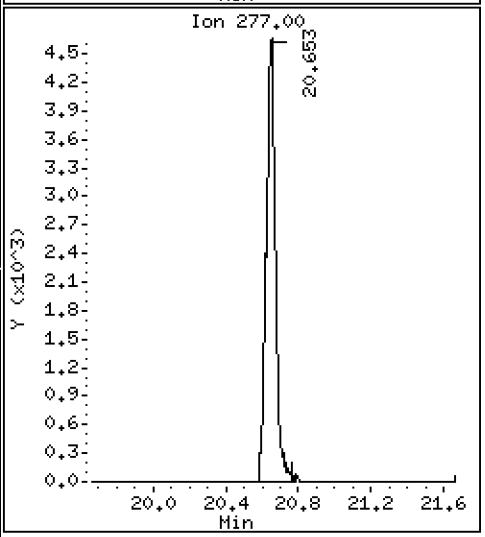
37 Indeno(1,2,3-cd)pyrene

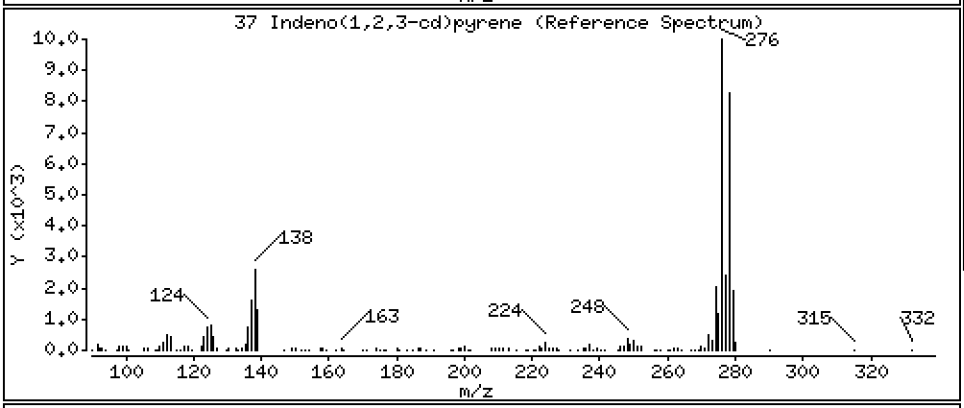
Concentration: 2.797 ug/mL

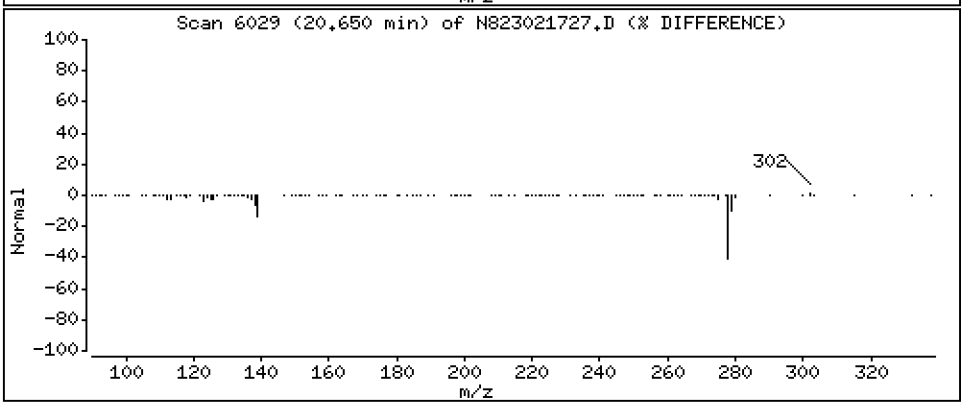












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Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

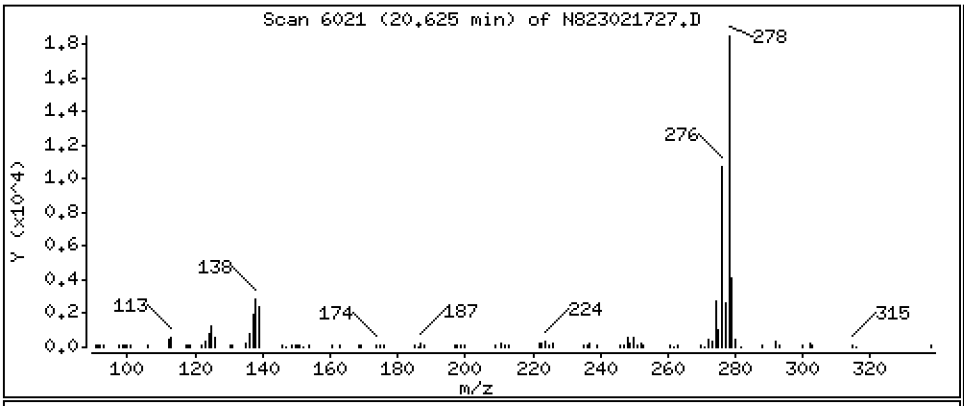
Operator: JZ

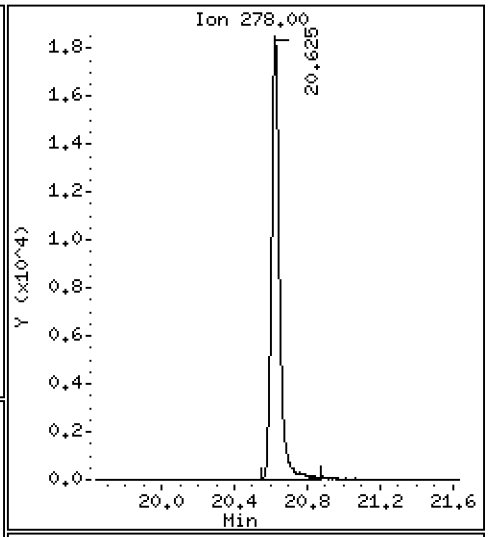
Column phase: Rxi-17sil

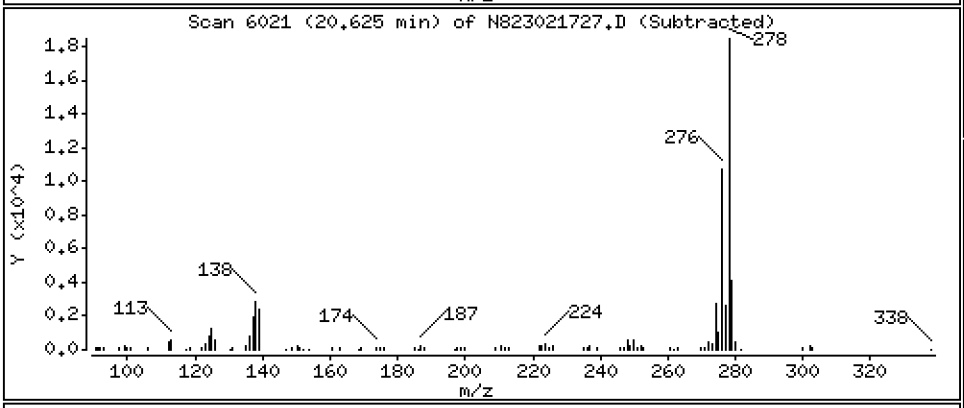
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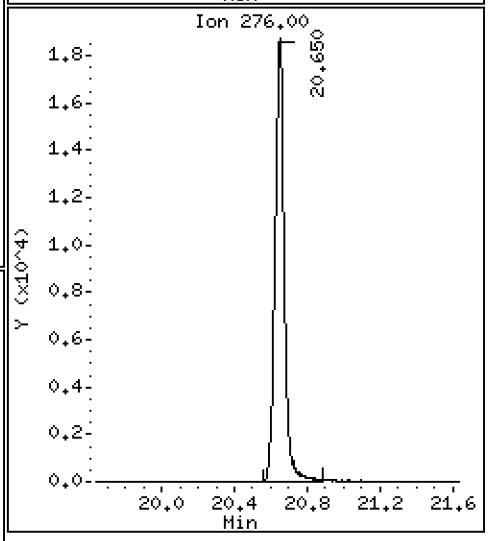
38 Dibenzo(a,h)anthracene

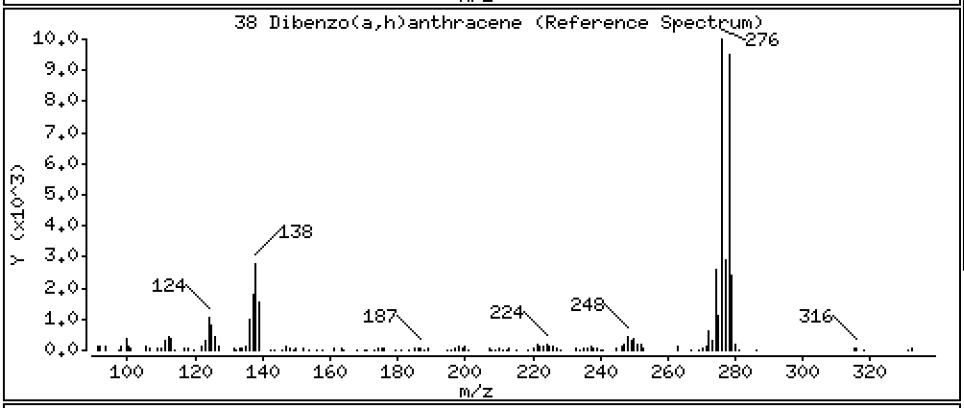
Concentration: 2.799 ug/mL

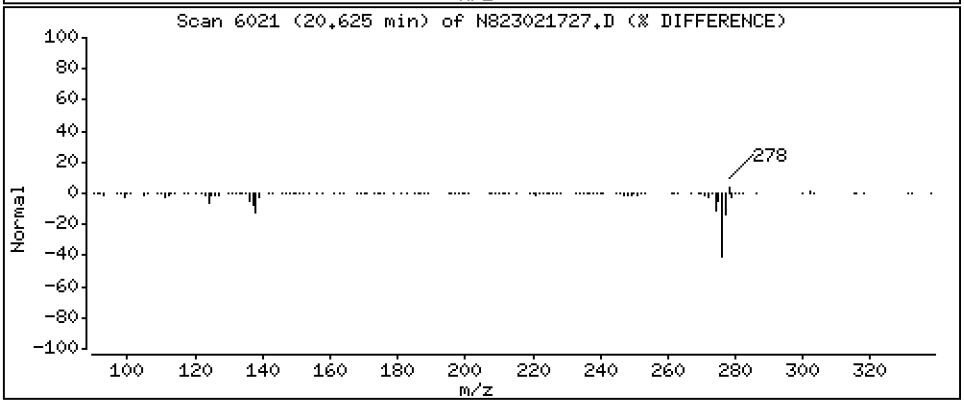












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

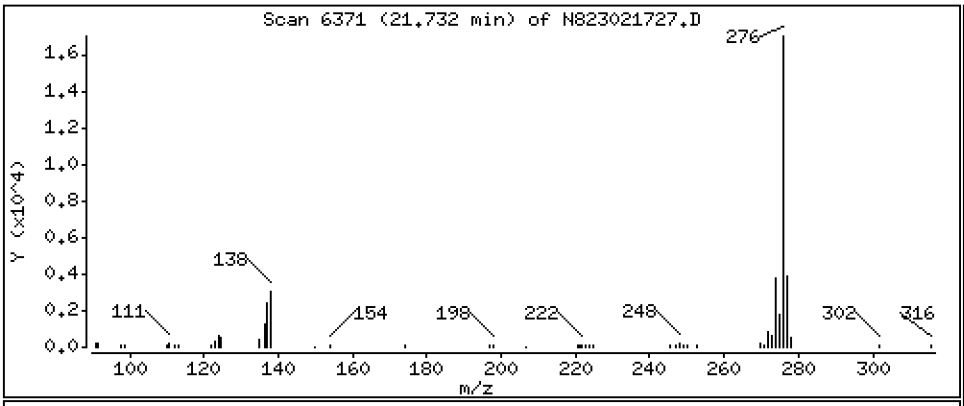
Operator: JZ

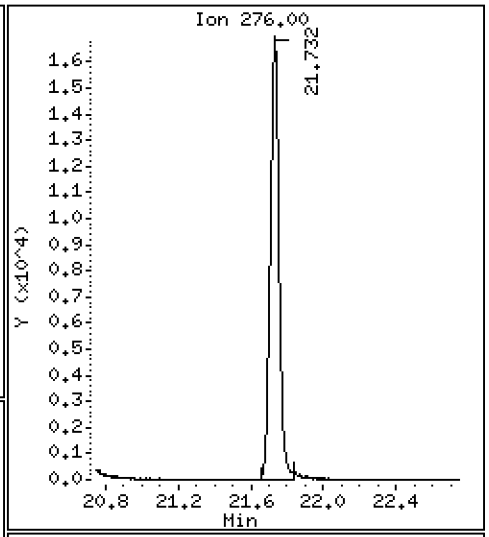
Column phase: Rxi-17sil

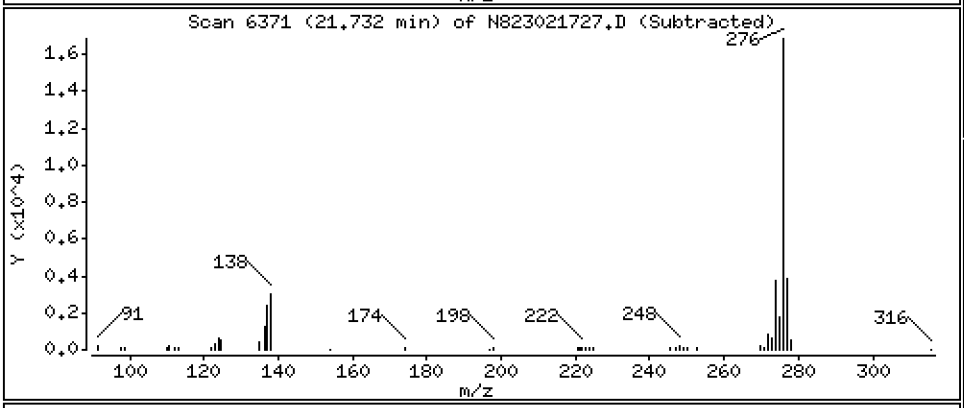
Column diameter: 0.25

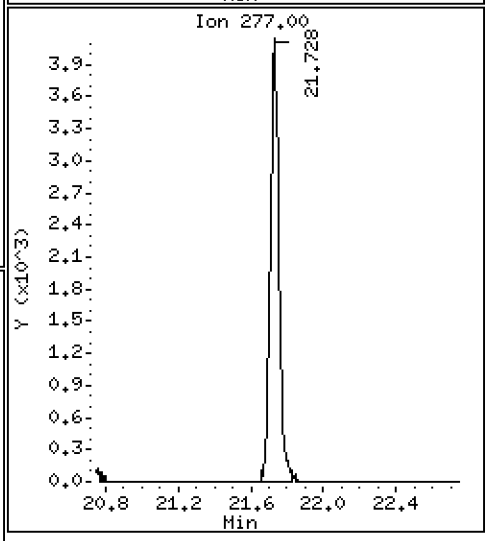
39 Benzo(g,h,i)perylene

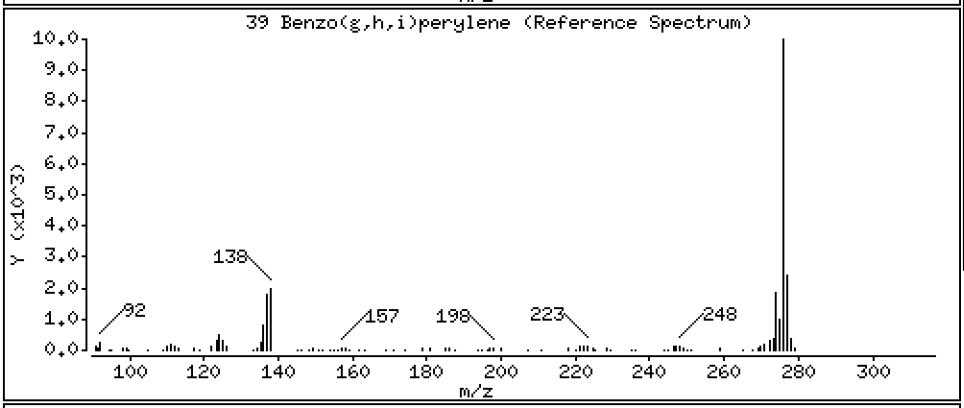
Concentration: 2.626 ug/mL

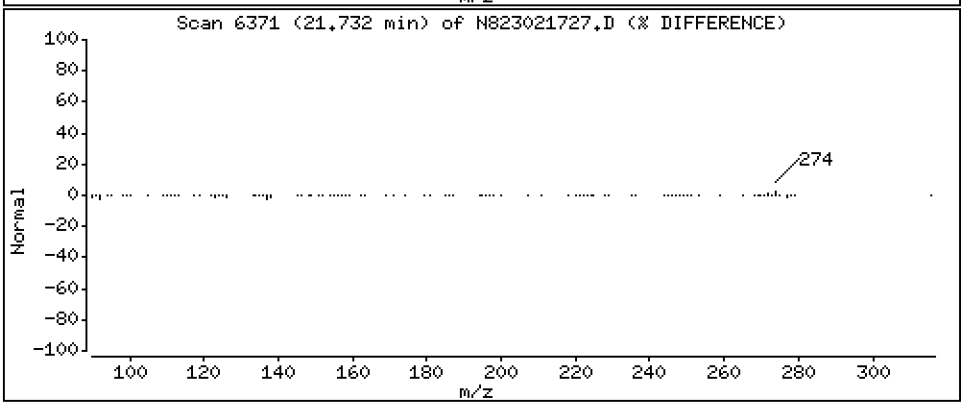












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230217.b\N823021727.D
Lab Smp Id: SLB0244-CCV1
Inj Date : 17-FEB-2023 23:05
Operator : JZ Inst ID: nt8.i
Smp Info : CCV230217,
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Meth Date : 21-Feb-2023 08:53 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

							CONCENTRATIONS	
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.881	4.884	(1.000)	38225	2.00000	
	2 Naphthalene	128	4.909	4.916	(1.006)	45998	2.58807	2.588
$	3 2-Methylnaphthalene-d10	152	5.615	5.621	(1.150)	27743	2.66122	2.661
	4 2-Methylnaphthalene	141	5.662	5.669	(1.160)	25428	2.60104	2.601
	5 1-methylnaphthalene	141	5.858	5.865	(1.200)	26066	2.62712	2.627
	9 Acenaphthylene	152	7.060	7.066	(0.985)	47535	2.75864	2.759
*	10 Acenaphthene-d10	164	7.167	7.177	(1.000)	22819	2.00000	
	11 Acenaphthene	153	7.218	7.224	(1.007)	29934	2.59271	2.593
	12 Dibenzofuran	168	7.369	7.376	(1.028)	45216	2.57846	2.578
	14 Fluorene	166	7.847	7.857	(1.095)	36842	2.70503	2.705
*	15 Phenanthrene-d10	188	9.207	9.216	(1.000)	44298	2.00000	
	16 Phenanthrene	178	9.245	9.251	(1.004)	53431	2.46924	2.469
	17 Anthracene	178	9.286	9.292	(1.009)	52063	2.64855	2.649
	19 Carbazole	167	9.801	9.811	(1.065)	47103	2.61384	2.614
	22 Fluoranthene	202	11.022	11.031	(1.197)	63247	2.68521	2.685
$	21 Fluoranthene-d10	212	10.987	10.996	(1.193)	55123	2.82044	2.820
	23 Pyrene	202	11.540	11.553	(0.815)	65442	2.63431	2.634
	24 Benzo(a)anthracene	228	14.038	14.054	(0.991)	60754	2.69820	2.698
*	25 Chrysene-d12	240	14.168	14.181	(1.000)	40069	2.00000	
	27 Chrysene	228	14.240	14.253	(1.005)	60707	2.53263	2.533
	28 Benzo(b)fluoranthene	252	16.789	16.802	(0.929)	59330	2.49036	2.490
	29 Benzo(k)fluoranthene	252	16.849	16.862	(0.932)	57787	2.47635	2.476
	30 Benzo(j)fluoranthene	252	16.928	16.941	(0.937)	53072	2.52633	2.526
	31 Total Benzofluoranthenes	252	16.789	16.802	(0.929)	167816	7.43784	7.438(M)
	34 Benzo(e)pyrene	252	17.712	17.728	(0.980)	58034	2.44282	2.443
	32 Benzo(a)pyrene	252	17.845	17.858	(0.987)	53717	2.56224	2.562
*	33 Perylene-d12	264	18.073	18.086	(1.000)	40906	2.00000	
	35 Perylene	252	18.149	18.158	(1.004)	56487	2.51082	2.511
$	36 Dibenzo(a,h)anthracene-d14	292	20.511	20.523	(1.135)	39257	2.44930	2.449
	37 Indeno(1,2,3-cd)pyrene	276	20.650	20.663	(1.143)	66805	2.79706	2.797
	38 Dibenzo(a,h)anthracene	278	20.624	20.637	(1.141)	57539	2.79939	2.799
	39 Benzo(g,h,i)perylene	276	21.731	21.747	(1.202)	56834	2.62640	2.626

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021727.D
Lab Smp Id: SLB0244-CCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 17-FEB-2023
Calibration Time: 11:25
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	41552	20776	83104	38225	-8.01
10 Acenaphthene-d10	25012	12506	50024	22819	-8.77
15 Phenanthrene-d10	44752	22376	89504	44298	-1.01
25 Chrysene-d12	34520	17260	69040	40069	16.07
33 Perylene-d12	30529	15265	61058	40906	33.99

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	-0.07
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.21	-0.10
25 Chrysene-d12	14.18	13.68	14.68	14.17	-0.09
33 Perylene-d12	18.09	17.59	18.59	18.07	-0.07

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021727.D

Lab ID: SLB0244-CCV1
nt8.i, 20230217.b\FSIMPNA230119.m,   17-FEB-2023 23:05

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

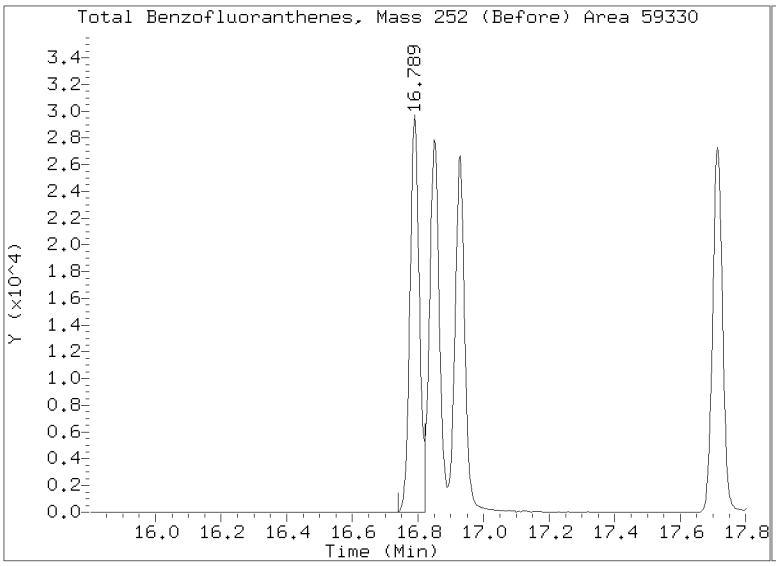
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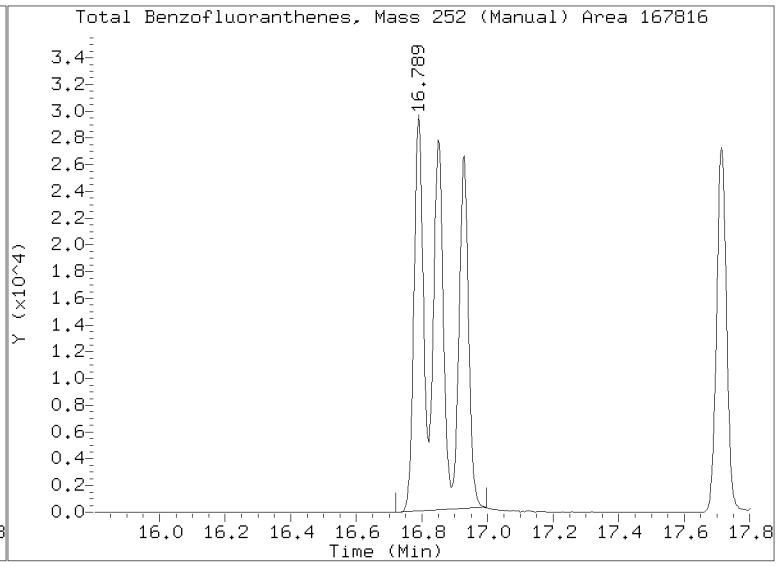
Exception: Benzo(e)pyrene 0.0800

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230217.b/N823021727.D
Injection Date: 17-FEB-2023 23:05
Lab ID:SLB0244-CCV1 Client ID:
Report Date: 02/21/2023 09:24

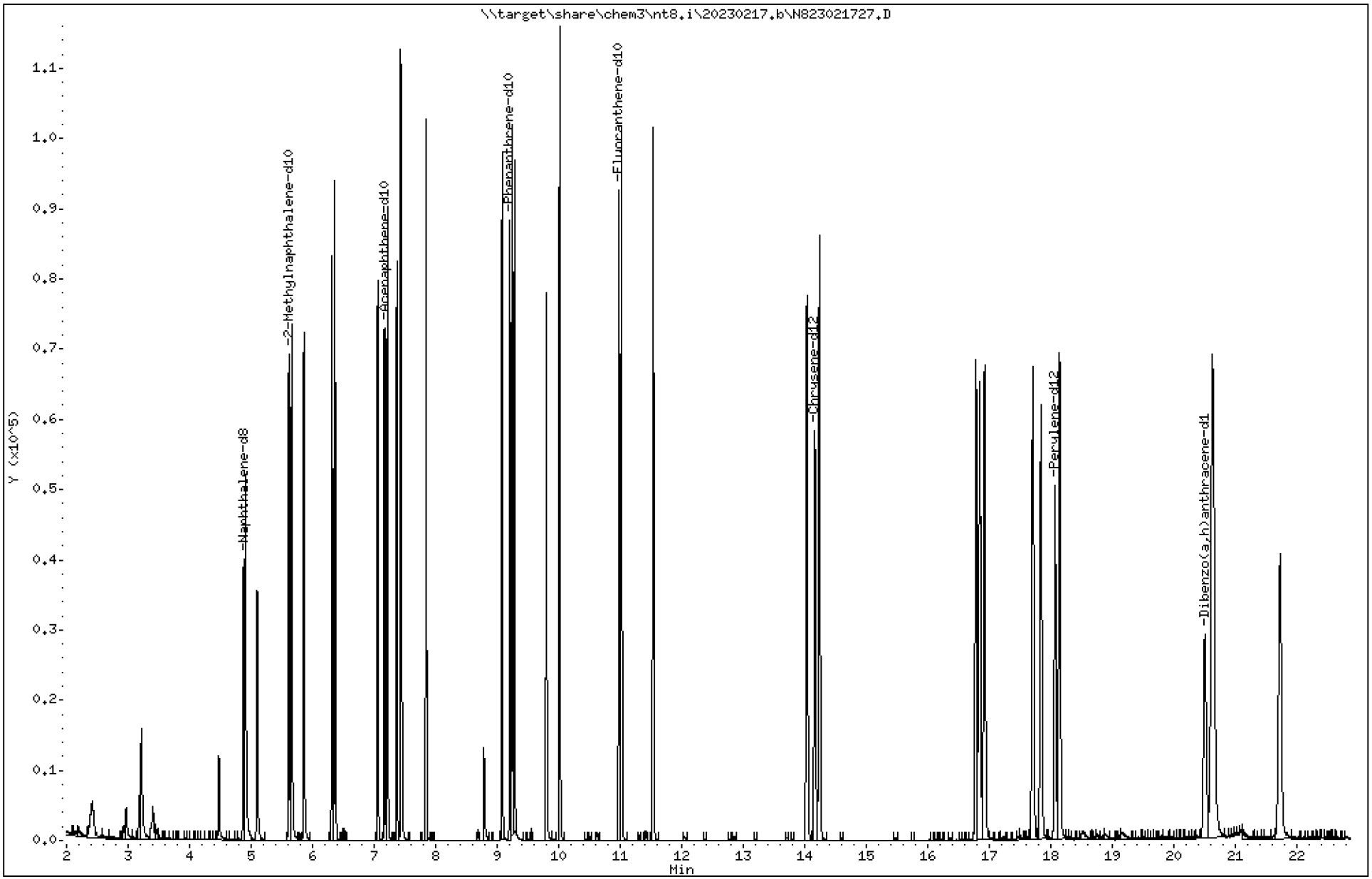




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Date : 17-FEB-2023 23:05
Client ID:
Sample Info: CCV230217,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23A0626 02/22/2023 Page 526 of 1233

Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

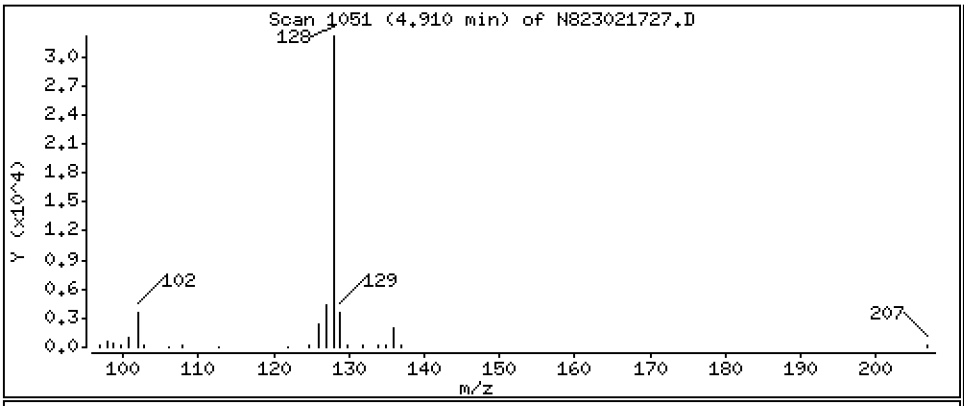
Operator: JZ

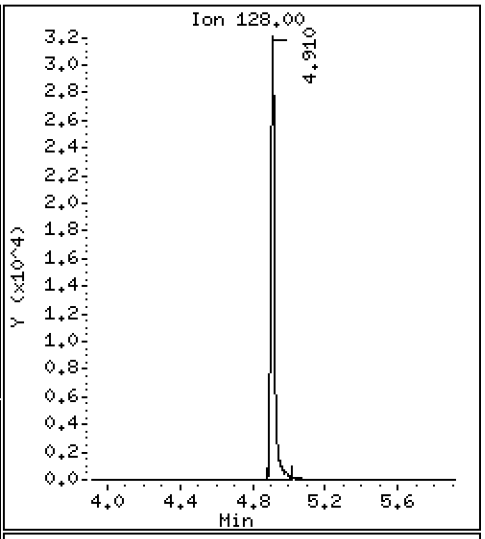
Column phase: Rxi-17sil

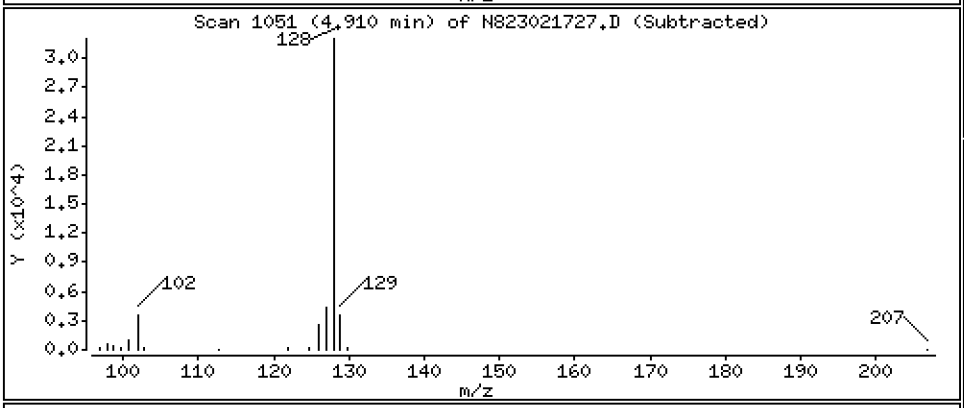
Column diameter: 0.25

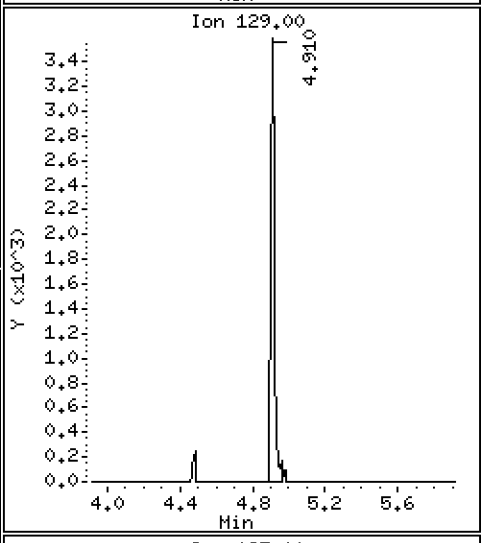
2 Naphthalene

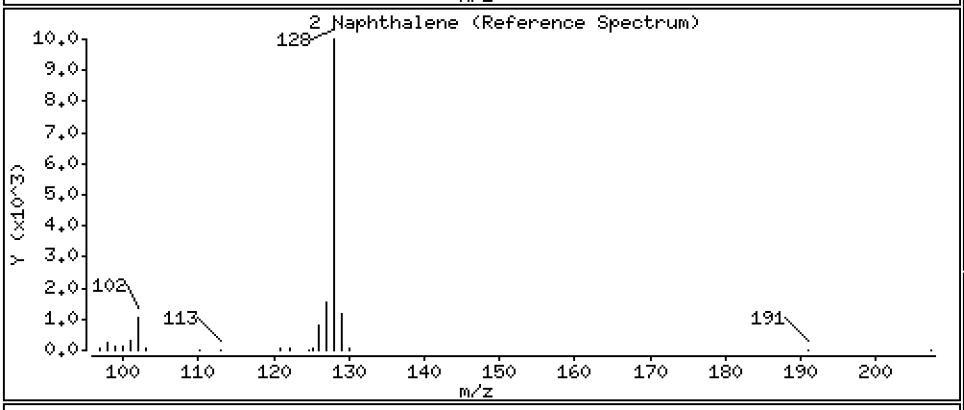
Concentration: 2.588 ug/mL

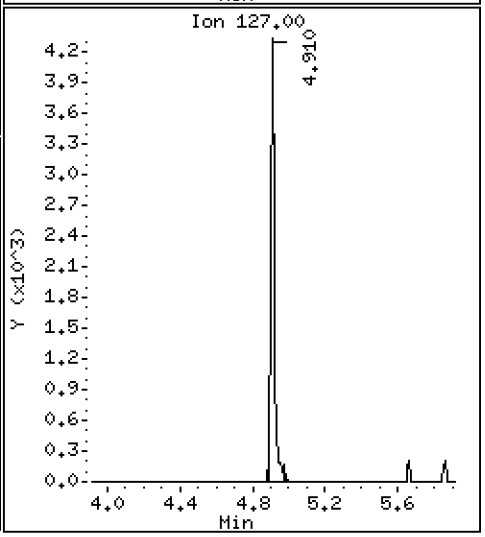


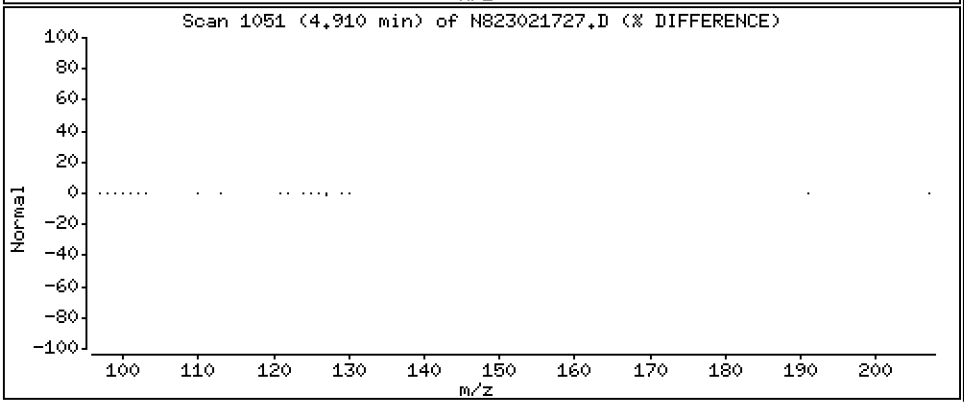












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Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

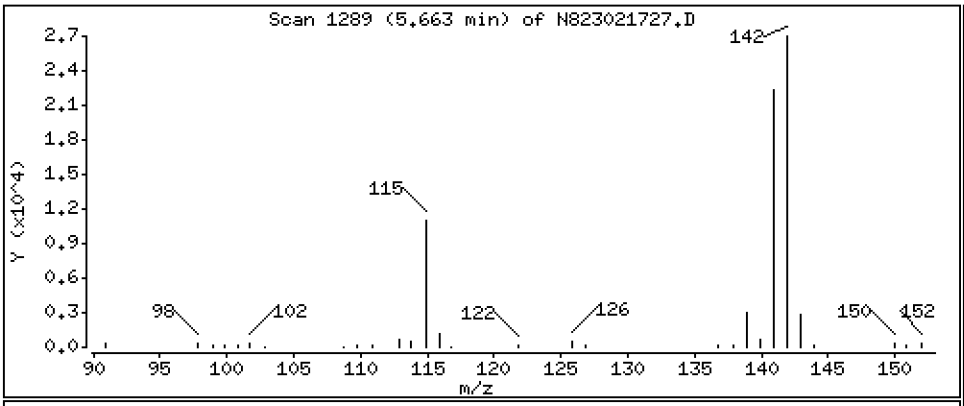
Operator: JZ

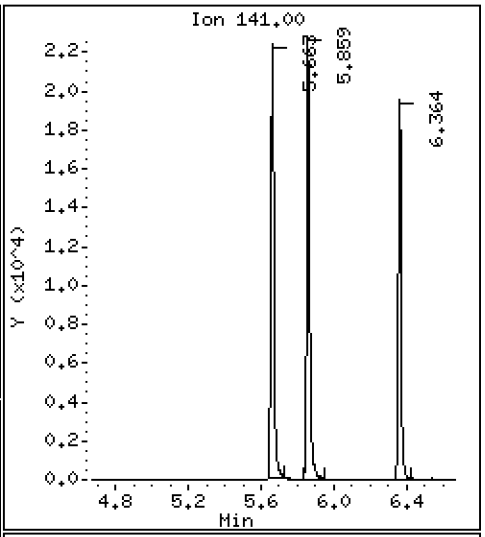
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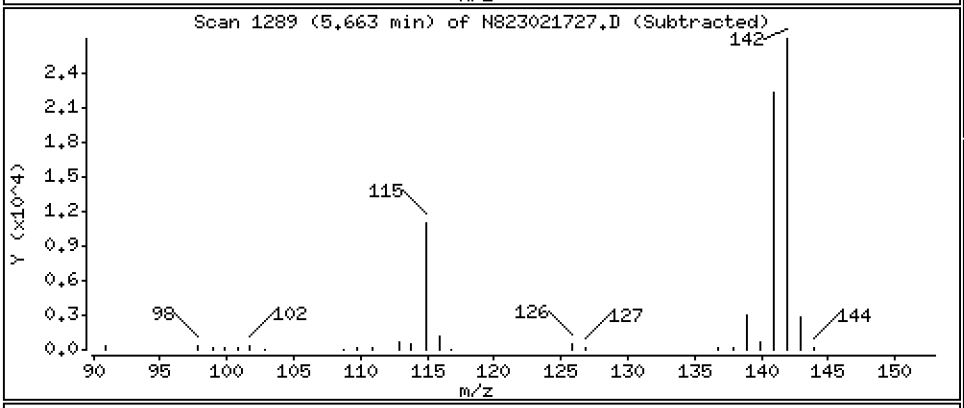
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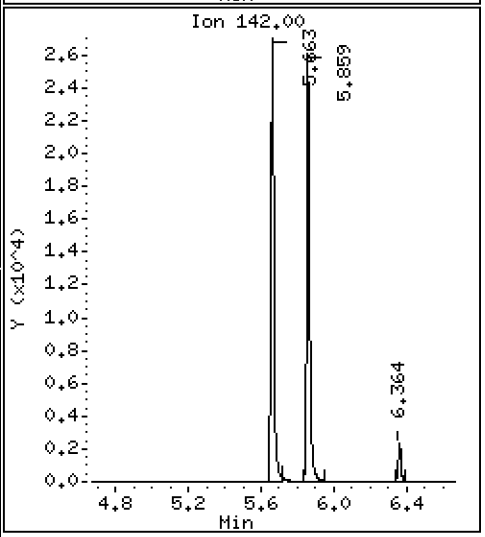
4 2-Methylnaphthalene

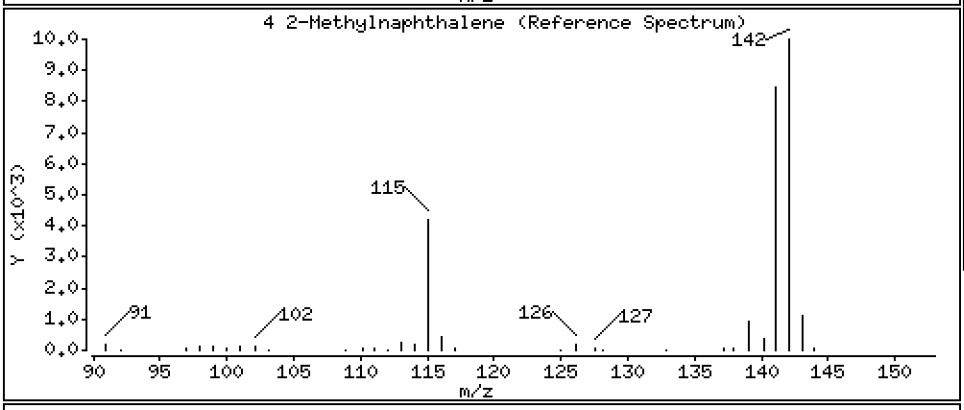
Concentration: 2.601 ug/mL

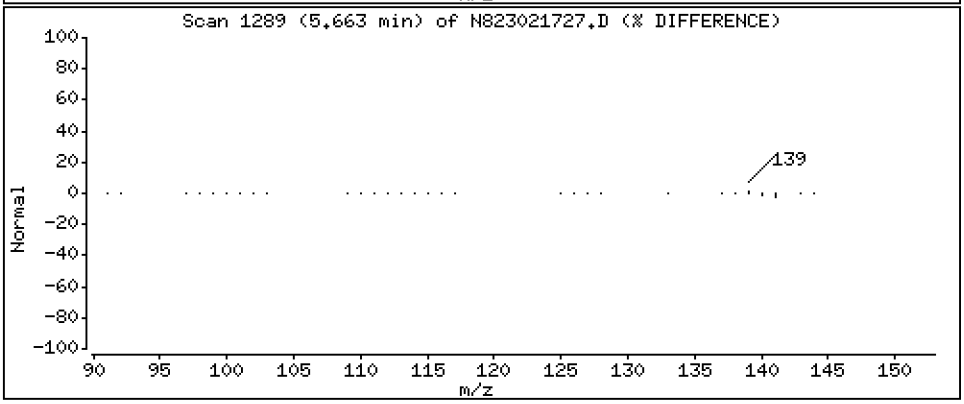












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Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

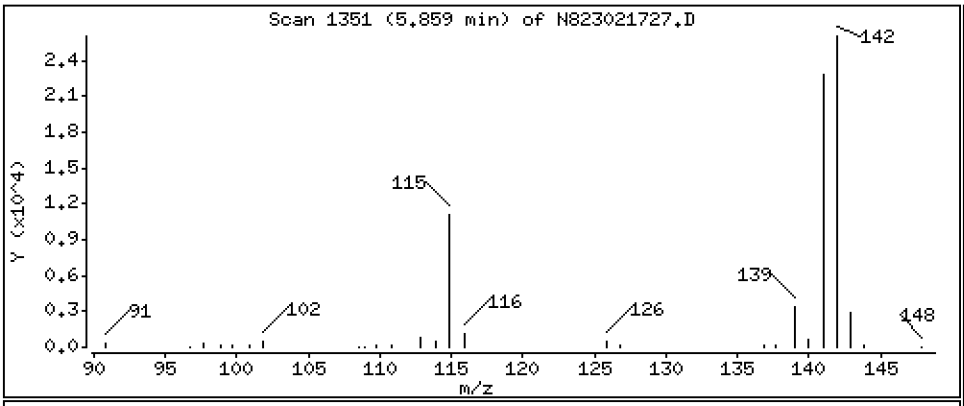
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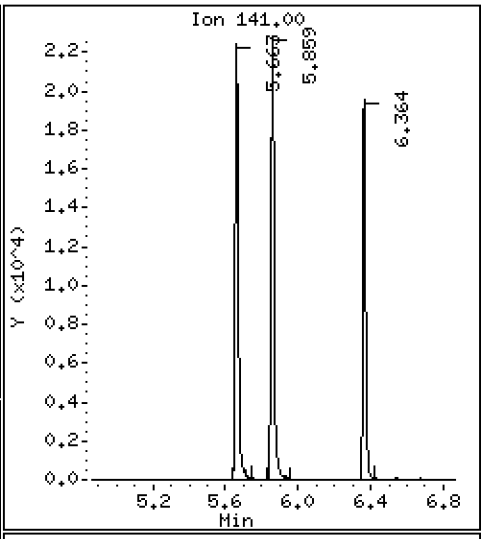
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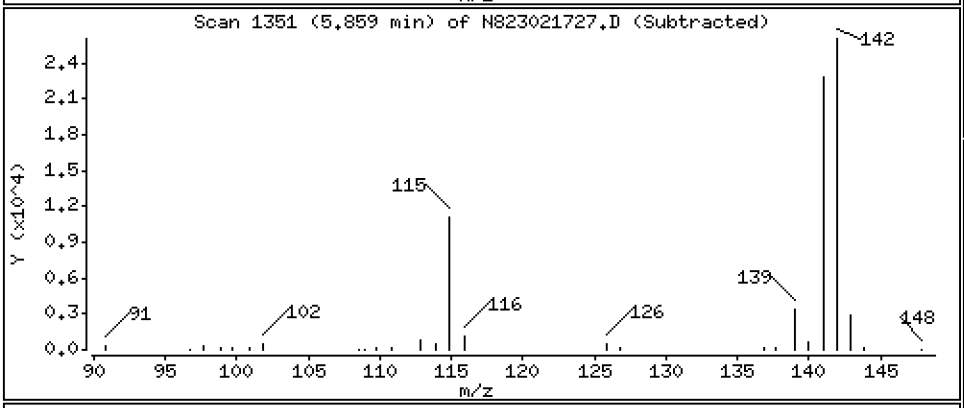
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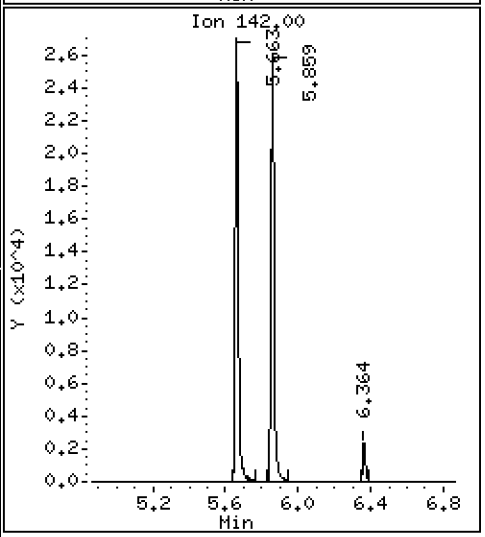
5 1-methylnaphthalene

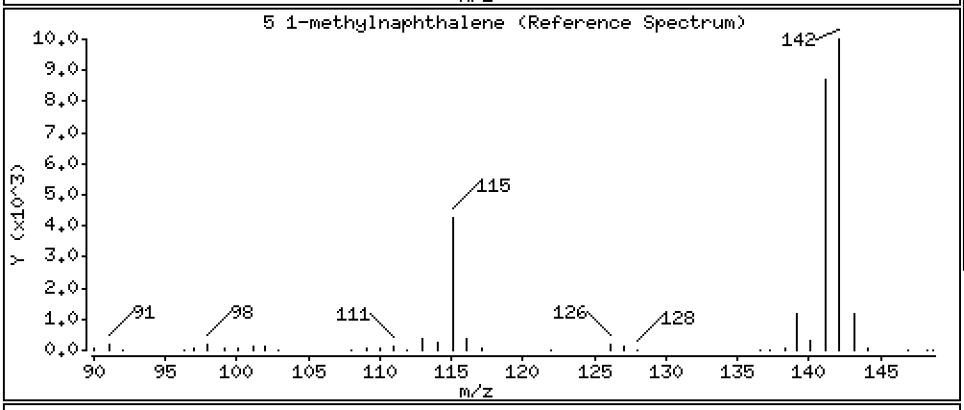
Concentration: 2.627 ug/mL

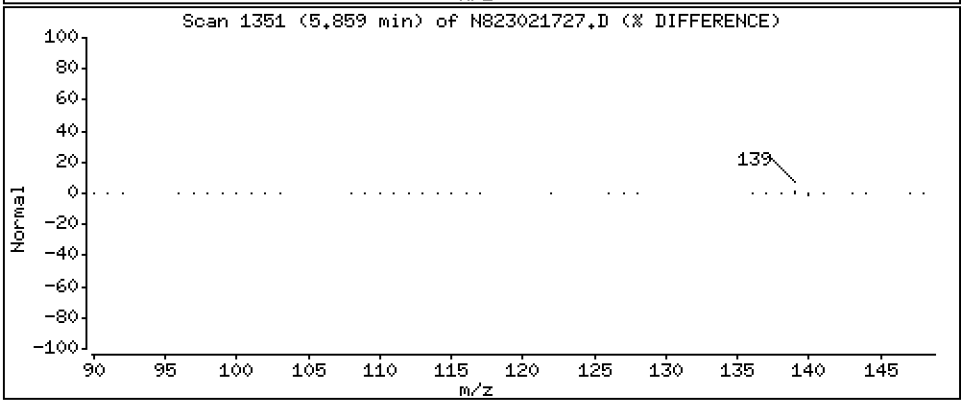












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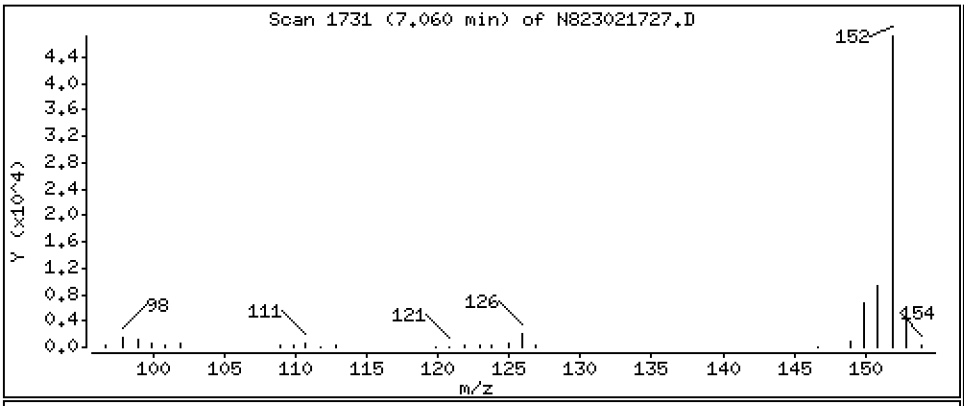
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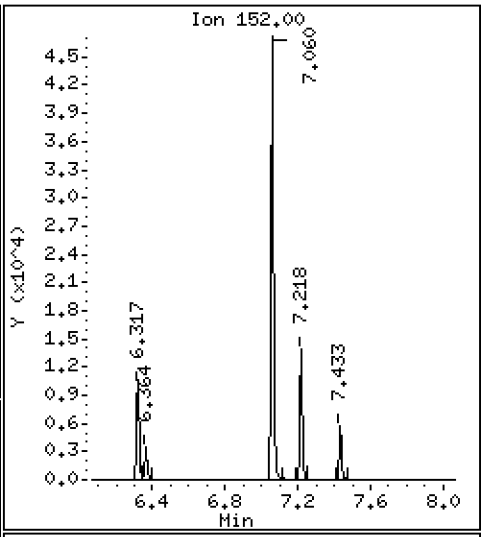
Column phase: Rxi-17sil

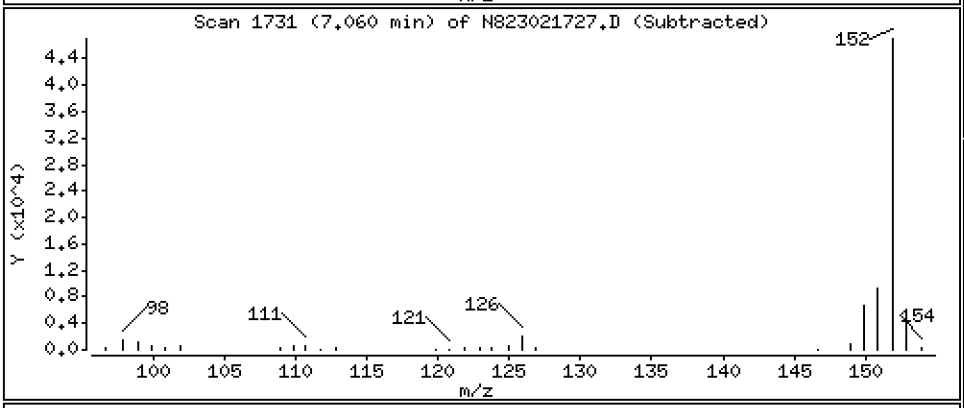
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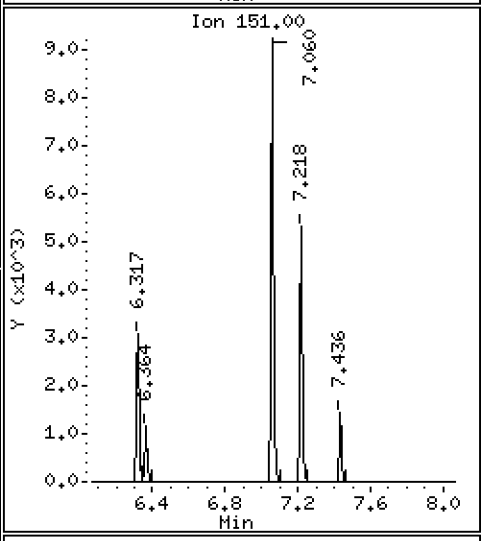
9 Acenaphthylene

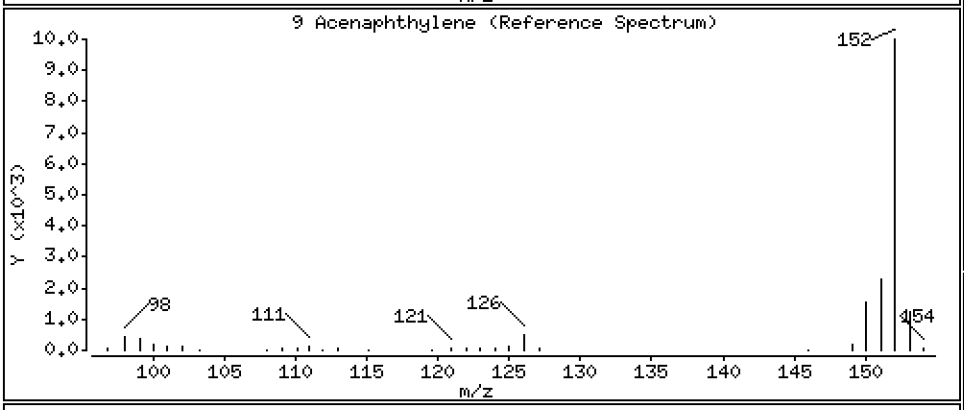
Concentration: 2.759 ug/mL

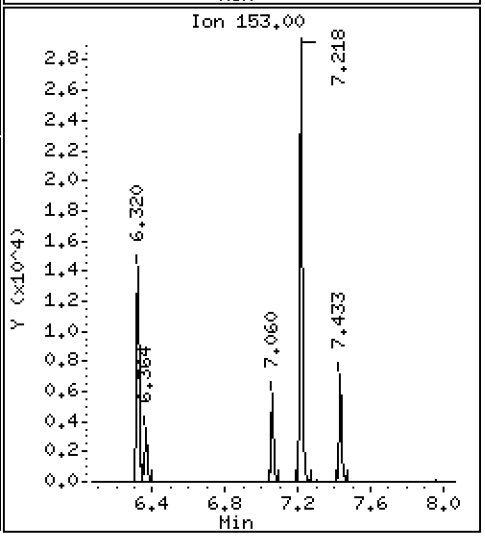


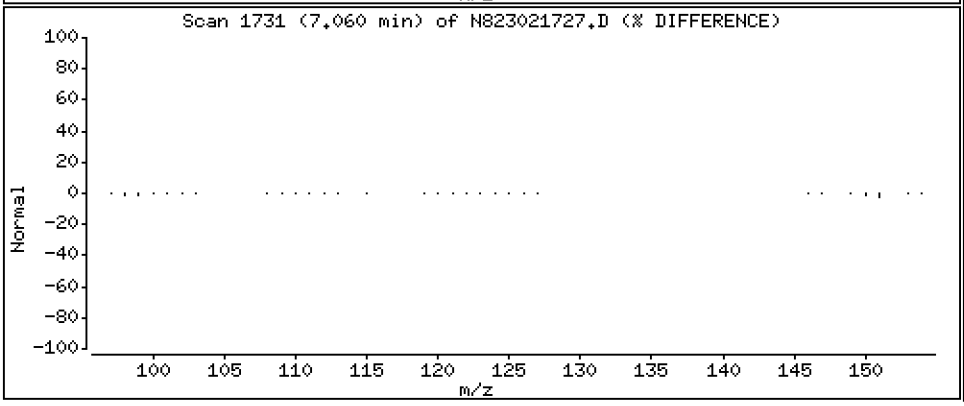












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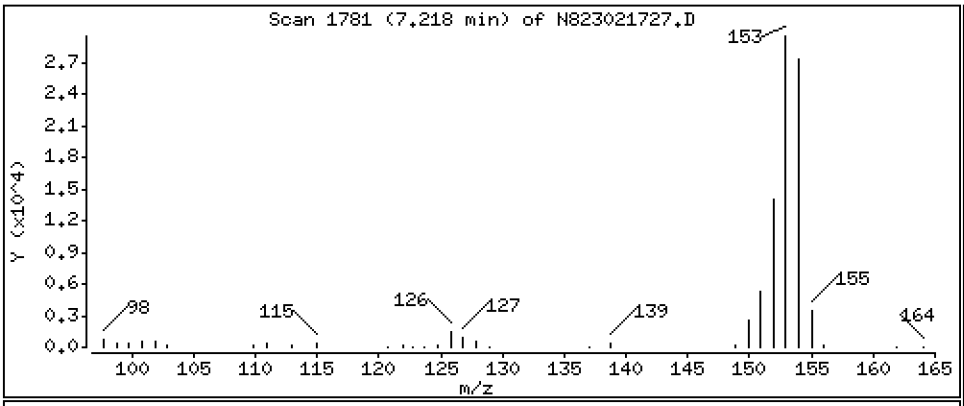
Operator: JZ

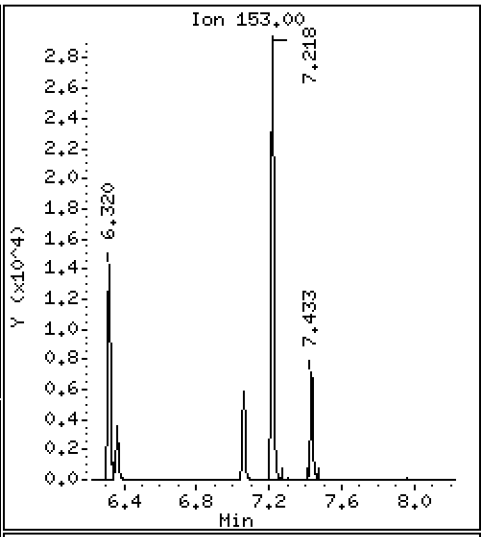
Column phase: Rxi-17sil

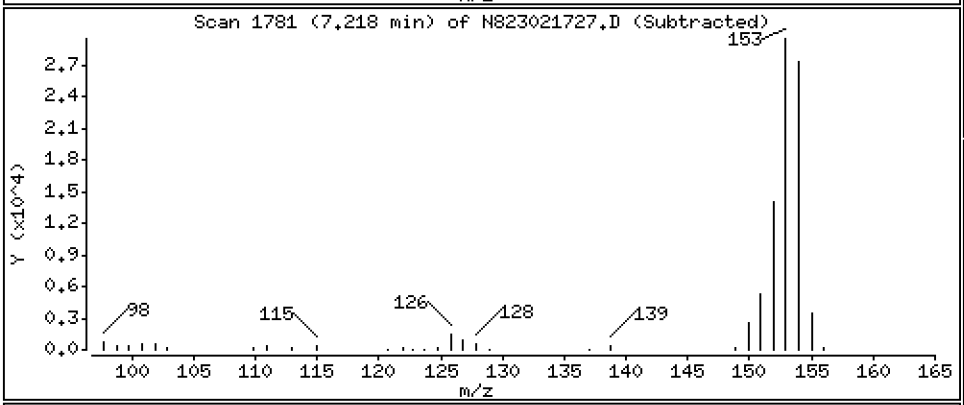
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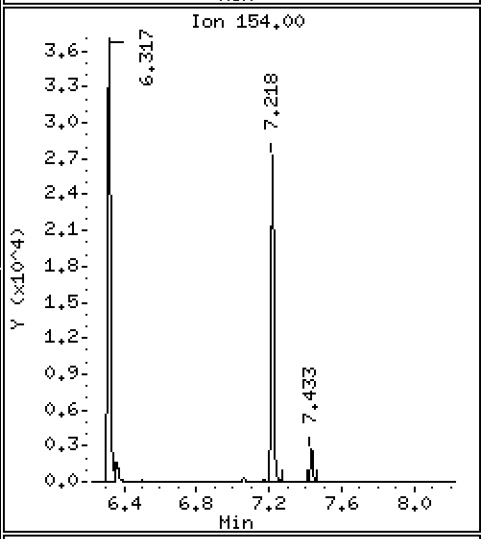
11 Acenaphthene

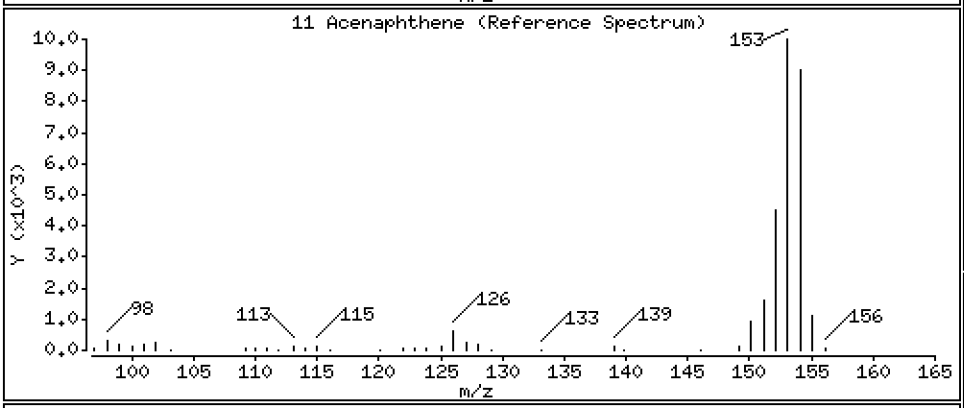
Concentration: 2.593 ug/mL

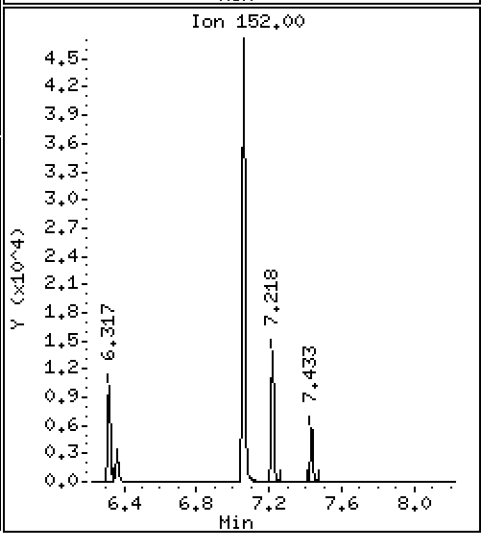


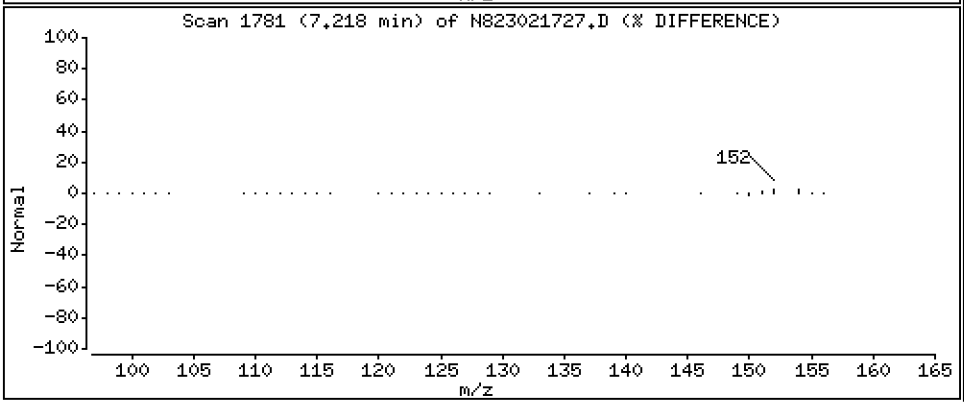












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Date : 17-FEB-2023 23:05

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Instrument: nt8.i

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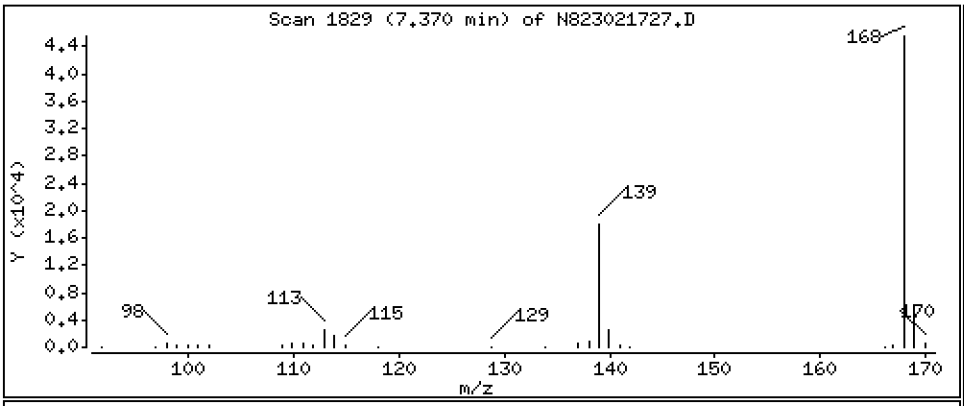
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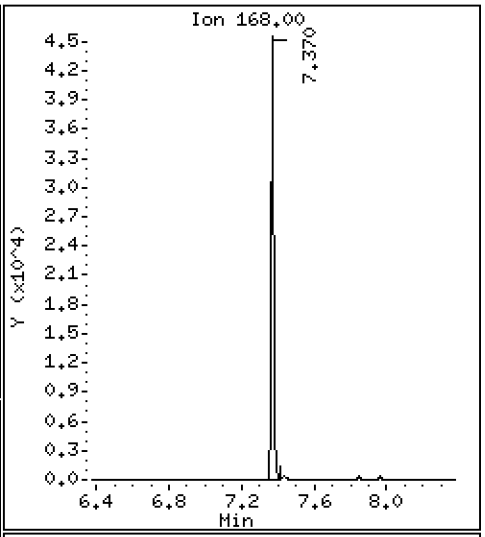
Column phase: Rxi-17sil

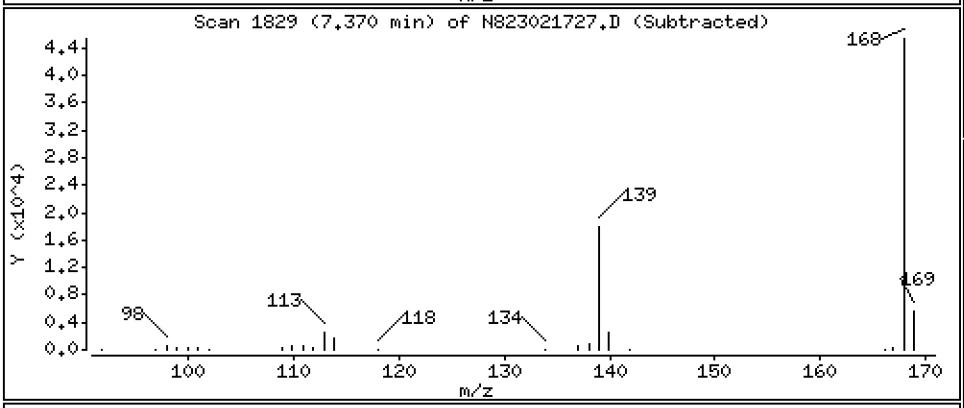
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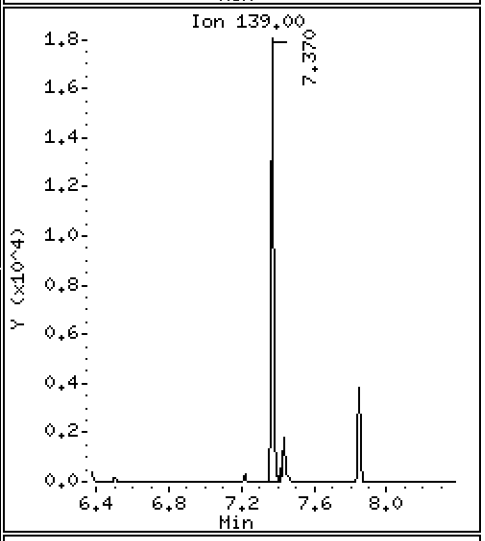
12 Dibenzofuran

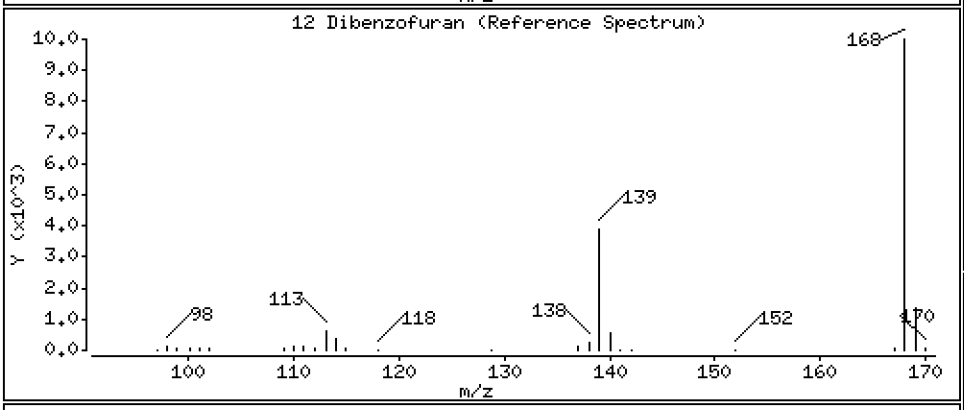
Concentration: 2.578 ug/mL

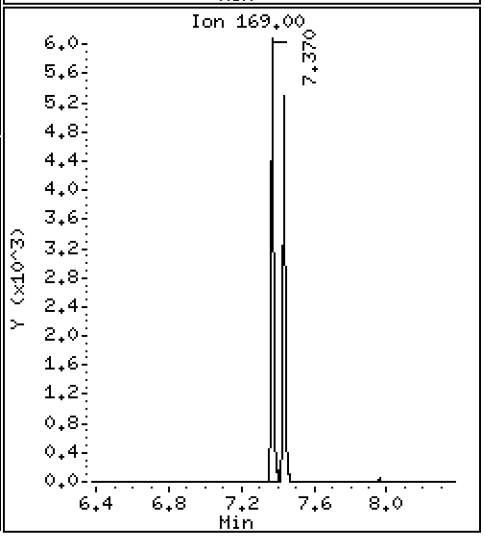


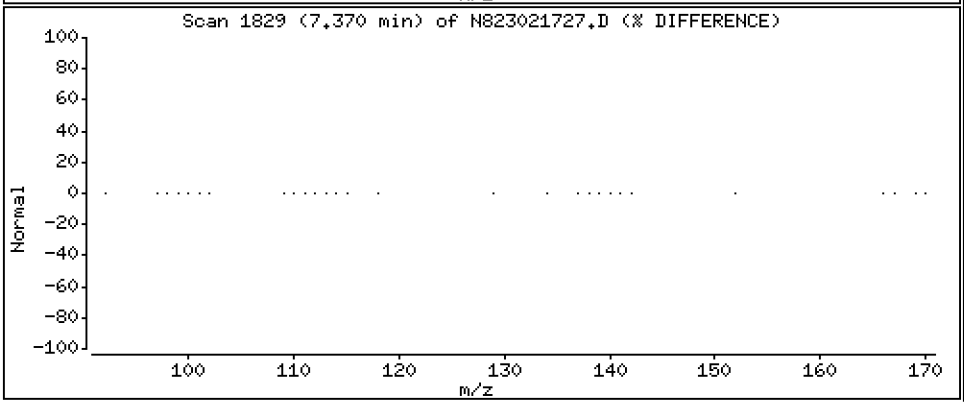












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Date : 17-FEB-2023 23:05

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Instrument: nt8.i

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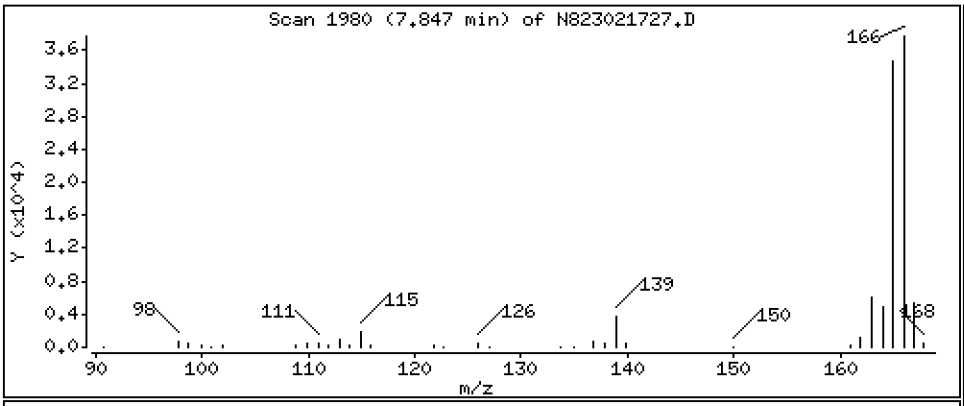
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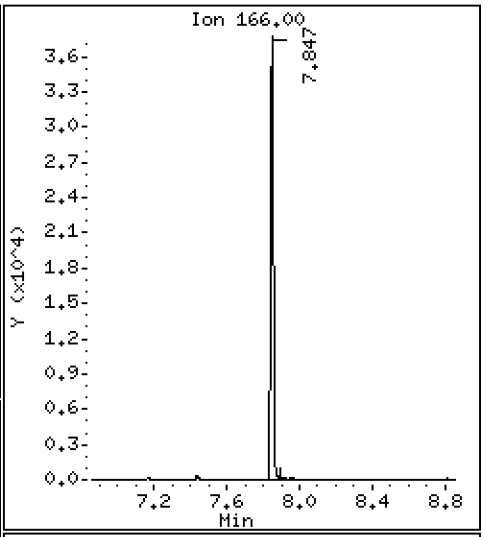
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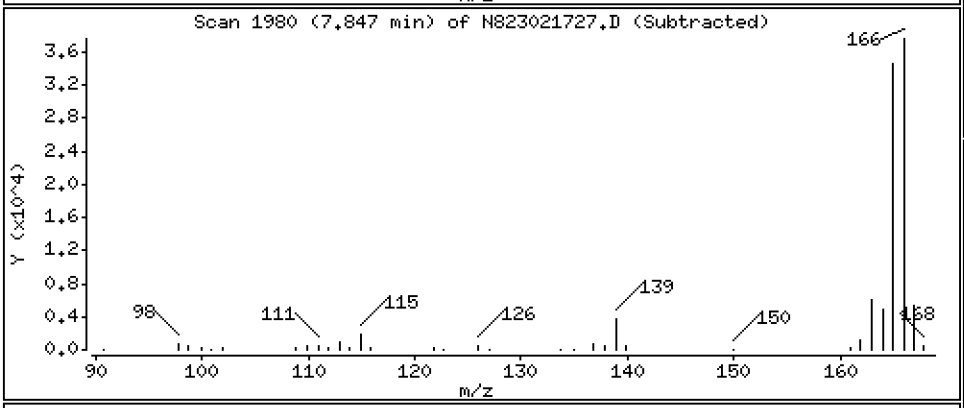
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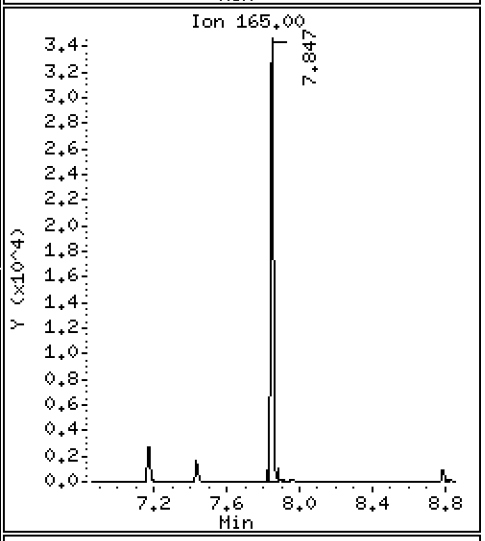
14 Fluorene

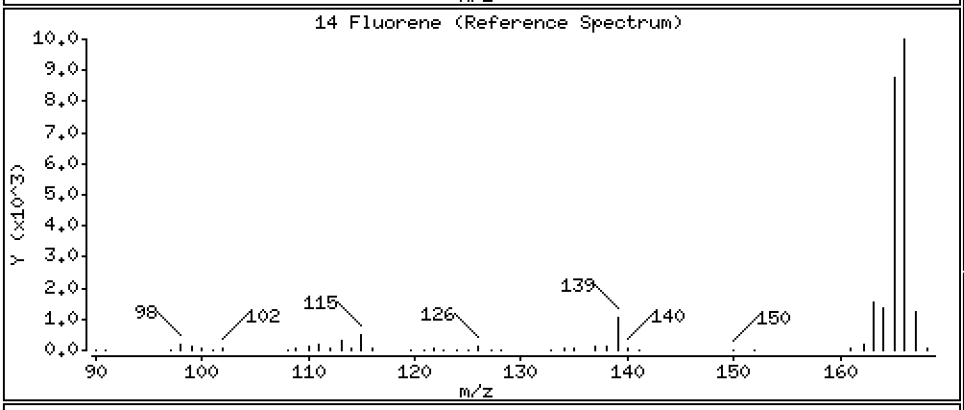
Concentration: 2.705 ug/mL

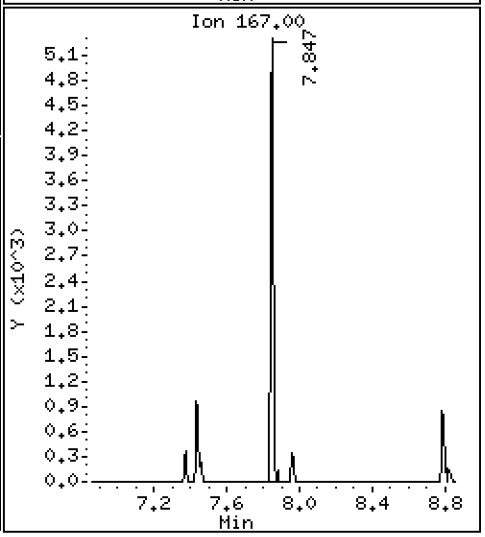


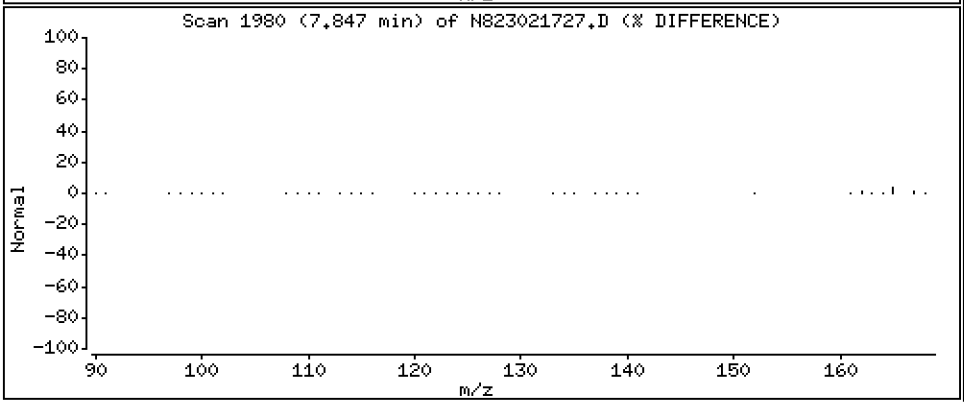












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Instrument: nt8.i

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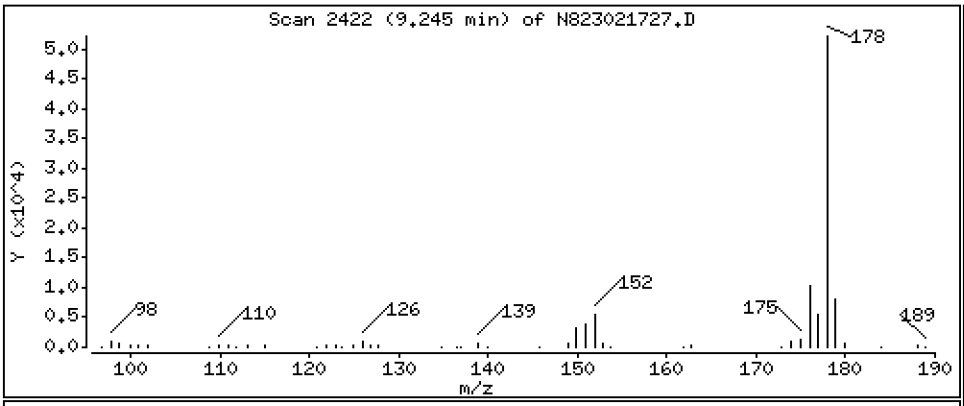
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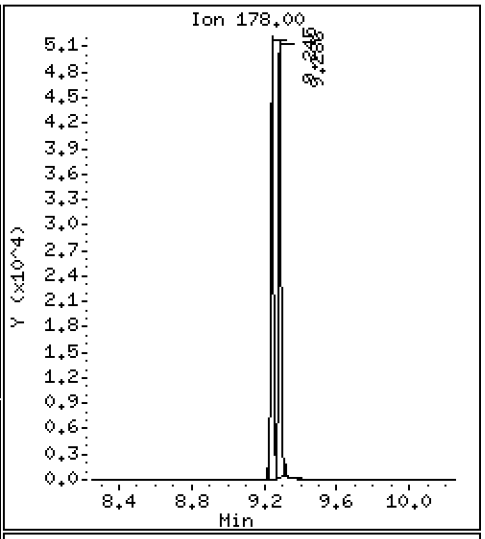
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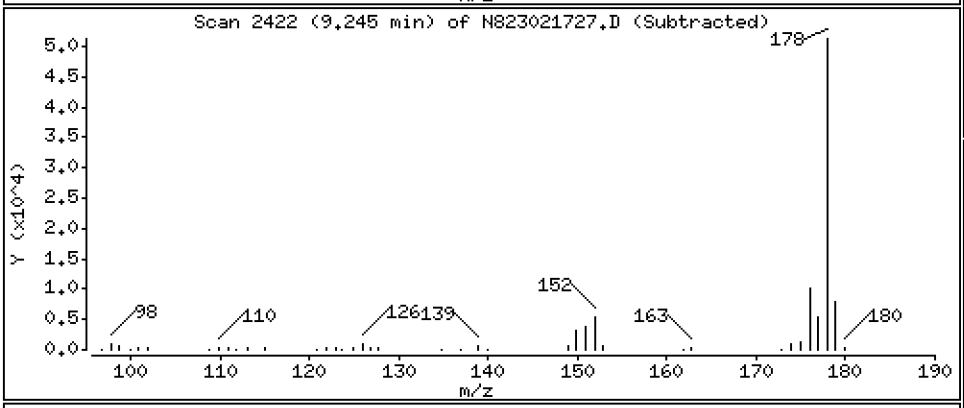
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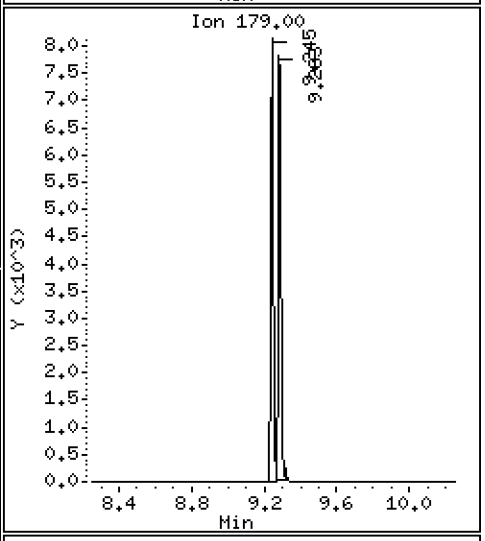
16 Phenanthrene

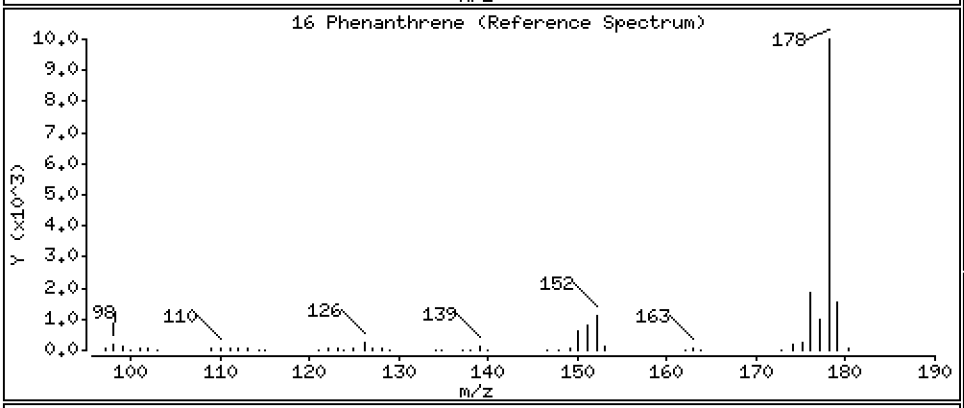
Concentration: 2.469 ug/mL

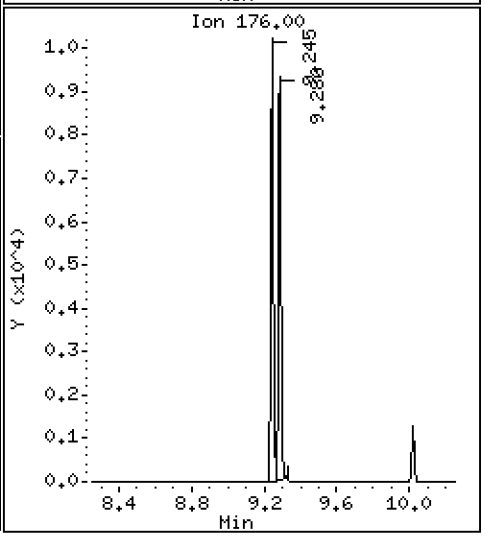


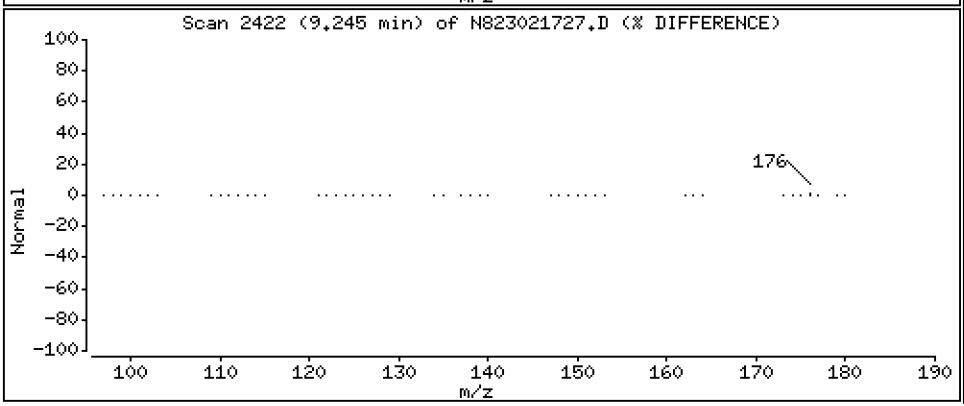












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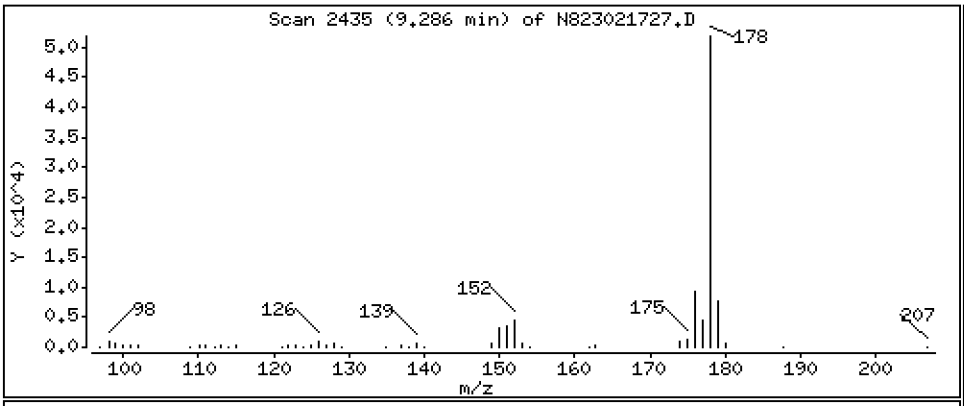
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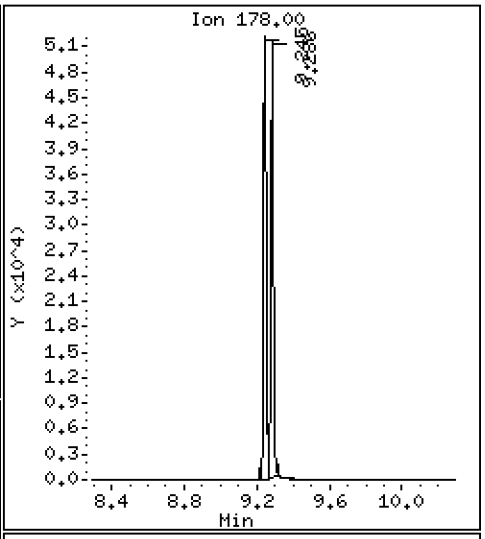
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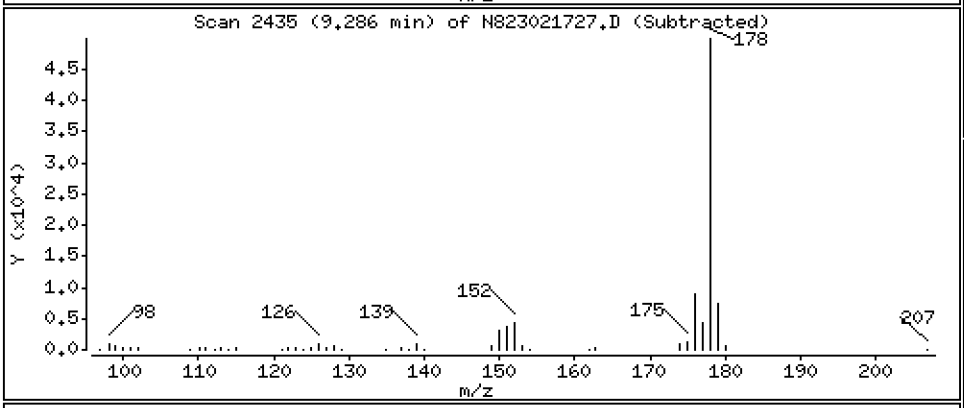
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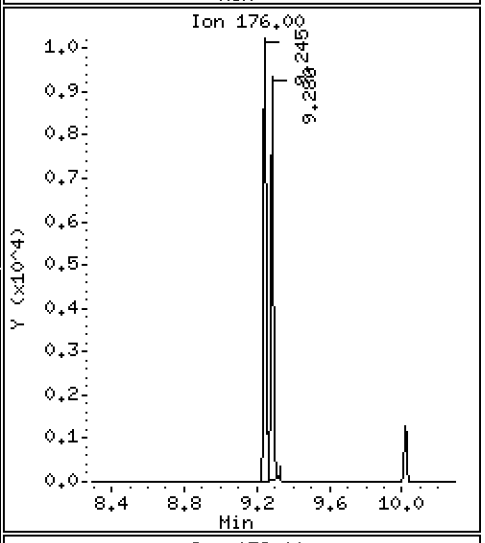
17 Anthracene

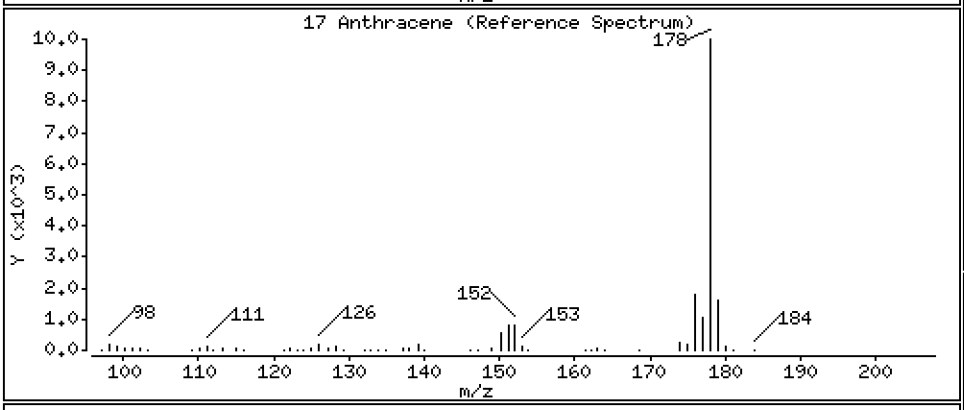
Concentration: 2.649 ug/mL

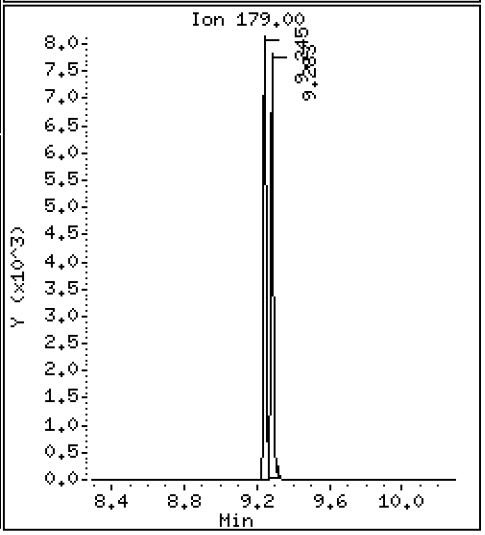


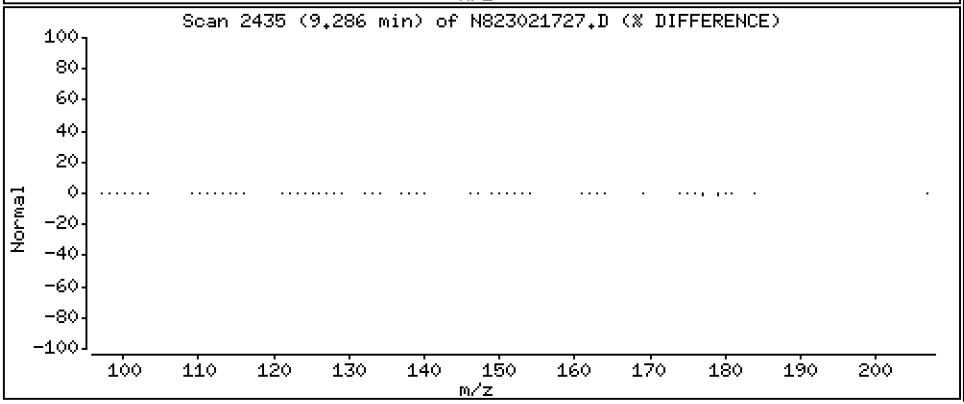












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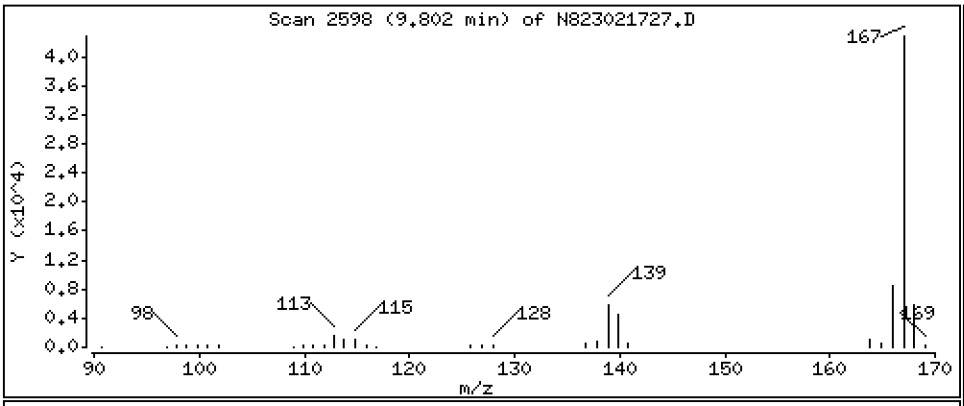
Operator: JZ

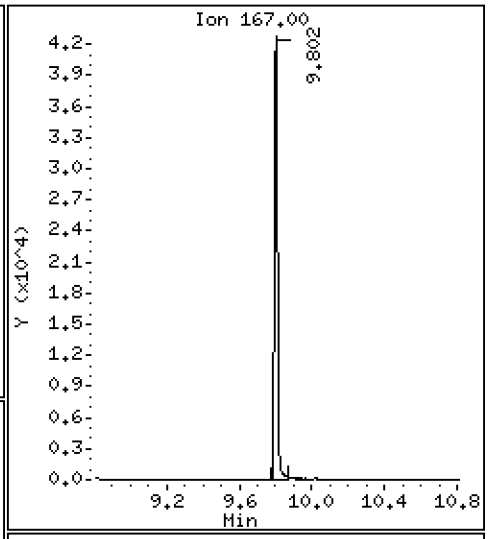
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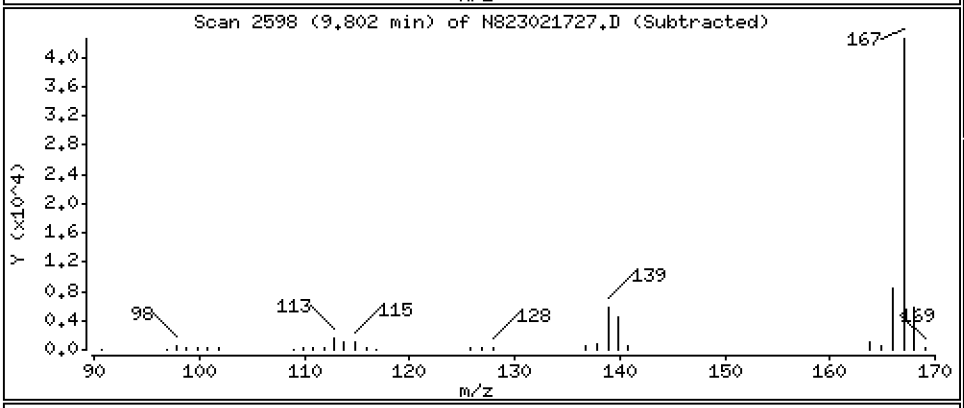
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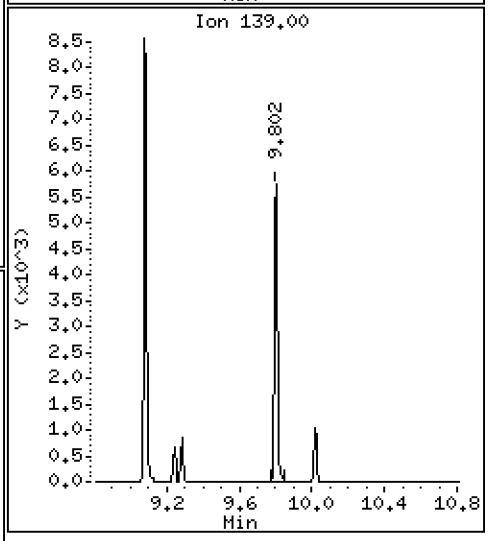
19 Carbazole

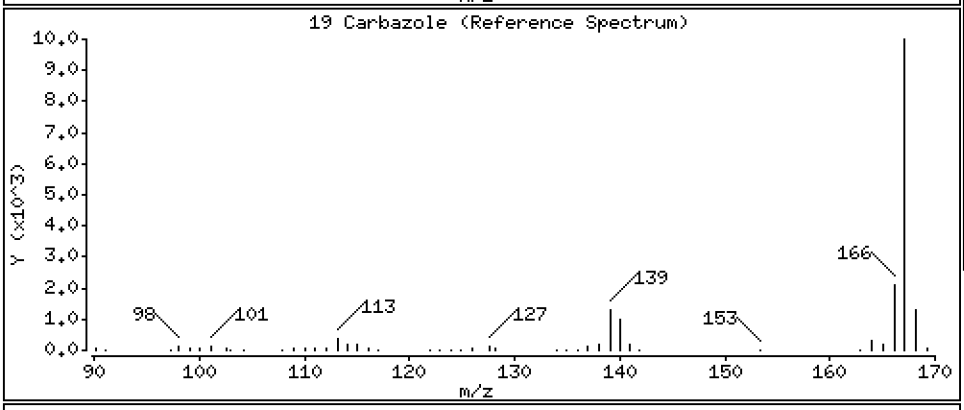
Concentration: 2.614 ug/mL

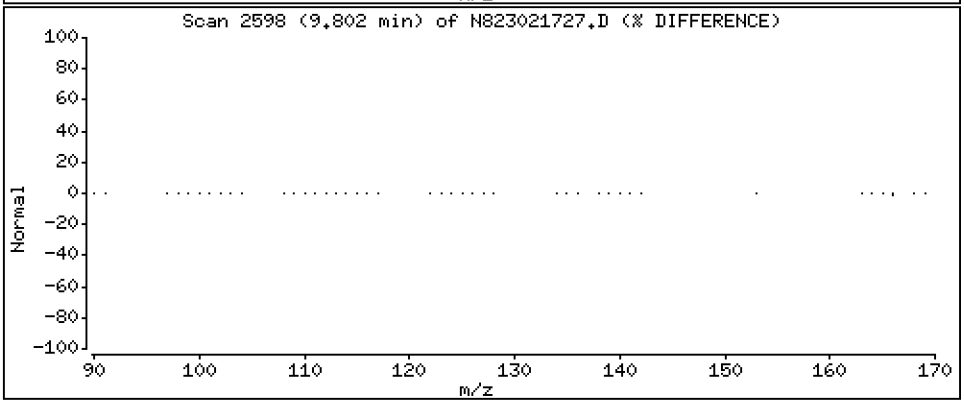












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Instrument: nt8.i

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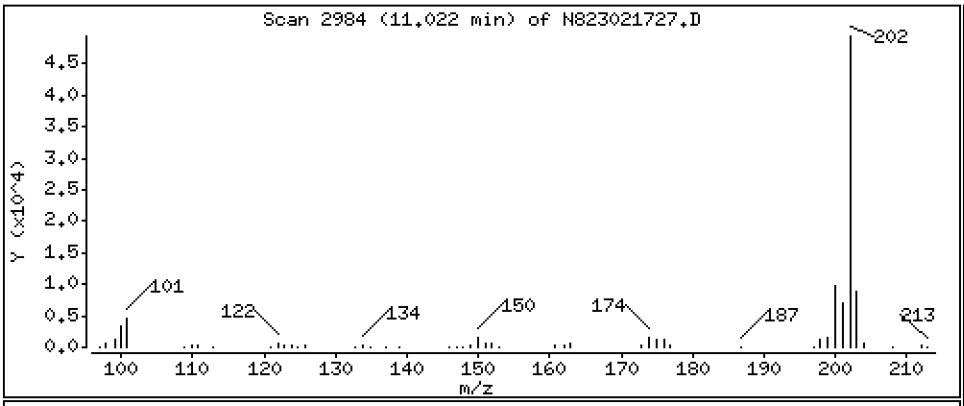
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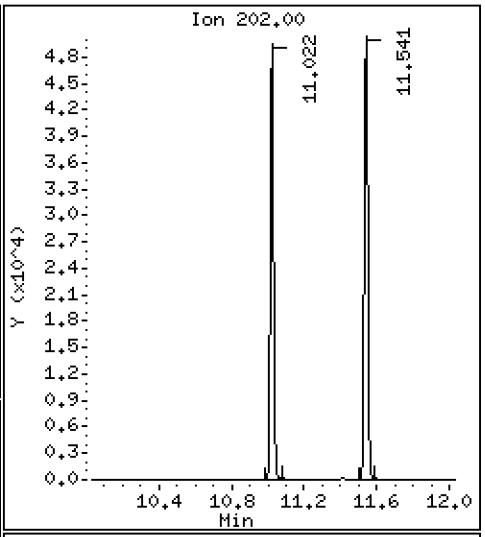
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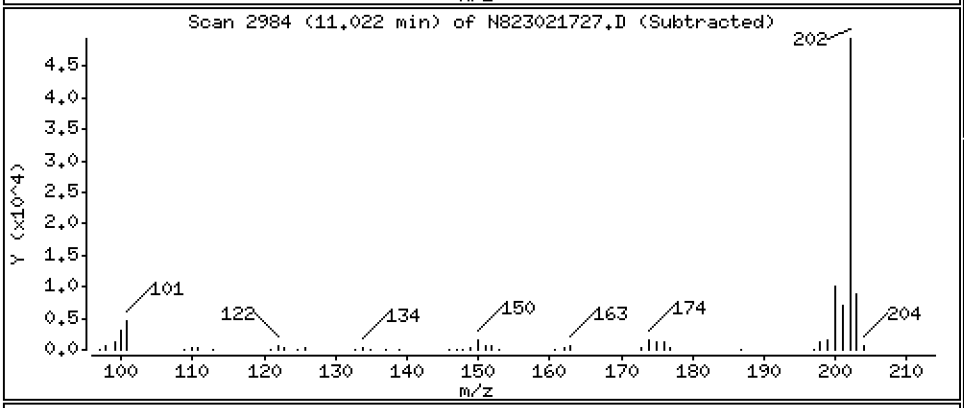
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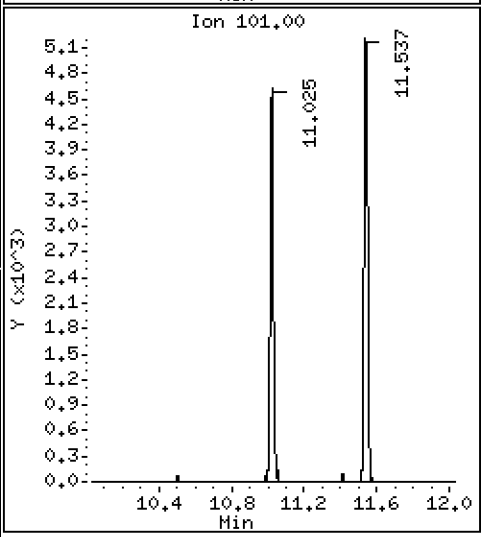
22 Fluoranthene

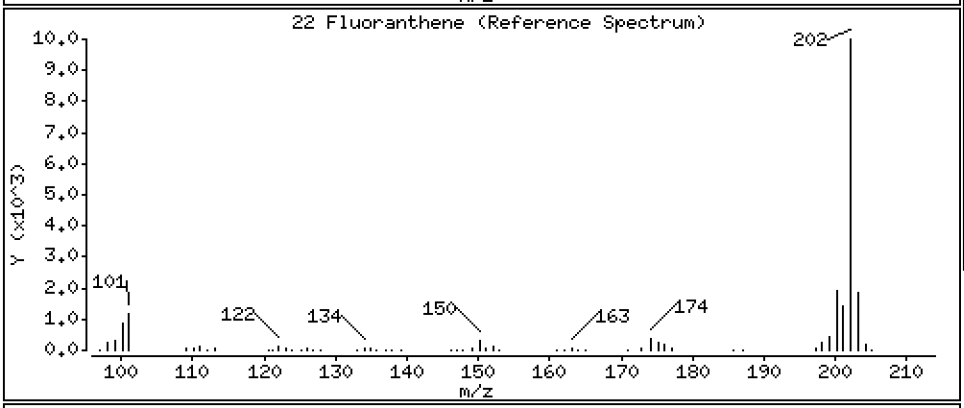
Concentration: 2.685 ug/mL

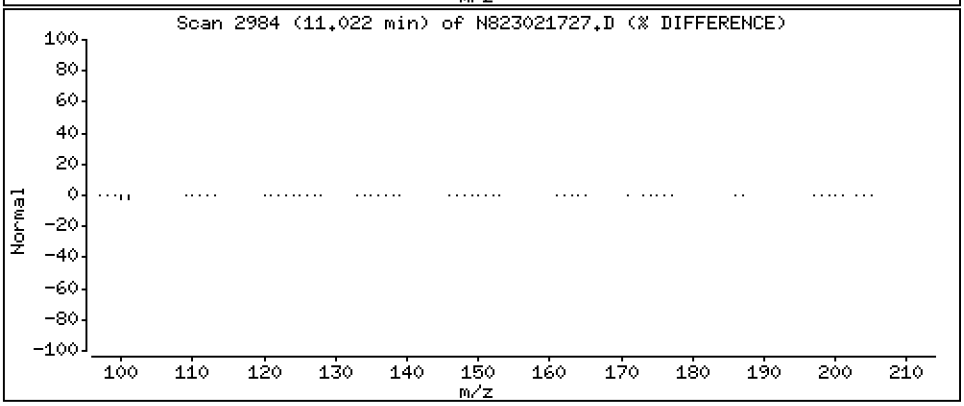












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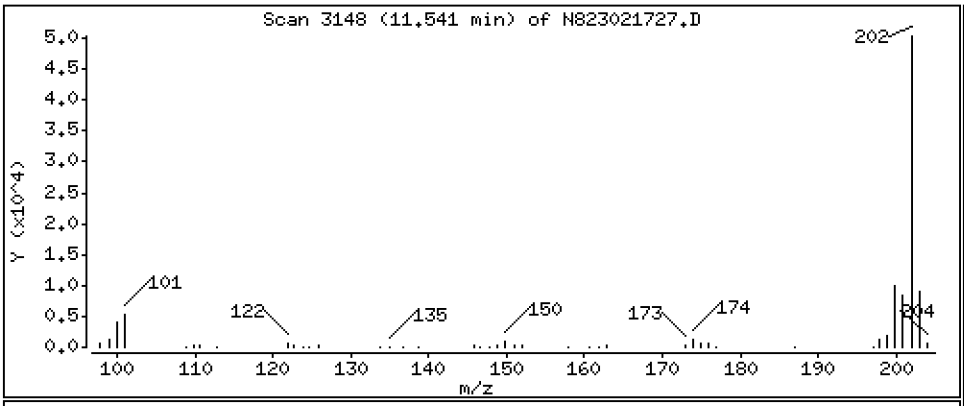
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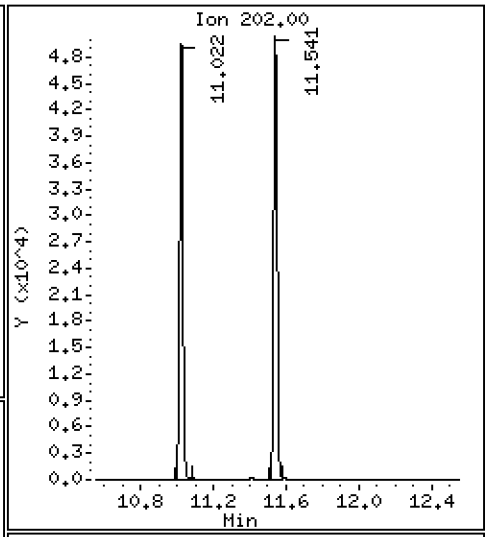
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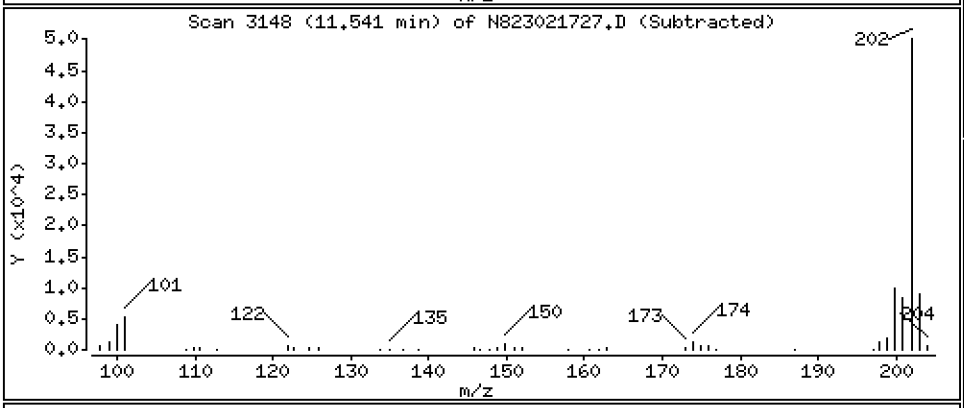
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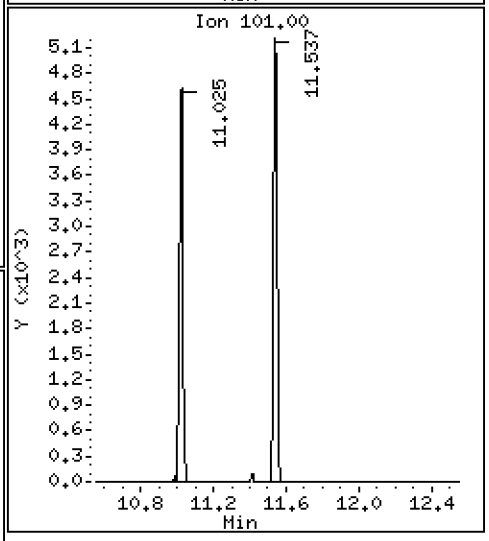
23 Pyrene

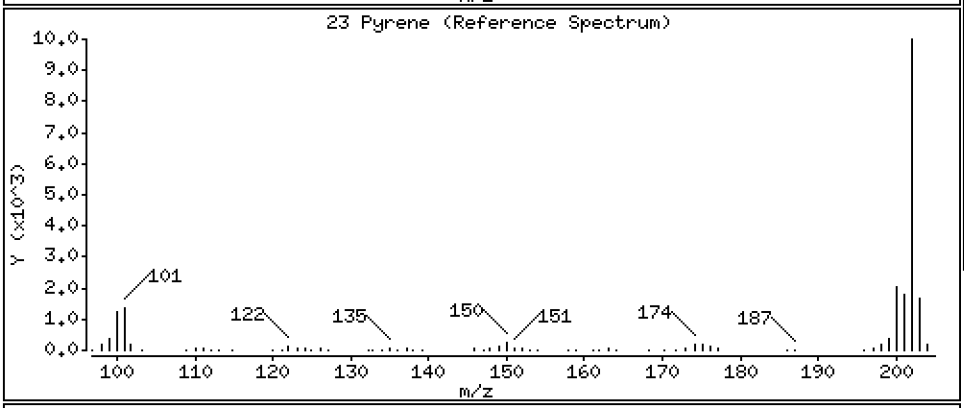
Concentration: 2.634 ug/mL

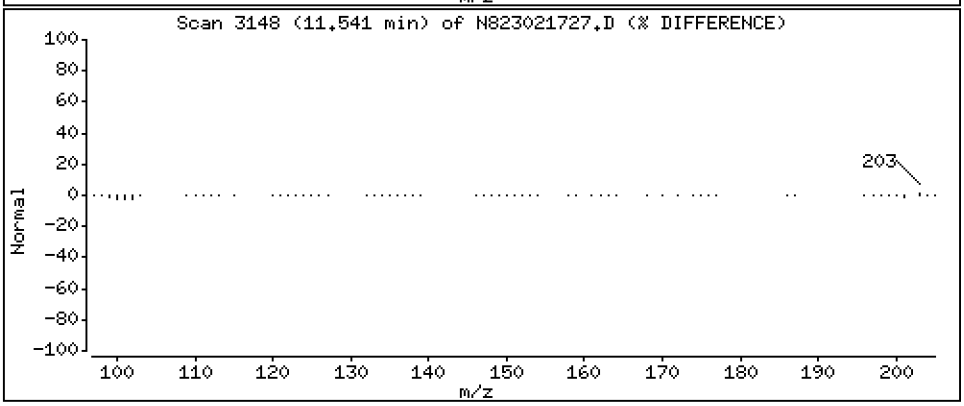












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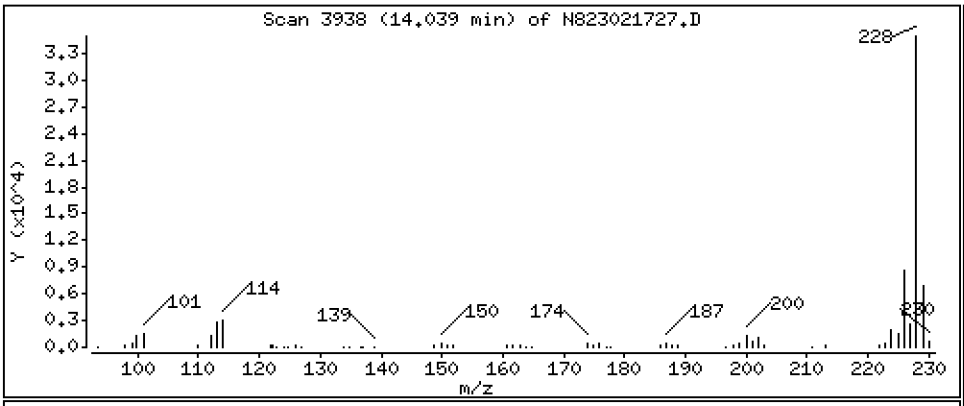
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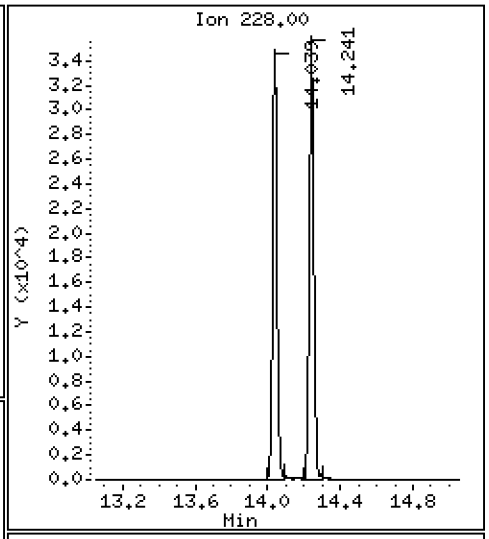
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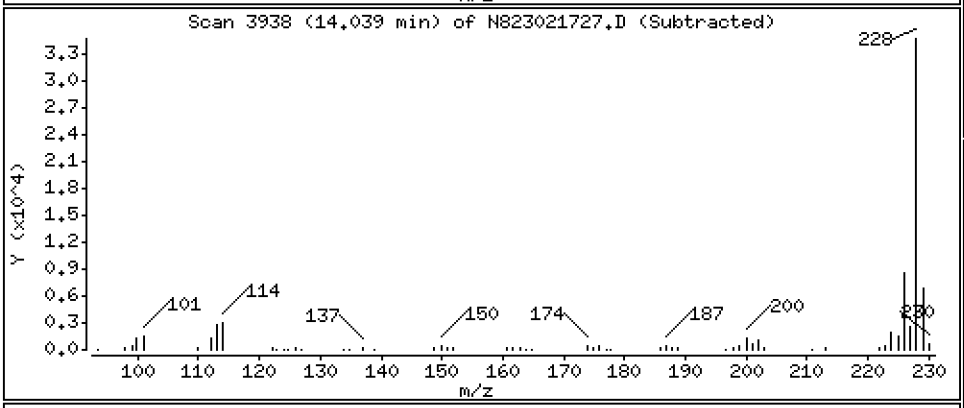
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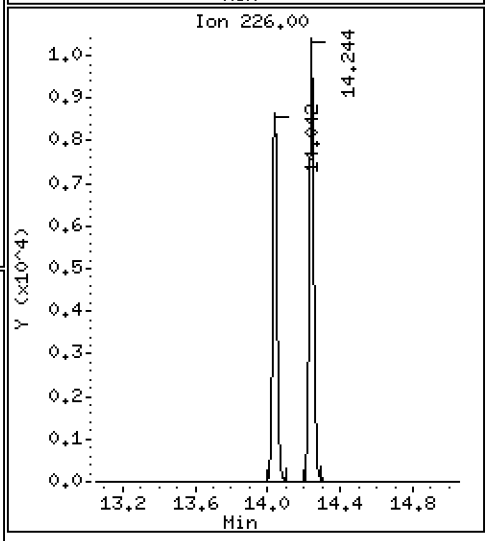
24 Benzo(a)anthracene

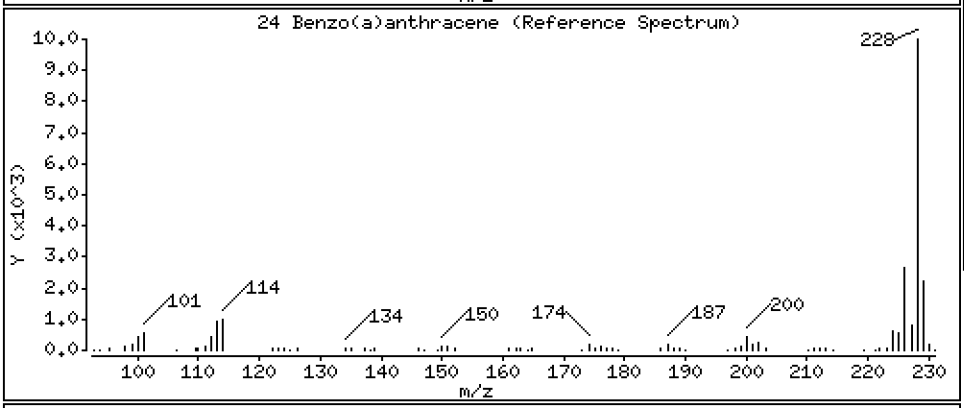
Concentration: 2.698 ug/mL

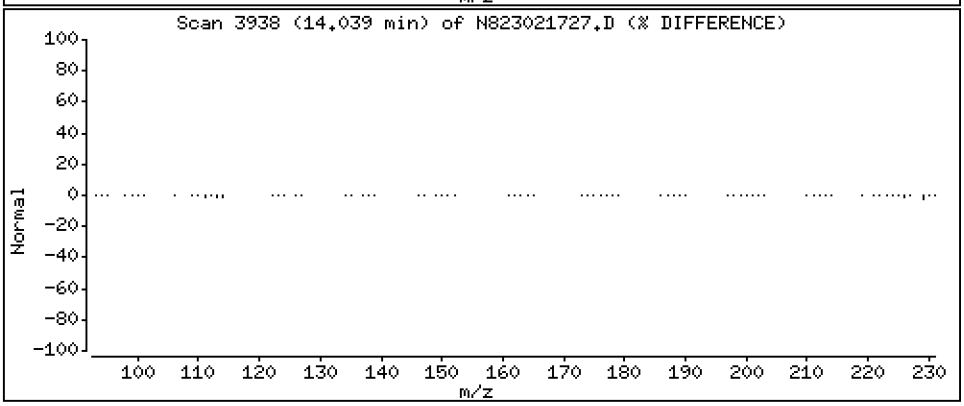












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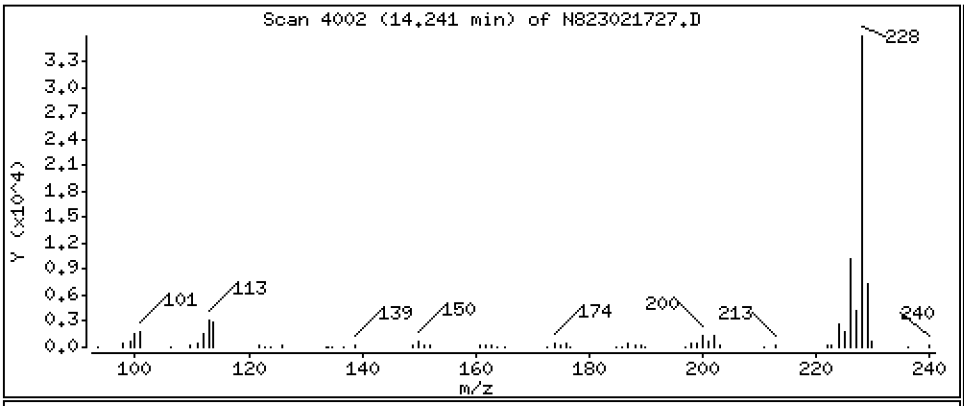
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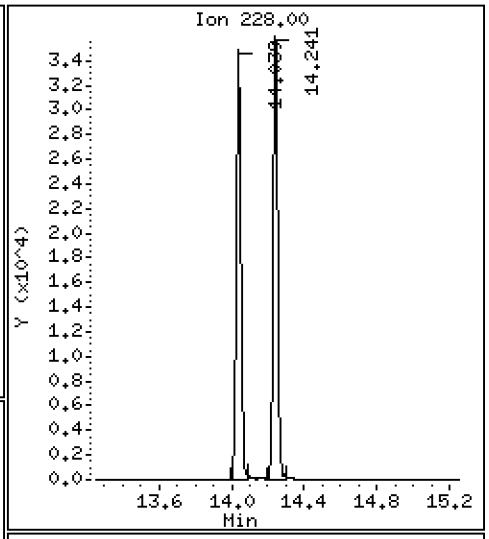
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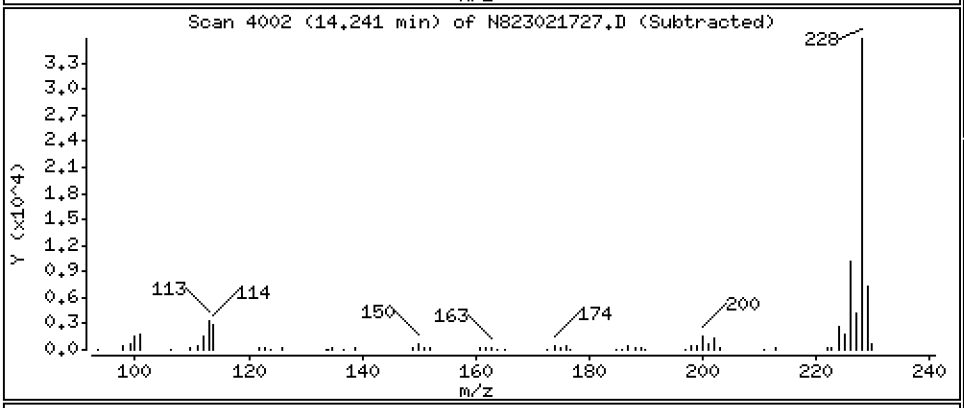
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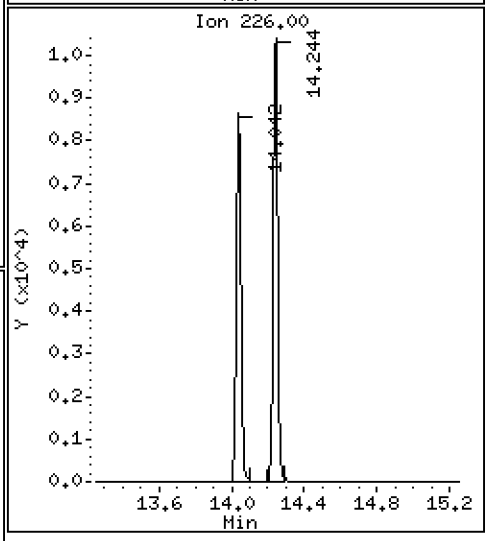
27 Chrysene

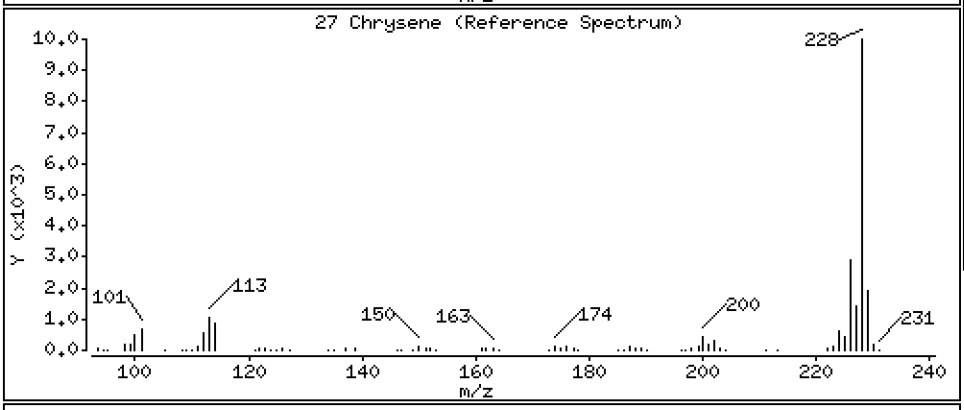
Concentration: 2.533 ug/mL

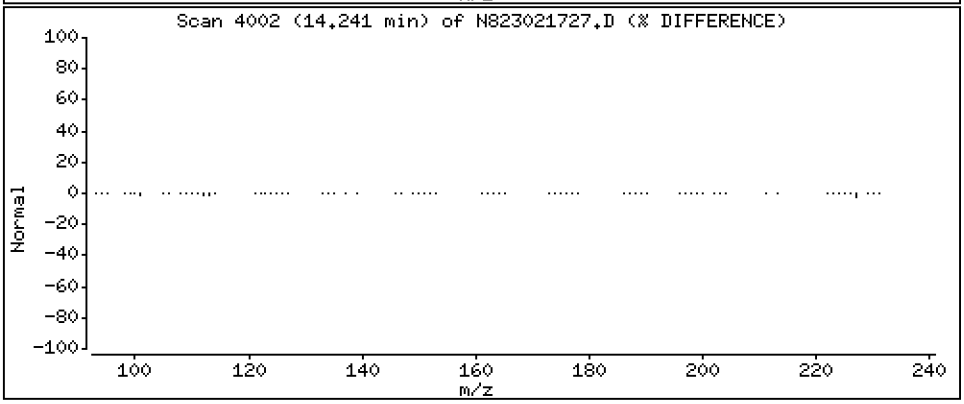












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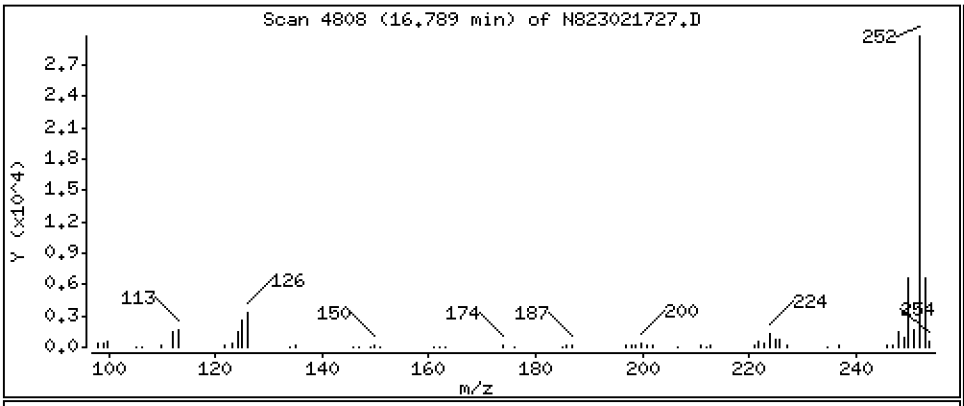
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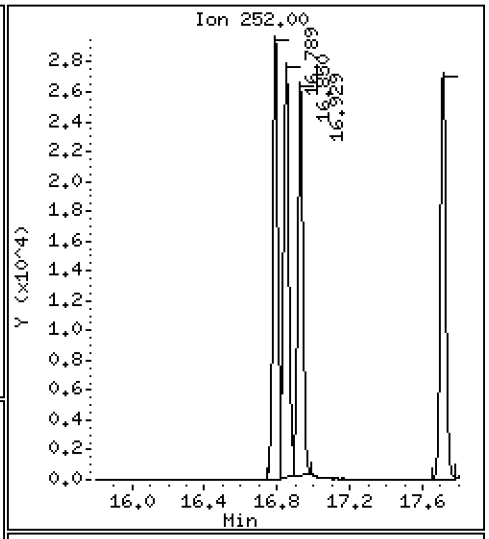
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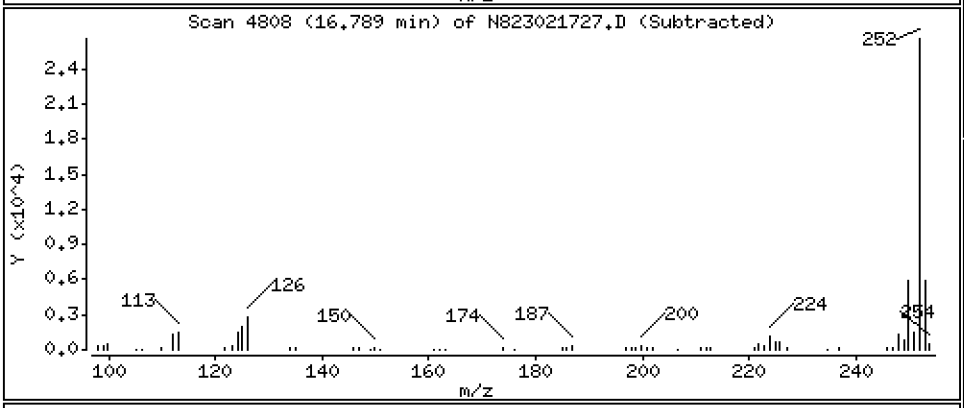
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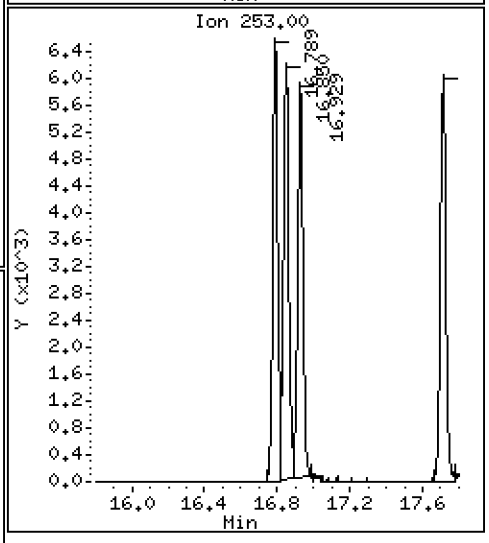
28 Benzo(b)fluoranthene

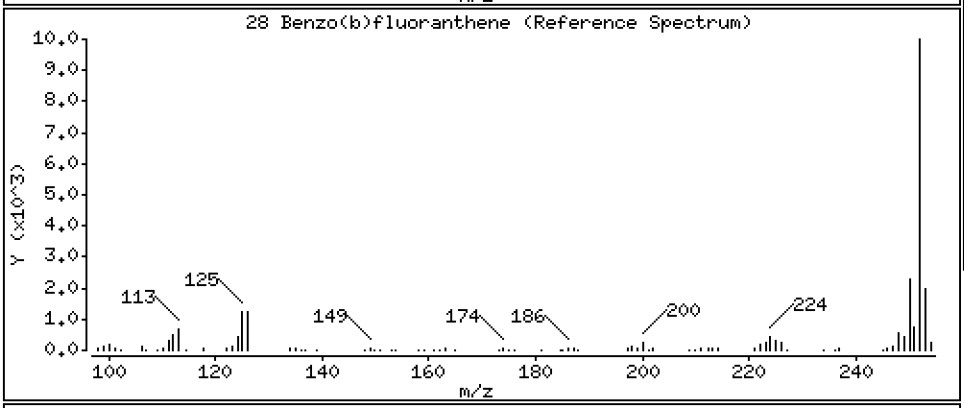
Concentration: 2.490 ug/mL

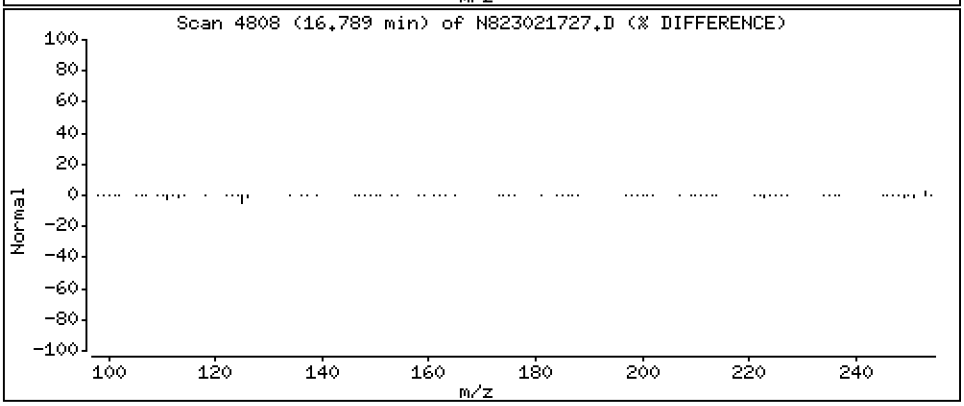












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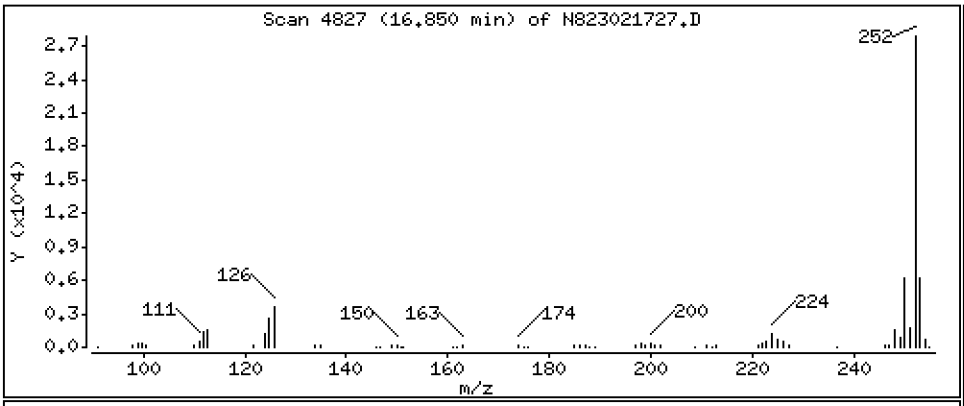
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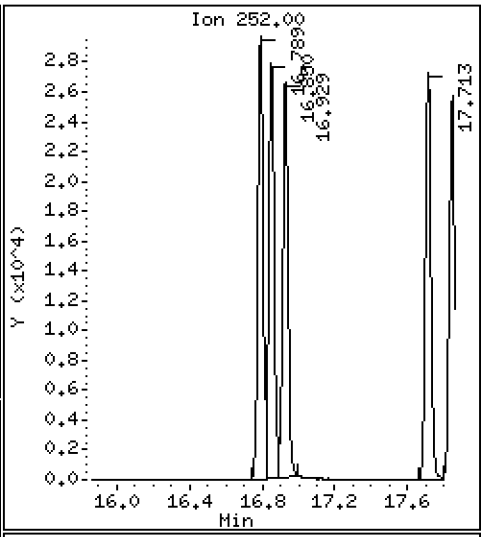
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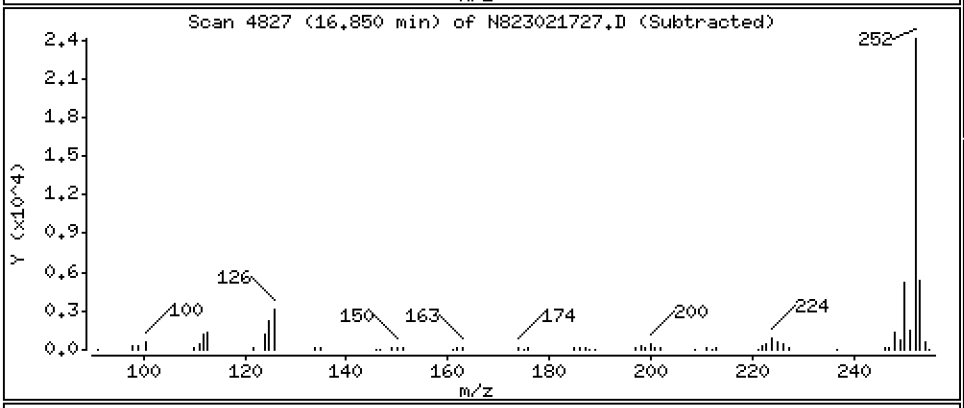
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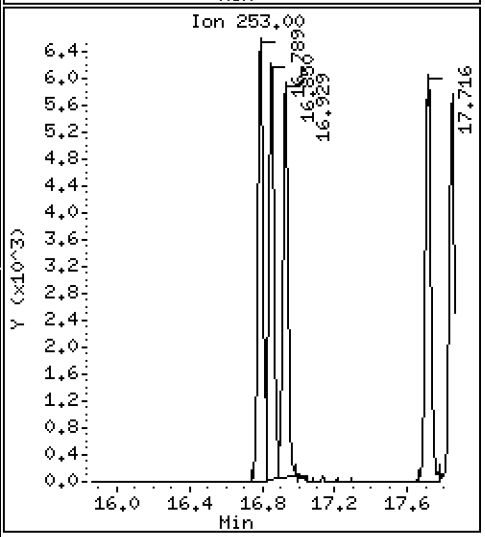
29 Benzo(k)fluoranthene

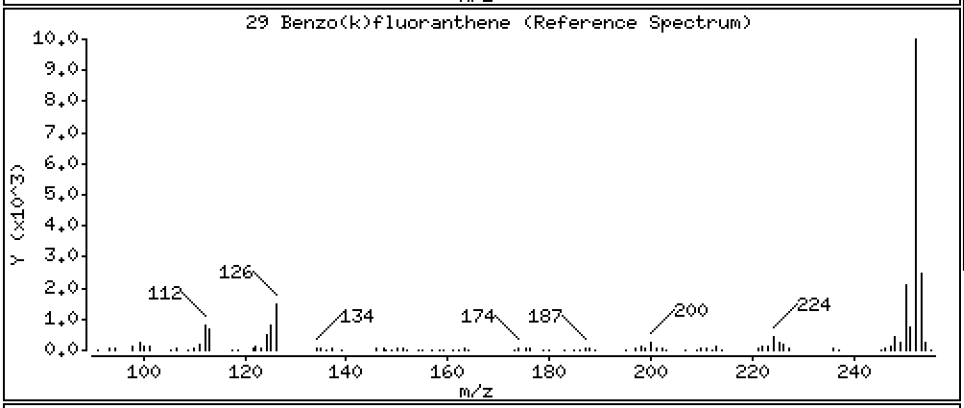
Concentration: 2.476 ug/mL

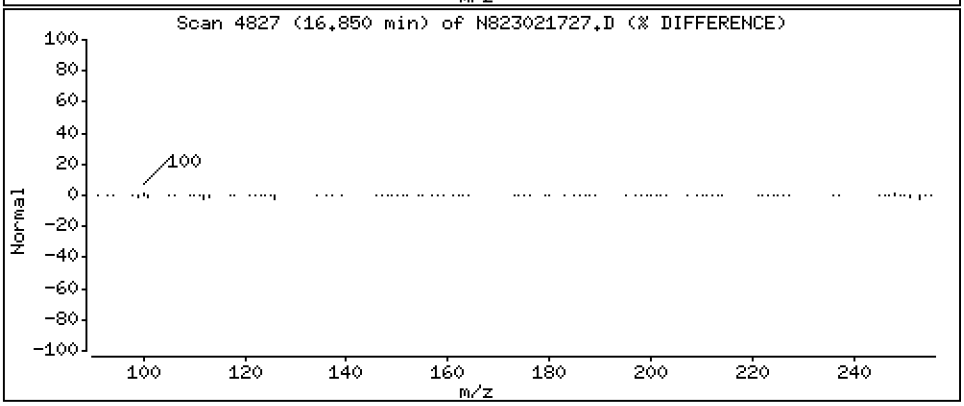












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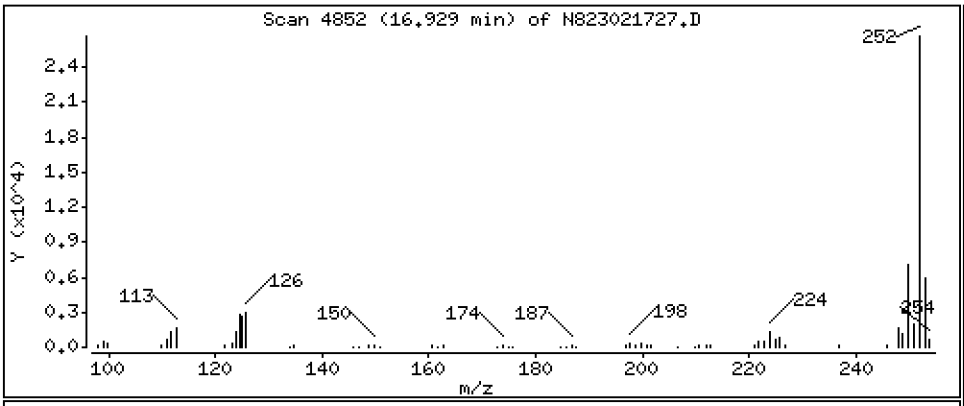
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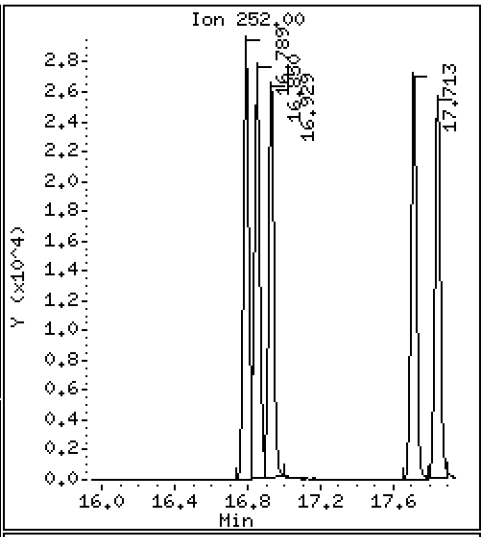
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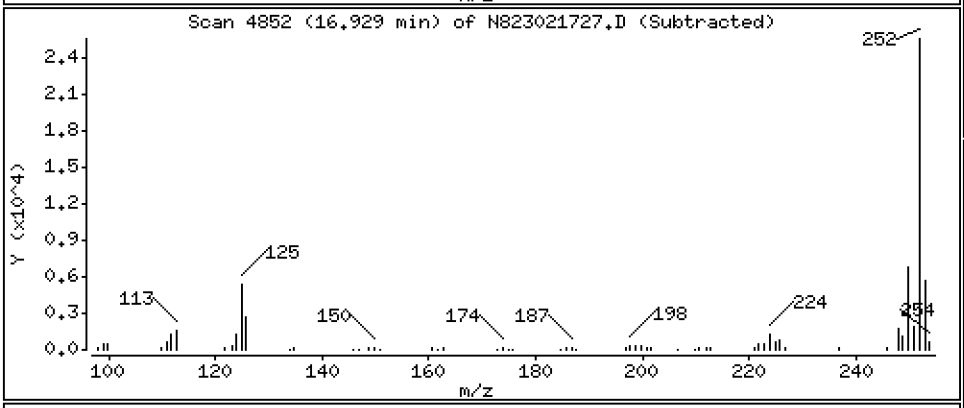
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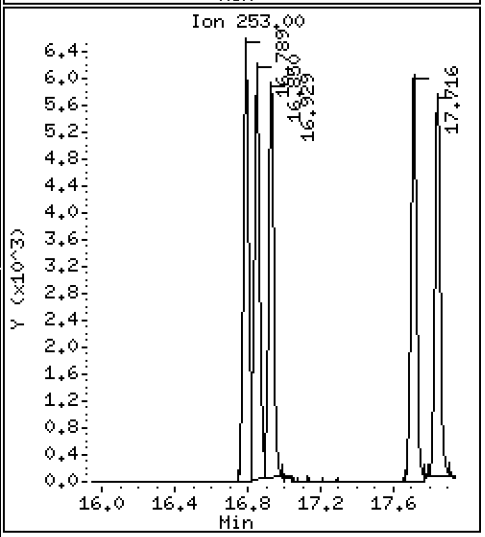
30 Benzo(j)fluoranthene

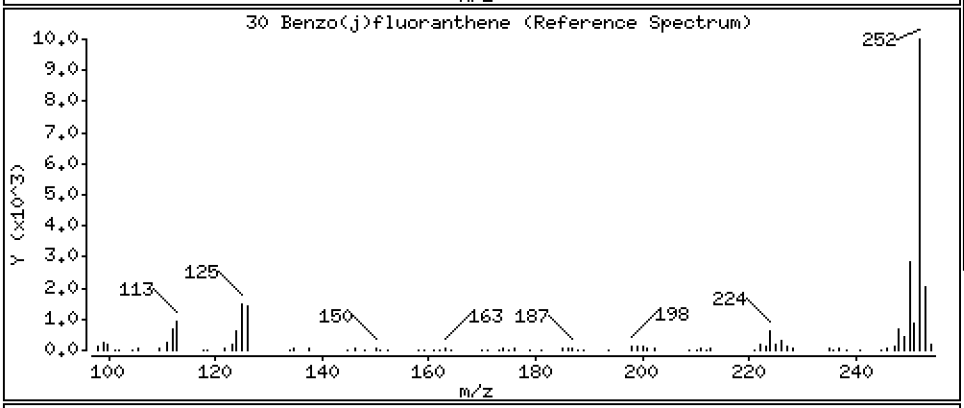
Concentration: 2.526 ug/mL

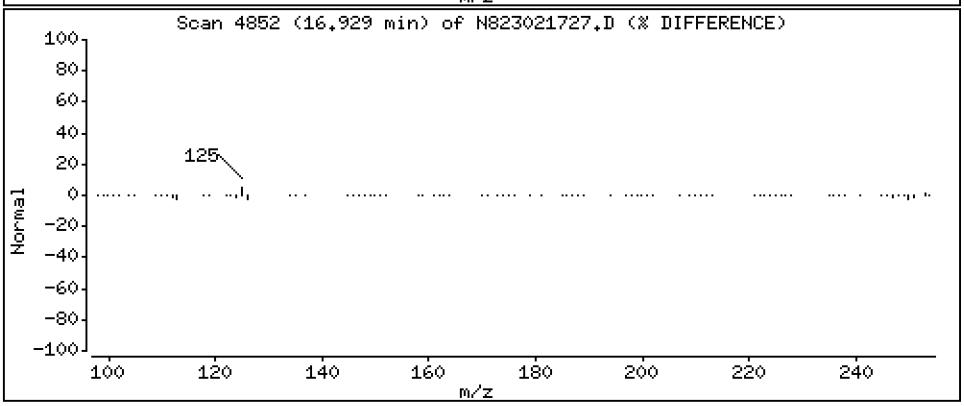












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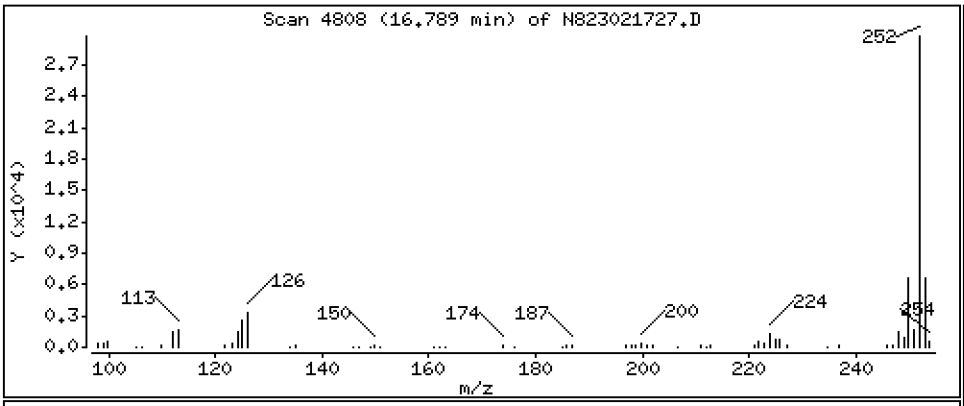
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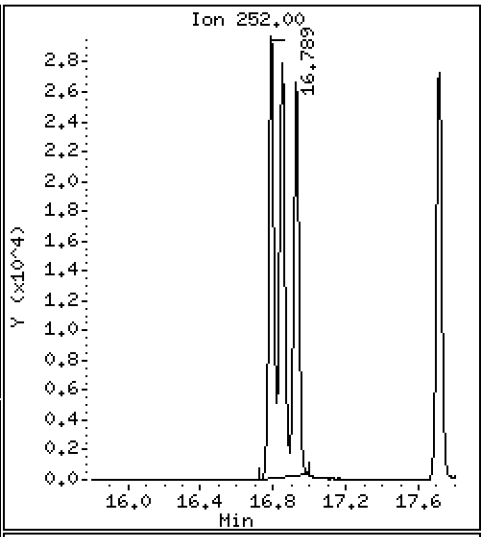
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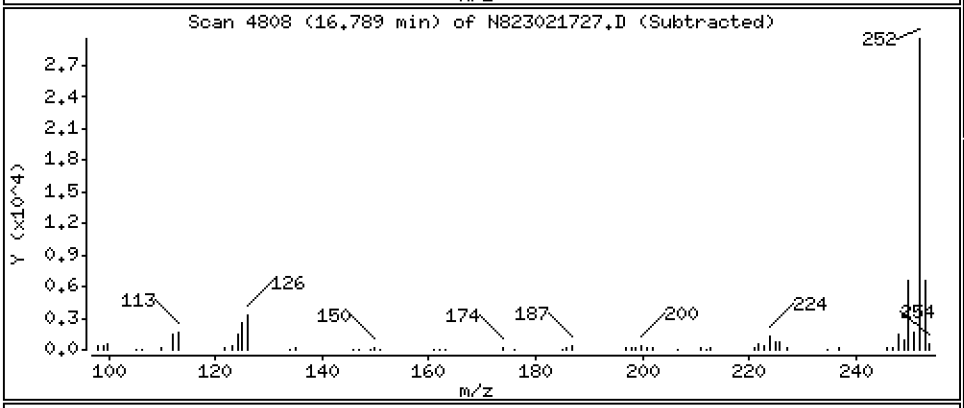
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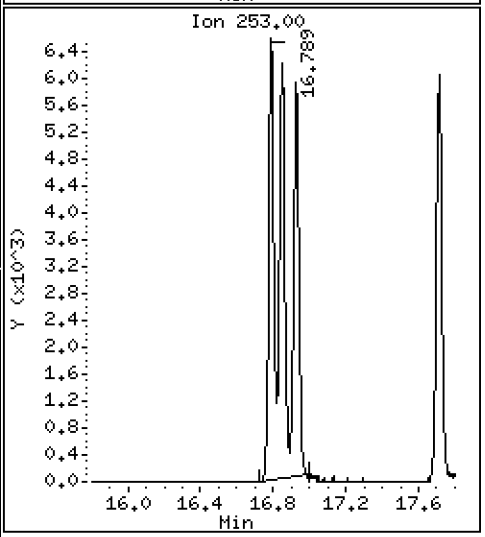
31 Total Benzofluoranthenes

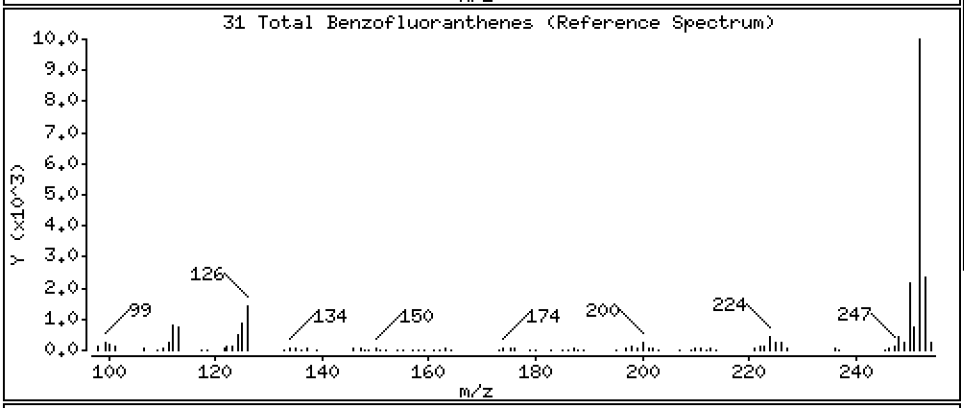
Concentration: 7.438 ug/mL

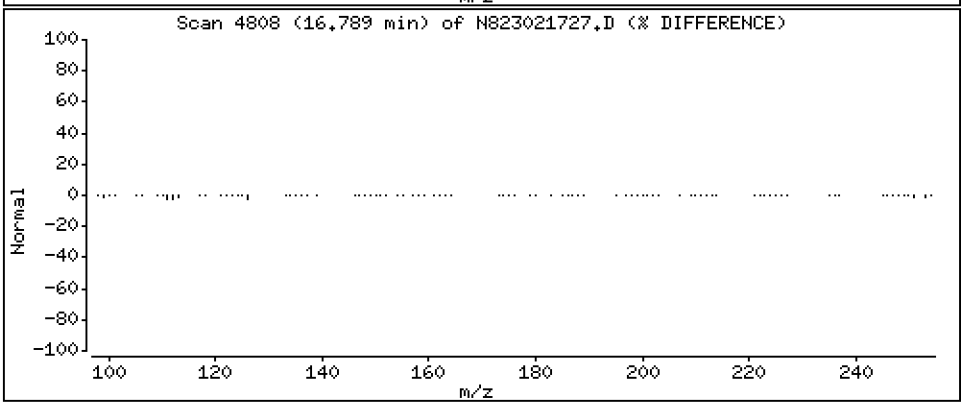












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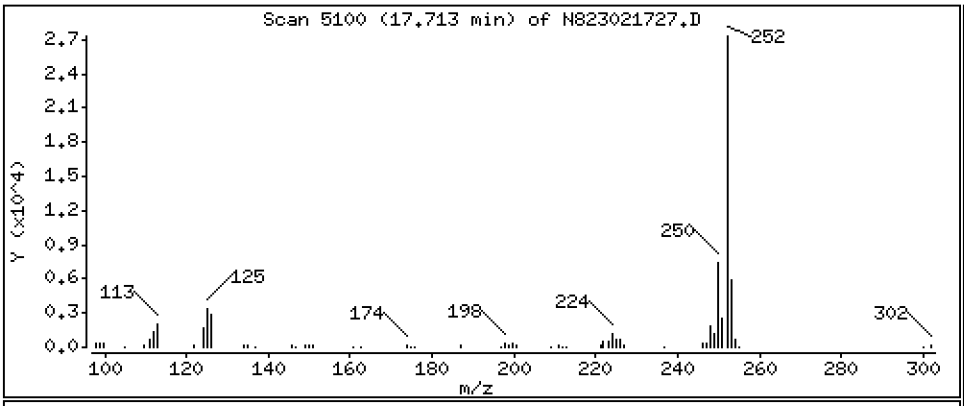
Operator: JZ

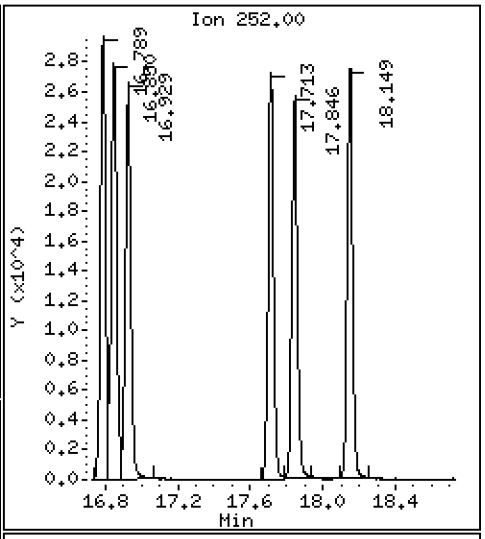
Column phase: Rxi-17sil

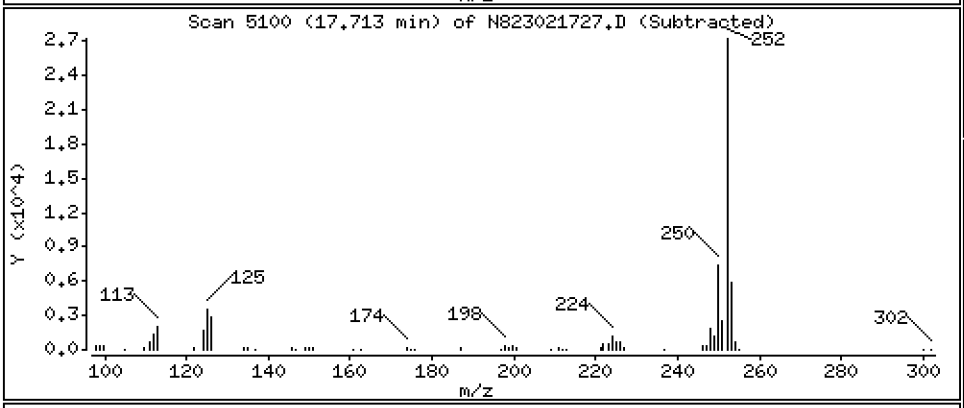
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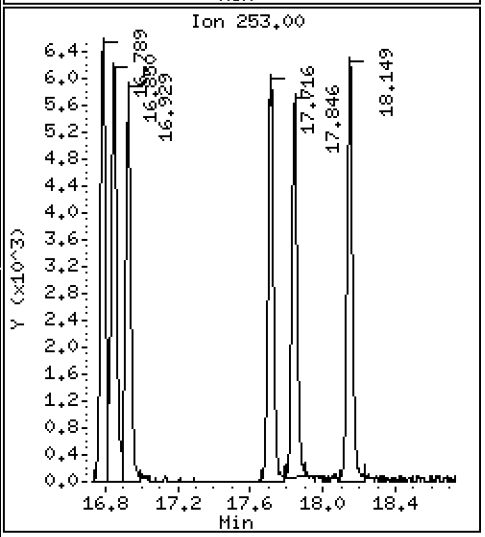
34 Benzo(e)pyrene

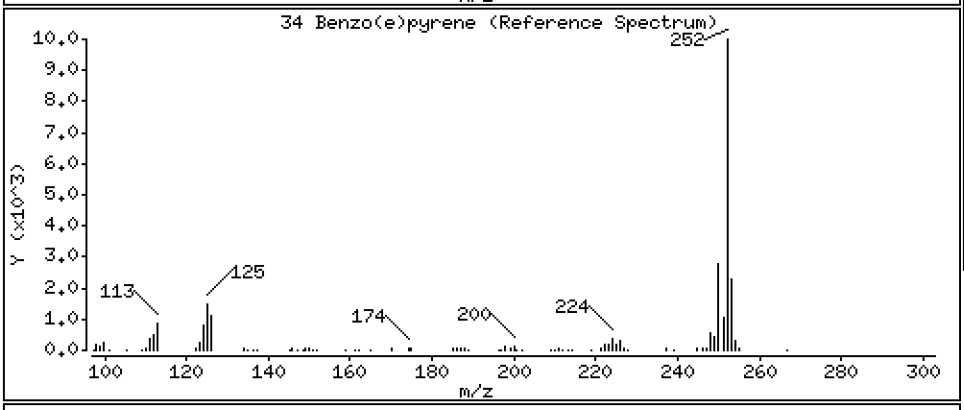
Concentration: 2.443 ug/mL

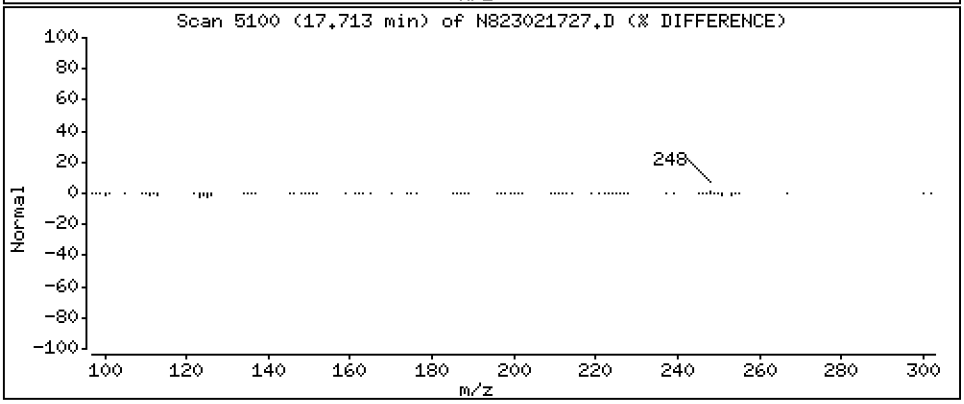












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

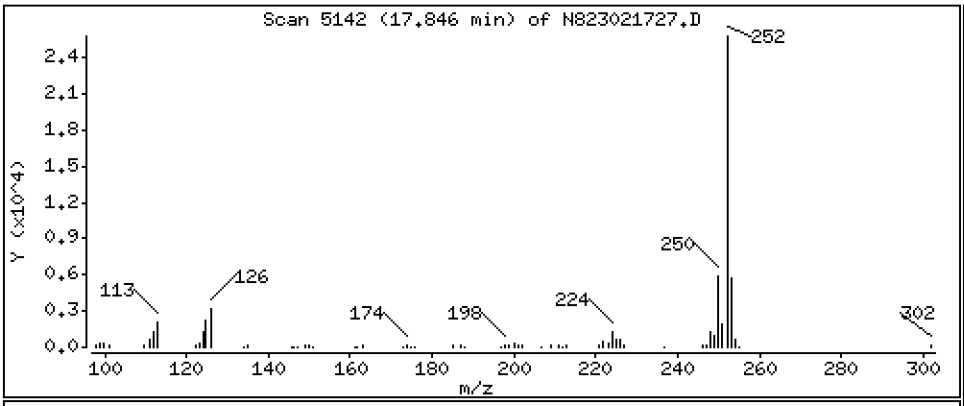
Operator: JZ

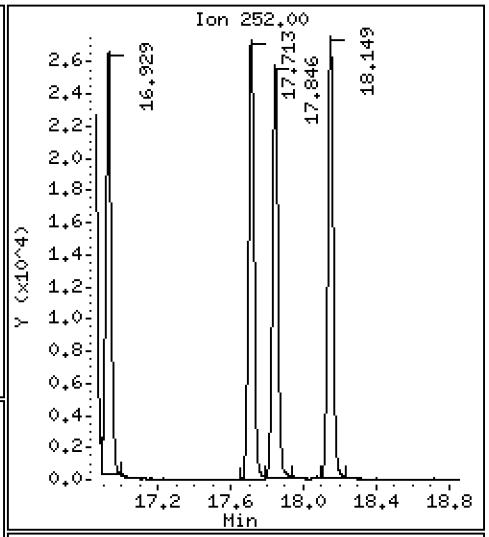
Column phase: Rxi-17sil

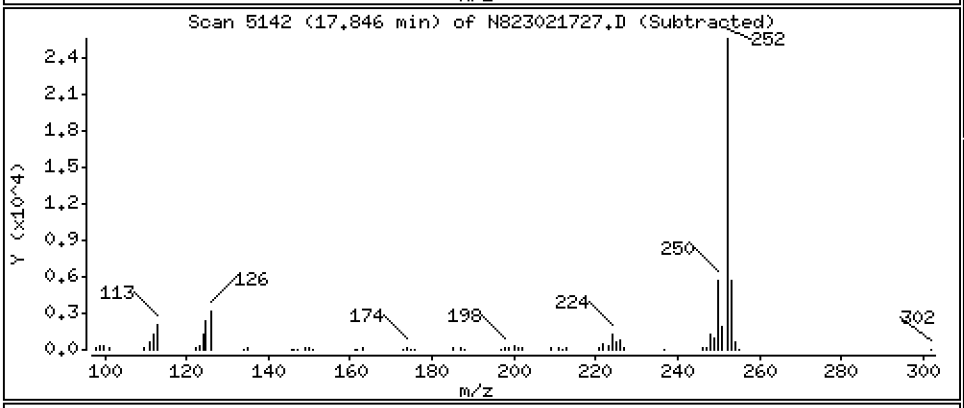
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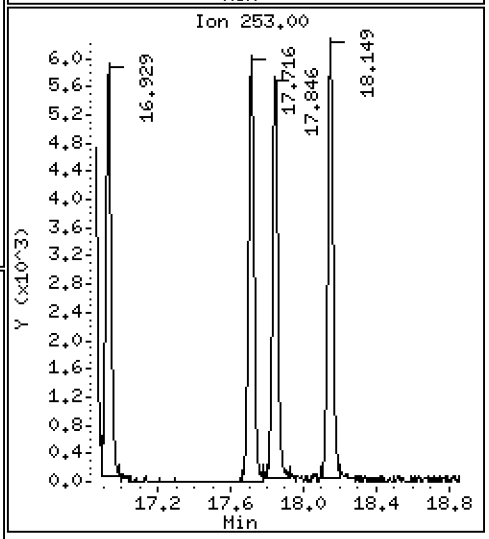
32 Benzo(a)pyrene

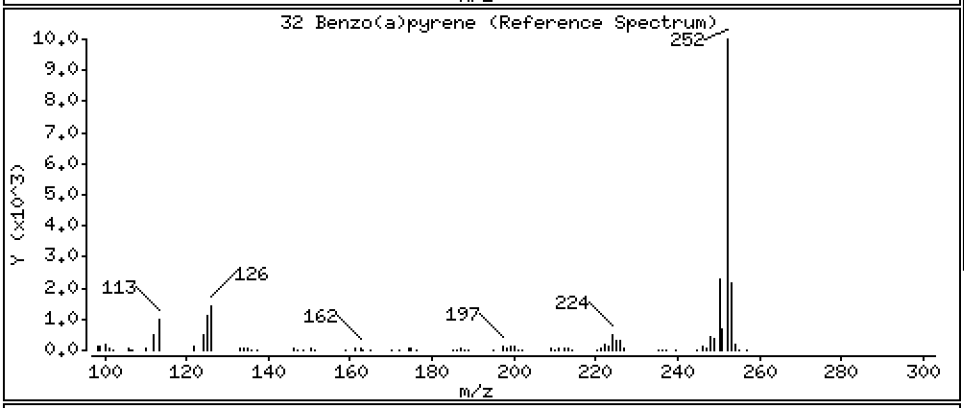
Concentration: 2.562 ug/mL

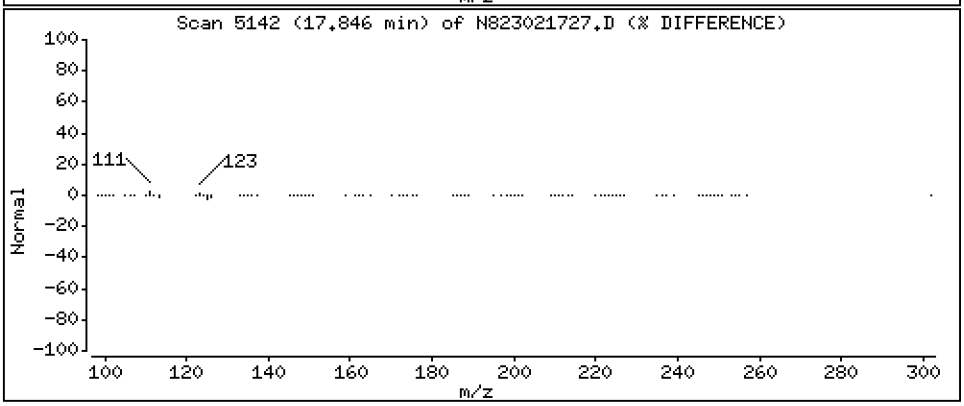












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

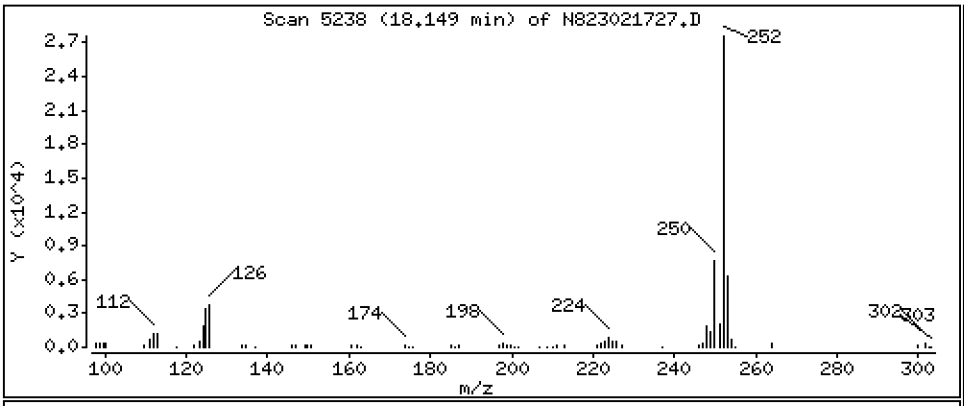
Operator: JZ

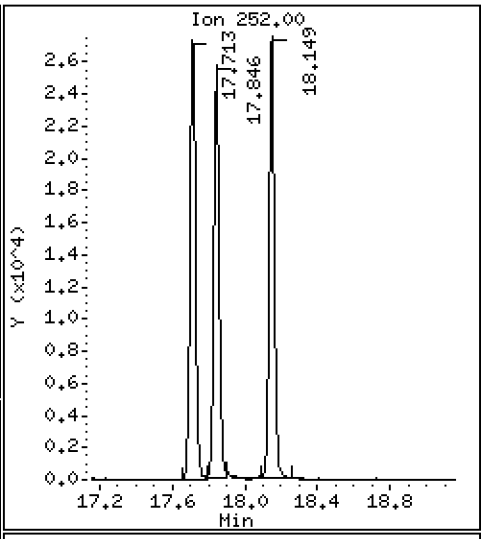
Column phase: Rxi-17sil

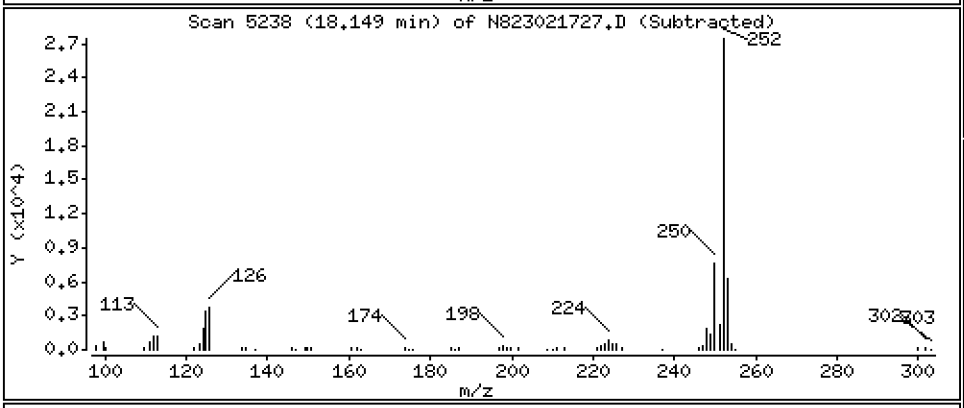
Column diameter: 0.25

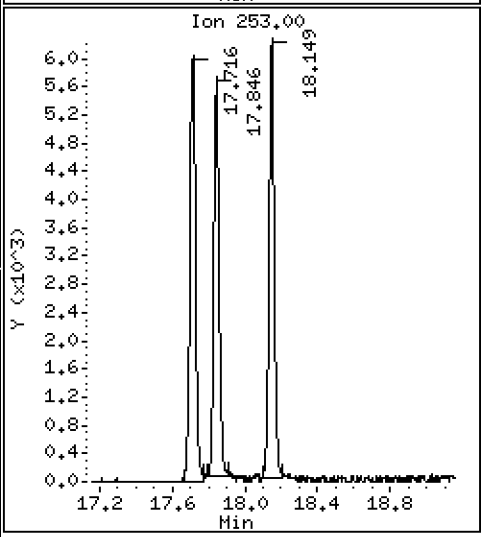
35 Perylene

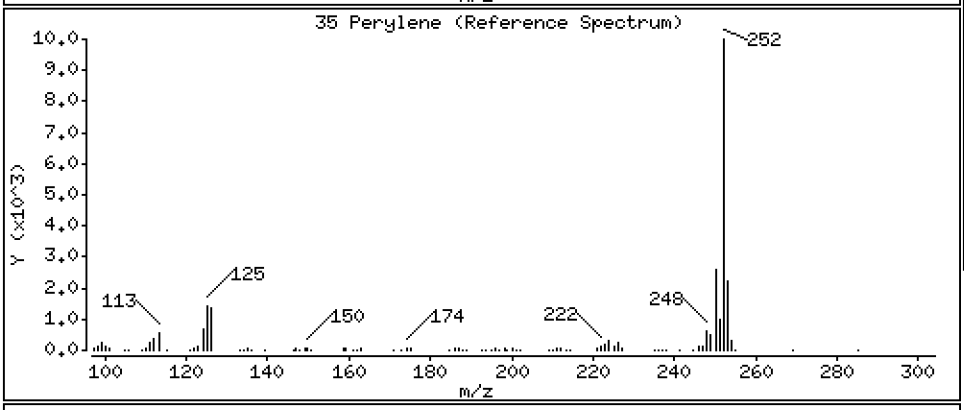
Concentration: 2.511 ug/mL

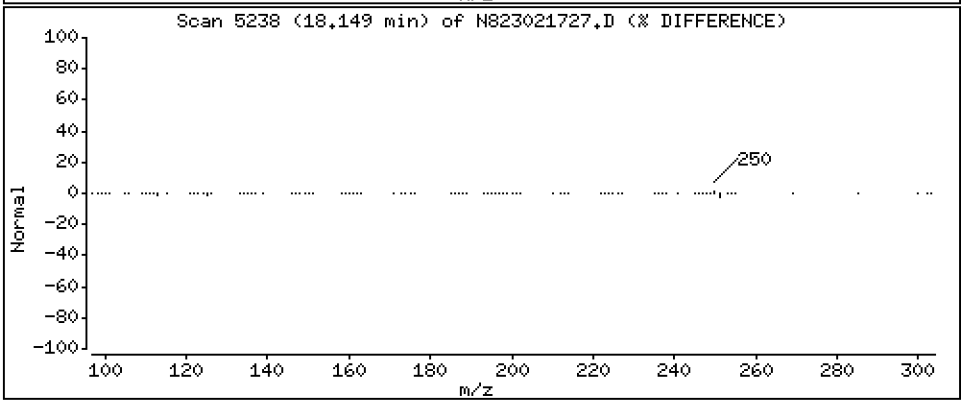












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

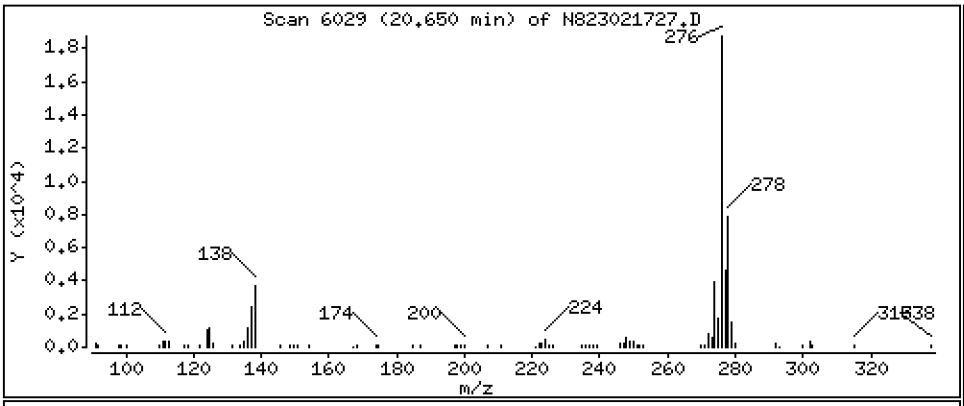
Operator: JZ

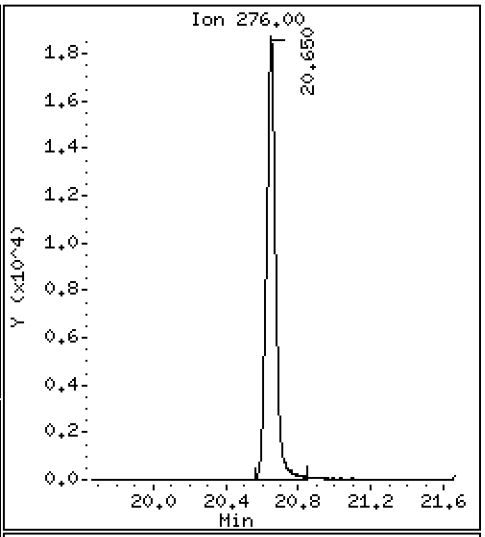
Column phase: Rxi-17sil

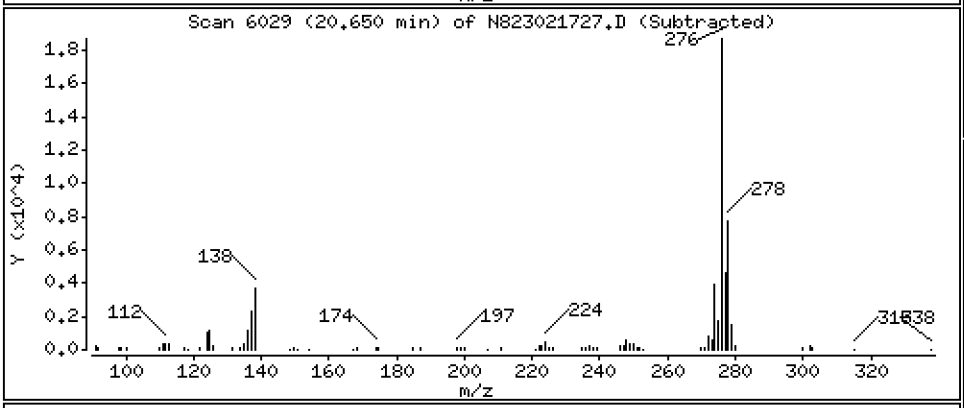
Column diameter: 0.25

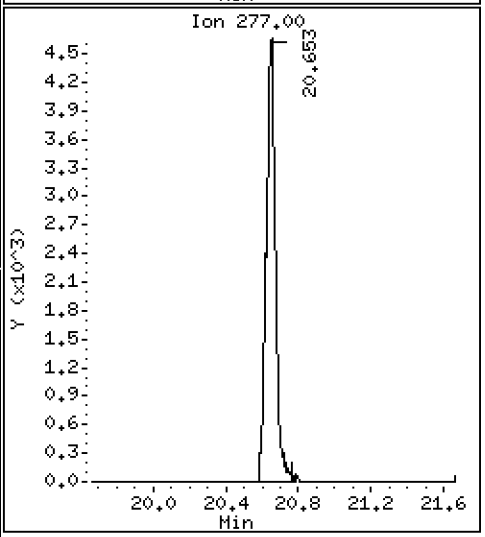
37 Indeno(1,2,3-cd)pyrene

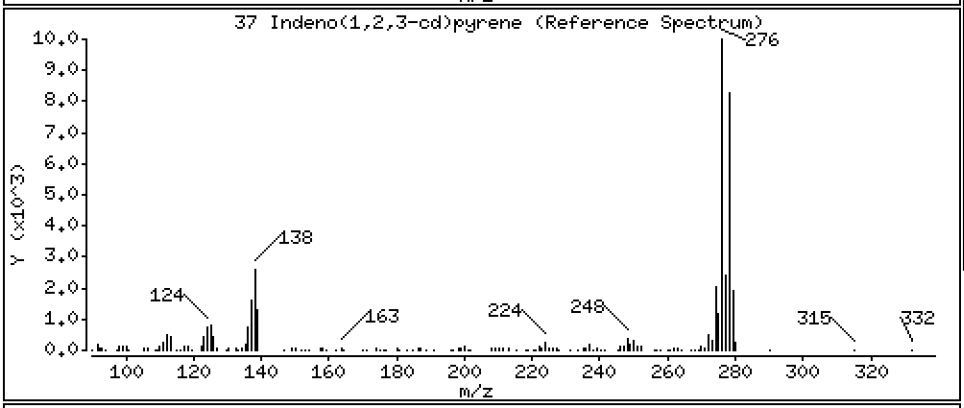
Concentration: 2.797 ug/mL

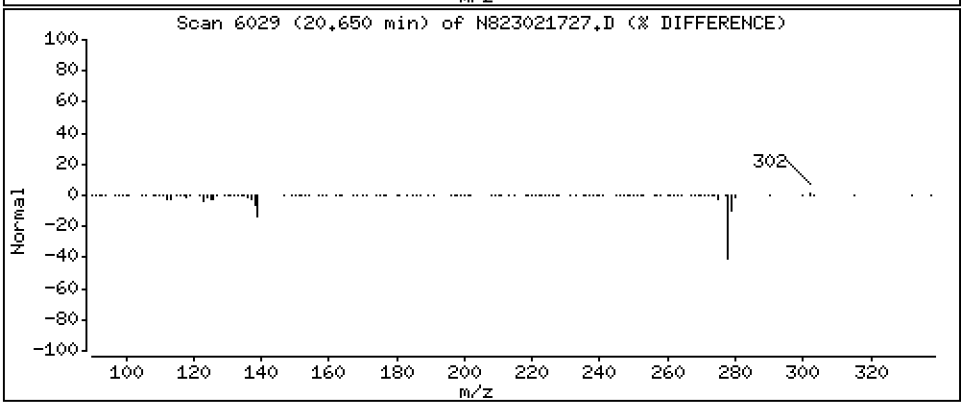












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

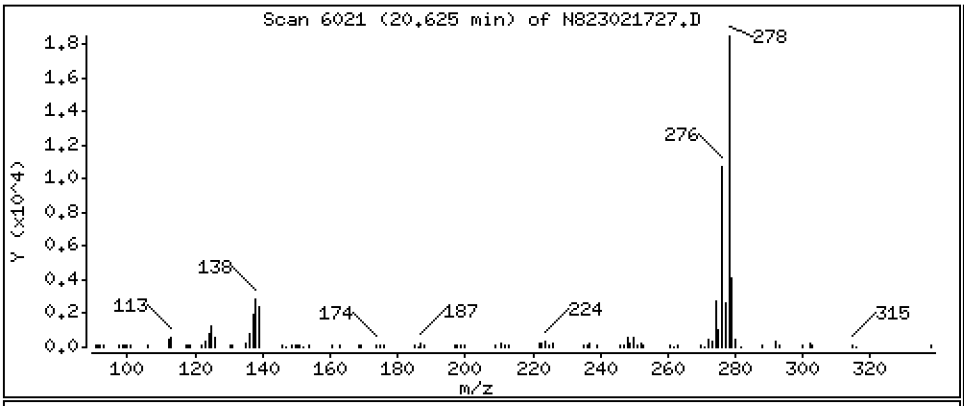
Operator: JZ

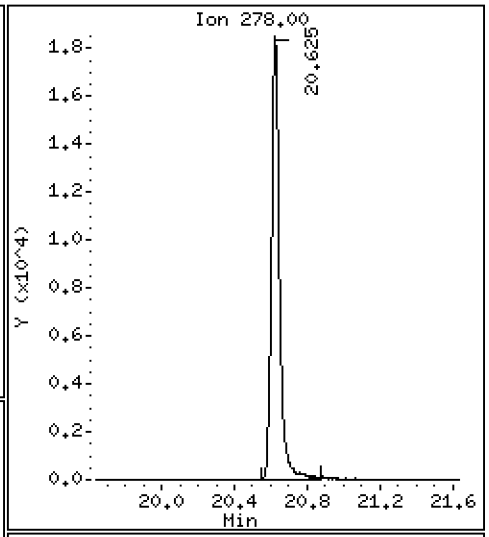
Column phase: Rxi-17sil

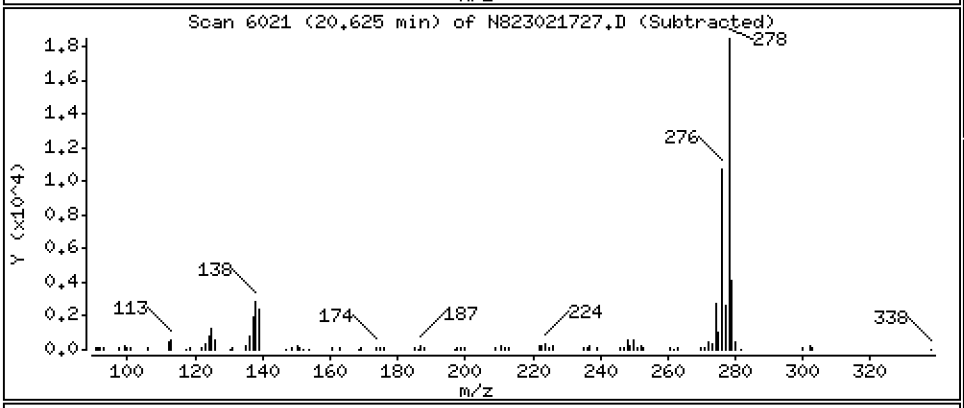
Column diameter: 0.25

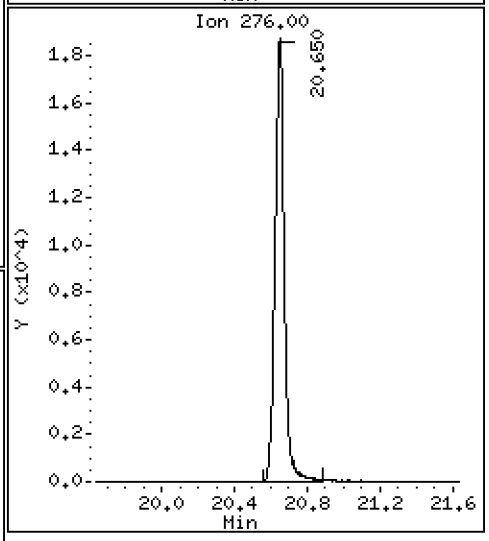
38 Dibenzo(a,h)anthracene

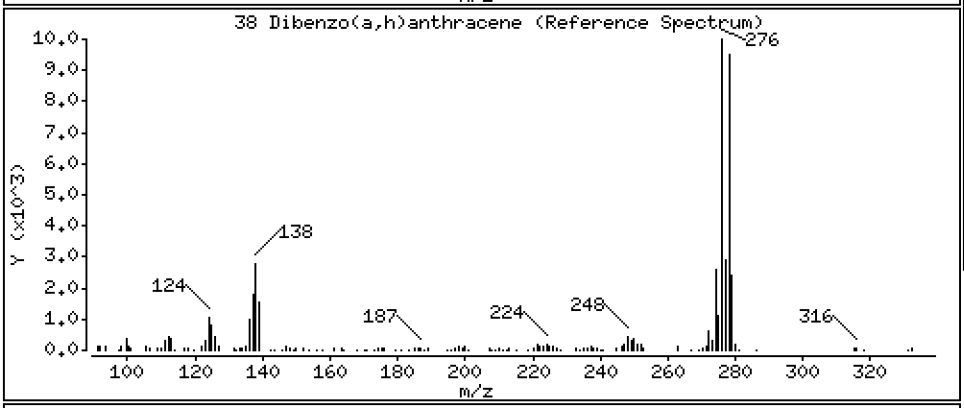
Concentration: 2.799 ug/mL

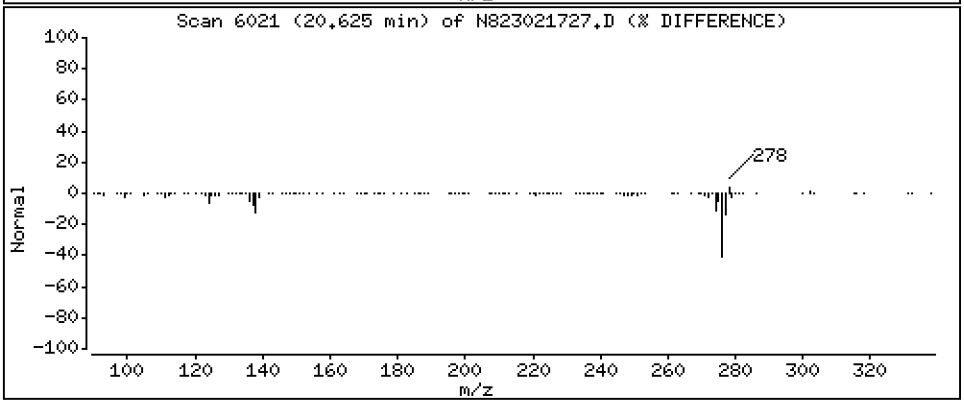












Data File: \\target\share\chem3\nt8.i\20230217.b\N823021727.D

Date : 17-FEB-2023 23:05

Client ID:

Instrument: nt8.i

Sample Info: CCV230217,

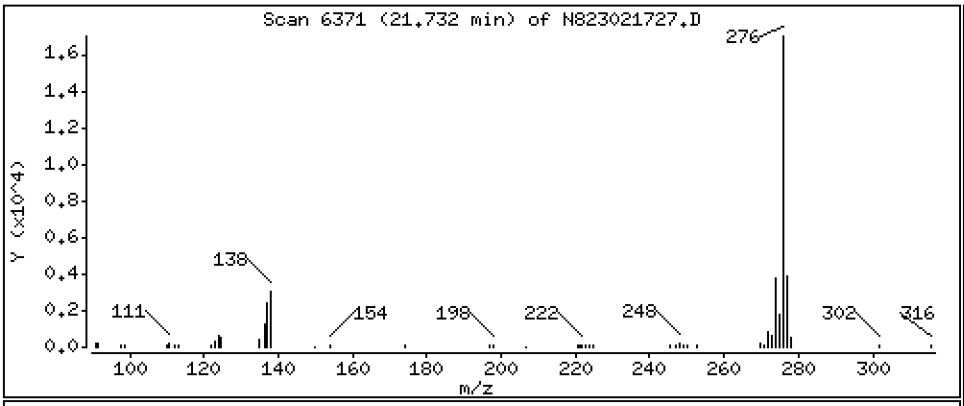
Operator: JZ

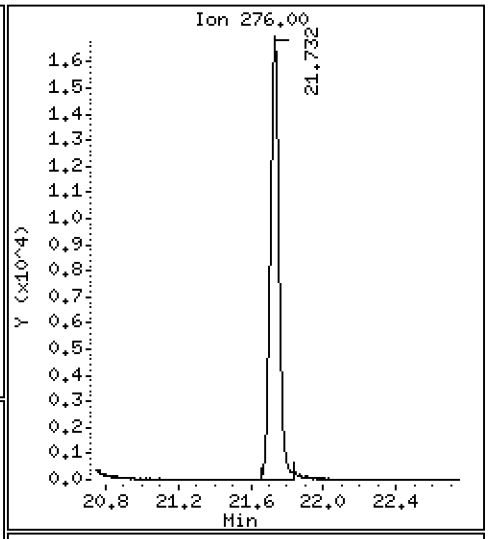
Column phase: Rxi-17sil

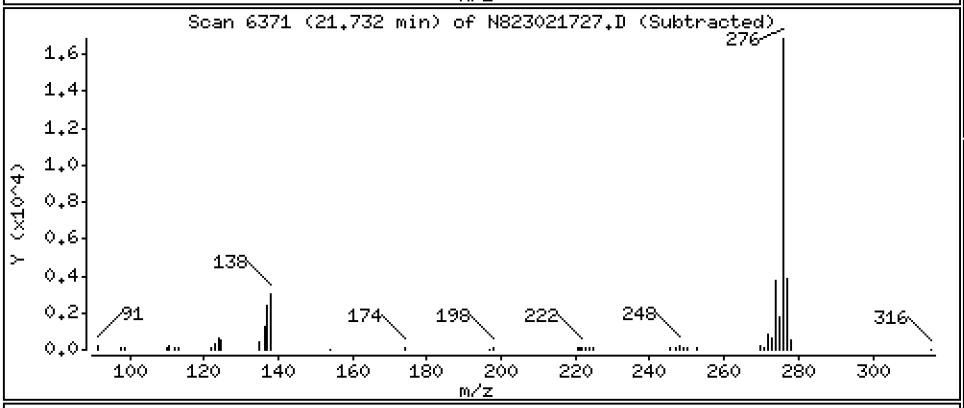
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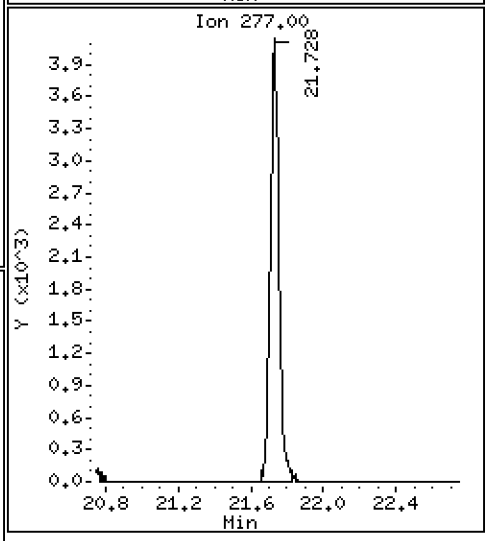
39 Benzo(g,h,i)perylene

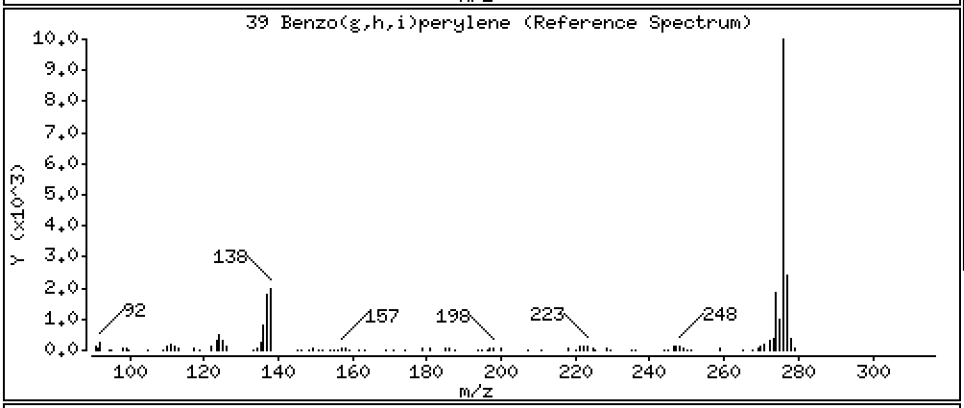
Concentration: 2.626 ug/mL

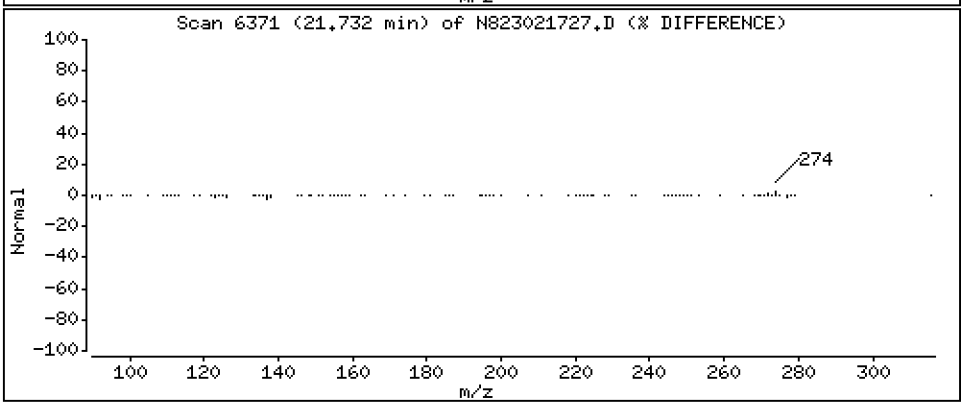












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230217.b\N823021727.D
Lab Smp Id: SLB0244-CCV1
Inj Date : 17-FEB-2023 23:05
Operator : JZ Inst ID: nt8.i
Smp Info : CCV230217,
Misc Info : 23-
Comment : 1ul Injection
Method : \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Meth Date : 20-Feb-2023 16:35 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1	Naphthalene-d8	136	4.881	4.884	(1.000)	38225	2.00000	
	2	Naphthalene	128	4.909	4.916	(1.006)	45998	2.58807	2.588
$	3	2-Methylnaphthalene-d10	152	5.615	5.621	(1.150)	27743	2.66122	2.661
	4	2-Methylnaphthalene	141	5.662	5.669	(1.160)	25428	2.60104	2.601
	5	1-methylnaphthalene	141	5.858	5.865	(1.200)	26066	2.62712	2.627
	9	Acenaphthylene	152	7.060	7.066	(0.985)	47535	2.75864	2.759
*	10	Acenaphthene-d10	164	7.167	7.177	(1.000)	22819	2.00000	
	11	Acenaphthene	153	7.218	7.224	(1.007)	29934	2.59271	2.593
	12	Dibenzofuran	168	7.369	7.376	(1.028)	45216	2.57846	2.578
	14	Fluorene	166	7.847	7.857	(1.095)	36842	2.70503	2.705
*	15	Phenanthrene-d10	188	9.207	9.216	(1.000)	44298	2.00000	
	16	Phenanthrene	178	9.245	9.251	(1.004)	53431	2.46924	2.469
	17	Anthracene	178	9.286	9.292	(1.009)	52063	2.64855	2.649
	19	Carbazole	167	9.801	9.811	(1.065)	47103	2.61384	2.614
	22	Fluoranthene	202	11.022	11.031	(1.197)	63247	2.68521	2.685
$	21	Fluoranthene-d10	212	10.987	10.996	(1.193)	55123	2.82044	2.820
	23	Pyrene	202	11.540	11.553	(0.815)	65442	2.63431	2.634
	24	Benzo(a)anthracene	228	14.038	14.054	(0.991)	60754	2.69820	2.698
*	25	Chrysene-d12	240	14.168	14.181	(1.000)	40069	2.00000	
	27	Chrysene	228	14.240	14.253	(1.005)	60707	2.53263	2.533
	28	Benzo(b)fluoranthene	252	16.789	16.802	(0.929)	59330	2.49036	2.490
	29	Benzo(k)fluoranthene	252	16.849	16.862	(0.932)	57787	2.47635	2.476
	30	Benzo(j)fluoranthene	252	16.928	16.941	(0.937)	53072	2.52633	2.526
	31	Total Benzofluoranthenes	252	16.789	16.802	(0.929)	167816	7.43784	7.438(M)
	34	Benzo(e)pyrene	252	17.712	17.728	(0.980)	58034	2.44282	2.443
	32	Benzo(a)pyrene	252	17.845	17.858	(0.987)	53717	2.56224	2.562
*	33	Perylene-d12	264	18.073	18.086	(1.000)	40906	2.00000	
	35	Perylene	252	18.149	18.158	(1.004)	56487	2.51082	2.511
$	36	Dibenzo(a,h)anthracene-d14	292	20.511	20.523	(1.135)	39257	2.44930	2.449
	37	Indeno(1,2,3-cd)pyrene	276	20.650	20.663	(1.143)	66805	2.79706	2.797
	38	Dibenzo(a,h)anthracene	278	20.624	20.637	(1.141)	57539	2.79939	2.799
	39	Benzo(g,h,i)perylene	276	21.731	21.747	(1.202)	56834	2.62640	2.626

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823021727.D
Lab Smp Id: SLB0244-CCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230217.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 17-FEB-2023
Calibration Time: 11:25
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	41552	20776	83104	38225	-8.01
10 Acenaphthene-d10	25012	12506	50024	22819	-8.77
15 Phenanthrene-d10	44752	22376	89504	44298	-1.01
25 Chrysene-d12	34520	17260	69040	40069	16.07
33 Perylene-d12	30529	15265	61058	40906	33.99

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.88	4.38	5.38	4.88	-0.07
10 Acenaphthene-d10	7.18	6.68	7.68	7.17	-0.13
15 Phenanthrene-d10	9.22	8.72	9.72	9.21	-0.10
25 Chrysene-d12	14.18	13.68	14.68	14.17	-0.09
33 Perylene-d12	18.09	17.59	18.59	18.07	-0.07

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823021727.D

Lab ID: SLB0244-CCV1
nt8.i, 20230217.b\FSIMPNA230119.m,   17-FEB-2023 23:05

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

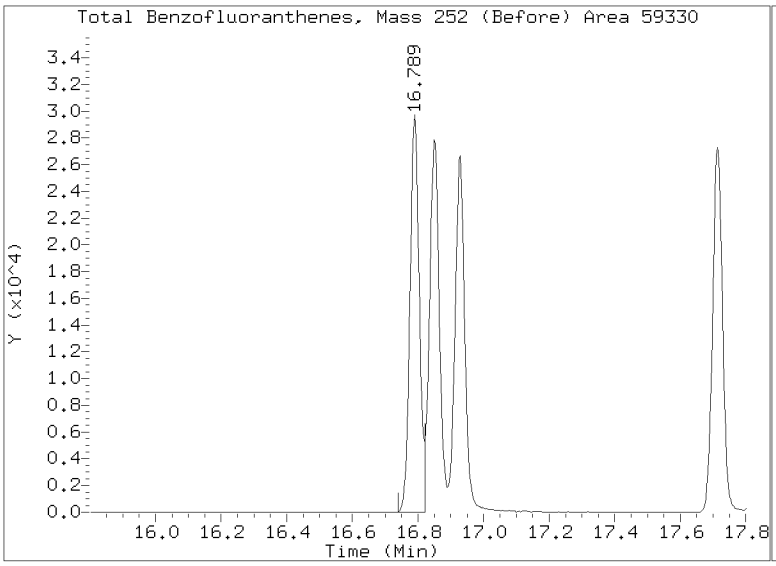
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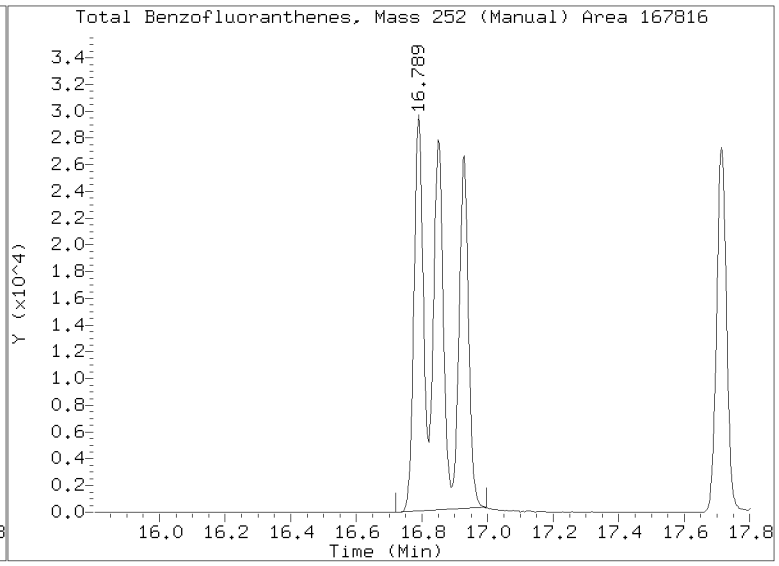
Exception: Benzo(e)pyrene 0.0800

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230217.b/N823021727.D
Injection Date: 17-FEB-2023 23:05
Lab ID:SLB0244-CCV1 Client ID:
Report Date: 02/20/2023 16:37





Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLA0213	Instrument:	NT8
		Calibration:	GA00050

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SLA0213-TUN1	N823011901.D	NA	01/19/23 10:28
Initial Cal Blank	SLA0213-ICB1	N823011902.D	NA	01/19/23 10:59
8270 SIM PNA 0.1	SLA0213-CAL1	N823011903.D	NA	01/19/23 11:26
8270 SIM PNA 0.5	SLA0213-CAL2	N823011904.D	NA	01/19/23 11:58
8270 SIM PNA 1.0	SLA0213-CAL3	N823011905.D	NA	01/19/23 12:25
8270 SIM PNA 2.5	SLA0213-CAL4	N823011906.D	NA	01/19/23 12:52
8270 SIM PNA 5	SLA0213-CAL5	N823011907.D	NA	01/19/23 13:19
8270 SIM PNA 10	SLA0213-CAL6	N823011908.D	NA	01/19/23 13:46
8270 SIM PNA SCV	SLA0213-SCV1	N823011909.D	NA	01/19/23 14:58

Printed: 1/19/2023 8:45:16PM

ANALYSIS SEQUENCE

SLA0213

Instrument: NT8 Element Column ID: J006458
Calibration ID: GA00050

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	Comments
SLA0213-TUN1	MS Tune	QC		1	K004775			
SLA0213-ICB1	Initial Cal Blank	QC		2		K008540		
SLA0213-CAL1	8270 SIM PNA 0.1	QC		3	L000603	K008540		
SLA0213-CAL2	8270 SIM PNA 0.5	QC		4	L000604	K008540		
SLA0213-CAL3	8270 SIM PNA 1.0	QC		5	L000605	K008540		
SLA0213-CAL4	8270 SIM PNA 2.5	QC		6	L000606	K008540		
SLA0213-CAL5	8270 SIM PNA 5	QC		7	L000607	K008540		
SLA0213-CAL6	8270 SIM PNA 10	QC		8	L000608	K008540		
SLA0213-SCV1	8270 SIM PNA SCV	QC		9	L000686	K008540		

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

	Time	Filename	LabID	ClientId	DF											
1	1028	N823011901.D	SLA0213-TUN1		1	|NO ISTDS FOUND||										
2	1059	N823011902.D	SLA0213-ICB1		1	| 4.92	52082||	7.20	30936||	9.24	59030||	14.22	50944||	18.12	47418|
3	1126	N823011903.D	SLA0213-CAL1		1	| 4.91	46132||	7.20	27261||	9.24	52158||	14.20	44953||	18.11	41635|
4	1158	N823011904.D	SLA0213-CAL2		1	| 4.91	45056||	7.20	26746||	9.24	50759||	14.21	44658||	18.11	42567|
5	1225	N823011905.D	SLA0213-CAL3		1	| 4.91	47180||	7.20	28206||	9.24	53233||	14.20	46493||	18.11	44587|
6	1252	N823011906.D	SLA0213-CAL4		1	| 4.91	44704||	7.20	26411||	9.24	49210||	14.20	42994||	18.11	40520|
7	1319	N823011907.D	SLA0213-CAL5		1	| 4.91	46542||	7.20	27638||	9.23	51351||	14.20	44781||	18.11	42187|
8	1346	N823011908.D	SLA0213-CAL6		1	| 4.91	46070||	7.20	26689||	9.24	50683||	14.21	43880||	18.11	40659|
9	1458	N823011909.D	SLA0213-SCV1		1	| 4.91	46346||	7.20	27709||	9.24	51685||	14.21	46582||	18.12	41743|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

ARI Job No.: SLA0 Method: FSIMPNA230119.m Instrument: nt8.i Date: 19-JAN-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1059	N823011902.D	SLA0213-ICB1		1	NO MANUAL INTEGRATION
1126	N823011903.D	SLA0213-CAL1		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene-d14,
1158	N823011904.D	SLA0213-CAL2		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene, Dibenzo(a,h)anthracene-d14,
1225	N823011905.D	SLA0213-CAL3		1	Total Benzofluoranthenes,
1252	N823011906.D	SLA0213-CAL4		1	Total Benzofluoranthenes,
1319	N823011907.D	SLA0213-CAL5		1	Total Benzofluoranthenes,
1346	N823011908.D	SLA0213-CAL6		1	Total Benzofluoranthenes,
1458	N823011909.D	SLA0213-SCV1		1	Total Benzofluoranthenes,

Security Status Report

Date: 19-Jan-2023 20:43

N823011901.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011902.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011903.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011904.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011905.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011906.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011907.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011908.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011909.D	Data Locked	jianqing, 19-Jan-2023 20:43

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0206	Instrument:	NT8
		Calibration:	GA00050

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SLB0206-TUN1	N823021514.D	NA	02/15/23 17:13
Initial Cal Check	SLB0206-ICV1	N823021515.D	NA	02/15/23 17:35
Instrument Blank	SLB0206-IBL1	N823021515B.D	NA	02/15/23 18:03
ZZZZZ	23A0624-72	N823021516.D	Solid	02/15/23 18:29
ZZZZZ	23A0624-73	N823021517.D	Solid	02/15/23 18:56
ZZZZZ	23A0624-74	N823021518.D	Solid	02/15/23 19:23
ZZZZZ	23A0624-75	N823021519.D	Solid	02/15/23 19:50
ZZZZZ	23A0624-76	N823021520.D	Solid	02/15/23 20:17
ZZZZZ	23A0624-77	N823021521.D	Solid	02/15/23 20:44
ZZZZZ	23A0624-78	N823021522.D	Solid	02/15/23 21:11
ZZZZZ	23A0624-82	N823021526.D	Solid	02/15/23 22:58
ZZZZZ	23A0624-83	N823021529.D	Solid	02/16/23 00:19
ZZZZZ	23A0624-84	N823021530.D	Solid	02/16/23 00:46
ZZZZZ	23A0624-85	N823021531.D	Solid	02/16/23 01:12
LY-28_0-10	23A0626-01	N823021532.D	Solid	02/16/23 01:39
LY-28_1-2	23A0626-03	N823021533.D	Solid	02/16/23 02:06
LY-30_0-10	23A0626-10	N823021534.D	Solid	02/16/23 02:33
LY-30_1-2	23A0626-12	N823021535.D	Solid	02/16/23 03:00
LY-DUP_0-10	23A0626-29	N823021536.D	Solid	02/16/23 03:27
ZZZZZ	23A0624-71RE1	N823021537.D	Solid	02/16/23 03:53
ZZZZZ	23A0624-29	N823021538.D	Solid	02/16/23 04:20
ZZZZZ	23A0624-30	N823021539.D	Solid	02/16/23 04:47
Calibration Check	SLB0206-CCV1	N823021542.D	NA	02/16/23 06:07

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0244	Instrument:	NT8
		Calibration:	GA00050

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SLB0244-TUN1	N823021701.D	NA	02/17/23 10:53
Initial Cal Check	SLB0244-ICV1	N823021702.D	NA	02/17/23 11:25
ZZZZZ	BLB0095-BLK1	N823021703.D	Solid	02/17/23 12:06
ZZZZZ	BLB0095-BS1	N823021704.D	Solid	02/17/23 12:33
ZZZZZ	BLB0095-BSD1	N823021705.D	Solid	02/17/23 13:00
ZZZZZ	23A0624-36	N823021706.D	Solid	02/17/23 13:40
ZZZZZ	23A0624-37	N823021707.D	Solid	02/17/23 14:07
ZZZZZ	23A0624-38	N823021708.D	Solid	02/17/23 14:34
ZZZZZ	23A0624-41	N823021709.D	Solid	02/17/23 15:01
ZZZZZ	23A0624-42	N823021710.D	Solid	02/17/23 15:28
ZZZZZ	23A0624-46	N823021711.D	Solid	02/17/23 15:55
ZZZZZ	23A0624-47	N823021712.D	Solid	02/17/23 16:22
ZZZZZ	23A0624-53	N823021713.D	Solid	02/17/23 16:48
ZZZZZ	23A0624-54	N823021714.D	Solid	02/17/23 17:15
ZZZZZ	23A0624-61	N823021715.D	Solid	02/17/23 17:42
ZZZZZ	23A0624-64	N823021716.D	Solid	02/17/23 18:09
ZZZZZ	23A0624-65	N823021717.D	Solid	02/17/23 18:36
ZZZZZ	23A0624-68	N823021718.D	Solid	02/17/23 19:03
ZZZZZ	23A0624-69	N823021719.D	Solid	02/17/23 19:30
ZZZZZ	BLB0095-MS1	N823021720.D	Solid	02/17/23 19:57
ZZZZZ	BLB0095-MSD1	N823021721.D	Solid	02/17/23 20:24
ZZZZZ	23A0624-70	N823021722.D	Solid	02/17/23 20:51
Blank	BLB0144-BLK1	N823021723.D	Solid	02/17/23 21:18
LCS	BLB0144-BS1	N823021724.D	Solid	02/17/23 21:44
LCS Dup	BLB0144-BSD1	N823021725.D	Solid	02/17/23 22:11
Calibration Check	SLB0244-CCV1	N823021727.D	NA	02/17/23 23:05

SURROGATE RECOVERY AND RT SUMMARY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG/WO:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLA0213	Instrument:	NT8
Calibration:	GA00050	Calibration Date:	01/19/2023

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLA0213-ICB1 (Water)			Lab File ID: N823011902.D				Analyzed: 01/19/23 10:59	
2-Methylnaphthalene-d10			31 - 120		5.6415	-5.6415	N/A	
Dibenzo[a,h]anthracene-d14			10 - 125		20.5525	-20.5525	N/A	
Fluoranthene-d10			46 - 121		11.016	-11.0160	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG/WO:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0206	Instrument:	NT8
Calibration:	GA00050	Calibration Date:	01/19/2023

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLB0206-ICV1 (Solid)			Lab File ID: N823021515.D			Analyzed: 02/15/23 17:35		
2-Methylnaphthalene-d10	2.5000	107	80 - 120	5.618	5.6415	-0.0235	N/A	
Dibenzo[a,h]anthracene-d14	2.5000	96.8	80 - 120	20.546	20.5525	-0.0065	N/A	
Fluoranthene-d10	2.5000	110	80 - 120	11.003	11.016	-0.0130	N/A	
SLB0206-IBL1 (Solid)			Lab File ID: N823021515B.D			Analyzed: 02/15/23 18:03		
2-Methylnaphthalene-d10			32 - 120		5.6415	-5.6415	N/A	
Dibenzo[a,h]anthracene-d14			21 - 133		20.5525	-20.5525	N/A	
Fluoranthene-d10			36 - 134		11.016	-11.0160	N/A	
23A0626-01 (Solid)			Lab File ID: N823021532.D			Analyzed: 02/16/23 01:39		
2-Methylnaphthalene-d10	143.00	98.2	32 - 120	5.608	5.6415	-0.0335	N/A	
Dibenzo[a,h]anthracene-d14	143.00	156	21 - 133	20.546	20.5525	-0.0065	N/A	*
Fluoranthene-d10	143.00	128	36 - 134	11	11.016	-0.0160	N/A	
23A0626-03 (Solid)			Lab File ID: N823021533.D			Analyzed: 02/16/23 02:06		
2-Methylnaphthalene-d10	148.54	98.7	32 - 120	5.612	5.6415	-0.0295	N/A	
Dibenzo[a,h]anthracene-d14	148.54	151	21 - 133	20.542	20.5525	-0.0105	N/A	*
Fluoranthene-d10	148.54	129	36 - 134	11	11.016	-0.0160	N/A	
23A0626-10 (Solid)			Lab File ID: N823021534.D			Analyzed: 02/16/23 02:33		
2-Methylnaphthalene-d10	145.51	83.7	32 - 120	5.605	5.6415	-0.0365	N/A	
Dibenzo[a,h]anthracene-d14	145.51	117	21 - 133	20.539	20.5525	-0.0135	N/A	
Fluoranthene-d10	145.51	101	36 - 134	10.996	11.016	-0.0200	N/A	
23A0626-12 (Solid)			Lab File ID: N823021535.D			Analyzed: 02/16/23 03:00		
2-Methylnaphthalene-d10	148.37	83.5	32 - 120	5.608	5.6415	-0.0335	N/A	
Dibenzo[a,h]anthracene-d14	148.37	119	21 - 133	20.536	20.5525	-0.0165	N/A	
Fluoranthene-d10	148.37	108	36 - 134	10.996	11.016	-0.0200	N/A	
23A0626-29 (Solid)			Lab File ID: N823021536.D			Analyzed: 02/16/23 03:27		
2-Methylnaphthalene-d10	148.35	79.0	32 - 120	5.608	5.6415	-0.0335	N/A	
Dibenzo[a,h]anthracene-d14	148.35	132	21 - 133	20.536	20.5525	-0.0165	N/A	
Fluoranthene-d10	148.35	112	36 - 134	10.996	11.016	-0.0200	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG/WO:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0206	Instrument:	NT8
Calibration:	GA00050	Calibration Date:	01/19/2023

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLB0206-CCV1 (Solid)				Lab File ID: N823021542.D			Analyzed: 02/16/23 06:07	
2-Methylnaphthalene-d10	2.5000	105	50 - 150	5.611	5.6415	-0.0305	N/A	
Dibenzo[a,h]anthracene-d14	2.5000	97.4	50 - 150	20.539	20.5525	-0.0135	N/A	
Fluoranthene-d10	2.5000	111	50 - 150	10.993	11.016	-0.0230	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG/WO: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0244
Instrument: NT8
Calibration: GA00050
Calibration Date: 01/19/2023

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLB0244-ICV1 (Solid)				Lab File ID: N823021702.D			Analyzed: 02/17/23 11:25	
2-Methylnaphthalene-d10	2.5000	108	80 - 120	5.621	5.6415	-0.0205	N/A	
Dibenzo[a,h]anthracene-d14	2.5000	98.2	80 - 120	20.523	20.5525	-0.0295	N/A	
Fluoranthene-d10	2.5000	102	80 - 120	10.996	11.016	-0.0200	N/A	
BLB0144-BLK1 (Solid)				Lab File ID: N823021723.D			Analyzed: 02/17/23 21:18	
2-Methylnaphthalene-d10	150.00	76.0	32 - 120	5.608	5.6415	-0.0335	N/A	
Dibenzo[a,h]anthracene-d14	150.00	119	21 - 133	20.514	20.5525	-0.0385	N/A	
Fluoranthene-d10	150.00	94.8	36 - 134	10.987	11.016	-0.0290	N/A	
BLB0144-BS1 (Solid)				Lab File ID: N823021724.D			Analyzed: 02/17/23 21:44	
2-Methylnaphthalene-d10	150.00	71.8	32 - 120	5.611	5.6415	-0.0305	N/A	
Dibenzo[a,h]anthracene-d14	150.00	148	21 - 133	20.511	20.5525	-0.0415	N/A	*
Fluoranthene-d10	150.00	106	36 - 134	10.987	11.016	-0.0290	N/A	
BLB0144-BSD1 (Solid)				Lab File ID: N823021725.D			Analyzed: 02/17/23 22:11	
2-Methylnaphthalene-d10	150.00	80.6	32 - 120	5.608	5.6415	-0.0335	N/A	
Dibenzo[a,h]anthracene-d14	150.00	151	21 - 133	20.514	20.5525	-0.0385	N/A	*
Fluoranthene-d10	150.00	114	36 - 134	10.987	11.016	-0.0290	N/A	
SLB0244-CCV1 (Solid)				Lab File ID: N823021727.D			Analyzed: 02/17/23 23:05	
2-Methylnaphthalene-d10	2.5000	106	50 - 150	5.615	5.6415	-0.0265	N/A	
Dibenzo[a,h]anthracene-d14	2.5000	98.0	50 - 150	20.511	20.5525	-0.0415	N/A	
Fluoranthene-d10	2.5000	113	50 - 150	10.987	11.016	-0.0290	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLA0213	Instrument:	NT8
		Calibration:	GA00050

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Blank (SLA0213-ICB1)		(Water)		Lab File ID: N823011902.D				Analyzed: 01/19/23 10:59	
Naphthalene-d8	52082	4.916	44704	4.906	117	50 - 200	0.010	+/-0.50	
Acenaphthene-d10	30936	7.202	26411	7.196	117	50 - 200	0.006	+/-0.50	
Phenanthrene-d10	59030	9.241	49210	9.235	120	50 - 200	0.006	+/-0.50	
Chrysene-d12	50944	14.215	42994	14.202	118	50 - 200	0.013	+/-0.50	
Perylene-d12	47418	18.12	40520	18.111	117	50 - 200	0.009	+/-0.50	
Secondary Cal Check (SLA0213-SCV1)		(Water)		Lab File ID: N823011909.D				Analyzed: 01/19/23 14:58	
Naphthalene-d8	46346	4.913	44704	4.906	104	50 - 200	0.007	+/-0.50	
Acenaphthene-d10	27709	7.202	26411	7.196	105	50 - 200	0.006	+/-0.50	
Phenanthrene-d10	51685	9.238	49210	9.235	105	50 - 200	0.003	+/-0.50	
Chrysene-d12	46582	14.212	42994	14.202	108	50 - 200	0.010	+/-0.50	
Perylene-d12	41743	18.117	40520	18.111	103	50 - 200	0.006	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0206	Instrument:	NT8
		Calibration:	GA00050

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SLB0206-ICV1)		(Solid)		Lab File ID: N823021515.D				Analyzed: 02/15/23 17:35	
Naphthalene-d8	42744	4.884	42744	4.884	100	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	25236	7.18	25236	7.18	100	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	47809	9.223	47809	9.223	100	50 - 200	0.000	+/-0.50	
Chrysene-d12	40868	14.196	40868	14.196	100	50 - 200	0.000	+/-0.50	
Perylene-d12	43096	18.108	43096	18.108	100	50 - 200	0.000	+/-0.50	
Instrument Blank (SLB0206-IBL1)		(Solid)		Lab File ID: N823021515B.D				Analyzed: 02/15/23 18:03	
Naphthalene-d8	37607	4.878	42744	4.884	88	50 - 200	-0.006	+/-0.50	
Acenaphthene-d10	22030	7.17	25236	7.18	87	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	41025	9.213	47809	9.223	86	50 - 200	-0.010	+/-0.50	
Chrysene-d12	33135	14.184	40868	14.196	81	50 - 200	-0.012	+/-0.50	
Perylene-d12	34305	18.092	43096	18.108	80	50 - 200	-0.016	+/-0.50	
LY-28_0-10 (23A0626-01)		(Solid)		Lab File ID: N823021532.D				Analyzed: 02/16/23 01:39	
Naphthalene-d8	40486	4.868	42744	4.884	95	50 - 200	-0.016	+/-0.50	
Acenaphthene-d10	25148	7.17	25236	7.18	100	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	45339	9.216	47809	9.223	95	50 - 200	-0.007	+/-0.50	
Chrysene-d12	31261	14.184	40868	14.196	76	50 - 200	-0.012	+/-0.50	
Perylene-d12	26720	18.105	43096	18.108	62	50 - 200	-0.003	+/-0.50	
LY-28_1-2 (23A0626-03)		(Solid)		Lab File ID: N823021533.D				Analyzed: 02/16/23 02:06	
Naphthalene-d8	42043	4.875	42744	4.884	98	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	25241	7.17	25236	7.18	100	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	45794	9.216	47809	9.223	96	50 - 200	-0.007	+/-0.50	
Chrysene-d12	33702	14.187	40868	14.196	82	50 - 200	-0.009	+/-0.50	
Perylene-d12	29044	18.105	43096	18.108	67	50 - 200	-0.003	+/-0.50	
LY-30_0-10 (23A0626-10)		(Solid)		Lab File ID: N823021534.D				Analyzed: 02/16/23 02:33	
Naphthalene-d8	43211	4.865	42744	4.884	101	50 - 200	-0.019	+/-0.50	
Acenaphthene-d10	26569	7.167	25236	7.18	105	50 - 200	-0.013	+/-0.50	
Phenanthrene-d10	50002	9.216	47809	9.223	105	50 - 200	-0.007	+/-0.50	
Chrysene-d12	41953	14.184	40868	14.196	103	50 - 200	-0.012	+/-0.50	
Perylene-d12	35295	18.098	43096	18.108	82	50 - 200	-0.010	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0206
Instrument: NT8
Calibration: GA00050

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LY-30_1-2 (23A0626-12)		(Solid)		Lab File ID: N823021535.D				Analyzed: 02/16/23 03:00	
Naphthalene-d8	41700	4.868	42744	4.884	98	50 - 200	-0.016	+/-0.50	
Acenaphthene-d10	25827	7.17	25236	7.18	102	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	49249	9.213	47809	9.223	103	50 - 200	-0.010	+/-0.50	
Chrysene-d12	42546	14.183	40868	14.196	104	50 - 200	-0.013	+/-0.50	
Perylene-d12	37735	18.095	43096	18.108	88	50 - 200	-0.013	+/-0.50	
LY-DUP_0-10 (23A0626-29)		(Solid)		Lab File ID: N823021536.D				Analyzed: 02/16/23 03:27	
Naphthalene-d8	42724	4.869	42744	4.884	100	50 - 200	-0.015	+/-0.50	
Acenaphthene-d10	26105	7.17	25236	7.18	103	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	49297	9.216	47809	9.223	103	50 - 200	-0.007	+/-0.50	
Chrysene-d12	40956	14.184	40868	14.196	100	50 - 200	-0.012	+/-0.50	
Perylene-d12	35739	18.101	43096	18.108	83	50 - 200	-0.007	+/-0.50	
Calibration Check (SLB0206-CCV1)		(Water)		Lab File ID: N823021542.D				Analyzed: 02/16/23 06:07	
Naphthalene-d8	45015	4.878	42744	4.884	105	50 - 200	-0.006	+/-0.50	
Acenaphthene-d10	26441	7.17	25236	7.18	105	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	50550	9.213	47809	9.223	106	50 - 200	-0.010	+/-0.50	
Chrysene-d12	44199	14.18	40868	14.196	108	50 - 200	-0.016	+/-0.50	
Perylene-d12	47337	18.098	43096	18.108	110	50 - 200	-0.010	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0244	Instrument:	NT8
		Calibration:	GA00050

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SLB0244-ICV1)		(Solid)		Lab File ID: N823021702.D				Analyzed: 02/17/23 11:25	
Naphthalene-d8	41552	4.884	41552	4.884	100	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	25012	7.177	25012	7.177	100	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	44752	9.216	44752	9.216	100	50 - 200	0.000	+/-0.50	
Chrysene-d12	34520	14.181	34520	14.181	100	50 - 200	0.000	+/-0.50	
Perylene-d12	30529	18.086	30529	18.086	100	50 - 200	0.000	+/-0.50	
Blank (BLB0144-BLK1)		(Solid)		Lab File ID: N823021723.D				Analyzed: 02/17/23 21:18	
Naphthalene-d8	47032	4.875	41552	4.884	113	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	29380	7.167	25012	7.177	117	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	57015	9.21	44752	9.216	127	50 - 200	-0.006	+/-0.50	
Chrysene-d12	49640	14.168	34520	14.181	144	50 - 200	-0.013	+/-0.50	
Perylene-d12	39731	18.076	30529	18.086	130	50 - 200	-0.010	+/-0.50	
LCS (BLB0144-BS1)		(Solid)		Lab File ID: N823021724.D				Analyzed: 02/17/23 21:44	
Naphthalene-d8	36024	4.875	41552	4.884	87	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	18365	7.167	25012	7.177	73	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	37666	9.21	44752	9.216	84	50 - 200	-0.006	+/-0.50	
Chrysene-d12	32880	14.168	34520	14.181	95	50 - 200	-0.013	+/-0.50	
Perylene-d12	31808	18.076	30529	18.086	104	50 - 200	-0.010	+/-0.50	
LCS Dup (BLB0144-BSD1)		(Solid)		Lab File ID: N823021725.D				Analyzed: 02/17/23 22:11	
Naphthalene-d8	39213	4.875	41552	4.884	94	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	22326	7.167	25012	7.177	89	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	44507	9.207	44752	9.216	99	50 - 200	-0.009	+/-0.50	
Chrysene-d12	41789	14.168	34520	14.181	121	50 - 200	-0.013	+/-0.50	
Perylene-d12	33868	18.073	30529	18.086	111	50 - 200	-0.013	+/-0.50	
Calibration Check (SLB0244-CCV1)		(Water)		Lab File ID: N823021727.D				Analyzed: 02/17/23 23:05	
Naphthalene-d8	38225	4.881	41552	4.884	92	50 - 200	-0.003	+/-0.50	
Acenaphthene-d10	22819	7.167	25012	7.177	91	50 - 200	-0.010	+/-0.50	
Phenanthrene-d10	44298	9.207	44752	9.216	99	50 - 200	-0.009	+/-0.50	
Chrysene-d12	40069	14.168	34520	14.181	116	50 - 200	-0.013	+/-0.50	
Perylene-d12	40906	18.073	30529	18.086	134	50 - 200	-0.013	+/-0.50	

HOLDING TIME SUMMARY

Analysis: EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LY-28_0-10 23A0626-01	01/26/23 13:00	01/30/23 13:24	02/07/23 17:05	12	14	02/16/23 01:39	8	40	
LY-28_1-2 23A0626-03	01/27/23 10:45	01/30/23 13:24	02/07/23 17:05	11	14	02/16/23 02:06	8	40	
LY-30_0-10 23A0626-10	01/26/23 11:30	01/30/23 13:24	02/07/23 17:05	12	14	02/16/23 02:33	8	40	
LY-30_1-2 23A0626-12	01/27/23 11:30	01/30/23 13:24	02/07/23 17:05	11	14	02/16/23 03:00	8	40	
LY-DUP_0-10 23A0626-29	01/26/23 12:00	01/30/23 13:24	02/07/23 17:05	12	14	02/16/23 03:27	8	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Matrix: Solid
Instrument: NT8

Analyte	MDL	RL	Units
Benzo(a)anthracene	0.82	5.00	ug/kg
Chrysene	1.05	5.00	ug/kg
Benzo(b)fluoranthene	1.37	5.00	ug/kg
Benzo(k)fluoranthene	0.76	5.00	ug/kg
Benzo(a)pyrene	0.61	5.00	ug/kg
Indeno(1,2,3-cd)pyrene	1.05	5.00	ug/kg
Dibenzo(a,h)anthracene	0.89	5.00	ug/kg
Benzo(g,h,i)perylene	1.07	5.00	ug/kg

I-8227

Certificate of Analysis

SIGMA-ALDRICH

Product Name	Pentachlorophenol, 97%
Product Number	P2604
Product Brand	ALDRICH
CAS Number	87-86-5
Molecular Formula	C_6Cl_5OH
Molecular Weight	266.34

TEST	SPECIFICATION	LOT 07119HO RESULTS
APPEARANCE	WHITE TO OFF-WHITE OR LIGHT BLUE POWDER	OFF-WHITE POWDER
INFRARED SPECTRUM	CONFORMS TO STRUCTURE.	CONFORMS TO STRUCTURE AND STANDARD
TITRATION	97.5% - 102.5% (WITH AGNO3 AFTER OXYGEN	100.5 % (WITH AGNO3 AFTER OXYGEN COMBUSTION)
GAS LIQUID CHROMATOGRAPHY	97.5% (MINIMUM)	99.9 %
SOLUBILITY		100 MG/ML, 95% ETOH: VERY HAZY, FAINT YELLOW SOLUTION
QUALITY CONTROL ACCEPTANCE DATE		JUNE 2001

Barbara Rajzer, Supervisor
Quality Control
Milwaukee, Wisconsin USA

Cambridge Isotope Laboratories, Inc.

50 Frontage Road, Andover, MA 01810-5413 USA
800.322.1174 (N.AMERICA) 978.749.8000 (INTERNATIONAL)
www.isotope.com

CERTIFICATE OF ANALYSIS

Product Name: DIBENZ[A,H]ANTHRACENE
(Isotopic Label & Enrichment Specification) (D14, 97%)

Lot Number: PR-14764/09163DA2

Catalog Number: DLM-677-0

I295

Product Information

Chemical Purity Specification:	≥ 98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	53-70-3
Molecular Weight:	292.5
Chemical Formula:	C22D14
Storage:	Store at room temperature away from light and moisture.
Stability:	Stable if stored under recommended conditions.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible.

Approved by: Deborah E. Costa

Deborah E. Costa, Quality Assurance

Quality Control Tests and Results

GC/MS for Chemical Purity	99.3%
GC/MS for Isotopic Enrichment	97.4%
Melting Point Range Determination	263-265°C
1H NMR for Chemical Purity	Pass

E006466

SVOA-d14-Dibenz(a,h)anthracene-NEAT
Solvent / Lot: NA
Prep: 11/9/2016 by VS
Exp: 5/8/2030
Location:

CHEM SERVICE INC

660 Tower Lane • P.O. Box 599 • West Chester, PA 19381-0599
1-800-452-9994 • 1-610-692-3026 • Fax 1-610-692-8729
info@chemservice.com • www.chemservice.com

CERTIFICATE OF ANALYSIS

2-Chloronaphthalene

CATALOG NUMBER	N-10323-100MG
LOT NUMBER	10816400
DATE CERTIFIED	05/22/18
EXPIRATION DATE	05/31/24
CAS NUMBER	91-58-7
MOLECULAR FORMULA	C10H7Cl
MOLECULAR WEIGHT	162.62
STORAGE	Store at room temperature (20 - 25 °C).
HANDLING	See Safety Data Sheet
INTENDED USE	For laboratory use only.

I010152
2-Chloronaphthalene NEAT
Expires 12/31/2079
Prepared By Joshua Rains 10/29/2020

Analytical Test	Value
% PURITY (GC/FID)	99.5

Chem Service, Inc. guarantees the purity to be +/- 0.5% deviation prior to the expiration date shown on the label and exclusive of any customer contamination.

Certified By:

Mary Beth O'Donnell

Mary Beth O'Donnell
CSM/TC

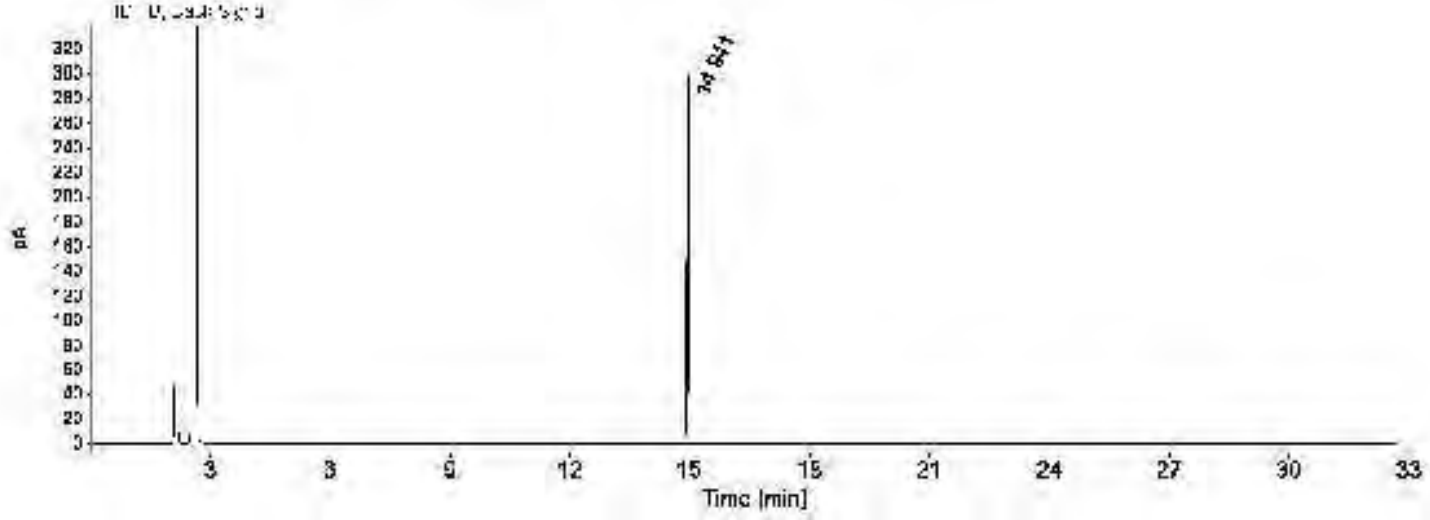
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1-800-452-9994 • 1-610-692-3026 • Fax 1-610-692-8729
info@chemservice.com • www.chemservice.com

CERTIFICATE OF ANALYSIS

Gas Chromatography / Flame Ionization Detector (GC/FID)

Data file: C:\Chem32\1\Data\2018 Data\0518\2-Chloronaphthalene.D
Sample name: 2-Chloronaphthalene

Instrument: GC3
Injection date: 5/22/2018 1:12:52 PM
Acq. method: REAR_SCREEN.M
Location: 209
Injection volume: 1.0uL
Col Type: pn# 7HG-G006-17-C **Diameter** 250.000 **Length** 30.000



Signal: FID1 B, Back Signal

RT [min]	Type	Width [min]	Area	Height	Area%
14.941	BB	0.0410	808.8124	308.5675	100.0000
		Sum	808.8124		

Chem Service is accredited to ISO 17034:2016, ISO/IEC 17025:2017 and certified to ISO 9001:2015
PJLA Reference Material Producer
PJLA Testing

CERTIFIED WEIGHT REPORT

Part Number: **70476**
Lot Number: 092220
Description: Benzo(j)fluoranthene

Expiration Date: 092225
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 23060

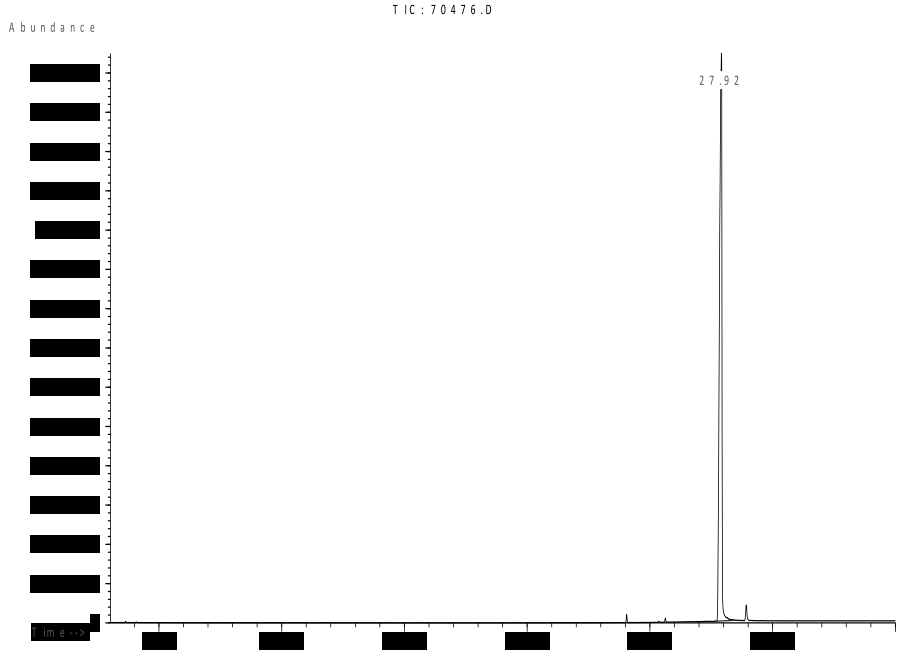
Solvent(s): **Lot#**
Methylene chloride 104929

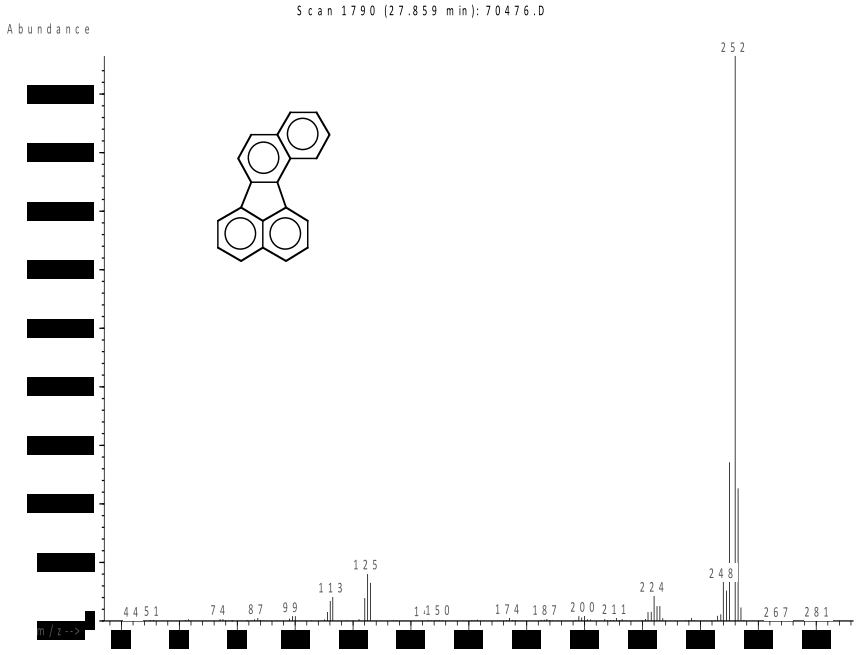
5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 25.0 0.001 Flask Uncertainty

Formulated By: Benson Chan	092220 DATE
Reviewed By: Pedro L. Rentas	092220 DATE

Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Benzo(j)fluoranthene	476	3-CSZ-153-20	1000	98.1	0.2	0.02547	0.02552	1001.8	5.7	205-82-3	0.2mg/m3	N/A

Method GC8MSD1M: Column:SBB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9 min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 290°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by Candice Warren.





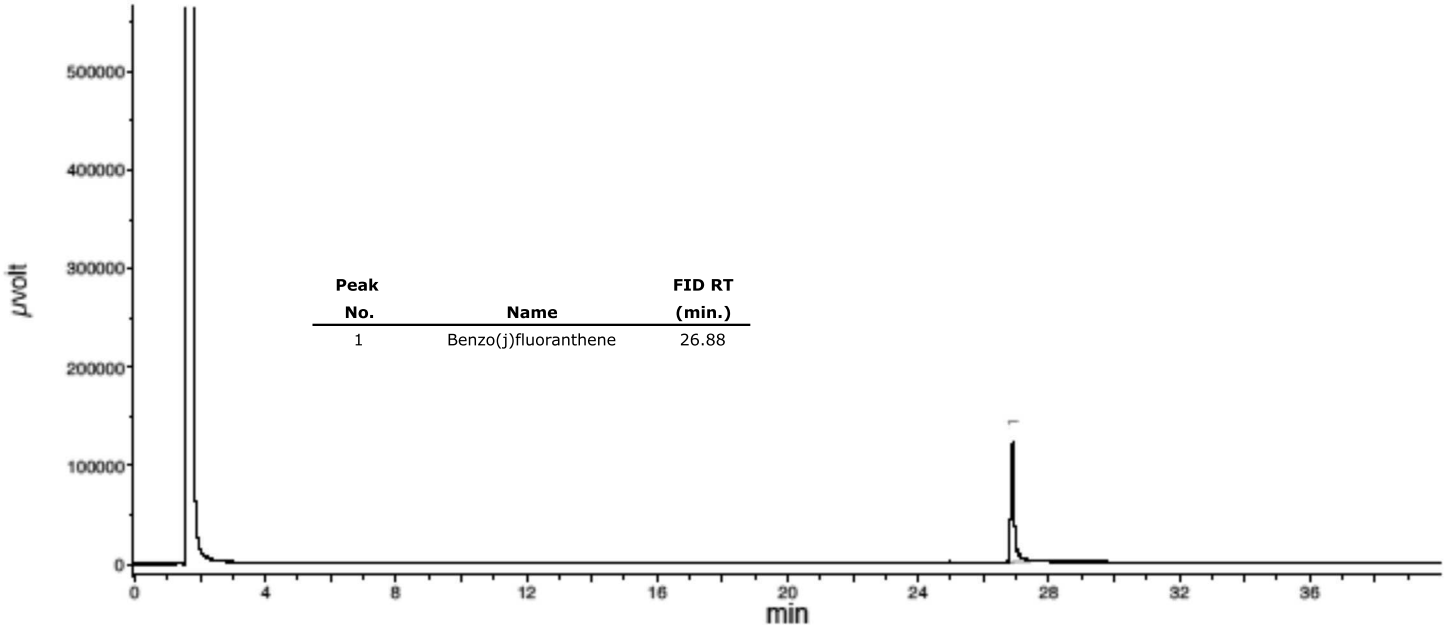
- **The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.**
- **Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).**
- **Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.**
- **All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.**
- **Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).**

Run 31, "P70476 L092220 [1000µg/mL in MeCl2]"

Run Length: 40.00 min, 23999 points at 10 points/second.
Created: Thu, Sep 24, 2020 at 2:33:43 AM.
Sampled: Sequence "092120-GC9M2", Method "GC9-M2".
Analyzed using Method "GC9-M2".

Comments

GC9-M2 Analysis by Melissa Stonier
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.
Flow rates; Total Flow = 300 ml/min, Helium (carrier) = 6.5 mL, Helium (make-up) = 25 mL.
Hydrogen (detector) = 30 mL, Air (detector) =360 mLOven Temp 1 = 50°C (1 min).
Rate = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes. Injector Temp = 250°C.
FID Temp = 300°C, FID Signal = eDaq Channel 1.
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 uL, Range = 3



Peak No.	Name	FID RT (min.)
1	Benzo(j)fluoranthene	26.88

Certificate of Analysis

Sigma-Aldrich.

Product Name:	2,4,6-Tribromophenol
Product Description:	99%
Product Brand:	Sigma-Aldrich
Product Number:	137715
Molecular Weight:	330.80
Molecular Formula:	$Br_3C_6H_2OH$
CAS Number:	118-79-6

TEST	SPECIFICATION	LOT 05110PD RESULTS
APPEARANCE:	WHITE TO OFF-WHITE TO PINK FLAKES, CHUNKS,	PINK BEADS
INFRARED SPECTRUM:		CONFORMS TO STRUCTURE.
GAS LIQUID:	98.5% (MINIMUM)	99.9%
QUALITY CONTROL:		NOVEMBER 2005

Barbara Rajzer

Barbara Rajzer, Supervisor
Quality Control
Milwaukee, Wisconsin USA

J010541
SVOA-Tribromophenol-NEAT
Solvent / Lot: 05110PD
Prep: 10/1/2021 by VS
Exp: 3/30/2040
Location: voa freezer

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Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 93462
Lot Number: 081021
Description: PAH Standard
30 components
Expiration Date: 081026
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

Solvent(s):	Lot#
Methylene chloride	105345

K3587

Formulated By:	Prashant Chauhan	081021 DATE
Reviewed By:	Pedro L. Rentas	081021 DATE

Volume(s) shown below were combined and diluted to (mL): 20.0

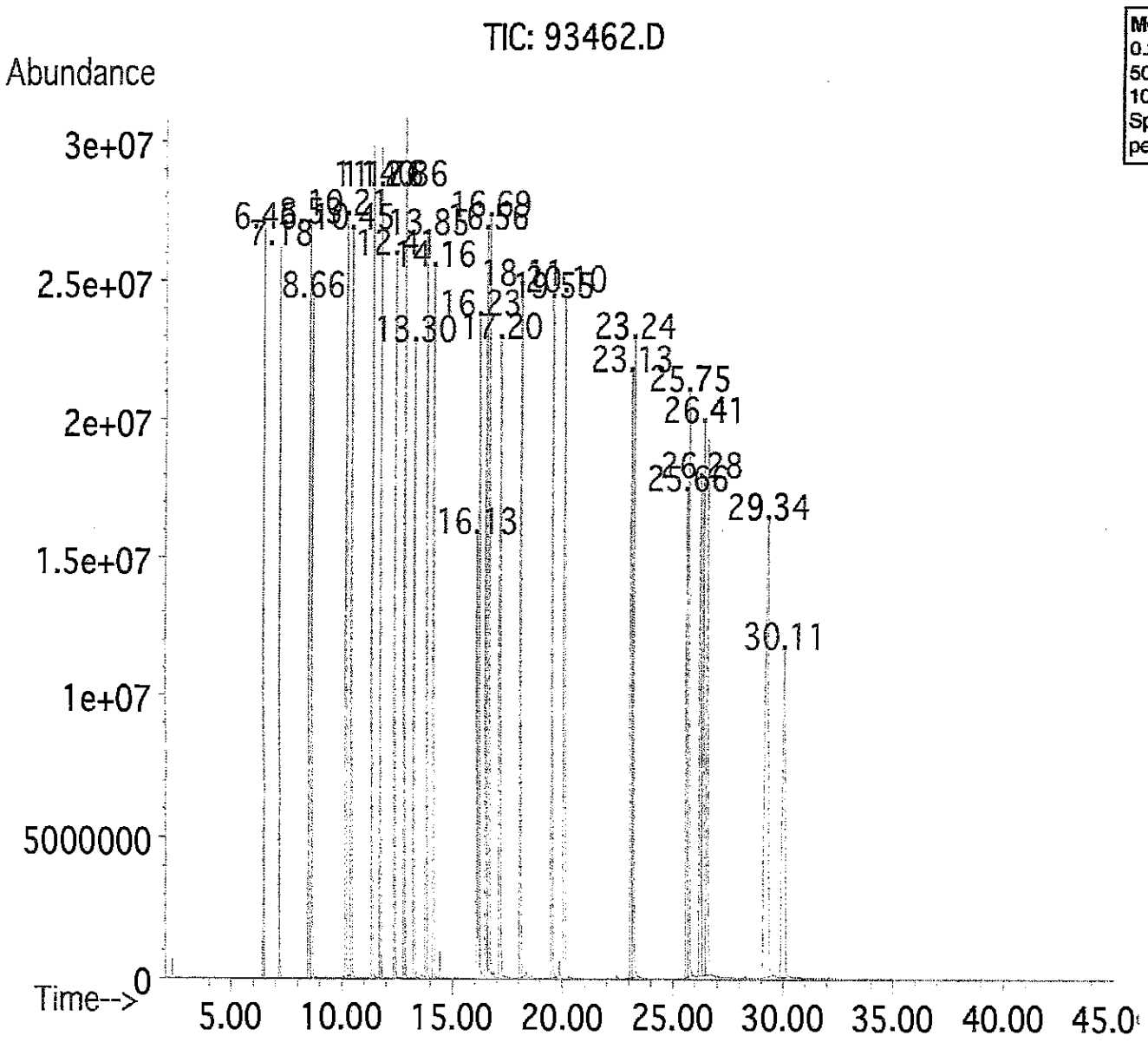
5E-05 Balance Uncertainty
0.001 Flask Uncertainty

	Compound	Part Number	Lot Number	Dil. Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(ug/mL)	Final Conc.(ug/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1.	Acenaphthene	10007	042420	0.50	10.00	0.042	2001.2	1000.4	9.4	83-32-9	N/A	ipr-rat 600mg/kg
2.	Acenaphthylene	10007	042420	0.50	10.00	0.042	2000.2	999.9	9.4	208-96-8	N/A	N/A
3.	Anthracene	10007	042420	0.50	10.00	0.042	2000.3	999.9	9.3	120-12-7	0.2mg/m3 (8H)	ipr-mus 430mg/kg
4.	Benzo(a)anthracene	10007	042420	0.50	10.00	0.042	2001.3	1000.4	9.4	56-55-3	N/A	N/A
5.	Benzo(a)pyrene	10007	042420	0.50	10.00	0.042	2000.0	999.8	9.3	50-32-8	0.2mg/m3 (8H)	scu-rat 50mg/kg
6.	Benzo(b)fluoranthene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.3	205-99-2	N/A	N/A
7.	Benzo(k)fluoranthene	10007	042420	0.50	10.00	0.042	2001.2	1000.4	9.4	207-08-9	N/A	N/A
8.	Benzo(g,h,i)perylene	10007	042420	0.50	10.00	0.042	2000.0	999.8	9.3	191-24-2	N/A	N/A
9.	Carbazole	10007	042420	0.50	10.00	0.042	2000.3	999.9	9.4	86-74-8	N/A	ipr-mus 200mg/kg
10.	Chrysene	10007	042420	0.50	10.00	0.042	2000.8	1000.2	9.4	218-01-9	0.2mg/m3	N/A
11.	Dibenzo(a,h)anthracene	10007	042420	0.50	10.00	0.042	2000.8	1000.2	9.4	53-70-3	0.2mg/m3	N/A
12.	Fluoranthene	10007	042420	0.50	10.00	0.042	2000.3	999.9	9.4	206-44-0	N/A	orl-rat 2000mg/kg
13.	Fluorene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.4	86-73-7	N/A	ipr-mus 2 g/kg
14.	Indeno(1,2,3-cd)pyrene	10007	042420	0.50	10.00	0.042	2000.1	999.8	9.3	193-39-5	N/A	N/A
15.	Naphthalene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.3	91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490mg/kg
16.	Phenanthrene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.4	85-01-8	0.2mg/m3/8H	orl-mus 700mg/kg
17.	Pyrene	10007	042420	0.50	10.00	0.042	2001.0	1000.3	9.4	129-00-0	0.2mg/m3/8H	orl-rat 2700mg/kg
18.	Benzo(e)pyrene	94851	081021	0.50	10.00	0.042	2002.1	1000.8	9.4	192-97-2	N/A	N/A
19.	Biphenyl	94851	081021	0.50	10.00	0.042	2001.5	1000.5	9.4	92-52-4	0.2 ppm(1mg/m3/8H)	orl-rat 2400mg/kg
20.	Decalin (49% cis, 51% trans)	94851	081021	0.50	10.00	0.042	2002.5	1001.0	9.4	91-17-8	N/A	N/A
21.	Dibenzofuran	94851	081021	0.50	10.00	0.042	2002.3	1000.9	9.4	132-64-9	N/A	N/A
22.	Dibenzothiophene	94851	081021	0.50	10.00	0.042	2002.5	1001.0	9.4	132-65-0	N/A	orl-mus 470 mg/kg
23.	2,6-Dimethylnaphthalene	94851	081021	0.50	10.00	0.042	2001.9	1000.7	9.4	581-42-0	N/A	N/A
24.	1-Methylnaphthalene	94851	081021	0.50	10.00	0.042	2002.2	1000.9	9.4	90-12-0	N/A	orl-rat 1840mg/kg
25.	2-Methylnaphthalene	94851	081021	0.50	10.00	0.042	2000.6	1000.1	9.4	91-57-6	N/A	orl-rat 1630mg/kg
26.	1-Methylphenanthrene	94851	081021	0.50	10.00	0.042	2002.3	1000.9	13.2	832-69-9	N/A	N/A
27.	Pentachlorophenol	94851	081021	0.50	10.00	0.042	3961.5	1980.3	18.6	87-86-5	0.5mg/m3/8H (skin)	orl-rat 27mg/kg
28.	Perylene	94851	081021	0.50	10.00	0.042	2001.9	1000.7	9.4	198-55-0	N/A	N/A
29.	Thianaphthene	94851	081021	0.50	10.00	0.042	2003.1	1001.3	9.4	95-15-8	N/A	N/A
30.	2,3,5-Trimethylnaphthalene	94851	081021	0.50	10.00	0.042	2003.1	1001.3	9.5	2245-38-7	N/A	N/A

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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Method GC8MSD-2Long: Column:SPB-5 (30m X 0.25mm ID X 0.25μm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (14min.), Rate = 10°C/min., Injector B= 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Gina McLane.

Retention Time (min.)	
Decahydronaphthalene (Decalin) (isomer)	6.46
Decahydronaphthalene (Decalin) (isomer)	7.18
Naphthalene	8.53
Thianaphthene	8.66
2-Methylnaphthalene	10.21
1-Methylnaphthalene	10.45
Biphenyl	11.4
2,6-Dimethylnaphthalene	11.76
Acenaphthylene	12.41
Acenaphthene	12.86
Dibenzofuran	13.3
2,3,5-Trimethylnaphthalene	13.85
Fluorene	14.16
Pentachlorophenol	16.13
Dibenzothiophene	16.23
Phenanthrene	16.56
Anthracene	16.69
Carbazole	17.2
1-Methylphenanthrene	18.11
Fluoranthene	19.55
Pyrene	20.1
Benzo(a)anthracene	23.13
Chrysene	23.24
Benzo(b)fluoranthene	25.66
Benzo(k)fluoranthene	25.75
Perylene	26.28
Benzo(a)pyrene	26.41
Benzo(e)pyrene	26.61
Indeno(1,2,3-cd)pyrene	29.34
Dibenzo(a,h)anthracene	29.34
Benzo(g,h,i)perylene	30.11

Certificate of Analysis

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Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101291	**Lot Number:**	CL11000
Description:	GC/MS Tuning Mix	**Certification Date:**	May 9, 2014
Storage:	4 °C	**Expiration Date:**	December 31, 2023
Provided As:	1 mL in 2 mL Ampoule in Methylene chloride	**Revision Date:**	August 5, 2015

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty (%)
Benzidine	92-87-5	1000	± 0.208%
Decafluorotriphenylphosphine (DFTPP)	5074-71-5	1000	± 0.057%
4,4'-DDT	50-29-3	1000	± 0.056%
Pentachlorophenol	87-86-5	1000	± 0.061%

K003891
GC/MS Tune solution-1000ug/ml
Solvent / Lot: CL11000
Prep: 4/22/2022 by VS
Exp: 12/31/2023
Location:

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.

Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

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Chemical Testing Laboratory
Certificate No. 2427.03

IL111106/3_us

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 33913 **Lot No.:** A0183500

Description : SOM01.0 SIM Analysis Standard

SOM01.0 SIM Analysis Standard 2000µg/mL, Methylene chloride, 1mL /ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 29, 2028 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Methylnaphthalene-d10	2,003.5 µg/mL	+/- 11.7578	µg/mL	Gravimetric
	CAS # 7297-45-2 (Lot EF-135)		+/- 90.2539	µg/mL	Unstressed
	Purity 96%		+/- 100.1449	µg/mL	Stressed
2	Fluoranthene-d10	2,006.0 µg/mL	+/- 11.7723	µg/mL	Gravimetric
	CAS # 93951-69-0 (Lot PR-20668)		+/- 90.3656	µg/mL	Unstressed
	Purity 99%		+/- 100.2689	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

K004605
SOMO 1.0 SIM DMC
Solvent / Lot: A0183500
Prep: 5/14/2022 by VS
Exp: 2/29/2028
Location:

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

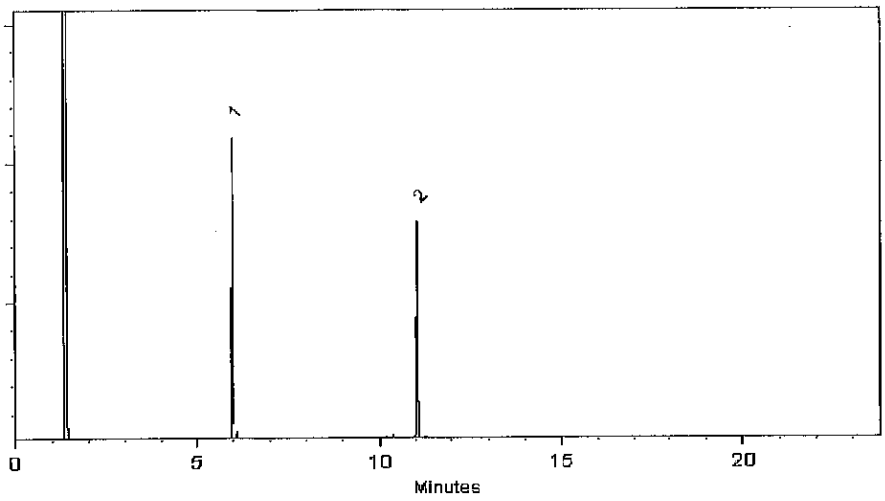
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Cathleen Soltis - Mix Technician

Date Mixed: 29-Mar-2022 **Balance:** B345965662

Ciara Windle - Operations Technician I

Date Passed: 01-Apr-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Certificate of Analysis

Produced by Phenova
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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101444
Description: 8270 Calibration Standard
Storage: -18 °C
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Lot Number: CL18355
Certification Date: July 25, 2022
Expiration Date: August 31, 2023

K007995
SVOA-8270 LCS MIX 1000ug/ml
Solvent / Lot: N/A
Prep: 8/29/2022 by JZ
Exp: 8/31/2023
Location: FREEZER 44

Aaron Dukes, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Acenaphthene	83-32-9	1000	± 0.300%
Acenaphthylene	208-96-8	1000	± 0.225%
Anthracene	120-12-7	1000	± 6.858%
Azobenzene	103-33-3	1000	± 0.224%
Benzo(a)anthracene	56-55-3	1000	± 0.247%
Benzo(a)pyrene	50-32-8	1000	± 0.270%
Benzo(b)fluoranthene	205-99-2	1000	± 0.635%
Benzo(k)fluoranthene	207-08-9	1000	± 0.682%
Benzo(g,h,i)perylene	191-24-2	1000	± 0.272%
Benzyl alcohol	100-51-6	1000	± 0.231%
Benzyl butyl phthalate	85-68-7	1000	± 0.480%
bis(2-Chloroethoxy)methane	111-91-1	1000	± 0.479%
bis(2-Chloroethyl) ether	111-44-4	1000	± 0.479%
bis(2-Chloroisopropyl) ether	108-60-1	1000	± 0.550%
bis(2-Ethylhexyl) adipate	103-23-1	1000	± 0.479%
bis(2-Ethylhexyl) phthalate	117-81-7	1000	± 0.479%
4-Bromophenyl phenyl ether	101-55-3	1000	± 0.479%
Carbazole	86-74-8	1000	± 0.146%

ACCREDITED
Reference Material Producer
Certicate No. 2427.02

phenova Certified Reference Materials | A Phenomenex Company
Phenova is an accredited ISO/IEC 17034 Reference Material Producer and ISO/IEC 17025 accredited Chemical Testing Laboratory.

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Chemical Testing Laboratory
Certicate No. 2427.03

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Catalog No.: AL0-101444
Lot Number: CL18355
Description: 8270 Calibration Standard
Certification Date: July 25, 2022
Storage: -18 °C
Expiration Date: August 31, 2023
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
4-Chloroaniline	106-47-8	1000	± 0.300%
4-Chloro-3-methylphenol	59-50-7	1000	± 0.545%
2-Chloronaphthalene	91-58-7	1000	± 0.224%
2-Chlorophenol	95-57-8	1000	± 0.507%
4-Chlorophenyl phenyl ether	7005-72-3	1000	± 0.479%
Chrysene	218-01-9	1000	± 0.145%
Dibenz(a,h)anthracene	53-70-3	1000	± 1.058%
Dibenzofuran	132-64-9	1000	± 0.302%
Di-n-butyl phthalate	84-74-2	1000	± 0.518%
1,2-Dichlorobenzene	95-50-1	1000	± 0.247%
1,3-Dichlorobenzene	541-73-1	1000	± 0.225%
1,4-Dichlorobenzene	106-46-7	1000	± 0.224%
2,4-Dichlorophenol	120-83-2	1000	± 0.545%
Diethyl phthalate	84-66-2	1000	± 0.518%
2,4-Dimethylphenol	105-67-9	1000	± 0.507%
Dimethyl phthalate	131-11-3	1000	± 0.518%
1,2-Dinitrobenzene	528-29-0	1000	± 0.361%
1,3-Dinitrobenzene	99-65-0	1000	± 0.300%
1,4-Dinitrobenzene	100-25-4	1000	± 0.242%
2,4-Dinitrophenol	51-28-5	1000	± 0.545%
2,4-Dinitrotoluene	121-14-2	1000	± 1.128%

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Catalog No.: AL0-101444
Lot Number: CL18355
Description: 8270 Calibration Standard
Certification Date: July 25, 2022
Storage: -18 °C
Expiration Date: August 31, 2023
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
2,6-Dinitrotoluene	606-20-2	1000	± 0.224%
Di-n-octyl phthalate	117-84-0	1000	± 0.486%
Fluoranthene	206-44-0	1000	± 0.224%
Fluorene	86-73-7	1000	± 0.224%
Hexachlorobenzene	118-74-1	1000	± 0.152%
Hexachlorobutadiene	87-68-3	1000	± 0.746%
Hexachlorocyclopentadiene	77-47-4	1000	± 0.153%
Hexachloroethane	67-72-1	1000	± 0.300%
Indeno(1,2,3-cd)pyrene	193-39-5	1000	± 0.883%
Isophorone	78-59-1	1000	± 0.145%
2-Methyl-4,6-dinitrophenol	534-52-1	1000	± 0.508%
1-Methylnaphthalene	90-12-0	1000	± 0.479%
2-Methylnaphthalene	91-57-6	1000	± 0.487%
2-Methylphenol	95-48-7	1000	± 0.545%
3-Methylphenol	108-39-4	500	± 0.279%
4-Methylphenol	106-44-5	500	± 0.399%
Naphthalene	91-20-3	1000	± 0.226%
2-Nitroaniline	88-74-4	1000	± 0.224%
3-Nitroaniline	99-09-2	1000	± 0.235%
4-Nitroaniline	100-01-6	1000	± 0.300%
Nitrobenzene	98-95-3	1000	± 0.300%

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101444
Lot Number: CL18355
Description: 8270 Calibration Standard
Certification Date: July 25, 2022
Storage: -18 °C
Expiration Date: August 31, 2023
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
2-Nitrophenol	88-75-5	1000	± 0.514%
4-Nitrophenol	100-02-7	1000	± 0.519%
N-Nitrosodimethylamine	62-75-9	1000	± 0.503%
N-Nitrosodiphenylamine	86-30-6	1000	± 0.476%
N-Nitrosodi-n-propylamine	621-64-7	1000	± 0.461%
Pentachlorophenol	87-86-5	1000	± 0.202%
Phenanthrene	85-01-8	1000	± 0.145%
Phenol	108-95-2	1000	± 0.545%
Pyrene	129-00-0	1000	± 0.147%
Pyridine	110-86-1	1000	± 0.503%
2,3,4,6-Tetrachlorophenol	58-90-2	1000	± 0.247%
2,3,5,6-Tetrachlorophenol	935-95-5	1000	± 0.247%
1,2,4-Trichlorobenzene	120-82-1	1000	± 0.224%
2,4,5-Trichlorophenol	95-95-4	1000	± 0.507%
2,4,6-Trichlorophenol	88-06-2	1000	± 0.509%

Notes: The proper chemical name for Bis(2-Chloroiospropyl) ether is 2,2'-oxybis(1-chloropropane). The analytical uncertainty contribution to the expanded uncertainty for 3 and 4-Methylphenol is measured as the total of the two analytes. N-Nitrosodiphenylamine presents as Diphenylamine at 854 µg/mL.

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $u_{CRM} = k\sqrt{u_M^2 + u_H^2 + u_{LTS}^2}$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-28_0-10

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23A0626-01 A	File ID:	02202335ECD7.D
Sampled:	01/26/23 13:00	Prepared:	02/09/23 11:32	Analyzed:	02/20/23 22:06
% Solids:	81.95	Preparation:	EPA 3546 (Microwave)	Initial/Final:	15.28 g Wet / 2.5 mL
Batch:	BLB0206	Sequence:	SLB0274	Calibration:	GB00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9860*	*7.59*	*95.1*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9860*	*6.22*	*77.9*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202335ECD7.D
Data file 2: /230220.b/230220.b/02202335ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23A0626-01
Client ID:
Injection Date: 20-FEB-2023 22:06
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	339534	5.684	-0.001	147452	31.2	37.2	17.6	Tetrachloro-m-xylene
13.889	-0.002	435858	14.113	-0.003	239251	38.0	40.0	5.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	767531	78.5
Hexabromobiphenyl	975457	1300909	33.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	297237	-19.0
Hexabromobiphenyl	646884	444467	-31.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 681642 Col1 Total PCB = 0.1 ppm*

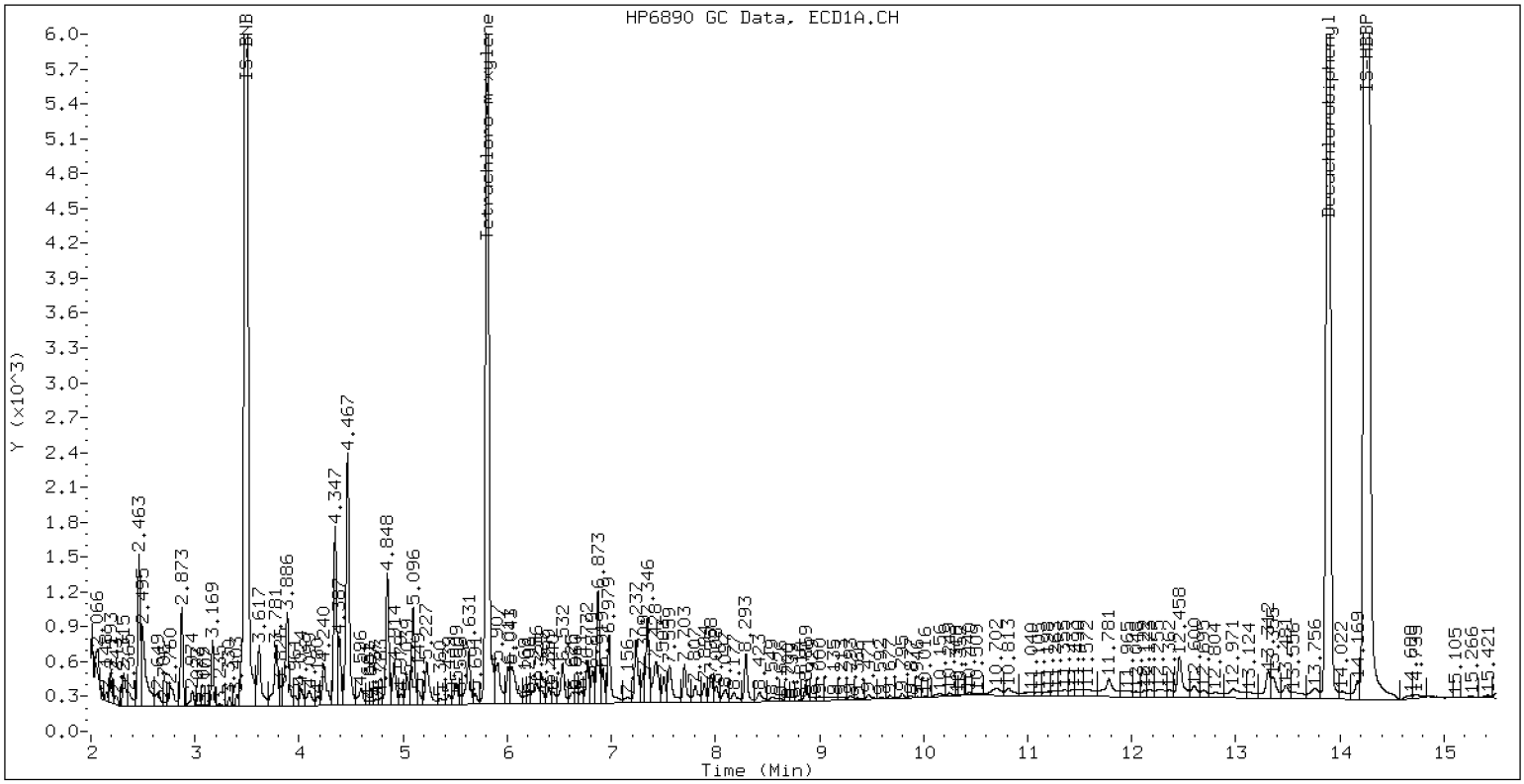
Total PCB Area Col2 (5.785 - 14.017) = 209358 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

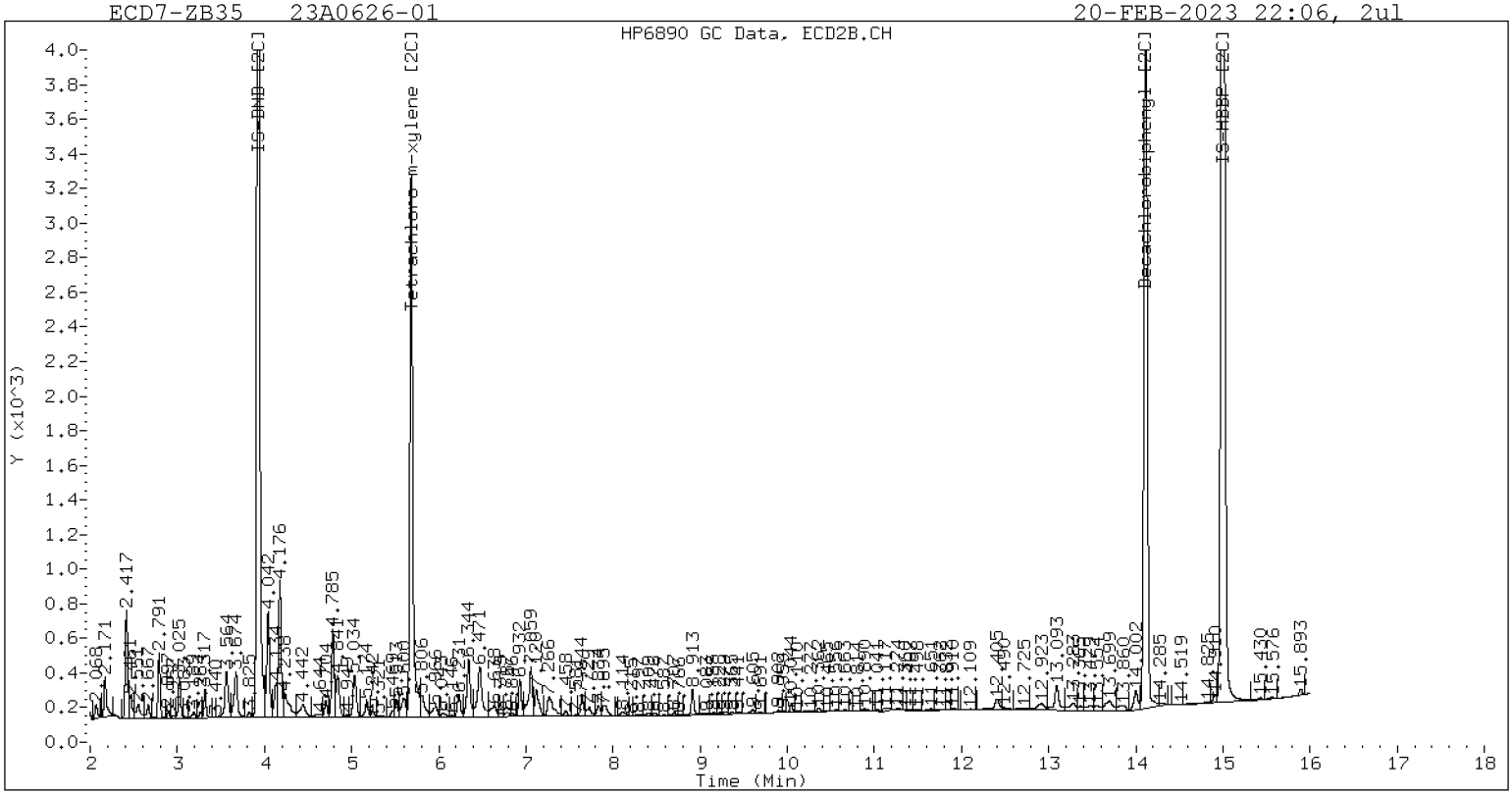
PCB Dual Column Chromatograms

ECD7-ZB5 23A0626-01 20-FEB-2023 22:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23A0626-01 20-FEB-2023 22:06, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-28_1-2

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23A0626-03 A	File ID:	02202338ECD7.D
Sampled:	01/27/23 10:45	Prepared:	02/09/23 11:32	Analyzed:	02/20/23 23:09
% Solids:	57.54	Preparation:	EPA 3546 (Microwave)	Initial/Final:	21.77 g Wet / 2.5 mL
Batch:	BLB0206	Sequence:	SLB0274	Calibration:	GB00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	5	20.0	7.8	20.0	U
11104-28-2	Aroclor 1221	1	5	20.0	7.8	20.0	U
11141-16-5	Aroclor 1232	1	5	20.0	7.8	20.0	U
53469-21-9	Aroclor 1242	1	5	20.0	7.8	20.0	U
12672-29-6	Aroclor 1248	1	5	20.0	7.8	20.0	U
11097-69-1	Aroclor 1254	2	5	13.4	7.8	20.0	J, D
11096-82-5	Aroclor 1260	2	5	11.0	2.9	20.0	J, D
37324-23-5	Aroclor 1262	1	5	20.0	2.9	20.0	U
11100-14-4	Aroclor 1268	1	5	20.0	2.9	20.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9831*	*7.53*	*94.4*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9831*	*9.46*	*119*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9831*	*6.93*	*86.8*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9831*	*8.22*	*103*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202338ECD7.D
Data file 2: /230220.b/230220.b/02202338ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23A0626-03RE1
Client ID:
Injection Date: 20-FEB-2023 23:09
Report Date: 02/21/2023 10:35
Matrix: NONE
Dilution Factor: 5.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.003	102102	5.683	-0.002	33758	9.5	8.2	14.0	Tetrachloro-m-xylene
13.886	-0.005	79545	14.113	-0.004	43343	7.5	6.9	8.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	758977	76.5
Hexabromobiphenyl	975457	1196298	22.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	307244	-16.2
Hexabromobiphenyl	646884	464095	-28.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1254	1	9.287	-0.008	7056	9.6	1	9.439	-0.007	3471	16.0
Aroclor-1254	2	9.362	-0.011	1006	3.5	2	9.952	-0.013	1059	6.1
Aroclor-1254	3	9.663	-0.002	4908	10.5	3	10.108	-0.009	5018	13.2
Aroclor-1254	4	9.790	-0.013	9852	10.6	4	10.358	-0.009	6867	18.3
Aroclor-1254	5	10.113	-0.054	6441	11.3	5	10.556	-0.008	6144	~~32.~~3
		Total Col1Ave (5 peaks):			9.1		Total Col2Ave (5 peaks):			~~17.~~2 RPD = 61*
		Corrected Ave (4 peaks):			8.5		Corrected Ave (4 peaks):			13.4 RPD = 44*
Aroclor-1260	1	11.036	-0.005	2551	6.2	1	11.643	-0.007	3207	13.3
Aroclor-1260	2	11.352	-0.005	3322	7.9	2	11.906	-0.008	3892	6.4
Aroclor-1260	3	11.721	-0.010	9187	8.2	3	12.421	-0.012	2515	15.3
Aroclor-1260	4	12.116	-0.019	3308	5.8	4	12.491	-0.008	3682	9.0
Aroclor-1260	5	12.236	-0.004	3474	14.3	NS	---			----
		Total Col1Ave (5 peaks):			8.5		Total Col2Ave (4 peaks):			11.0 RPD = 26
		Corrected Ave (4 peaks):			7.0		Corrected Ave (3 peaks):			9.6 RPD = 31
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			

Total PCB Area Col1 (5.908 - 13.791) = 374418 Col1 Total PCB = 0.0 ppm*

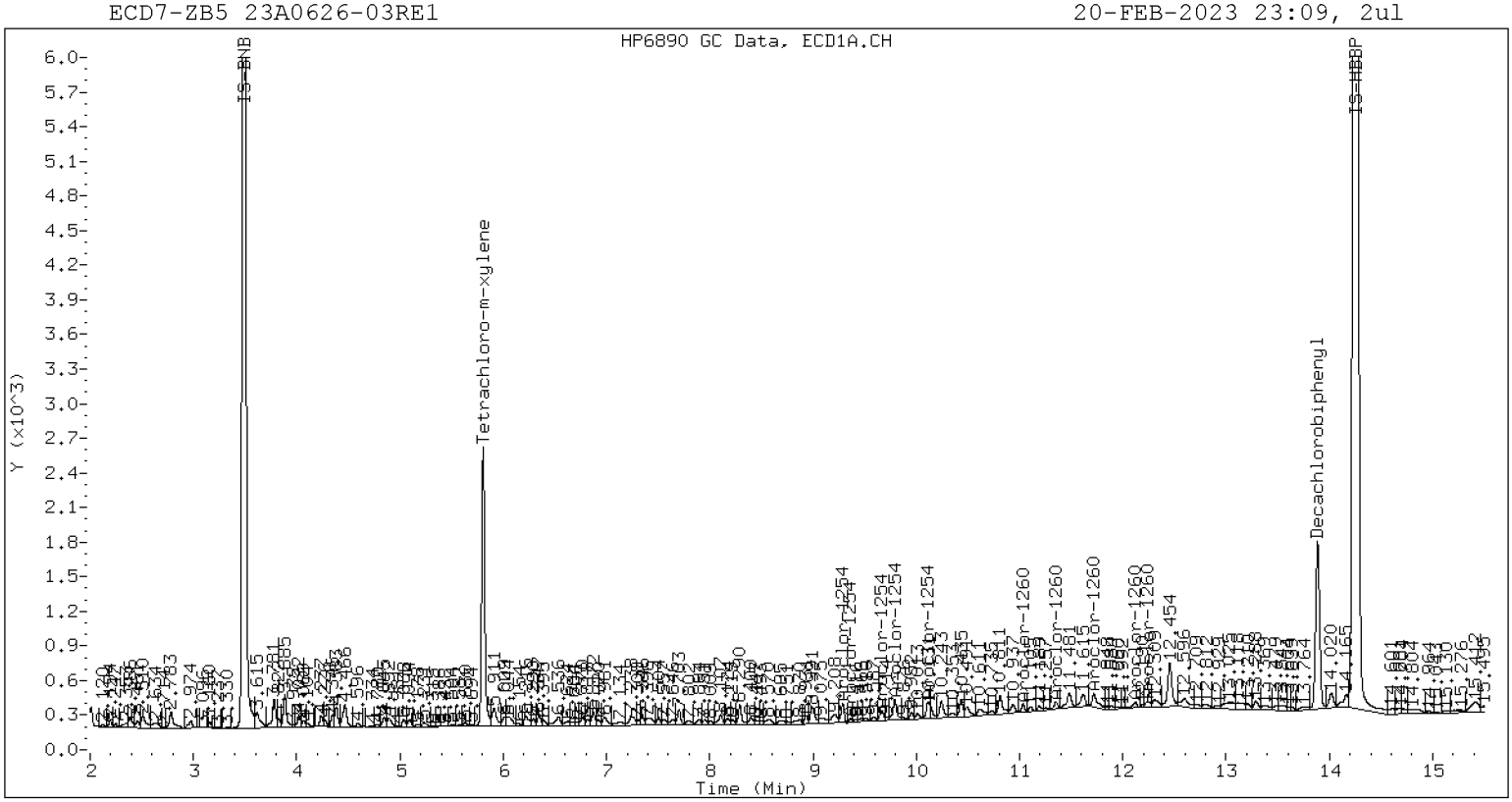
Total PCB Area Col2 (5.785 - 14.017) = 152528 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

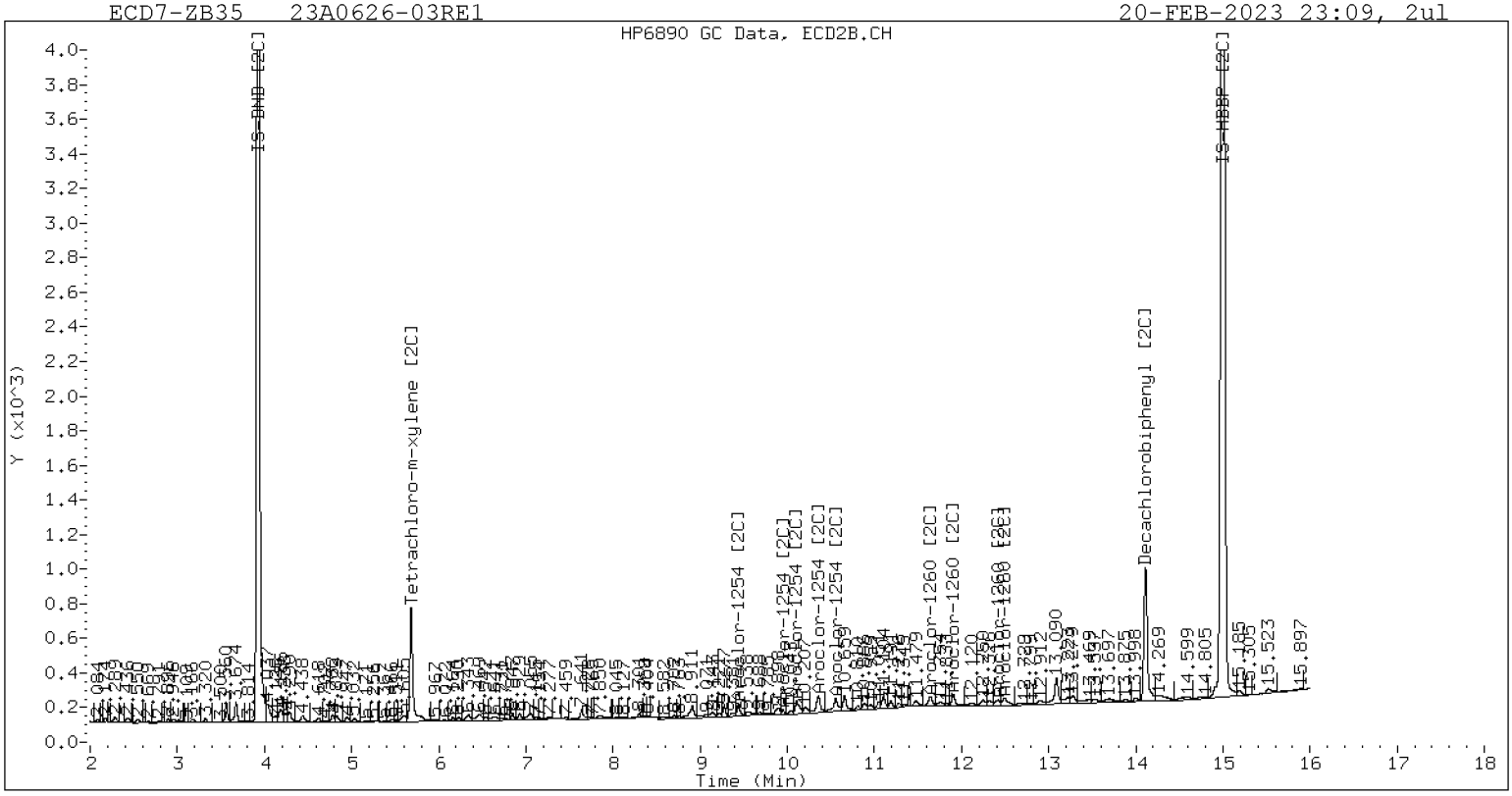
PCB Dual Column Chromatograms

ECD7-ZB5 23A0626-03RE1 20-FEB-2023 23:09, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 23A0626-03RE1 20-FEB-2023 23:09, 2ul

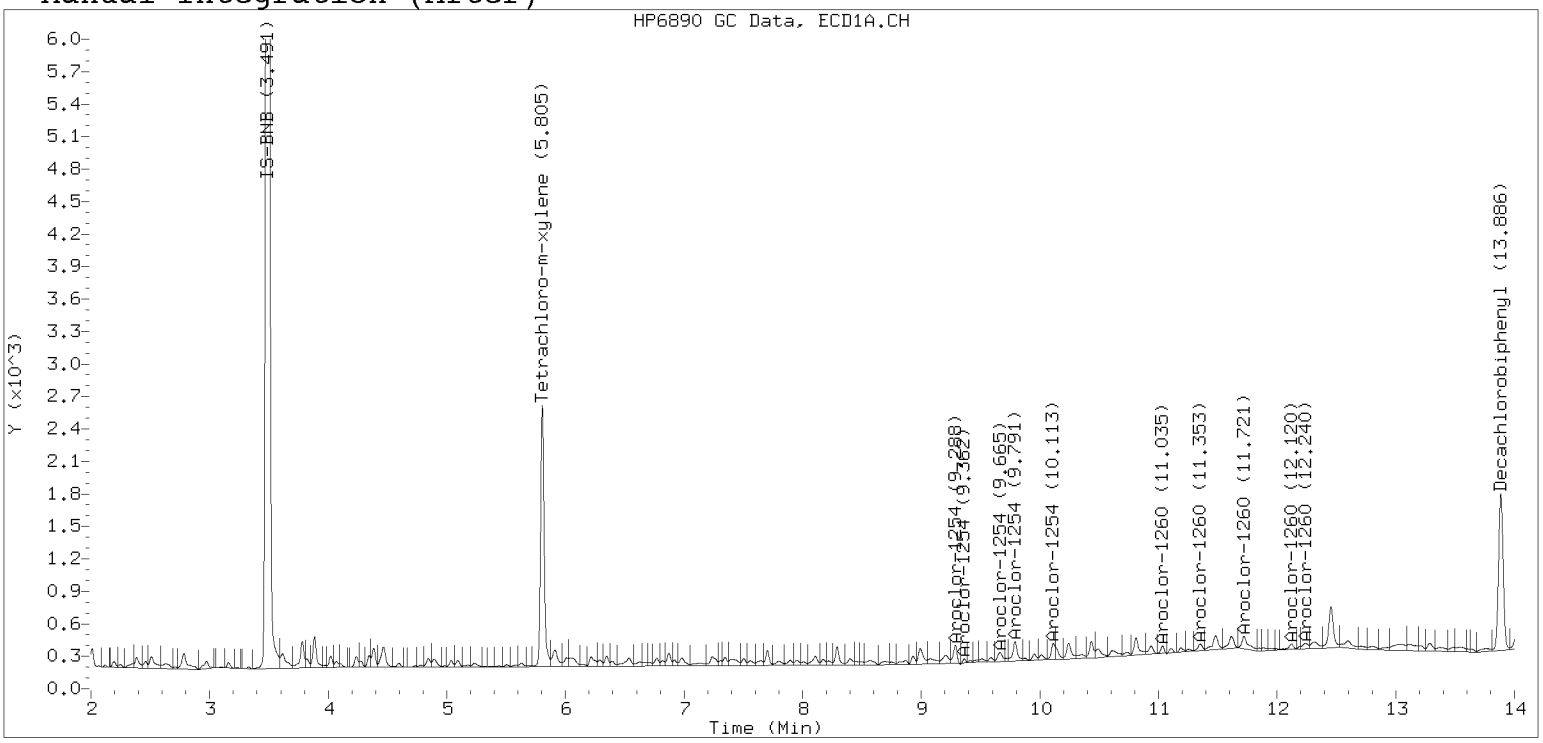


ZB-35 Manual Integration: NO

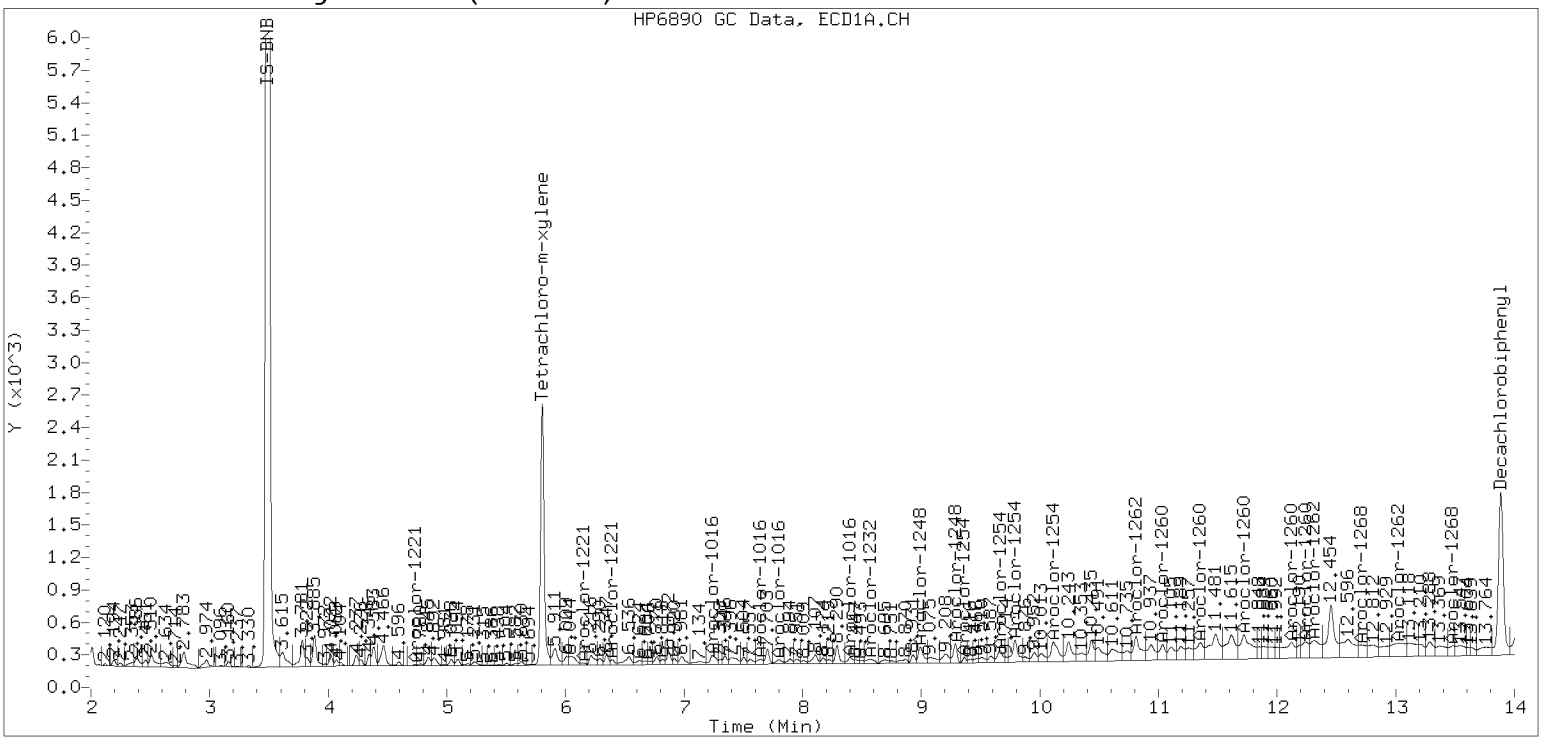
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230220.b/02202338ECD7.D Injection Date: 20-FEB-2023 23:09

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-29_0-10

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23A0626-05 A	File ID:	02202339ECD7.D
Sampled:	01/26/23 11:25	Prepared:	02/09/23 11:32	Analyzed:	02/20/23 23:30
% Solids:	75.41	Preparation:	EPA 3546 (Microwave)	Initial/Final:	16.62 g Wet / 2.5 mL
Batch:	BLB0206	Sequence:	SLB0274	Calibration:	GB00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	2	1	8.5	1.6	4.0	
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9788*	*7.41*	*92.8*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9788*	*6.15*	*77.1*	*44 - 120*	
Decachlorobiphenyl	*2*	*7.9788*	*6.70*	*83.9*	*40 - 126*	
Tetrachlorometaxylene	*2*	*7.9788*	*7.50*	*93.9*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202339ECD7.D
Data file 2: /230220.b/230220.b/02202339ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23A0626-05
Client ID:
Injection Date: 20-FEB-2023 23:30
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.003	328557	5.682	-0.004	146762	30.8	37.6	19.7	Tetrachloro-m-xylene
13.887	-0.004	358506	14.112	-0.004	198178	37.1	33.6	10.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	751271	74.7
Hexabromobiphenyl	975457	1096422	12.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	292896	-20.1
Hexabromobiphenyl	646884	438745	-32.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	9.285	-0.010	19020	26.2	1	9.438	-0.008	9485	45.9
Aroclor-1254	2	9.362	-0.012	5607	19.6	2	9.954	-0.012	5192	31.1
Aroclor-1254	3	9.658	-0.007	16444	35.5	3	10.106	-0.012	12178	33.5
Aroclor-1254	4	9.789	-0.014	22139	24.0	4	10.349	-0.019	15921	44.4
Aroclor-1254	5	10.132	-0.035	29185	51.9	5	10.555	-0.009	10468	57.8
		Total Col1Ave (5 peaks):			31.4	Total Col2Ave (5 peaks):				42.6 RPD = 30
		Corrected Ave (4 peaks):			26.3	Corrected Ave (4 peaks):				38.7 RPD = 38
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks				Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 1430651 Col1 Total PCB = 0.2 ppm*

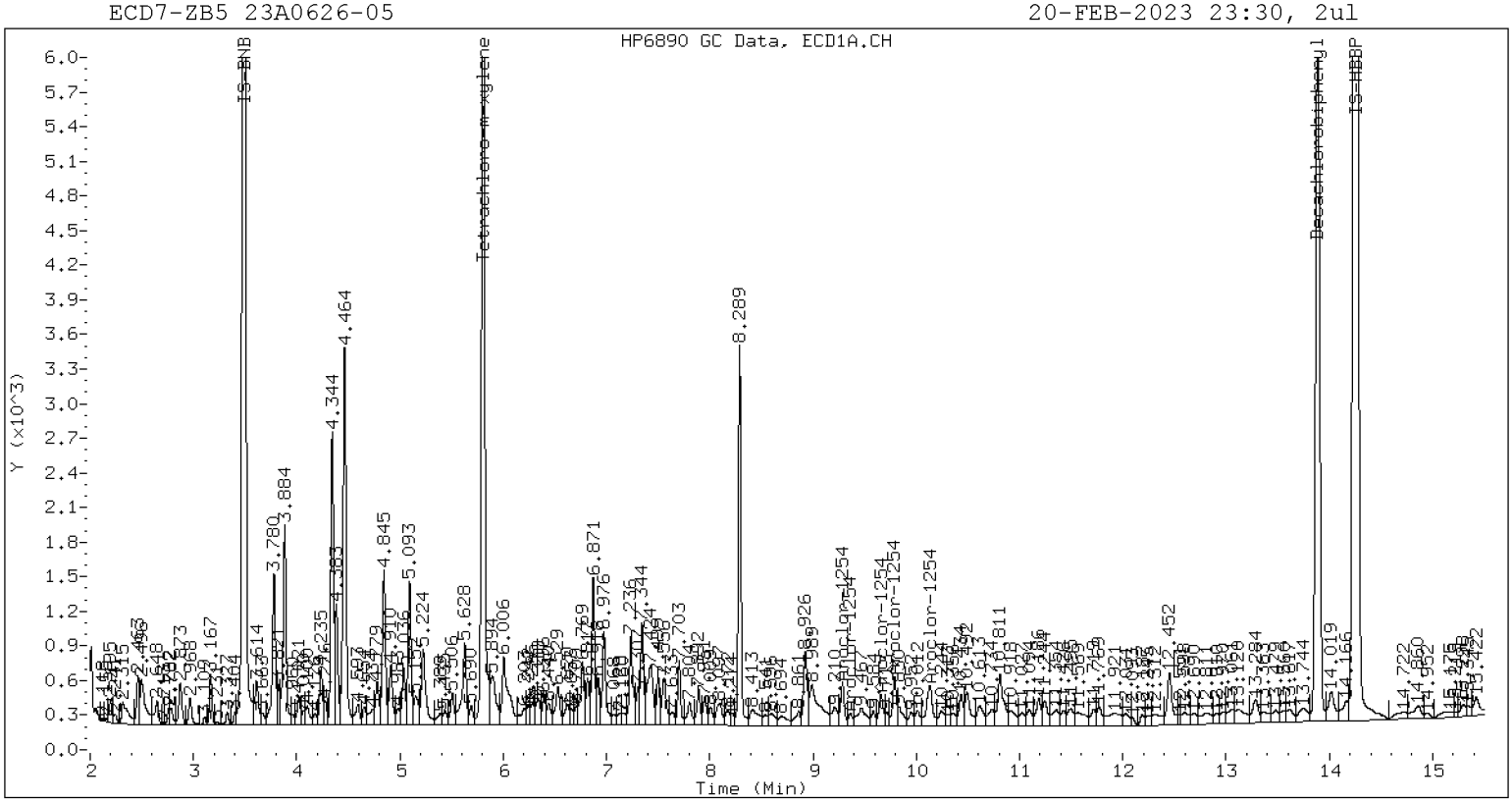
Total PCB Area Col2 (5.785 - 14.017) = 642262 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

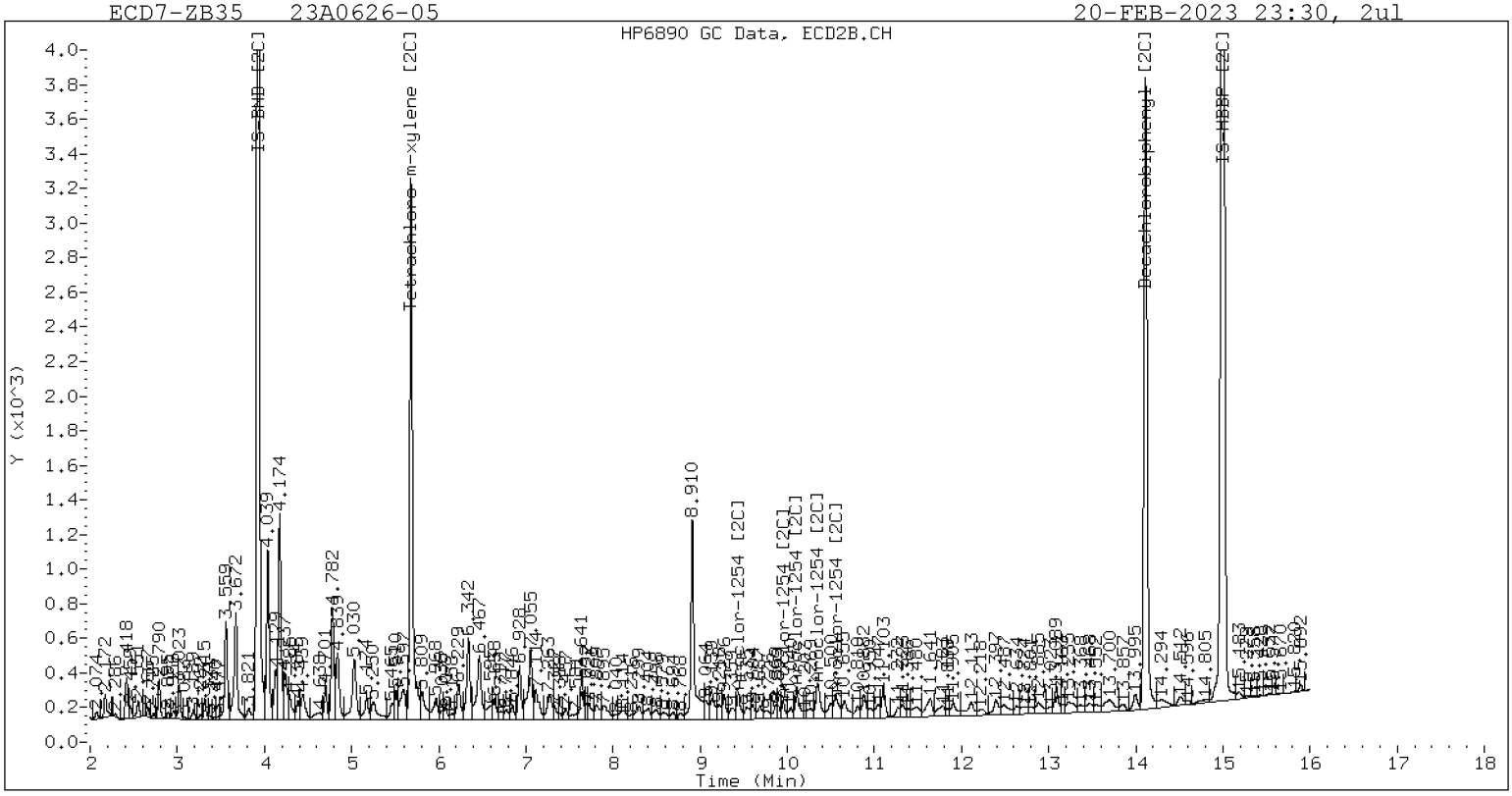
PCB Dual Column Chromatograms

ECD7-ZB5 23A0626-05 20-FEB-2023 23:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23A0626-05 20-FEB-2023 23:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-29_1-2

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23A0626-07 A	File ID:	02202340ECD7.D
Sampled:	01/27/23 11:10	Prepared:	02/09/23 11:32	Analyzed:	02/20/23 23:51
% Solids:	80.84	Preparation:	EPA 3546 (Microwave)	Initial/Final:	15.49 g Wet / 2.5 mL
Batch:	BLB0206	Sequence:	SLB0274	Calibration:	GB00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9859*	*7.41*	*92.8*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9859*	*5.90*	*73.8*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202340ECD7.D
Data file 2: /230220.b/230220.b/02202340ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23A0626-07
Client ID:
Injection Date: 20-FEB-2023 23:51
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.003	320985	5.682	-0.004	127819	29.5	32.2	8.5	Tetrachloro-m-xylene
13.889	-0.002	448090	14.115	-0.002	232849	37.1	38.5	3.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	765981	78.1
Hexabromobiphenyl	975457	1370107	40.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	297971	-18.8
Hexabromobiphenyl	646884	449143	-30.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 2606680 Col1 Total PCB = 0.3 ppm*

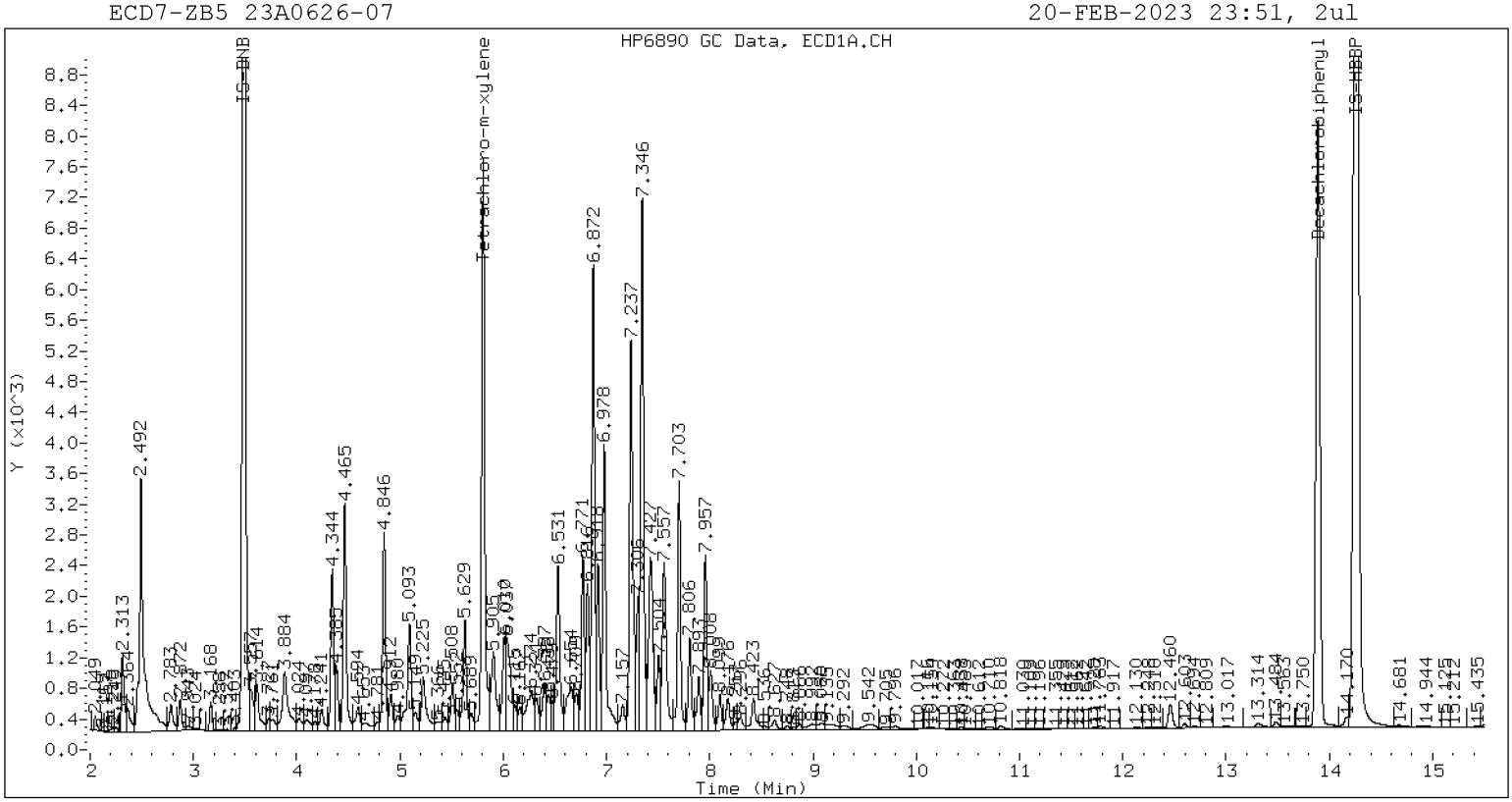
Total PCB Area Col2 (5.785 - 14.017) = 856294 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

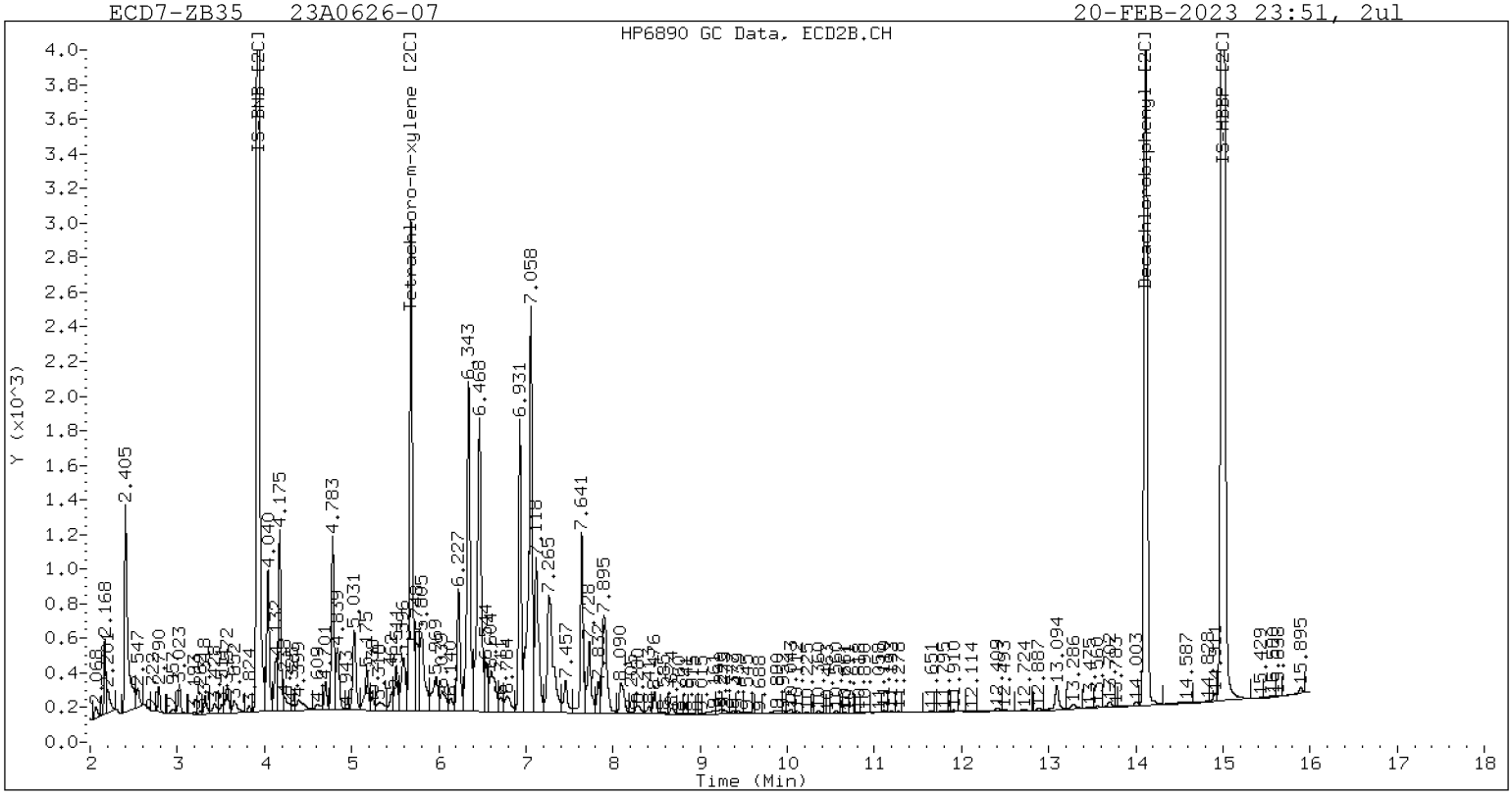
PCB Dual Column Chromatograms

ECD7-ZB5 23A0626-07 20-FEB-2023 23:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23A0626-07 20-FEB-2023 23:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-30_0-10

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23A0626-10 A	File ID:	02202341ECD7.D
Sampled:	01/26/23 11:30	Prepared:	02/09/23 11:32	Analyzed:	02/21/23 00:12
% Solids:	80.16	Preparation:	EPA 3546 (Microwave)	Initial/Final:	15.63 g Wet / 2.5 mL
Batch:	BLB0206	Sequence:	SLB0274	Calibration:	GB00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9815*	*7.31*	*91.6*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9815*	*6.08*	*76.2*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202341ECD7.D
Data file 2: /230220.b/230220.b/02202341ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23A0626-10
Client ID:
Injection Date: 21-FEB-2023 00:12
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	338043	5.683	-0.003	145756	30.5	36.1	16.8	Tetrachloro-m-xylene
13.889	-0.002	472134	14.114	-0.003	250396	36.7	39.1	6.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	781335	81.7
Hexabromobiphenyl	975457	1462553	49.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	302801	-17.4
Hexabromobiphenyl	646884	475340	-26.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 577561 Col1 Total PCB = 0.1 ppm*

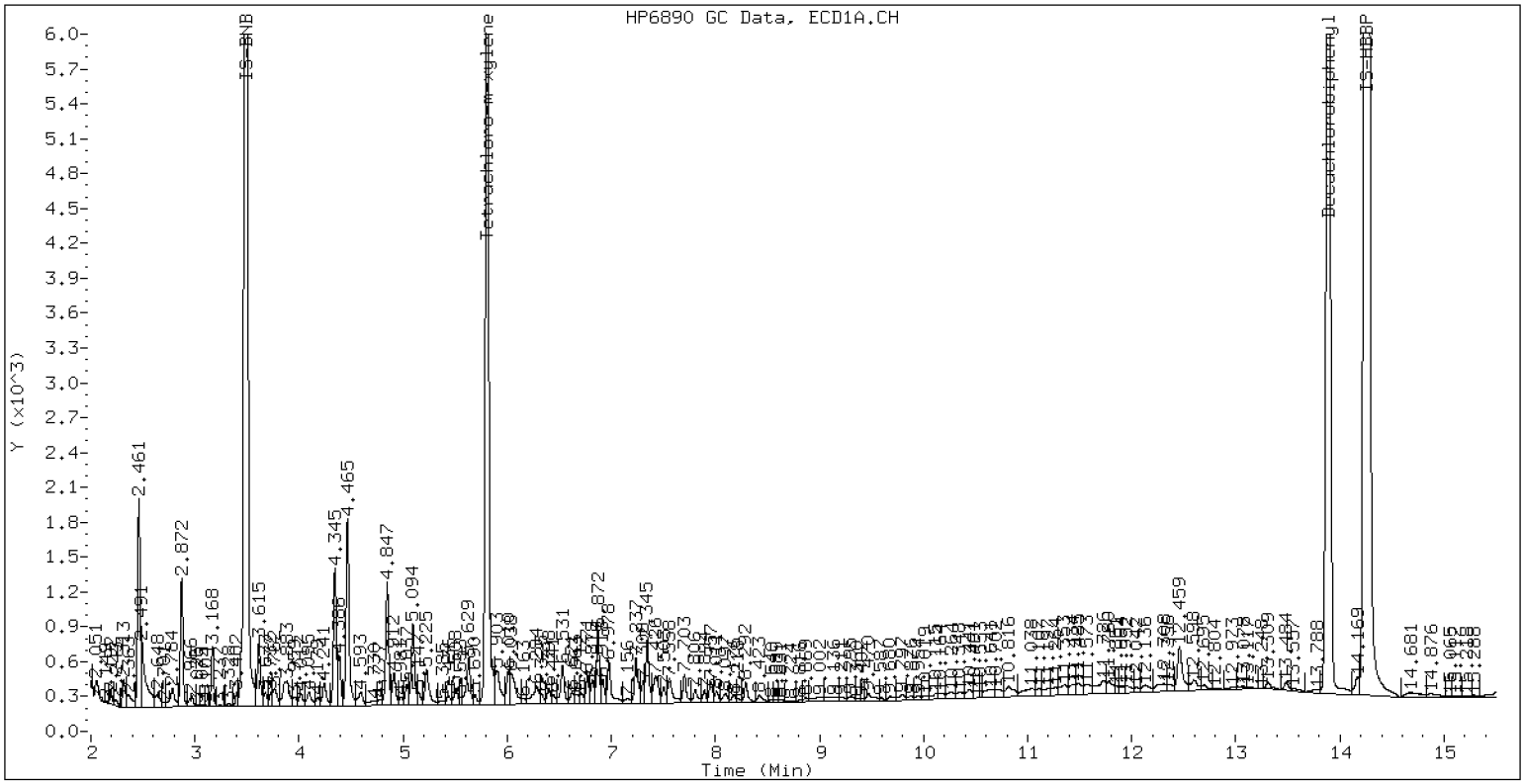
Total PCB Area Col2 (5.785 - 14.017) = 160304 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

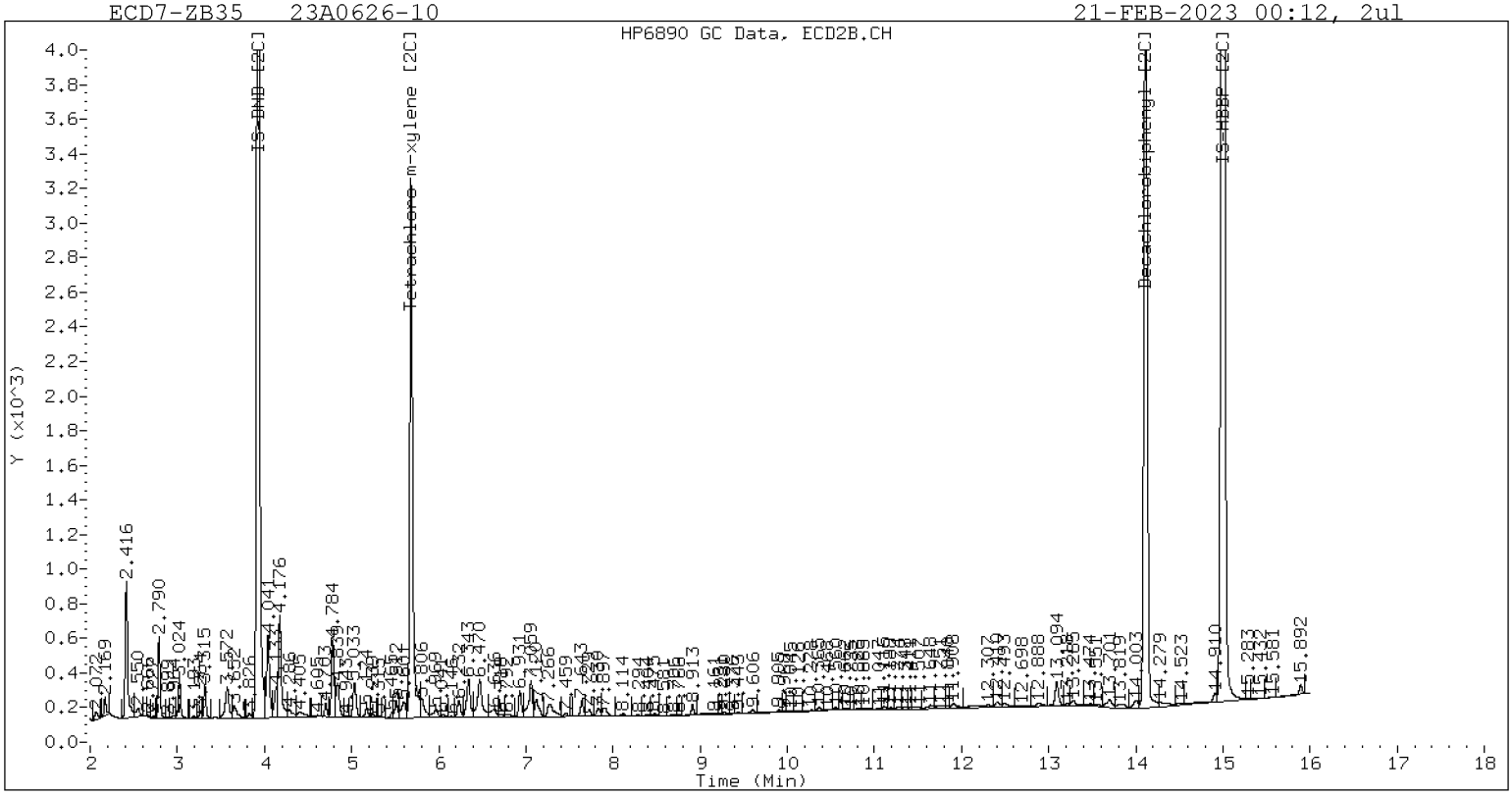
PCB Dual Column Chromatograms

ECD7-ZB5 23A0626-10 21-FEB-2023 00:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23A0626-10 21-FEB-2023 00:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-DUP_0-10

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23A0626-29 A	File ID:	02202342ECD7.D
Sampled:	01/26/23 12:00	Prepared:	02/09/23 11:32	Analyzed:	02/21/23 00:33
% Solids:	80.63	Preparation:	EPA 3546 (Microwave)	Initial/Final:	15.53 g Wet / 2.5 mL
Batch:	BLB0206	Sequence:	SLB0274	Calibration:	GB00045
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9860*	*7.10*	*88.9*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9860*	*5.98*	*74.8*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202342ECD7.D
Data file 2: /230220.b/230220.b/02202342ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23A0626-29
Client ID:
Injection Date: 21-FEB-2023 00:33
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.003	322134	5.681	-0.004	138777	29.9	35.4	16.6	Tetrachloro-m-xylene
13.888	-0.003	446339	14.114	-0.002	237478	35.5	38.0	6.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	758367	76.3
Hexabromobiphenyl	975457	1425882	46.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	294369	-19.7
Hexabromobiphenyl	646884	463837	-28.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 431404 Col1 Total PCB = 0.1 ppm*

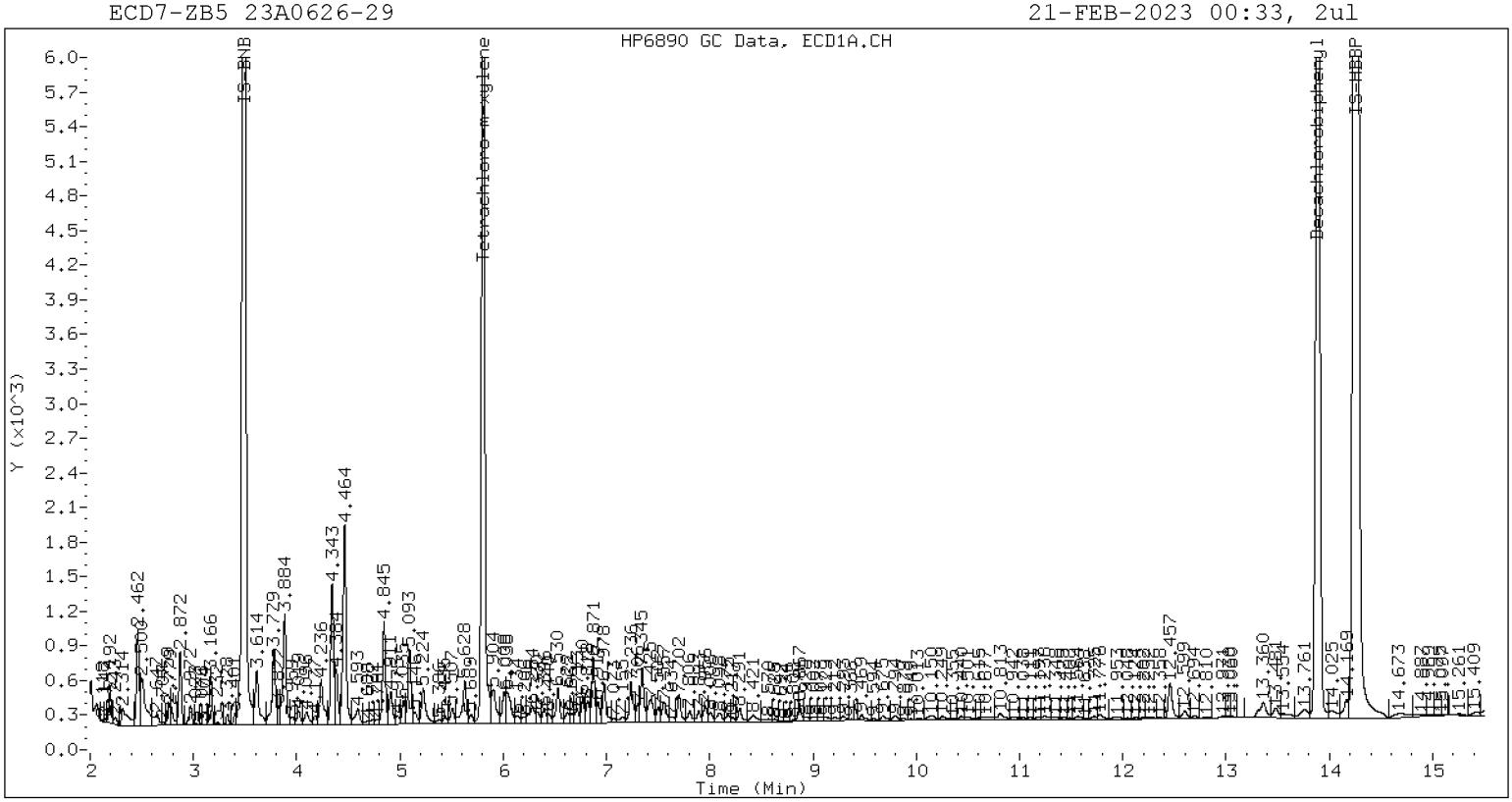
Total PCB Area Col2 (5.785 - 14.017) = 165573 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

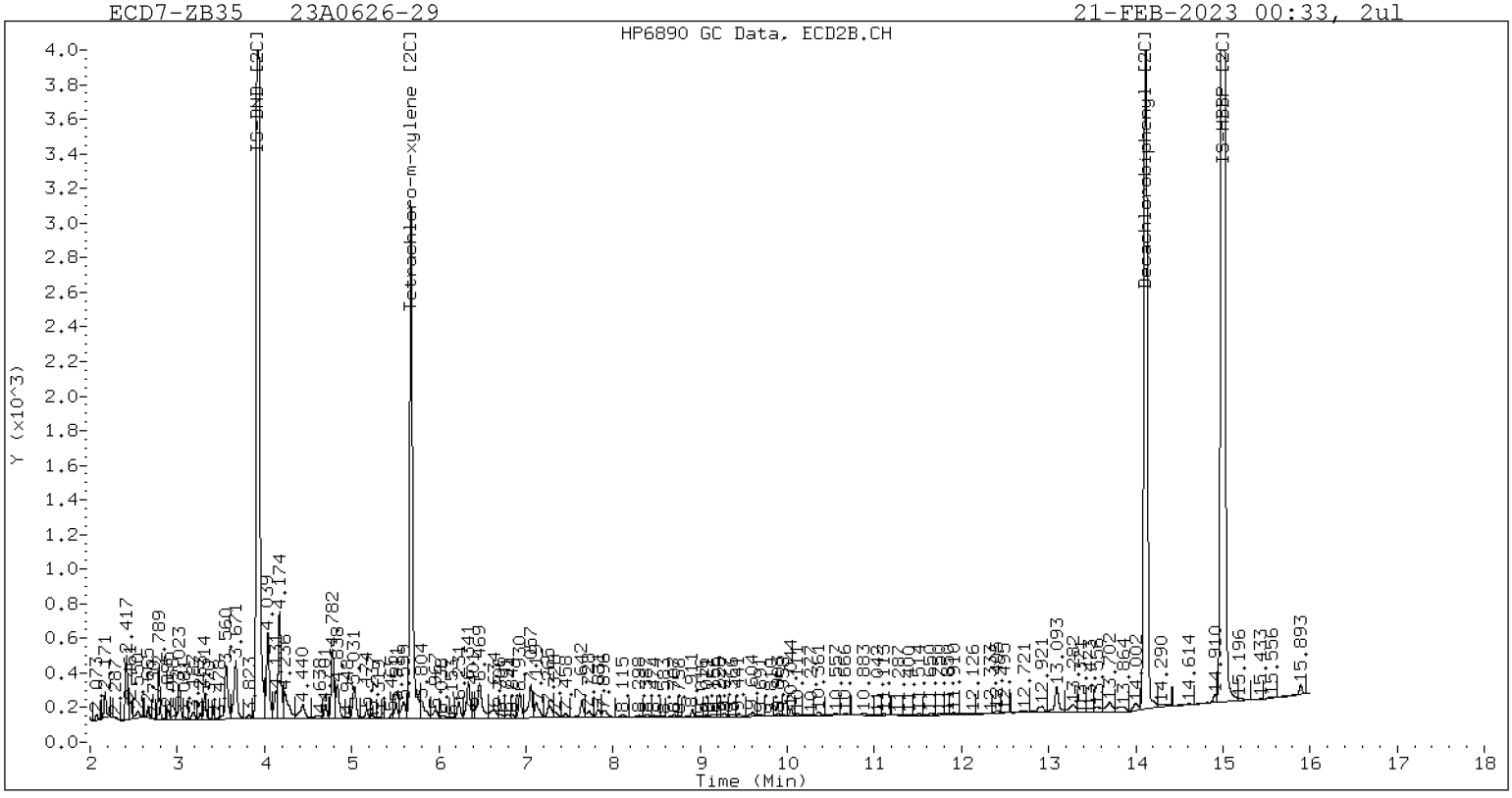
PCB Dual Column Chromatograms

ECD7-ZB5 23A0626-29 21-FEB-2023 00:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23A0626-29 21-FEB-2023 00:33, 2ul



ZB-35 Manual Integration: NO

PREPARATION BATCH SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC SDG: 23A0626

Client: GeoEngineers Project: Anacortes Log Yard

Batch: BLB0206 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-28_0-10	23A0626-01	02202335ECD7.D	02/09/23 11:32	
LY-28_1-2	23A0626-03	02202338ECD7.D	02/09/23 11:32	
LY-29_0-10	23A0626-05	02202339ECD7.D	02/09/23 11:32	
LY-29_1-2	23A0626-07	02202340ECD7.D	02/09/23 11:32	
LY-30_0-10	23A0626-10	02202341ECD7.D	02/09/23 11:32	
LY-DUP_0-10	23A0626-29	02202342ECD7.D	02/09/23 11:32	
Blank	BLB0206-BLK1	02132369ECD7.D	02/09/23 11:32	
LCS	BLB0206-BS1	02202332ECD7.D	02/09/23 11:32	
LCS Dup	BLB0206-BSD1	02202333ECD7.D	02/09/23 11:32	
LY-28_0-10	BLB0206-MS1	02202336ECD7.D	02/09/23 11:32	
LY-28_0-10	BLB0206-MSD1	02202337ECD7.D	02/09/23 11:32	
Reference	BLB0206-SRM1	02202334ECD7.D	02/09/23 11:32	

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0206

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid

Matrix: Solid Date Prepared: 02/09/23 Balance ID: B1464626I4 Set Up By: CRO 2/8/23

WO Comments
23A0626: Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

The following standards may be missing from this batch!

Designator	Description
QLS 5	QLS Spike

Analysis: 8082A PCB Solid 4

Lab Number & Container	% Solids	Initial (g) Target Dry: 12.5 (Wet) Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
23A0626-01 A	82.0	(15.25) 15.28	5mL	5mL	2mL	2.5	1.0	
23A0626-03 A	57.5	(21.72) 21.77	5mL	5mL	2mL	2.5	1.0	
23A0626-05 A	75.4	(16.58) 16.62	5mL	5mL	2mL	2.5	1.0	
23A0626-07 A	80.8	(15.46) 15.49	5mL	5mL	2mL	2.5	1.0	
23A0626-10 A	80.2	(15.59) 15.63	5mL	5mL	2mL	2.5	1.0	
23A0626-29 A	80.6	(15.50) 15.53	5mL	5mL	2mL	2.5	1.0	

Batch QC

Lab Number	% Solids	Initial (g) Target Dry: 12.5 (Wet) Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BLB0206-BLK1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLB0206-BS1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLB0206-BSD1	100.0	(12.50) 12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLB0206-MS1	82.0	(15.25) 15.25	5mL	5mL	2mL	2.5	1.0	Use 23A0626-01
BLB0206-MSD1	82.0	(15.25) 15.25	5mL	5mL	2mL	2.5	1.0	Use 23A0626-01
BLB0206-SRM1	100.0	~~(12.50)~~ (2.50) 2.50 +1g DI WATER	5mL	5mL	2mL	2.5	1.0	Use K010817

02/09/23 AMR 2/10/23 02/09/23 11:32

Client ID Verified By Date Preparation Reviewed By Date Extraction Date and Time

Printed: 2/8/2023 11:19:37AM

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0206

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid

WO Comments
23A0626: Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

Prep Steps

Microwave
1 (2) 3
02/09/23
CT
Analyst/Date

KD
100°C
Hexane Exchange
(2 X 20 mL)
1 2 3 4 5 6
LO/AV 02/09
Analyst/Date

TurboVap
Pre Cleanups
1 2 3 (4) 5
NK3 2/10/23
Analyst/Date

TurboVap
Post Cleanups
1 2 (3) 4 5
NK3 2/10/23
Analyst/Date

Vialing
NK3 2/10/23
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: CT/NK Date: 02/09/23	
Neutral Glass Wool	L000356
1:1 Hexane/Acetone	L000279
Hexane	K011373
Anhydrous Sodium Sulfate	L000980
KD Analyst: LO/AV Date: 02/09/2023	
Anhydrous Sodium Sulfate	
Hexane	K011373
Vialing Analyst: NK3 Date: 2/10/23	
Hexane	IC011373
Concentrated Sulfuric Acid	L001033
Silica Gel (SPE) Darts	K011573
Sodium Sulfite	IC010363
Tetrabutylammonium hydrogensulfate (TBAS)	L000840

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 2µg/mL	N L000773 (V) Exp Date: 7/21/2023	50µL	CT	Y
Spike 20µg/mL	1 K008150 (V) Exp Date: 3/5/23	63µL	CT	Y

MANUALLY ENTER EXPIRATION DATES!

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLB0206

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid

WO Comments

23A0626: Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh soil/sed into beakers-lightly dry with sodium sulfate. 2. Transfer to microwave vessel(s). Note: (do not fill vessels more than 2/3rd full. Some samples may require two vessels). 3. Add 1:1 Hexane/Acetone until the solvent layer is 3 inches above the soil layer after homogenization. 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-Re-homogenize while hot then cool vessels in R-05 15 minutes. Re-homogenize while cool. 7. Decant 1:1 Hex/Ace into Erlenmeyer flask with sodium sulfate in bottom and funnel with neutral glasswool plug. 8. Re-homogenize and rinse with 1:1 Hexane/Acetone. 9. Let cool and decant solvent then empty the soil into the funnel and rinse with Hexane. 10. KD on 100° bath. 11. Exchange (2 X with 20mL) Hexane. 12. TurboVap. 13. Clean-ups. 14. TurboVap. 15. Vial with Hexane. A. Need Total Solids Y [N] B. Archive/Freeze [Y] N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

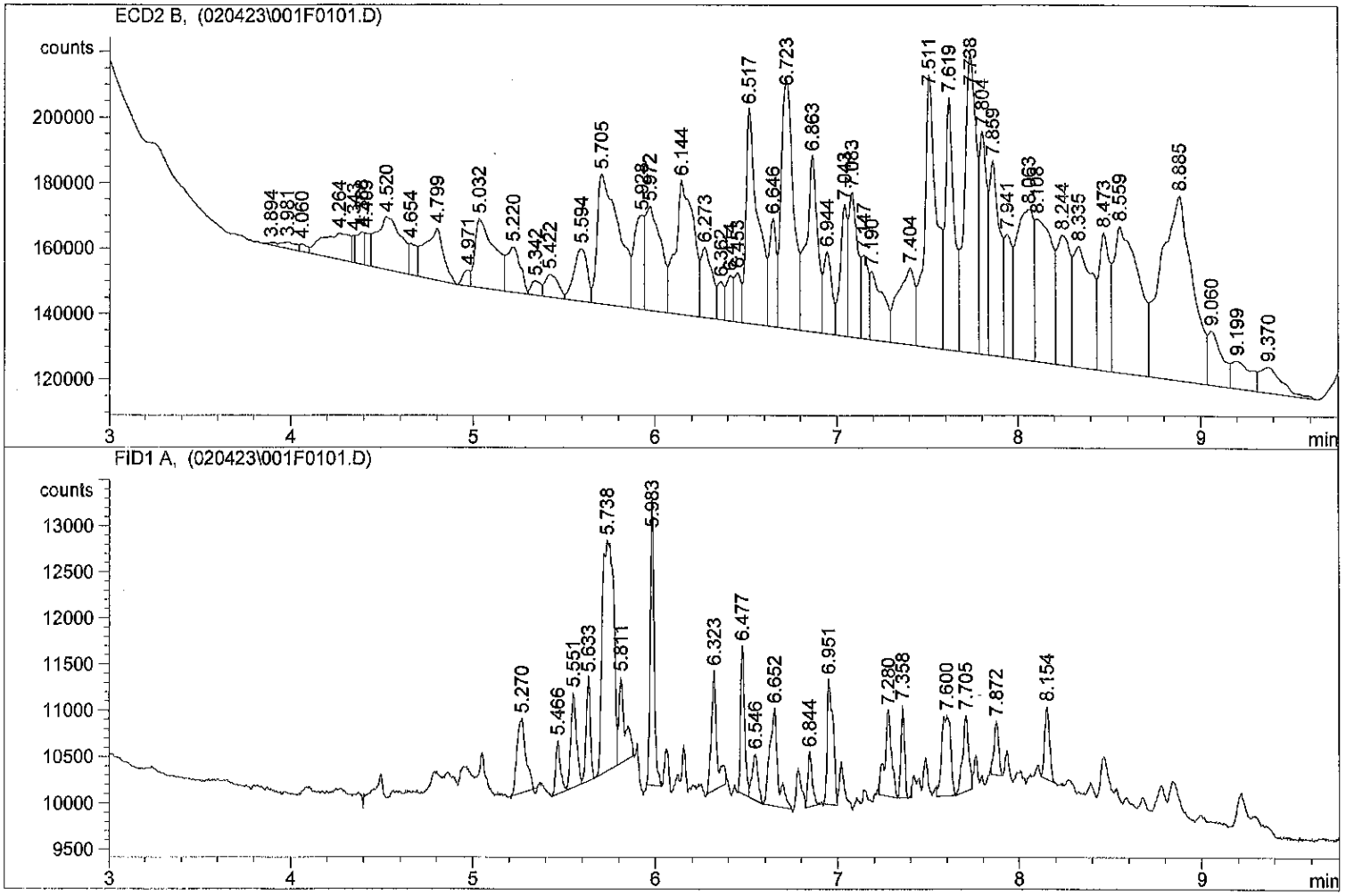
Organic Extractions Laboratory Analyst Notes

Extraction Parameter: PUS Extraction Batch: BLB0206

Total Solids Batch: BLB0016 Work Order(s): 23A0626

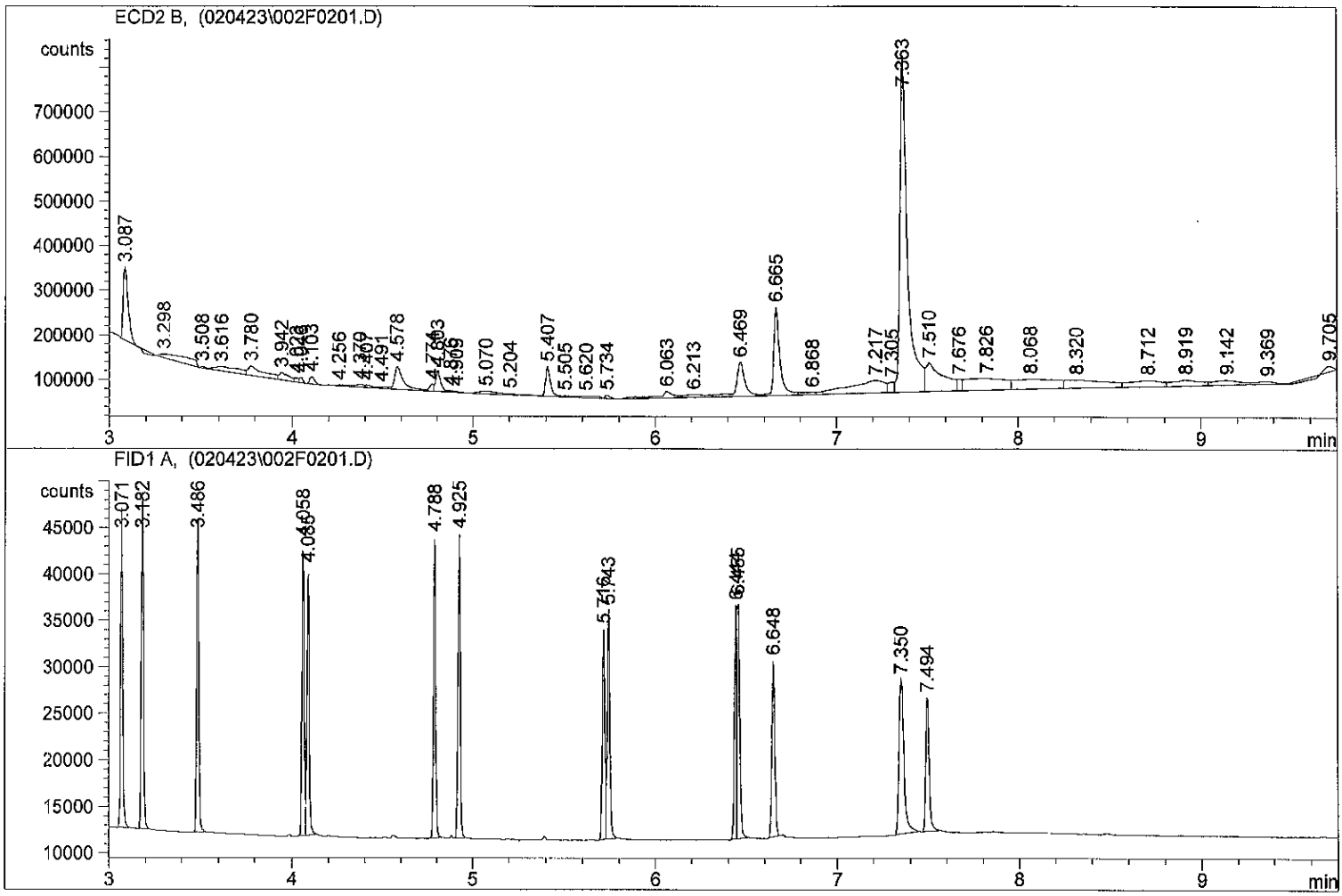
Screens: Soil/Sediment/Solid/Other:	Analyst/Date
[X] No Anomalies (standard soil/wet sediment/sand/gravel)= ф7, 12.	NJ ф2/ф4/23
[X] Standing Water Decanted (Not shared)= ф1, ф3, ф5, 12, 29.	
[ ] Standing Water Homogenized (Shared samples)=	
[ ] Clay/Clumps (Difficult to homogenize)=	
[X] Rocks (%+size)? ~~4%~~ 20.% =ф3	NJ ф2/ф4/23
[ ] Organics (Leaves/sticks/grass)=	
[X] Oily, obvious fuel/sulfur odors= ф1, ф3.	NJ ф2/ф4/23
[ ] Received in 32oz jar(s)=Homogenized in Pyrex dish=	
[ ] Previously Frozen =	
[X] Other (Details)= Shell 20.% pieces = ф1, ф5, 1ф, 29.	NJ ф2/ф4/23
Aqueous:	
[ ] No Anomalies	
[ ] Turbid/Color=	
[ ] Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
[ ] Emulsions (%)=	
[ ] Oily, obvious fuel/sulfur odors=	
[ ] Other (Details)=	
[ ] Received in 1.0L Bottle(s)=No Bottle Rinse=	
[ ] Other Notes/Comments= (Note problems, concerns, corrective actions).	
[X] Share Samples Y / (N)	NJ ф2/ф4/23
[X] Multiple Jars Y / (N)	NJ ф2/ф4/23
[ ] Sample Pre-Screens indicate analyte activity=	
[ ] Sample weights/volumes reduced based on Pre-Screen=	

Injection Date	: 2/4/2023 1:59:42 PM	Seq. Line :	1
Sample Name	: DCM RINSE	Location :	Vial 1
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020423.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

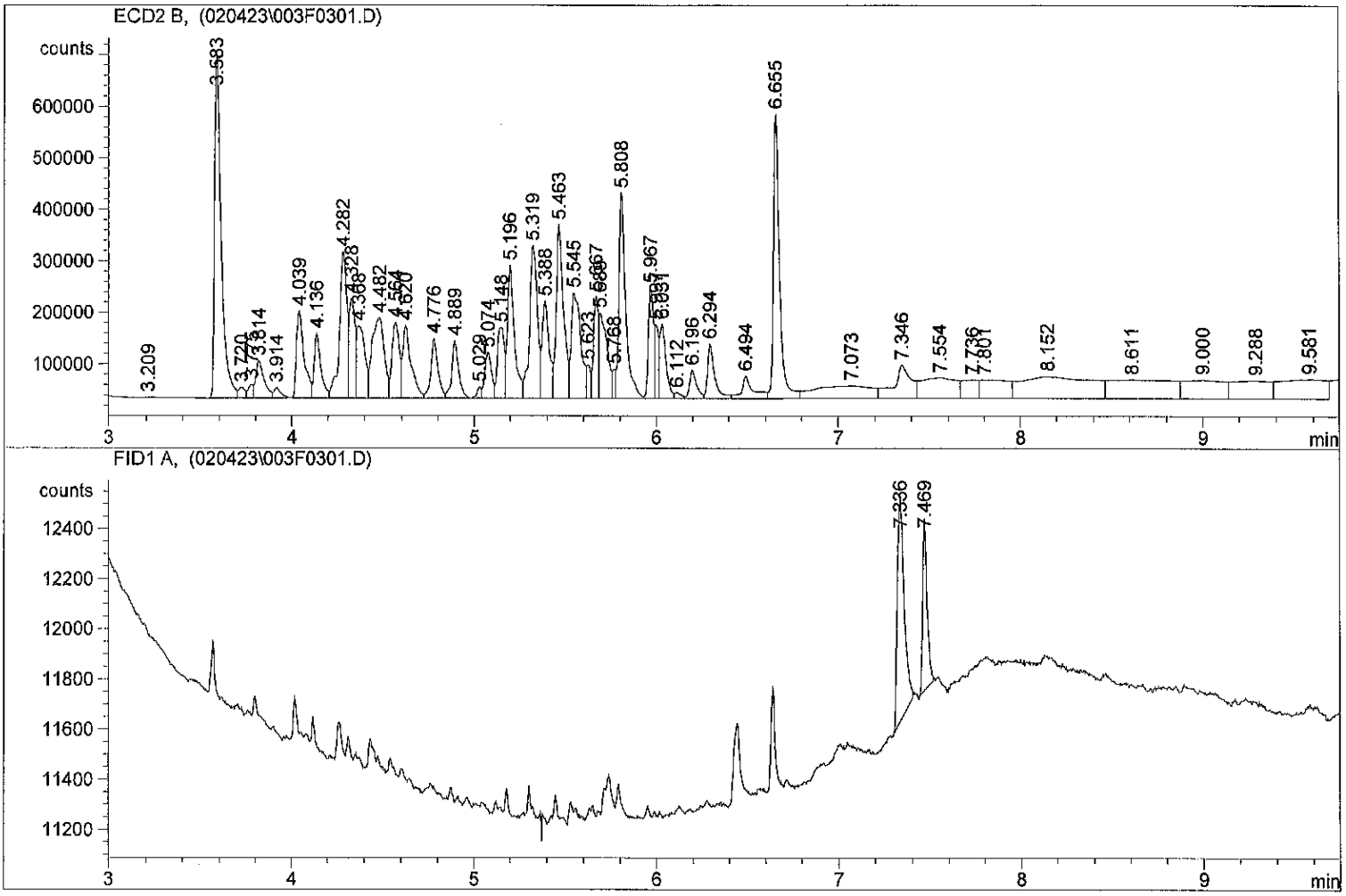
Injection Date	: 2/4/2023 2:13:39 PM	Seq. Line	: 2
Sample Name	: PNA STD 10PPM	Location	: Vial 2
Acq. Operator	: YL	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020423.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

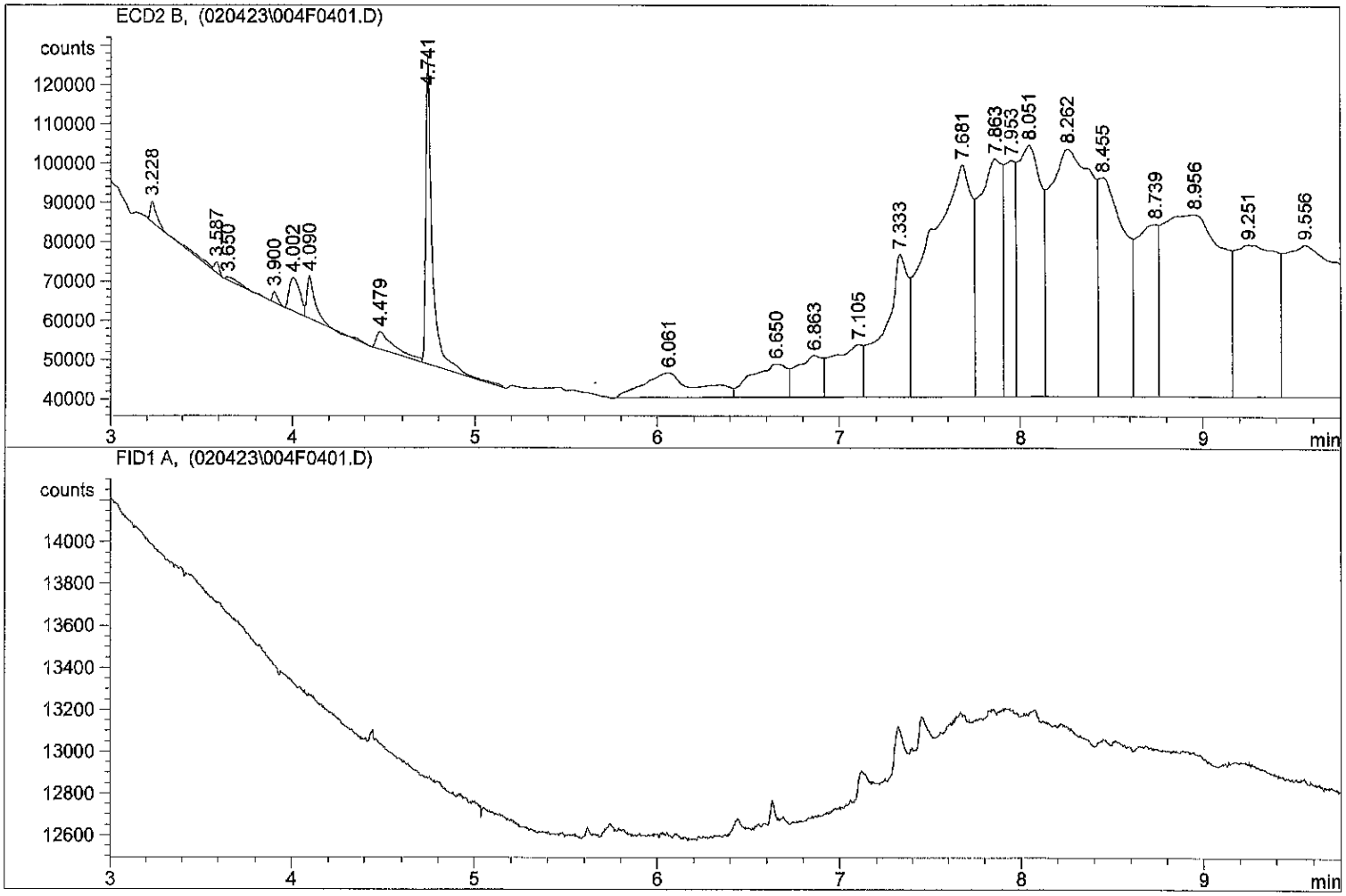
Data File C:\HPCHEM\1\DATA\020423\003F0301.D Sample Name: AR1660 1PPM

Injection Date	: 2/4/2023 2:27:52 PM	Seq. Line :	3
Sample Name	: AR1660 1PPM	Location :	Vial 3
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020423.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



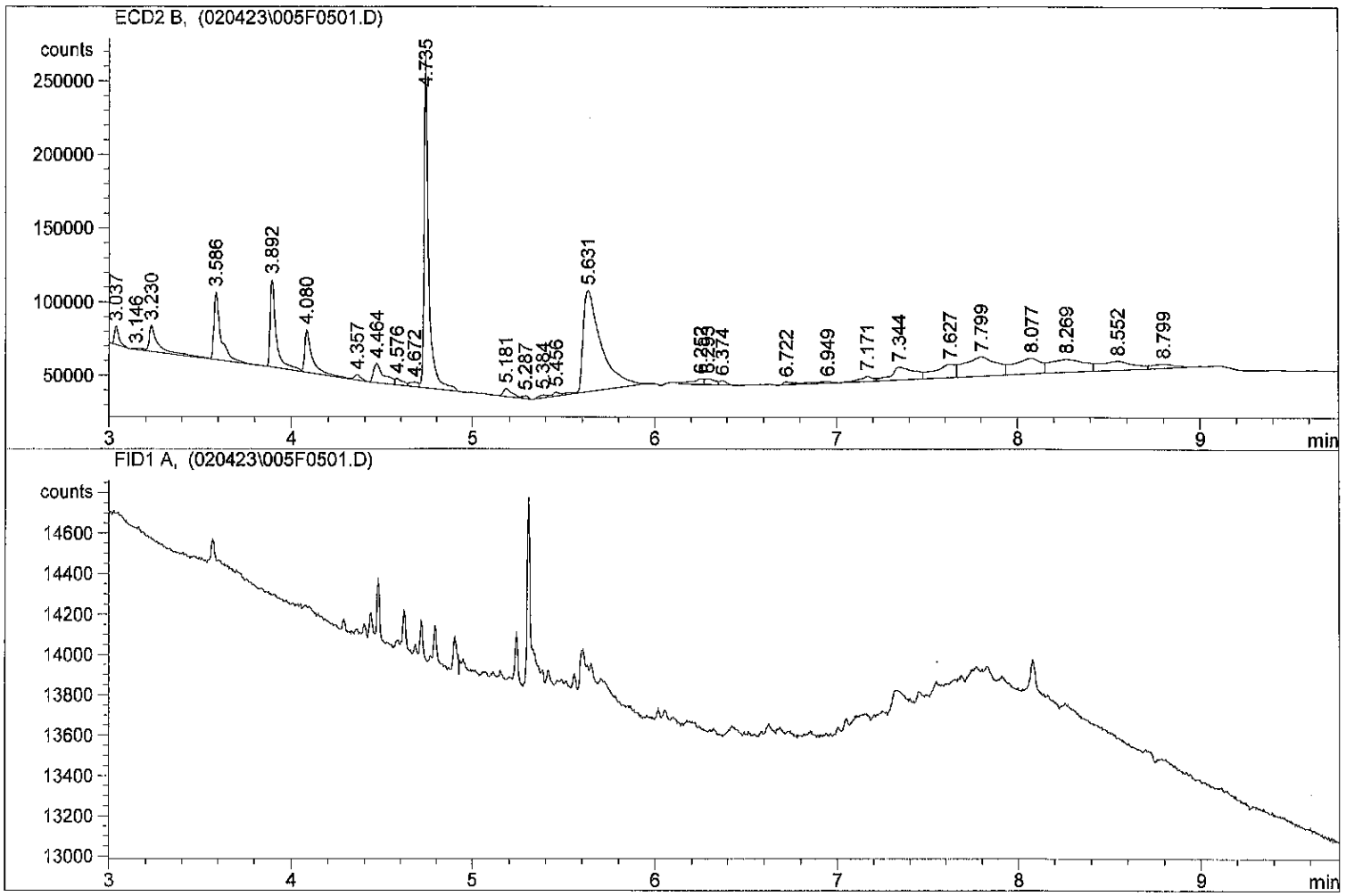
*** End of Report ***

Injection Date	: 2/4/2023 2:41:59 PM	Seq. Line :	4
Sample Name	: 23A0626 01	Location :	Vial 4
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020423.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



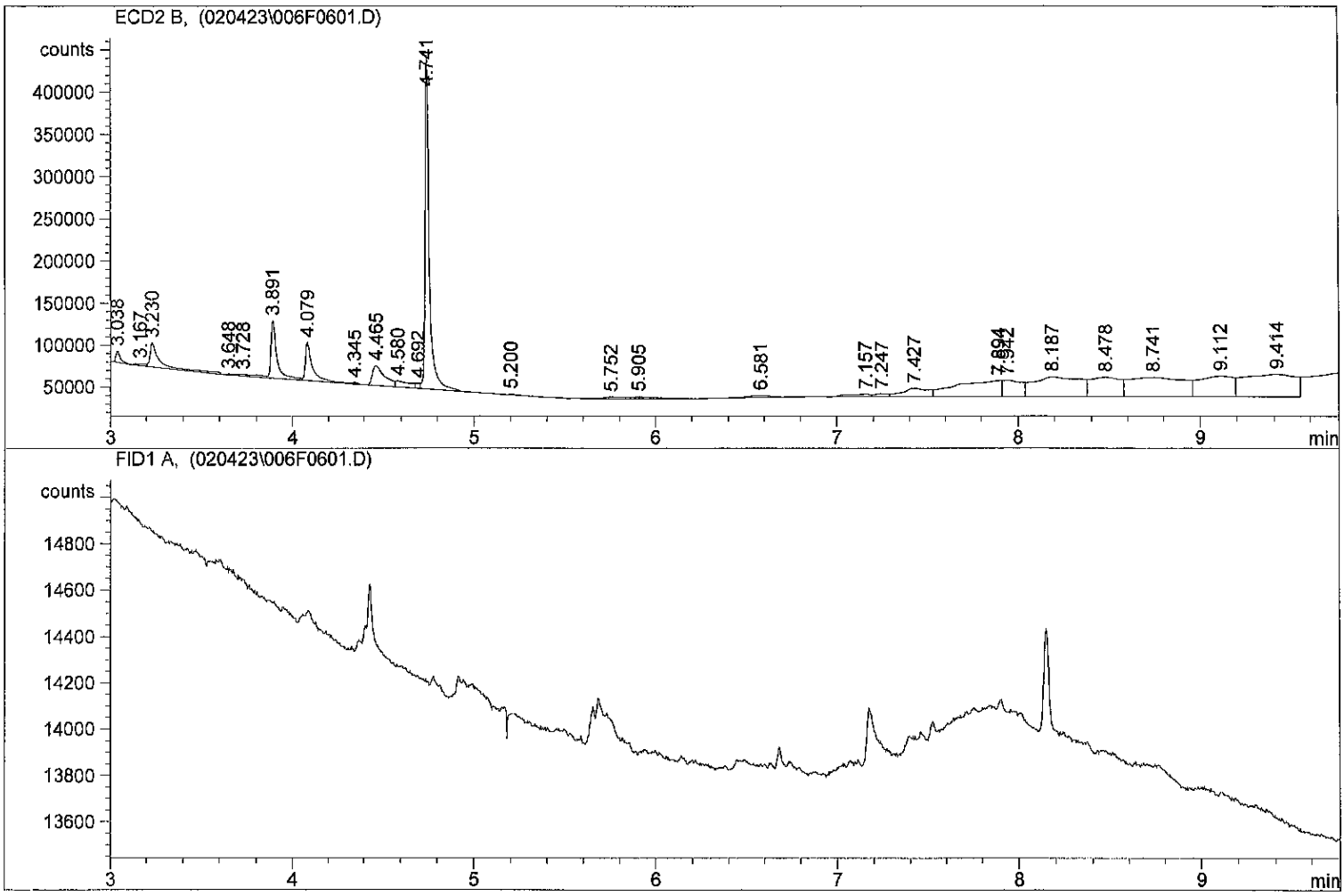
*** End of Report ***

```
Injection Date  : 2/4/2023 2:56:24 PM          Seq. Line :   5
Sample Name     : 23A0626 03                   Location : Vial 5
Acq. Operator   : YL                               Inj :   1
                                             Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\020423.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD
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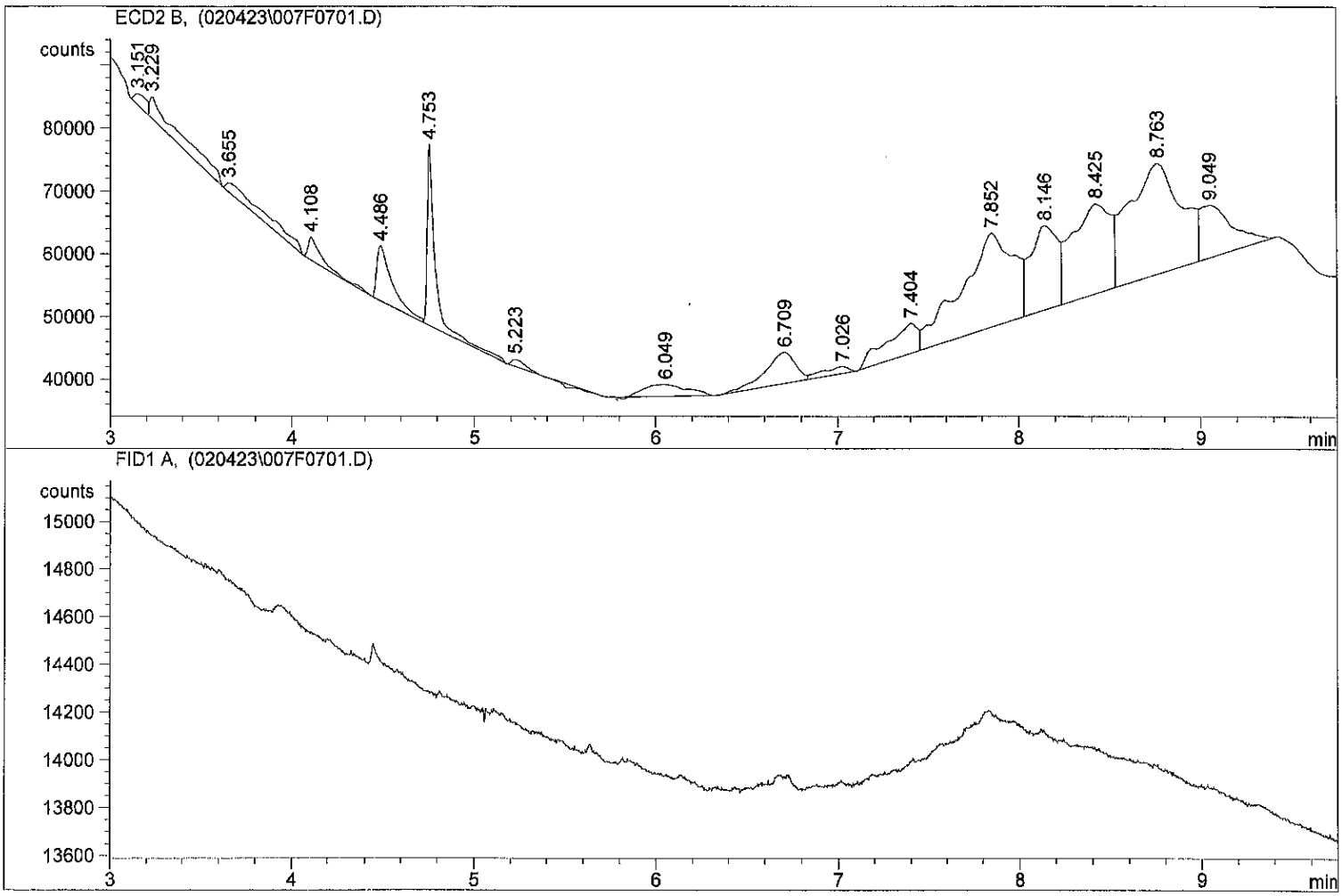
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==============================================================================
Injection Date  : 2/4/2023 3:11:32 PM          Seq. Line :   6
Sample Name     : 23A0626 05                    Location : Vial 6
Acq. Operator   : YL                               Inj :   1
                                               Inj Volume : 1 µl
Sequence File   : C:\HPCHEM\1\SEQUENCE\020423.S
Method          : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed    : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD
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*** End of Report ***

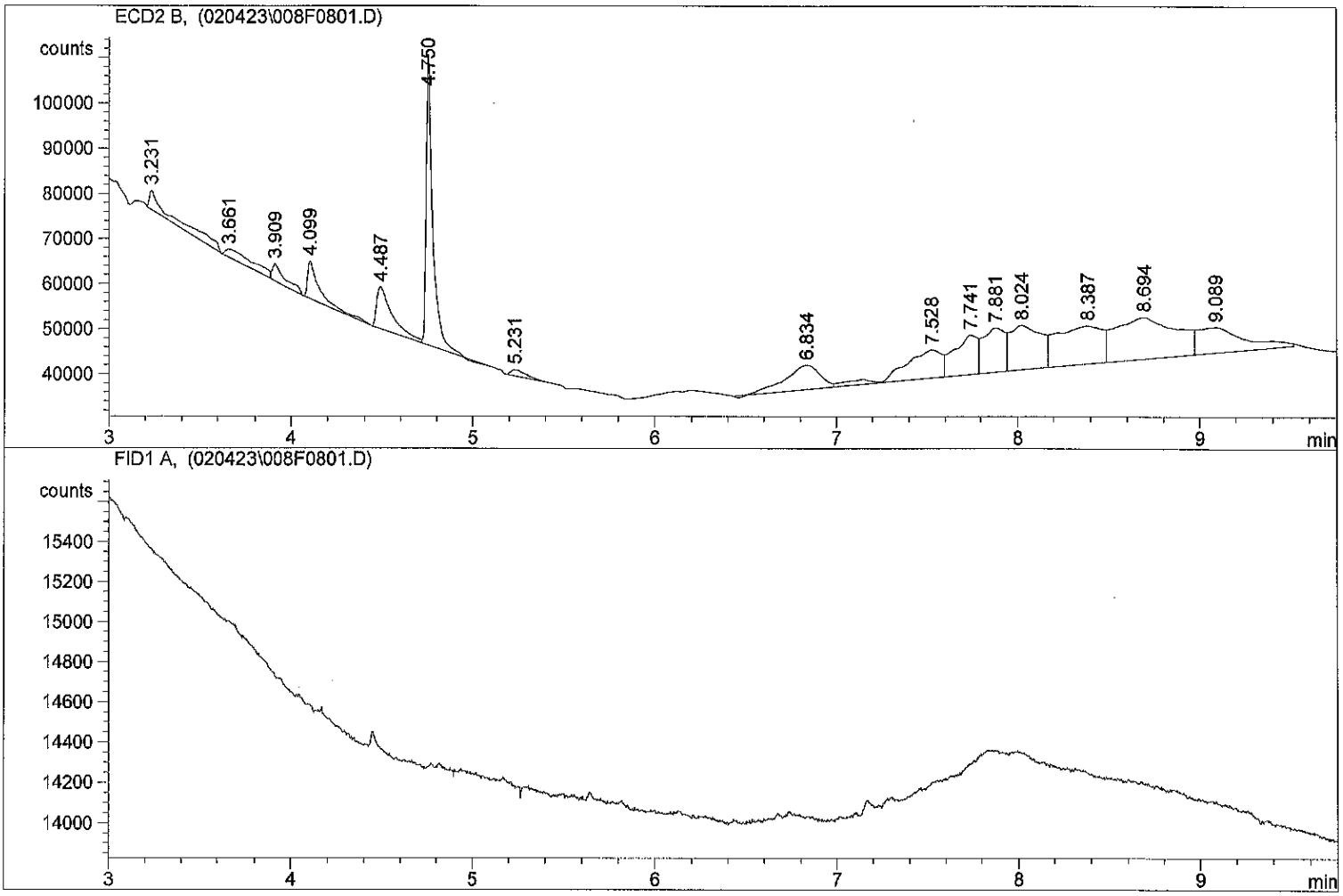
Injection Date	: 2/4/2023 3:25:33 PM	Seq. Line :	7
Sample Name	: 23A0626 07	Location :	Vial 7
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020423.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

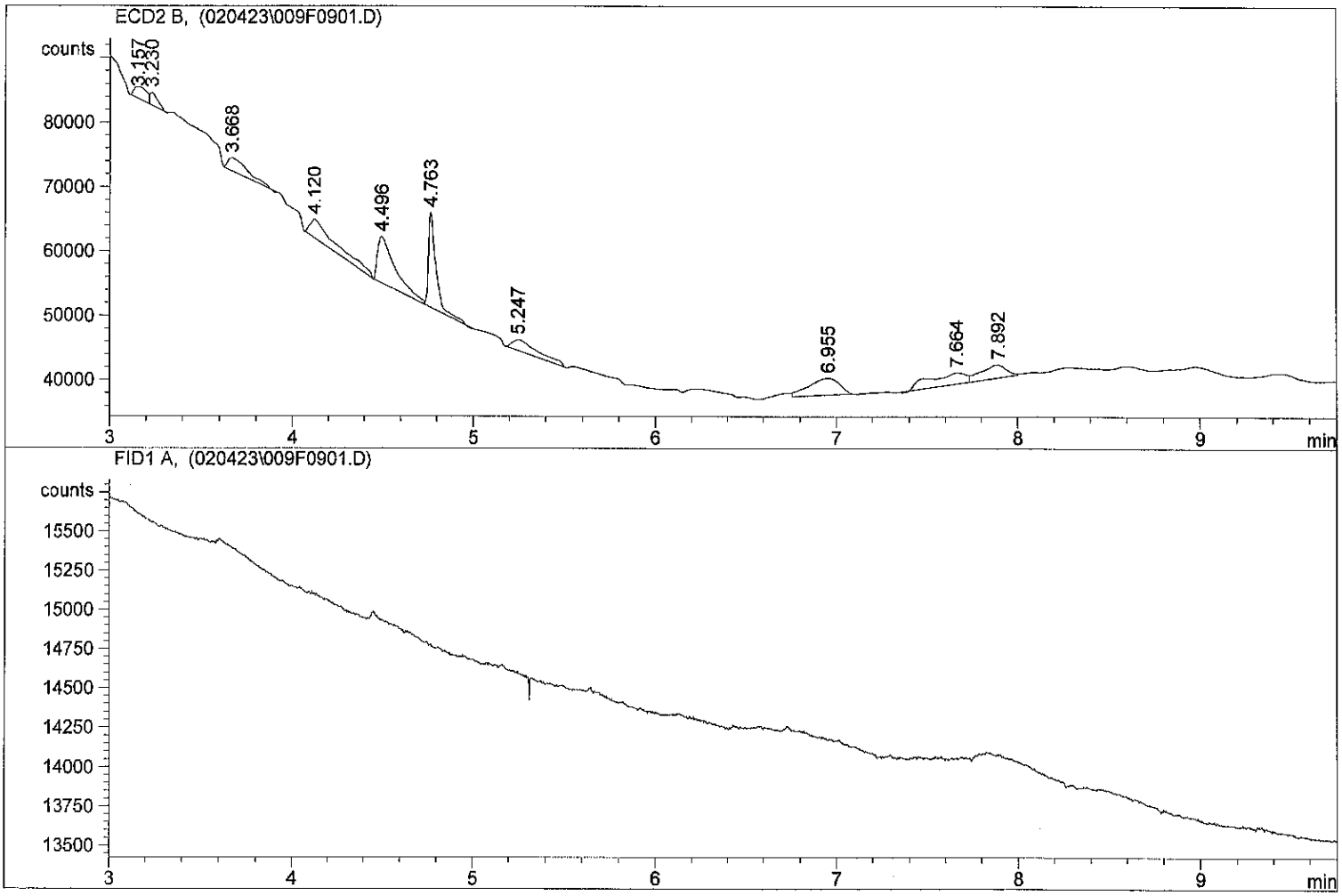
Injection Date : 2/4/2023 3:40:06 PM Seq. Line : 8
Sample Name : 23A0626 10 Location : Vial 8
Acq. Operator : YL Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\020423.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



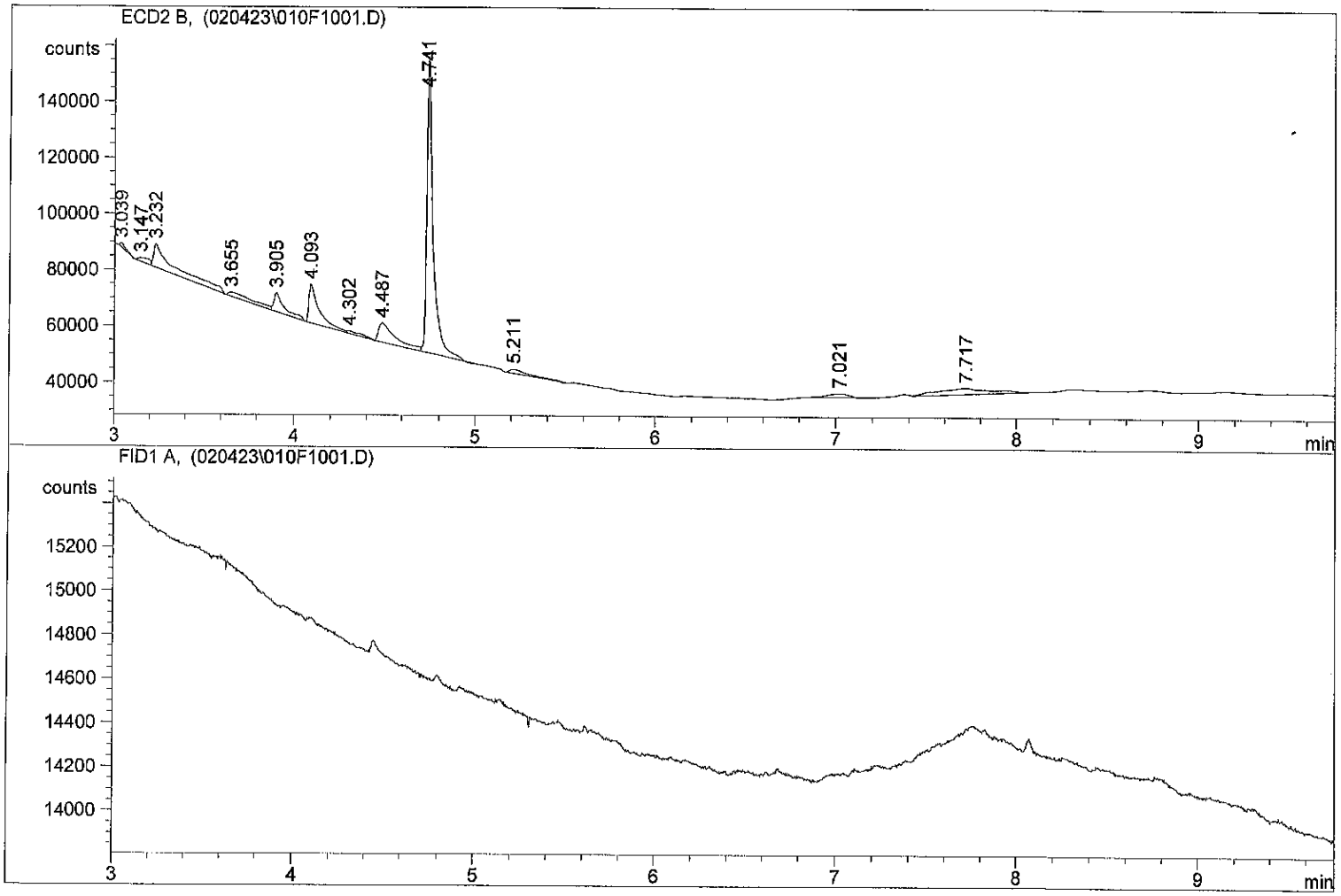
*** End of Report ***

Injection Date	: 2/4/2023 3:55:14 PM	Seq. Line :	9
Sample Name	: 23A0626 12	Location :	Vial 9
Acq. Operator	: YL	Inj :	1
		Inj Volume :	1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020423.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

Injection Date	: 2/4/2023 4:09:17 PM	Seq. Line	: 10
Sample Name	: 23A0626 29	Location	: Vial 10
Acq. Operator	: YL	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\020423.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLB0092	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-28_1-2	23A0626-03	02202338ECD7.D	02/10/2023	
Blank	BLB0206-BLK1	02132369ECD7.D	02/10/2023	
LY-29_0-10	23A0626-05	02202339ECD7.D	02/10/2023	
Reference	BLB0206-SRM1	02202334ECD7.D	02/10/2023	
Matrix Spike Dup	BLB0206-MSD1	02202337ECD7.D	02/10/2023	
Matrix Spike	BLB0206-MS1	02202336ECD7.D	02/10/2023	
LCS	BLB0206-BS1	02202332ECD7.D	02/10/2023	
LY-29_1-2	23A0626-07	02202340ECD7.D	02/10/2023	
LY-30_0-10	23A0626-10	02202341ECD7.D	02/10/2023	
LY-DUP_0-10	23A0626-29	02202342ECD7.D	02/10/2023	
LY-28_0-10	23A0626-01	02202335ECD7.D	02/10/2023	
LCS Dup	BLB0206-BSD1	02202333ECD7.D	02/10/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLB0092

Matrix: Solid **Cleanup using: Organics - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 2/10/2023 4:46:59PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23A0626-01	A	LY-28_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-03	A	LY-28_1-2	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-05	A	LY-29_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-07	A	LY-29_1-2	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-10	A	LY-30_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-29	A	LY-DUP_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
BLB0206-BLK1	-	Blank	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-BS1	-	LCS	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-BSD1	-	LCS Dup	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-MS1	-	Matrix Spike	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-SRM1	-	Reference	-	2.5	2.5	-	2/10/2023	NRB	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLB0093	Cleanup Type:	Sulfur
Cleanup Method:	EPA 3660B Sulfur Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Matrix Spike Dup	BLB0206-MSD1	02202337ECD7.D	02/10/2023	
Matrix Spike	BLB0206-MS1	02202336ECD7.D	02/10/2023	
LCS Dup	BLB0206-BSD1	02202333ECD7.D	02/10/2023	
LCS	BLB0206-BS1	02202332ECD7.D	02/10/2023	
Blank	BLB0206-BLK1	02132369ECD7.D	02/10/2023	
LY-29_0-10	23A0626-05	02202339ECD7.D	02/10/2023	
LY-29_1-2	23A0626-07	02202340ECD7.D	02/10/2023	
LY-DUP_0-10	23A0626-29	02202342ECD7.D	02/10/2023	
LY-28_1-2	23A0626-03	02202338ECD7.D	02/10/2023	
Reference	BLB0206-SRM1	02202334ECD7.D	02/10/2023	
LY-28_0-10	23A0626-01	02202335ECD7.D	02/10/2023	
LY-30_0-10	23A0626-10	02202341ECD7.D	02/10/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLB0093

Matrix: Solid **Cleanup using: Organics - EPA 3660B Sulfur Cleanup - uL** **Printed: 2/10/2023 4:47:24PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23A0626-01	A	LY-28_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-03	A	LY-28_1-2	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-05	A	LY-29_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-07	A	LY-29_1-2	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-10	A	LY-30_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-29	A	LY-DUP_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
BLB0206-BLK1	-	Blank	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-BS1	-	LCS	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-BSD1	-	LCS Dup	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-MS1	-	Matrix Spike	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-SRM1	-	Reference	-	2.5	2.5	-	2/10/2023	NRB	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLB0094	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Matrix Spike	BLB0206-MS1	02202336ECD7.D	02/10/2023	
Matrix Spike Dup	BLB0206-MSD1	02202337ECD7.D	02/10/2023	
Reference	BLB0206-SRM1	02202334ECD7.D	02/10/2023	
LCS Dup	BLB0206-BSD1	02202333ECD7.D	02/10/2023	
LCS	BLB0206-BS1	02202332ECD7.D	02/10/2023	
LY-28_0-10	23A0626-01	02202335ECD7.D	02/10/2023	
LY-30_0-10	23A0626-10	02202341ECD7.D	02/10/2023	
LY-29_1-2	23A0626-07	02202340ECD7.D	02/10/2023	
LY-29_0-10	23A0626-05	02202339ECD7.D	02/10/2023	
LY-28_1-2	23A0626-03	02202338ECD7.D	02/10/2023	
LY-DUP_0-10	23A0626-29	02202342ECD7.D	02/10/2023	
Blank	BLB0206-BLK1	02132369ECD7.D	02/10/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLB0094

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 2/10/2023 4:47:54PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23A0626-01	A	LY-28_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-03	A	LY-28_1-2	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-05	A	LY-29_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-07	A	LY-29_1-2	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-10	A	LY-30_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
23A0626-29	A	LY-DUP_0-10	A 02	2.5	2.5	8082A PCB Solid 4	2/10/2023	NRB	
BLB0206-BLK1	-	Blank	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-BS1	-	LCS	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-BSD1	-	LCS Dup	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-MS1	-	Matrix Spike	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	2/10/2023	NRB	
BLB0206-SRM1	-	Reference	-	2.5	2.5	-	2/10/2023	NRB	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I

METHOD BLANK DATA SHEET

EPA 8082A

Blank

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers			Project:	Anacortes Log Yard
Matrix:	Solid	Laboratory ID:	BLB0206-BLK1	File ID:	02132369ECD7.D
Sampled:	N/A	Prepared:	02/09/23 11:32	Analyzed:	02/14/23 09:44
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	12.5 g / 2.5 mL
Batch:	BLB0206	Sequence:	SLB0274	Calibration:	GB00045
Instrument:	ECD7	Column:	ZB5	Cleanups:	Silica Gel, Sulfur, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
12674-11-2	Aroclor 1016	1	4.0	U	1.6	4.0
11104-28-2	Aroclor 1221	1	4.0	U	1.6	4.0
11141-16-5	Aroclor 1232	1	4.0	U	1.6	4.0
53469-21-9	Aroclor 1242	1	4.0	U	1.6	4.0
12672-29-6	Aroclor 1248	1	4.0	U	1.6	4.0
11097-69-1	Aroclor 1254	1	4.0	U	1.6	4.0
11096-82-5	Aroclor 1260	1	4.0	U	0.6	4.0
37324-23-5	Aroclor 1262	1	4.0	U	0.6	4.0
11100-14-4	Aroclor 1268	1	4.0	U	0.6	4.0

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
Decachlorobiphenyl	8.0000	6.55	81.9	40 - 126	
Tetrachlorometaxylene	8.0000	6.34	79.2	44 - 120	
Decachlorobiphenyl [2C]	8.0000	6.76	84.5	40 - 126	
Tetrachlorometaxylene [2C]	8.0000	6.26	78.2	44 - 120	

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230213.b/02132369ECD7.D
Data file 2: /230213.b/230213.b/02132369ECD7.D
Method: \\target\share\chem4\ecd7.i\230213.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0206-BLK1
Client ID:
Injection Date: 14-FEB-2023 09:44
Report Date: 02/14/2023 10:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.000	189282	5.685	0.001	152176	31.7	31.3	1.3	Tetrachloro-m-xylene
13.889	0.001	195145	14.117	-0.000	224693	32.7	33.8	3.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	422680	-16.0
Hexabromobiphenyl	647433	557237	-13.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	359819	6.8
Hexabromobiphenyl	382032	418804	9.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	ZB5 Col Shift	Area	Amount	Peak#	RT	ZB35 Col Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.788) = 32748 Col1 Total PCB = 0.0 ppm*

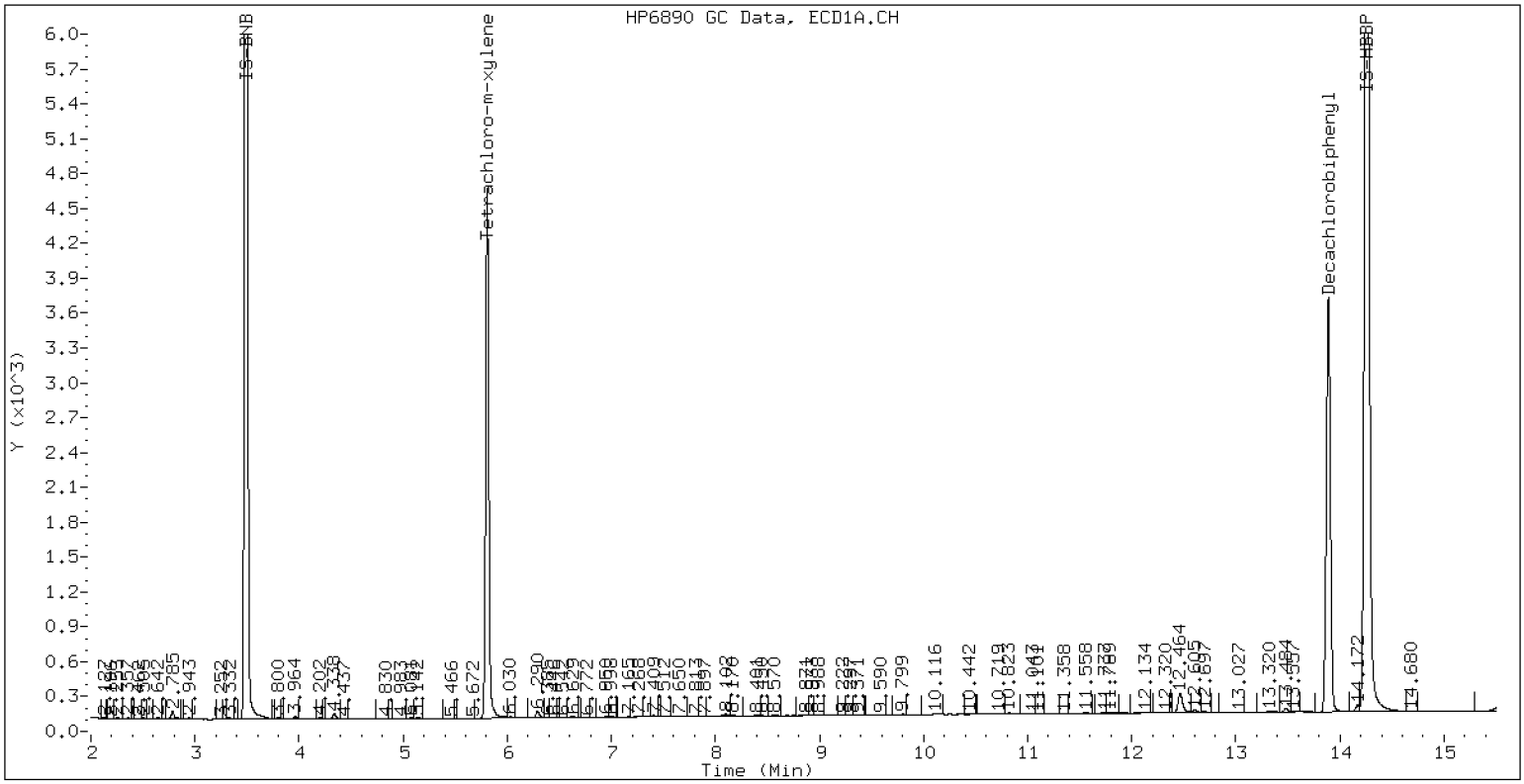
Total PCB Area Col2 (5.784 - 14.017) = 26254 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

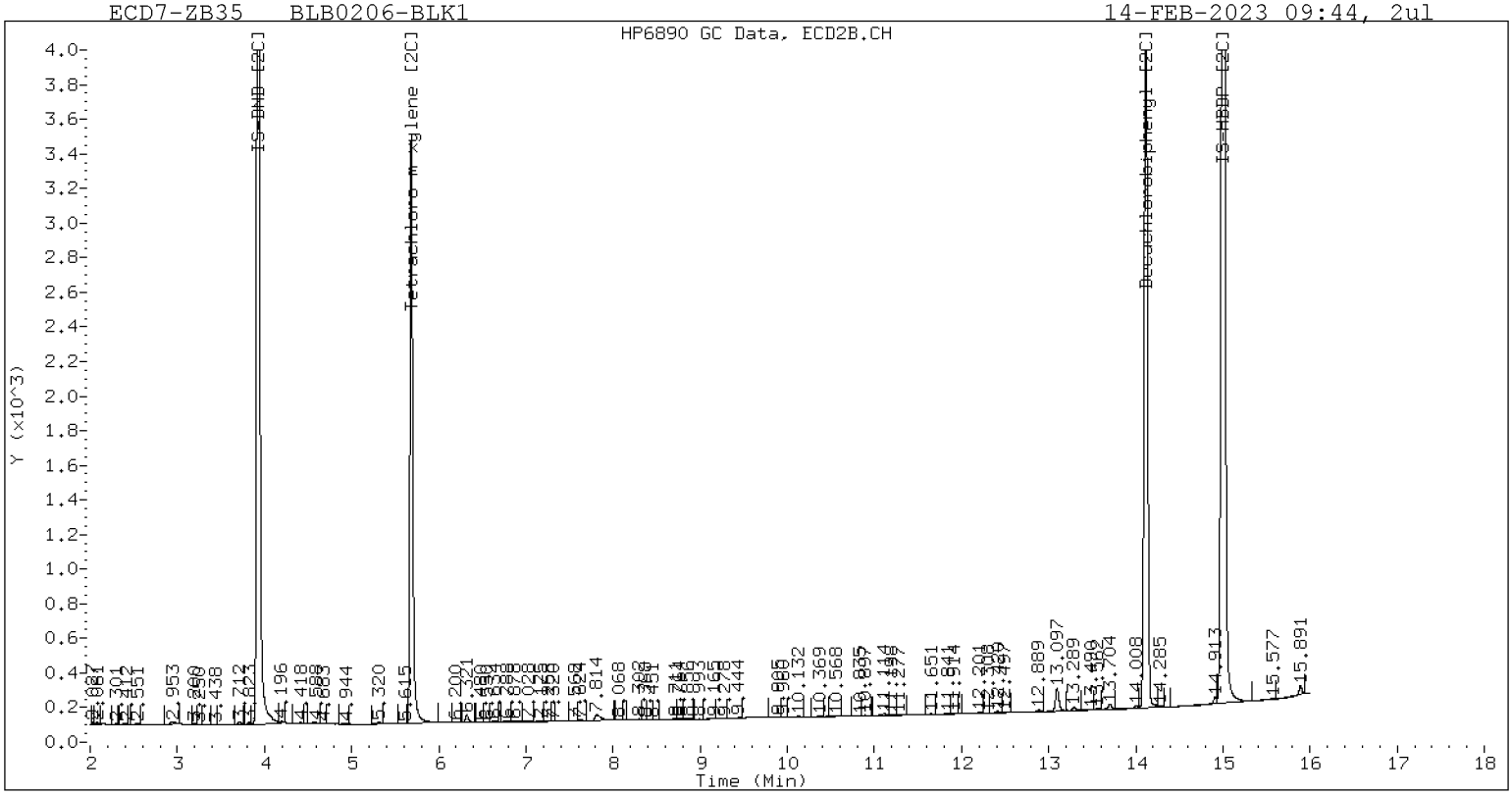
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0206-BLK1 14-FEB-2023 09:44, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0206-BLK1 14-FEB-2023 09:44, 2ul



ZB-35 Manual Integration: NO

LCS / LCS DUPLICATE RECOVERY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	02/20/23 21:03
Batch:	BLB0206	Laboratory ID:	BLB0206-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	12.5 g / 2.5 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Aroclor 1016 [2C]	101	98.3		97.6	56 - 120
Aroclor 1260	101	120		119	58 - 120

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/kg wet)	LCSD CONCENTRATION (ug/kg wet)	Q	LCSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016 [2C]	101	104		103	5.40	30	56 - 120
Aroclor 1260	101	123	*	122 *	2.77	30	58 - 120

* Indicates values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202332ECD7.D
Data file 2: /230220.b/230220.b/02202332ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0206-BS1
Client ID:
Injection Date: 20-FEB-2023 21:03
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	316274	5.683	-0.002	129060	31.9	33.4	4.4	Tetrachloro-m-xylene
13.891	-0.000	437959	14.115	-0.001	237576	38.3	41.6	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	697851	62.3
Hexabromobiphenyl	975457	1298290	33.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	290011	-20.9
Hexabromobiphenyl	646884	424305	-34.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.267	-0.002	121025	476.2	1	7.250	-0.003	74941	475.0
Aroclor-1016	2	7.647	-0.003	401796	493.7	2	7.847	-0.005	170943	514.0
Aroclor-1016	3	7.785	-0.002	168875	451.2	3	8.046	-0.005	70382	513.5
Aroclor-1016	4	8.401	-0.002	125132	508.0	4	8.301	-0.003	52086	464.3
Total Col1Ave (4 peaks):					482.3	Total Col2Ave (4 peaks):				491.7 RPD = 2
Corrected Ave (3 peaks):					473.7	Corrected Ave (3 peaks):				484.2 RPD = 2
Aroclor-1221	1	4.731	-0.002	806	14.9	1	4.952	-0.006	282	13.1
Aroclor-1221	2	6.129	-0.004	14481	143.2	2	6.295	-0.003	7669	165.7
Aroclor-1221	3	6.380	-0.003	76371	326.6	3	6.618	-0.003	32113	414.2
Total Col1Ave (3 peaks):					161.5	Total Col2Ave (3 peaks):				197.7 RPD = 20
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.731	-0.001	806	24.1	1	4.952	-0.007	282	21.9
Aroclor-1232	2	6.129	-0.004	14481	205.0	2	7.250	-0.004	74941	1039.6
Aroclor-1232	3	7.647	-0.007	401796	1184.2	3	7.847	-0.008	170943	1186.9
Aroclor-1232	4	8.573	-0.006	156191	1113.3	4	8.707	-0.005	53260	1321.1
Total Col1Ave (4 peaks):					631.6	Total Col2Ave (4 peaks):				892.4 RPD = 34
Corrected Ave (3 peaks):					447.4	Corrected Ave (3 peaks):				749.5 RPD = 50*
Aroclor-1242	1	7.267	-0.002	121025	582.2	1	7.250	-0.001	74941	597.4
Aroclor-1242	2	7.647	-0.005	401796	610.8	2	7.847	-0.006	170943	629.0
Aroclor-1242	3	8.401	-0.002	125132	629.4	3	9.149	-0.011	9597	111.7
Aroclor-1242	4	8.573	-0.004	156191	531.9	4	9.575	-0.011	4200	40.3
Total Col1Ave (4 peaks):					588.6	Total Col2Ave (4 peaks):				344.6 RPD = 52*
Corrected Ave (3 peaks):					574.9	Corrected Ave (3 peaks):				249.8 RPD = 79*
Aroclor-1248	1	8.401	-0.003	125132	371.8	1	8.301	-0.003	52086	398.1
Aroclor-1248	2	8.573	-0.005	156191	367.8	2	8.707	-0.003	53260	386.9
Aroclor-1248	3	8.989	-0.007	151252	252.0	3	9.149	-0.008	9597	60.3
Aroclor-1248	4	9.294	0.002	128842	339.3	4	9.575	-0.005	4200	21.8
Total Col1Ave (4 peaks):					332.7	Total Col2Ave (4 peaks):				216.8 RPD = 42*
Corrected Ave (3 peaks):					319.7	Corrected Ave (3 peaks):				156.3 RPD = 69*
Aroclor-1254	1	9.294	-0.001	128842	190.8	1	9.443	-0.003	44693	218.6
Aroclor-1254	2	---			0.0	2	9.963	-0.002	10138	61.4
Aroclor-1254	3	9.660	-0.005	23662	55.0	3	10.140	0.022	99515	276.6
Aroclor-1254	4	9.797	-0.006	73782	86.1	4	10.365	-0.003	128644	362.4
Aroclor-1254	5	10.115	-0.052	331804	634.9	5	10.561	-0.003	171143	954.2
Total Col1Ave (4 peaks):					241.7	Total Col2Ave (5 peaks):				374.6 RPD = 43*
Corrected Ave (3 peaks):					110.6	Corrected Ave (4 peaks):				229.7 RPD = 70*
Aroclor-1260	1	11.039	-0.001	269002	601.0	1	11.648	-0.002	127375	577.6
Aroclor-1260	2	11.356	-0.001	279448	610.3	2	11.911	-0.002	314872	569.2
Aroclor-1260	3	11.731	0.000	722779	596.1	3	12.430	-0.002	89988	598.9
Aroclor-1260	4	12.132	-0.002	378085	614.1	4	12.495	-0.003	218992	586.4
Aroclor-1260	5	12.241	0.001	152652	578.1	NS	---			----
Total Col1Ave (5 peaks):					599.9	Total Col2Ave (4 peaks):				583.0 RPD = 3
Corrected Ave (4 peaks):					596.4	Corrected Ave (3 peaks):				577.7 RPD = 3
Aroclor-1262	1	10.820	-0.005	532196	1402.8	1	11.193	-0.004	120844	380.0
Aroclor-1262	2	12.241	-0.001	152652	245.5	2	11.648	-0.001	127375	462.5
Aroclor-1262	3	12.315	-0.001	183958	274.3	3	12.430	-0.001	89988	300.9
Aroclor-1262	4	12.983	-0.001	176057	303.6	4	12.495	-0.004	218992	459.0
Total Col1Ave (4 peaks):					556.6	Total Col2Ave (4 peaks):				400.6 RPD = 33
Corrected Ave (3 peaks):					274.5	Corrected Ave (3 peaks):				380.0 RPD = 32
Aroclor-1268	1	12.241	-0.002	152652	93.7	1	12.430	-0.000	89988	116.5
Aroclor-1268	2	12.315	0.001	183958	113.6	2	12.495	-0.003	218992	268.0
Aroclor-1268	3	12.719	0.022	84893	61.8	3	12.887	-0.003	6387	9.2
Aroclor-1268	4	13.485	-0.002	58212	13.8	4	13.704	-0.002	27010	12.1
Total Col1Ave (4 peaks):					70.7	Total Col2Ave (4 peaks):				101.4 RPD = 36

Corrected Ave (3 peaks): 56.4 Corrected Ave (3 peaks): 45.9 RPD = 21

Total PCB Area Col1 (5.908 - 13.791) = 7573796 Col1 Total PCB = 1.0 ppm*

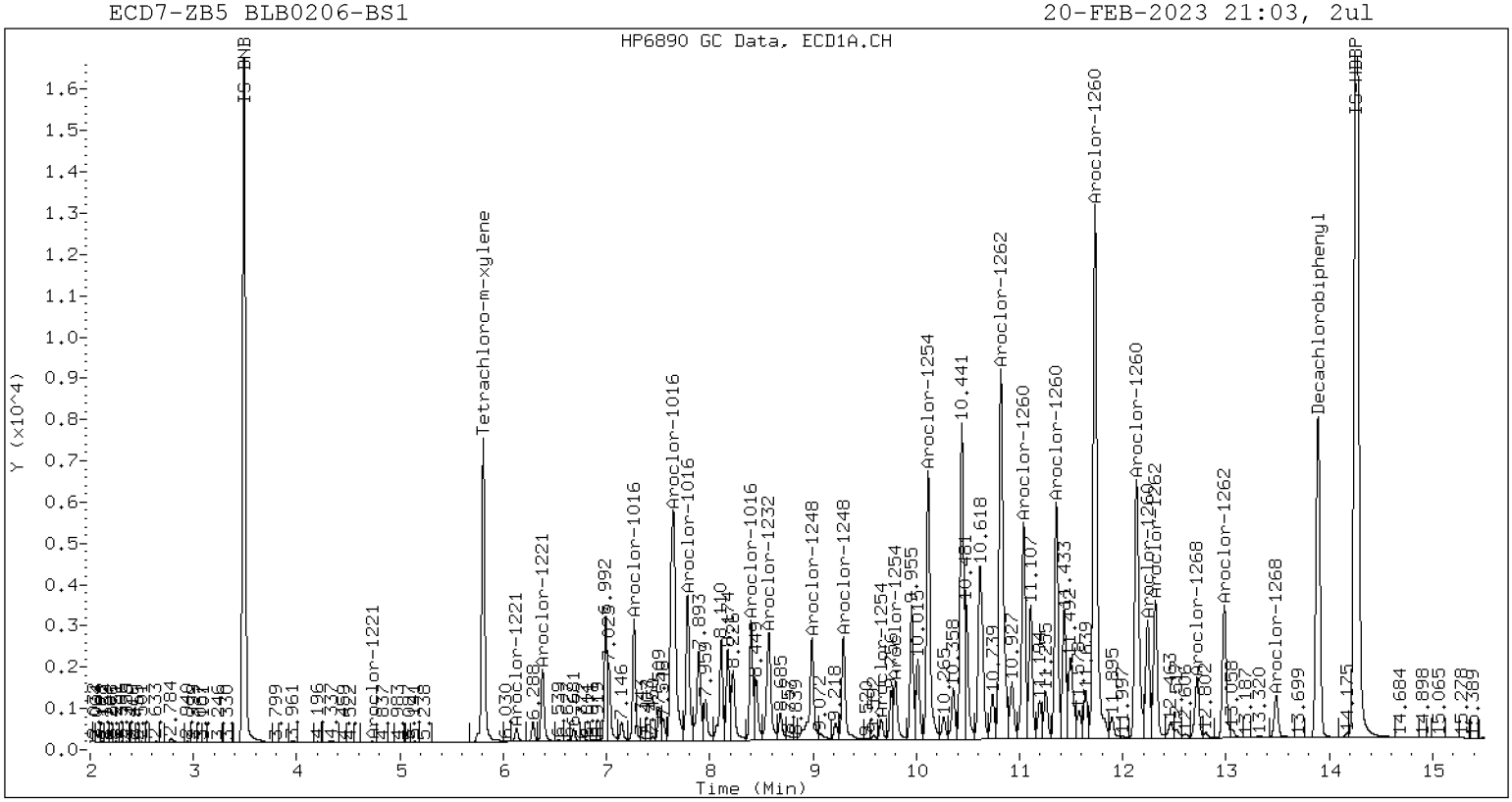
Total PCB Area Col2 (5.785 - 14.017) = 3122734 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

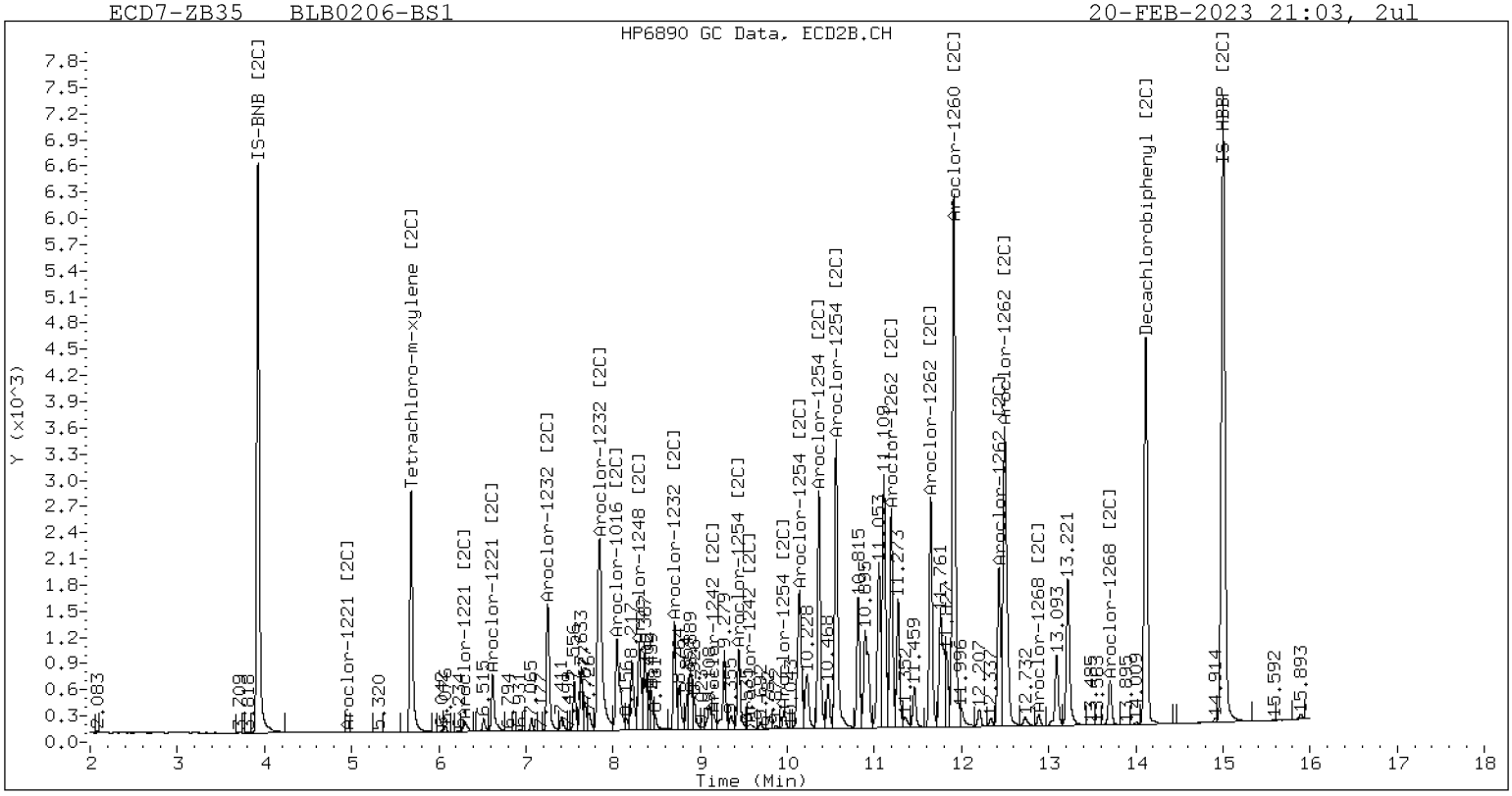
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0206-BS1 20-FEB-2023 21:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0206-BS1 20-FEB-2023 21:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202333ECD7.D
Data file 2: /230220.b/230220.b/02202333ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0206-BSD1
Client ID:
Injection Date: 20-FEB-2023 21:24
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	320444	5.683	-0.002	129606	33.0	34.3	4.0	Tetrachloro-m-xylene
13.890	-0.001	461552	14.115	-0.001	244347	39.1	41.7	6.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	685206	59.3
Hexabromobiphenyl	975457	1339238	37.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	283347	-22.7
Hexabromobiphenyl	646884	434957	-32.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.268	-0.001	123581	495.3	1	7.251	-0.002	77103	500.2
Aroclor-1016	2	7.648	-0.002	414183	518.3	2	7.847	-0.005	175744	540.8
Aroclor-1016	3	7.785	-0.002	174114	473.8	3	8.047	-0.004	72519	541.5
Aroclor-1016	4	8.400	-0.002	129745	536.5	4	8.302	-0.002	54079	493.4
Total Col1Ave (4 peaks):					506.0	Total Col2Ave (4 peaks):				519.0 RPD = 3
Corrected Ave (3 peaks):					495.8	Corrected Ave (3 peaks):				511.5 RPD = 3
Aroclor-1221	1	4.731	-0.001	885	16.6	1	4.955	-0.003	262	12.4
Aroclor-1221	2	6.129	-0.004	14835	149.4	2	6.295	-0.003	7334	162.2
Aroclor-1221	3	6.380	-0.003	78614	342.4	3	6.618	-0.003	32580	430.1
Total Col1Ave (3 peaks):					169.5	Total Col2Ave (3 peaks):				201.6 RPD = 17
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.731	-0.001	885	26.9	1	4.955	-0.003	262	20.8
Aroclor-1232	2	6.129	-0.004	14835	213.9	2	7.251	-0.003	77103	1094.8
Aroclor-1232	3	7.648	-0.006	414183	1243.2	3	7.847	-0.008	175744	1249.0
Aroclor-1232	4	8.573	-0.006	162513	1179.7	4	8.707	-0.005	55229	1402.2
Total Col1Ave (4 peaks):					665.9	Total Col2Ave (4 peaks):				941.7 RPD = 34
Corrected Ave (3 peaks):					473.5	Corrected Ave (3 peaks):				788.2 RPD = 50*
Aroclor-1242	1	7.268	-0.001	123581	605.4	1	7.251	-0.001	77103	629.1
Aroclor-1242	2	7.648	-0.004	414183	641.2	2	7.847	-0.006	175744	661.8
Aroclor-1242	3	8.400	-0.003	129745	664.7	3	9.150	-0.011	9967	118.7
Aroclor-1242	4	8.573	-0.004	162513	563.7	4	9.574	-0.012	5533	54.4
Total Col1Ave (4 peaks):					618.7	Total Col2Ave (4 peaks):				366.0 RPD = 51*
Corrected Ave (3 peaks):					603.4	Corrected Ave (3 peaks):				267.4 RPD = 77*
Aroclor-1248	1	8.400	-0.003	129745	392.6	1	8.302	-0.002	54079	423.1
Aroclor-1248	2	8.573	-0.004	162513	389.7	2	8.707	-0.003	55229	410.7
Aroclor-1248	3	8.990	-0.006	158874	269.5	3	9.150	-0.007	9967	64.1
Aroclor-1248	4	9.294	0.002	135370	363.1	4	9.574	-0.005	5533	29.4
Total Col1Ave (4 peaks):					353.7	Total Col2Ave (4 peaks):				231.8 RPD = 42*
Corrected Ave (3 peaks):					340.8	Corrected Ave (3 peaks):				168.1 RPD = 68*
Aroclor-1254	1	9.294	-0.001	135370	204.1	1	9.442	-0.004	46384	232.2
Aroclor-1254	2	---			0.0	2	9.963	-0.002	10418	64.6
Aroclor-1254	3	9.660	-0.004	24467	57.9	3	10.139	0.022	102689	292.1
Aroclor-1254	4	9.798	-0.005	77275	91.9	4	10.365	-0.003	133333	384.4
Aroclor-1254	5	10.115	-0.052	348030	678.3	5	10.560	-0.004	178515	1018.7
Total Col1Ave (4 peaks):					258.0	Total Col2Ave (5 peaks):				398.4 RPD = 43*
Corrected Ave (3 peaks):					118.0	Corrected Ave (4 peaks):				243.3 RPD = 69*
Aroclor-1260	1	11.040	-0.001	279941	606.3	1	11.648	-0.002	134185	593.6
Aroclor-1260	2	11.357	-0.000	296469	627.7	2	11.911	-0.002	332276	586.0
Aroclor-1260	3	11.730	-0.001	770043	615.6	3	12.430	-0.003	95488	620.0
Aroclor-1260	4	12.132	-0.003	401041	631.5	4	12.496	-0.003	229300	598.9
Aroclor-1260	5	12.241	0.000	164171	602.8	NS	---			----
Total Col1Ave (5 peaks):					616.8	Total Col2Ave (4 peaks):				599.6 RPD = 3
Corrected Ave (4 peaks):					613.1	Corrected Ave (3 peaks):				592.8 RPD = 3
Aroclor-1262	1	10.820	-0.005	558440	1427.0	1	11.194	-0.004	126947	389.5
Aroclor-1262	2	12.241	-0.001	164171	256.0	2	11.648	-0.001	134185	475.3
Aroclor-1262	3	12.315	-0.001	198660	287.2	3	12.430	-0.001	95488	311.4
Aroclor-1262	4	12.982	-0.002	189521	316.9	4	12.496	-0.004	229300	468.9
Total Col1Ave (4 peaks):					571.8	Total Col2Ave (4 peaks):				411.3 RPD = 33
Corrected Ave (3 peaks):					286.7	Corrected Ave (3 peaks):				389.9 RPD = 31
Aroclor-1268	1	12.241	-0.002	164171	97.7	1	12.430	-0.001	95488	120.6
Aroclor-1268	2	12.315	0.001	198660	118.9	2	12.496	-0.002	229300	273.7
Aroclor-1268	3	12.719	0.021	92774	65.5	3	12.887	-0.003	6675	9.3
Aroclor-1268	4	13.484	-0.002	67381	15.5	4	13.704	-0.002	28770	12.5
Total Col1Ave (4 peaks):					74.4	Total Col2Ave (4 peaks):				104.1 RPD = 33

Corrected Ave (3 peaks): 59.6 Corrected Ave (3 peaks): 47.5 RPD = 23

Total PCB Area Col1 (5.908 - 13.791) = 7969508 Col1 Total PCB = 1.0 ppm*

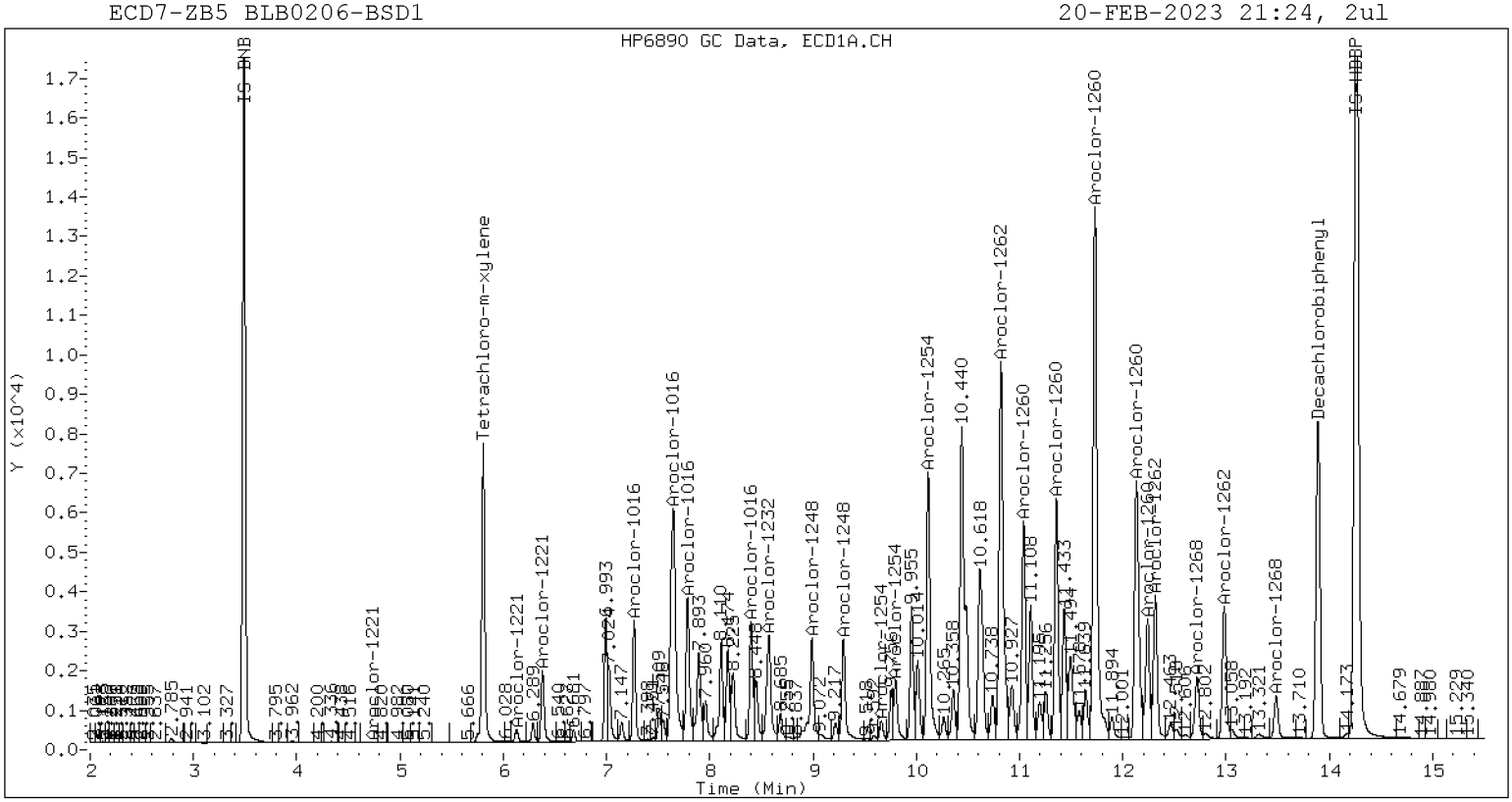
Total PCB Area Col2 (5.785 - 14.017) = 3254792 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

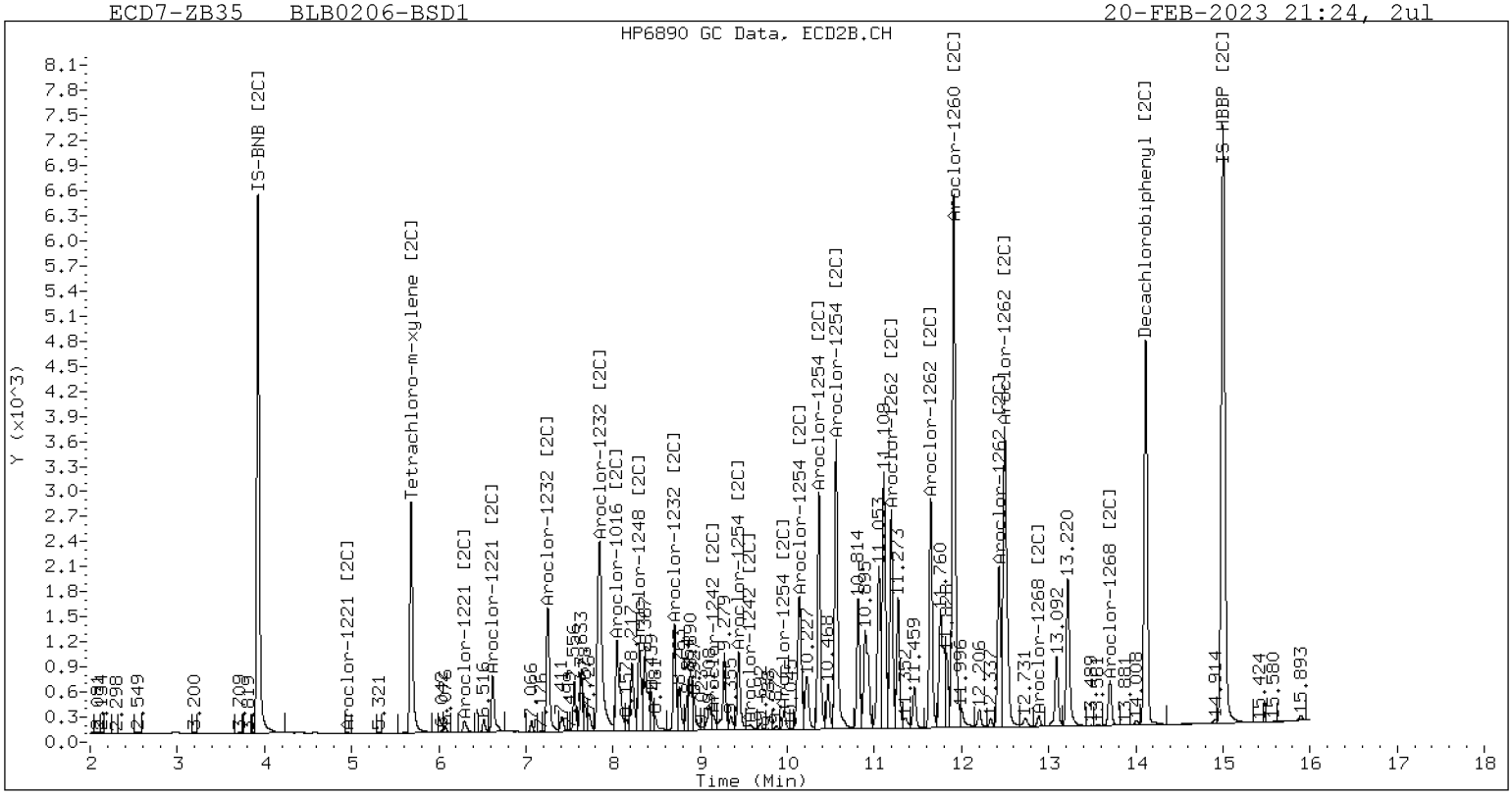
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0206-BSD1 20-FEB-2023 21:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0206-BSD1 20-FEB-2023 21:24, 2ul



ZB-35 Manual Integration: NO

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	02/20/23 22:27
Batch:	BLB0206	Laboratory ID:	BLB0206-MS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike
Initial/Final:	15.25 g / 2.5 mL	Source Sample:	LY-28_0-10

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Aroclor 1016	101	ND	U	95.6		94.9	56 - 120
Aroclor 1260	101	ND	U	114		113	58 - 120

* Values outside of QC limits

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

MS / MS DUPLICATE RECOVERY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	02/20/23 22:48
Batch:	BLB0206	Laboratory ID:	BLB0206-MSD1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike Dup
Initial/Final:	12.25 g / 2.5 mL	Source Sample:	LY-28_0-10

COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016	126	125		99.8	26.8	30	56 - 120
Aroclor 1260	126	125		99.9	9.50	30	58 - 120

* Values outside of QC limits

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202336ECD7.D
Data file 2: /230220.b/230220.b/02202336ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0206-MS1
Client ID:
Injection Date: 20-FEB-2023 22:27
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.805	-0.003	341576	5.682	-0.003	144907	32.5	37.5	14.5	Tetrachloro-m-xylene
13.888	-0.003	425025	14.114	-0.003	226114	37.9	37.7	0.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	741327	72.4
Hexabromobiphenyl	975457	1273018	30.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	289502	-21.1
Hexabromobiphenyl	646884	445866	-31.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	ZB5 Col Area	Amount	Peak#	RT	Shift	ZB35 Col Area	Amount
Aroclor-1016	1	7.266	-0.003	140252	519.5	1	7.250	-0.003	82319	522.6
Aroclor-1016	2	7.644	-0.006	427304	494.3	2	7.843	-0.009	176216	530.8
Aroclor-1016	3	7.783	-0.004	171097	430.4	3	8.043	-0.008	69989	511.5
Aroclor-1016	4	8.398	-0.004	122514	468.2	4	8.299	-0.005	50596	451.9
Total Col1Ave (4 peaks):					478.1	Total Col2Ave (4 peaks):				504.2 RPD = 5
Corrected Ave (3 peaks):					464.3	Corrected Ave (3 peaks):				495.3 RPD = 6
Aroclor-1221	1	4.732	0.000	2683	46.6	1	4.950	-0.008	873	40.6
Aroclor-1221	2	6.128	-0.006	17315	161.2	2	6.294	-0.004	6736	145.8
Aroclor-1221	3	6.379	-0.004	90489	364.2	3	6.617	-0.005	38614	499.0
Total Col1Ave (3 peaks):					190.7	Total Col2Ave (3 peaks):				228.4 RPD = 18
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.732	0.000	2683	75.5	1	4.950	-0.009	873	68.0
Aroclor-1232	2	6.128	-0.005	17315	230.7	2	7.250	-0.004	82319	1144.0
Aroclor-1232	3	7.644	-0.010	427304	1185.5	3	7.843	-0.013	176216	1225.7
Aroclor-1232	4	8.569	-0.010	145086	973.5	4	8.705	-0.007	55301	1374.2
Total Col1Ave (4 peaks):					616.3	Total Col2Ave (4 peaks):				953.0 RPD = 43*
Corrected Ave (3 peaks):					426.6	Corrected Ave (3 peaks):				812.6 RPD = 62*
Aroclor-1242	1	7.266	-0.003	140252	635.1	1	7.250	-0.002	82319	657.4
Aroclor-1242	2	7.644	-0.008	427304	611.4	2	7.843	-0.010	176216	649.5
Aroclor-1242	3	8.398	-0.005	122514	580.1	3	9.141	-0.020	10849	126.5
Aroclor-1242	4	8.569	-0.008	145086	465.1	4	9.565	-0.022	8054	77.4
Total Col1Ave (4 peaks):					572.9	Total Col2Ave (4 peaks):				377.7 RPD = 41*
Corrected Ave (3 peaks):					552.2	Corrected Ave (3 peaks):				284.5 RPD = 64*
Aroclor-1248	1	8.398	-0.005	122514	342.7	1	8.299	-0.005	50596	387.4
Aroclor-1248	2	8.569	-0.009	145086	321.6	2	8.705	-0.005	55301	402.5
Aroclor-1248	3	8.988	-0.008	92529	145.1	3	9.141	-0.016	10849	68.3
Aroclor-1248	4	9.290	-0.002	112828	279.7	4	9.565	-0.015	8054	41.8
Total Col1Ave (4 peaks):					272.3	Total Col2Ave (4 peaks):				225.0 RPD = 19
Corrected Ave (3 peaks):					248.8	Corrected Ave (3 peaks):				165.9 RPD = 40*
Aroclor-1254	1	9.290	-0.005	112828	157.3	1	9.439	-0.007	45989	225.3
Aroclor-1254	2	9.363	-0.011	8341	29.5	2	9.958	-0.007	12494	75.8
Aroclor-1254	3	9.656	-0.009	28358	62.0	3	10.137	0.019	103146	287.2
Aroclor-1254	4	9.790	-0.013	79855	87.7	4	10.362	-0.005	131827	372.0
Aroclor-1254	5	10.113	-0.054	320188	576.8	5	10.556	-0.008	163793	914.8
Total Col1Ave (5 peaks):					182.7	Total Col2Ave (5 peaks):				375.0 RPD = 69*
Corrected Ave (4 peaks):					84.1	Corrected Ave (4 peaks):				240.1 RPD = 96*
Aroclor-1260	1	11.037	-0.004	255414	582.0	1	11.645	-0.004	129485	558.8
Aroclor-1260	2	11.354	-0.003	273223	608.6	2	11.908	-0.006	306024	526.5
Aroclor-1260	3	11.726	-0.005	649290	546.1	3	12.427	-0.006	94937	601.3
Aroclor-1260	4	12.127	-0.008	352694	584.2	4	12.490	-0.008	211150	538.0
Aroclor-1260	5	12.237	-0.003	136762	528.2	NS	---			----
Total Col1Ave (5 peaks):					569.8	Total Col2Ave (4 peaks):				556.2 RPD = 2
Corrected Ave (4 peaks):					560.1	Corrected Ave (3 peaks):				541.1 RPD = 3
Aroclor-1262	1	10.815	-0.010	519089	1395.5	1	11.191	-0.006	109580	327.9
Aroclor-1262	2	12.237	-0.005	136762	224.3	2	11.645	-0.004	129485	447.4
Aroclor-1262	3	12.311	-0.006	175512	266.9	3	12.427	-0.004	94937	302.1
Aroclor-1262	4	12.977	-0.007	172000	302.5	4	12.490	-0.010	211150	421.2
Total Col1Ave (4 peaks):					547.3	Total Col2Ave (4 peaks):				374.7 RPD = 37
Corrected Ave (3 peaks):					264.6	Corrected Ave (3 peaks):				350.4 RPD = 28
Aroclor-1268	1	12.237	-0.006	136762	85.6	1	12.427	-0.004	94937	117.0
Aroclor-1268	2	12.311	-0.004	175512	110.5	2	12.490	-0.008	211150	245.9
Aroclor-1268	3	12.713	0.016	92065	68.3	3	12.887	-0.003	14438	19.7
Aroclor-1268	4	13.482	-0.005	75679	18.3	4	13.700	-0.007	31844	13.5
Total Col1Ave (4 peaks):					70.7	Total Col2Ave (4 peaks):				99.0 RPD = 33

Corrected Ave (3 peaks): 57.4 Corrected Ave (3 peaks): 50.1 RPD = 14

Total PCB Area Col1 (5.908 - 13.791) = 7778078 Col1 Total PCB = 0.9 ppm*

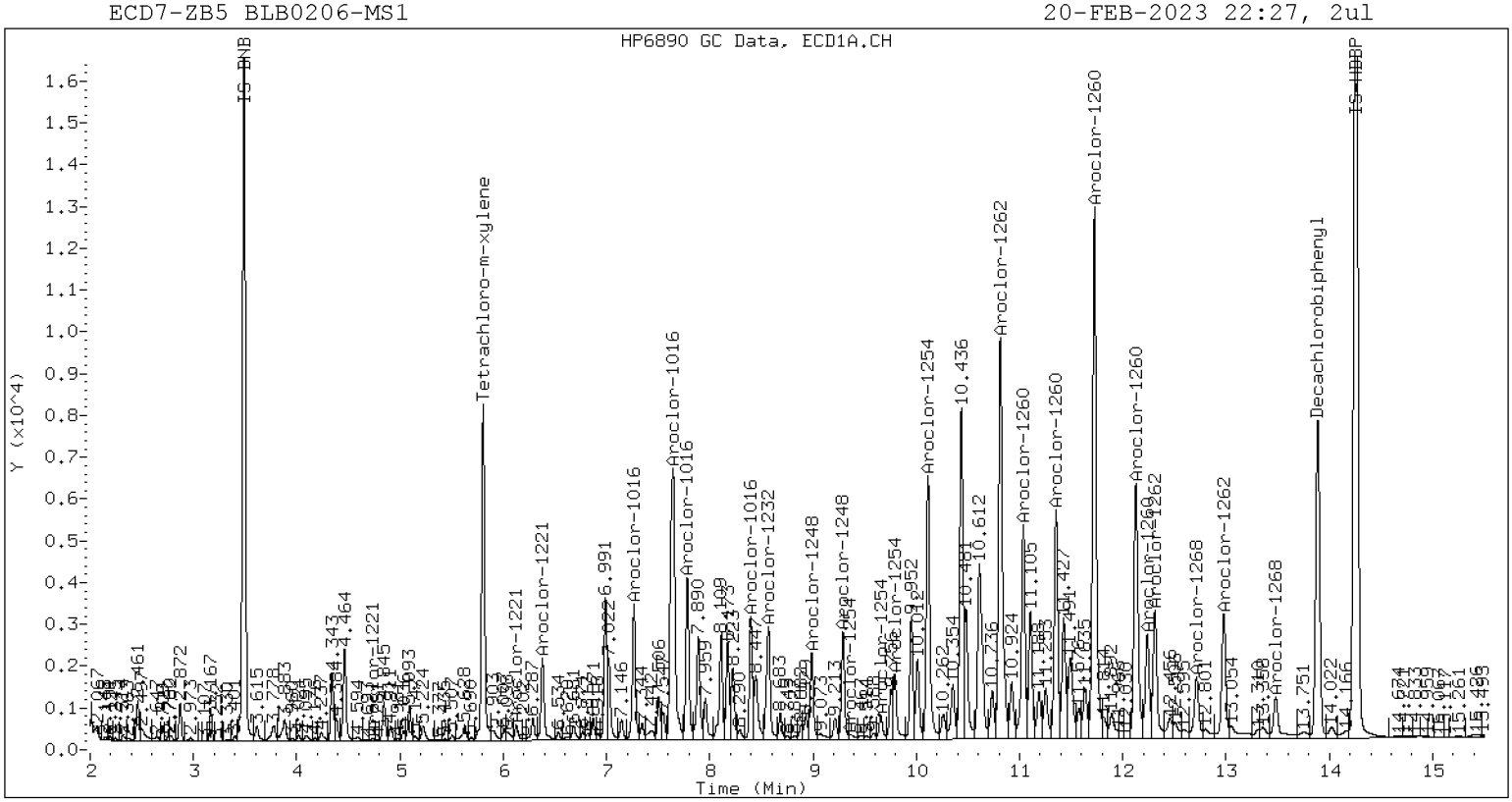
Total PCB Area Col2 (5.785 - 14.017) = 3285046 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

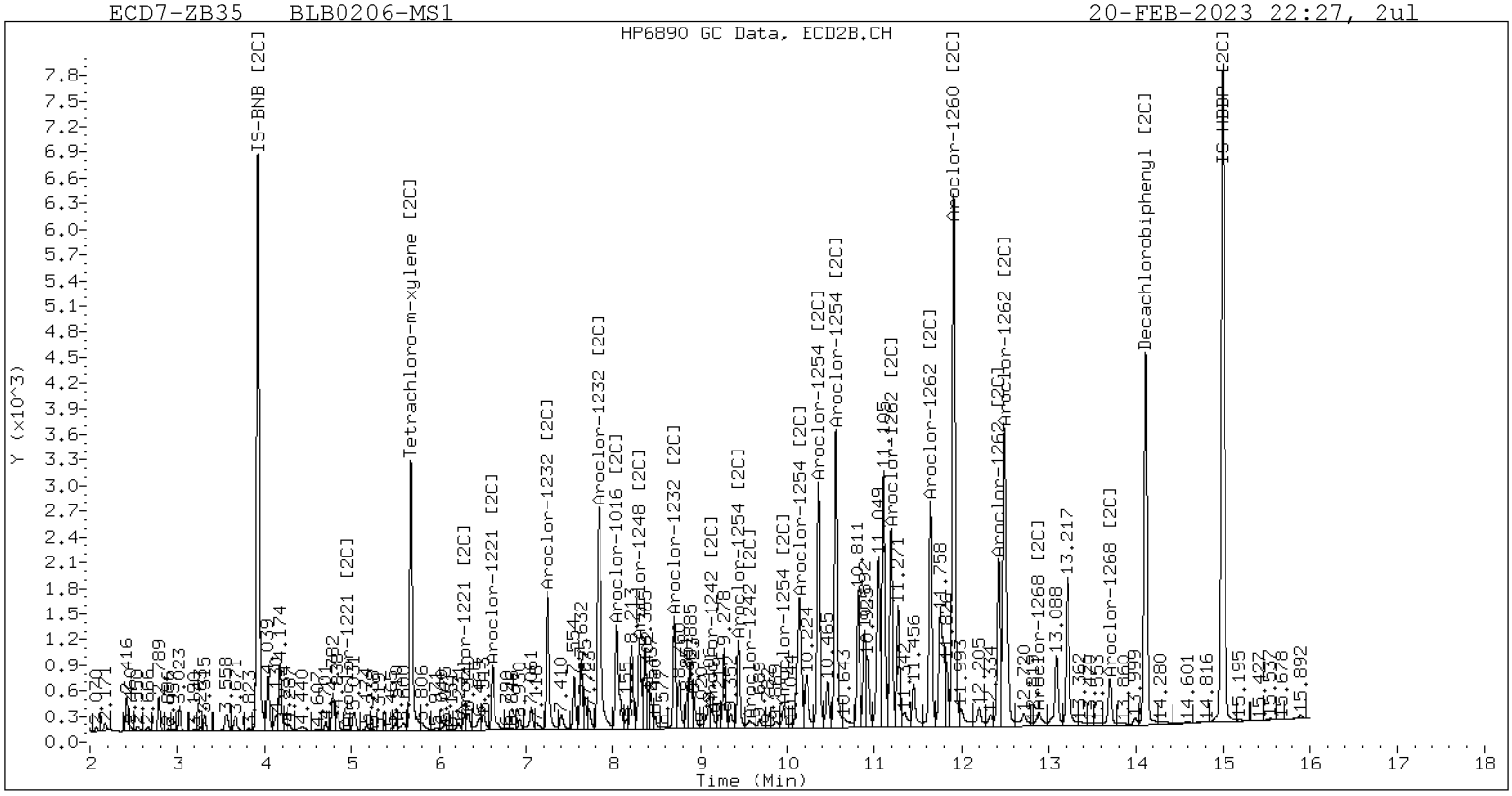
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0206-MS1 20-FEB-2023 22:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0206-MS1 20-FEB-2023 22:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202337ECD7.D
Data file 2: /230220.b/230220.b/02202337ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0206-MSD1
Client ID:
Injection Date: 20-FEB-2023 22:48
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.003	343866	5.682	-0.003	146919	32.2	38.0	16.7	Tetrachloro-m-xylene
13.890	-0.001	419813	14.114	-0.003	220190	37.3	37.2	0.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	753041	75.1
Hexabromobiphenyl	975457	1279614	31.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	289610	-21.0
Hexabromobiphenyl	646884	439545	-32.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.266	-0.003	162858	593.9	1	7.251	-0.002	86921	551.6
Aroclor-1016	2	7.644	-0.006	436182	496.7	2	7.844	-0.008	175957	529.8
Aroclor-1016	3	7.784	-0.003	177508	439.5	3	8.044	-0.007	68603	501.2
Aroclor-1016	4	8.400	-0.003	128233	482.5	4	8.301	-0.003	49476	441.7
Total Col1Ave (4 peaks):					503.1	Total Col2Ave (4 peaks):				506.1 RPD = 1
Corrected Ave (3 peaks):					472.9	Corrected Ave (3 peaks):				490.9 RPD = 4
Aroclor-1221	1	4.731	-0.002	8780	150.1	1	4.951	-0.007	1259	58.5
Aroclor-1221	2	6.126	-0.007	24664	226.0	2	6.295	-0.003	6721	145.4
Aroclor-1221	3	6.380	-0.003	97025	384.5	3	6.617	-0.004	40613	524.6
Total Col1Ave (3 peaks):					253.5	Total Col2Ave (3 peaks):				242.8 RPD = 4
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.731	-0.001	8780	243.1	1	4.951	-0.008	1259	98.0
Aroclor-1232	2	6.126	-0.007	24664	323.6	2	7.251	-0.004	86921	1207.5
Aroclor-1232	3	7.644	-0.010	436182	1191.3	3	7.844	-0.011	175957	1223.4
Aroclor-1232	4	8.570	-0.009	151685	1001.9	4	8.706	-0.007	53996	1341.2
Total Col1Ave (4 peaks):					690.0	Total Col2Ave (4 peaks):				967.6 RPD = 33
Corrected Ave (3 peaks):					522.9	Corrected Ave (3 peaks):				843.0 RPD = 47*
Aroclor-1242	1	7.266	-0.003	162858	726.0	1	7.251	-0.001	86921	693.9
Aroclor-1242	2	7.644	-0.008	436182	614.4	2	7.844	-0.009	175957	648.3
Aroclor-1242	3	8.400	-0.004	128233	597.7	3	9.143	-0.018	10474	122.1
Aroclor-1242	4	8.570	-0.007	151685	478.7	4	9.566	-0.020	5056	48.6
Total Col1Ave (4 peaks):					604.2	Total Col2Ave (4 peaks):				378.2 RPD = 46*
Corrected Ave (3 peaks):					563.6	Corrected Ave (3 peaks):				273.0 RPD = 69*
Aroclor-1248	1	8.400	-0.004	128233	353.1	1	8.301	-0.003	49476	378.7
Aroclor-1248	2	8.570	-0.008	151685	331.0	2	8.706	-0.004	53996	392.8
Aroclor-1248	3	8.988	-0.008	91816	141.7	3	9.143	-0.014	10474	65.9
Aroclor-1248	4	9.291	-0.001	113612	277.3	4	9.566	-0.013	5056	26.2
Total Col1Ave (4 peaks):					275.8	Total Col2Ave (4 peaks):				215.9 RPD = 24
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				157.0 RPD = 46*
Aroclor-1254	1	9.291	-0.004	113612	155.9	1	9.440	-0.006	44364	217.3
Aroclor-1254	2	9.363	-0.011	5997	20.9	2	9.959	-0.006	10043	60.9
Aroclor-1254	3	9.657	-0.007	25580	55.1	3	10.137	0.019	98705	274.7
Aroclor-1254	4	9.791	-0.012	75943	82.1	4	10.362	-0.005	127960	361.0
Aroclor-1254	5	10.113	-0.054	311739	552.8	5	10.557	-0.007	158945	887.4
Total Col1Ave (5 peaks):					173.4	Total Col2Ave (5 peaks):				360.3 RPD = 70*
Corrected Ave (4 peaks):					78.5	Corrected Ave (4 peaks):				228.5 RPD = 98*
Aroclor-1260	1	11.038	-0.003	239315	542.5	1	11.645	-0.004	122599	536.7
Aroclor-1260	2	11.353	-0.004	243812	540.2	2	11.908	-0.006	302439	527.8
Aroclor-1260	3	11.725	-0.005	611237	511.4	3	12.426	-0.007	90890	584.0
Aroclor-1260	4	12.125	-0.010	273382	450.5	4	12.492	-0.007	186257	481.4
Aroclor-1260	5	12.238	-0.002	122875	472.2	NS	---			----
Total Col1Ave (5 peaks):					503.4	Total Col2Ave (4 peaks):				532.5 RPD = 6
Corrected Ave (4 peaks):					493.6	Corrected Ave (3 peaks):				515.3 RPD = 4
Aroclor-1262	1	10.815	-0.009	501943	1342.4	1	11.191	-0.006	106552	323.5
Aroclor-1262	2	12.238	-0.004	122875	200.5	2	11.645	-0.004	122599	429.7
Aroclor-1262	3	12.311	-0.006	153525	232.3	3	12.426	-0.005	90890	293.3
Aroclor-1262	4	12.979	-0.006	159058	278.3	4	12.492	-0.008	186257	376.9
Total Col1Ave (4 peaks):					513.4	Total Col2Ave (4 peaks):				355.9 RPD = 36
Corrected Ave (3 peaks):					237.0	Corrected Ave (3 peaks):				331.2 RPD = 33
Aroclor-1268	1	12.238	-0.005	122875	76.5	1	12.426	-0.005	90890	113.6
Aroclor-1268	2	12.311	-0.003	153525	96.2	2	12.492	-0.006	186257	220.0
Aroclor-1268	3	12.714	0.017	77320	57.1	3	12.887	-0.003	8035	11.1
Aroclor-1268	4	13.482	-0.004	53904	13.0	4	13.702	-0.005	28618	12.3
Total Col1Ave (4 peaks):					60.7	Total Col2Ave (4 peaks):				89.3 RPD = 38

Corrected Ave (3 peaks): 48.9 Corrected Ave (3 peaks): 45.7 RPD = 7

Total PCB Area Col1 (5.908 - 13.791) = 7488818 Col1 Total PCB = 0.9 ppm*

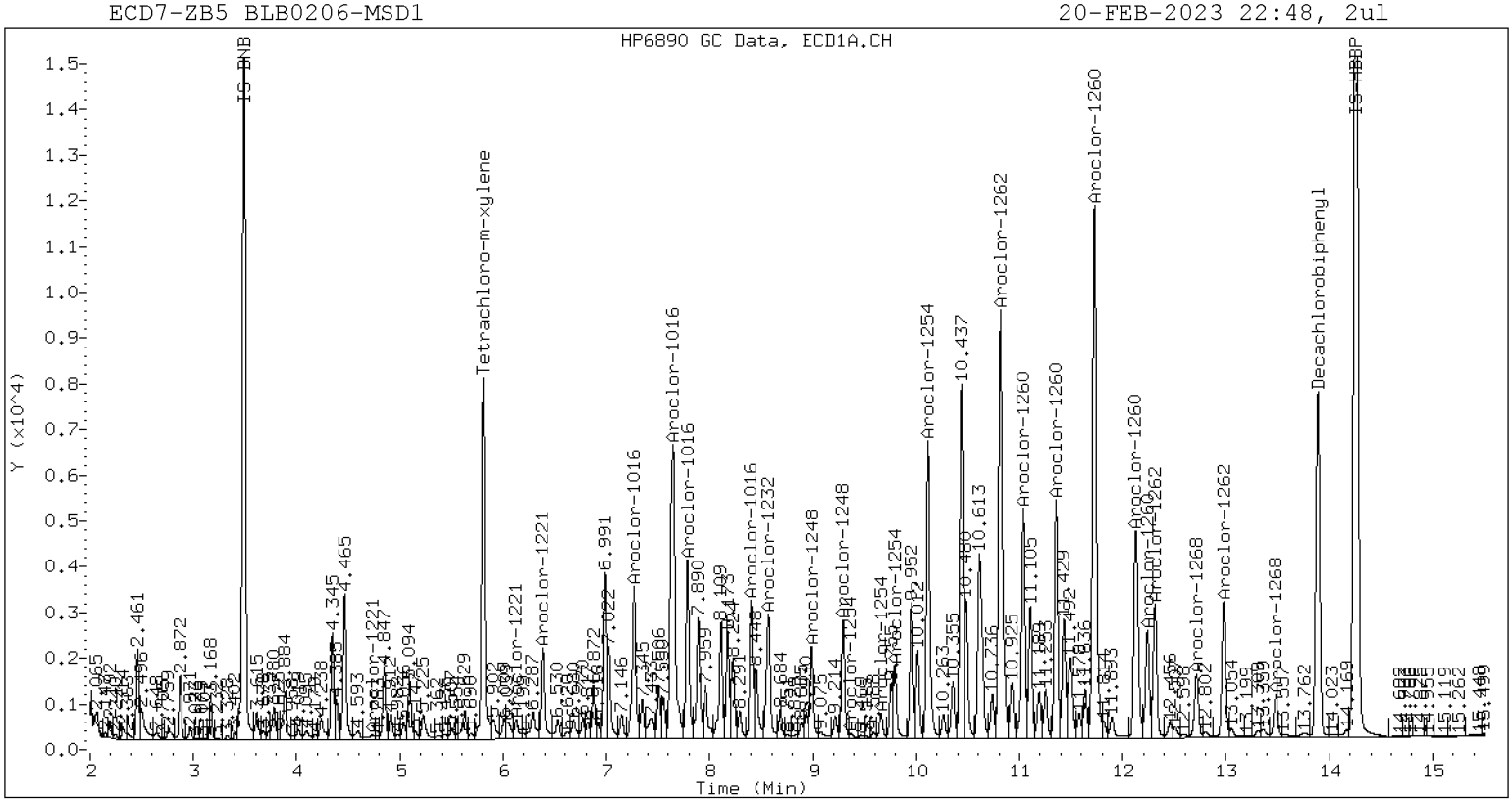
Total PCB Area Col2 (5.785 - 14.017) = 3136588 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

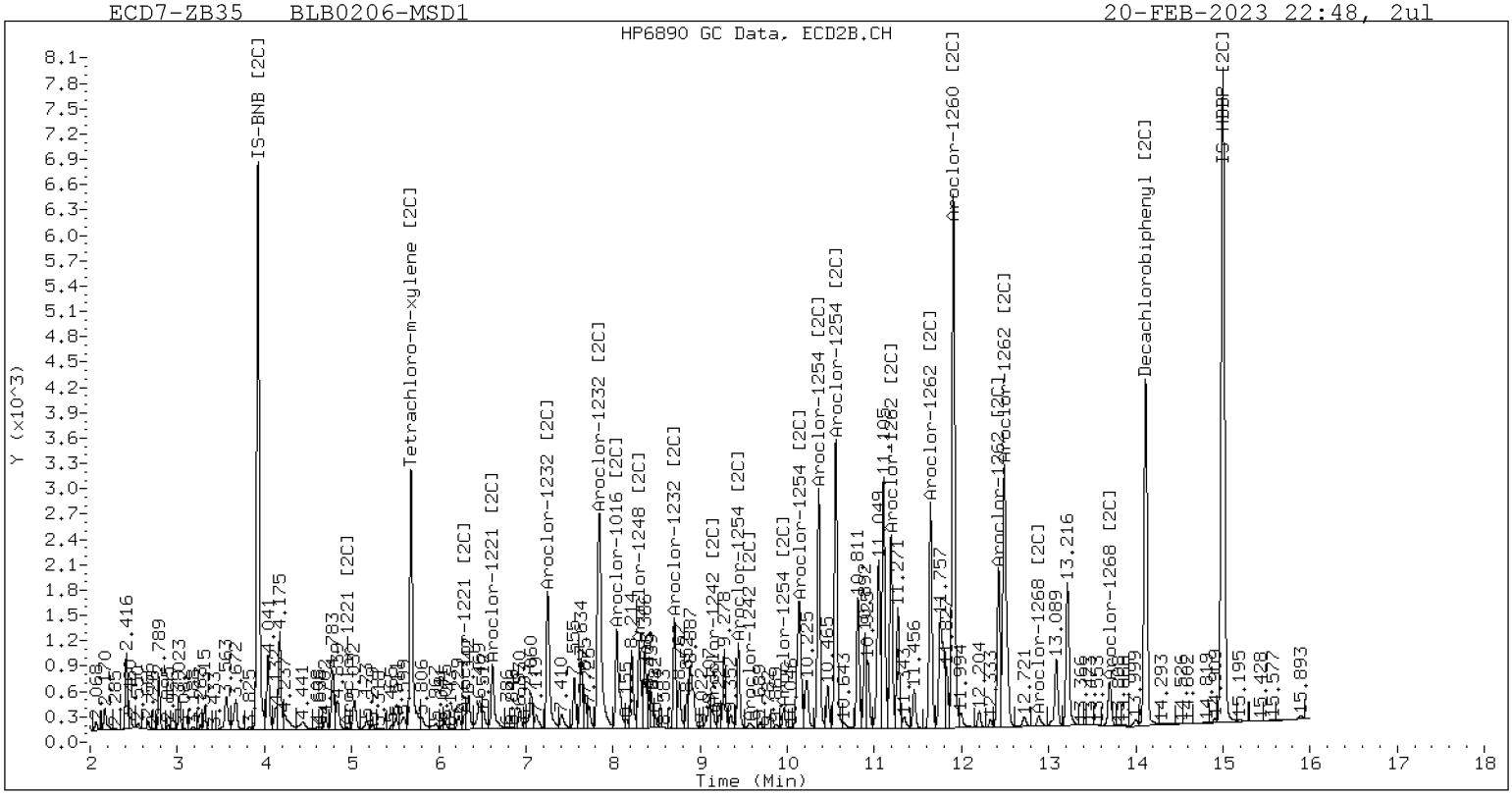
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0206-MSD1 20-FEB-2023 22:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0206-MSD1 20-FEB-2023 22:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Matrix: Solid
Laboratory ID: BLB0206-SRM1
Batch: BLB0206
Initial/Final: 2.5 g / 2.5 mL
Preparation: EPA 3546 (Microwave)
Analyzed: 02/20/2023 21:45
Standard ID: K010817
Expires: 05/17/2023
Standard Lot#: PSRM0166
Description: Puget Sound reference-SRM

ANALYTE	TRUE (ug/kg wet)	FOUND (ug/kg wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
Aroclor 1260	108.00	145	2.9	20.0		134	38 - 167
Aroclor 1260 [2C]	108.00	150	2.9	20.0		139	38 - 167

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202334ECD7.D
Data file 2: /230220.b/230220.b/02202334ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLB0206-SRM1
Client ID:
Injection Date: 20-FEB-2023 21:45
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	324794	5.682	-0.003	132358	30.6	33.7	9.6	Tetrachloro-m-xylene
13.887	-0.004	362061	14.112	-0.004	207585	37.0	37.6	1.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	747433	73.8
Hexabromobiphenyl	975457	1110698	13.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	294458	-19.7
Hexabromobiphenyl	646884	410579	-36.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.236	-0.033	76377	280.6	1	7.262	0.009	32537	203.1
Aroclor-1016	2	7.645	-0.005	17977	20.6	2	7.834	-0.018	10939	32.4
Aroclor-1016	3	7.802	0.015	25137	62.7	3	8.044	-0.007	2442	17.5
Aroclor-1016	4	8.409	0.006	34261	129.9	4	8.299	-0.005	8690	76.3
Total Col1Ave (4 peaks):					123.5	Total Col2Ave (4 peaks):				82.3 RPD = 40
Corrected Ave (3 peaks):					71.1	Corrected Ave (3 peaks):				42.1 RPD = 51*
Aroclor-1221	1	4.734	0.002	3027	52.1	1	4.945	-0.013	2773	126.7
Aroclor-1221	2	6.117	-0.016	21695	200.3	2	6.342	0.045	53239	1132.9
Aroclor-1221	3	6.395	0.011	13227	52.8	3	6.639	0.017	13591	172.7
Total Col1Ave (3 peaks):					101.7	Total Col2Ave (3 peaks):				477.4 RPD = 130*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.734	0.002	3027	84.4	1	4.945	-0.013	2773	212.3
Aroclor-1232	2	6.117	-0.016	21695	286.8	2	7.262	0.008	32537	444.6
Aroclor-1232	3	7.645	-0.009	17977	49.5	3	7.834	-0.021	10939	74.8
Aroclor-1232	4	8.566	-0.012	13063	86.9	4	8.705	-0.007	7037	171.9
Total Col1Ave (4 peaks):					126.9	Total Col2Ave (4 peaks):				225.9 RPD = 56*
Corrected Ave (3 peaks):					73.6	Corrected Ave (3 peaks):				153.0 RPD = 70*
Aroclor-1242	1	7.236	-0.033	76377	343.0	1	7.262	0.011	32537	255.5
Aroclor-1242	2	7.645	-0.007	17977	25.5	2	7.834	-0.019	10939	39.6
Aroclor-1242	3	8.409	0.006	34261	160.9	3	9.143	-0.018	7762	89.0
Aroclor-1242	4	8.566	-0.011	13063	41.5	4	9.533	-0.053	12027	113.7
Total Col1Ave (4 peaks):					142.7	Total Col2Ave (4 peaks):				124.5 RPD = 14
Corrected Ave (3 peaks):					76.0	Corrected Ave (3 peaks):				80.8 RPD = 6
Aroclor-1248	1	8.409	0.006	34261	95.1	1	8.299	-0.005	8690	65.4
Aroclor-1248	2	8.566	-0.011	13063	28.7	2	8.705	-0.005	7037	50.4
Aroclor-1248	3	8.988	-0.008	36631	57.0	3	9.143	-0.014	7762	48.1
Aroclor-1248	4	9.288	-0.003	46044	113.2	4	9.533	-0.046	12027	61.4
Total Col1Ave (4 peaks):					73.5	Total Col2Ave (4 peaks):				56.3 RPD = 26
Corrected Ave (3 peaks):					60.2	Corrected Ave (3 peaks):				53.3 RPD = 12
Aroclor-1254	1	9.288	-0.007	46044	63.7	1	9.438	-0.007	18322	88.3
Aroclor-1254	2	9.364	-0.010	17326	60.8	2	9.958	-0.008	9311	55.5
Aroclor-1254	3	9.660	-0.005	27171	58.9	3	10.109	-0.008	35283	96.6
Aroclor-1254	4	9.790	-0.013	62454	68.1	4	10.359	-0.008	44599	123.7
Aroclor-1254	5	10.112	-0.056	100391	179.4	5	10.555	-0.009	45503	249.9
Total Col1Ave (5 peaks):					86.2	Total Col2Ave (5 peaks):				122.8 RPD = 35
Corrected Ave (4 peaks):					62.9	Corrected Ave (4 peaks):				91.0 RPD = 37
Aroclor-1260	1	11.035	-0.005	58997	154.1	1	11.643	-0.006	33923	159.0
Aroclor-1260	2	11.349	-0.008	50552	129.0	2	11.905	-0.009	73792	137.9
Aroclor-1260	3	11.720	-0.011	154265	148.7	3	12.424	-0.009	24618	169.3
Aroclor-1260	4	12.122	-0.013	80790	153.4	4	12.488	-0.010	48641	134.6
Aroclor-1260	5	12.235	-0.005	31107	137.7	NS	---			----
Total Col1Ave (5 peaks):					144.6	Total Col2Ave (4 peaks):				150.2 RPD = 4
Corrected Ave (4 peaks):					142.2	Corrected Ave (3 peaks):				143.8 RPD = 1
Aroclor-1262	1	10.810	-0.015	132961	409.7	1	11.189	-0.008	28651	93.1
Aroclor-1262	2	12.235	-0.007	31107	58.5	2	11.643	-0.005	33923	127.3
Aroclor-1262	3	12.308	-0.009	38496	67.1	3	12.424	-0.007	24618	85.1
Aroclor-1262	4	12.974	-0.010	37189	75.0	4	12.488	-0.012	48641	105.4
Total Col1Ave (4 peaks):					152.6	Total Col2Ave (4 peaks):				102.7 RPD = 39
Corrected Ave (3 peaks):					66.9	Corrected Ave (3 peaks):				94.5 RPD = 34
Aroclor-1268	1	12.235	-0.008	31107	22.3	1	12.424	-0.007	24618	32.9
Aroclor-1268	2	12.308	-0.006	38496	27.8	2	12.488	-0.010	48641	61.5
Aroclor-1268	3	12.713	0.015	17660	15.0	3	12.885	-0.005	1692	2.5
Aroclor-1268	4	13.479	-0.008	9699	2.7	4	13.699	-0.008	7451	3.4
Total Col1Ave (4 peaks):					17.0	Total Col2Ave (4 peaks):				25.1 RPD = 39

Corrected Ave (3 peaks): 13.3 Corrected Ave (3 peaks): 13.0 RPD = 3

Total PCB Area Col1 (5.908 - 13.791) = 2725239 Col1 Total PCB = 0.3 ppm*

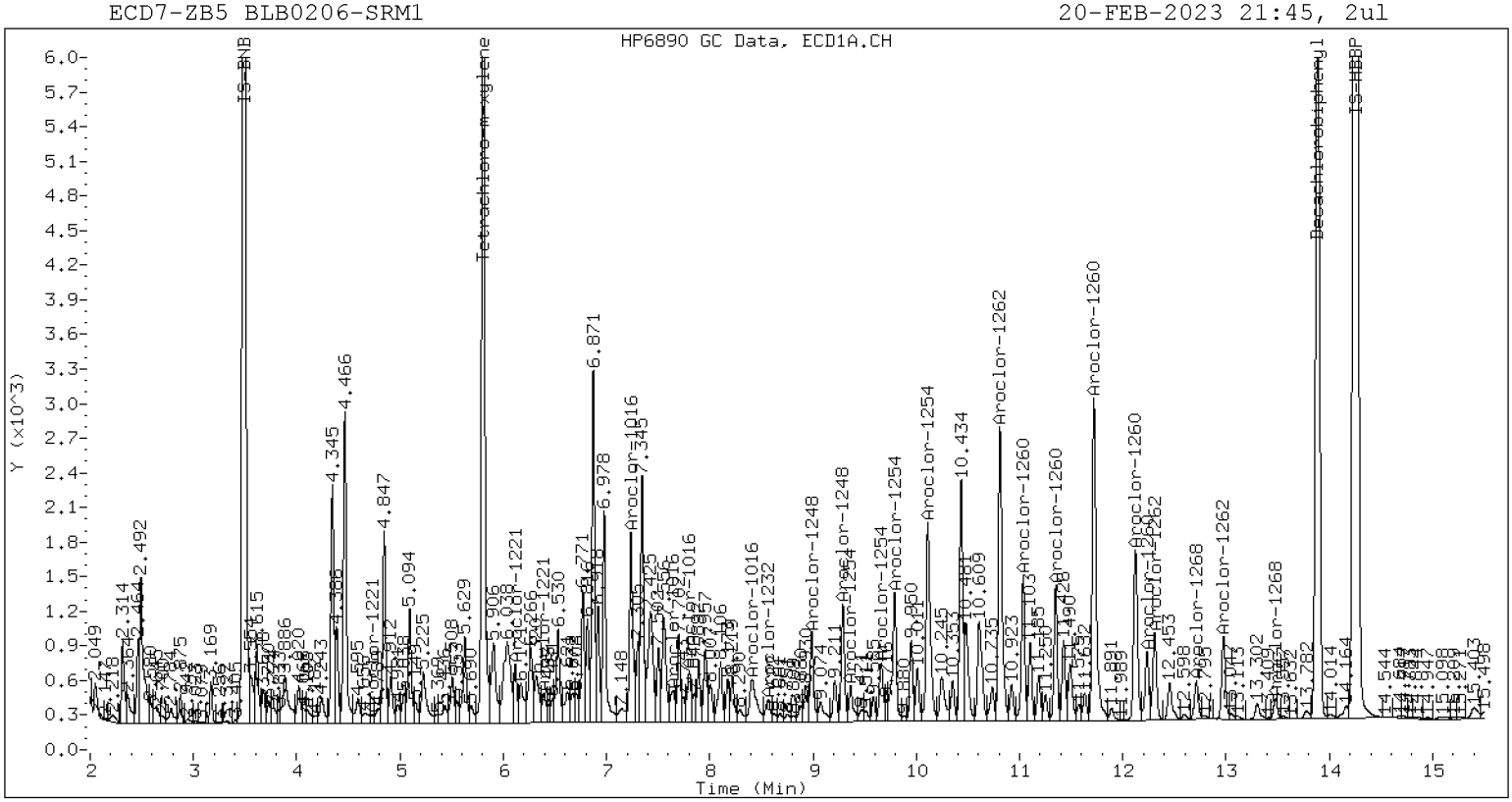
Total PCB Area Col2 (5.785 - 14.017) = 1165963 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

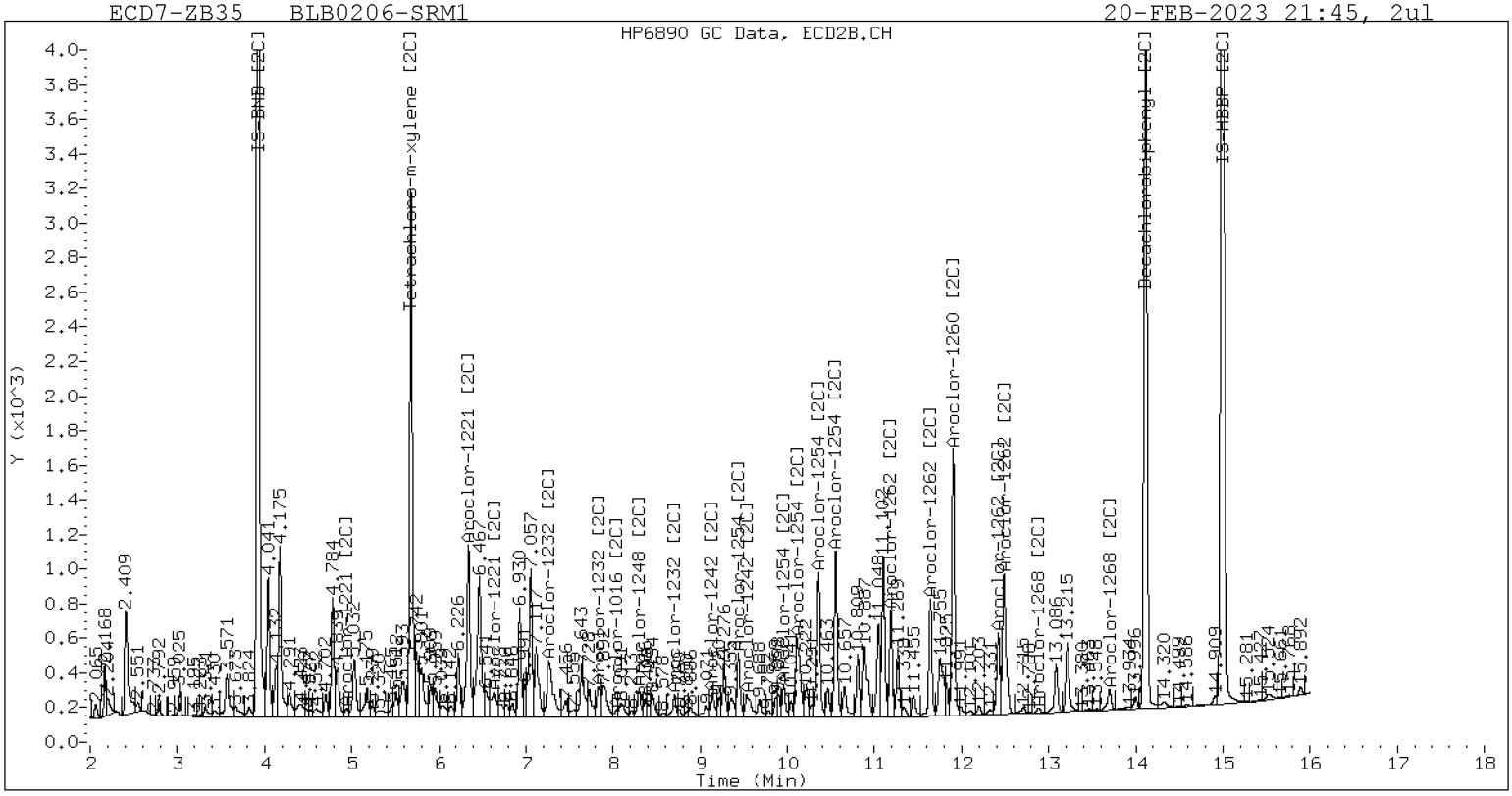
PCB Dual Column Chromatograms

ECD7-ZB5 BLB0206-SRM1 20-FEB-2023 21:45, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLB0206-SRM1 20-FEB-2023 21:45, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (1):	ZB5

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016	250	0.04907	20	0.0512752	50	4.958448E-02	1000	4.419372E-02	100	4.871991E-02	500	4.750494E-02
Aroclor-1016 (1)	250	2.945037E-02	20	3.168647E-02	50	3.098794E-02	1000	2.542068E-02	100	2.927898E-02	500	2.797459E-02
Aroclor-1016 (2)	250	9.646915E-02	20	9.586387E-02	50	9.290724E-02	1000	8.784361E-02	100	9.260076E-02	500	0.0940753
Aroclor-1016 (3)	250	4.135434E-02	20	4.882631E-02	50	4.638572E-02	1000	3.629342E-02	100	4.499654E-02	500	3.956515E-02
Aroclor-1016 (4)	250	2.900615E-02	20	2.872414E-02	50	2.805701E-02	1000	2.721718E-02	100	2.800337E-02	500	2.840463E-02
Aroclor 1260	250	3.825971E-02	20	3.808158E-02	50	3.658267E-02	1000	3.525686E-02	100	3.693134E-02	500	3.655449E-02
Aroclor-1260 (1)	250	0.0285946	20	2.788076E-02	50	2.775827E-02	1000	2.624971E-02	100	2.776583E-02	500	2.723126E-02
Aroclor-1260 (2)	250	2.938651E-02	20	2.805802E-02	50	2.792735E-02	1000	2.734406E-02	100	2.845124E-02	500	2.812096E-02
Aroclor-1260 (3)	250	0.0770527	20	7.961042E-02	50	7.479251E-02	1000	6.905711E-02	100	7.515635E-02	500	0.07265
Aroclor-1260 (4)	250	3.969126E-02	20	3.779959E-02	50	3.646545E-02	1000	3.777057E-02	100	3.728512E-02	500	0.0386139
Aroclor-1260 (5)	250	1.657348E-02	20	1.705908E-02	50	1.596974E-02	1000	1.586283E-02	100	1.599818E-02	500	1.615634E-02
Decachlorobiphenyl	40	0.7210364	3.2	0.7337868	8	0.7402813	160	0.6326452	16	0.7316827	80	0.6681226
Tetrachlorometaxylene	40	1.155206	3.2	1.165765	8	1.15771	160	1.072859	16	1.144775	80	1.114202

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221							250	1.487247E-02				
Aroclor-1221 (1)							250	6.214509E-03				
Aroclor-1221 (2)							250	0.0115934				
Aroclor-1221 (3)							250	2.680951E-02				
Aroclor 1232									250	1.672899E-02		
Aroclor-1232 (1)									250	3.837064E-03		
Aroclor-1232 (2)									250	8.097789E-03		
Aroclor-1232 (3)									250	3.889729E-02		
Aroclor-1232 (4)									250	1.608382E-02		
Aroclor 1242	250	3.892486E-02										
Aroclor-1242 (1)	250	2.383222E-02										
Aroclor-1242 (2)	250	7.541607E-02										
Aroclor-1242 (3)	250	2.279044E-02										
Aroclor-1242 (4)	250	3.366071E-02										
Aroclor 1248			250	4.990328E-02								
Aroclor-1248 (1)			250	3.857956E-02								
Aroclor-1248 (2)			250	0.0486889								
Aroclor-1248 (3)			250	6.881947E-02								
Aroclor-1248 (4)			250	4.352518E-02								
Aroclor 1254					250	6.307474E-02						
Aroclor-1254 (1)					250	7.742293E-02						
Aroclor-1254 (2)					250	3.048445E-02						
Aroclor-1254 (3)					250	0.0493409						
Aroclor-1254 (4)					250	9.821653E-02						
Aroclor-1254 (5)					250	5.990888E-02						
Aroclor 1262							250	3.468498E-02				
Aroclor-1262 (1)							250	2.337659E-02				
Aroclor-1262 (2)							250	3.831519E-02				

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3)							250	4.131812E-02				
Aroclor-1262 (4)							250	3.573002E-02				
Aroclor 1268									250	0.1360545		
Aroclor-1268 (1)									250	0.100387		
Aroclor-1268 (2)									250	9.977243E-02		
Aroclor-1268 (3)									250	8.466871E-02		
Aroclor-1268 (4)									250	0.2593896		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016	4.839137E-02	5.0			RSD (20)	
Aroclor-1016 (1)	2.913317E-02	7.7			RSD (20)	
Aroclor-1016 (2)	9.329332E-02	3.3			RSD (20)	
Aroclor-1016 (3)	4.290358E-02	10.9			RSD (20)	
Aroclor-1016 (4)	2.823541E-02	2.2			RSD (20)	
Aroclor 1221		0.0			RSD (20)	
Aroclor-1221 (1)		0.0			RSD (20)	
Aroclor-1221 (2)		0.0			RSD (20)	
Aroclor-1221 (3)		0.0			RSD (20)	
Aroclor 1232		0.0			RSD (20)	
Aroclor-1232 (1)		0.0			RSD (20)	
Aroclor-1232 (2)		0.0			RSD (20)	
Aroclor-1232 (3)		0.0			RSD (20)	
Aroclor-1232 (4)		0.0			RSD (20)	
Aroclor 1242		0.0			RSD (20)	
Aroclor-1242 (1)		0.0			RSD (20)	
Aroclor-1242 (2)		0.0			RSD (20)	
Aroclor-1242 (3)		0.0			RSD (20)	
Aroclor-1242 (4)		0.0			RSD (20)	
Aroclor 1248		0.0			RSD (20)	
Aroclor-1248 (1)		0.0			RSD (20)	
Aroclor-1248 (2)		0.0			RSD (20)	
Aroclor-1248 (3)		0.0			RSD (20)	
Aroclor-1248 (4)		0.0			RSD (20)	
Aroclor 1254		0.0			RSD (20)	
Aroclor-1254 (1)		0.0			RSD (20)	
Aroclor-1254 (2)		0.0			RSD (20)	
Aroclor-1254 (3)		0.0			RSD (20)	
Aroclor-1254 (4)		0.0			RSD (20)	
Aroclor-1254 (5)		0.0			RSD (20)	
Aroclor 1260	3.694444E-02	3.0			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1)	2.758007E-02	2.8			RSD (20)	
Aroclor-1260 (2)	2.821469E-02	2.4			RSD (20)	
Aroclor-1260 (3)	7.471985E-02	4.9			RSD (20)	
Aroclor-1260 (4)	3.793765E-02	2.9			RSD (20)	
Aroclor-1260 (5)	1.626994E-02	2.8			RSD (20)	
Aroclor 1262		0.0			RSD (20)	
Aroclor-1262 (1)		0.0			RSD (20)	
Aroclor-1262 (2)		0.0			RSD (20)	
Aroclor-1262 (3)		0.0			RSD (20)	
Aroclor-1262 (4)		0.0			RSD (20)	
Aroclor 1268		0.0			RSD (20)	
Aroclor-1268 (1)		0.0			RSD (20)	
Aroclor-1268 (2)		0.0			RSD (20)	
Aroclor-1268 (3)		0.0			RSD (20)	
Aroclor-1268 (4)		0.0			RSD (20)	
Decachlorobiphenyl	0.7045925	6.2			RSD (20)	
Tetrachlorometaxylene	1.135086	3.1			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (2):	ZB35

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016 [2C]	250	5.242468E-02	20	4.822291E-02	50	5.316173E-02	1000	4.766986E-02	100	5.409618E-02	500	5.046171E-02
Aroclor-1016 (1) [2C]	250	4.295239E-02	20	4.820627E-02	50	4.701692E-02	1000	0.0372373	100	0.0449378	500	4.079967E-02
Aroclor-1016 (2) [2C]	250	9.587157E-02	20	8.511819E-02	50	0.0916268	1000	8.872119E-02	100	9.594425E-02	500	9.318254E-02
Aroclor-1016 (3) [2C]	250	3.996314E-02	20	2.855764E-02	50	4.028694E-02	1000	0.0372925	100	4.194667E-02	500	3.882979E-02
Aroclor-1016 (4) [2C]	250	3.091162E-02	20	3.100956E-02	50	3.371625E-02	1000	2.742844E-02	100	3.355601E-02	500	2.903485E-02
Aroclor 1260 [2C]	250	6.191839E-02	20	6.663043E-02	50	6.155478E-02	1000	5.543383E-02	100	6.101171E-02	500	5.908963E-02
Aroclor-1260 (1) [2C]	250	4.183204E-02	20	4.619225E-02	50	4.217161E-02	1000	3.729712E-02	100	0.041652	500	3.956886E-02
Aroclor-1260 (2) [2C]	250	0.1072143	20	0.1115907	50	0.1060119	1000	0.0920396	100	0.1064311	500	0.1009206
Aroclor-1260 (3) [2C]	250	2.740572E-02	20	3.353389E-02	50	2.800208E-02	1000	2.707068E-02	100	2.592532E-02	500	2.726669E-02
Aroclor-1260 (4) [2C]	250	7.122142E-02	20	7.520485E-02	50	0.0700335	1000	0.0653279	100	7.003843E-02	500	6.860242E-02
Decachlorobiphenyl [2C]	40	1.135128	3.2	1.021793	8	1.035966	160	1.077976	16	1.076407	80	1.11204
Tetrachlorometaxylene [2C]	40	1.088861	3.2	1.075003	8	1.074789	160	1.031311	16	1.077221	80	1.053677

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221 [2C]							250	1.336668E-02				
Aroclor-1221 (1) [2C]							250	5.946954E-03				
Aroclor-1221 (2) [2C]							250	1.276792E-02				
Aroclor-1221 (3) [2C]							250	2.138517E-02				
Aroclor 1232 [2C]									250	0.0185704		
Aroclor-1232 (1) [2C]									250	3.547925E-03		
Aroclor-1232 (2) [2C]									250	1.988419E-02		
Aroclor-1232 (3) [2C]									250	3.972886E-02		
Aroclor-1232 (4) [2C]									250	1.112064E-02		
Aroclor 1242 [2C]	250	4.050233E-02										
Aroclor-1242 (1) [2C]	250	3.460225E-02										
Aroclor-1242 (2) [2C]	250	7.497184E-02										
Aroclor-1242 (3) [2C]	250	2.369829E-02										
Aroclor-1242 (4) [2C]	250	2.873695E-02										
Aroclor 1248 [2C]			250	4.278778E-02								
Aroclor-1248 (1) [2C]			250	0.0360904								
Aroclor-1248 (2) [2C]			250	3.796962E-02								
Aroclor-1248 (3) [2C]			250	4.387476E-02								
Aroclor-1248 (4) [2C]			250	5.321633E-02								
Aroclor 1254 [2C]					250	6.972187E-02						
Aroclor-1254 (1) [2C]					250	5.640367E-02						
Aroclor-1254 (2) [2C]					250	4.556075E-02						
Aroclor-1254 (3) [2C]					250	9.924571E-02						
Aroclor-1254 (4) [2C]					250	9.792345E-02						
Aroclor-1254 (5) [2C]					250	0.0494758						
Aroclor 1262 [2C]							250	0.0642615				
Aroclor-1262 (1) [2C]							250	5.979289E-02				
Aroclor-1262 (2) [2C]							250	5.161804E-02				

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3) [2C]							250	5.619882E-02				
Aroclor-1262 (4) [2C]							250	8.943618E-02				
Aroclor 1268 [2C]									250	0.2093144		
Aroclor-1268 (1) [2C]									250	0.145467		
Aroclor-1268 (2) [2C]									250	0.1530224		
Aroclor-1268 (3) [2C]									250	0.1198716		
Aroclor-1268 (4) [2C]									250	0.4188969		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016 [2C]	5.100618E-02	5.2			RSD (20)	
Aroclor-1016 (1) [2C]	4.352506E-02	9.4			RSD (20)	
Aroclor-1016 (2) [2C]	9.174409E-02	4.6			RSD (20)	
Aroclor-1016 (3) [2C]	3.781278E-02	12.7			RSD (20)	
Aroclor-1016 (4) [2C]	3.094279E-02	8.0			RSD (20)	
Aroclor 1221 [2C]		0.0			RSD (20)	
Aroclor-1221 (1) [2C]		0.0			RSD (20)	
Aroclor-1221 (2) [2C]		0.0			RSD (20)	
Aroclor-1221 (3) [2C]		0.0			RSD (20)	
Aroclor 1232 [2C]		0.0			RSD (20)	
Aroclor-1232 (1) [2C]		0.0			RSD (20)	
Aroclor-1232 (2) [2C]		0.0			RSD (20)	
Aroclor-1232 (3) [2C]		0.0			RSD (20)	
Aroclor-1232 (4) [2C]		0.0			RSD (20)	
Aroclor 1242 [2C]		0.0			RSD (20)	
Aroclor-1242 (1) [2C]		0.0			RSD (20)	
Aroclor-1242 (2) [2C]		0.0			RSD (20)	
Aroclor-1242 (3) [2C]		0.0			RSD (20)	
Aroclor-1242 (4) [2C]		0.0			RSD (20)	
Aroclor 1248 [2C]		0.0			RSD (20)	
Aroclor-1248 (1) [2C]		0.0			RSD (20)	
Aroclor-1248 (2) [2C]		0.0			RSD (20)	
Aroclor-1248 (3) [2C]		0.0			RSD (20)	
Aroclor-1248 (4) [2C]		0.0			RSD (20)	
Aroclor 1254 [2C]		0.0			RSD (20)	
Aroclor-1254 (1) [2C]		0.0			RSD (20)	
Aroclor-1254 (2) [2C]		0.0			RSD (20)	
Aroclor-1254 (3) [2C]		0.0			RSD (20)	
Aroclor-1254 (4) [2C]		0.0			RSD (20)	
Aroclor-1254 (5) [2C]		0.0			RSD (20)	
Aroclor 1260 [2C]	6.093979E-02	6.0			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00045	Instrument:	ECD7
Calibration Date:	02/16/2023	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1) [2C]	4.145231E-02	7.2			RSD (20)	
Aroclor-1260 (2) [2C]	0.1040347	6.5			RSD (20)	
Aroclor-1260 (3) [2C]	2.820073E-02	9.6			RSD (20)	
Aroclor-1260 (4) [2C]	7.007142E-02	4.6			RSD (20)	
Aroclor 1262 [2C]		0.0			RSD (20)	
Aroclor-1262 (1) [2C]		0.0			RSD (20)	
Aroclor-1262 (2) [2C]		0.0			RSD (20)	
Aroclor-1262 (3) [2C]		0.0			RSD (20)	
Aroclor-1262 (4) [2C]		0.0			RSD (20)	
Aroclor 1268 [2C]		0.0			RSD (20)	
Aroclor-1268 (1) [2C]		0.0			RSD (20)	
Aroclor-1268 (2) [2C]		0.0			RSD (20)	
Aroclor-1268 (3) [2C]		0.0			RSD (20)	
Aroclor-1268 (4) [2C]		0.0			RSD (20)	
Decachlorobiphenyl [2C]	1.076552	4.0			RSD (20)	
Tetrachlorometaxylene [2C]	1.06681	1.9			RSD (20)	

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0222

Instrument: ECD7
Calibration ID: FJ00100

Printed: 2/17/2023 9:56:55AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0222-CAL1	QC		1		L000856	L000844		
SLB0222-CAL2	QC		2		L000859	L000844		
SLB0222-CAL3	QC		3		L000858	L000844		
SLB0222-CAL4	QC		4		L000731	L000844		
SLB0222-CAL5	QC		5		L000857	L000844		
SLB0222-CAL6	QC		6		L000855	L000844		
SLB0222-CAL7	QC		7		L000860	L000844		
SLB0222-CAL8	QC		8		L000861	L000844		
SLB0222-CAL9	QC		9		L000862	L000844		
SLB0222-CALA	QC		10		L000863	L000844		
SLB0222-CALB	QC		11		L000864	L000844		
SLB0222-SCV1	QC		12		K007655	L000844		
SLB0222-SCV2	QC		13		K007656	L000844		
SLB0222-SCV3	QC		14		K007657	L000844		
SLB0222-SCV4	QC		15		K007658	L000844		
SLB0222-SCV5	QC		16		K007659	L000844		
SLB0222-SCV6	QC		17		K007660	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	16-FEB-2023 11:02	02162301ECD7.D	1	IB	
2	16-FEB-2023 11:23	02162302ECD7.D	1	0.25PPMAR1660	
3	16-FEB-2023 11:44	02162303ECD7.D	1	0.02PPMAR1660	
4	16-FEB-2023 12:05	02162304ECD7.D	1	0.05PPMAR1660	
5	16-FEB-2023 12:27	02162305ECD7.D	1	1.0PPMAR1660	
6	16-FEB-2023 12:48	02162306ECD7.D	1	0.1PPMAR1660	
7	16-FEB-2023 13:09	02162307ECD7.D	1	0.5PPMAR1660	
8	16-FEB-2023 13:30	02162308ECD7.D	1	0.25PPMAR1242	
9	16-FEB-2023 13:51	02162309ECD7.D	1	0.25PPMAR1248	
10	16-FEB-2023 14:12	02162310ECD7.D	1	0.25PPMAR1254	
11	16-FEB-2023 14:33	02162311ECD7.D	1	0.25PPMAR2168	
12	16-FEB-2023 14:54	02162312ECD7.D	1	0.25PPMAR3268	
13	16-FEB-2023 15:15	02162313ECD7.D	1	AR1660SCV	
14	16-FEB-2023 15:36	02162314ECD7.D	1	AR1242SCV	
15	16-FEB-2023 15:57	02162315ECD7.D	1	AR1248SCV	
16	16-FEB-2023 16:18	02162316ECD7.D	1	AR1254SCV	
17	16-FEB-2023 16:39	02162317ECD7.D	1	AR2162SCV	
18	16-FEB-2023 17:00	02162318ECD7.D	1	AR3268SCV	
19	16-FEB-2023 17:21	02162319ECD7.D	1	DDTS	
20	16-FEB-2023 17:42	02162320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 16-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	Aroclor-1248,
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1803	02162321ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1824	02162322ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1845	02162323ECD7.D	BLB0303-BLK1		1	NO MANUAL INTEGRATION
1906	02162324ECD7.D	BLB0303-BS1		1	NO MANUAL INTEGRATION
1927	02162325ECD7.D	BLB0303-BSD1		1	NO MANUAL INTEGRATION
1948	02162326ECD7.D	23B0153-01		1	NO MANUAL INTEGRATION
2009	02162327ECD7.D	23B0179-01		1	NO MANUAL INTEGRATION
2030	02162328ECD7.D	23B0179-03		1	NO MANUAL INTEGRATION
2051	02162329ECD7.D	23B0218-01		1	NO MANUAL INTEGRATION
2112	02162330ECD7.D	23B0243-01		1	NO MANUAL INTEGRATION
2133	02162331ECD7.D	23B0250-03		1	NO MANUAL INTEGRATION
2154	02162332ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2215	02162333ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1803	02162321ECD7.D			1	NO MANUAL INTEGRATION
1824	02162322ECD7.D			1	NO MANUAL INTEGRATION
1845	02162323ECD7.D			1	NO MANUAL INTEGRATION
1906	02162324ECD7.D			1	NO MANUAL INTEGRATION
1927	02162325ECD7.D			1	NO MANUAL INTEGRATION
1948	02162326ECD7.D			1	NO MANUAL INTEGRATION
2009	02162327ECD7.D			1	NO MANUAL INTEGRATION
2030	02162328ECD7.D			1	NO MANUAL INTEGRATION
2051	02162329ECD7.D			1	NO MANUAL INTEGRATION
2112	02162330ECD7.D			1	NO MANUAL INTEGRATION
2133	02162331ECD7.D			1	NO MANUAL INTEGRATION
2154	02162332ECD7.D			1	NO MANUAL INTEGRATION
2215	02162333ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 17-Feb-2023 09:11

02162301ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162302ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162303ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162304ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162305ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162306ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162307ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162308ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162309ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162310ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162311ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162312ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162313ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162314ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162315ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162316ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162317ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162318ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162319ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162320ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00591	+++++	0.00591	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01209	+++++	0.01209	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02807	+++++	0.02807	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02450	+++++	0.02450	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.08017	+++++	0.08017	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02382	+++++	0.02382	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03598	+++++	0.03598	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00369	+++++	0.00369	0.000

ARI Labs, Inc.

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Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.00832	+++++	0.00832	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04160	+++++	0.04160	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01781	+++++	0.01781	0.000
7 Aroclor-1016(1)	0.02947	0.03102	0.03310	0.03018	0.02824	0.02635	+++++	+++++	0.02973	7.802
(2)	0.09270	0.09812	0.10598	0.10203	0.09861	0.09356	+++++	+++++	0.09850	5.108
(3)	0.04878	0.04900	0.05127	0.04400	0.04091	0.03796	+++++	+++++	0.04532	11.523
(4)	0.02676	0.02802	0.03162	0.03050	0.02939	0.02864	+++++	+++++	0.02915	5.988
6 Aroclor-1248(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.04002	+++++	0.04002	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.05105	+++++	0.05105	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.09765	+++++	0.09765	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.04833	+++++	0.04833	0.000

ARI Labs, Inc.

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Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.08153	+++++							0.08153	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03481	+++++							0.03481	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05224	+++++							0.05224	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.10237	+++++							0.10237	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.06657	+++++							0.06657	0.000
9 Aroclor-1260(1)	0.04727	0.04543	0.04428	0.05181	0.04013	0.04040				
	+++++	+++++							0.04489	9.818
(2)	0.04940	0.04636	0.04450	0.05350	0.04100	0.04208				
	+++++	+++++							0.04614	10.182
(3)	0.13737	0.12829	0.11740	0.13317	0.10468	0.10790				
	+++++	+++++							0.12147	11.161
(4)	0.07198	0.06638	0.05997	0.06473	0.05485	0.05864				
	+++++	+++++							0.06276	9.803
(5)	0.03296	0.02981	0.02640	0.02723	0.02328	0.02447				
	+++++	+++++							0.02736	13.015
10 Aroclor-1262(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03235	+++++							0.03235	0.000

ARI Labs, Inc.

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Quant Method : ISTD
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Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05106	+++++							0.05106	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05544	+++++							0.05544	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05052	+++++							0.05052	0.000
11 Aroclor-1268(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.13216	+++++							0.13216	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.13180	+++++							0.13180	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.10919	+++++							0.10919	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.32374	+++++							0.32374	0.000
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	904							904	0.000
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	1034							1034	0.000
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	2557							2557	0.000
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	1539							1539	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
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Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1484	1484	0.000
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.10039	1.10217	1.21997	1.14965	1.11792	1.09461	+++++	+++++	1.13079	4.246
$ 13 Decachlorobiphenyl	0.86442	0.90302	0.93081	0.84813	0.79576	0.79145	+++++	+++++	0.85560	6.556

ARI Labs, Inc.

INITIAL CALIBRATION DATA

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Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
1 Aroclor-1221 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00586	+++++	0.00586	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01285	+++++	0.01285	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02169	+++++	0.02169	0.000
4 Aroclor-1232 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00356	+++++	0.00356	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01991	+++++	0.01991	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04054	+++++	0.04054	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01126	+++++	0.01126	0.000
3 Aroclor-1242 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03499	+++++	0.03499	0.000

ARI Labs, Inc.

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Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.07771	*****	0.07771	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02434	*****	0.02434	0.000
(4)	*****	*****	*****	*****	*****	*****	0.03226	*****	0.03226	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****	0.03616	*****	0.03616	0.000
(2)	*****	*****	*****	*****	*****	*****	0.03892	*****	0.03892	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04756	*****	0.04756	0.000
(4)	*****	*****	*****	*****	*****	*****	0.05882	*****	0.05882	0.000
7 Aroclor-1016 [2C](1)	0.04424	0.04724	0.04678	0.04314	0.04099	0.03795	*****	*****	0.04339	8.142
(2)	0.08512	0.09615	0.10417	0.09824	0.09554	0.09130	*****	*****	0.09509	6.775
(3)	0.02919	0.04165	0.04478	0.04029	0.03925	0.03764	*****	*****	0.03880	13.639
(4)	0.02850	0.03377	0.03419	0.03004	0.02878	0.02724	*****	*****	0.03042	9.538

ARI Labs, Inc.

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Start Cal Date : 24-JAN-2023 16:00
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Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	*****	*****	*****	*****	*****	*****	0.05804	*****	0.05804	0.000
(2)	*****	*****	*****	*****	*****	*****	0.04691	*****	0.04691	0.000
(3)	*****	*****	*****	*****	*****	*****	0.10233	*****	0.10233	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10233	*****	0.10233	0.000
(5)	*****	*****	*****	*****	*****	*****	0.05700	*****	0.05700	0.000
10 Aroclor-1262 [2C](1)	*****	*****	*****	*****	*****	*****	0.07830	*****	0.07830	0.000
(2)	*****	*****	*****	*****	*****	*****	0.06658	*****	0.06658	0.000
(3)	*****	*****	*****	*****	*****	*****	0.07090	*****	0.07090	0.000
(4)	*****	*****	*****	*****	*****	*****	0.11355	*****	0.11355	0.000
9 Aroclor-1260 [2C](1)	0.06075	0.05974	0.05912	0.06129	0.05231	0.05307	*****	*****	0.05771	6.881
(2)	0.14748	0.15106	0.15181	0.15367	0.13396	0.13809	*****	*****	0.14601	5.547

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(3)	0.03683	0.03729	0.03582	0.03647	0.03501	0.03694	#####	#####	0.03639	2.314
(4)	0.09319	0.09919	0.09881	0.09587	0.08985	0.09008	#####	#####	0.09450	4.373
11 Aroclor-1268 [2C](1)	#####	#####	#####	#####	#####	#####	0.18682	#####	0.18682	0.000
(2)	#####	#####	#####	#####	#####	#####	0.19880	#####	0.19880	0.000
(3)	#####	#####	#####	#####	#####	#####	0.16548	#####	0.16548	0.000
(4)	#####	#####	#####	#####	#####	#####	0.51118	#####	0.51118	0.000
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	1528	1528	0.000
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####	#####	866	866	0.000
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	863	863	0.000
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1162	1162	0.000
46 4,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1277	1277	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.04342	1.10521	1.15322	1.09675	1.05187	1.03851	+++++	+++++	1.08150	4.159
$ 13 Decachlorobiphenyl [2C]	1.20915	1.27122	1.31190	1.29209	1.22961	1.30389	+++++	+++++	1.26964	3.291

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.492	3.492	3.491	3.493	3.492	3.491	3.492	3.392-3.592	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.810	5.808	5.808	5.811	5.808	5.809	5.810	5.710-5.910	5.809	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.271	7.271	7.270	7.270	7.270	7.269	7.271	7.171-7.371	7.270	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.043	11.044	11.043	11.040	11.042	11.041	11.043	10.943-11.143	11.042	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
13 Decachlorobiphenyl	13.894	13.892	13.891	13.892	13.890	13.890	13.894	13.794-13.994	13.892	0.002
12 IS-HBBP	14.263	14.263	14.261	14.261	14.262	14.262	14.263	14.163-14.363	14.262	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.263	9.213-9.313	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.805	9.755-9.855	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.296	10.246-10.346	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.687	9.587-9.787	+++++	+++++

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.281	10.181-10.381	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.758	10.658-10.858	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.492	3.492	3.491	3.493	3.492	3.491	3.492	3.392-3.592	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.810	5.808	5.808	5.811	5.808	5.809	5.810	5.710-5.910	5.809	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.271	7.271	7.270	7.270	7.270	7.269	7.271	7.171-7.371	7.270	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.043	11.044	11.043	11.040	11.042	11.041	11.043	10.943-11.143	11.042	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.894	13.892	13.891	13.892	13.890	13.890	13.894	13.794-13.994	13.892	0.002
* 12 IS-HBBP	14.263	14.263	14.261	14.261	14.262	14.262	14.263	14.163-14.363	14.262	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.263	9.213-9.313	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.805	9.755-9.855	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.296	10.246-10.346	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.687	9.587-9.787	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.281	10.181-10.381	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.758	10.658-10.858	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.928	3.930	3.929	3.929	3.928	3.828-4.028	3.929	0.001
$ 2 Tetrachloro-m-xylene [	5.685	5.686	5.685	5.688	5.687	5.686	5.685	5.585-5.785	5.686	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.254	7.255	7.254	7.254	7.254	7.254	7.254	7.154-7.354	7.254	0.000
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.651	11.652	11.652	11.650	11.651	11.650	11.651	11.551-11.751	11.651	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.117	14.118	14.117	14.120	14.117	14.118	14.117	14.017-14.217	14.118	0.001
* 12 IS-HBBP [2C]	15.006	15.006	15.004	15.005	15.005	15.005	15.006	14.906-15.106	15.005	0.001
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.912	9.862-9.962	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.538	9.488-9.588	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.211	10.111-10.311	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.666	10.566-10.766	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.095	10.995-11.195	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162302ECD7.D
Data file 2: /230216.b/230216.b/02162302ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:23
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	248401	5.685	-0.001	199672	40.7	40.3	0.9	Tetrachloro-m-xylene
13.894	0.003	351670	14.117	-0.001	367148	40.9	40.7	0.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	430055	-14.6
Hexabromobiphenyl	647433	975457	50.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	366754	8.9
Hexabromobiphenyl	382032	646884	69.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	39579	252.7	1	7.254	-0.000	49228	245.0
Aroclor-1016	2	7.652	0.002	129647	258.5	2	7.850	-0.002	109879	257.4
Aroclor-1016	3	7.790	0.003	55577	241.0	3	8.050	0.000	45802	261.0
Aroclor-1016	4	8.404	0.001	38982	256.8	4	8.304	-0.000	35428	248.9
Total Col1Ave (4 peaks):					252.3	Total Col2Ave (4 peaks):				253.1 RPD = 0
Corrected Ave (3 peaks):					250.2	Corrected Ave (3 peaks):				250.4 RPD = 0
			CalAmt %D:		0.9			CalAmt %D:		1.2
Aroclor-1260	1	11.043	0.002	87165	259.2	1	11.651	0.001	84564	235.7
Aroclor-1260	2	11.360	0.003	89579	260.4	2	11.916	0.001	216735	240.2
Aroclor-1260	3	11.733	0.003	234880	257.8	3	12.434	0.001	55401	229.5
Aroclor-1260	4	12.137	0.002	120991	261.6	4	12.499	0.001	143975	237.8
Aroclor-1260	5	12.243	0.003	50521	254.7	NS	---			----
Total Col1Ave (5 peaks):					258.7	Total Col2Ave (4 peaks):				235.8 RPD = 9
Corrected Ave (4 peaks):					258.0	Corrected Ave (3 peaks):				234.4 RPD = 10
			CalAmt %D:		3.5			CalAmt %D:		-5.7

Total PCB Area Col1 (5.908 - 13.791) = 2424171 Col1 Total PCB = 0.5 ppm*

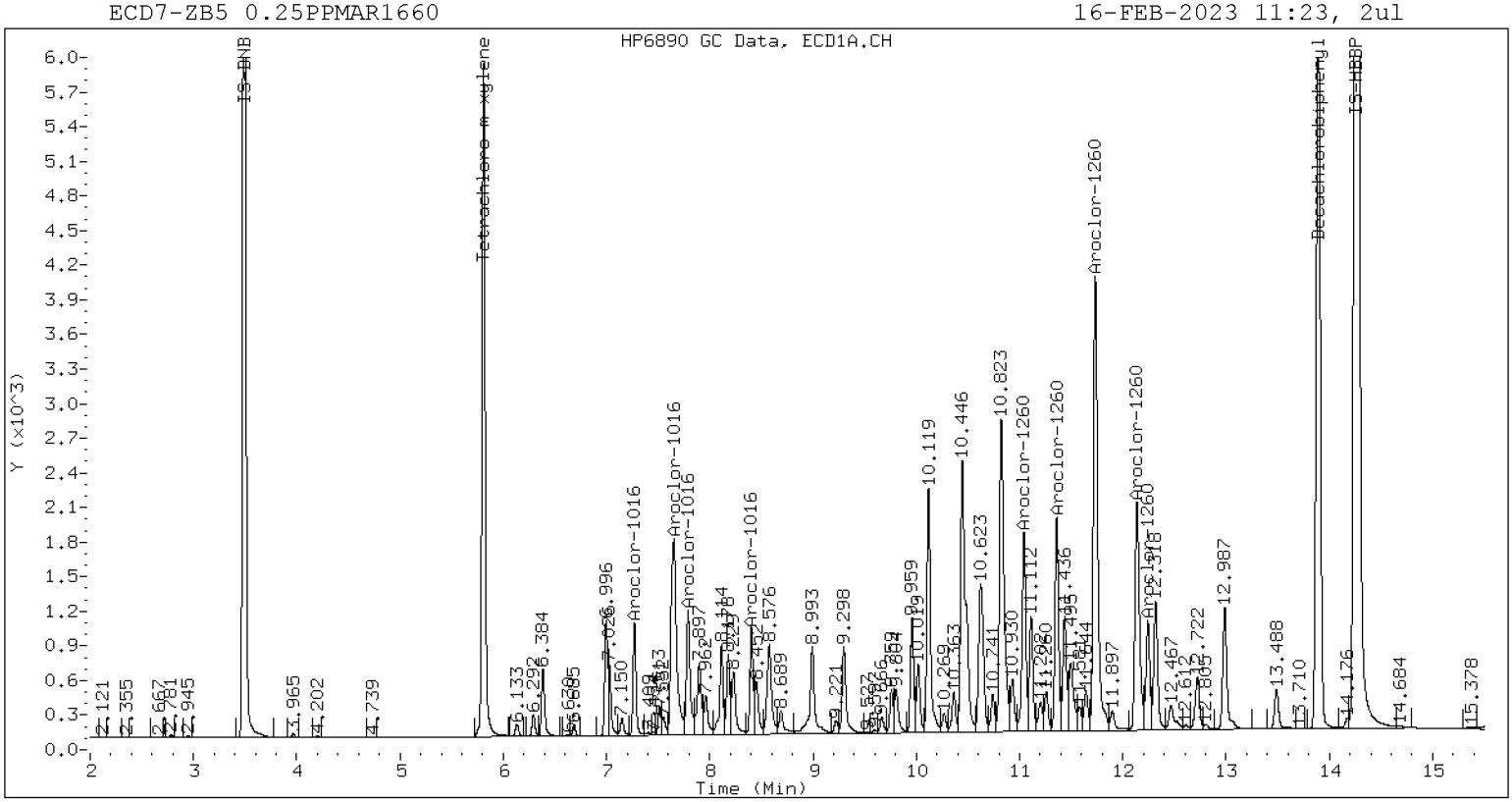
Total PCB Area Col2 (5.786 - 14.018) = 2014487 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

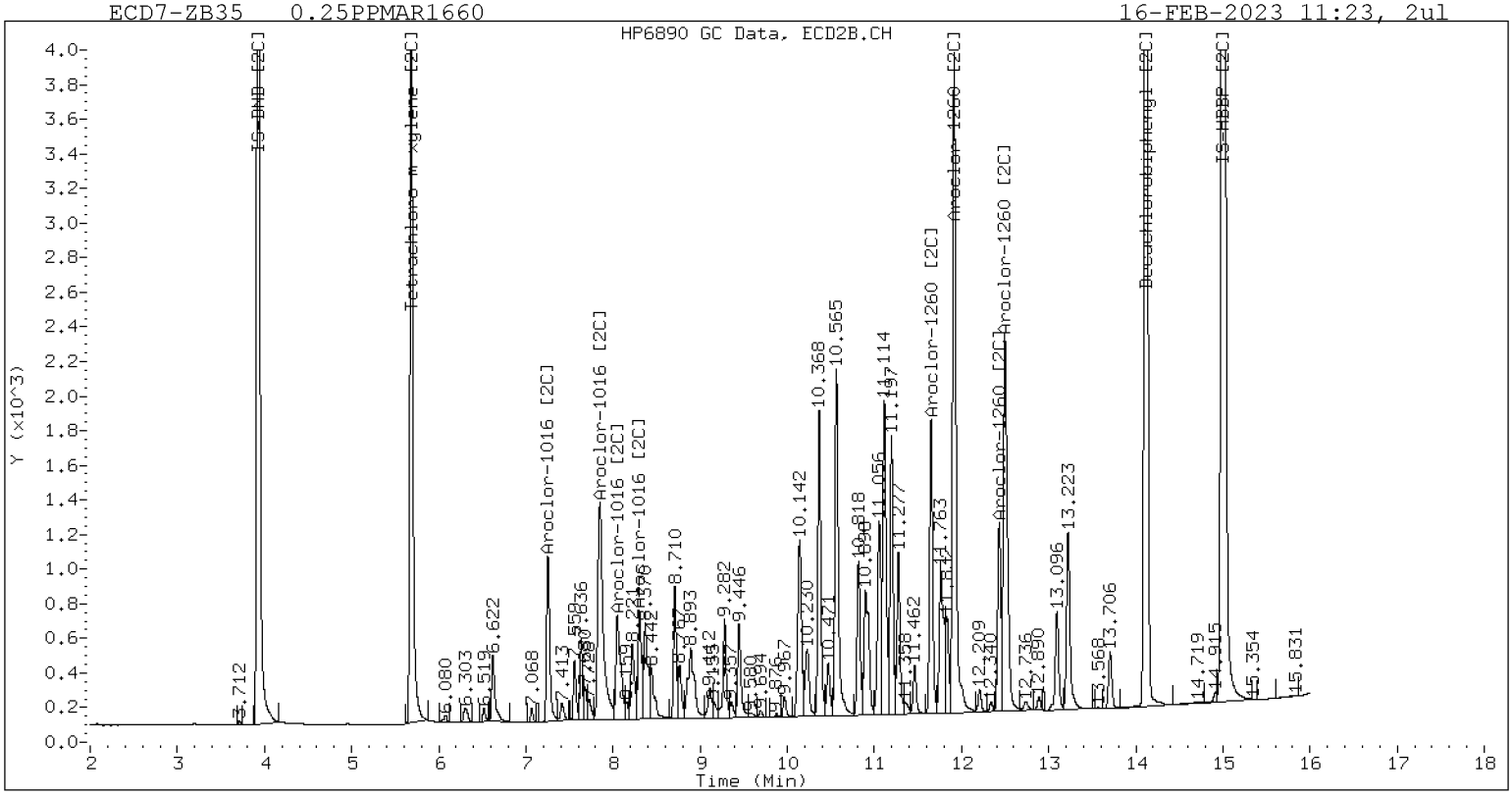
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162303ECD7.D
Data file 2: /230216.b/230216.b/02162303ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:44
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	19708	5.686	0.000	15503	3.3	3.2	3.1	Tetrachloro-m-xylene
13.892	0.001	28479	14.118	-0.000	26541	3.3	2.9	12.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	422641	-16.0
Hexabromobiphenyl	647433	970275	49.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	360534	7.0
Hexabromobiphenyl	382032	649373	70.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.002	3348	21.8	1	7.255	0.001	4345	22.0
Aroclor-1016	2	7.655	0.005	10129	20.6	2	7.856	0.005	7672	18.3
Aroclor-1016	3	7.792	0.005	5159	22.8	3	8.056	0.007	2574	14.9
Aroclor-1016	4	8.405	0.003	3035	20.3	4	8.307	0.003	2795	20.0
Total Col1Ave (4 peaks):					21.4	Total Col2Ave (4 peaks):				18.8 RPD = 13
Corrected Ave (3 peaks):					20.9	Corrected Ave (3 peaks):				17.7 RPD = 16
CalAmt %D:					6.8	CalAmt %D:				-6.0
Aroclor-1260	1	11.044	0.003	6763	20.2	1	11.652	0.002	7499	20.8
Aroclor-1260	2	11.360	0.003	6806	19.9	2	11.918	0.003	18116	20.0
Aroclor-1260	3	11.737	0.006	19311	21.3	3	12.434	0.002	5444	22.5
Aroclor-1260	4	12.141	0.006	9169	19.9	4	12.502	0.004	12209	20.1
Aroclor-1260	5	12.243	0.003	4138	21.0	NS	---			----
Total Col1Ave (5 peaks):					20.5	Total Col2Ave (4 peaks):				20.8 RPD = 2
Corrected Ave (4 peaks):					20.3	Corrected Ave (3 peaks):				20.3 RPD = 0
CalAmt %D:					2.3	CalAmt %D:				4.2

Total PCB Area Col1 (5.908 - 13.791) = 207302 Col1 Total PCB = 0.0 ppm*

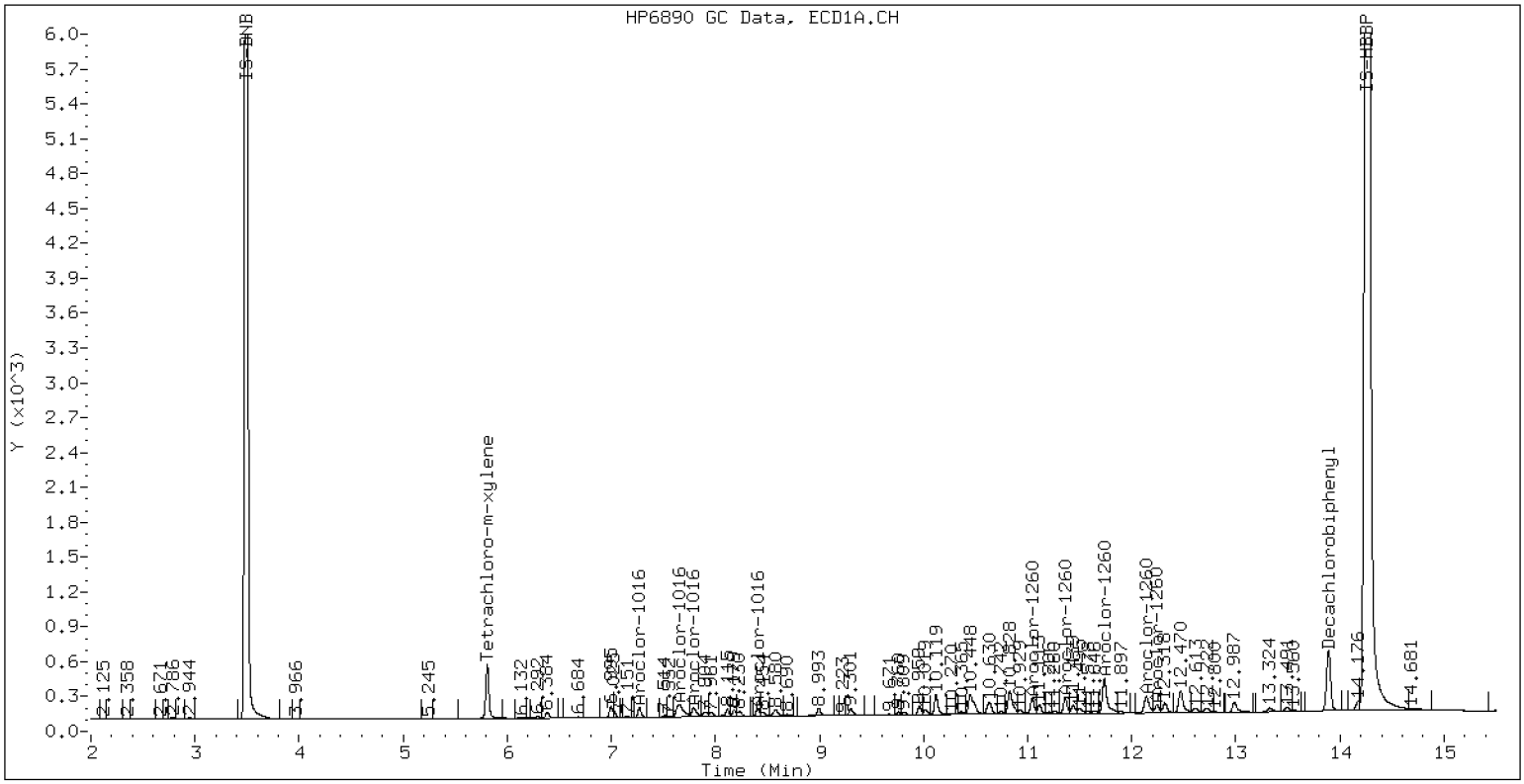
Total PCB Area Col2 (5.786 - 14.018) = 173637 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

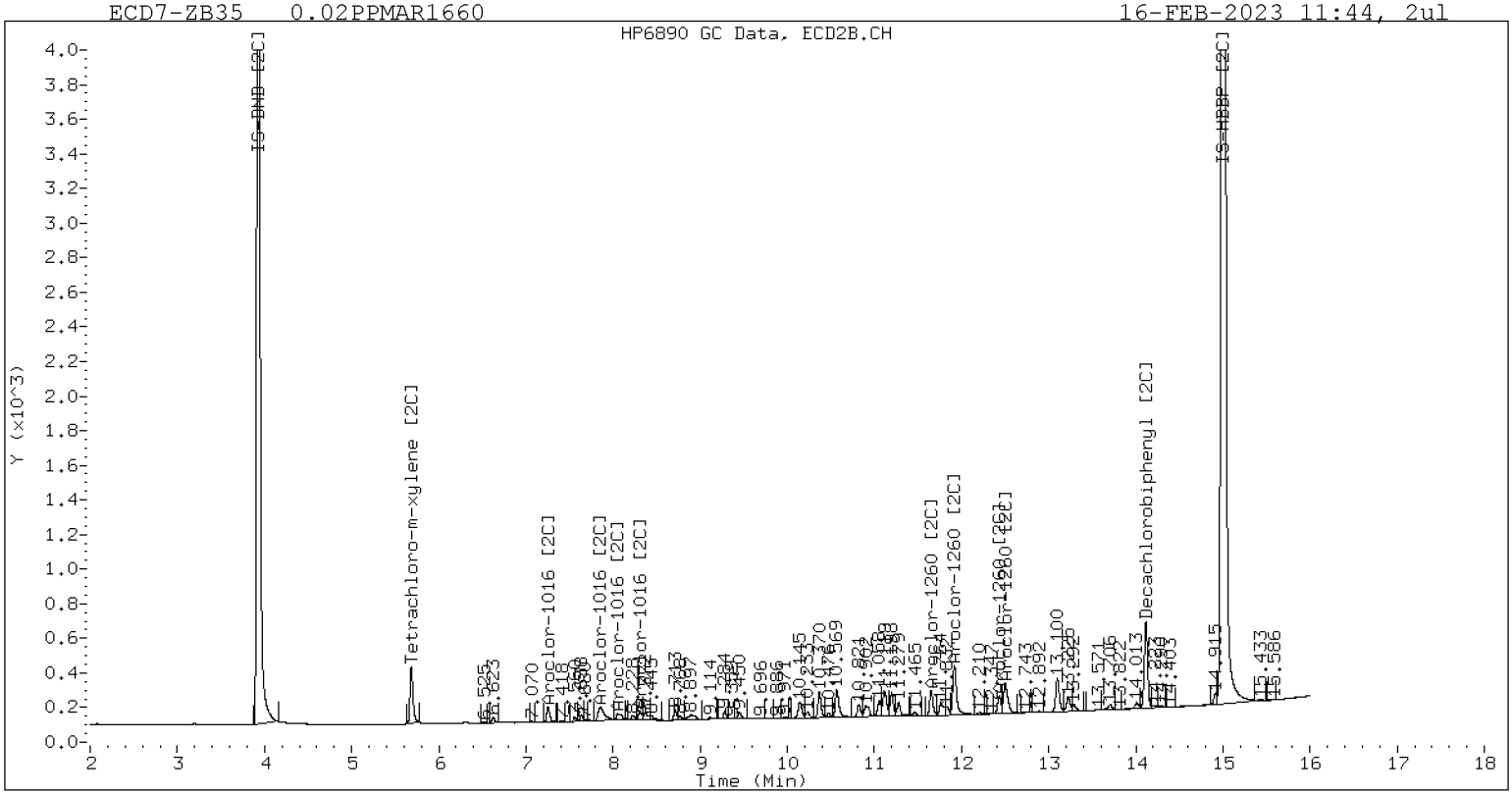
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162304ECD7.D
Data file 2: /230216.b/230216.b/02162304ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:05
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	49106	5.685	-0.001	38865	8.2	8.0	2.4	Tetrachloro-m-xylene
13.891	0.000	72151	14.117	-0.001	67392	8.4	7.4	12.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	424165	-15.7
Hexabromobiphenyl	647433	974643	50.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	361606	7.3
Hexabromobiphenyl	382032	650523	70.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	8215	53.2	1	7.254	-0.000	10626	53.6
Aroclor-1016	2	7.653	0.003	24630	49.8	2	7.855	0.003	20708	49.2
Aroclor-1016	3	7.791	0.004	12297	54.1	3	8.055	0.006	9105	52.6
Aroclor-1016	4	8.404	0.001	7438	49.7	4	8.306	0.001	7620	54.3
Total Col1Ave (4 peaks):					51.7	Total Col2Ave (4 peaks):				52.4 RPD = 1
Corrected Ave (3 peaks):					50.9	Corrected Ave (3 peaks):				51.8 RPD = 2
CalAmt %D:					3.4	CalAmt %D:				4.9
Aroclor-1260	1	11.043	0.002	16909	50.3	1	11.652	0.002	17146	47.5
Aroclor-1260	2	11.359	0.002	17012	49.5	2	11.917	0.003	43102	47.5
Aroclor-1260	3	11.734	0.003	45560	50.0	3	12.435	0.003	11385	46.9
Aroclor-1260	4	12.138	0.003	22213	48.1	4	12.501	0.003	28474	46.8
Aroclor-1260	5	12.241	0.001	9728	49.1	NS	---			----
Total Col1Ave (5 peaks):					49.4	Total Col2Ave (4 peaks):				47.2 RPD = 5
Corrected Ave (4 peaks):					49.2	Corrected Ave (3 peaks):				47.1 RPD = 4
CalAmt %D:					-1.2	CalAmt %D:				-5.6

Total PCB Area Col1 (5.908 - 13.791) = 481905 Col1 Total PCB = 0.1 ppm*

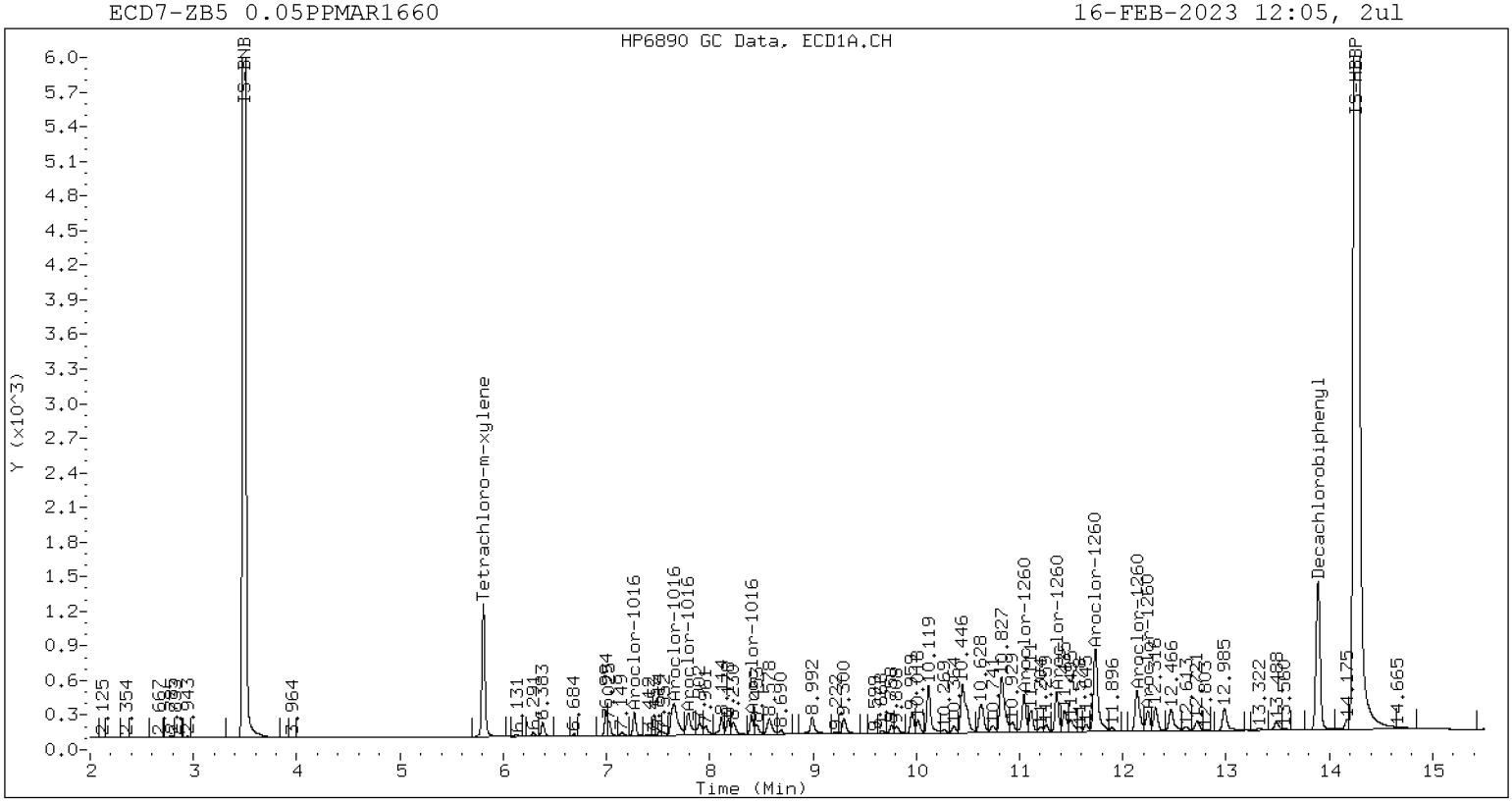
Total PCB Area Col2 (5.786 - 14.018) = 410066 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

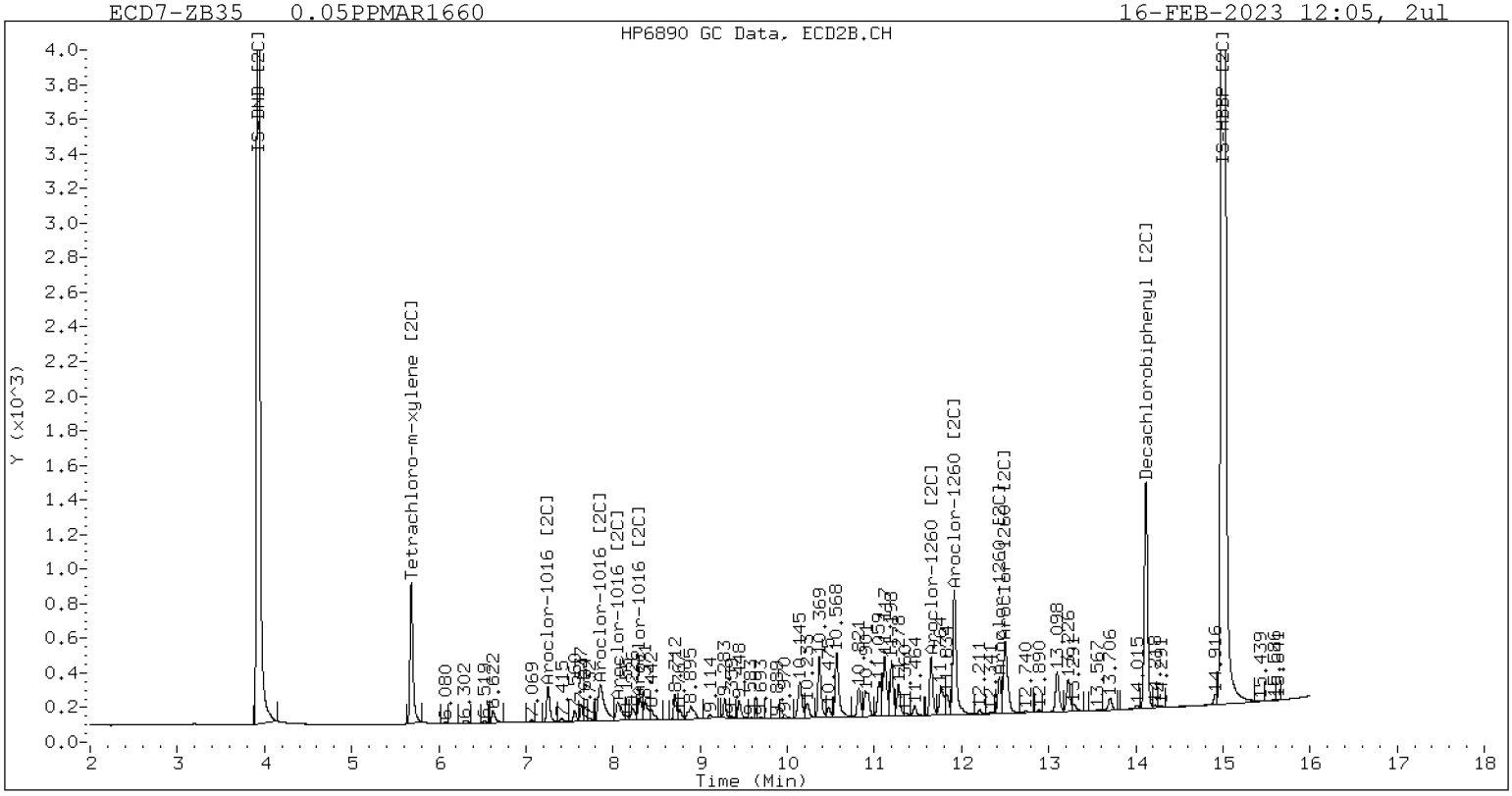
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162305ECD7.D
Data file 2: /230216.b/230216.b/02162305ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:27
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.003	891683	5.688	0.002	726379	151.2	152.9	1.1	Tetrachloro-m-xylene
13.892	0.001	1202823	14.120	0.002	1376073	143.7	154.6	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	415564	-17.4
Hexabromobiphenyl	647433	950630	46.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	352163	4.5
Hexabromobiphenyl	382032	638267	67.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	0.001	132049	872.6	1	7.254	0.000	163920	849.6
Aroclor-1016	2	7.649	-0.001	456308	941.6	2	7.849	-0.003	390554	952.8
Aroclor-1016	3	7.787	-0.000	188528	845.9	3	8.049	-0.000	164163	974.1
Aroclor-1016	4	8.403	0.000	141381	963.9	4	8.304	0.000	120741	883.4
Total Col1Ave (4 peaks):					906.0	Total Col2Ave (4 peaks):				915.0 RPD = 1
Corrected Ave (3 peaks):					886.7	Corrected Ave (3 peaks):				895.3 RPD = 1
CalAmt %D:			-9.4			CalAmt %D:		-8.5		
Aroclor-1260	1	11.040	-0.000	311922	951.8	1	11.650	-0.000	297569	840.7
Aroclor-1260	2	11.356	-0.001	324926	969.1	2	11.914	-0.001	734323	824.7
Aroclor-1260	3	11.729	-0.001	820597	924.2	3	12.432	0.000	215979	906.9
Aroclor-1260	4	12.131	-0.003	448823	995.6	4	12.498	0.000	521208	872.6
Aroclor-1260	5	12.240	0.000	188496	975.0	NS	---			----
Total Col1Ave (5 peaks):					963.1	Total Col2Ave (4 peaks):				861.2 RPD = 11
Corrected Ave (4 peaks):					955.0	Corrected Ave (3 peaks):				846.0 RPD = 12
CalAmt %D:			-3.7			CalAmt %D:		-13.9		

Total PCB Area Col1 (5.908 - 13.791) = 8716327 Col1 Total PCB = 1.8 ppm*

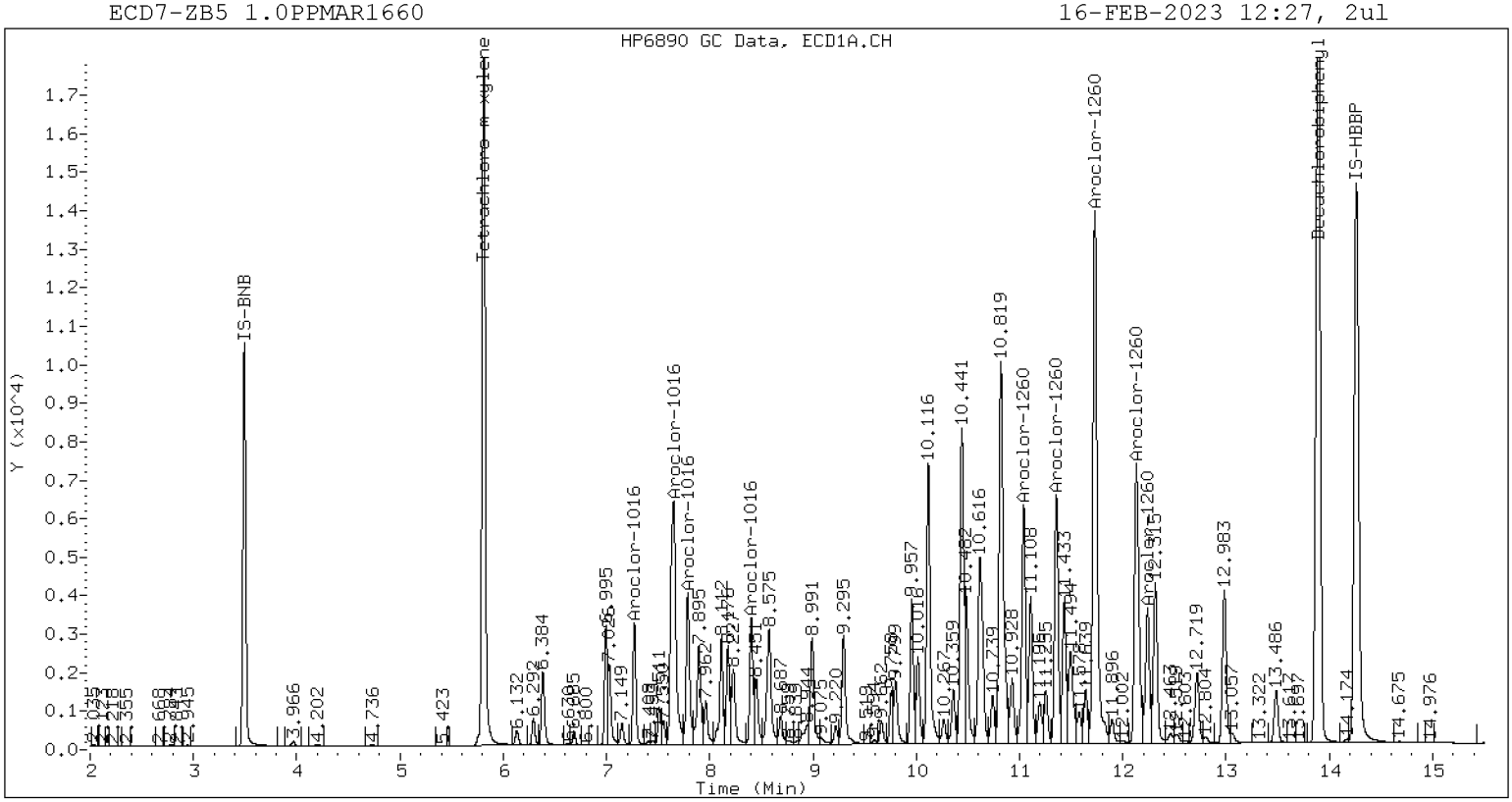
Total PCB Area Col2 (5.786 - 14.018) = 7274392 Col2 Total PCB = 2.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

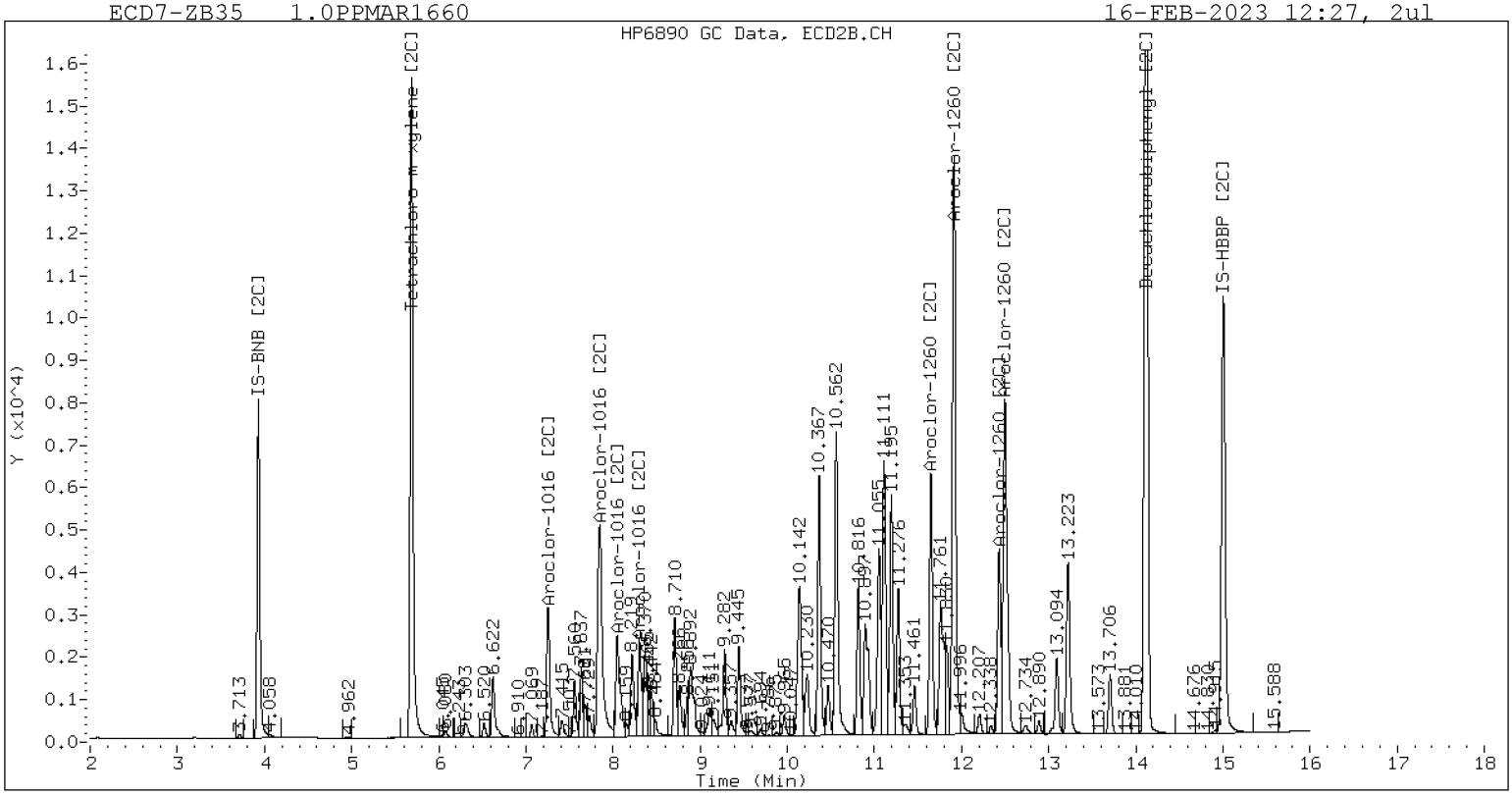
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162306ECD7.D
Data file 2: /230216.b/230216.b/02162306ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:48
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	97353	5.687	0.001	77790	16.1	16.0	1.1	Tetrachloro-m-xylene
13.890	-0.001	143814	14.117	-0.001	141007	16.6	15.4	7.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	425206	-15.5
Hexabromobiphenyl	647433	982762	51.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	361068	7.2
Hexabromobiphenyl	382032	654989	71.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	15562	100.5	1	7.254	-0.000	20282	102.5
Aroclor-1016	2	7.653	0.003	49218	99.3	2	7.855	0.004	43303	103.0
Aroclor-1016	3	7.790	0.003	23916	104.9	3	8.054	0.005	18932	109.6
Aroclor-1016	4	8.404	0.002	14884	99.2	4	8.306	0.002	15145	108.1
Total Col1Ave (4 peaks):					101.0	Total Col2Ave (4 peaks):				105.8 RPD = 5
Corrected Ave (3 peaks):					99.6	Corrected Ave (3 peaks):				104.5 RPD = 5
CalAmt %D:					1.0	CalAmt %D:				5.8
Aroclor-1260	1	11.042	0.002	34109	100.7	1	11.651	0.001	34102	93.9
Aroclor-1260	2	11.358	0.001	34951	100.8	2	11.917	0.002	87139	95.4
Aroclor-1260	3	11.733	0.003	92326	100.6	3	12.434	0.001	21226	86.9
Aroclor-1260	4	12.137	0.003	45803	98.3	4	12.500	0.002	57343	93.6
Aroclor-1260	5	12.241	0.001	19653	98.3	NS	---			----
Total Col1Ave (5 peaks):					99.7	Total Col2Ave (4 peaks):				92.4 RPD = 8
Corrected Ave (4 peaks):					99.5	Corrected Ave (3 peaks):				91.4 RPD = 8
CalAmt %D:					-0.3	CalAmt %D:				-7.6

Total PCB Area Col1 (5.908 - 13.791) = 948624 Col1 Total PCB = 0.2 ppm*

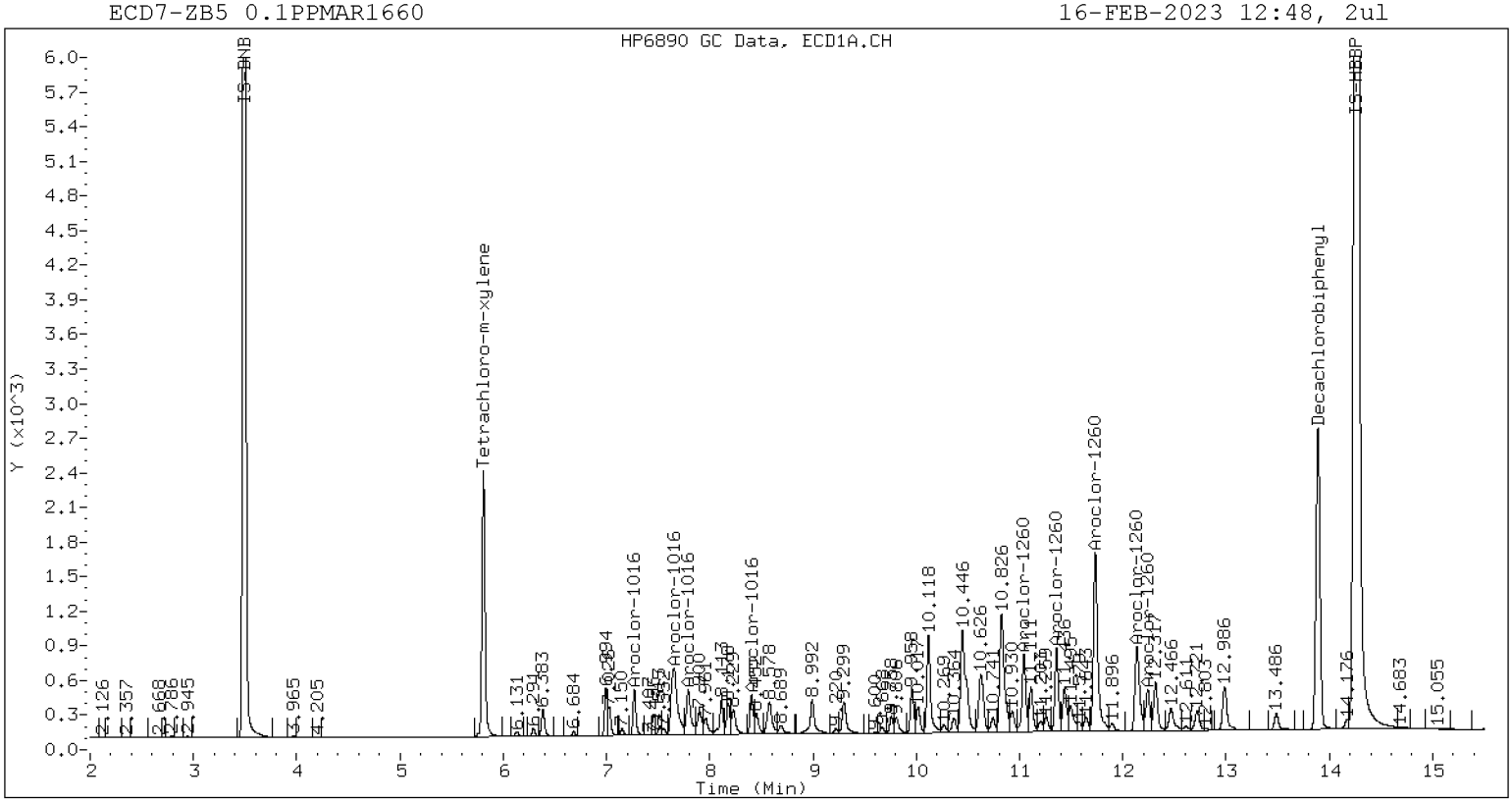
Total PCB Area Col2 (5.786 - 14.018) = 817080 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

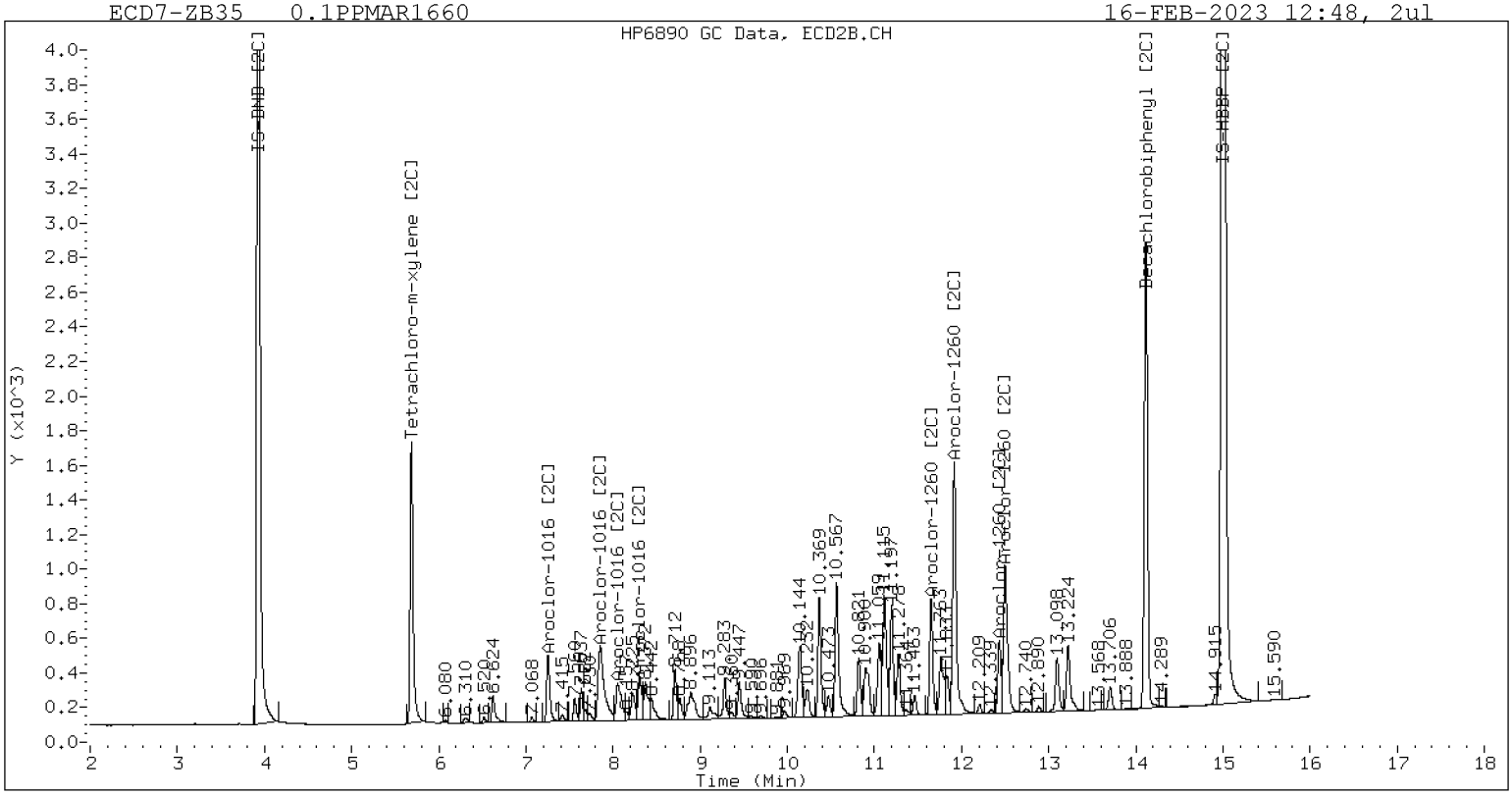
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162307ECD7.D
Data file 2: /230216.b/230216.b/02162307ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 13:09
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	472991	5.686	0.001	380587	78.5	78.1	0.6	Tetrachloro-m-xylene
13.890	-0.001	654829	14.118	-0.000	723440	75.9	79.7	5.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	424511	-15.7
Hexabromobiphenyl	647433	980103	51.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	361199	7.2
Hexabromobiphenyl	382032	650552	70.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	74222	480.1	1	7.254	0.000	92105	465.4
Aroclor-1016	2	7.650	0.000	249600	504.2	2	7.851	0.000	210359	500.4
Aroclor-1016	3	7.787	0.000	104974	461.1	3	8.049	0.000	87658	507.1
Aroclor-1016	4	8.402	0.000	75363	503.0	4	8.304	0.000	65546	467.6
Total Col1Ave (4 peaks):				487.1		Total Col2Ave (4 peaks):			485.1	RPD = 0
Corrected Ave (3 peaks):				481.4		Corrected Ave (3 peaks):			477.8	RPD = 1
			CalAmt %D:	-2.6				CalAmt %D:	-3.0	
Aroclor-1260	1	11.041	0.000	166809	493.7	1	11.650	0.000	160885	446.0
Aroclor-1260	2	11.357	0.000	172259	498.3	2	11.915	0.000	410338	452.2
Aroclor-1260	3	11.731	0.000	445028	486.1	3	12.432	0.000	110865	456.7
Aroclor-1260	4	12.134	0.000	236535	508.9	4	12.498	0.000	278934	458.2
Aroclor-1260	5	12.240	0.000	98968	496.5	NS	---			----
Total Col1Ave (5 peaks):				496.7		Total Col2Ave (4 peaks):			453.3	RPD = 9
Corrected Ave (4 peaks):				493.7		Corrected Ave (3 peaks):			451.6	RPD = 9
			CalAmt %D:	-0.7				CalAmt %D:	-9.3	

Total PCB Area Col1 (5.908 - 13.791) = 4638448 Col1 Total PCB = 0.9 ppm*

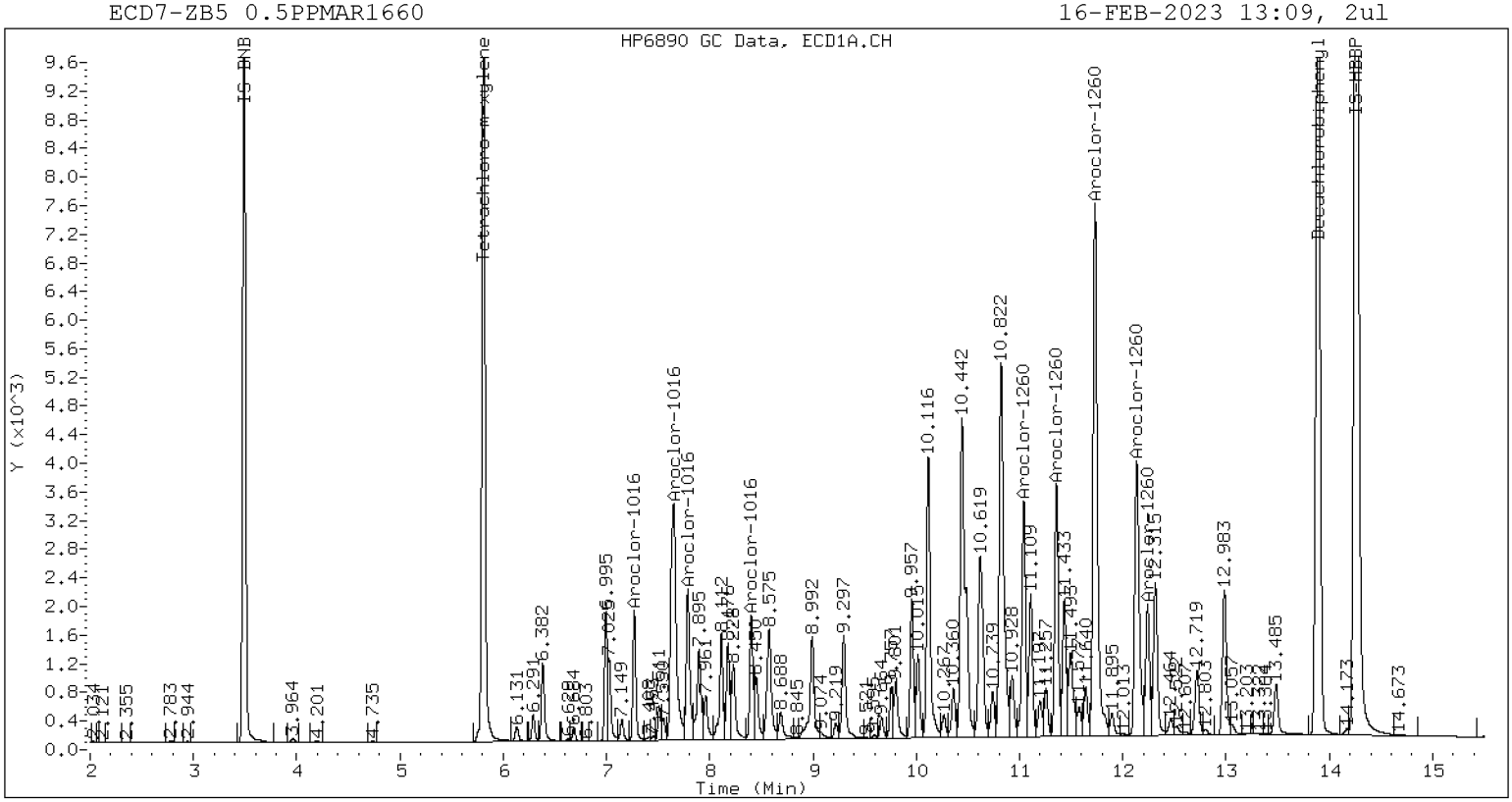
Total PCB Area Col2 (5.786 - 14.018) = 3867644 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

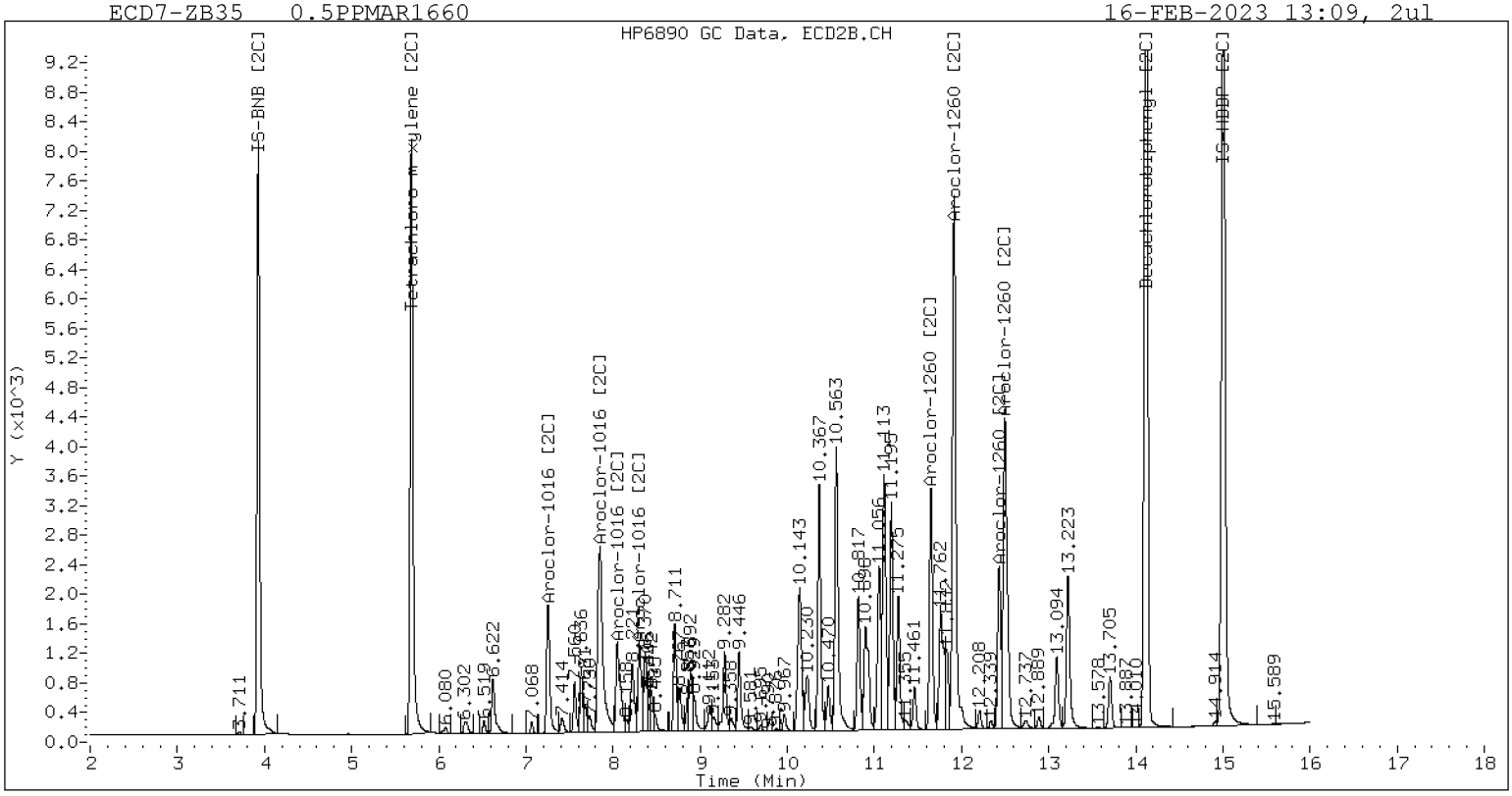
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162308ECD7.D
Data file 2: /230216.b/230216.b/02162308ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 16-FEB-2023 13:30
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	287664	5.686	0.000	229806	46.8	46.6	0.6	Tetrachloro-m-xylene
13.891	0.000	335023	14.117	-0.001	345735	37.9	37.1	2.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	432799	-14.0
Hexabromobiphenyl	647433	1004715	55.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	365812	8.6
Hexabromobiphenyl	382032	667992	74.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.269	0.000	32233	250.0	1	7.254	0.000	39556	250.0
Aroclor-1242	2	7.652	0.000	102000	250.0	2	7.853	0.000	85705	250.0
Aroclor-1242	3	8.403	0.000	30824	250.0	3	9.160	0.000	27091	250.0
Aroclor-1242	4	8.577	0.000	45526	250.0	4	9.587	0.000	32851	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 766603 Col1 Total PCB = 0.2 ppm*

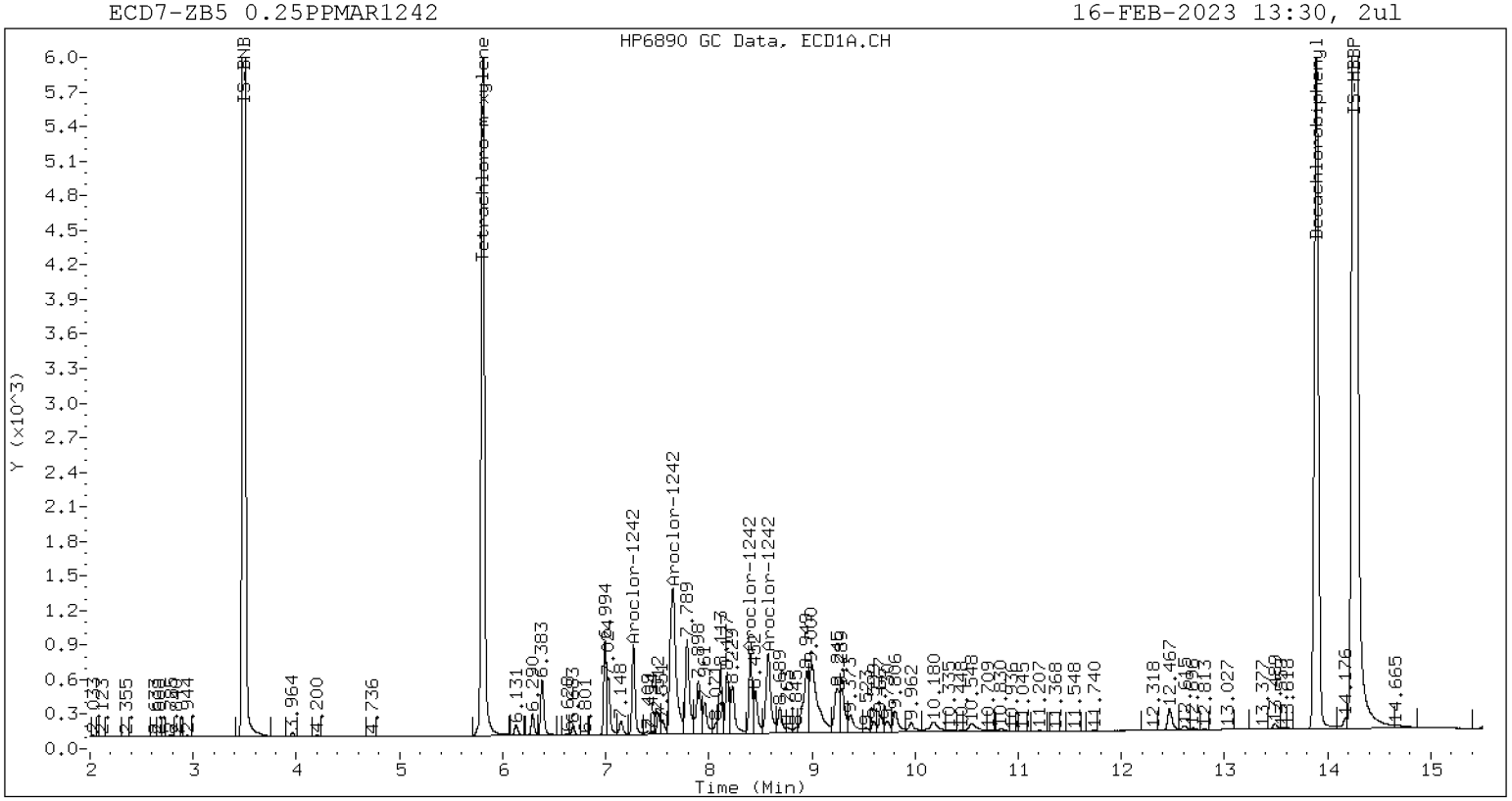
Total PCB Area Col2 (5.786 - 14.018) = 618238 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

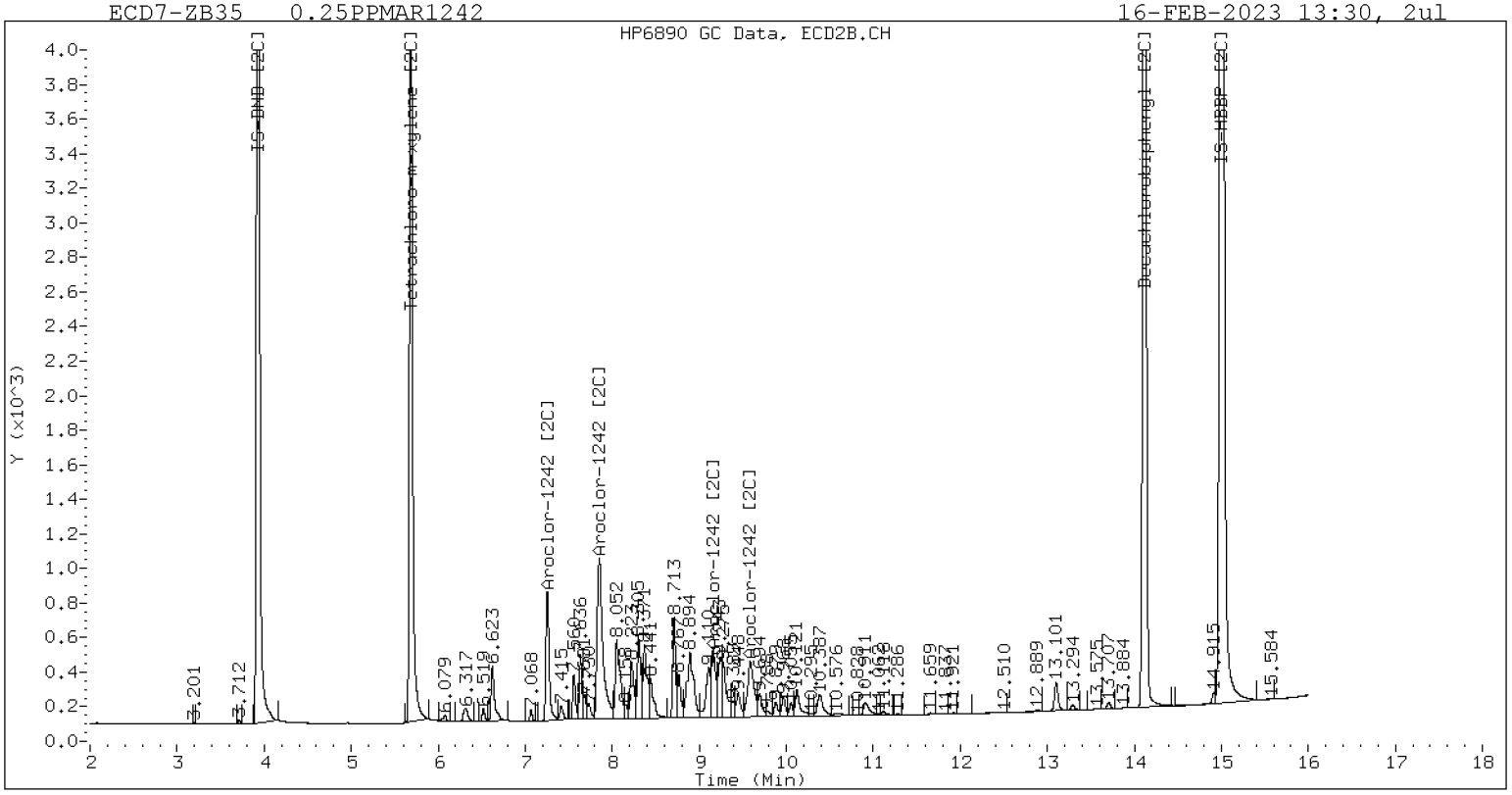
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162309ECD7.D
Data file 2: /230216.b/230216.b/02162309ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 16-FEB-2023 13:51
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	235858	5.688	0.002	191205	38.1	38.3	0.5	Tetrachloro-m-xylene
13.889	-0.002	339581	14.117	-0.001	351690	38.5	38.0	1.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	435779	-13.4
Hexabromobiphenyl	647433	1000233	54.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	369685	9.7
Hexabromobiphenyl	382032	662877	73.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.403	0.000	52538	250.0	1	8.305	0.000	41694	250.0
Aroclor-1248	2	8.577	0.000	66305	250.0	2	8.712	0.000	43865	250.0
Aroclor-1248	3	8.996	0.000	93719	250.0	3	9.159	0.000	50687	250.0
Aroclor-1248	4	9.292	0.000	59273	250.0	4	9.581	0.000	61479	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1025602 Col1 Total PCB = 0.2 ppm*

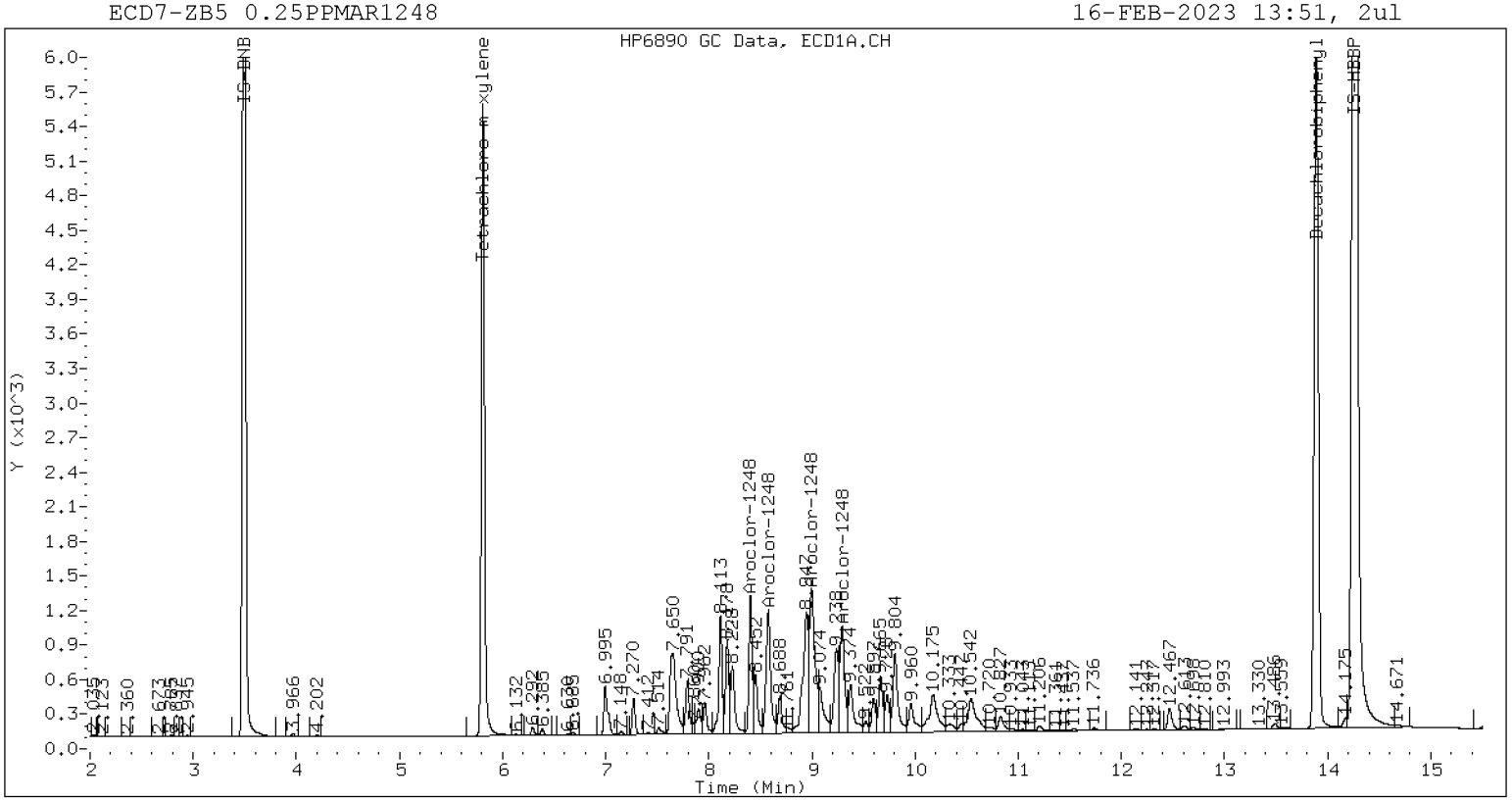
Total PCB Area Col2 (5.786 - 14.018) = 824415 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

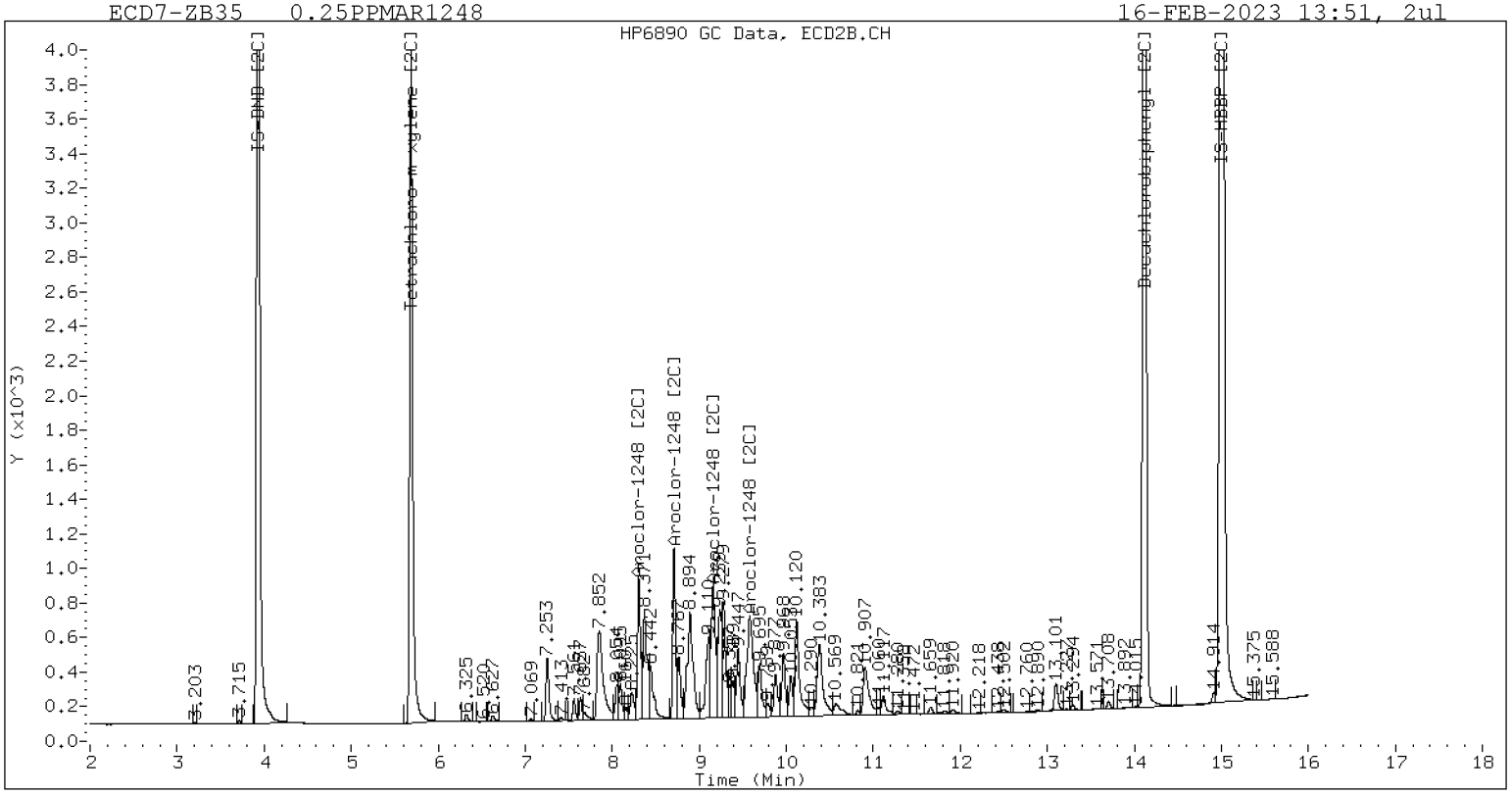
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162310ECD7.D
Data file 2: /230216.b/230216.b/02162310ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 16-FEB-2023 14:12
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235903	5.686	0.001	191667	38.0	38.3	0.7	Tetrachloro-m-xylene
13.891	0.000	345464	14.117	-0.001	355579	38.7	38.0	1.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	437427	-13.1
Hexabromobiphenyl	647433	1013635	56.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	371000	10.1
Hexabromobiphenyl	382032	671465	75.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.295	0.000	105834	250.0	1	9.447	0.000	65393	250.0
Aroclor-1254	2	9.374	0.000	41671	250.0	2	9.967	0.000	52822	250.0
Aroclor-1254	3	9.665	0.000	67447	250.0	3	10.120	0.000	115063	250.0
Aroclor-1254	4	9.803	0.000	134258	250.0	4	10.370	0.000	113530	250.0
Aroclor-1254	5	10.167	0.000	81893	250.0	5	10.566	0.000	57361	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1385653 Col1 Total PCB = 0.3 ppm*

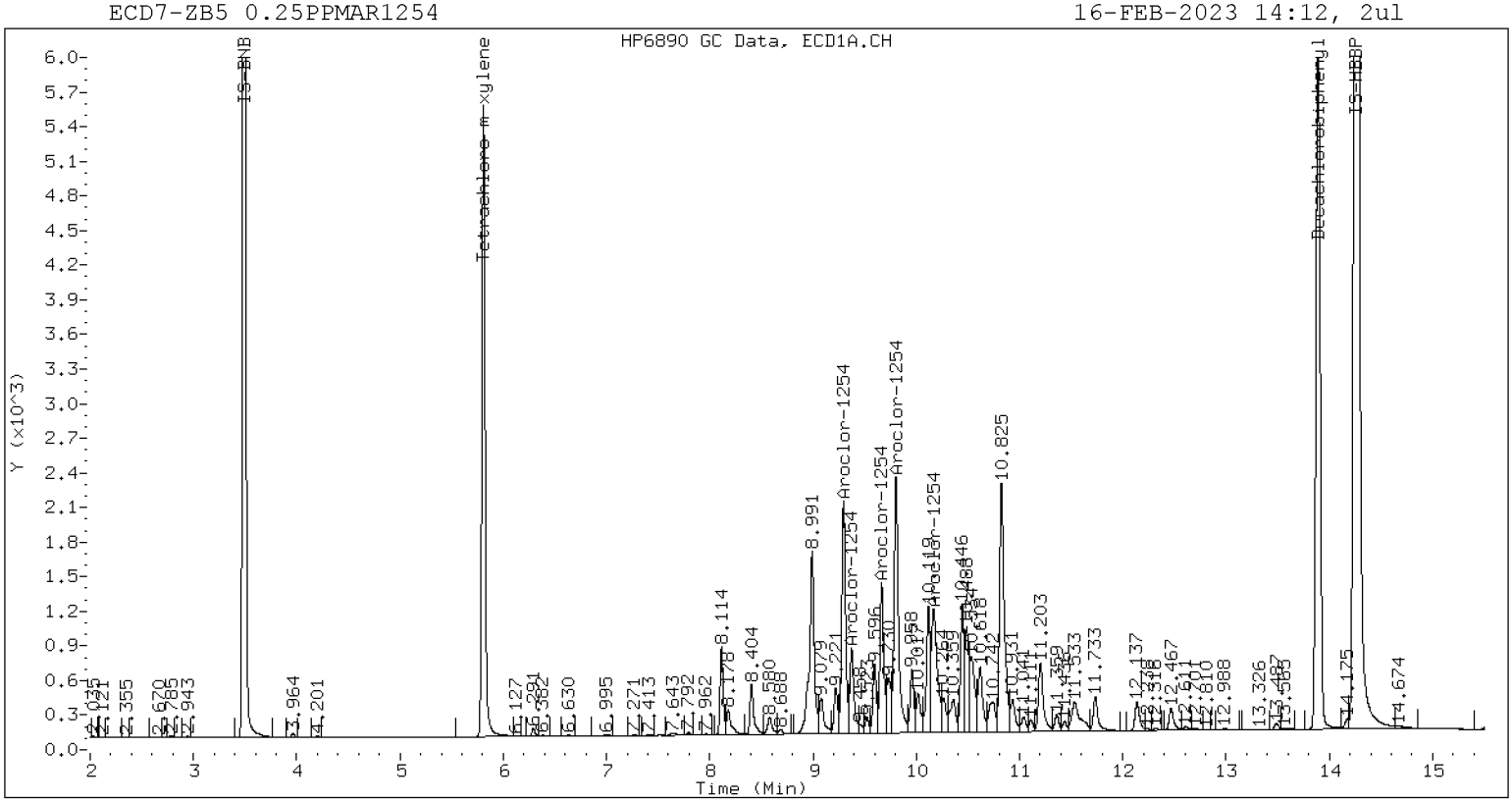
Total PCB Area Col2 (5.786 - 14.018) = 1106329 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

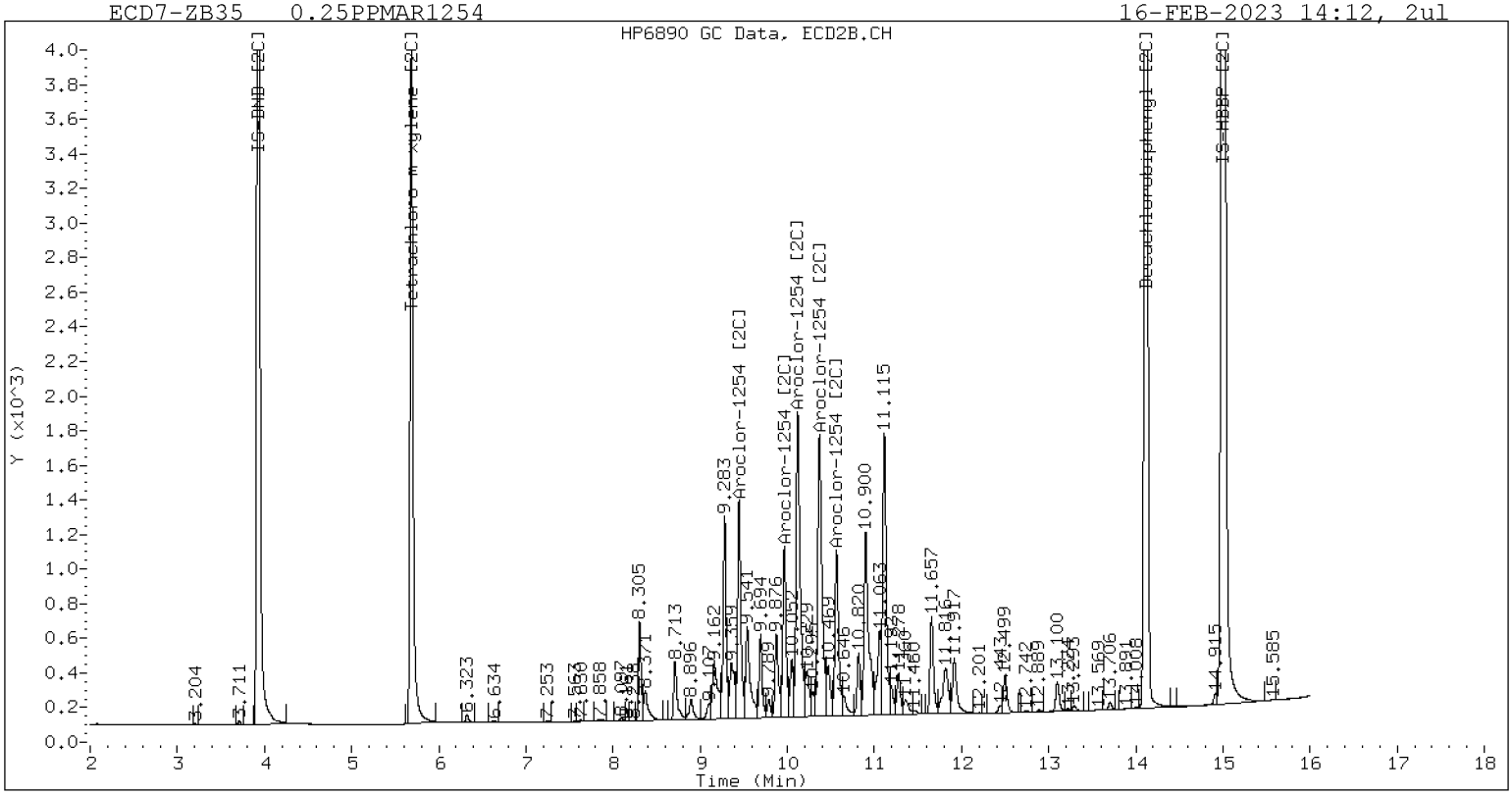
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

2162

Data file 1: /230216.b/02162311ECD7.D
Data file 2: /230216.b/230216.b/02162311ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2~~168~~
Client ID:
Injection Date: 16-FEB-2023 14:33
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	241501	5.686	-0.000	189710	38.6	38.6	0.2	Tetrachloro-m-xylene
13.891	0.000	336556	14.118	0.000	345795	38.0	37.2	2.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	440775	-12.4
Hexabromobiphenyl	647433	1005738	55.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	364664	8.2
Hexabromobiphenyl	382032	666787	74.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1221	1	4.732	0.000	8560	250.0	1	4.958	0.000	6777	250.0
Aroclor-1221	2	6.133	0.000	15969	250.0	2	6.298	0.000	14550	250.0
Aroclor-1221	3	6.383	0.000	36928	250.0	3	6.622	0.000	24370	250.0
	Total Col1Ave (3 peaks):				250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.824	0.000	73471	250.0	1	11.198	0.000	124591	250.0
Aroclor-1262	2	12.242	0.000	120422	250.0	2	11.649	0.000	107557	250.0
Aroclor-1262	3	12.317	0.000	129860	250.0	3	12.431	0.000	117102	250.0
Aroclor-1262	4	12.984	0.000	112297	250.0	4	12.500	0.000	186359	250.0
	Total Col1Ave (4 peaks):				250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
	Corrected Ave (3 peaks):				250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1985753 Col1 Total PCB = 0.4 ppm*

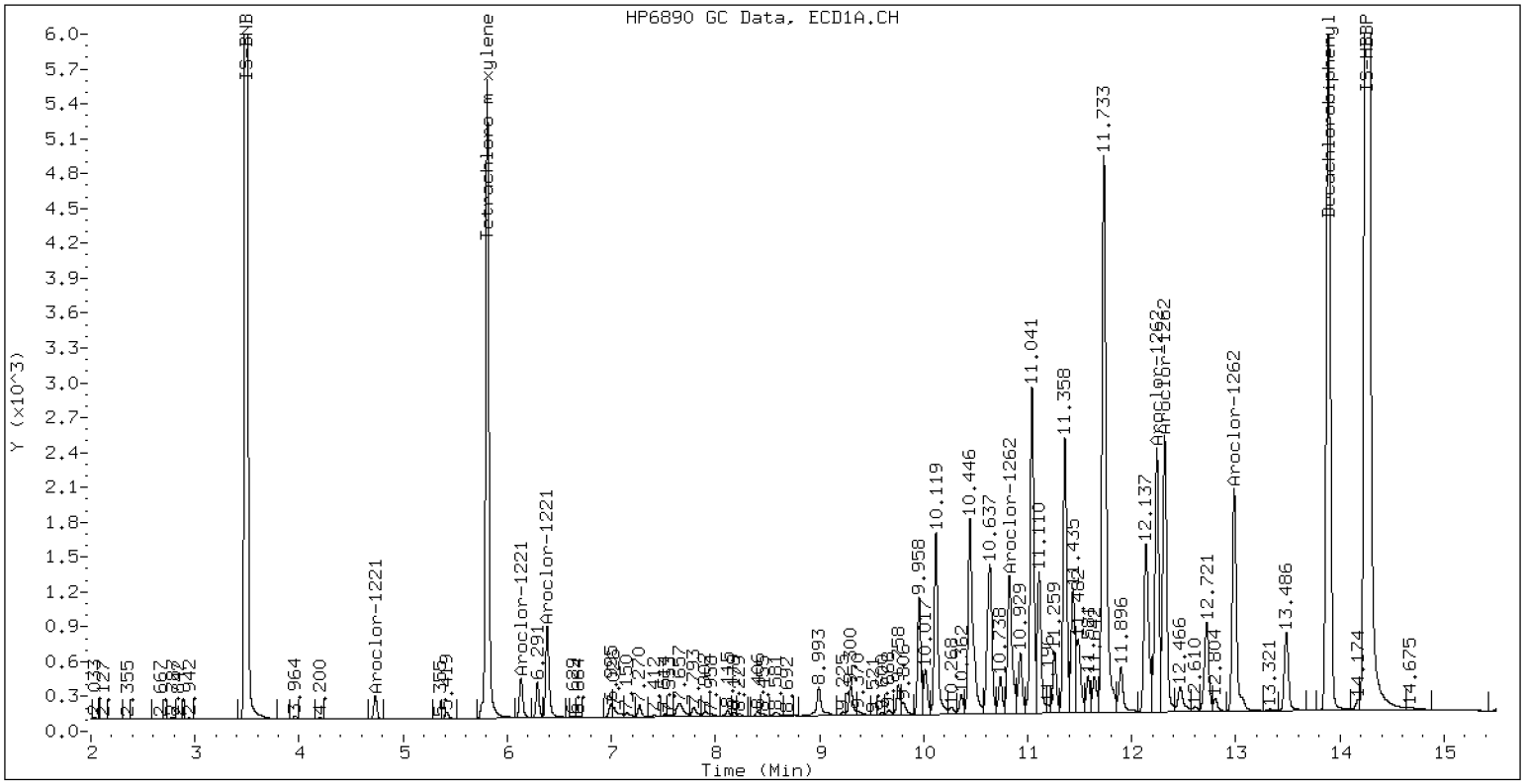
Total PCB Area Col2 (5.786 - 14.018) = 1689172 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

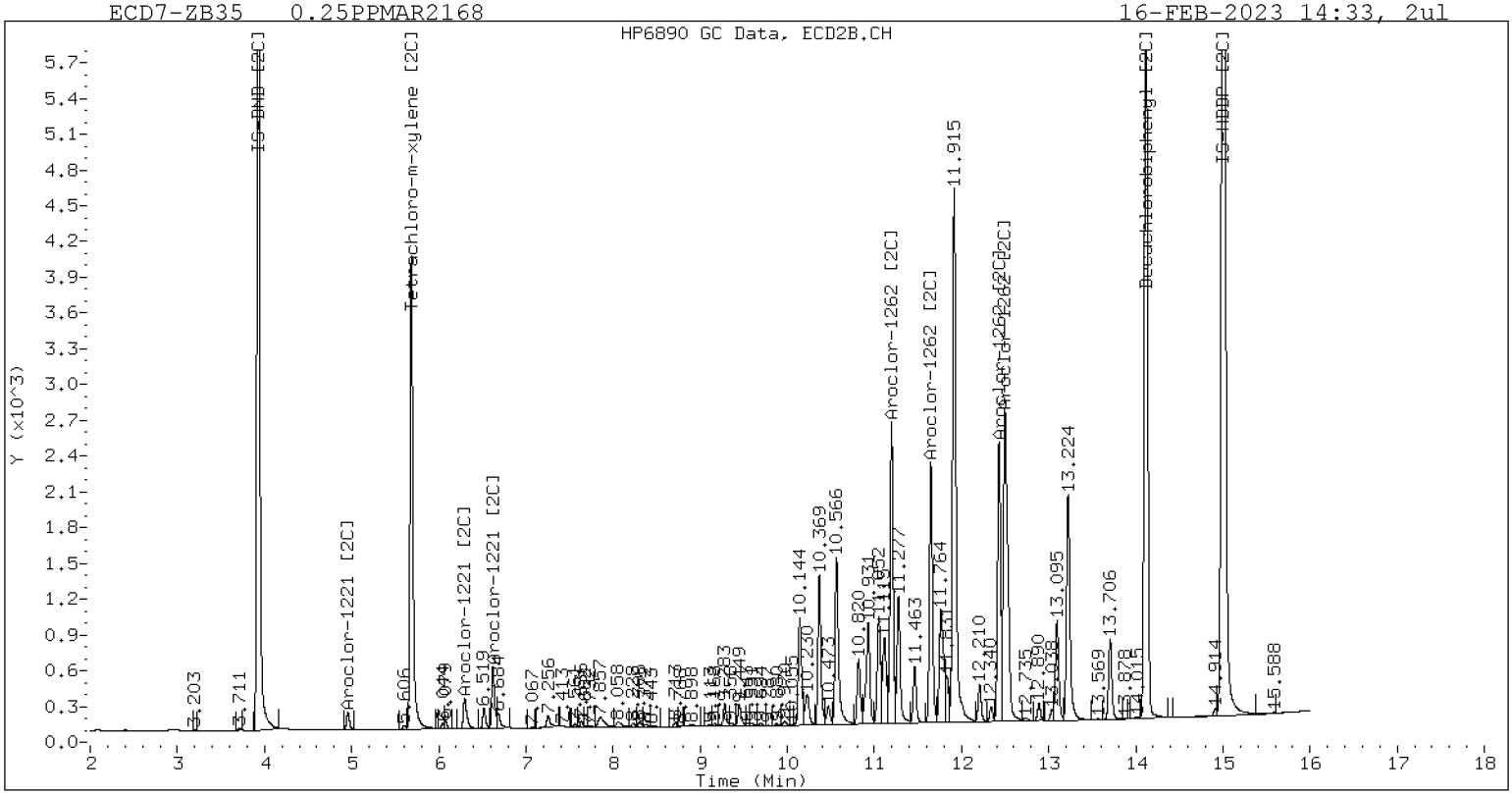
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162312ECD7.D
Data file 2: /230216.b/230216.b/02162312ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 16-FEB-2023 14:54
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	244394	5.686	0.000	193636	39.3	39.4	0.2	Tetrachloro-m-xylene
13.891	0.000	497881	14.118	0.000	532832	55.7	57.0	2.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	438085	-13.0
Hexabromobiphenyl	647433	1014892	56.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	364382	8.2
Hexabromobiphenyl	382032	669957	75.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.732	0.000	5253	250.0	1	4.958	0.000	4040	250.0
Aroclor-1232	2	6.133	0.000	11086	250.0	2	7.254	0.000	22642	250.0
Aroclor-1232	3	7.654	0.000	53251	250.0	3	7.855	0.000	45239	250.0
Aroclor-1232	4	8.579	0.000	22019	250.0	4	8.712	0.000	12663	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.243	0.000	318381	250.0	1	12.431	0.000	304552	250.0
Aroclor-1268	2	12.314	0.000	316432	250.0	2	12.498	0.000	320370	250.0
Aroclor-1268	3	12.697	0.000	268530	250.0	3	12.890	0.000	250965	250.0
Aroclor-1268	4	13.487	0.000	822664	250.0	4	13.707	0.000	877009	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 2577331 Col1 Total PCB = 0.5 ppm*

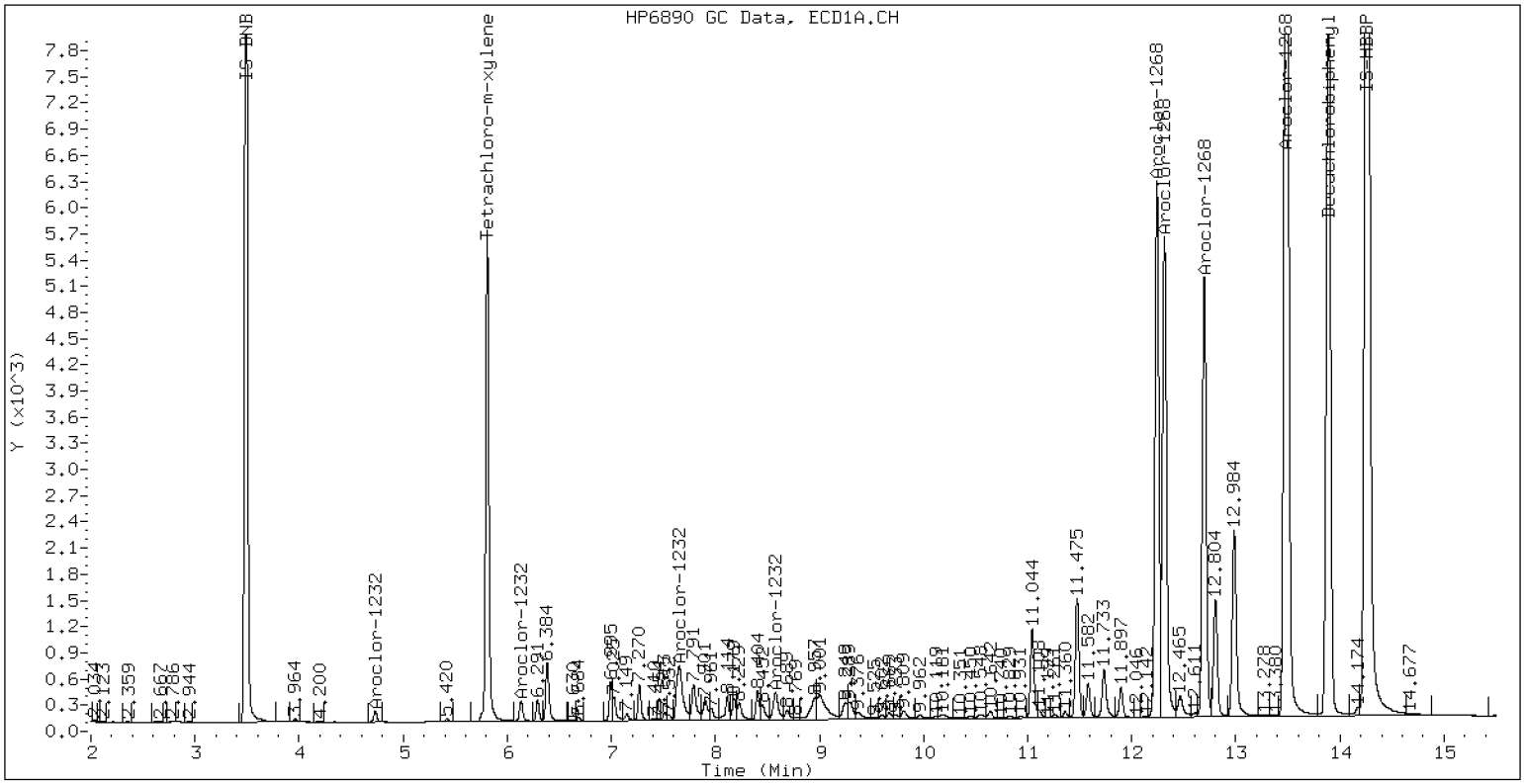
Total PCB Area Col2 (5.786 - 14.018) = 2462840 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

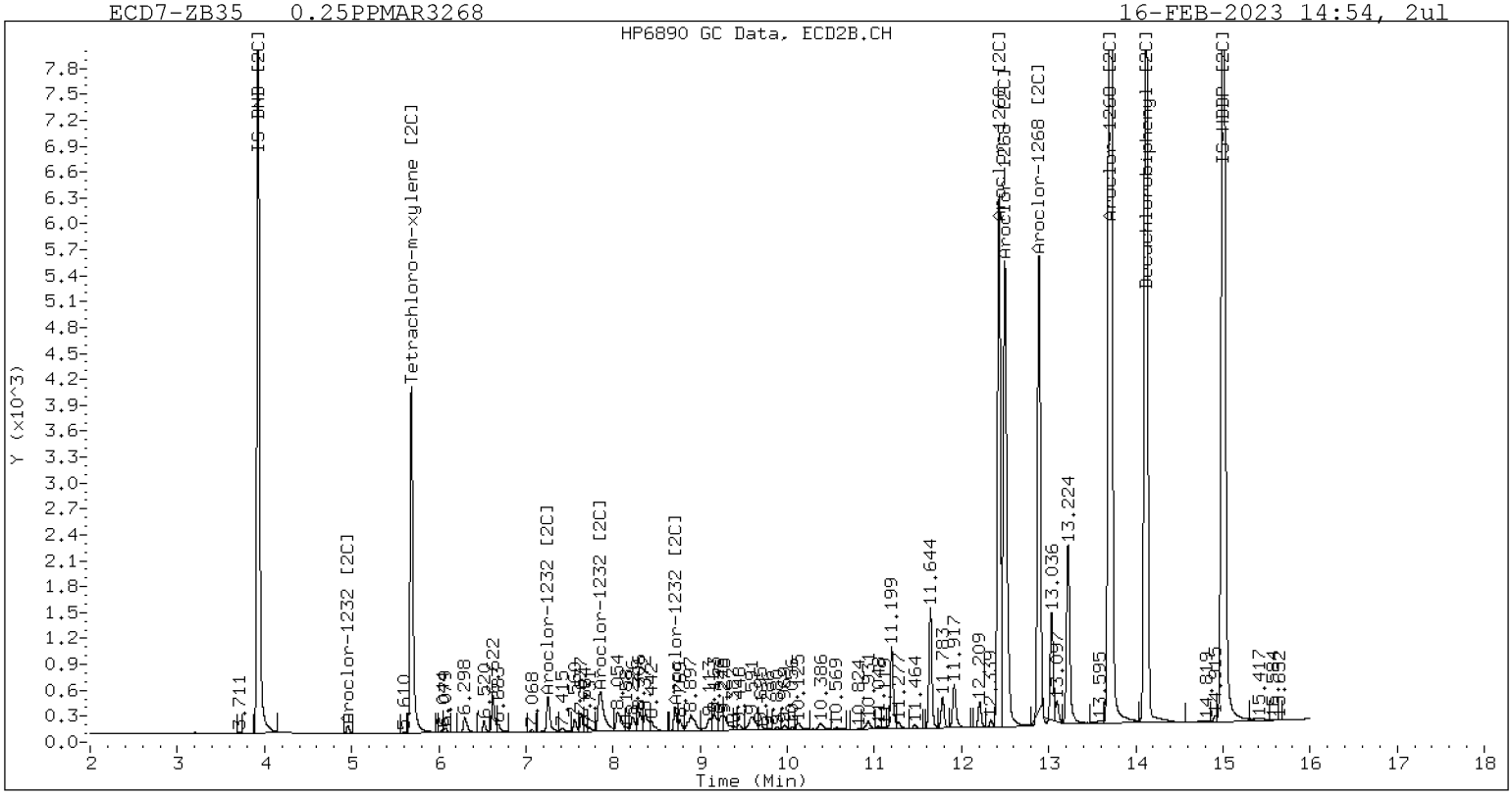
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162313ECD7.D
Data file 2: /230216.b/230216.b/02162313ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 16-FEB-2023 15:15
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	242919	5.685	-0.001	193061	37.3	37.2	0.3	Tetrachloro-m-xylene
13.891	-0.000	374845	14.118	0.000	388292	40.4	40.0	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	458820	-8.8
Hexabromobiphenyl	647433	1052678	62.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	384524	14.1
Hexabromobiphenyl	382032	695386	82.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.269	0.000	36442	218.1	1	7.253	-0.001	45357	215.3
Aroclor-1016	2	7.652	0.002	116510	217.8	2	7.853	0.002	99069	221.4
Aroclor-1016	3	7.789	0.002	51841	210.7	3	8.052	0.003	42476	230.8
Aroclor-1016	4	8.403	0.001	35760	220.8	4	8.305	0.001	32151	215.4
Total Col1Ave (4 peaks):					216.8	Total Col2Ave (4 peaks):				220.7 RPD = 2
Corrected Ave (3 peaks):					215.5	Corrected Ave (3 peaks):				217.4 RPD = 1
Aroclor-1221	1	4.732	0.000	272	7.6	1	---			0.0
Aroclor-1221	2	6.131	-0.002	4384	65.9	2	6.302	0.004	5219	85.0
Aroclor-1221	3	6.383	-0.000	24508	159.4	3	6.622	0.001	21028	204.6
Total Col1Ave (3 peaks):					77.7	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.732	0.000	272	12.4	1	---			0.0
Aroclor-1232	2	6.131	-0.002	4384	94.4	2	7.253	-0.001	45357	474.6
Aroclor-1232	3	7.652	-0.002	116510	522.3	3	7.853	-0.002	99069	518.8
Aroclor-1232	4	8.577	-0.002	49511	536.7	4	8.712	-0.001	31220	584.1
Total Col1Ave (4 peaks):					291.4	Total Col2Ave (3 peaks):				525.8 RPD = 57*
Corrected Ave (3 peaks):					209.7	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	36442	266.6	1	7.253	-0.001	45357	272.7
Aroclor-1242	2	7.652	0.000	116510	269.4	2	7.853	0.000	99069	274.9
Aroclor-1242	3	8.403	0.000	35760	273.6	3	9.113	-0.047	17818	156.4
Aroclor-1242	4	8.577	-0.000	49511	256.5	4	9.582	-0.005	1661	12.0
Total Col1Ave (4 peaks):					266.5	Total Col2Ave (4 peaks):				179.0 RPD = 39
Corrected Ave (3 peaks):					264.1	Corrected Ave (3 peaks):				147.1 RPD = 57*
Aroclor-1248	1	8.403	0.000	35760	161.6	1	8.305	-0.001	32151	185.3
Aroclor-1248	2	8.577	-0.000	49511	177.3	2	8.712	0.000	31220	171.1
Aroclor-1248	3	8.992	-0.004	46666	118.2	3	9.113	-0.046	17818	84.5
Aroclor-1248	4	9.299	0.007	30647	122.8	4	9.582	0.001	1661	6.5
Total Col1Ave (4 peaks):					145.0	Total Col2Ave (4 peaks):				111.8 RPD = 26
Corrected Ave (3 peaks):					134.2	Corrected Ave (3 peaks):				87.4 RPD = 42*
Aroclor-1254	1	9.299	0.004	30647	69.0	1	9.447	0.001	22012	81.2
Aroclor-1254	2	---			0.0	2	9.969	0.002	2772	12.7
Aroclor-1254	3	9.667	0.002	3608	12.7	3	10.144	0.025	57546	120.6
Aroclor-1254	4	9.805	0.002	12639	22.4	4	10.369	-0.002	77590	164.8
Aroclor-1254	5	10.117	-0.050	100524	292.6	5	10.566	-0.000	106735	448.8
Total Col1Ave (4 peaks):					99.2	Total Col2Ave (5 peaks):				165.6 RPD = 50*
Corrected Ave (3 peaks):					34.7	Corrected Ave (4 peaks):				94.8 RPD = 93*
Aroclor-1260	1	11.042	0.002	99629	274.5	1	11.651	0.001	89434	231.9
Aroclor-1260	2	11.359	0.002	100112	269.7	2	11.915	0.001	237947	245.3
Aroclor-1260	3	11.732	0.002	260880	265.3	3	12.433	0.001	63686	245.4
Aroclor-1260	4	12.137	0.003	124998	250.4	4	12.500	0.002	157792	242.5
Aroclor-1260	5	12.242	0.001	58944	275.3	NS	---			----
Total Col1Ave (5 peaks):					267.0	Total Col2Ave (4 peaks):				241.3 RPD = 10
Corrected Ave (4 peaks):					265.0	Corrected Ave (3 peaks):				239.9 RPD = 10
Aroclor-1262	1	10.824	-0.001	144319	469.2	1	11.197	-0.000	90434	174.0
Aroclor-1262	2	12.242	-0.000	58944	116.9	2	11.651	0.002	89434	199.3
Aroclor-1262	3	12.316	-0.001	73272	134.8	3	12.433	0.002	63686	130.4
Aroclor-1262	4	12.985	0.001	66451	141.3	4	12.500	-0.000	157792	203.0
Total Col1Ave (4 peaks):					215.5	Total Col2Ave (4 peaks):				176.7 RPD = 20
Corrected Ave (3 peaks):					131.0	Corrected Ave (3 peaks):				167.9 RPD = 25
Aroclor-1268	1	12.242	-0.001	58944	44.6	1	12.433	0.002	63686	50.4
Aroclor-1268	2	12.316	0.002	73272	55.8	2	12.500	0.002	157792	118.6
Aroclor-1268	3	12.722	0.025	29543	26.5	3	12.890	0.000	1866	1.8
Aroclor-1268	4	13.486	-0.001	13453	3.9	4	13.707	0.000	11995	3.3
Total Col1Ave (4 peaks):					32.7	Total Col2Ave (4 peaks):				43.5 RPD = 28
Corrected Ave (3 peaks):					25.0	Corrected Ave (3 peaks):				18.5 RPD = 30

Total PCB Area Col1 (5.908 - 13.791) = 2405704 Col1 Total PCB = 0.5 ppm*

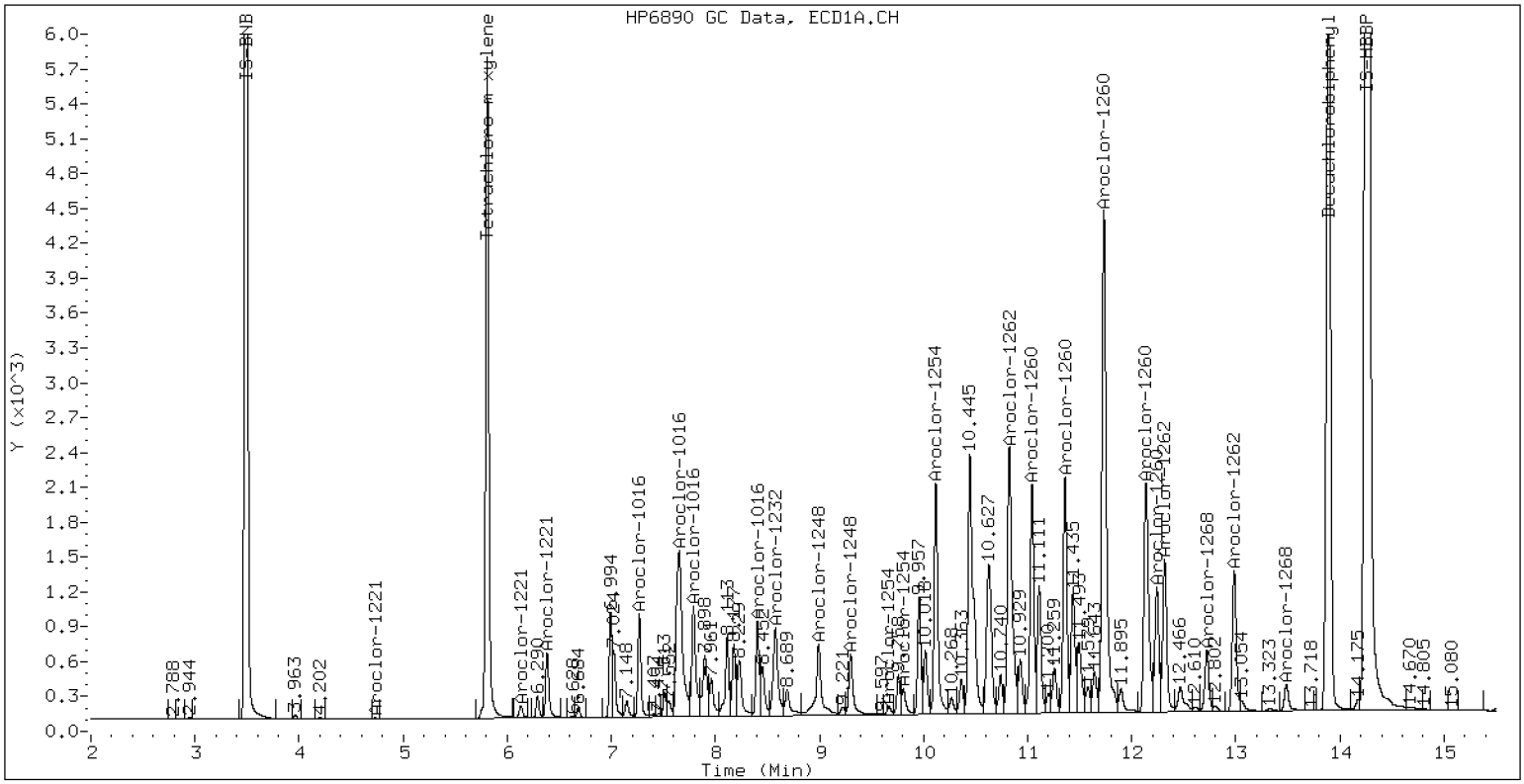
Total PCB Area Col2 (5.786 - 14.018) = 1998655 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

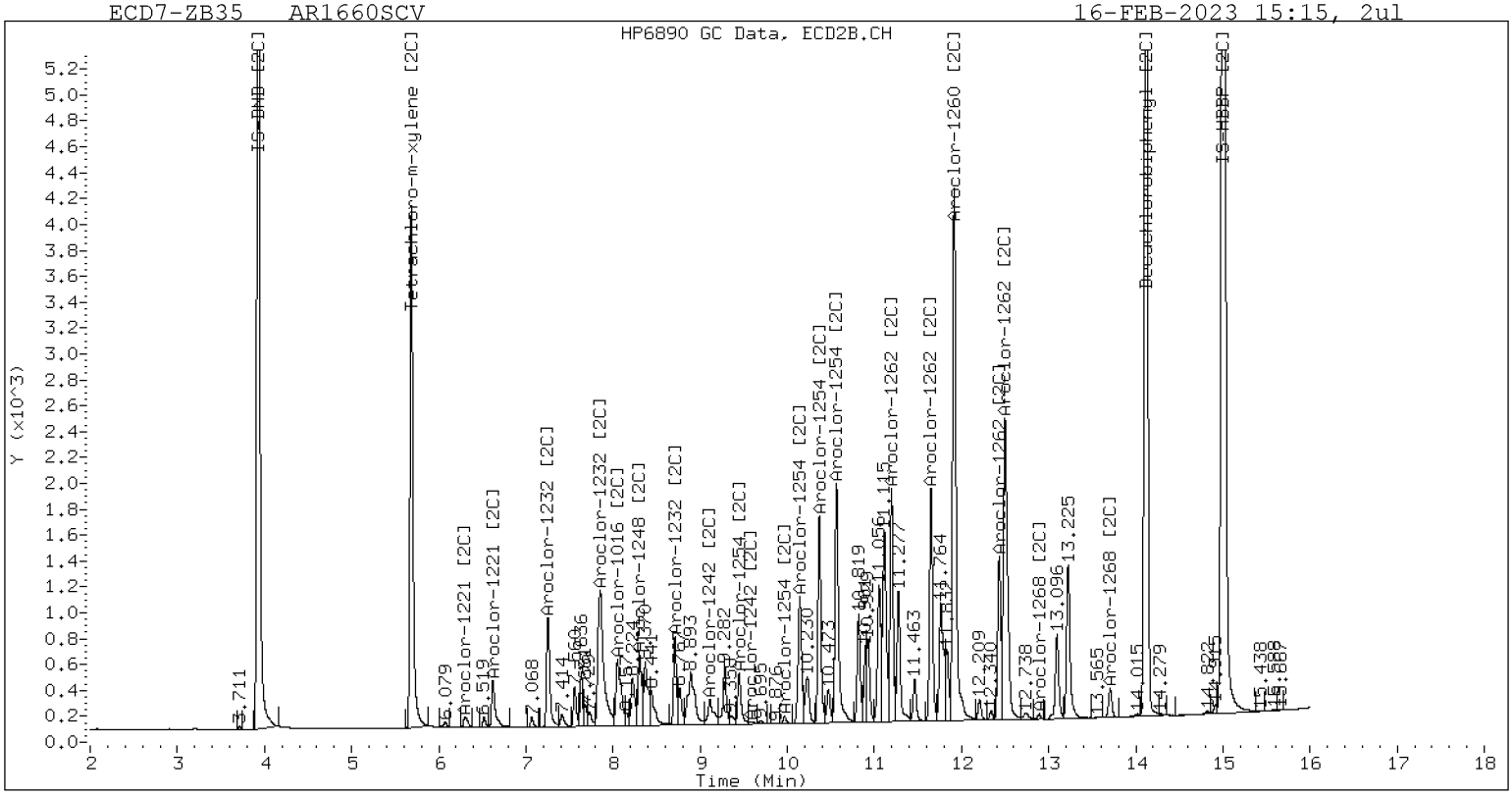
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162314ECD7.D
Data file 2: /230216.b/230216.b/02162314ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 16-FEB-2023 15:36
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	240392	5.686	0.000	191518	36.8	36.8	0.0	Tetrachloro-m-xylene
13.891	0.000	372444	14.118	-0.000	384306	40.3	39.9	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	460847	-8.4
Hexabromobiphenyl	647433	1048824	62.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	386112	14.6
Hexabromobiphenyl	382032	690141	80.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	26450	157.6	1	7.253	-0.001	35202	166.4
Aroclor-1016	2	7.651	0.001	91590	170.4	2	7.851	-0.000	76062	169.2
Aroclor-1016	3	7.789	0.002	38405	155.4	3	8.051	0.002	31745	171.8
Aroclor-1016	4	8.403	0.001	28918	177.8	4	8.304	0.000	24379	162.7
Total Col1Ave (4 peaks):					165.3	Total Col2Ave (4 peaks):				167.5 RPD = 1
Corrected Ave (3 peaks):					161.1	Corrected Ave (3 peaks):				166.1 RPD = 3
Aroclor-1221	1	4.736	0.004	158	4.4	1	---			0.0
Aroclor-1221	2	6.131	-0.002	3413	51.1	2	6.318	0.020	4305	69.9
Aroclor-1221	3	6.383	-0.000	18978	122.9	3	6.623	0.001	15561	150.8
Total Col1Ave (3 peaks):					59.5	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.736	0.004	158	7.1	1	---			0.0
Aroclor-1232	2	6.131	-0.002	3413	73.2	2	7.253	-0.001	35202	366.8
Aroclor-1232	3	7.651	-0.003	91590	408.8	3	7.851	-0.004	76062	396.7
Aroclor-1232	4	8.577	-0.002	48090	519.0	4	8.712	-0.001	24445	455.4
Total Col1Ave (4 peaks):					252.0	Total Col2Ave (3 peaks):				406.3 RPD = 47*
Corrected Ave (3 peaks):					163.0	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	26450	192.7	1	7.253	-0.000	35202	210.8
Aroclor-1242	2	7.651	-0.001	91590	210.8	2	7.851	-0.002	76062	210.2
Aroclor-1242	3	8.403	-0.000	28918	220.3	3	9.156	-0.004	26140	228.5
Aroclor-1242	4	8.577	-0.000	48090	248.0	4	9.580	-0.007	33659	242.7
Total Col1Ave (4 peaks):					217.9	Total Col2Ave (4 peaks):				223.1 RPD = 2
Corrected Ave (3 peaks):					207.9	Corrected Ave (3 peaks):				216.5 RPD = 4
Aroclor-1248	1	8.403	-0.000	28918	130.1	1	8.304	-0.001	24379	140.0
Aroclor-1248	2	8.577	-0.000	48090	171.5	2	8.712	0.000	24445	133.4
Aroclor-1248	3	8.997	0.001	47230	119.1	3	9.156	-0.003	26140	123.4
Aroclor-1248	4	9.292	0.001	23789	94.9	4	9.580	-0.001	33659	131.0
Total Col1Ave (4 peaks):					128.9	Total Col2Ave (4 peaks):				132.0 RPD = 2
Corrected Ave (3 peaks):					114.7	Corrected Ave (3 peaks):				129.3 RPD = 12
Aroclor-1254	1	9.292	-0.003	23789	53.3	1	9.446	-0.000	12605	46.3
Aroclor-1254	2	9.374	0.001	9634	54.9	2	9.967	-0.000	8527	38.8
Aroclor-1254	3	9.666	0.001	10685	37.6	3	10.119	-0.001	16959	35.4
Aroclor-1254	4	9.803	-0.000	18245	32.2	4	10.375	0.005	17612	37.3
Aroclor-1254	5	10.169	0.001	13394	38.8	5	10.568	0.003	5160	21.6
Total Col1Ave (5 peaks):					43.4	Total Col2Ave (5 peaks):				35.9 RPD = 19
Corrected Ave (4 peaks):					40.5	Corrected Ave (4 peaks):				33.3 RPD = 20
Aroclor-1260	1	11.043	0.002	200	0.6	1	11.659	0.009	1919	5.0
Aroclor-1260	2	11.361	0.004	305	0.8	2	11.922	0.007	1126	1.2
Aroclor-1260	3	11.735	0.004	595	0.6	3	12.438	0.006	127	0.5
Aroclor-1260	4	12.143	0.009	717	1.4	4	12.501	0.003	670	1.0
Aroclor-1260	5	12.318	0.078	265	1.2	NS	---			----
Total Col1Ave (5 peaks):					0.9	Total Col2Ave (4 peaks):				1.9 RPD = 70*
Corrected Ave (4 peaks):					0.8	Corrected Ave (3 peaks):				0.9 RPD = 11
Aroclor-1262	1	10.827	0.003	7919	25.8	1	11.117	-0.081	6747	13.1
Aroclor-1262	2	12.318	0.076	265	0.5	2	11.659	0.010	1919	4.3
Aroclor-1262	3	---			0.0	3	12.438	0.007	127	0.3
Aroclor-1262	4	13.032	0.048	704	1.5	4	12.501	0.001	670	0.9
Total Col1Ave (3 peaks):					9.3	Total Col2Ave (4 peaks):				4.6 RPD = 67*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				1.8
Aroclor-1268	1	12.318	0.075	265	0.2	1	12.438	0.007	127	0.1
Aroclor-1268	2	---			0.0	2	12.501	0.003	670	0.5
Aroclor-1268	3	12.613	-0.084	2956	2.7	3	---			0.0
Aroclor-1268	4	13.493	0.006	820	0.2	4	13.707	0.000	334	0.1
Total Col1Ave (3 peaks):					1.0	Total Col2Ave (3 peaks):				0.2 RPD = 126*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 754431 Col1 Total PCB = 0.1 ppm*

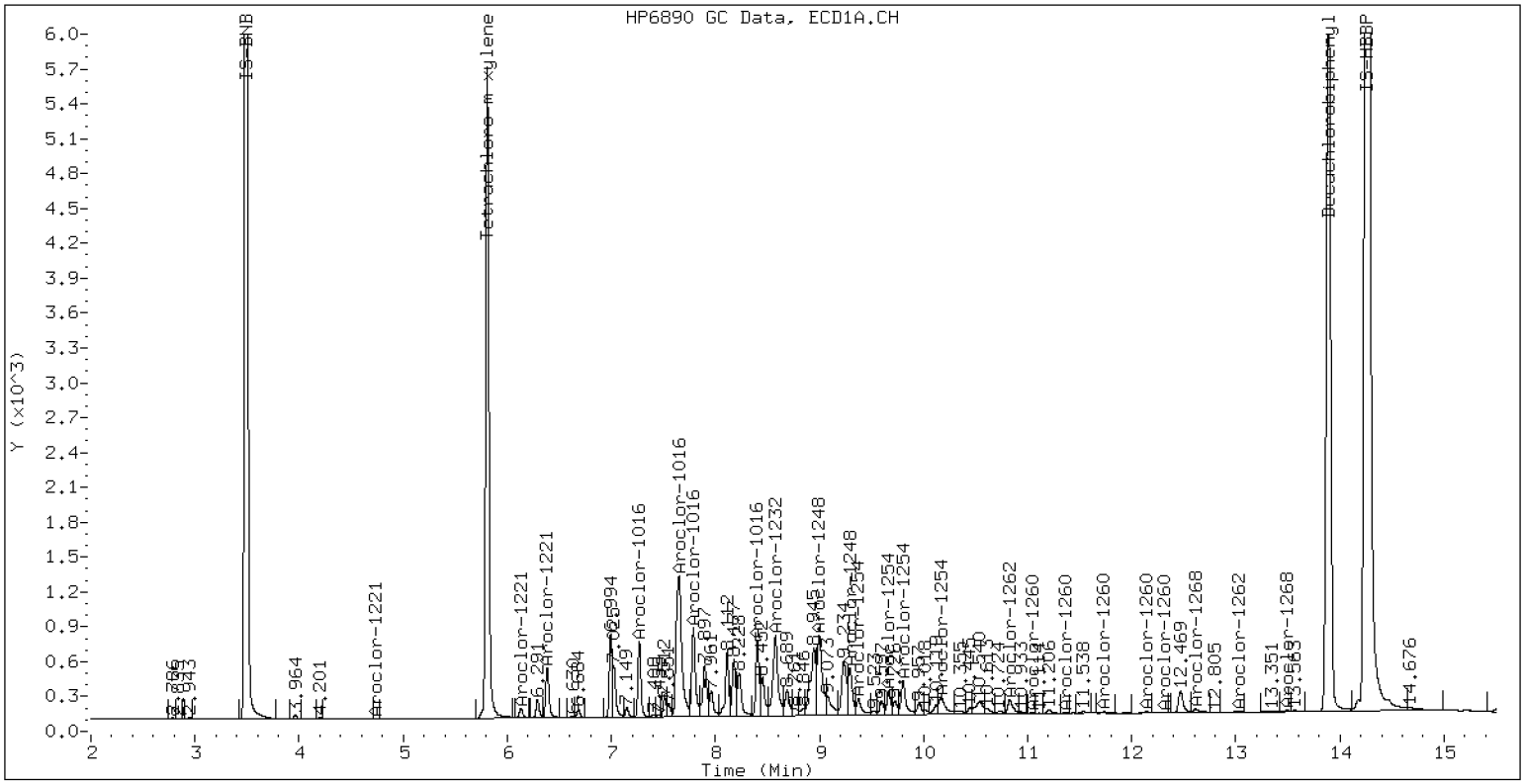
Total PCB Area Col2 (5.786 - 14.018) = 609458 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

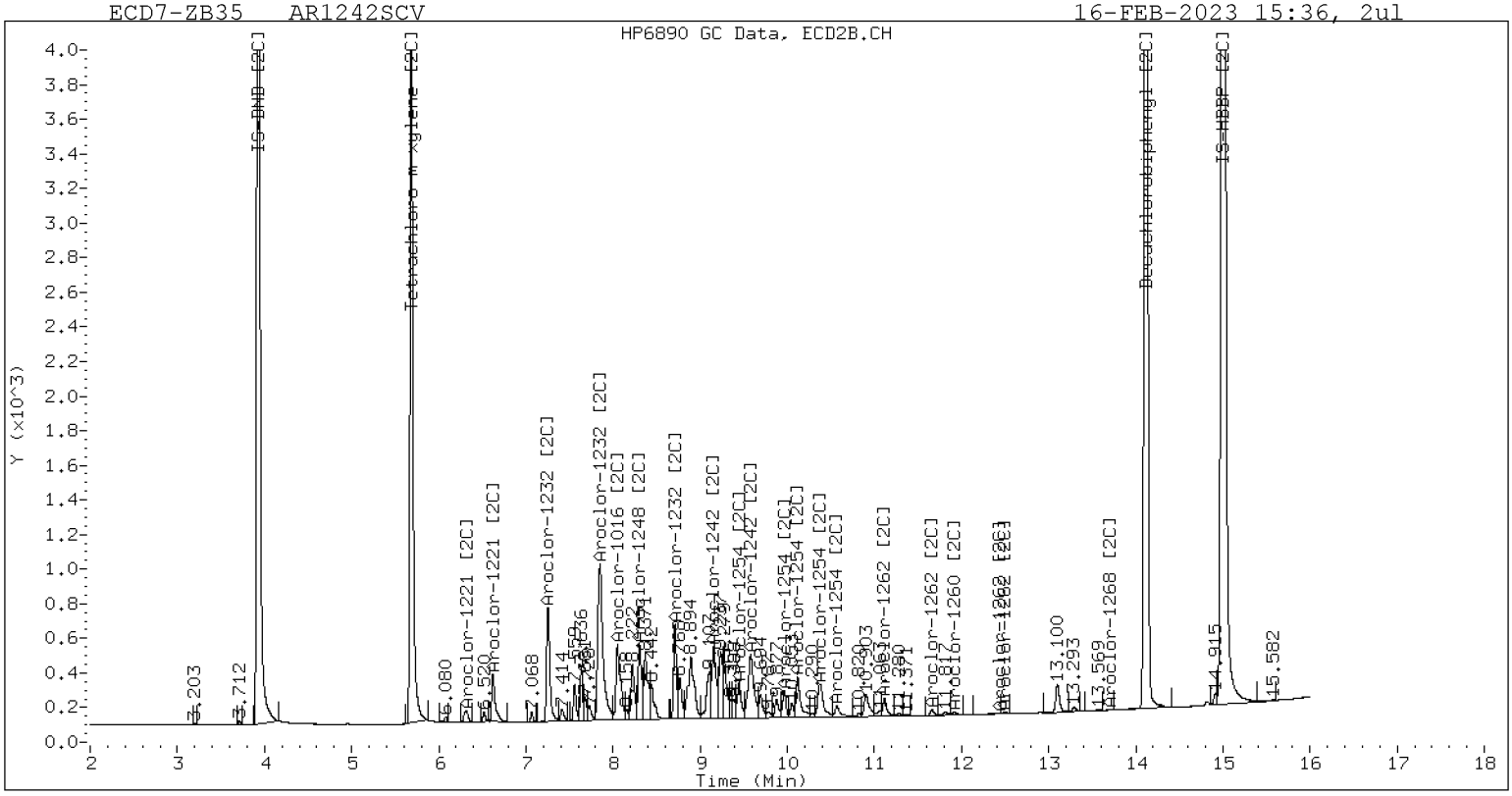
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162315ECD7.D
Data file 2: /230216.b/230216.b/02162315ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 16-FEB-2023 15:57
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235232	5.686	0.000	187353	36.5	36.5	0.1	Tetrachloro-m-xylene
13.891	0.000	371896	14.118	0.000	374279	41.4	40.1	3.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	454293	-9.7
Hexabromobiphenyl	647433	1020262	57.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	380923	13.1
Hexabromobiphenyl	382032	669927	75.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	12869	77.8	1	7.252	-0.002	17659	84.6
Aroclor-1016	2	7.649	-0.001	59048	111.5	2	7.852	0.001	49924	112.6
Aroclor-1016	3	7.791	0.004	23385	96.0	3	8.054	0.004	9755	53.5
Aroclor-1016	4	8.403	0.001	51659	322.2	4	8.305	0.001	40334	272.8
Total Col1Ave (4 peaks):		151.9				Total Col2Ave (4 peaks):			130.9	RPD = 15
Corrected Ave (3 peaks):		95.1				Corrected Ave (3 peaks):			83.6	RPD = 13
Aroclor-1221	1	4.639	-0.093	125	3.5	1	---			0.0
Aroclor-1221	2	6.133	-0.000	396	6.0	2	6.324	0.026	2135	35.1
Aroclor-1221	3	6.384	0.001	2262	14.9	3	6.626	0.005	1703	16.7
Total Col1Ave (3 peaks):		8.1				Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.639	-0.093	125	5.7	1	---			0.0
Aroclor-1232	2	6.133	0.000	396	8.6	2	7.252	-0.003	17659	186.5
Aroclor-1232	3	7.649	-0.005	59048	267.3	3	7.852	-0.003	49924	263.9
Aroclor-1232	4	8.577	-0.002	65165	713.5	4	8.712	-0.000	42481	802.3
Total Col1Ave (4 peaks):		248.8				Total Col2Ave (3 peaks):			417.6	RPD = 51*
Corrected Ave (3 peaks):		93.9				Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	12869	95.1	1	7.252	-0.002	17659	107.2
Aroclor-1242	2	7.649	-0.003	59048	137.9	2	7.852	-0.000	49924	139.9
Aroclor-1242	3	8.403	0.000	51659	399.2	3	9.160	0.001	49159	435.7
Aroclor-1242	4	8.577	-0.000	65165	340.9	4	9.582	-0.005	57018	416.7
Total Col1Ave (4 peaks):		243.3				Total Col2Ave (4 peaks):			274.8	RPD = 12
Corrected Ave (3 peaks):		191.3				Corrected Ave (3 peaks):			221.2	RPD = 15
Aroclor-1248	1	8.403	0.000	51659	235.8	1	8.305	-0.000	40334	234.7
Aroclor-1248	2	8.577	-0.000	65165	235.7	2	8.712	0.000	42481	235.0
Aroclor-1248	3	8.997	0.001	90358	231.2	3	9.160	0.002	49159	235.3
Aroclor-1248	4	9.292	0.000	60263	243.8	4	9.582	0.001	57018	225.0
Total Col1Ave (4 peaks):		236.6				Total Col2Ave (4 peaks):			232.5	RPD = 2
Corrected Ave (3 peaks):		234.2				Corrected Ave (3 peaks):			231.6	RPD = 1
Aroclor-1254	1	9.292	-0.003	60263	137.1	1	9.447	0.001	22366	83.3
Aroclor-1254	2	9.373	-0.000	30778	177.8	2	9.968	0.001	20179	93.0
Aroclor-1254	3	9.666	0.001	25929	92.5	3	10.121	0.001	37594	79.6
Aroclor-1254	4	9.806	0.003	44678	80.1	4	10.384	0.014	37032	79.4
Aroclor-1254	5	10.177	0.010	31103	91.4	5	10.571	0.005	8221	34.9
Total Col1Ave (5 peaks):		115.8				Total Col2Ave (5 peaks):			74.0	RPD = 44*
Corrected Ave (4 peaks):		100.3				Corrected Ave (4 peaks):			69.3	RPD = 37
Aroclor-1260	1	11.045	0.004	1084	3.1	1	11.659	0.009	1947	5.2
Aroclor-1260	2	11.359	0.002	556	1.5	2	11.920	0.006	1354	1.4
Aroclor-1260	3	11.734	0.003	872	0.9	3	12.426	-0.006	2386	9.5
Aroclor-1260	4	12.143	0.009	431	0.9	4	12.501	0.004	1186	1.9
Aroclor-1260	5	12.243	0.003	275	1.3	NS	---			----
Total Col1Ave (5 peaks):		1.6				Total Col2Ave (4 peaks):			4.5	RPD = 98*
Corrected Ave (4 peaks):		1.2				Corrected Ave (3 peaks):			2.9	RPD = 84*
Aroclor-1262	1	10.828	0.003	9454	31.7	1	11.119	-0.079	7326	14.6
Aroclor-1262	2	12.243	0.001	275	0.6	2	11.659	0.010	1947	4.5
Aroclor-1262	3	12.321	0.005	357	0.7	3	12.426	-0.005	2386	5.1
Aroclor-1262	4	12.984	-0.001	1676	3.7	4	12.501	0.002	1186	1.6
Total Col1Ave (4 peaks):		9.2				Total Col2Ave (4 peaks):			6.4	RPD = 35
Corrected Ave (3 peaks):		1.6				Corrected Ave (3 peaks):			3.7	RPD = 78*
Aroclor-1268	1	12.243	0.000	275	0.2	1	12.426	-0.004	2386	2.0
Aroclor-1268	2	12.321	0.007	357	0.3	2	12.501	0.004	1186	0.9
Aroclor-1268	3	12.614	-0.084	992	0.9	3	12.898	0.008	102	0.1
Aroclor-1268	4	13.493	0.006	969	0.3	4	13.674	-0.032	1135	0.3
Total Col1Ave (4 peaks):		0.4				Total Col2Ave (4 peaks):			0.8	RPD = 64*
Corrected Ave (3 peaks):		0.3				Corrected Ave (3 peaks):			0.5	RPD = 53*

Total PCB Area Col1 (5.908 - 13.791) = 1015830 Col1 Total PCB = 0.2 ppm*

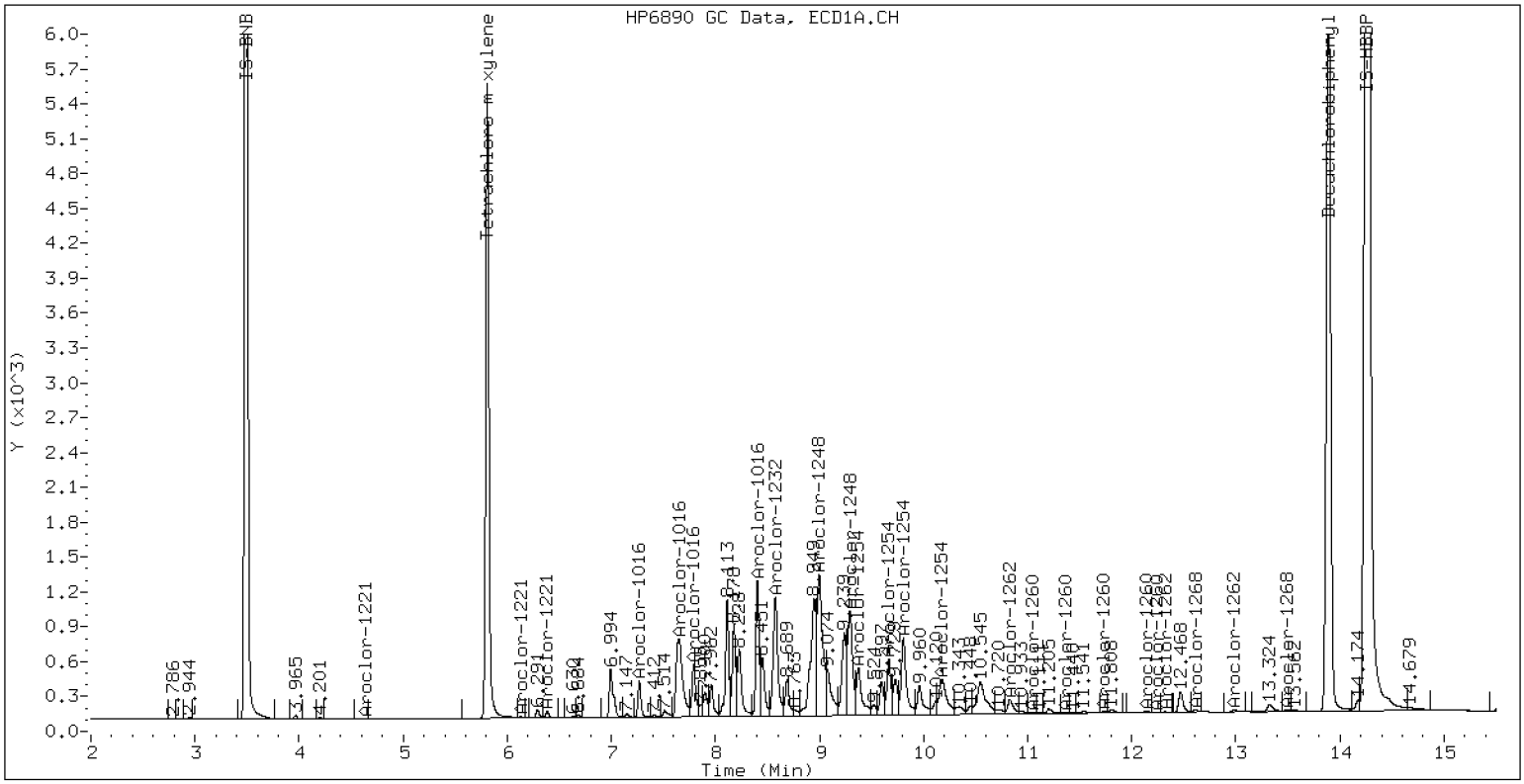
Total PCB Area Col2 (5.786 - 14.018) = 794946 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

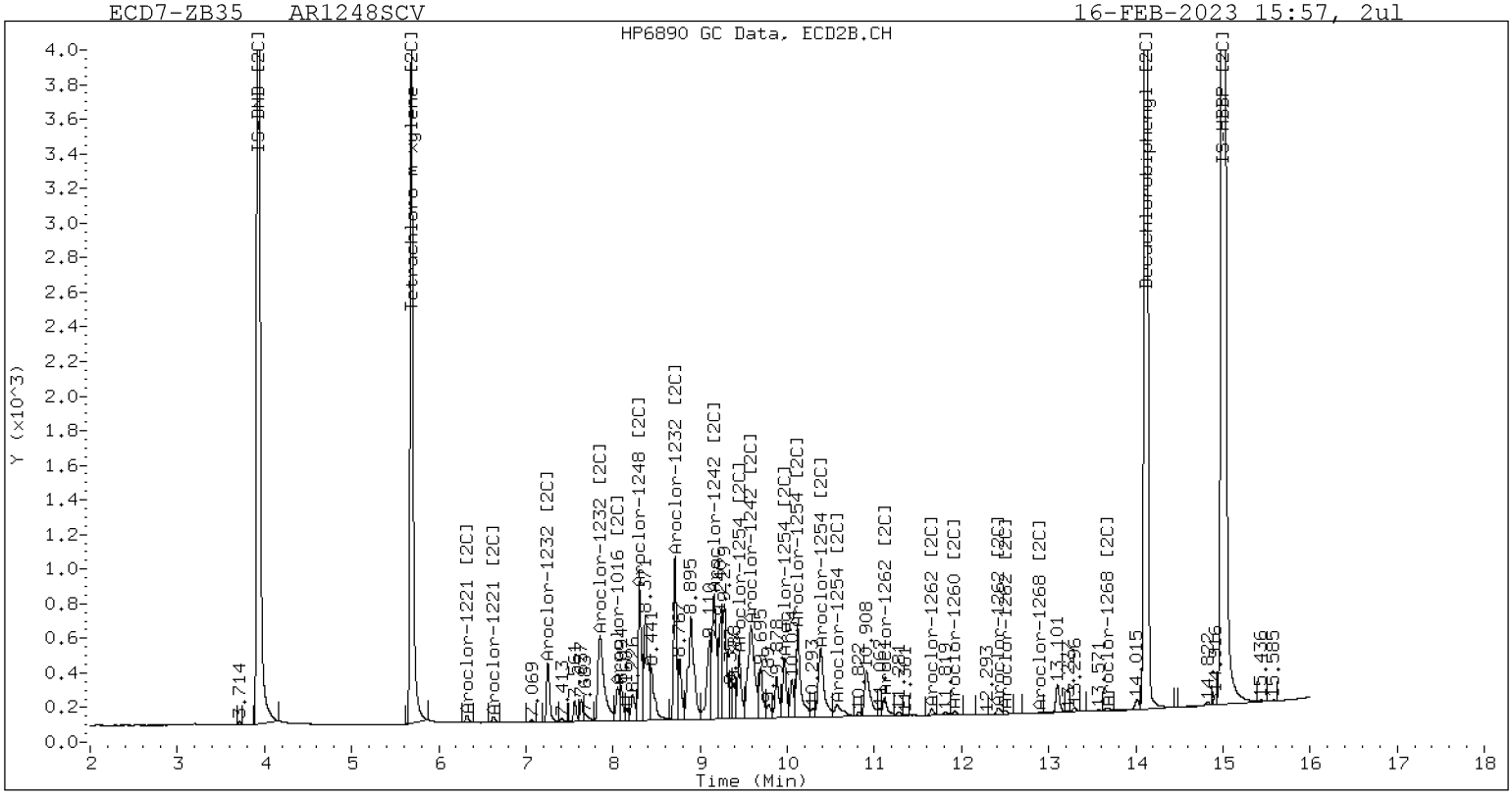
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 16-FEB-2023 15:57, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248SCV 16-FEB-2023 15:57, 2ul

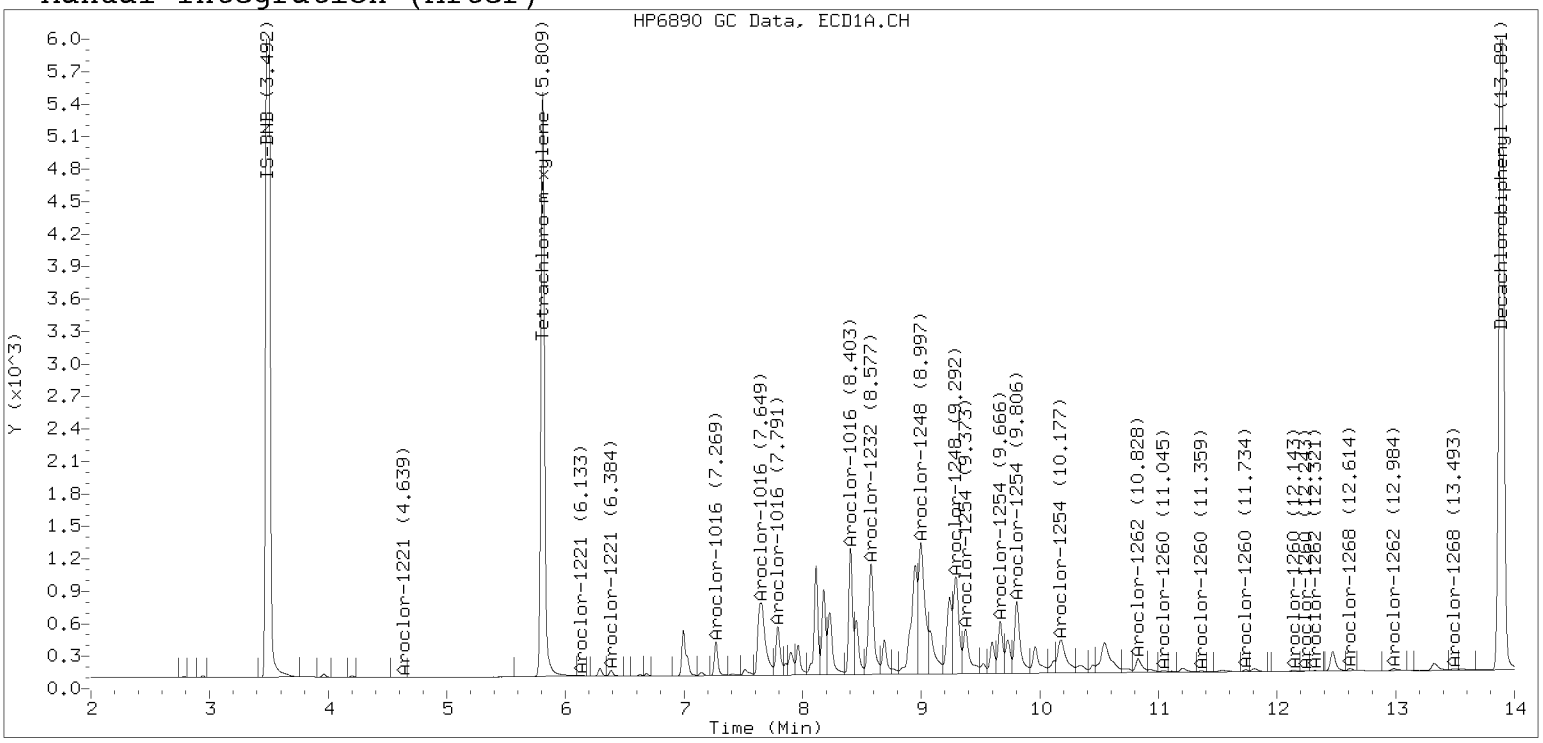


ZB-35 Manual Integration: NO

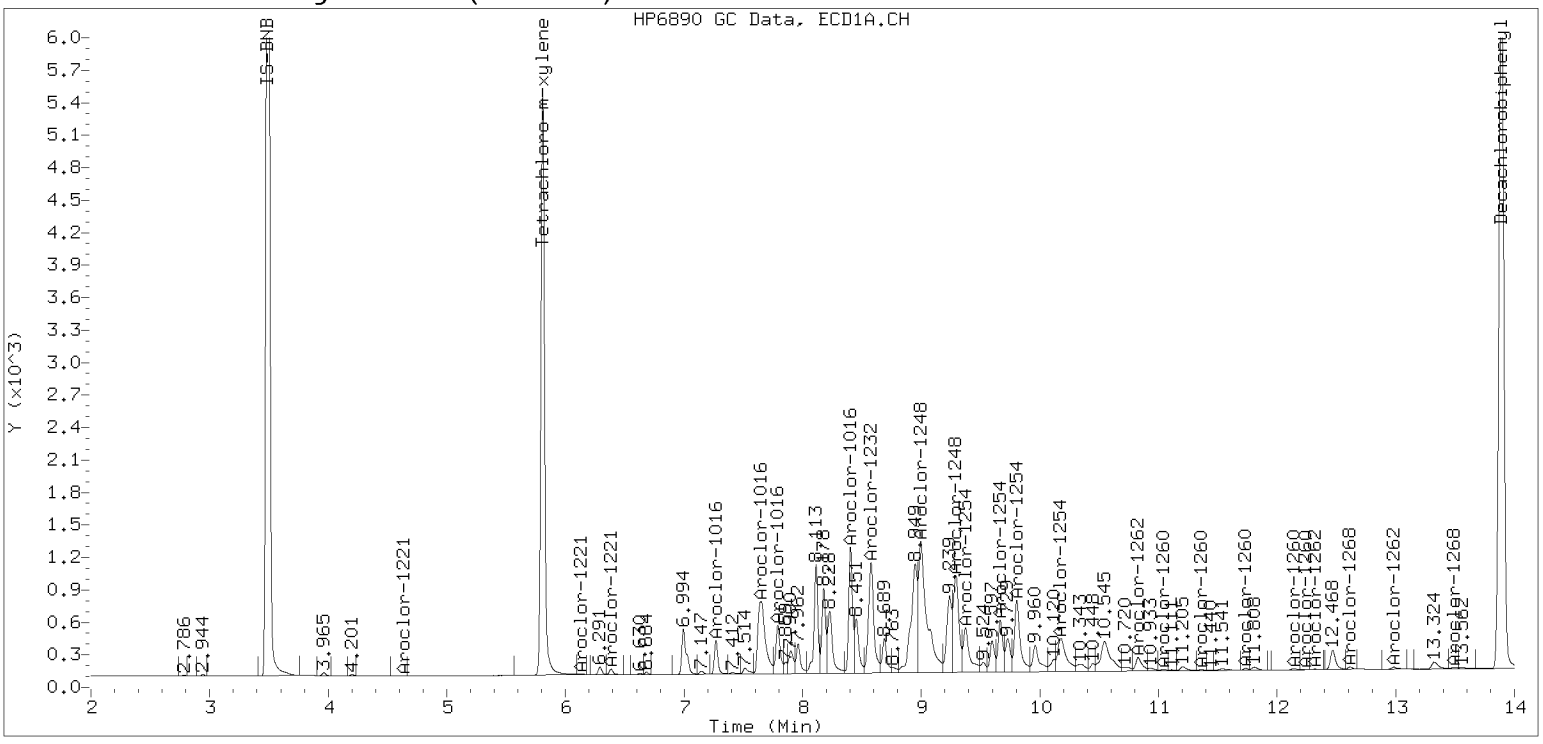
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230216.b/02162315ECD7.D Injection Date: 16-FEB-2023 15:57

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162316ECD7.D
Data file 2: /230216.b/230216.b/02162316ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 16-FEB-2023 16:18
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	242127	5.685	-0.000	193580	36.7	37.0	0.9	Tetrachloro-m-xylene
13.890	-0.001	377360	14.118	0.000	394229	40.3	40.4	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	465227	-7.6
Hexabromobiphenyl	647433	1063495	64.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	387434	15.0
Hexabromobiphenyl	382032	700154	83.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	281	1.7	1	7.256	0.002	379	1.8
Aroclor-1016	2	7.655	0.005	996	1.8	2	---			0.0
Aroclor-1016	3	7.792	0.005	684	2.7	3	8.097	0.048	526	2.8
Aroclor-1016	4	8.404	0.002	18193	110.8	4	8.305	0.001	23002	153.0
Total Col1Ave (4 peaks):		29.3			Total Col2Ave (3 peaks):		52.5	RPD = 57*		
Corrected Ave (3 peaks):		2.1			Corrected Ave: < 3 Peaks					
Aroclor-1221	1	---		0.0	1	---				0.0
Aroclor-1221	2	---		0.0	2	6.323	0.026	2104		34.0
Aroclor-1221	3	---		0.0	3	6.632	0.010	433		4.2
Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks					
Aroclor-1232	1	---		0.0	1	---				0.0
Aroclor-1232	2	---		0.0	2	7.256	0.001	379		3.9
Aroclor-1232	3	7.655	0.001	996	4.4	3	---			0.0
Aroclor-1232	4	8.580	0.002	7144	76.4	4	8.714	0.001	15174	281.7
Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks					
Aroclor-1242	1	7.270	0.001	281	2.0	1	7.256	0.002	379	2.3
Aroclor-1242	2	7.655	0.003	996	2.3	2	---			0.0
Aroclor-1242	3	8.404	0.001	18193	137.3	3	9.163	0.004	23373	203.7
Aroclor-1242	4	8.580	0.003	7144	36.5	4	9.541	-0.046	35054	251.9
Total Col1Ave (4 peaks):		44.5			Total Col2Ave (3 peaks):		152.6	RPD = 110*		
Corrected Ave (3 peaks):		13.6			Corrected Ave: < 3 Peaks					
Aroclor-1248	1	8.404	0.001	18193	81.1	1	8.305	-0.000	23002	131.6
Aroclor-1248	2	8.580	0.003	7144	25.2	2	8.714	0.002	15174	82.5
Aroclor-1248	3	8.992	-0.004	93928	234.7	3	9.163	0.005	23373	110.0
Aroclor-1248	4	9.296	0.004	99099	391.5	4	9.541	-0.040	35054	136.0
Total Col1Ave (4 peaks):		183.1			Total Col2Ave (4 peaks):		115.0	RPD = 46*		
Corrected Ave (3 peaks):		113.7			Corrected Ave (3 peaks):		108.0	RPD = 5		
Aroclor-1254	1	9.296	0.001	99099	220.1	1	9.447	0.001	61772	226.1
Aroclor-1254	2	9.374	0.001	43324	244.4	2	9.966	-0.001	49637	225.0
Aroclor-1254	3	9.666	0.001	63930	222.8	3	10.119	-0.000	106246	221.1
Aroclor-1254	4	9.803	0.000	123663	216.5	4	10.369	-0.001	107021	225.7
Aroclor-1254	5	10.171	0.004	76902	220.7	5	10.565	-0.000	55207	230.4
Total Col1Ave (5 peaks):		224.9			Total Col2Ave (5 peaks):		225.6	RPD = 0		
Corrected Ave (4 peaks):		220.0			Corrected Ave (4 peaks):		224.5	RPD = 2		
Aroclor-1260	1	11.041	0.000	8242	22.5	1	11.657	0.007	30319	78.1
Aroclor-1260	2	11.360	0.003	8312	22.2	2	11.918	0.004	22042	22.6
Aroclor-1260	3	11.734	0.003	19109	19.2	3	12.445	0.012	1692	6.5
Aroclor-1260	4	12.137	0.002	15342	30.4	4	12.500	0.002	12899	19.7
Aroclor-1260	5	12.238	-0.002	582	2.7	NS	---			----
Total Col1Ave (5 peaks):		19.4			Total Col2Ave (4 peaks):		31.7	RPD = 48*		
Corrected Ave (4 peaks):		16.6			Corrected Ave (3 peaks):		16.2	RPD = 2		
Aroclor-1262	1	10.824	-0.000	138302	445.0	1	11.278	0.081	13621	26.0
Aroclor-1262	2	12.238	-0.004	582	1.1	2	11.657	0.008	30319	67.1
Aroclor-1262	3	12.316	-0.001	714	1.3	3	12.445	0.013	1692	3.4
Aroclor-1262	4	12.988	0.003	961	2.0	4	12.500	0.000	12899	16.5
Total Col1Ave (4 peaks):		112.4			Total Col2Ave (4 peaks):		28.3	RPD = 120*		
Corrected Ave (3 peaks):		1.5			Corrected Ave (3 peaks):		15.3	RPD = 165*		
Aroclor-1268	1	12.238	-0.005	582	0.4	1	12.445	0.014	1692	1.3
Aroclor-1268	2	12.316	0.002	714	0.5	2	12.500	0.002	12899	9.6
Aroclor-1268	3	12.719	0.022	539	0.5	3	12.892	0.002	76	0.1
Aroclor-1268	4	13.497	0.010	695	0.2	4	13.700	-0.007	290	0.1
Total Col1Ave (4 peaks):		0.4			Total Col2Ave (4 peaks):		2.8	RPD = 148*		
Corrected Ave (3 peaks):		0.4			Corrected Ave (3 peaks):		0.5	RPD = 28		

Total PCB Area Col1 (5.908 - 13.791) = 1311525 Col1 Total PCB = 0.2 ppm*

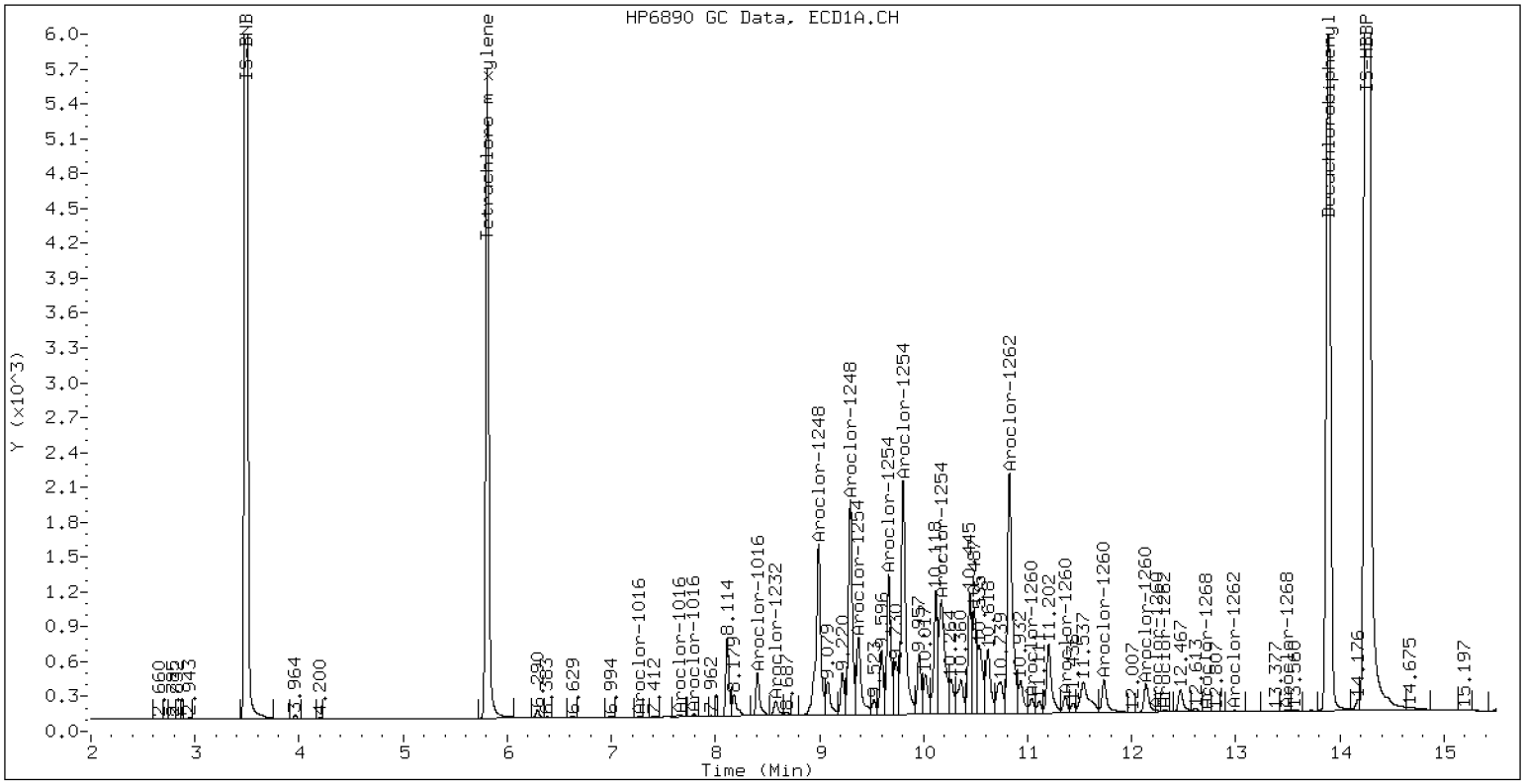
Total PCB Area Col2 (5.786 - 14.018) = 1040357 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

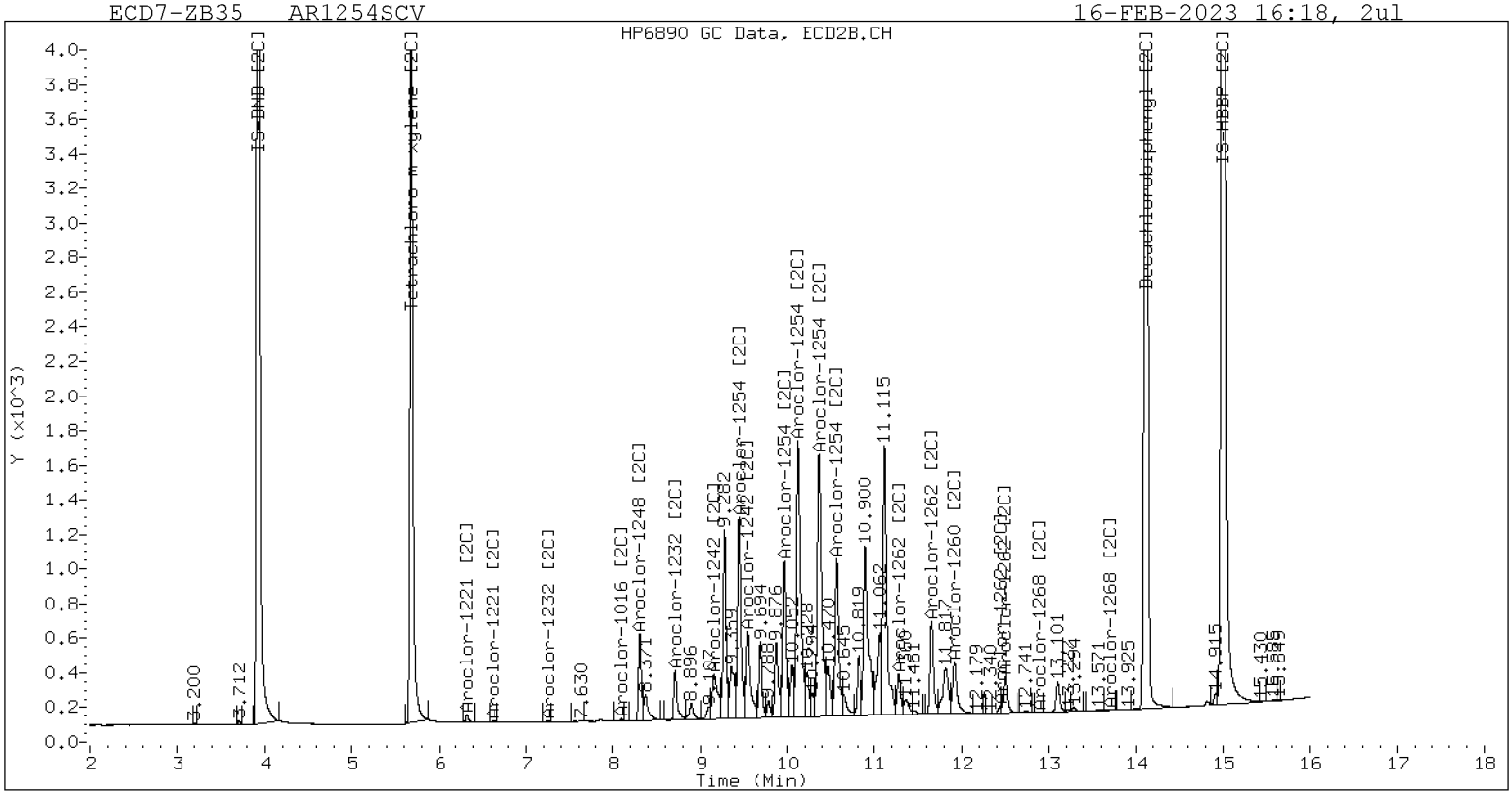
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162317ECD7.D
Data file 2: /230216.b/230216.b/02162317ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 16-FEB-2023 16:39
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	245197	5.686	-0.000	191474	37.2	37.2	0.0	Tetrachloro-m-xylene
13.890	-0.001	375224	14.118	0.000	392997	40.4	40.5	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	464367	-7.7
Hexabromobiphenyl	647433	1054321	62.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	381247	13.2
Hexabromobiphenyl	382032	695925	82.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	4790	28.3	1	7.255	0.001	5664	27.1
Aroclor-1016	2	7.656	0.006	10623	19.6	2	7.858	0.007	8417	19.0
Aroclor-1016	3	7.793	0.006	5360	21.5	3	8.058	0.009	4104	22.5
Aroclor-1016	4	8.405	0.003	2485	15.2	4	8.306	0.002	3192	21.6
Total Col1Ave (4 peaks):					21.2	Total Col2Ave (4 peaks):				22.5 RPD = 6
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				21.0 RPD = 11
Aroclor-1221	1	4.733	0.000	9001	249.5	1	4.958	0.000	7198	254.0
Aroclor-1221	2	6.133	-0.000	16485	245.0	2	6.297	-0.001	14187	233.2
Aroclor-1221	3	6.383	-0.000	37665	242.0	3	6.621	-0.000	23991	235.4
Total Col1Ave (3 peaks):					245.5	Total Col2Ave (3 peaks):				240.8 RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.733	0.001	9001	404.1	1	4.958	-0.000	7198	425.7
Aroclor-1232	2	6.133	-0.000	16485	350.7	2	7.255	0.001	5664	59.8
Aroclor-1232	3	7.656	0.002	10623	47.0	3	7.858	0.003	8417	44.5
Aroclor-1232	4	8.581	0.002	2585	27.7	4	8.714	0.001	2167	40.9
Total Col1Ave (4 peaks):					207.4	Total Col2Ave (4 peaks):				142.7 RPD = 37
Corrected Ave (3 peaks):					141.8	Corrected Ave (3 peaks):				48.4 RPD = 98*
Aroclor-1242	1	7.270	0.001	4790	34.6	1	7.255	0.001	5664	34.3
Aroclor-1242	2	7.656	0.004	10623	24.3	2	7.858	0.005	8417	23.6
Aroclor-1242	3	8.405	0.002	2485	18.8	3	9.168	0.009	2109	18.7
Aroclor-1242	4	8.581	0.003	2585	13.2	4	9.541	-0.046	4209	30.7
Total Col1Ave (4 peaks):					22.7	Total Col2Ave (4 peaks):				26.8 RPD = 17
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				24.3 RPD = 26
Aroclor-1248	1	8.405	0.002	2485	11.1	1	8.306	0.001	3192	18.6
Aroclor-1248	2	8.581	0.003	2585	9.1	2	8.714	0.002	2167	12.0
Aroclor-1248	3	8.992	-0.004	27170	68.0	3	9.168	0.010	2109	10.1
Aroclor-1248	4	9.299	0.007	25808	102.2	4	9.541	-0.040	4209	16.6
Total Col1Ave (4 peaks):					47.6	Total Col2Ave (4 peaks):				14.3 RPD = 108*
Corrected Ave (3 peaks):					29.4	Corrected Ave (3 peaks):				12.9 RPD = 78*
Aroclor-1254	1	9.299	0.004	25808	57.4	1	9.448	0.001	19163	71.3
Aroclor-1254	2	9.371	-0.003	3696	20.9	2	9.969	0.002	3305	15.2
Aroclor-1254	3	9.667	0.002	4053	14.2	3	10.144	0.024	96736	204.5
Aroclor-1254	4	9.803	0.000	10960	19.2	4	10.368	-0.002	117175	251.1
Aroclor-1254	5	10.117	-0.050	153073	440.2	5	10.565	-0.001	154306	654.4
Total Col1Ave (5 peaks):					110.4	Total Col2Ave (5 peaks):				239.3 RPD = 74*
Corrected Ave (4 peaks):					27.9	Corrected Ave (4 peaks):				135.5 RPD = 132*
Aroclor-1260	1	11.041	0.001	267479	735.9	1	11.649	-0.001	203895	528.3
Aroclor-1260	2	11.358	0.000	225792	607.2	2	11.914	-0.000	486211	500.8
Aroclor-1260	3	11.730	-0.000	549436	558.0	3	12.431	-0.001	236526	910.9
Aroclor-1260	4	12.135	0.001	182085	364.2	4	12.499	0.001	362057	555.9
Aroclor-1260	5	12.241	0.000	234096	1091.8	NS	---			----
Total Col1Ave (5 peaks):					671.4	Total Col2Ave (4 peaks):				624.0 RPD = 7
Corrected Ave (4 peaks):					566.3	Corrected Ave (3 peaks):				528.4 RPD = 7
Aroclor-1262	1	10.823	-0.002	146525	475.6	1	11.197	-0.001	236244	454.2
Aroclor-1262	2	12.241	-0.001	234096	463.6	2	11.649	0.001	203895	454.1
Aroclor-1262	3	12.314	-0.002	250166	459.4	3	12.431	-0.000	236526	483.8
Aroclor-1262	4	12.984	-0.000	210767	447.6	4	12.499	-0.001	362057	465.4
Total Col1Ave (4 peaks):					461.6	Total Col2Ave (4 peaks):				464.4 RPD = 1
Corrected Ave (3 peaks):					456.9	Corrected Ave (3 peaks):				457.9 RPD = 0
Aroclor-1268	1	12.241	-0.002	234096	176.9	1	12.431	0.000	236526	186.9
Aroclor-1268	2	12.314	0.000	250166	190.3	2	12.499	0.001	362057	272.0
Aroclor-1268	3	12.719	0.022	91155	81.7	3	12.889	-0.001	11970	11.5
Aroclor-1268	4	13.485	-0.002	72883	21.3	4	13.706	-0.001	72588	19.9
Total Col1Ave (4 peaks):					117.6	Total Col2Ave (4 peaks):				122.6 RPD = 4

Corrected Ave (3 peaks): 93.3 Corrected Ave (3 peaks): 72.8 RPD = 25

Total PCB Area Col1 (5.908 - 13.791) = 3768590 Col1 Total PCB = 0.7 ppm*

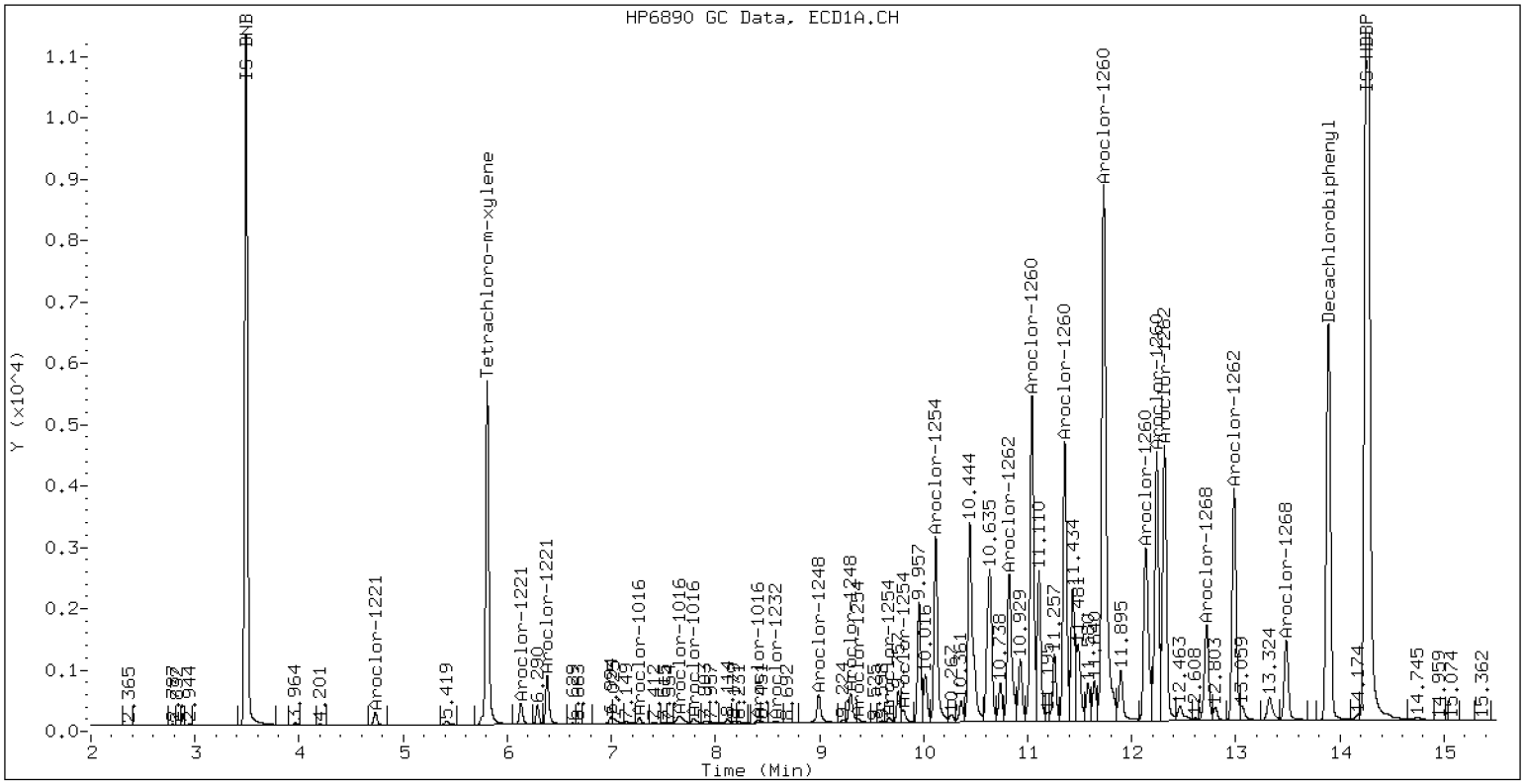
Total PCB Area Col2 (5.786 - 14.018) = 3174752 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

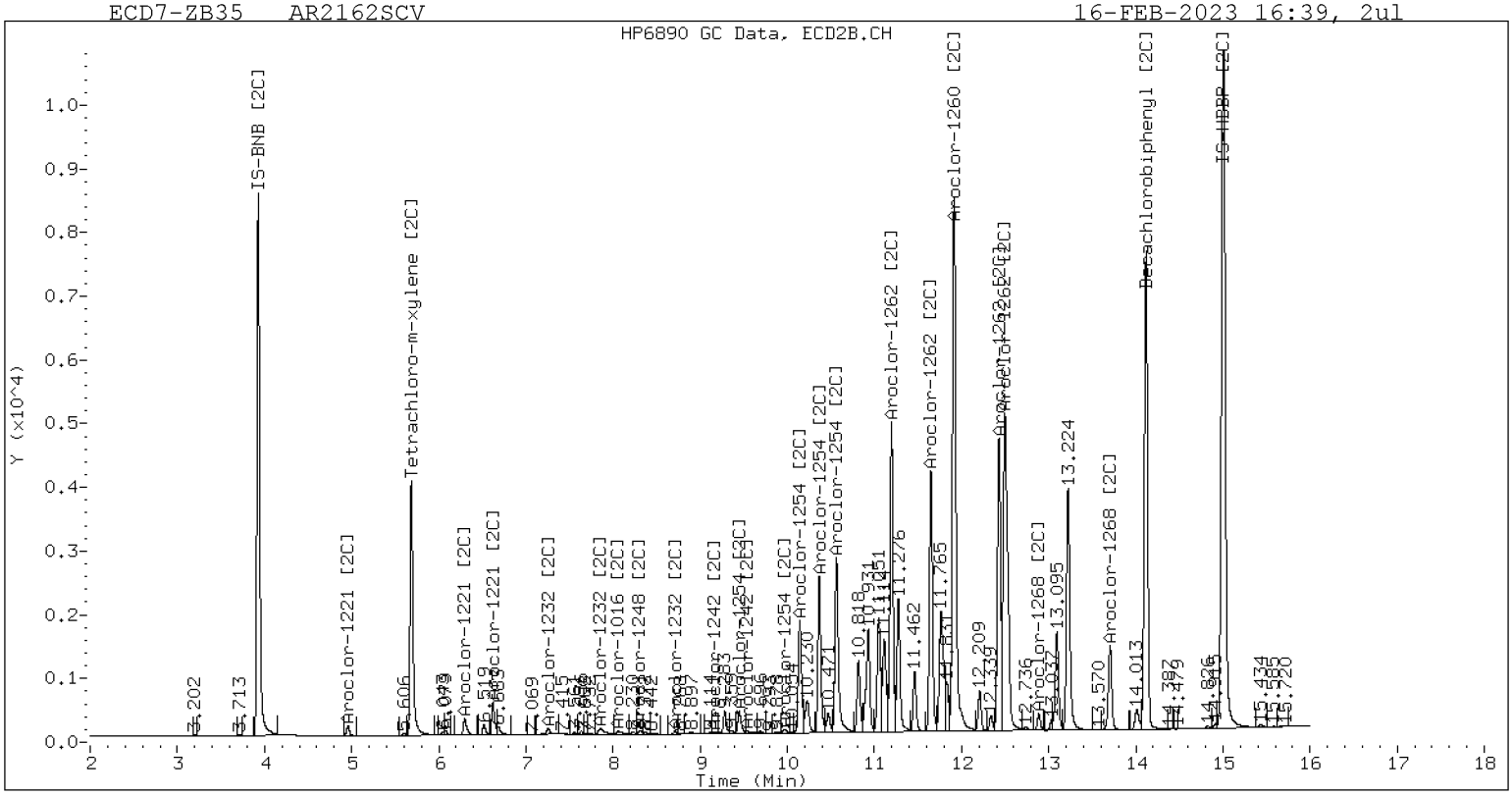
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162318ECD7.D
Data file 2: /230216.b/230216.b/02162318ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 16-FEB-2023 17:00
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	232649	5.686	0.000	184511	35.5	35.9	1.3	Tetrachloro-m-xylene
13.892	0.001	534256	14.118	0.000	561270	58.0	58.0	0.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	462340	-8.1
Hexabromobiphenyl	647433	1046529	61.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	380640	13.0
Hexabromobiphenyl	382032	694272	81.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	17406	103.4	1	7.255	0.001	21798	104.5
Aroclor-1016	2	7.654	0.004	51620	95.7	2	7.856	0.005	43831	98.9
Aroclor-1016	3	7.791	0.004	24787	100.0	3	8.054	0.005	19284	105.9
Aroclor-1016	4	8.404	0.002	15491	94.9	4	8.306	0.002	13712	92.8
Total Col1Ave (4 peaks):		98.5		Total Col2Ave (4 peaks):		100.5	RPD = 2			
Corrected Ave (3 peaks):		96.9		Corrected Ave (3 peaks):		98.8	RPD = 2			
Aroclor-1221	1	4.732	-0.000	4903	136.5	1	4.959	0.001	3678	130.0
Aroclor-1221	2	6.133	-0.000	8309	124.0	2	6.298	0.001	8756	144.1
Aroclor-1221	3	6.383	-0.000	26751	172.7	3	6.622	0.001	18239	179.3
Total Col1Ave (3 peaks):		144.4		Total Col2Ave (3 peaks):		151.1	RPD = 5			
Corrected Ave: < 3 Peaks				Corrected Ave: < 3 Peaks						
Aroclor-1232	1	4.732	0.000	4903	221.1	1	4.959	0.000	3678	217.9
Aroclor-1232	2	6.133	-0.000	8309	177.5	2	7.255	0.000	21798	230.4
Aroclor-1232	3	7.654	-0.000	51620	229.6	3	7.856	0.001	43831	231.9
Aroclor-1232	4	8.579	0.000	21552	231.9	4	8.712	-0.000	12876	243.3
Total Col1Ave (4 peaks):		215.0		Total Col2Ave (4 peaks):		230.9	RPD = 7			
Corrected Ave (3 peaks):		209.4		Corrected Ave (3 peaks):		226.7	RPD = 8			
Aroclor-1242	1	7.269	0.000	17406	126.4	1	7.255	0.001	21798	132.4
Aroclor-1242	2	7.654	0.002	51620	118.4	2	7.856	0.004	43831	122.9
Aroclor-1242	3	8.404	0.001	15491	117.6	3	9.165	0.005	12931	114.7
Aroclor-1242	4	8.579	0.002	21552	110.8	4	9.594	0.007	15412	112.7
Total Col1Ave (4 peaks):		118.3		Total Col2Ave (4 peaks):		120.7	RPD = 2			
Corrected Ave (3 peaks):		115.6		Corrected Ave (3 peaks):		116.8	RPD = 1			
Aroclor-1248	1	8.404	0.001	15491	69.5	1	8.306	0.001	13712	79.9
Aroclor-1248	2	8.579	0.002	21552	76.6	2	8.712	0.001	12876	71.3
Aroclor-1248	3	9.000	0.004	33860	85.1	3	9.165	0.007	12931	61.9
Aroclor-1248	4	9.290	-0.001	24418	97.1	4	9.594	0.012	15412	60.9
Total Col1Ave (4 peaks):		82.1		Total Col2Ave (4 peaks):		68.5	RPD = 18			
Corrected Ave (3 peaks):		77.1		Corrected Ave (3 peaks):		64.7	RPD = 17			
Aroclor-1254	1	9.290	-0.005	24418	54.6	1	9.448	0.001	4331	16.1
Aroclor-1254	2	9.376	0.002	6352	36.1	2	9.971	0.003	2773	12.8
Aroclor-1254	3	9.670	0.005	3662	12.8	3	10.125	0.006	5733	12.1
Aroclor-1254	4	9.810	0.007	5791	10.2	4	10.384	0.014	5128	11.0
Aroclor-1254	5	10.182	0.014	3705	10.7	5	10.569	0.004	1684	7.2
Total Col1Ave (5 peaks):		24.9		Total Col2Ave (5 peaks):		11.8	RPD = 71*			
Corrected Ave (4 peaks):		17.5		Corrected Ave (4 peaks):		10.8	RPD = 47*			
Aroclor-1260	1	11.044	0.003	48916	135.6	1	11.643	-0.006	62935	163.5
Aroclor-1260	2	11.360	0.003	3252	8.8	2	11.917	0.002	28103	29.0
Aroclor-1260	3	11.734	0.004	29505	30.2	3	12.431	-0.001	298982	1154.1
Aroclor-1260	4	12.140	0.005	787	1.6	4	12.498	-0.000	314634	484.3
Aroclor-1260	5	12.242	0.002	307715	1445.8	NS	---			----
Total Col1Ave (5 peaks):		324.4		Total Col2Ave (4 peaks):		457.7	RPD = 34			
Corrected Ave (4 peaks):		44.0		Corrected Ave (3 peaks):		225.6	RPD = 135*			
Aroclor-1262	1	10.828	0.003	1495	4.9	1	11.199	0.001	44764	86.3
Aroclor-1262	2	12.242	0.000	307715	613.9	2	11.643	-0.005	62935	140.5
Aroclor-1262	3	12.314	-0.002	306654	567.3	3	12.431	0.000	298982	613.0
Aroclor-1262	4	12.985	0.001	125311	268.1	4	12.498	-0.002	314634	405.4
Total Col1Ave (4 peaks):		363.6		Total Col2Ave (4 peaks):		311.3	RPD = 15			
Corrected Ave (3 peaks):		280.1		Corrected Ave (3 peaks):		210.7	RPD = 28			
Aroclor-1268	1	12.242	-0.000	307715	234.3	1	12.431	0.001	298982	236.8
Aroclor-1268	2	12.314	0.000	306654	235.0	2	12.498	-0.000	314634	236.9
Aroclor-1268	3	12.698	0.000	256747	231.8	3	12.891	0.001	246279	236.7
Aroclor-1268	4	13.487	-0.000	801249	236.1	4	13.707	0.001	846369	232.8
Total Col1Ave (4 peaks):		234.3		Total Col2Ave (4 peaks):		235.8	RPD = 1			

Corrected Ave (3 peaks): 233.7 Corrected Ave (3 peaks): 235.5 RPD = 1

Total PCB Area Col1 (5.908 - 13.791) = 2519204 Col1 Total PCB = 0.5 ppm*

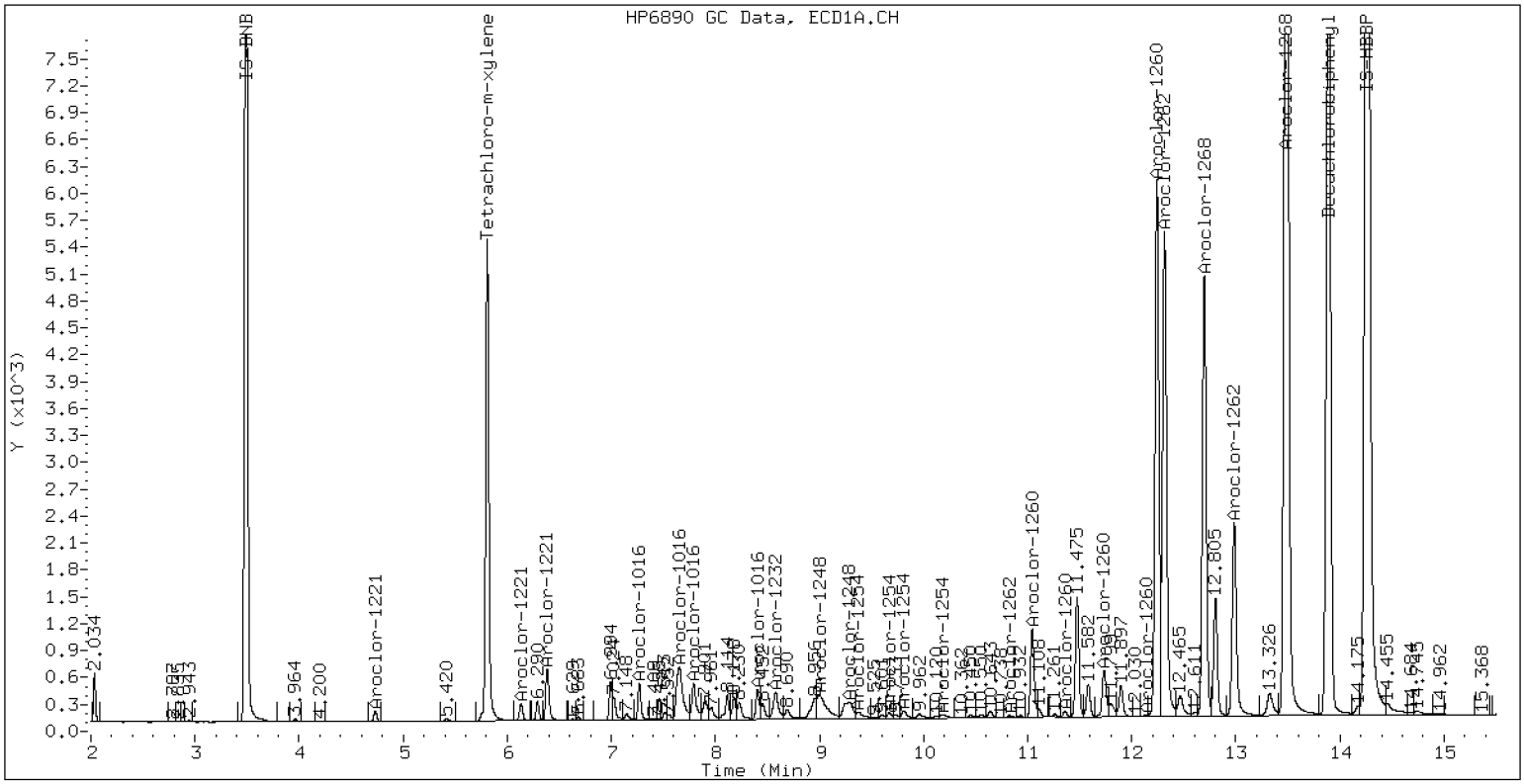
Total PCB Area Col2 (5.786 - 14.018) = 2392191 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

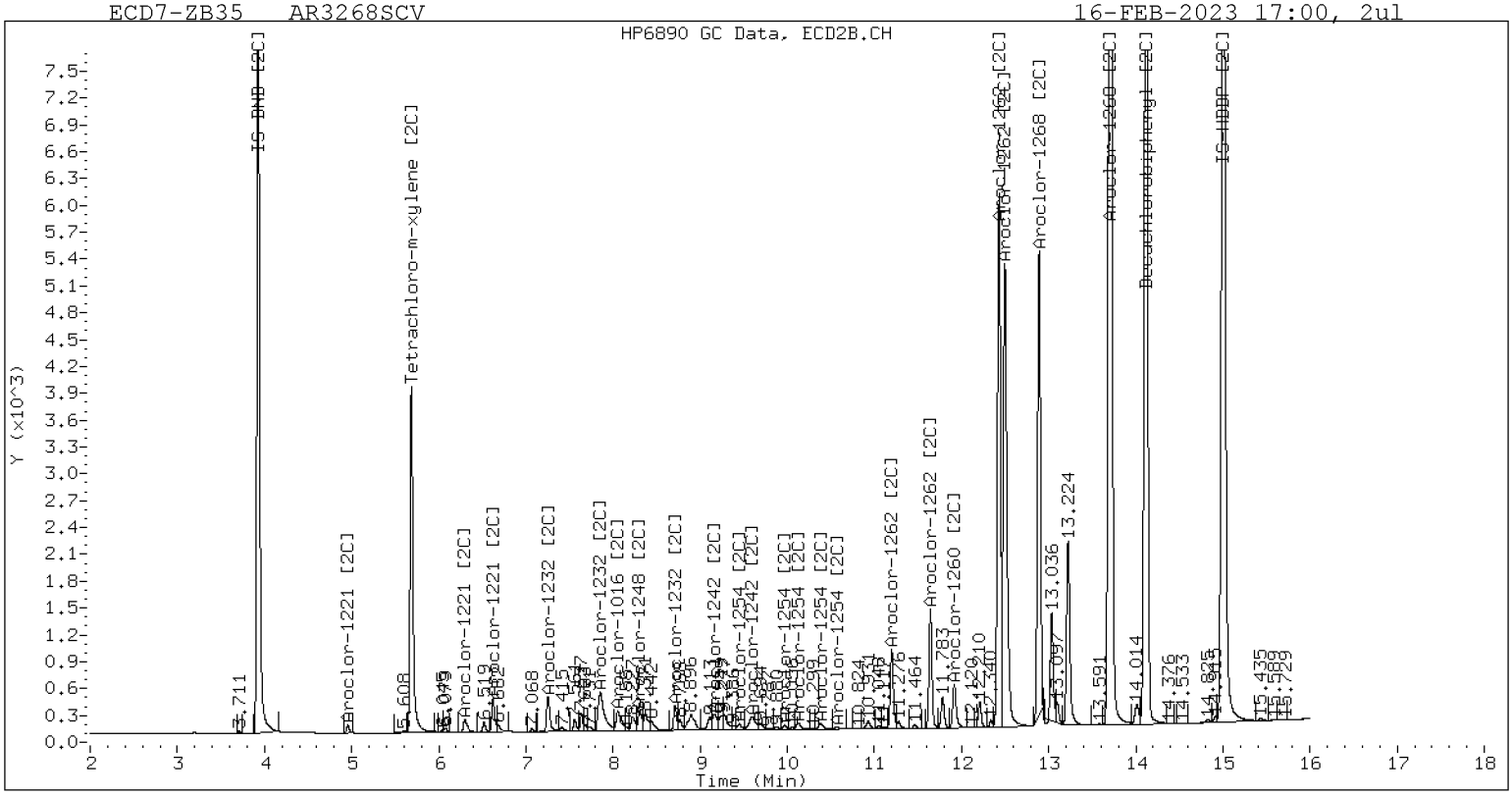
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.260	-0.003	442624	9.911	-0.001	632750	0.085	0.087	2.1	2,4-DDE
10.293	-0.003	576653	10.667	0.002	928581	0.039	0.168#	124.2*	2,4-DDT
9.683	-0.004	755059	10.209	-0.002	423742	0.086	0.103	18.9	4,4-DDE
10.254	-0.027	674155	10.667	0.002	928581	0.000	0.168#	----	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.284	0.021	2688	9.920	0.008	10374	0.001	0.001	93.2*	2,4-DDE
0.000	-10.296	0	10.673	0.007	190492	0.000	0.035#	----	2,4-DDT
9.692	0.005	7700	10.234	0.022	295	0.001	0.000	169.6*	4,4-DDE
10.259	-0.022	174757	10.673	0.007	190492	0.000	0.035#	----	4,4-DDD

\# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0222

Instrument: ECD7
Calibration ID: FJ00100

Printed: 2/17/2023 9:56:55AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0222-CAL1	QC		1		L000856	L000844		
SLB0222-CAL2	QC		2		L000859	L000844		
SLB0222-CAL3	QC		3		L000858	L000844		
SLB0222-CAL4	QC		4		L000731	L000844		
SLB0222-CAL5	QC		5		L000857	L000844		
SLB0222-CAL6	QC		6		L000855	L000844		
SLB0222-CAL7	QC		7		L000860	L000844		
SLB0222-CAL8	QC		8		L000861	L000844		
SLB0222-CAL9	QC		9		L000862	L000844		
SLB0222-CALA	QC		10		L000863	L000844		
SLB0222-CALB	QC		11		L000864	L000844		
SLB0222-SCV1	QC		12		K007655	L000844		
SLB0222-SCV2	QC		13		K007656	L000844		
SLB0222-SCV3	QC		14		K007657	L000844		
SLB0222-SCV4	QC		15		K007658	L000844		
SLB0222-SCV5	QC		16		K007659	L000844		
SLB0222-SCV6	QC		17		K007660	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	16-FEB-2023 11:02	02162301ECD7.D	1	IB	
2	16-FEB-2023 11:23	02162302ECD7.D	1	0.25PPMAR1660	
3	16-FEB-2023 11:44	02162303ECD7.D	1	0.02PPMAR1660	
4	16-FEB-2023 12:05	02162304ECD7.D	1	0.05PPMAR1660	
5	16-FEB-2023 12:27	02162305ECD7.D	1	1.0PPMAR1660	
6	16-FEB-2023 12:48	02162306ECD7.D	1	0.1PPMAR1660	
7	16-FEB-2023 13:09	02162307ECD7.D	1	0.5PPMAR1660	
8	16-FEB-2023 13:30	02162308ECD7.D	1	0.25PPMAR1242	
9	16-FEB-2023 13:51	02162309ECD7.D	1	0.25PPMAR1248	
10	16-FEB-2023 14:12	02162310ECD7.D	1	0.25PPMAR1254	
11	16-FEB-2023 14:33	02162311ECD7.D	1	0.25PPMAR2168	
12	16-FEB-2023 14:54	02162312ECD7.D	1	0.25PPMAR3268	
13	16-FEB-2023 15:15	02162313ECD7.D	1	AR1660SCV	
14	16-FEB-2023 15:36	02162314ECD7.D	1	AR1242SCV	
15	16-FEB-2023 15:57	02162315ECD7.D	1	AR1248SCV	
16	16-FEB-2023 16:18	02162316ECD7.D	1	AR1254SCV	
17	16-FEB-2023 16:39	02162317ECD7.D	1	AR2162SCV	
18	16-FEB-2023 17:00	02162318ECD7.D	1	AR3268SCV	
19	16-FEB-2023 17:21	02162319ECD7.D	1	DDTS	
20	16-FEB-2023 17:42	02162320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 16-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	Aroclor-1248,
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1803	02162321ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1824	02162322ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1845	02162323ECD7.D	BLB0303-BLK1		1	NO MANUAL INTEGRATION
1906	02162324ECD7.D	BLB0303-BS1		1	NO MANUAL INTEGRATION
1927	02162325ECD7.D	BLB0303-BSD1		1	NO MANUAL INTEGRATION
1948	02162326ECD7.D	23B0153-01		1	NO MANUAL INTEGRATION
2009	02162327ECD7.D	23B0179-01		1	NO MANUAL INTEGRATION
2030	02162328ECD7.D	23B0179-03		1	NO MANUAL INTEGRATION
2051	02162329ECD7.D	23B0218-01		1	NO MANUAL INTEGRATION
2112	02162330ECD7.D	23B0243-01		1	NO MANUAL INTEGRATION
2133	02162331ECD7.D	23B0250-03		1	NO MANUAL INTEGRATION
2154	02162332ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2215	02162333ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1803	02162321ECD7.D			1	NO MANUAL INTEGRATION
1824	02162322ECD7.D			1	NO MANUAL INTEGRATION
1845	02162323ECD7.D			1	NO MANUAL INTEGRATION
1906	02162324ECD7.D			1	NO MANUAL INTEGRATION
1927	02162325ECD7.D			1	NO MANUAL INTEGRATION
1948	02162326ECD7.D			1	NO MANUAL INTEGRATION
2009	02162327ECD7.D			1	NO MANUAL INTEGRATION
2030	02162328ECD7.D			1	NO MANUAL INTEGRATION
2051	02162329ECD7.D			1	NO MANUAL INTEGRATION
2112	02162330ECD7.D			1	NO MANUAL INTEGRATION
2133	02162331ECD7.D			1	NO MANUAL INTEGRATION
2154	02162332ECD7.D			1	NO MANUAL INTEGRATION
2215	02162333ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 17-Feb-2023 09:11

02162301ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162302ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162303ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162304ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162305ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162306ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162307ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162308ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162309ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162310ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162311ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162312ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162313ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162314ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162315ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162316ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162317ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162318ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162319ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10
02162320ECD7.D	Data Locked	richardl, 17-Feb-2023 09:10

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00591	+++++	0.00591	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01209	+++++	0.01209	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02807	+++++	0.02807	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02450	+++++	0.02450	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.08017	+++++	0.08017	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02382	+++++	0.02382	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03598	+++++	0.03598	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00369	+++++	0.00369	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.00832	*****	0.00832	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04160	*****	0.04160	0.000
(4)	*****	*****	*****	*****	*****	*****	0.01781	*****	0.01781	0.000
7 Aroclor-1016(1)	0.02947	0.03102	0.03310	0.03018	0.02824	0.02635	*****	*****	0.02973	7.802
(2)	0.09270	0.09812	0.10598	0.10203	0.09861	0.09356	*****	*****	0.09850	5.108
(3)	0.04878	0.04900	0.05127	0.04400	0.04091	0.03796	*****	*****	0.04532	11.523
(4)	0.02676	0.02802	0.03162	0.03050	0.02939	0.02864	*****	*****	0.02915	5.988
6 Aroclor-1248(1)	*****	*****	*****	*****	*****	*****	0.04002	*****	0.04002	0.000
(2)	*****	*****	*****	*****	*****	*****	0.05105	*****	0.05105	0.000
(3)	*****	*****	*****	*****	*****	*****	0.09765	*****	0.09765	0.000
(4)	*****	*****	*****	*****	*****	*****	0.04833	*****	0.04833	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.08153	+++++	0.08153	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.03481	+++++	0.03481	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.05224	+++++	0.05224	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.10237	+++++	0.10237	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++	0.06657	+++++	0.06657	0.000
9 Aroclor-1260(1)	0.04727	0.04543	0.04428	0.05181	0.04013	0.04040	+++++	+++++	0.04489	9.818
(2)	0.04940	0.04636	0.04450	0.05350	0.04100	0.04208	+++++	+++++	0.04614	10.182
(3)	0.13737	0.12829	0.11740	0.13317	0.10468	0.10790	+++++	+++++	0.12147	11.161
(4)	0.07198	0.06638	0.05997	0.06473	0.05485	0.05864	+++++	+++++	0.06276	9.803
(5)	0.03296	0.02981	0.02640	0.02723	0.02328	0.02447	+++++	+++++	0.02736	13.015
10 Aroclor-1262(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03235	+++++	0.03235	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05106	+++++							0.05106	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05544	+++++							0.05544	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05052	+++++							0.05052	0.000
11 Aroclor-1268(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.13216	+++++							0.13216	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.13180	+++++							0.13180	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.10919	+++++							0.10919	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.32374	+++++							0.32374	0.000
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	904							904	0.000
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	1034							1034	0.000
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	2557							2557	0.000
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	1539							1539	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1484	1484	0.000
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.10039	1.10217	1.21997	1.14965	1.11792	1.09461	+++++	+++++	1.13079	4.246
$ 13 Decachlorobiphenyl	0.86442	0.90302	0.93081	0.84813	0.79576	0.79145	+++++	+++++	0.85560	6.556

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
1 Aroclor-1221 [2C](1)	*****	*****	*****	*****	*****	*****	0.00586	*****	0.00586	0.000
(2)	*****	*****	*****	*****	*****	*****	0.01285	*****	0.01285	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02169	*****	0.02169	0.000
4 Aroclor-1232 [2C](1)	*****	*****	*****	*****	*****	*****	0.00356	*****	0.00356	0.000
(2)	*****	*****	*****	*****	*****	*****	0.01991	*****	0.01991	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04054	*****	0.04054	0.000
(4)	*****	*****	*****	*****	*****	*****	0.01126	*****	0.01126	0.000
3 Aroclor-1242 [2C](1)	*****	*****	*****	*****	*****	*****	0.03499	*****	0.03499	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****				
	0.07771	*****							0.07771	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.02434	*****							0.02434	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.03226	*****							0.03226	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****				
	0.03616	*****							0.03616	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.03892	*****							0.03892	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.04756	*****							0.04756	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.05882	*****							0.05882	0.000
7 Aroclor-1016 [2C](1)	0.04424	0.04724	0.04678	0.04314	0.04099	0.03795				
	*****	*****							0.04339	8.142
(2)	0.08512	0.09615	0.10417	0.09824	0.09554	0.09130				
	*****	*****							0.09509	6.775
(3)	0.02919	0.04165	0.04478	0.04029	0.03925	0.03764				
	*****	*****							0.03880	13.639
(4)	0.02850	0.03377	0.03419	0.03004	0.02878	0.02724				
	*****	*****							0.03042	9.538

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
8 Aroclor-1254 [2C](1)	*****	*****	*****	*****	*****	*****	0.05804	*****	0.05804	0.000
(2)	*****	*****	*****	*****	*****	*****	0.04691	*****	0.04691	0.000
(3)	*****	*****	*****	*****	*****	*****	0.10233	*****	0.10233	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10233	*****	0.10233	0.000
(5)	*****	*****	*****	*****	*****	*****	0.05700	*****	0.05700	0.000
10 Aroclor-1262 [2C](1)	*****	*****	*****	*****	*****	*****	0.07830	*****	0.07830	0.000
(2)	*****	*****	*****	*****	*****	*****	0.06658	*****	0.06658	0.000
(3)	*****	*****	*****	*****	*****	*****	0.07090	*****	0.07090	0.000
(4)	*****	*****	*****	*****	*****	*****	0.11355	*****	0.11355	0.000
9 Aroclor-1260 [2C](1)	0.06075	0.05974	0.05912	0.06129	0.05231	0.05307	*****	*****	0.05771	6.881
(2)	0.14748	0.15106	0.15181	0.15367	0.13396	0.13809	*****	*****	0.14601	5.547

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(3)	0.03683	0.03729	0.03582	0.03647	0.03501	0.03694	#####	#####	0.03639	2.314
(4)	0.09319	0.09919	0.09881	0.09587	0.08985	0.09008	#####	#####	0.09450	4.373
11 Aroclor-1268 [2C](1)	#####	#####	#####	#####	#####	#####	0.18682	#####	0.18682	0.000
(2)	#####	#####	#####	#####	#####	#####	0.19880	#####	0.19880	0.000
(3)	#####	#####	#####	#####	#####	#####	0.16548	#####	0.16548	0.000
(4)	#####	#####	#####	#####	#####	#####	0.51118	#####	0.51118	0.000
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	1528	1528	0.000
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####	#####	866	866	0.000
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	863	863	0.000
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1162	1162	0.000
46 4,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1277	1277	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.04342	1.10521	1.15322	1.09675	1.05187	1.03851	+++++	+++++	1.08150	4.159
$ 13 Decachlorobiphenyl [2C]	1.20915	1.27122	1.31190	1.29209	1.22961	1.30389	+++++	+++++	1.26964	3.291

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.492	3.492	3.491	3.493	3.492	3.491	3.492	3.392-3.592	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.810	5.808	5.808	5.811	5.808	5.809	5.810	5.710-5.910	5.809	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.271	7.271	7.270	7.270	7.270	7.269	7.271	7.171-7.371	7.270	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.043	11.044	11.043	11.040	11.042	11.041	11.043	10.943-11.143	11.042	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.894	13.892	13.891	13.892	13.890	13.890	13.894	13.794-13.994	13.892	0.002
* 12 IS-HBBP	14.263	14.263	14.261	14.261	14.262	14.262	14.263	14.163-14.363	14.262	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.263	9.213-9.313	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.805	9.755-9.855	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.296	10.246-10.346	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.687	9.587-9.787	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.281	10.181-10.381	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.758	10.658-10.858	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.928	3.930	3.929	3.929	3.928	3.828-4.028	3.929	0.001
$ 2 Tetrachloro-m-xylene [	5.685	5.686	5.685	5.688	5.687	5.686	5.685	5.585-5.785	5.686	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.254	7.255	7.254	7.254	7.254	7.254	7.254	7.154-7.354	7.254	0.000
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.651	11.652	11.652	11.650	11.651	11.650	11.651	11.551-11.751	11.651	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.117	14.118	14.117	14.120	14.117	14.118	14.117	14.017-14.217	14.118	0.001
* 12 IS-HBBP [2C]	15.006	15.006	15.004	15.005	15.005	15.005	15.006	14.906-15.106	15.005	0.001
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.912	9.862-9.962	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.538	9.488-9.588	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.211	10.111-10.311	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.666	10.566-10.766	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.095	10.995-11.195	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162301ECD7.D
Data file 2: /230216.b/230216.b/02162301ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 16-FEB-2023 11:02
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.823	0.015	232765	5.680	-0.005	190174	39.3	39.2	0.1	Tetrachloro-m-xylene
13.900	0.009	322325	14.118	0.000	335746	40.3	39.2	2.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	417912	-17.0
Hexabromobiphenyl	647433	908024	40.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	359487	6.7
Hexabromobiphenyl	382032	614725	60.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	11.361	0.004	128	0.4	2	---			0.0
Aroclor-1260	3	11.801	0.071	128	0.2	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.705	0.008	993	1.0	3	---			0.0
Aroclor-1268	4	13.493	0.006	2534	0.9	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 24426 Col1 Total PCB = 0.0 ppm*

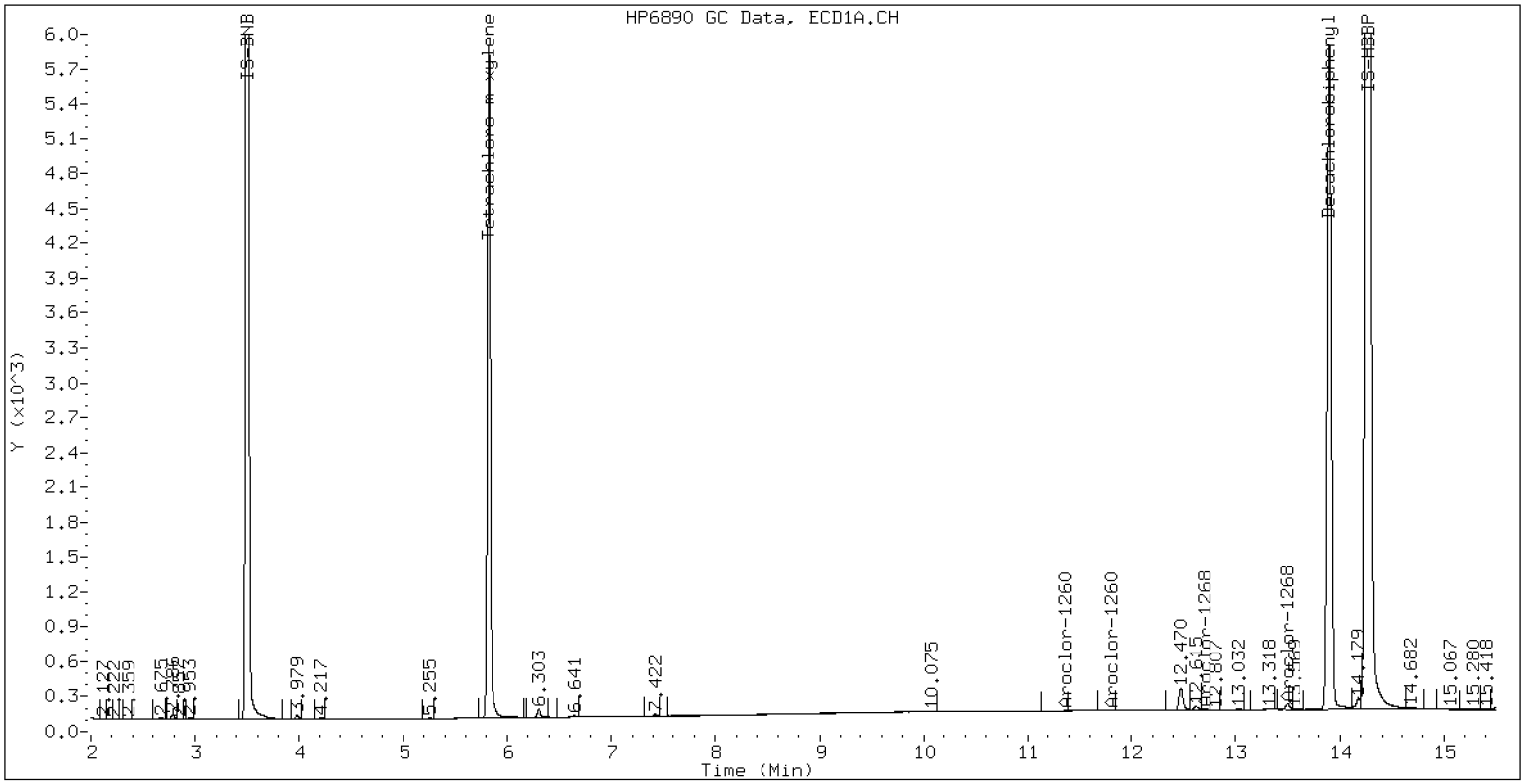
Total PCB Area Col2 (5.786 - 14.018) = 13907 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

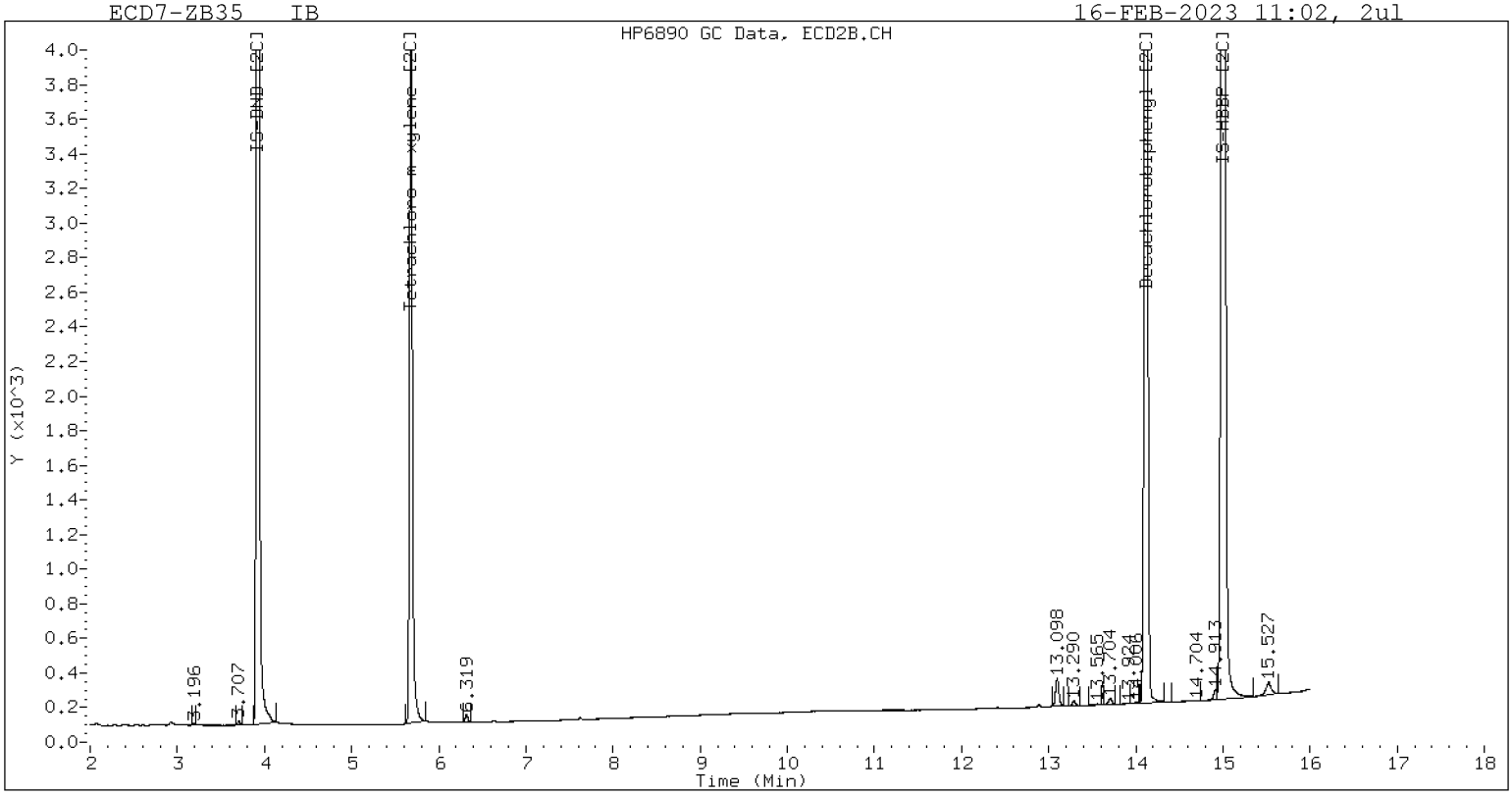
PCB Dual Column Chromatograms

ECD7-ZB5 IB 16-FEB-2023 11:02, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 16-FEB-2023 11:02, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162302ECD7.D
Data file 2: /230216.b/230216.b/02162302ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:23
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	248401	5.685	-0.001	199672	40.7	40.3	0.9	Tetrachloro-m-xylene
13.894	0.003	351670	14.117	-0.001	367148	40.9	40.7	0.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	430055	-14.6
Hexabromobiphenyl	647433	975457	50.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	366754	8.9
Hexabromobiphenyl	382032	646884	69.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	39579	252.7	1	7.254	-0.000	49228	245.0
Aroclor-1016	2	7.652	0.002	129647	258.5	2	7.850	-0.002	109879	257.4
Aroclor-1016	3	7.790	0.003	55577	241.0	3	8.050	0.000	45802	261.0
Aroclor-1016	4	8.404	0.001	38982	256.8	4	8.304	-0.000	35428	248.9
Total Col1Ave (4 peaks):					252.3	Total Col2Ave (4 peaks):				253.1 RPD = 0
Corrected Ave (3 peaks):					250.2	Corrected Ave (3 peaks):				250.4 RPD = 0
CalAmt %D:					0.9	CalAmt %D:				1.2
Aroclor-1260	1	11.043	0.002	87165	259.2	1	11.651	0.001	84564	235.7
Aroclor-1260	2	11.360	0.003	89579	260.4	2	11.916	0.001	216735	240.2
Aroclor-1260	3	11.733	0.003	234880	257.8	3	12.434	0.001	55401	229.5
Aroclor-1260	4	12.137	0.002	120991	261.6	4	12.499	0.001	143975	237.8
Aroclor-1260	5	12.243	0.003	50521	254.7	NS	---			----
Total Col1Ave (5 peaks):					258.7	Total Col2Ave (4 peaks):				235.8 RPD = 9
Corrected Ave (4 peaks):					258.0	Corrected Ave (3 peaks):				234.4 RPD = 10
CalAmt %D:					3.5	CalAmt %D:				-5.7

Total PCB Area Col1 (5.908 - 13.791) = 2424171 Col1 Total PCB = 0.5 ppm*

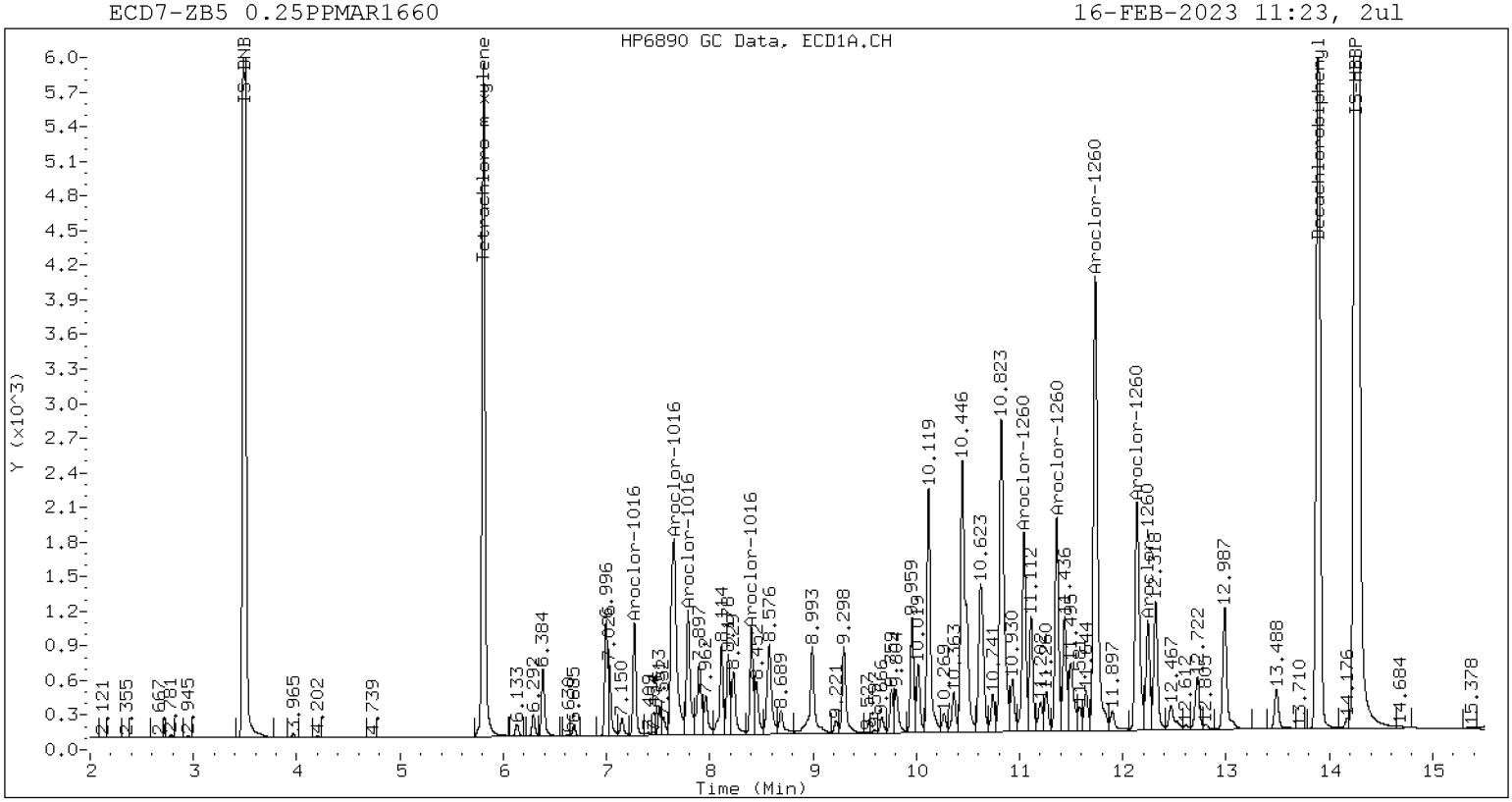
Total PCB Area Col2 (5.786 - 14.018) = 2014487 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

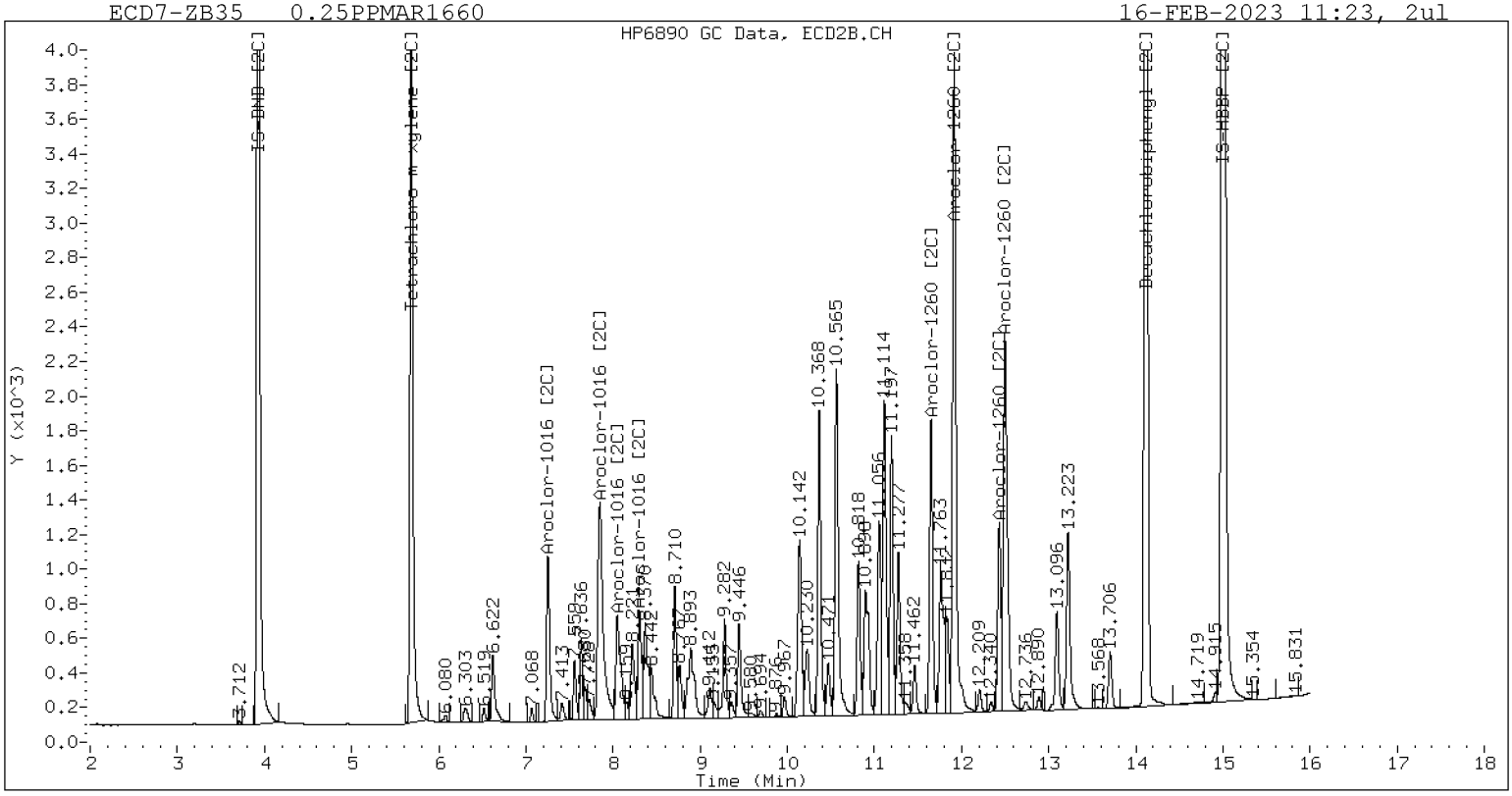
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162303ECD7.D
Data file 2: /230216.b/230216.b/02162303ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:44
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	19708	5.686	0.000	15503	3.3	3.2	3.1	Tetrachloro-m-xylene
13.892	0.001	28479	14.118	-0.000	26541	3.3	2.9	12.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	422641	-16.0
Hexabromobiphenyl	647433	970275	49.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	360534	7.0
Hexabromobiphenyl	382032	649373	70.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	3348	21.8	1	7.255	0.001	4345	22.0
Aroclor-1016	2	7.655	0.005	10129	20.6	2	7.856	0.005	7672	18.3
Aroclor-1016	3	7.792	0.005	5159	22.8	3	8.056	0.007	2574	14.9
Aroclor-1016	4	8.405	0.003	3035	20.3	4	8.307	0.003	2795	20.0
Total Col1Ave (4 peaks):					21.4	Total Col2Ave (4 peaks):				18.8 RPD = 13
Corrected Ave (3 peaks):					20.9	Corrected Ave (3 peaks):				17.7 RPD = 16
CalAmt %D:					6.8	CalAmt %D:				-6.0
Aroclor-1260	1	11.044	0.003	6763	20.2	1	11.652	0.002	7499	20.8
Aroclor-1260	2	11.360	0.003	6806	19.9	2	11.918	0.003	18116	20.0
Aroclor-1260	3	11.737	0.006	19311	21.3	3	12.434	0.002	5444	22.5
Aroclor-1260	4	12.141	0.006	9169	19.9	4	12.502	0.004	12209	20.1
Aroclor-1260	5	12.243	0.003	4138	21.0	NS	---			----
Total Col1Ave (5 peaks):					20.5	Total Col2Ave (4 peaks):				20.8 RPD = 2
Corrected Ave (4 peaks):					20.3	Corrected Ave (3 peaks):				20.3 RPD = 0
CalAmt %D:					2.3	CalAmt %D:				4.2

Total PCB Area Col1 (5.908 - 13.791) = 207302 Col1 Total PCB = 0.0 ppm*

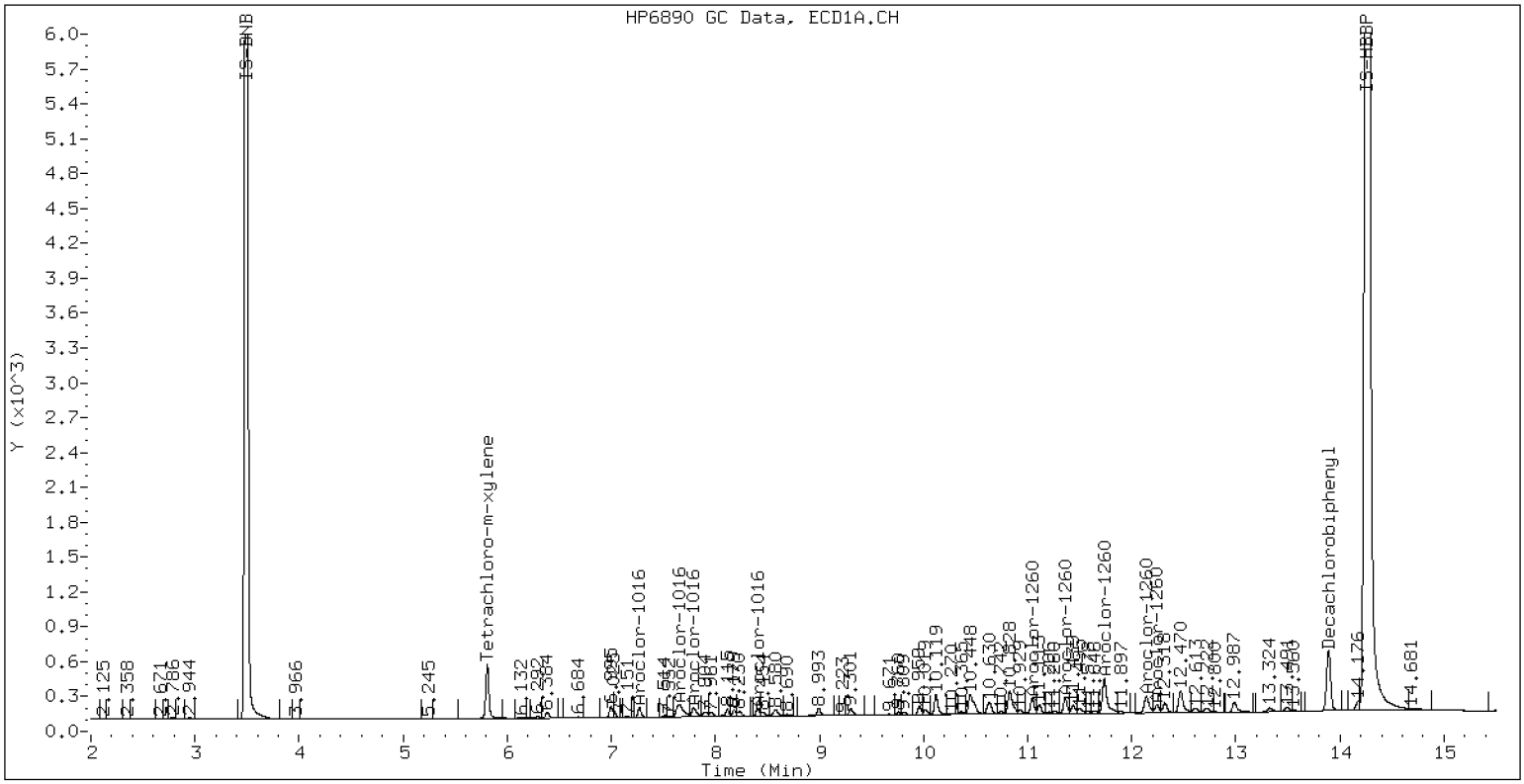
Total PCB Area Col2 (5.786 - 14.018) = 173637 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

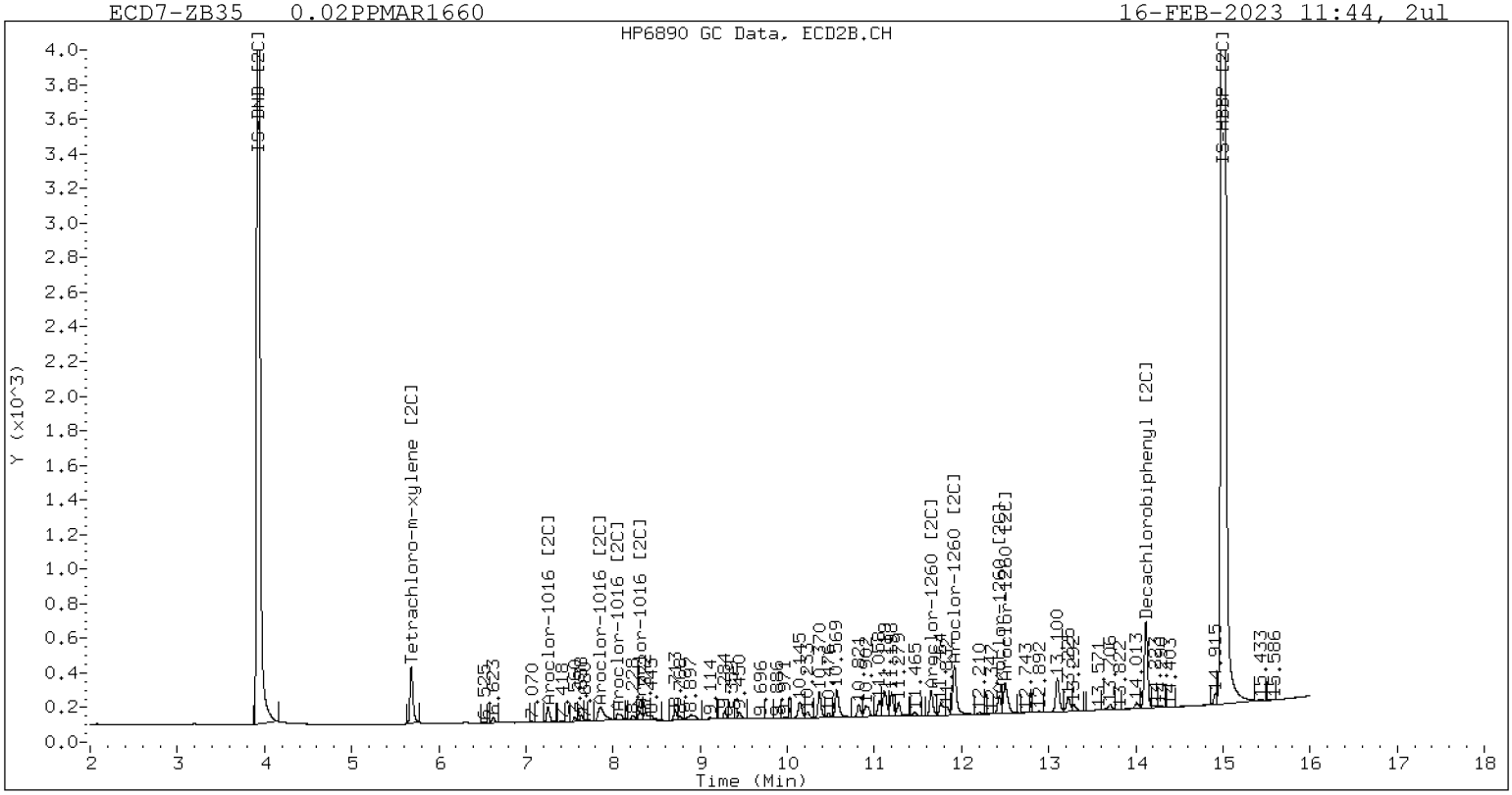
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162304ECD7.D
Data file 2: /230216.b/230216.b/02162304ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:05
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	49106	5.685	-0.001	38865	8.2	8.0	2.4	Tetrachloro-m-xylene
13.891	0.000	72151	14.117	-0.001	67392	8.4	7.4	12.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	424165	-15.7
Hexabromobiphenyl	647433	974643	50.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	361606	7.3
Hexabromobiphenyl	382032	650523	70.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	0.001	8215	53.2	1	7.254	-0.000	10626	53.6
Aroclor-1016	2	7.653	0.003	24630	49.8	2	7.855	0.003	20708	49.2
Aroclor-1016	3	7.791	0.004	12297	54.1	3	8.055	0.006	9105	52.6
Aroclor-1016	4	8.404	0.001	7438	49.7	4	8.306	0.001	7620	54.3
Total Col1Ave (4 peaks):					51.7	Total Col2Ave (4 peaks):				52.4 RPD = 1
Corrected Ave (3 peaks):					50.9	Corrected Ave (3 peaks):				51.8 RPD = 2
CalAmt %D:					3.4	CalAmt %D:				4.9
Aroclor-1260	1	11.043	0.002	16909	50.3	1	11.652	0.002	17146	47.5
Aroclor-1260	2	11.359	0.002	17012	49.5	2	11.917	0.003	43102	47.5
Aroclor-1260	3	11.734	0.003	45560	50.0	3	12.435	0.003	11385	46.9
Aroclor-1260	4	12.138	0.003	22213	48.1	4	12.501	0.003	28474	46.8
Aroclor-1260	5	12.241	0.001	9728	49.1	NS	---			----
Total Col1Ave (5 peaks):					49.4	Total Col2Ave (4 peaks):				47.2 RPD = 5
Corrected Ave (4 peaks):					49.2	Corrected Ave (3 peaks):				47.1 RPD = 4
CalAmt %D:					-1.2	CalAmt %D:				-5.6

Total PCB Area Col1 (5.908 - 13.791) = 481905 Col1 Total PCB = 0.1 ppm*

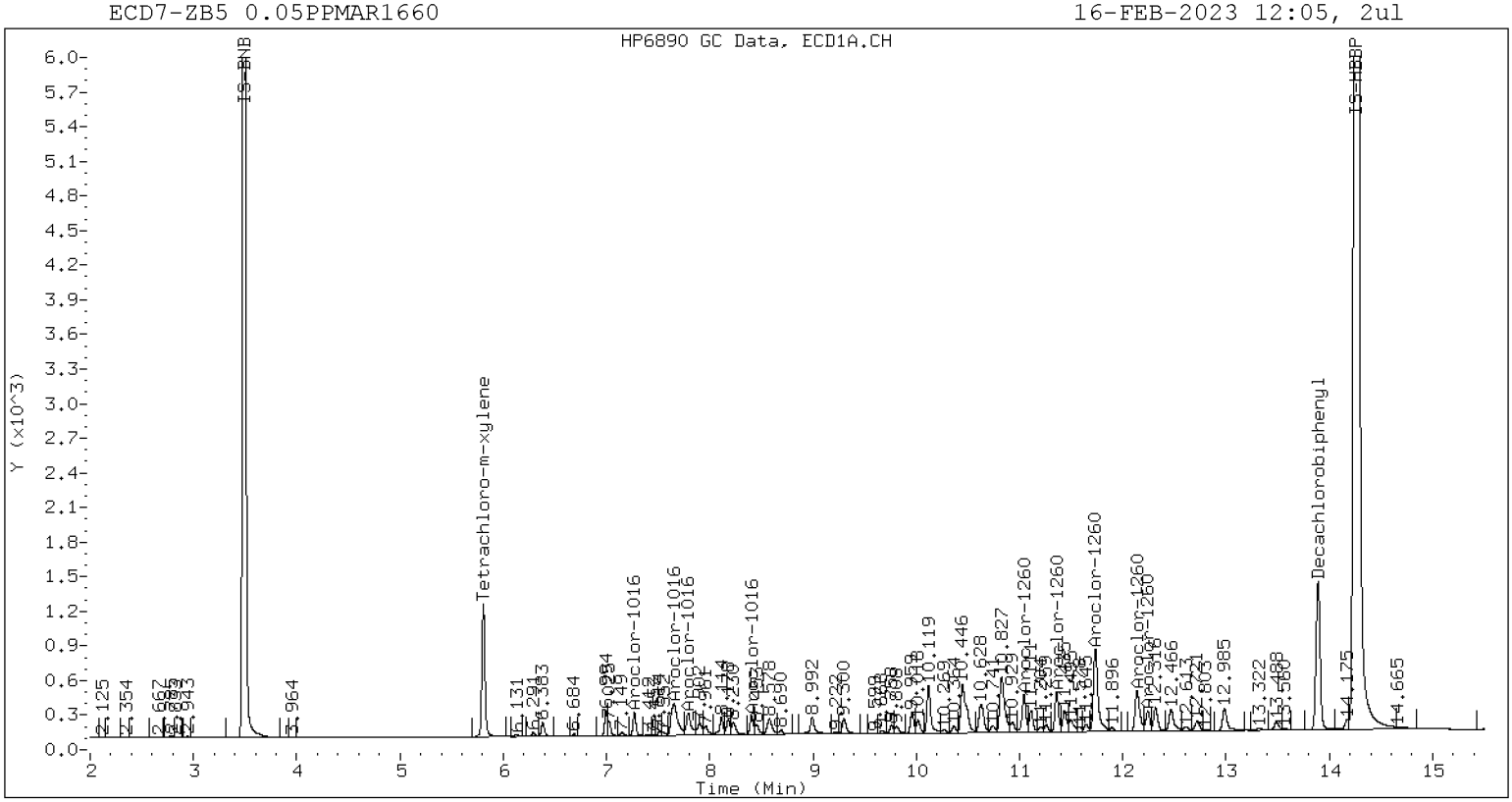
Total PCB Area Col2 (5.786 - 14.018) = 410066 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

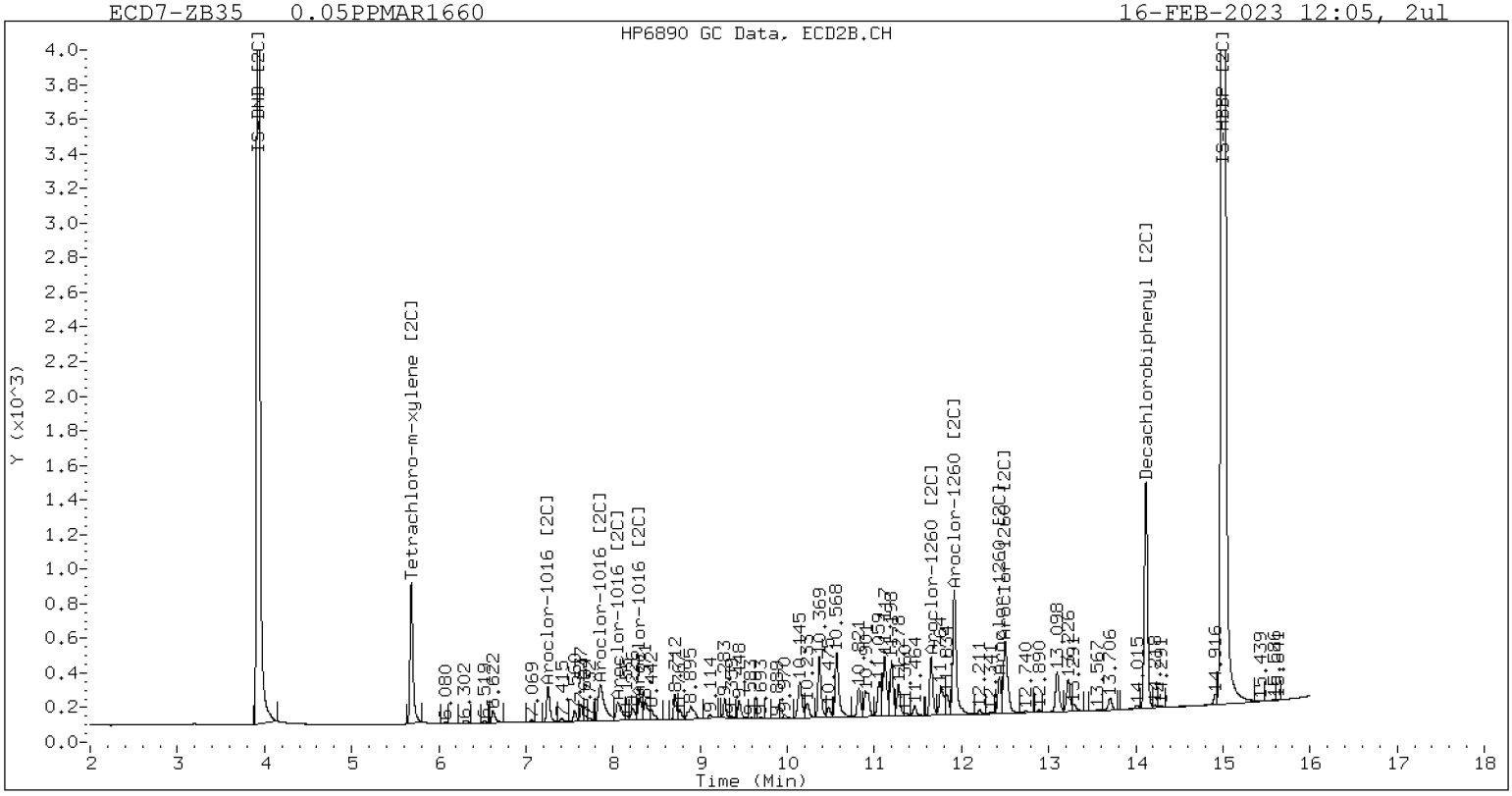
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162305ECD7.D
Data file 2: /230216.b/230216.b/02162305ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:27
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.003	891683	5.688	0.002	726379	151.2	152.9	1.1	Tetrachloro-m-xylene
13.892	0.001	1202823	14.120	0.002	1376073	143.7	154.6	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	415564	-17.4
Hexabromobiphenyl	647433	950630	46.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	352163	4.5
Hexabromobiphenyl	382032	638267	67.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	0.001	132049	872.6	1	7.254	0.000	163920	849.6
Aroclor-1016	2	7.649	-0.001	456308	941.6	2	7.849	-0.003	390554	952.8
Aroclor-1016	3	7.787	-0.000	188528	845.9	3	8.049	-0.000	164163	974.1
Aroclor-1016	4	8.403	0.000	141381	963.9	4	8.304	0.000	120741	883.4
Total Col1Ave (4 peaks):					906.0	Total Col2Ave (4 peaks):				915.0 RPD = 1
Corrected Ave (3 peaks):					886.7	Corrected Ave (3 peaks):				895.3 RPD = 1
CalAmt %D:			-9.4			CalAmt %D:		-8.5		
Aroclor-1260	1	11.040	-0.000	311922	951.8	1	11.650	-0.000	297569	840.7
Aroclor-1260	2	11.356	-0.001	324926	969.1	2	11.914	-0.001	734323	824.7
Aroclor-1260	3	11.729	-0.001	820597	924.2	3	12.432	0.000	215979	906.9
Aroclor-1260	4	12.131	-0.003	448823	995.6	4	12.498	0.000	521208	872.6
Aroclor-1260	5	12.240	0.000	188496	975.0	NS	---			----
Total Col1Ave (5 peaks):					963.1	Total Col2Ave (4 peaks):				861.2 RPD = 11
Corrected Ave (4 peaks):					955.0	Corrected Ave (3 peaks):				846.0 RPD = 12
CalAmt %D:			-3.7			CalAmt %D:		-13.9		

Total PCB Area Col1 (5.908 - 13.791) = 8716327 Col1 Total PCB = 1.8 ppm*

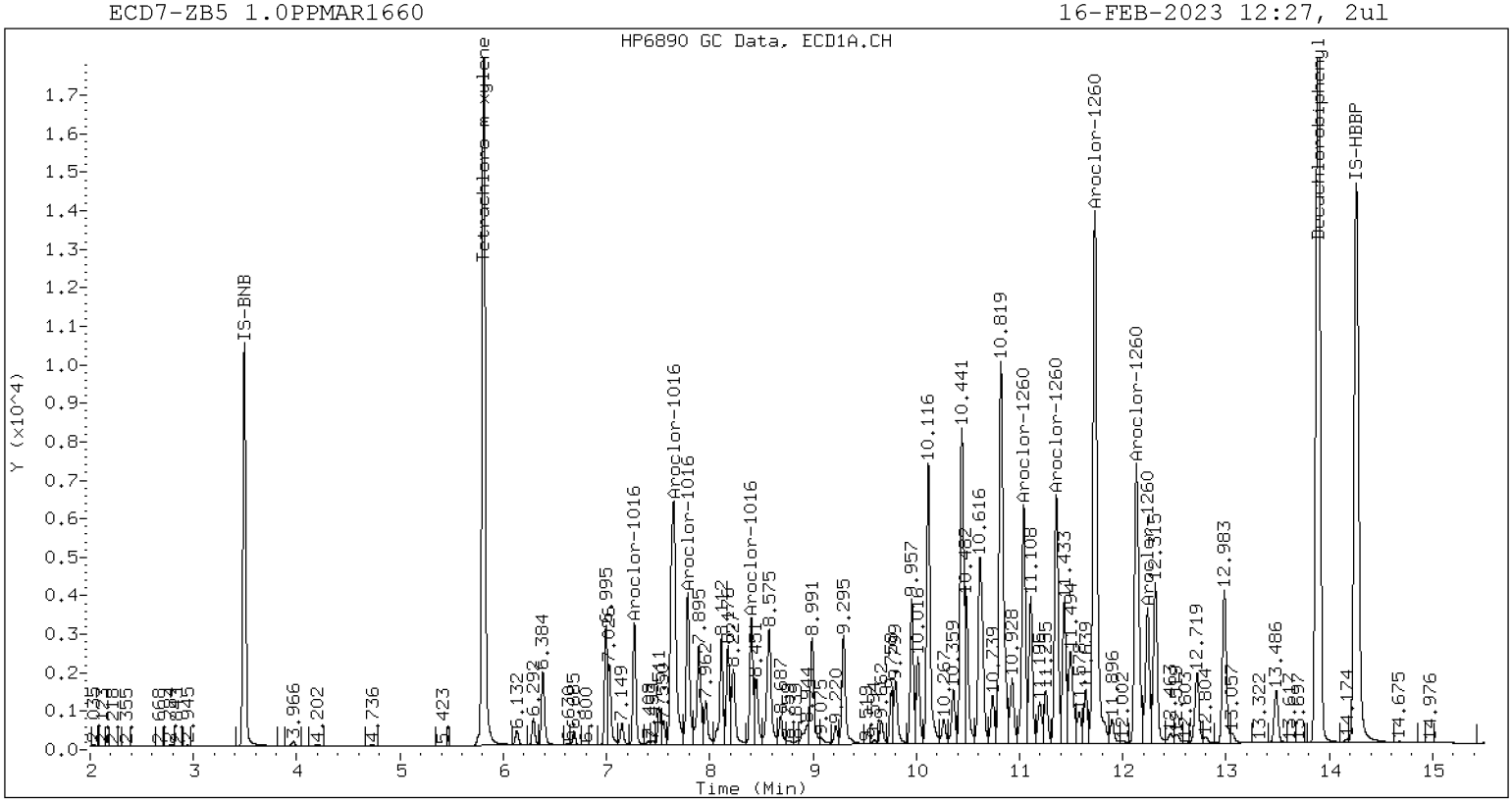
Total PCB Area Col2 (5.786 - 14.018) = 7274392 Col2 Total PCB = 2.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

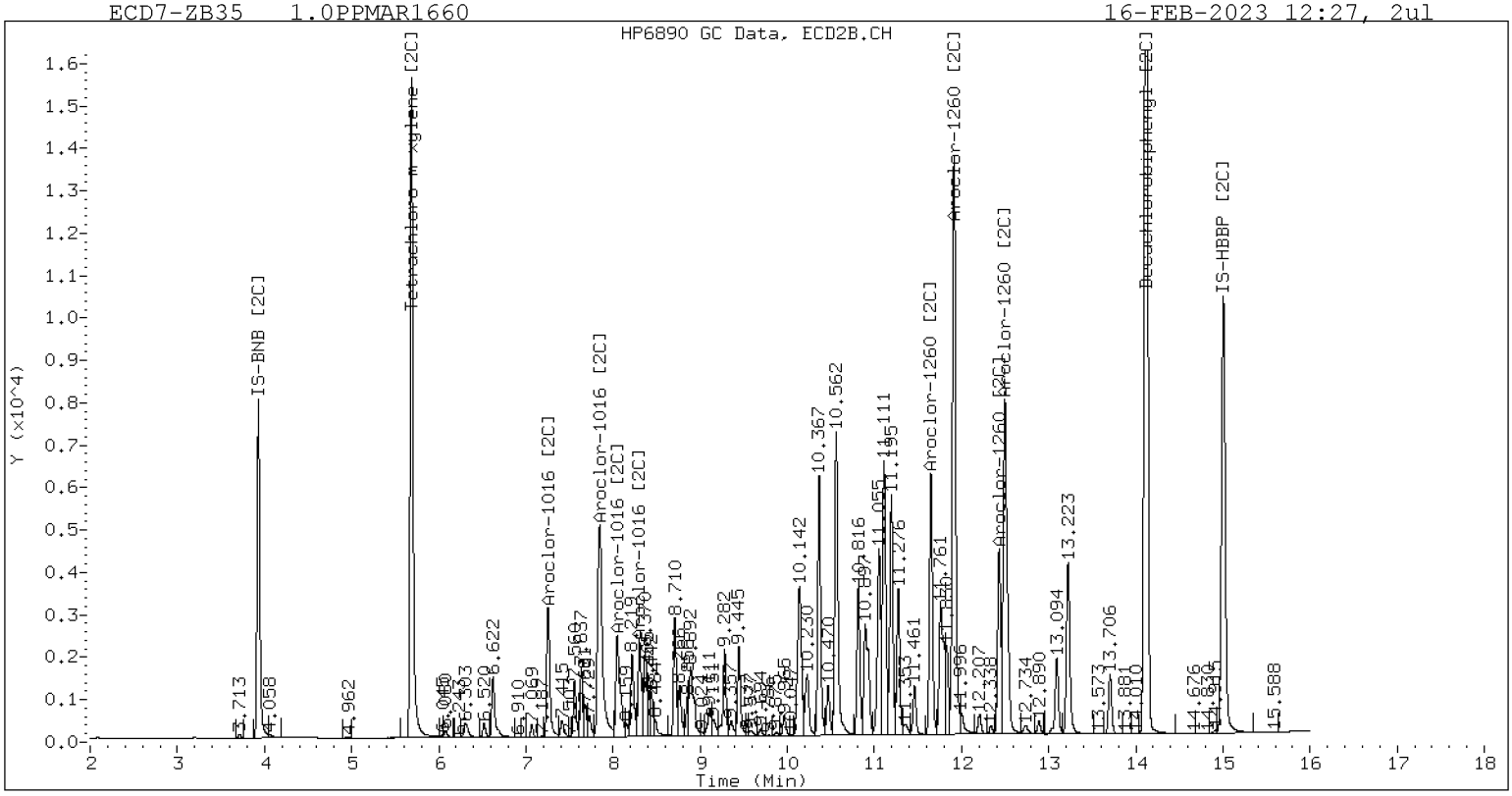
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162306ECD7.D
Data file 2: /230216.b/230216.b/02162306ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:48
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	97353	5.687	0.001	77790	16.1	16.0	1.1	Tetrachloro-m-xylene
13.890	-0.001	143814	14.117	-0.001	141007	16.6	15.4	7.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	425206	-15.5
Hexabromobiphenyl	647433	982762	51.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	361068	7.2
Hexabromobiphenyl	382032	654989	71.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	15562	100.5	1	7.254	-0.000	20282	102.5
Aroclor-1016	2	7.653	0.003	49218	99.3	2	7.855	0.004	43303	103.0
Aroclor-1016	3	7.790	0.003	23916	104.9	3	8.054	0.005	18932	109.6
Aroclor-1016	4	8.404	0.002	14884	99.2	4	8.306	0.002	15145	108.1
Total Col1Ave (4 peaks):					101.0	Total Col2Ave (4 peaks):				105.8 RPD = 5
Corrected Ave (3 peaks):					99.6	Corrected Ave (3 peaks):				104.5 RPD = 5
CalAmt %D:					1.0	CalAmt %D:				5.8
Aroclor-1260	1	11.042	0.002	34109	100.7	1	11.651	0.001	34102	93.9
Aroclor-1260	2	11.358	0.001	34951	100.8	2	11.917	0.002	87139	95.4
Aroclor-1260	3	11.733	0.003	92326	100.6	3	12.434	0.001	21226	86.9
Aroclor-1260	4	12.137	0.003	45803	98.3	4	12.500	0.002	57343	93.6
Aroclor-1260	5	12.241	0.001	19653	98.3	NS	---			----
Total Col1Ave (5 peaks):					99.7	Total Col2Ave (4 peaks):				92.4 RPD = 8
Corrected Ave (4 peaks):					99.5	Corrected Ave (3 peaks):				91.4 RPD = 8
CalAmt %D:					-0.3	CalAmt %D:				-7.6

Total PCB Area Col1 (5.908 - 13.791) = 948624 Col1 Total PCB = 0.2 ppm*

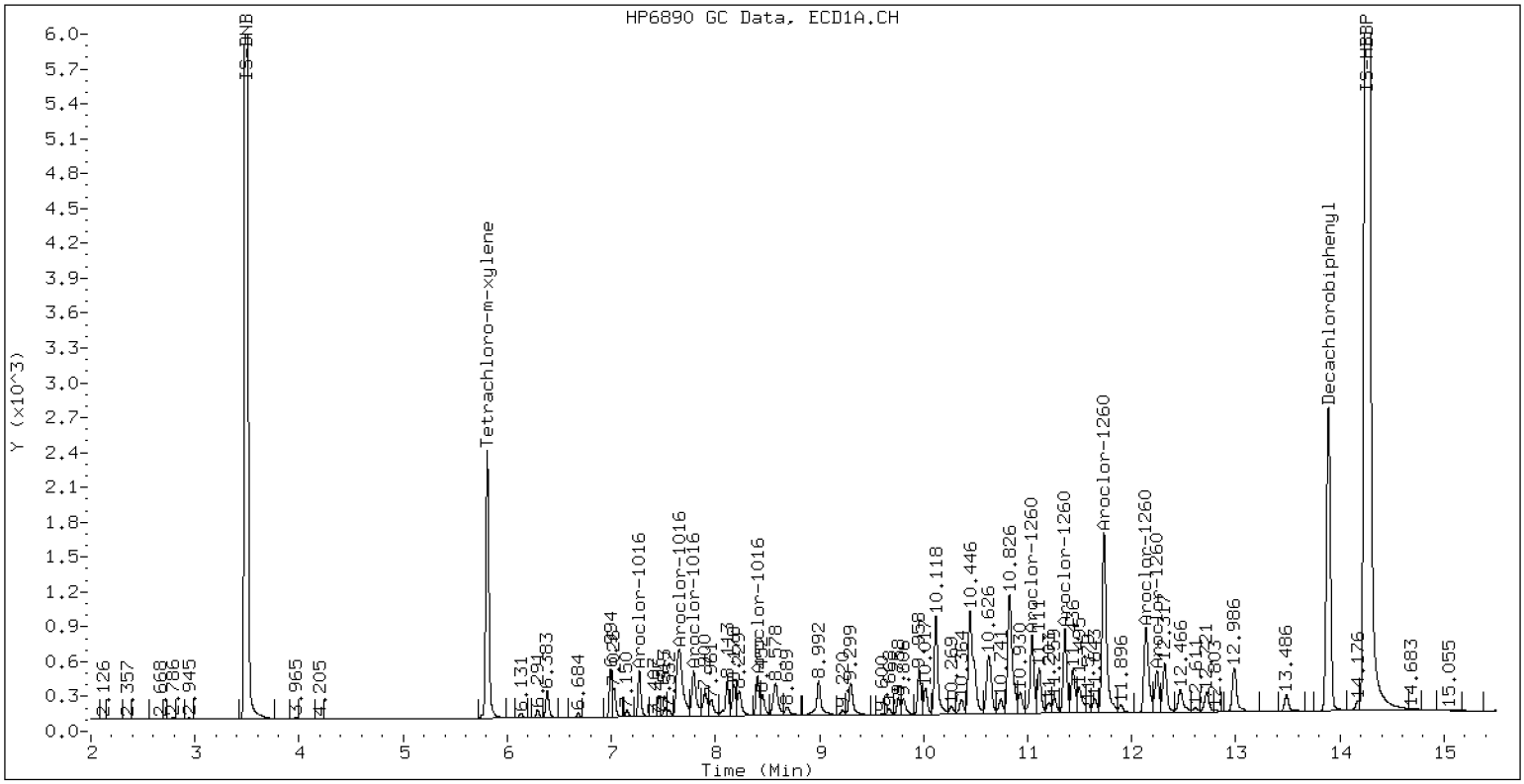
Total PCB Area Col2 (5.786 - 14.018) = 817080 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

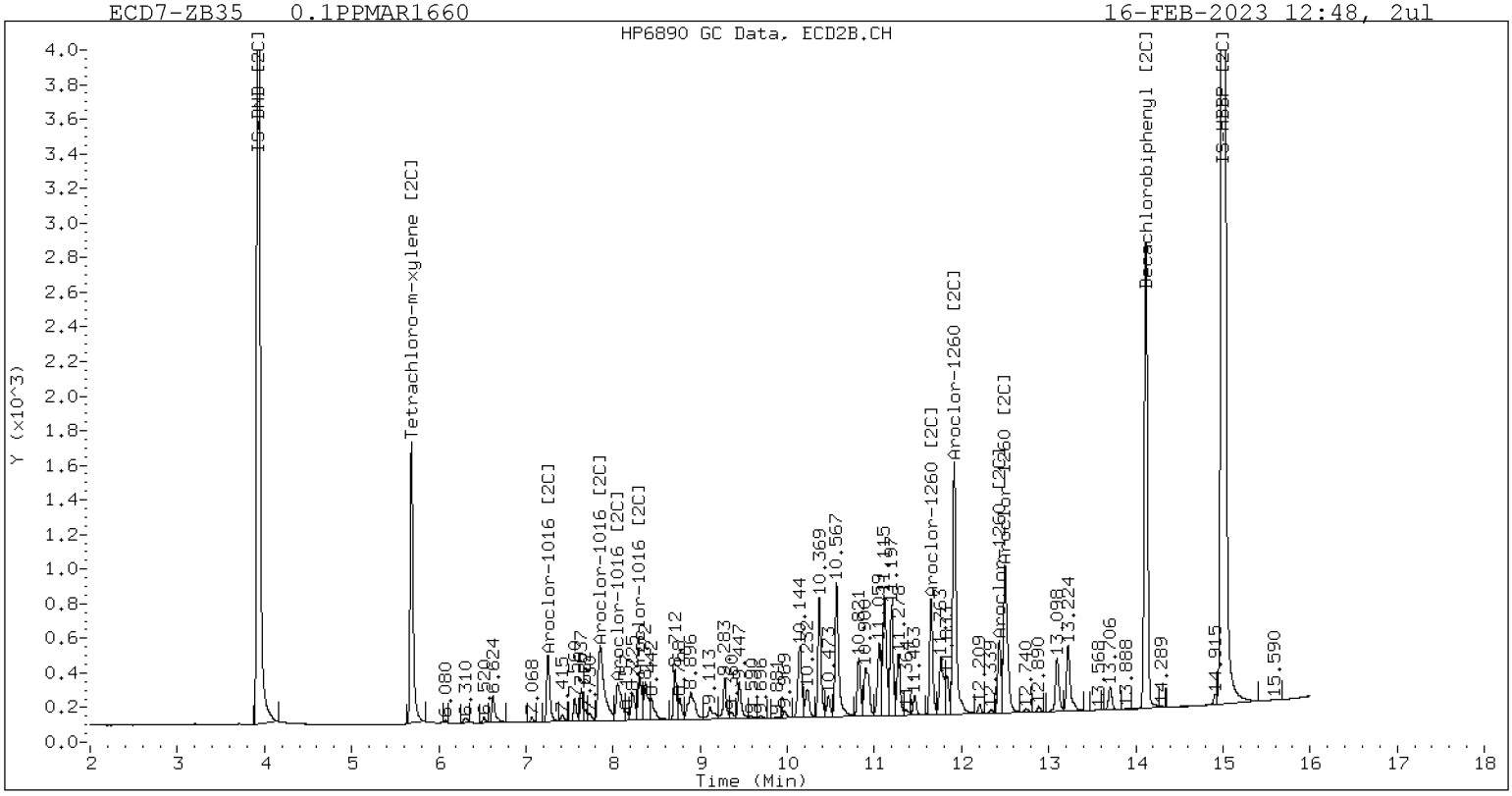
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162307ECD7.D
Data file 2: /230216.b/230216.b/02162307ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 13:09
Report Date: 02/17/2023 08:58
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	472991	5.686	0.001	380587	78.5	78.1	0.6	Tetrachloro-m-xylene
13.890	-0.001	654829	14.118	-0.000	723440	75.9	79.7	5.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	424511	-15.7
Hexabromobiphenyl	647433	980103	51.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	361199	7.2
Hexabromobiphenyl	382032	650552	70.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	74222	480.1	1	7.254	0.000	92105	465.4
Aroclor-1016	2	7.650	0.000	249600	504.2	2	7.851	0.000	210359	500.4
Aroclor-1016	3	7.787	0.000	104974	461.1	3	8.049	0.000	87658	507.1
Aroclor-1016	4	8.402	0.000	75363	503.0	4	8.304	0.000	65546	467.6
Total Col1Ave (4 peaks):					487.1	Total Col2Ave (4 peaks):				485.1 RPD = 0
Corrected Ave (3 peaks):					481.4	Corrected Ave (3 peaks):				477.8 RPD = 1
CalAmt %D:					-2.6	CalAmt %D:				-3.0
Aroclor-1260	1	11.041	0.000	166809	493.7	1	11.650	0.000	160885	446.0
Aroclor-1260	2	11.357	0.000	172259	498.3	2	11.915	0.000	410338	452.2
Aroclor-1260	3	11.731	0.000	445028	486.1	3	12.432	0.000	110865	456.7
Aroclor-1260	4	12.134	0.000	236535	508.9	4	12.498	0.000	278934	458.2
Aroclor-1260	5	12.240	0.000	98968	496.5	NS	---			----
Total Col1Ave (5 peaks):					496.7	Total Col2Ave (4 peaks):				453.3 RPD = 9
Corrected Ave (4 peaks):					493.7	Corrected Ave (3 peaks):				451.6 RPD = 9
CalAmt %D:					-0.7	CalAmt %D:				-9.3

Total PCB Area Col1 (5.908 - 13.791) = 4638448 Col1 Total PCB = 0.9 ppm*

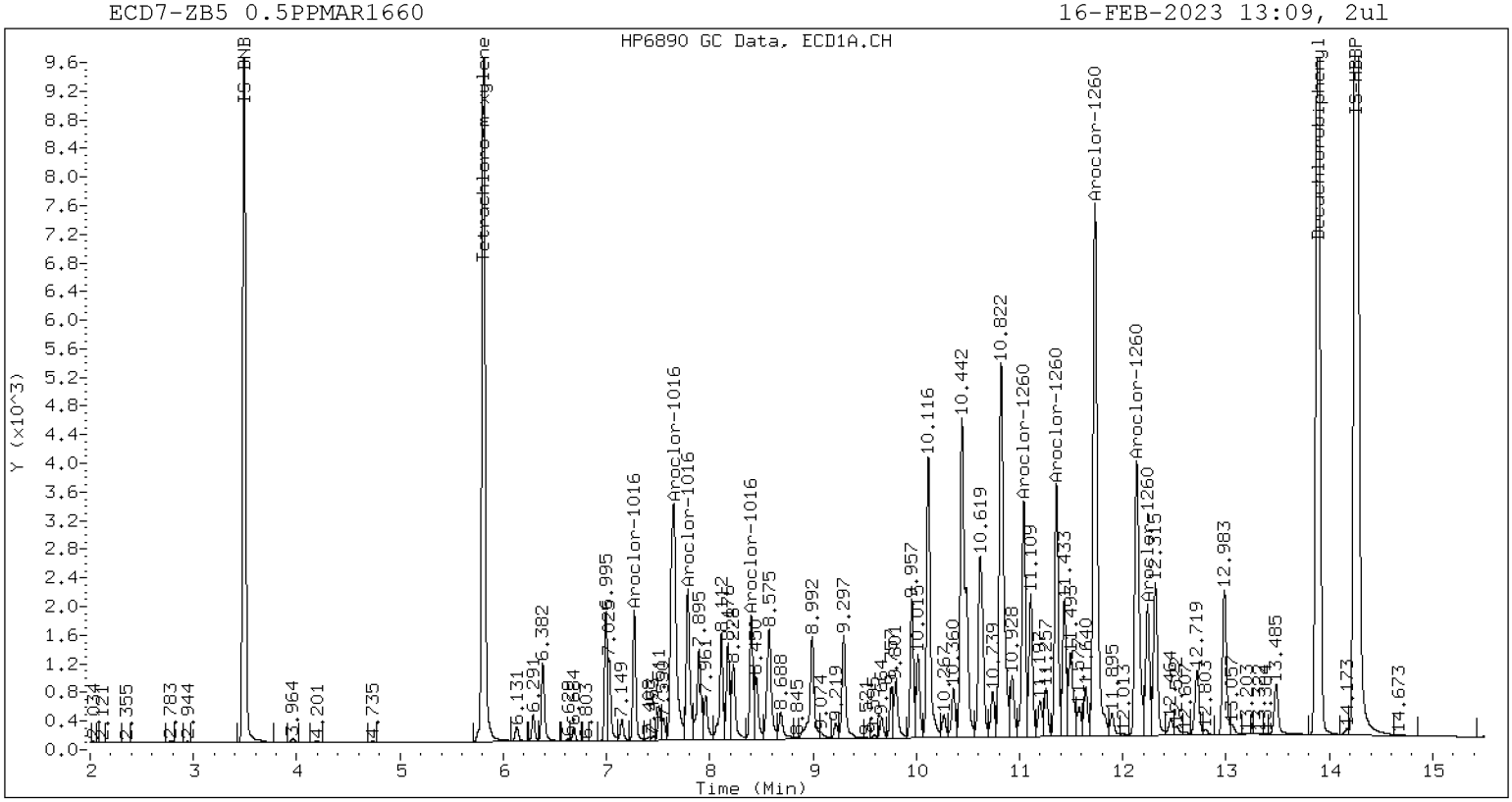
Total PCB Area Col2 (5.786 - 14.018) = 3867644 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

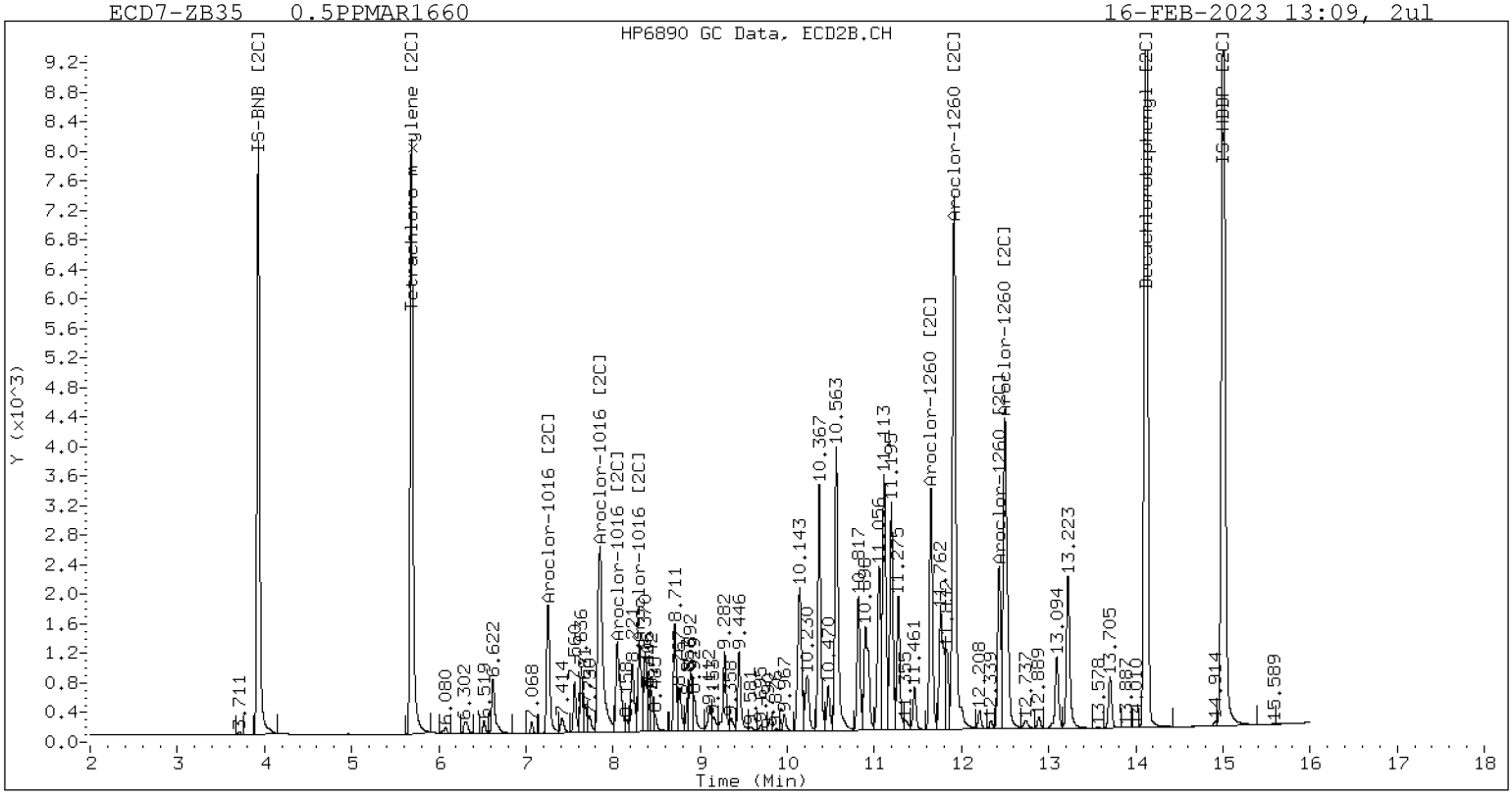
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162308ECD7.D
Data file 2: /230216.b/230216.b/02162308ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 16-FEB-2023 13:30
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	287664	5.686	0.000	229806	46.8	46.6	0.6	Tetrachloro-m-xylene
13.891	0.000	335023	14.117	-0.001	345735	37.9	37.1	2.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	432799	-14.0
Hexabromobiphenyl	647433	1004715	55.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	365812	8.6
Hexabromobiphenyl	382032	667992	74.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.269	0.000	32233	250.0	1	7.254	0.000	39556	250.0
Aroclor-1242	2	7.652	0.000	102000	250.0	2	7.853	0.000	85705	250.0
Aroclor-1242	3	8.403	0.000	30824	250.0	3	9.160	0.000	27091	250.0
Aroclor-1242	4	8.577	0.000	45526	250.0	4	9.587	0.000	32851	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 766603 Col1 Total PCB = 0.2 ppm*

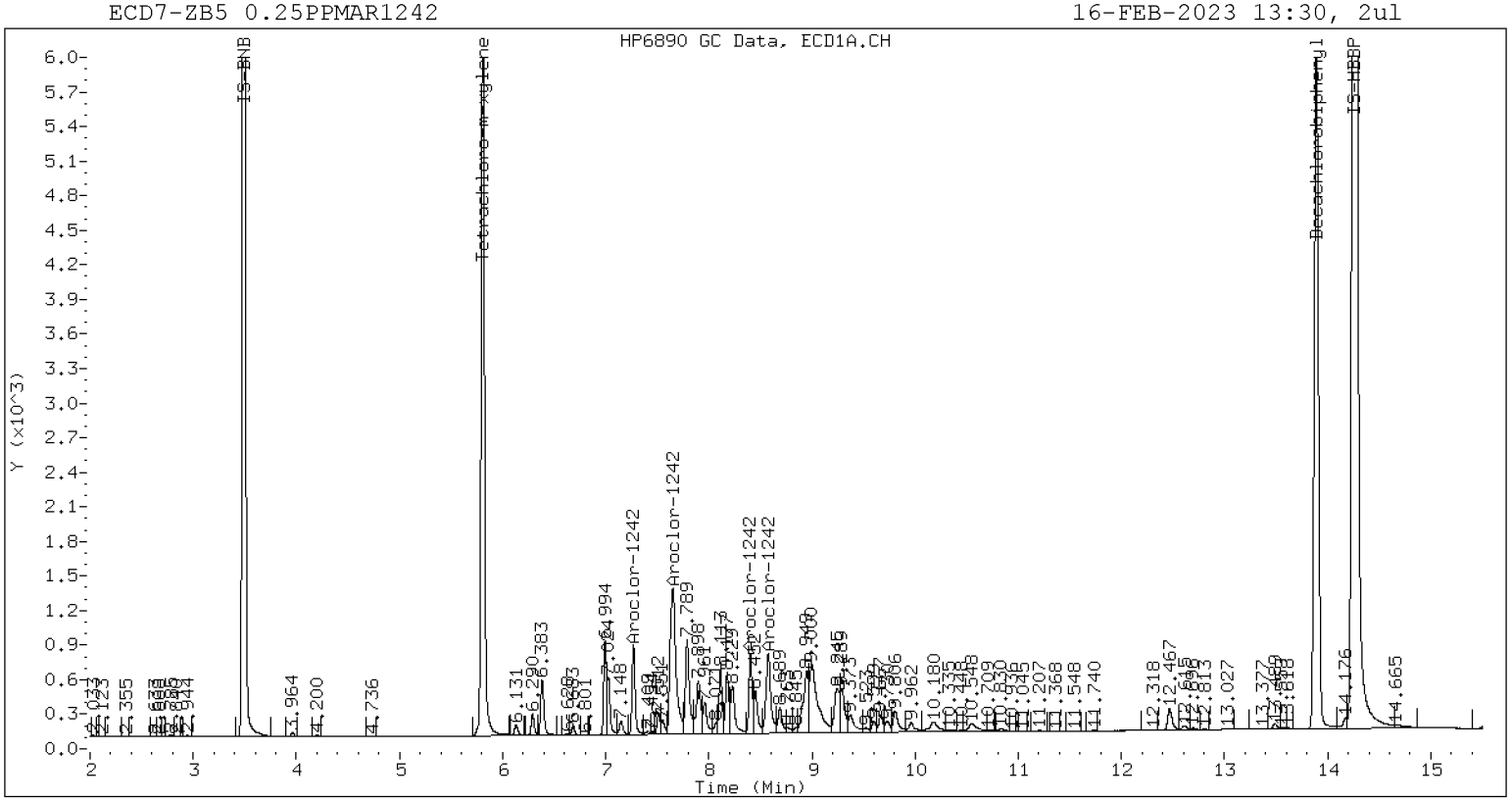
Total PCB Area Col2 (5.786 - 14.018) = 618238 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

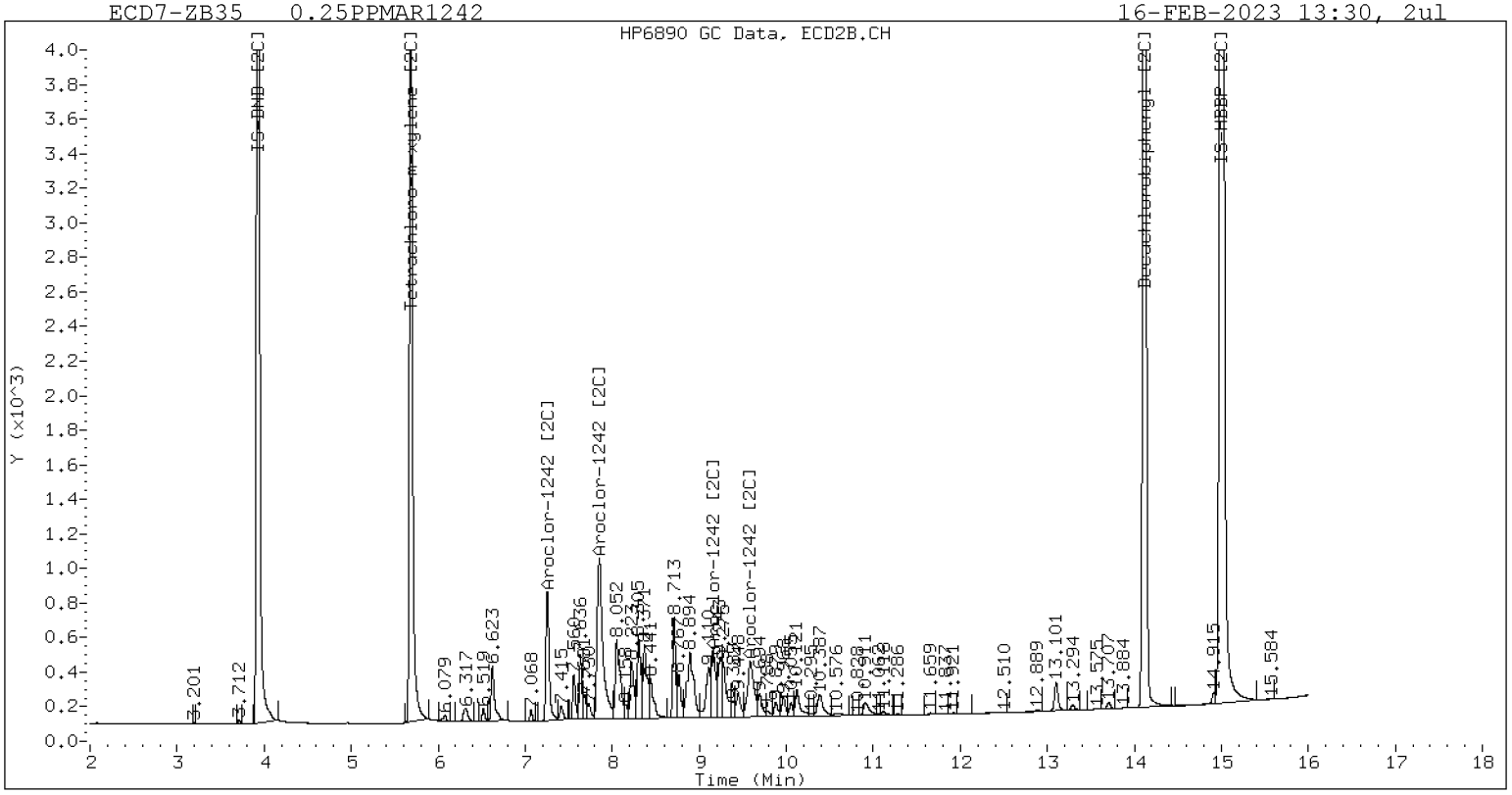
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162309ECD7.D
Data file 2: /230216.b/230216.b/02162309ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 16-FEB-2023 13:51
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	235858	5.688	0.002	191205	38.1	38.3	0.5	Tetrachloro-m-xylene
13.889	-0.002	339581	14.117	-0.001	351690	38.5	38.0	1.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	435779	-13.4
Hexabromobiphenyl	647433	1000233	54.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	369685	9.7
Hexabromobiphenyl	382032	662877	73.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.403	0.000	52538	250.0	1	8.305	0.000	41694	250.0
Aroclor-1248	2	8.577	0.000	66305	250.0	2	8.712	0.000	43865	250.0
Aroclor-1248	3	8.996	0.000	93719	250.0	3	9.159	0.000	50687	250.0
Aroclor-1248	4	9.292	0.000	59273	250.0	4	9.581	0.000	61479	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1025602 Col1 Total PCB = 0.2 ppm*

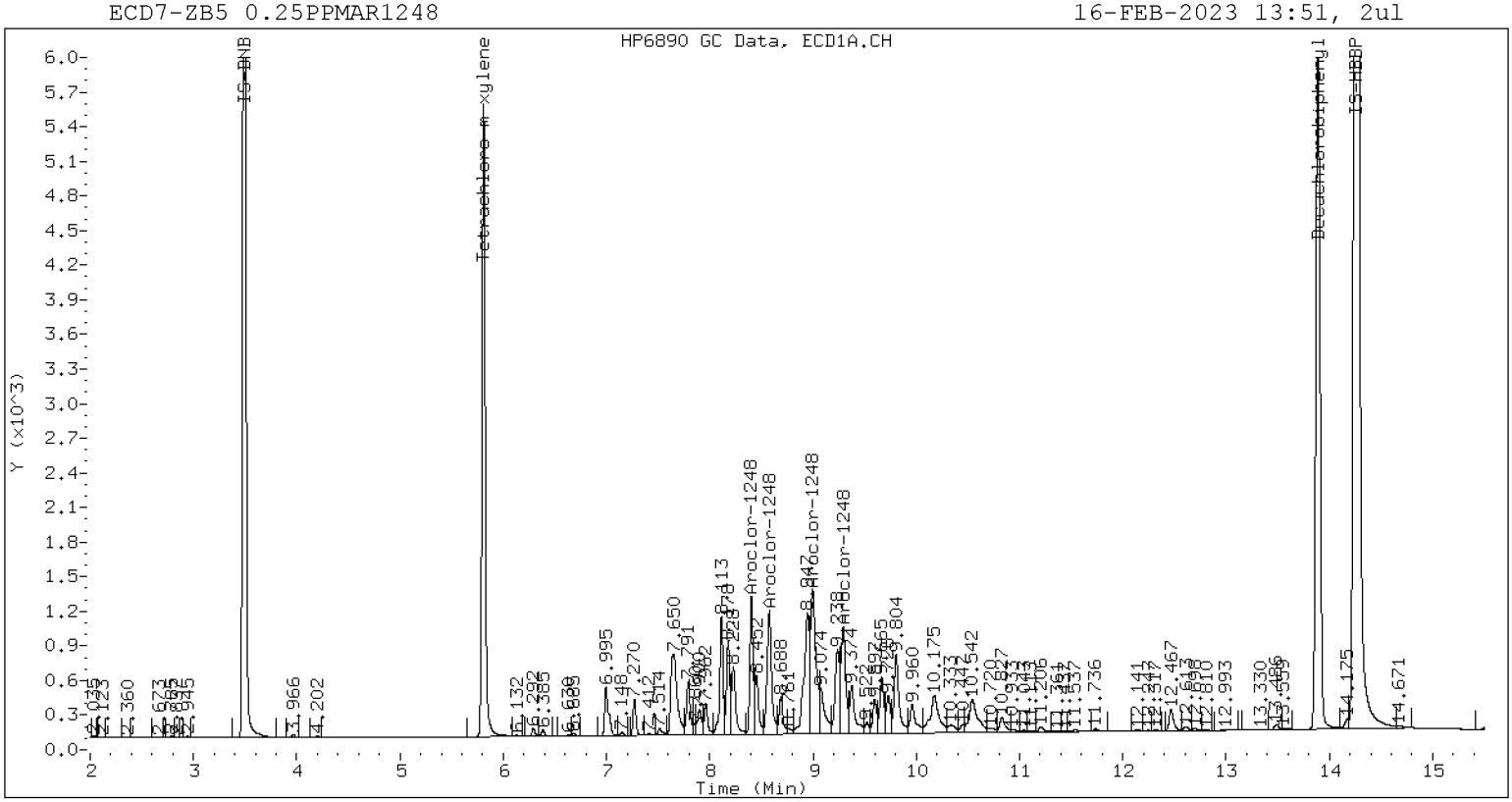
Total PCB Area Col2 (5.786 - 14.018) = 824415 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

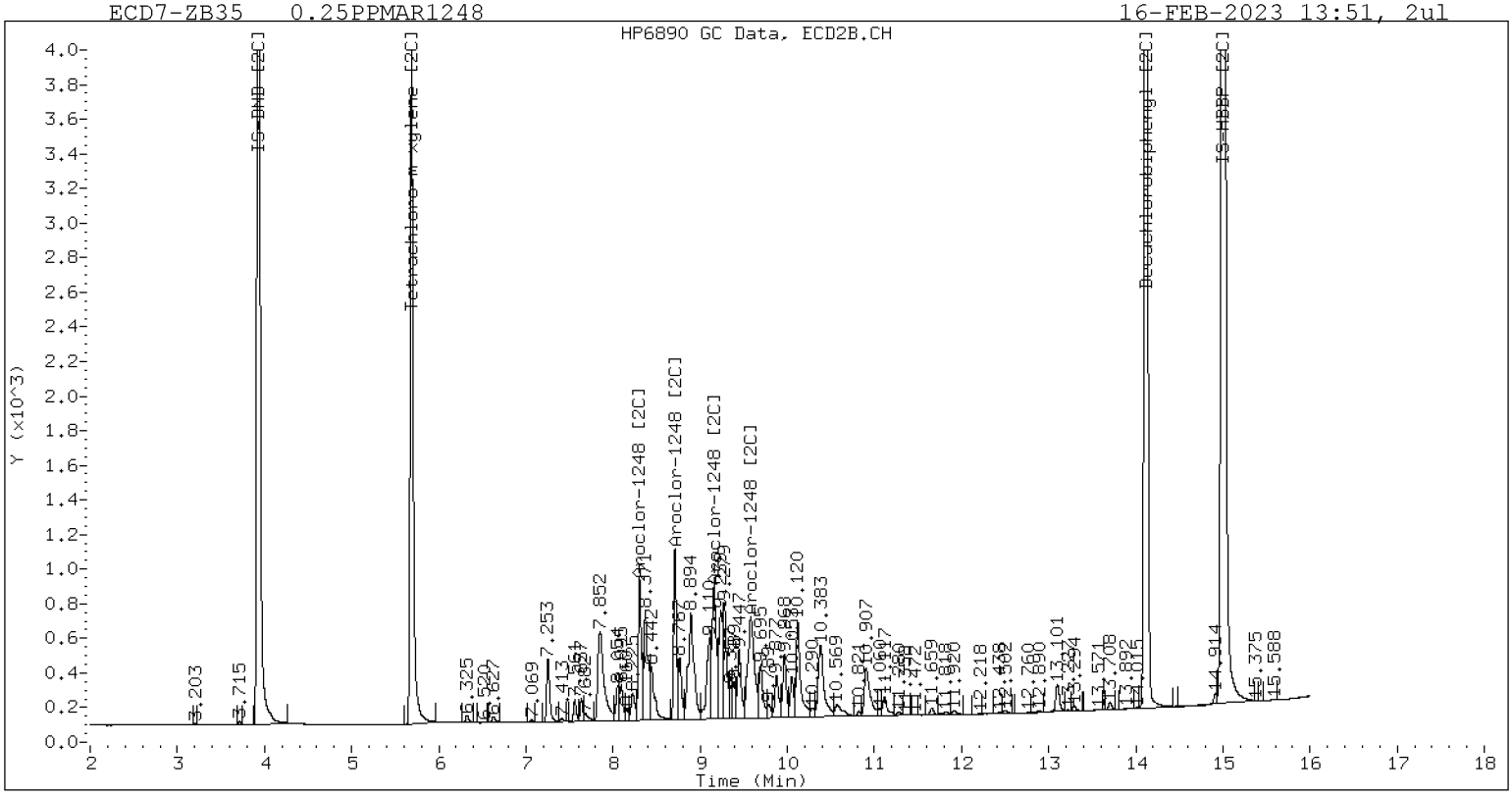
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162310ECD7.D
Data file 2: /230216.b/230216.b/02162310ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 16-FEB-2023 14:12
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235903	5.686	0.001	191667	38.0	38.3	0.7	Tetrachloro-m-xylene
13.891	0.000	345464	14.117	-0.001	355579	38.7	38.0	1.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	437427	-13.1
Hexabromobiphenyl	647433	1013635	56.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	371000	10.1
Hexabromobiphenyl	382032	671465	75.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.295	0.000	105834	250.0	1	9.447	0.000	65393	250.0
Aroclor-1254	2	9.374	0.000	41671	250.0	2	9.967	0.000	52822	250.0
Aroclor-1254	3	9.665	0.000	67447	250.0	3	10.120	0.000	115063	250.0
Aroclor-1254	4	9.803	0.000	134258	250.0	4	10.370	0.000	113530	250.0
Aroclor-1254	5	10.167	0.000	81893	250.0	5	10.566	0.000	57361	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1385653 Col1 Total PCB = 0.3 ppm*

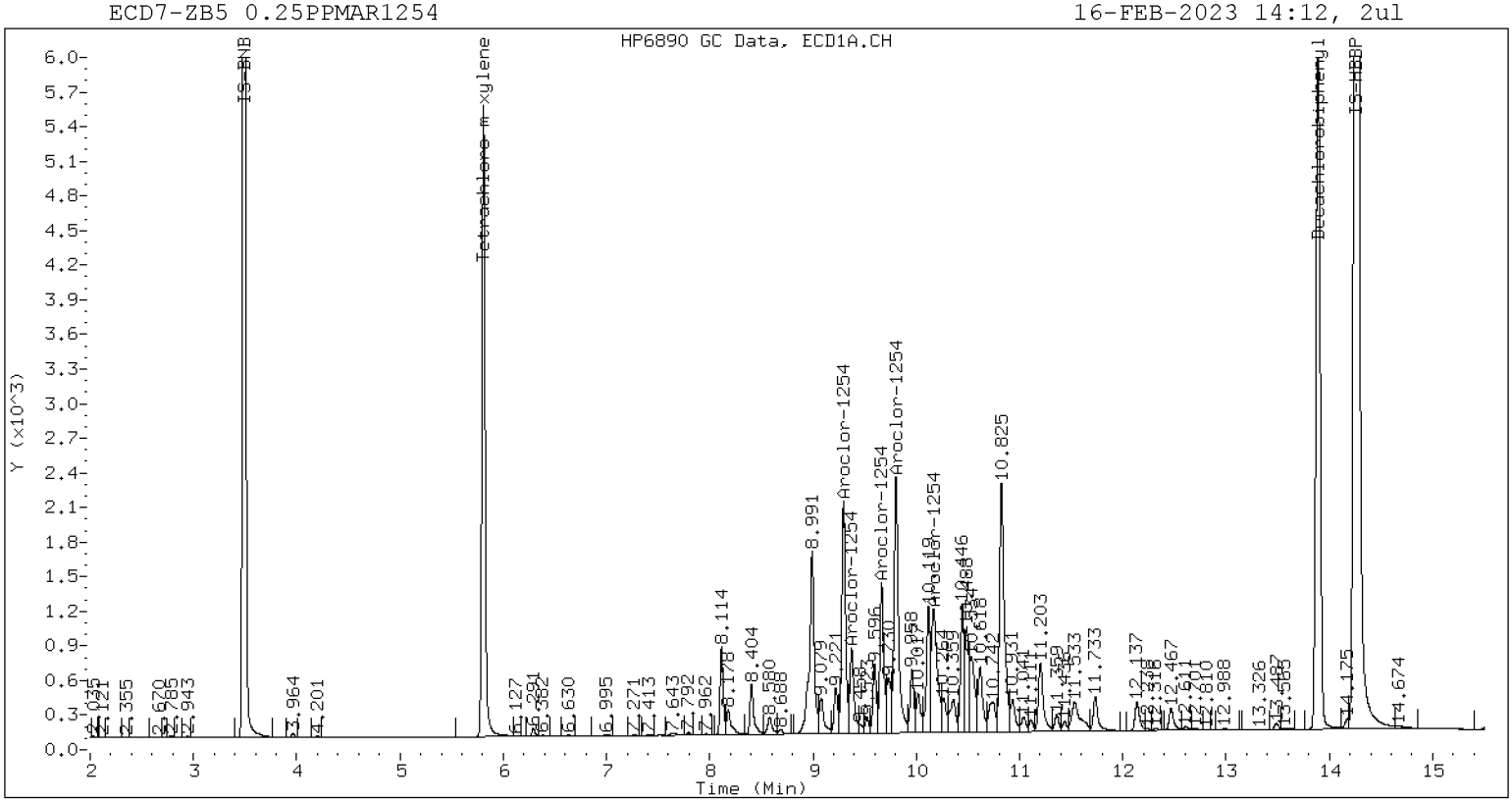
Total PCB Area Col2 (5.786 - 14.018) = 1106329 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

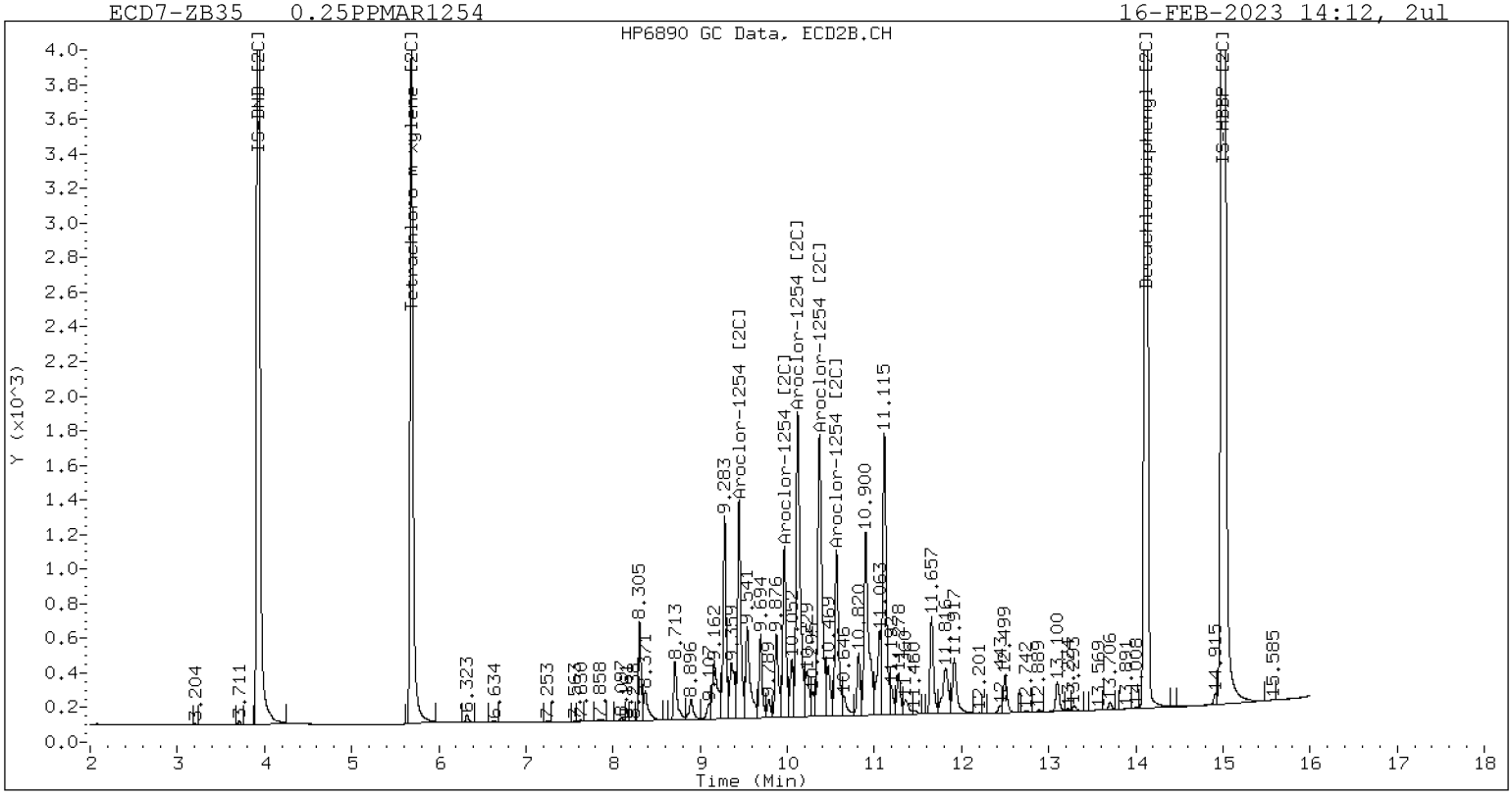
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

2162

Data file 1: /230216.b/02162311ECD7.D
Data file 2: /230216.b/230216.b/02162311ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2~~168~~
Client ID:
Injection Date: 16-FEB-2023 14:33
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	241501	5.686	-0.000	189710	38.6	38.6	0.2	Tetrachloro-m-xylene
13.891	0.000	336556	14.118	0.000	345795	38.0	37.2	2.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	440775	-12.4
Hexabromobiphenyl	647433	1005738	55.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	364664	8.2
Hexabromobiphenyl	382032	666787	74.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1221	1	4.732	0.000	8560	250.0	1	4.958	0.000	6777	250.0
Aroclor-1221	2	6.133	0.000	15969	250.0	2	6.298	0.000	14550	250.0
Aroclor-1221	3	6.383	0.000	36928	250.0	3	6.622	0.000	24370	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.824	0.000	73471	250.0	1	11.198	0.000	124591	250.0
Aroclor-1262	2	12.242	0.000	120422	250.0	2	11.649	0.000	107557	250.0
Aroclor-1262	3	12.317	0.000	129860	250.0	3	12.431	0.000	117102	250.0
Aroclor-1262	4	12.984	0.000	112297	250.0	4	12.500	0.000	186359	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1985753 Col1 Total PCB = 0.4 ppm*

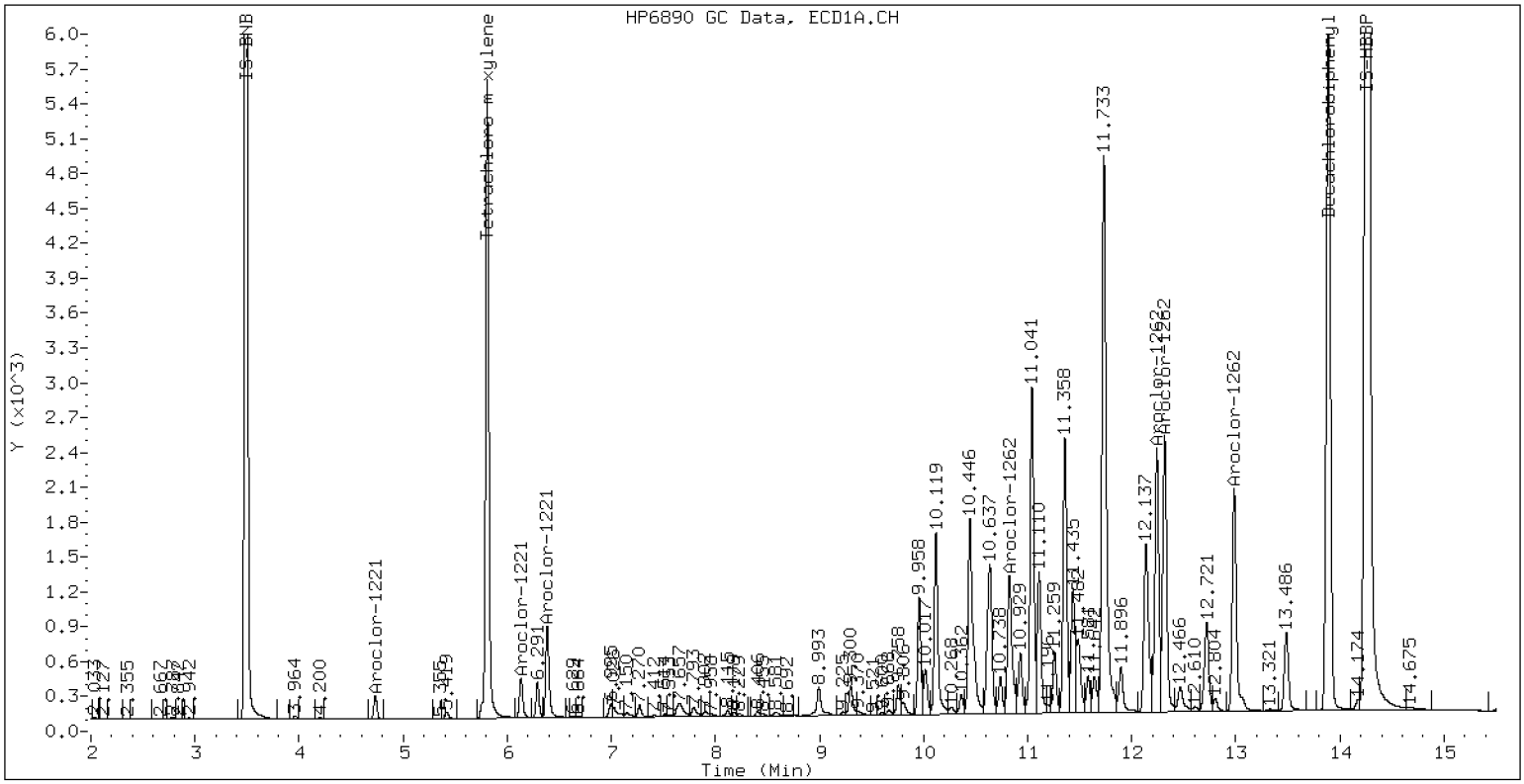
Total PCB Area Col2 (5.786 - 14.018) = 1689172 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

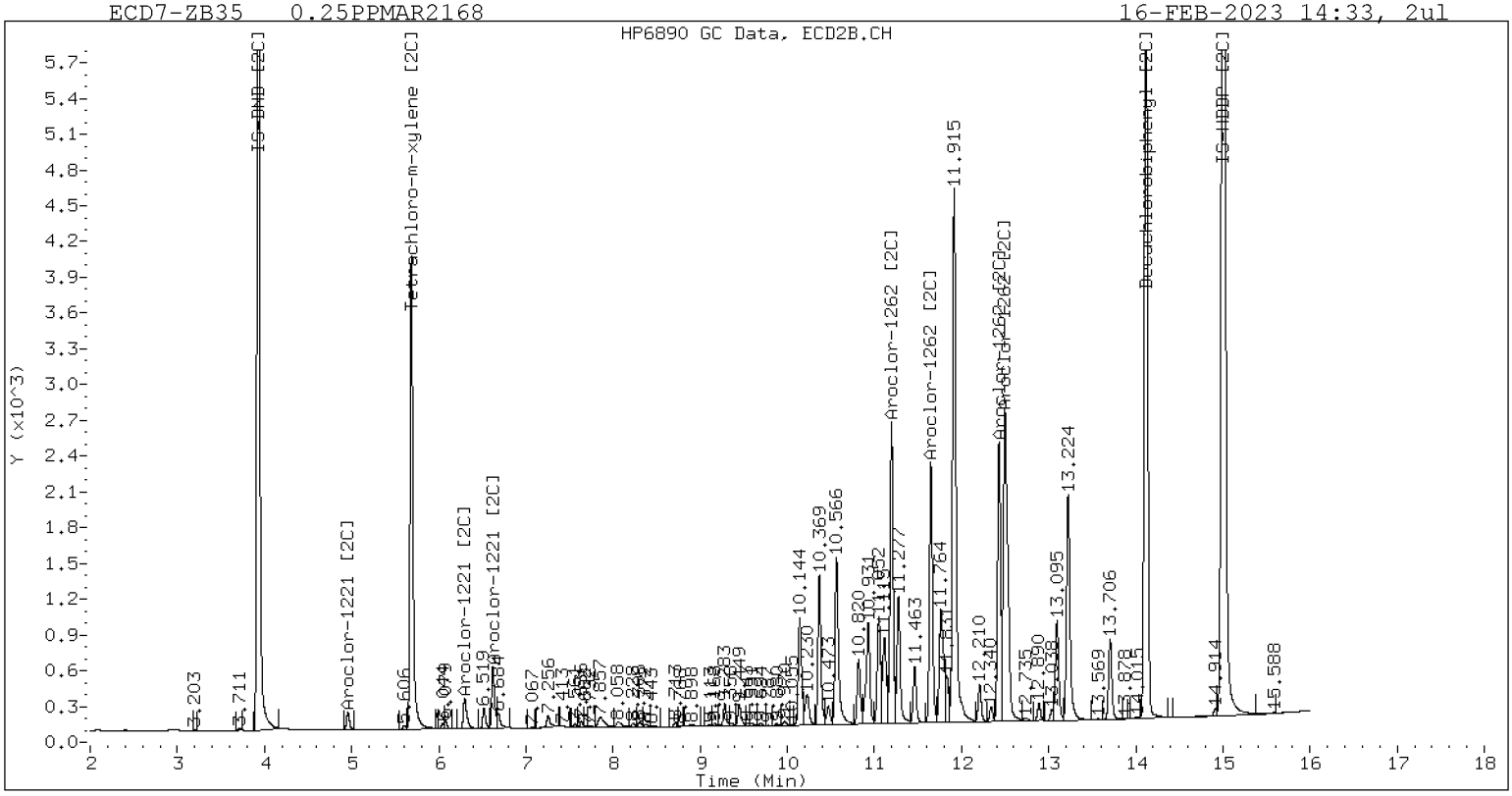
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162312ECD7.D
Data file 2: /230216.b/230216.b/02162312ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 16-FEB-2023 14:54
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	244394	5.686	0.000	193636	39.3	39.4	0.2	Tetrachloro-m-xylene
13.891	0.000	497881	14.118	0.000	532832	55.7	57.0	2.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	438085	-13.0
Hexabromobiphenyl	647433	1014892	56.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	364382	8.2
Hexabromobiphenyl	382032	669957	75.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.732	0.000	5253	250.0	1	4.958	0.000	4040	250.0
Aroclor-1232	2	6.133	0.000	11086	250.0	2	7.254	0.000	22642	250.0
Aroclor-1232	3	7.654	0.000	53251	250.0	3	7.855	0.000	45239	250.0
Aroclor-1232	4	8.579	0.000	22019	250.0	4	8.712	0.000	12663	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.243	0.000	318381	250.0	1	12.431	0.000	304552	250.0
Aroclor-1268	2	12.314	0.000	316432	250.0	2	12.498	0.000	320370	250.0
Aroclor-1268	3	12.697	0.000	268530	250.0	3	12.890	0.000	250965	250.0
Aroclor-1268	4	13.487	0.000	822664	250.0	4	13.707	0.000	877009	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 2577331 Col1 Total PCB = 0.5 ppm*

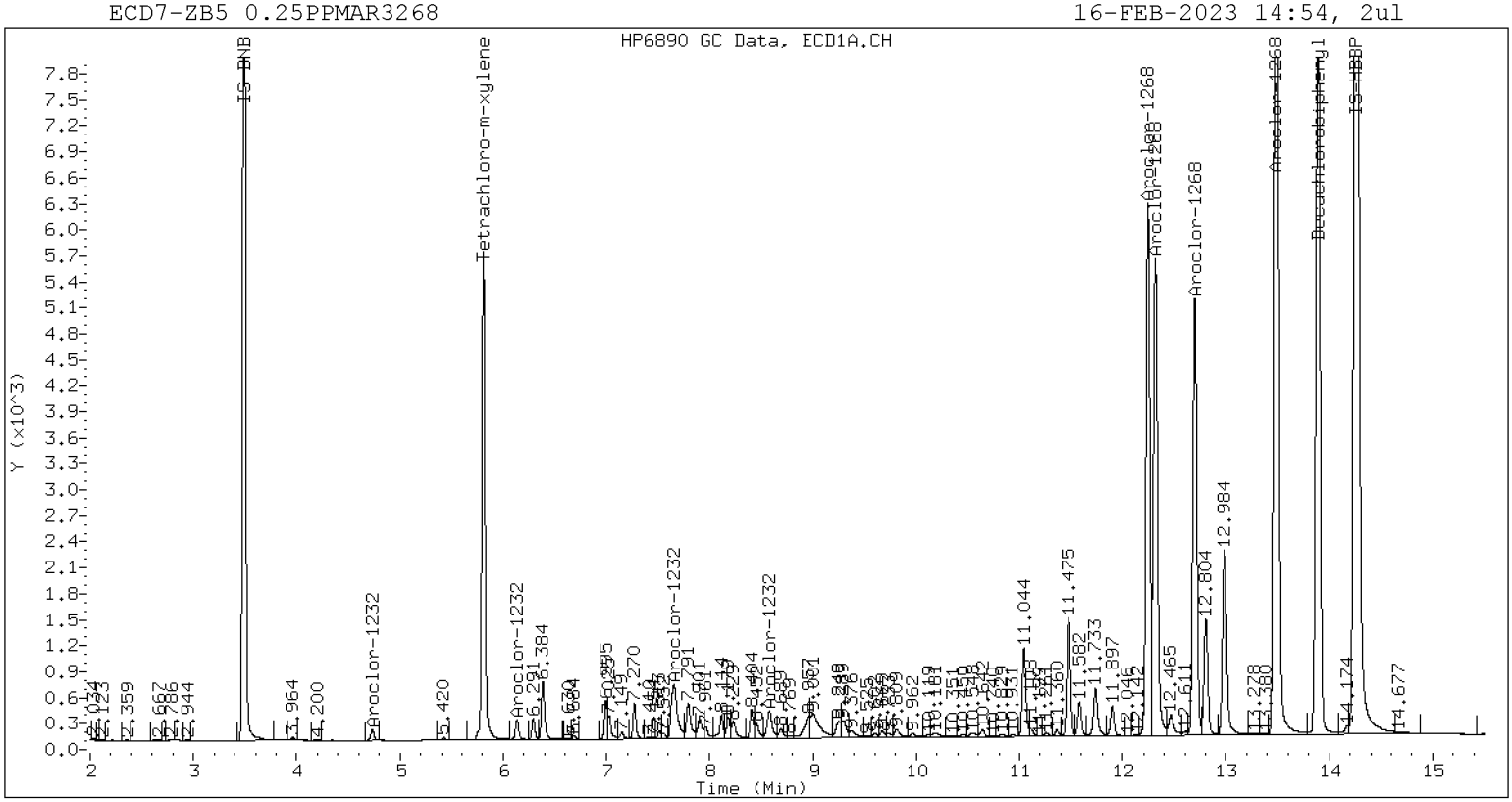
Total PCB Area Col2 (5.786 - 14.018) = 2462840 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

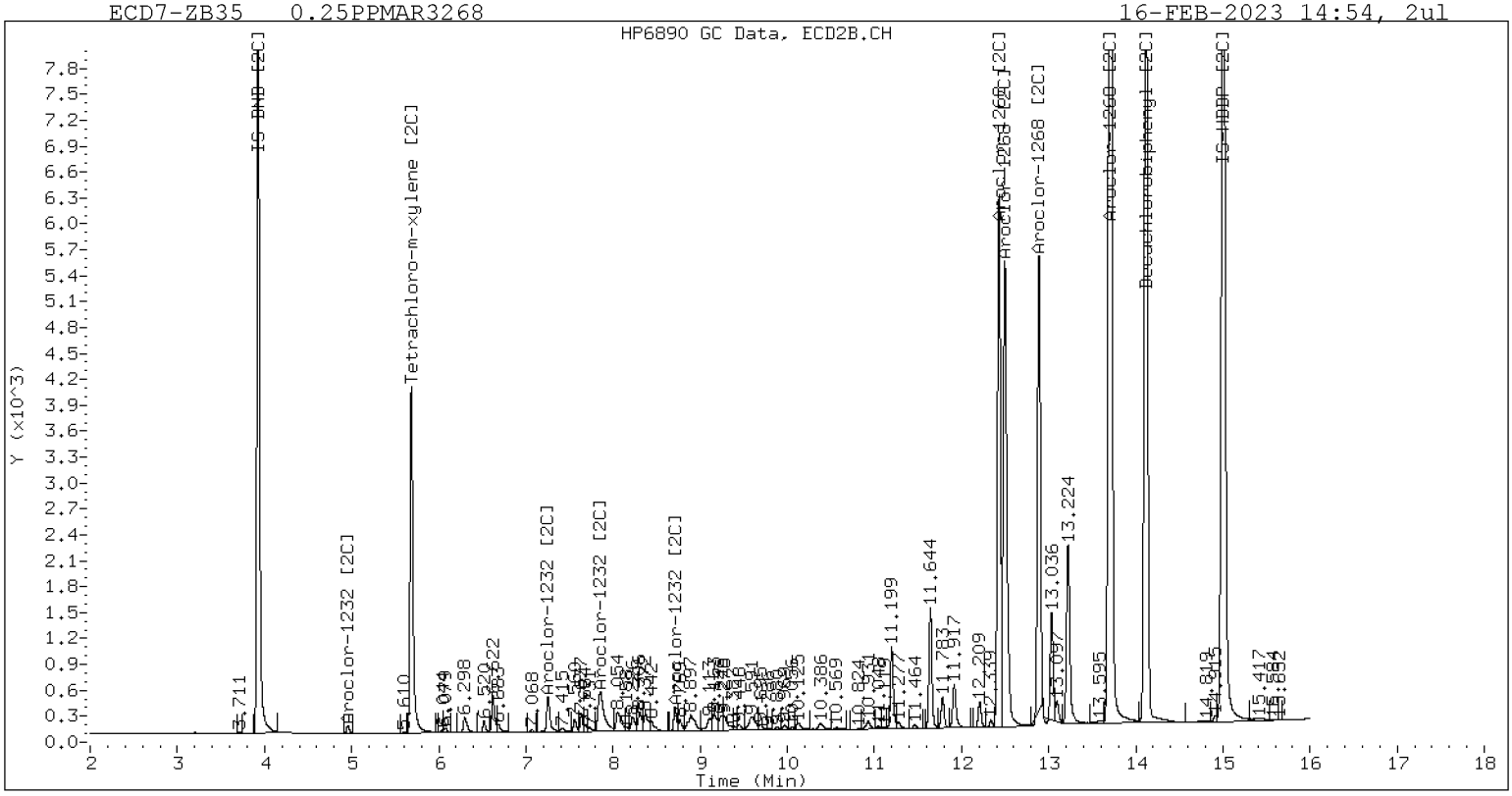
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162313ECD7.D
Data file 2: /230216.b/230216.b/02162313ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 16-FEB-2023 15:15
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	242919	5.685	-0.001	193061	37.3	37.2	0.3	Tetrachloro-m-xylene
13.891	-0.000	374845	14.118	0.000	388292	40.4	40.0	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	458820	-8.8
Hexabromobiphenyl	647433	1052678	62.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	384524	14.1
Hexabromobiphenyl	382032	695386	82.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.269	0.000	36442	218.1	1	7.253	-0.001	45357	215.3
Aroclor-1016	2	7.652	0.002	116510	217.8	2	7.853	0.002	99069	221.4
Aroclor-1016	3	7.789	0.002	51841	210.7	3	8.052	0.003	42476	230.8
Aroclor-1016	4	8.403	0.001	35760	220.8	4	8.305	0.001	32151	215.4
Total Col1Ave (4 peaks):					216.8	Total Col2Ave (4 peaks):				220.7 RPD = 2
Corrected Ave (3 peaks):					215.5	Corrected Ave (3 peaks):				217.4 RPD = 1
Aroclor-1221	1	4.732	0.000	272	7.6	1	---			0.0
Aroclor-1221	2	6.131	-0.002	4384	65.9	2	6.302	0.004	5219	85.0
Aroclor-1221	3	6.383	-0.000	24508	159.4	3	6.622	0.001	21028	204.6
Total Col1Ave (3 peaks):					77.7	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.732	0.000	272	12.4	1	---			0.0
Aroclor-1232	2	6.131	-0.002	4384	94.4	2	7.253	-0.001	45357	474.6
Aroclor-1232	3	7.652	-0.002	116510	522.3	3	7.853	-0.002	99069	518.8
Aroclor-1232	4	8.577	-0.002	49511	536.7	4	8.712	-0.001	31220	584.1
Total Col1Ave (4 peaks):					291.4	Total Col2Ave (3 peaks):				525.8 RPD = 57*
Corrected Ave (3 peaks):					209.7	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	36442	266.6	1	7.253	-0.001	45357	272.7
Aroclor-1242	2	7.652	0.000	116510	269.4	2	7.853	0.000	99069	274.9
Aroclor-1242	3	8.403	0.000	35760	273.6	3	9.113	-0.047	17818	156.4
Aroclor-1242	4	8.577	-0.000	49511	256.5	4	9.582	-0.005	1661	12.0
Total Col1Ave (4 peaks):					266.5	Total Col2Ave (4 peaks):				179.0 RPD = 39
Corrected Ave (3 peaks):					264.1	Corrected Ave (3 peaks):				147.1 RPD = 57*
Aroclor-1248	1	8.403	0.000	35760	161.6	1	8.305	-0.001	32151	185.3
Aroclor-1248	2	8.577	-0.000	49511	177.3	2	8.712	0.000	31220	171.1
Aroclor-1248	3	8.992	-0.004	46666	118.2	3	9.113	-0.046	17818	84.5
Aroclor-1248	4	9.299	0.007	30647	122.8	4	9.582	0.001	1661	6.5
Total Col1Ave (4 peaks):					145.0	Total Col2Ave (4 peaks):				111.8 RPD = 26
Corrected Ave (3 peaks):					134.2	Corrected Ave (3 peaks):				87.4 RPD = 42*
Aroclor-1254	1	9.299	0.004	30647	69.0	1	9.447	0.001	22012	81.2
Aroclor-1254	2	---			0.0	2	9.969	0.002	2772	12.7
Aroclor-1254	3	9.667	0.002	3608	12.7	3	10.144	0.025	57546	120.6
Aroclor-1254	4	9.805	0.002	12639	22.4	4	10.369	-0.002	77590	164.8
Aroclor-1254	5	10.117	-0.050	100524	292.6	5	10.566	-0.000	106735	448.8
Total Col1Ave (4 peaks):					99.2	Total Col2Ave (5 peaks):				165.6 RPD = 50*
Corrected Ave (3 peaks):					34.7	Corrected Ave (4 peaks):				94.8 RPD = 93*
Aroclor-1260	1	11.042	0.002	99629	274.5	1	11.651	0.001	89434	231.9
Aroclor-1260	2	11.359	0.002	100112	269.7	2	11.915	0.001	237947	245.3
Aroclor-1260	3	11.732	0.002	260880	265.3	3	12.433	0.001	63686	245.4
Aroclor-1260	4	12.137	0.003	124998	250.4	4	12.500	0.002	157792	242.5
Aroclor-1260	5	12.242	0.001	58944	275.3	NS	---			----
Total Col1Ave (5 peaks):					267.0	Total Col2Ave (4 peaks):				241.3 RPD = 10
Corrected Ave (4 peaks):					265.0	Corrected Ave (3 peaks):				239.9 RPD = 10
Aroclor-1262	1	10.824	-0.001	144319	469.2	1	11.197	-0.000	90434	174.0
Aroclor-1262	2	12.242	-0.000	58944	116.9	2	11.651	0.002	89434	199.3
Aroclor-1262	3	12.316	-0.001	73272	134.8	3	12.433	0.002	63686	130.4
Aroclor-1262	4	12.985	0.001	66451	141.3	4	12.500	-0.000	157792	203.0
Total Col1Ave (4 peaks):					215.5	Total Col2Ave (4 peaks):				176.7 RPD = 20
Corrected Ave (3 peaks):					131.0	Corrected Ave (3 peaks):				167.9 RPD = 25
Aroclor-1268	1	12.242	-0.001	58944	44.6	1	12.433	0.002	63686	50.4
Aroclor-1268	2	12.316	0.002	73272	55.8	2	12.500	0.002	157792	118.6
Aroclor-1268	3	12.722	0.025	29543	26.5	3	12.890	0.000	1866	1.8
Aroclor-1268	4	13.486	-0.001	13453	3.9	4	13.707	0.000	11995	3.3
Total Col1Ave (4 peaks):					32.7	Total Col2Ave (4 peaks):				43.5 RPD = 28
Corrected Ave (3 peaks):					25.0	Corrected Ave (3 peaks):				18.5 RPD = 30

Total PCB Area Col1 (5.908 - 13.791) = 2405704 Col1 Total PCB = 0.5 ppm*

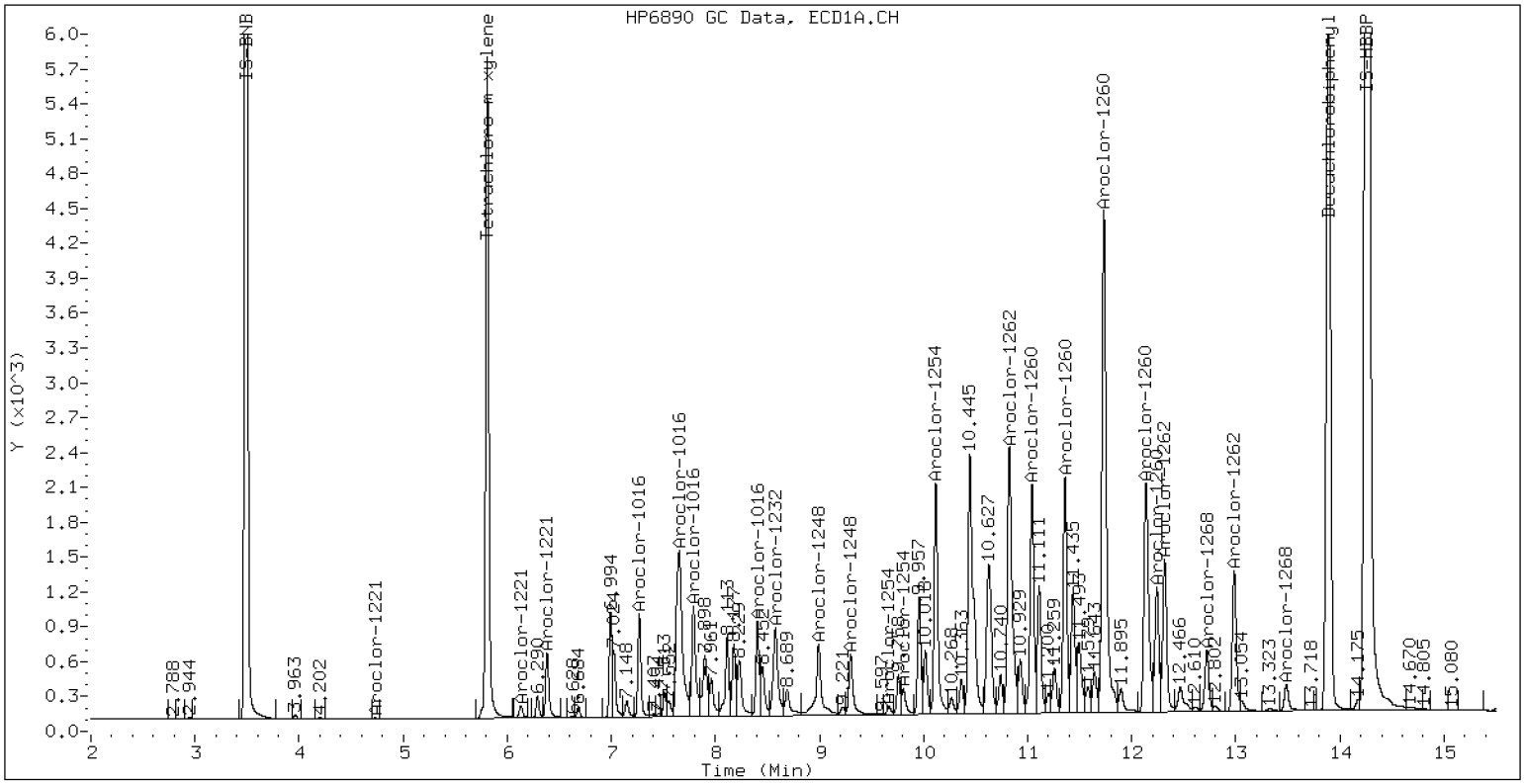
Total PCB Area Col2 (5.786 - 14.018) = 1998655 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

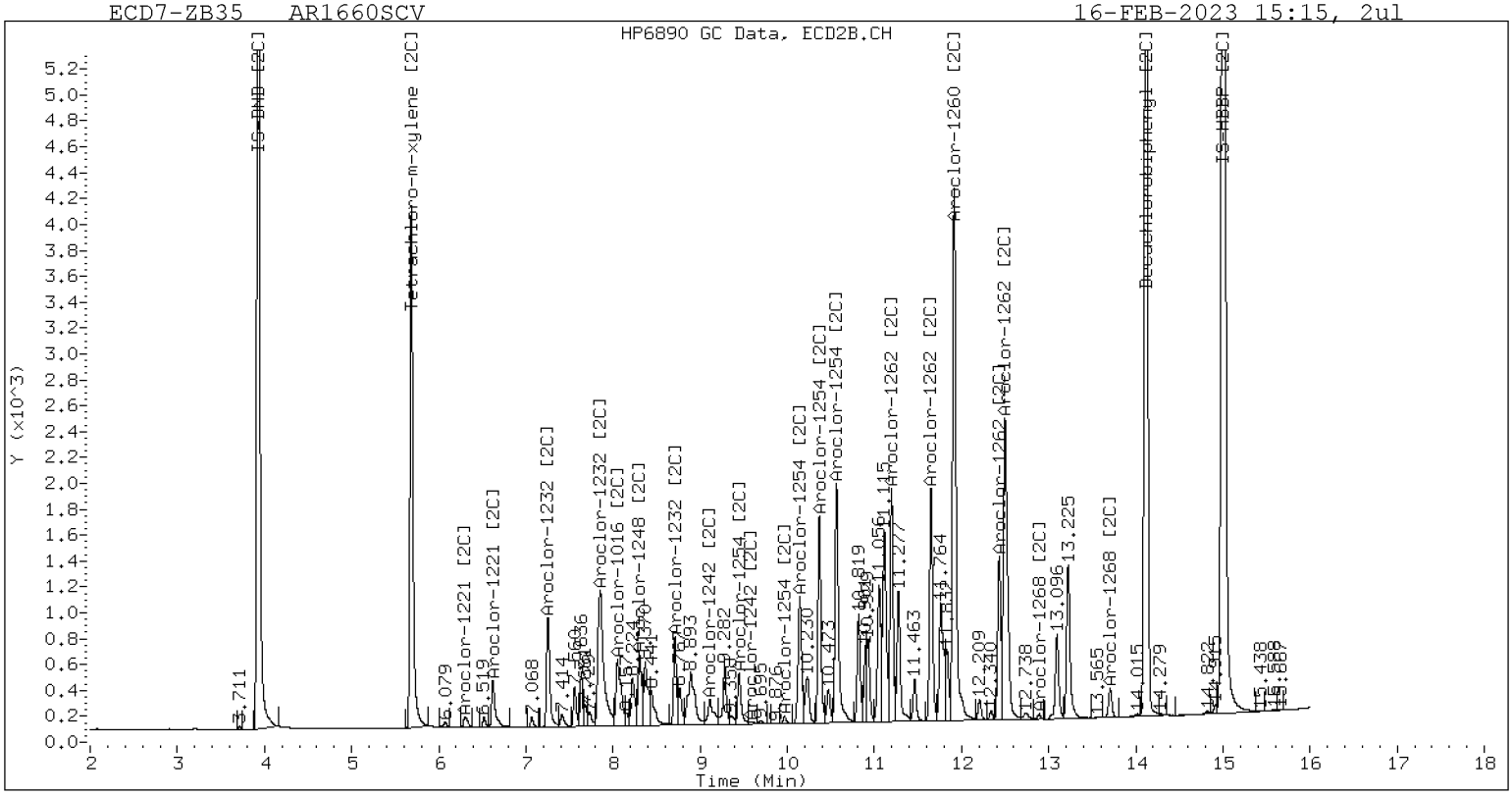
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162314ECD7.D
Data file 2: /230216.b/230216.b/02162314ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 16-FEB-2023 15:36
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	240392	5.686	0.000	191518	36.8	36.8	0.0	Tetrachloro-m-xylene
13.891	0.000	372444	14.118	-0.000	384306	40.3	39.9	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	460847	-8.4
Hexabromobiphenyl	647433	1048824	62.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	386112	14.6
Hexabromobiphenyl	382032	690141	80.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	26450	157.6	1	7.253	-0.001	35202	166.4
Aroclor-1016	2	7.651	0.001	91590	170.4	2	7.851	-0.000	76062	169.2
Aroclor-1016	3	7.789	0.002	38405	155.4	3	8.051	0.002	31745	171.8
Aroclor-1016	4	8.403	0.001	28918	177.8	4	8.304	0.000	24379	162.7
Total Col1Ave (4 peaks):					165.3	Total Col2Ave (4 peaks):				167.5 RPD = 1
Corrected Ave (3 peaks):					161.1	Corrected Ave (3 peaks):				166.1 RPD = 3
Aroclor-1221	1	4.736	0.004	158	4.4	1	---			0.0
Aroclor-1221	2	6.131	-0.002	3413	51.1	2	6.318	0.020	4305	69.9
Aroclor-1221	3	6.383	-0.000	18978	122.9	3	6.623	0.001	15561	150.8
Total Col1Ave (3 peaks):					59.5	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.736	0.004	158	7.1	1	---			0.0
Aroclor-1232	2	6.131	-0.002	3413	73.2	2	7.253	-0.001	35202	366.8
Aroclor-1232	3	7.651	-0.003	91590	408.8	3	7.851	-0.004	76062	396.7
Aroclor-1232	4	8.577	-0.002	48090	519.0	4	8.712	-0.001	24445	455.4
Total Col1Ave (4 peaks):					252.0	Total Col2Ave (3 peaks):				406.3 RPD = 47*
Corrected Ave (3 peaks):					163.0	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	26450	192.7	1	7.253	-0.000	35202	210.8
Aroclor-1242	2	7.651	-0.001	91590	210.8	2	7.851	-0.002	76062	210.2
Aroclor-1242	3	8.403	-0.000	28918	220.3	3	9.156	-0.004	26140	228.5
Aroclor-1242	4	8.577	-0.000	48090	248.0	4	9.580	-0.007	33659	242.7
Total Col1Ave (4 peaks):					217.9	Total Col2Ave (4 peaks):				223.1 RPD = 2
Corrected Ave (3 peaks):					207.9	Corrected Ave (3 peaks):				216.5 RPD = 4
Aroclor-1248	1	8.403	-0.000	28918	130.1	1	8.304	-0.001	24379	140.0
Aroclor-1248	2	8.577	-0.000	48090	171.5	2	8.712	0.000	24445	133.4
Aroclor-1248	3	8.997	0.001	47230	119.1	3	9.156	-0.003	26140	123.4
Aroclor-1248	4	9.292	0.001	23789	94.9	4	9.580	-0.001	33659	131.0
Total Col1Ave (4 peaks):					128.9	Total Col2Ave (4 peaks):				132.0 RPD = 2
Corrected Ave (3 peaks):					114.7	Corrected Ave (3 peaks):				129.3 RPD = 12
Aroclor-1254	1	9.292	-0.003	23789	53.3	1	9.446	-0.000	12605	46.3
Aroclor-1254	2	9.374	0.001	9634	54.9	2	9.967	-0.000	8527	38.8
Aroclor-1254	3	9.666	0.001	10685	37.6	3	10.119	-0.001	16959	35.4
Aroclor-1254	4	9.803	-0.000	18245	32.2	4	10.375	0.005	17612	37.3
Aroclor-1254	5	10.169	0.001	13394	38.8	5	10.568	0.003	5160	21.6
Total Col1Ave (5 peaks):					43.4	Total Col2Ave (5 peaks):				35.9 RPD = 19
Corrected Ave (4 peaks):					40.5	Corrected Ave (4 peaks):				33.3 RPD = 20
Aroclor-1260	1	11.043	0.002	200	0.6	1	11.659	0.009	1919	5.0
Aroclor-1260	2	11.361	0.004	305	0.8	2	11.922	0.007	1126	1.2
Aroclor-1260	3	11.735	0.004	595	0.6	3	12.438	0.006	127	0.5
Aroclor-1260	4	12.143	0.009	717	1.4	4	12.501	0.003	670	1.0
Aroclor-1260	5	12.318	0.078	265	1.2	NS	---			----
Total Col1Ave (5 peaks):					0.9	Total Col2Ave (4 peaks):				1.9 RPD = 70*
Corrected Ave (4 peaks):					0.8	Corrected Ave (3 peaks):				0.9 RPD = 11
Aroclor-1262	1	10.827	0.003	7919	25.8	1	11.117	-0.081	6747	13.1
Aroclor-1262	2	12.318	0.076	265	0.5	2	11.659	0.010	1919	4.3
Aroclor-1262	3	---			0.0	3	12.438	0.007	127	0.3
Aroclor-1262	4	13.032	0.048	704	1.5	4	12.501	0.001	670	0.9
Total Col1Ave (3 peaks):					9.3	Total Col2Ave (4 peaks):				4.6 RPD = 67*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				1.8
Aroclor-1268	1	12.318	0.075	265	0.2	1	12.438	0.007	127	0.1
Aroclor-1268	2	---			0.0	2	12.501	0.003	670	0.5
Aroclor-1268	3	12.613	-0.084	2956	2.7	3	---			0.0
Aroclor-1268	4	13.493	0.006	820	0.2	4	13.707	0.000	334	0.1
Total Col1Ave (3 peaks):					1.0	Total Col2Ave (3 peaks):				0.2 RPD = 126*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 754431 Col1 Total PCB = 0.1 ppm*

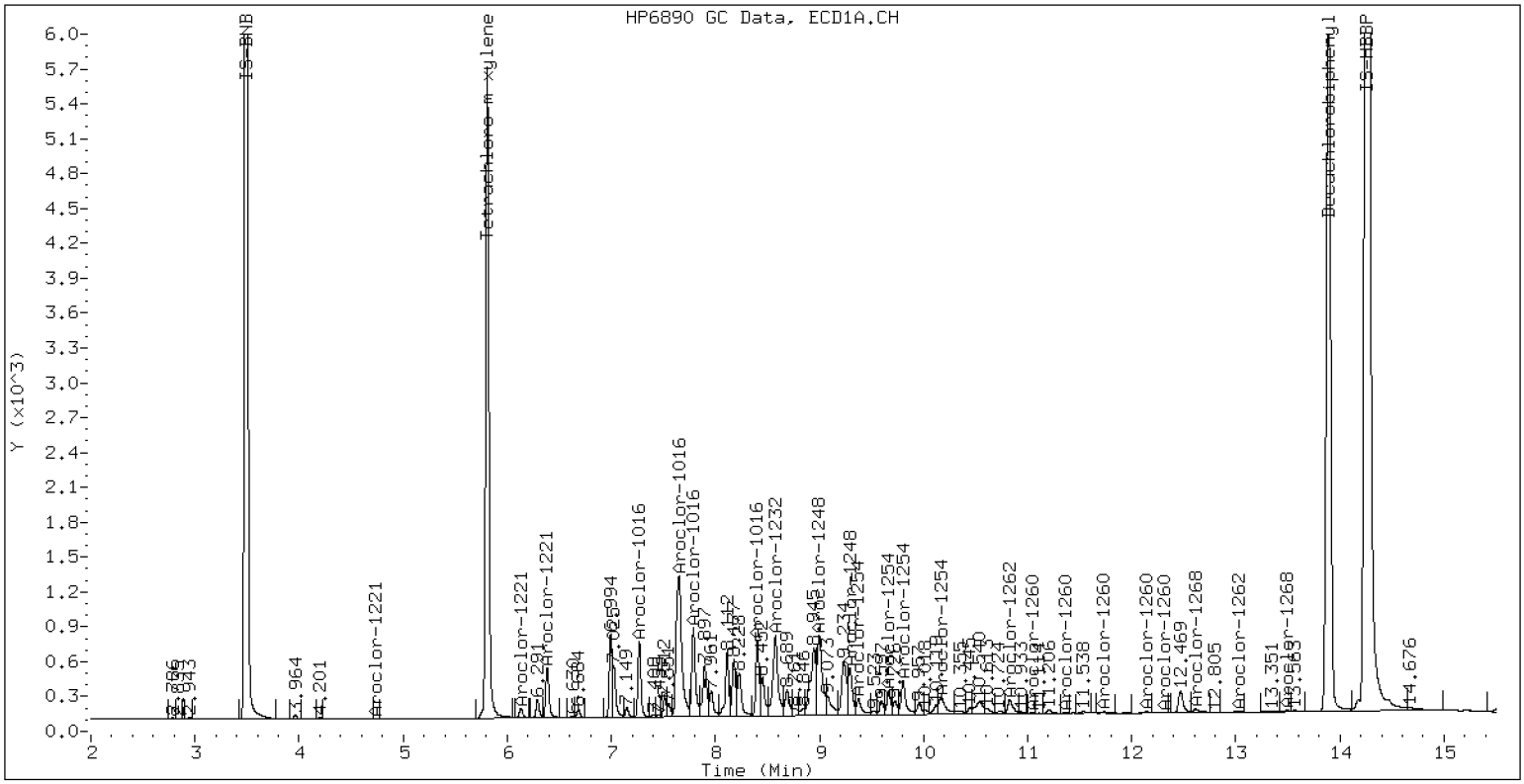
Total PCB Area Col2 (5.786 - 14.018) = 609458 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

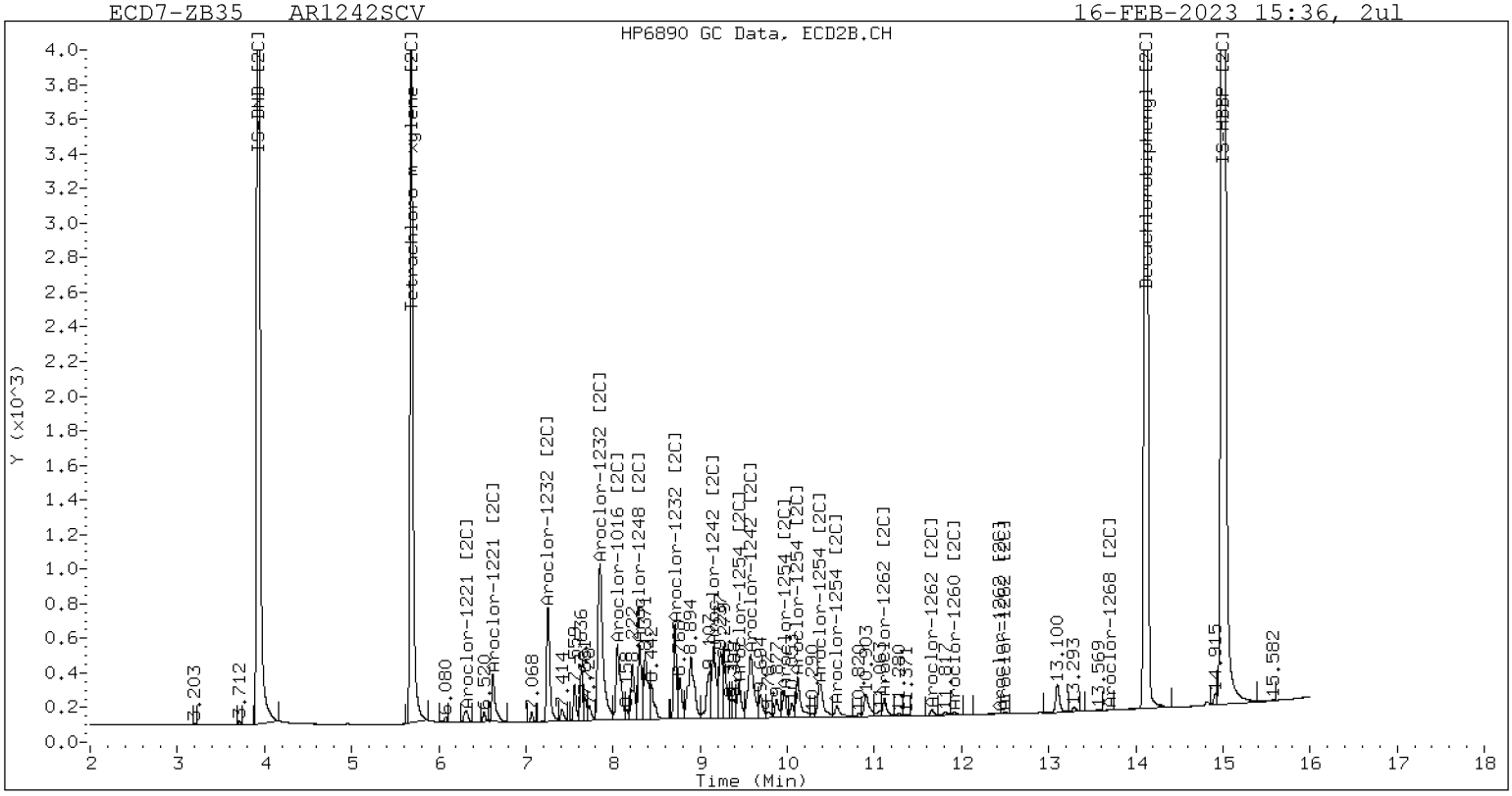
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162315ECD7.D
Data file 2: /230216.b/230216.b/02162315ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 16-FEB-2023 15:57
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235232	5.686	0.000	187353	36.5	36.5	0.1	Tetrachloro-m-xylene
13.891	0.000	371896	14.118	0.000	374279	41.4	40.1	3.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	454293	-9.7
Hexabromobiphenyl	647433	1020262	57.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	380923	13.1
Hexabromobiphenyl	382032	669927	75.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	12869	77.8	1	7.252	-0.002	17659	84.6
Aroclor-1016	2	7.649	-0.001	59048	111.5	2	7.852	0.001	49924	112.6
Aroclor-1016	3	7.791	0.004	23385	96.0	3	8.054	0.004	9755	53.5
Aroclor-1016	4	8.403	0.001	51659	322.2	4	8.305	0.001	40334	272.8
Total Col1Ave (4 peaks):					151.9	Total Col2Ave (4 peaks):				130.9 RPD = 15
Corrected Ave (3 peaks):					95.1	Corrected Ave (3 peaks):				83.6 RPD = 13
Aroclor-1221	1	4.639	-0.093	125	3.5	1	---			0.0
Aroclor-1221	2	6.133	-0.000	396	6.0	2	6.324	0.026	2135	35.1
Aroclor-1221	3	6.384	0.001	2262	14.9	3	6.626	0.005	1703	16.7
Total Col1Ave (3 peaks):					8.1	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.639	-0.093	125	5.7	1	---			0.0
Aroclor-1232	2	6.133	0.000	396	8.6	2	7.252	-0.003	17659	186.5
Aroclor-1232	3	7.649	-0.005	59048	267.3	3	7.852	-0.003	49924	263.9
Aroclor-1232	4	8.577	-0.002	65165	713.5	4	8.712	-0.000	42481	802.3
Total Col1Ave (4 peaks):					248.8	Total Col2Ave (3 peaks):				417.6 RPD = 51*
Corrected Ave (3 peaks):					93.9	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	12869	95.1	1	7.252	-0.002	17659	107.2
Aroclor-1242	2	7.649	-0.003	59048	137.9	2	7.852	-0.000	49924	139.9
Aroclor-1242	3	8.403	0.000	51659	399.2	3	9.160	0.001	49159	435.7
Aroclor-1242	4	8.577	-0.000	65165	340.9	4	9.582	-0.005	57018	416.7
Total Col1Ave (4 peaks):					243.3	Total Col2Ave (4 peaks):				274.8 RPD = 12
Corrected Ave (3 peaks):					191.3	Corrected Ave (3 peaks):				221.2 RPD = 15
Aroclor-1248	1	8.403	0.000	51659	235.8	1	8.305	-0.000	40334	234.7
Aroclor-1248	2	8.577	-0.000	65165	235.7	2	8.712	0.000	42481	235.0
Aroclor-1248	3	8.997	0.001	90358	231.2	3	9.160	0.002	49159	235.3
Aroclor-1248	4	9.292	0.000	60263	243.8	4	9.582	0.001	57018	225.0
Total Col1Ave (4 peaks):					236.6	Total Col2Ave (4 peaks):				232.5 RPD = 2
Corrected Ave (3 peaks):					234.2	Corrected Ave (3 peaks):				231.6 RPD = 1
Aroclor-1254	1	9.292	-0.003	60263	137.1	1	9.447	0.001	22366	83.3
Aroclor-1254	2	9.373	-0.000	30778	177.8	2	9.968	0.001	20179	93.0
Aroclor-1254	3	9.666	0.001	25929	92.5	3	10.121	0.001	37594	79.6
Aroclor-1254	4	9.806	0.003	44678	80.1	4	10.384	0.014	37032	79.4
Aroclor-1254	5	10.177	0.010	31103	91.4	5	10.571	0.005	8221	34.9
Total Col1Ave (5 peaks):					115.8	Total Col2Ave (5 peaks):				74.0 RPD = 44*
Corrected Ave (4 peaks):					100.3	Corrected Ave (4 peaks):				69.3 RPD = 37
Aroclor-1260	1	11.045	0.004	1084	3.1	1	11.659	0.009	1947	5.2
Aroclor-1260	2	11.359	0.002	556	1.5	2	11.920	0.006	1354	1.4
Aroclor-1260	3	11.734	0.003	872	0.9	3	12.426	-0.006	2386	9.5
Aroclor-1260	4	12.143	0.009	431	0.9	4	12.501	0.004	1186	1.9
Aroclor-1260	5	12.243	0.003	275	1.3	NS	---			----
Total Col1Ave (5 peaks):					1.6	Total Col2Ave (4 peaks):				4.5 RPD = 98*
Corrected Ave (4 peaks):					1.2	Corrected Ave (3 peaks):				2.9 RPD = 84*
Aroclor-1262	1	10.828	0.003	9454	31.7	1	11.119	-0.079	7326	14.6
Aroclor-1262	2	12.243	0.001	275	0.6	2	11.659	0.010	1947	4.5
Aroclor-1262	3	12.321	0.005	357	0.7	3	12.426	-0.005	2386	5.1
Aroclor-1262	4	12.984	-0.001	1676	3.7	4	12.501	0.002	1186	1.6
Total Col1Ave (4 peaks):					9.2	Total Col2Ave (4 peaks):				6.4 RPD = 35
Corrected Ave (3 peaks):					1.6	Corrected Ave (3 peaks):				3.7 RPD = 78*
Aroclor-1268	1	12.243	0.000	275	0.2	1	12.426	-0.004	2386	2.0
Aroclor-1268	2	12.321	0.007	357	0.3	2	12.501	0.004	1186	0.9
Aroclor-1268	3	12.614	-0.084	992	0.9	3	12.898	0.008	102	0.1
Aroclor-1268	4	13.493	0.006	969	0.3	4	13.674	-0.032	1135	0.3
Total Col1Ave (4 peaks):					0.4	Total Col2Ave (4 peaks):				0.8 RPD = 64*
Corrected Ave (3 peaks):					0.3	Corrected Ave (3 peaks):				0.5 RPD = 53*

Total PCB Area Col1 (5.908 - 13.791) = 1015830 Col1 Total PCB = 0.2 ppm*

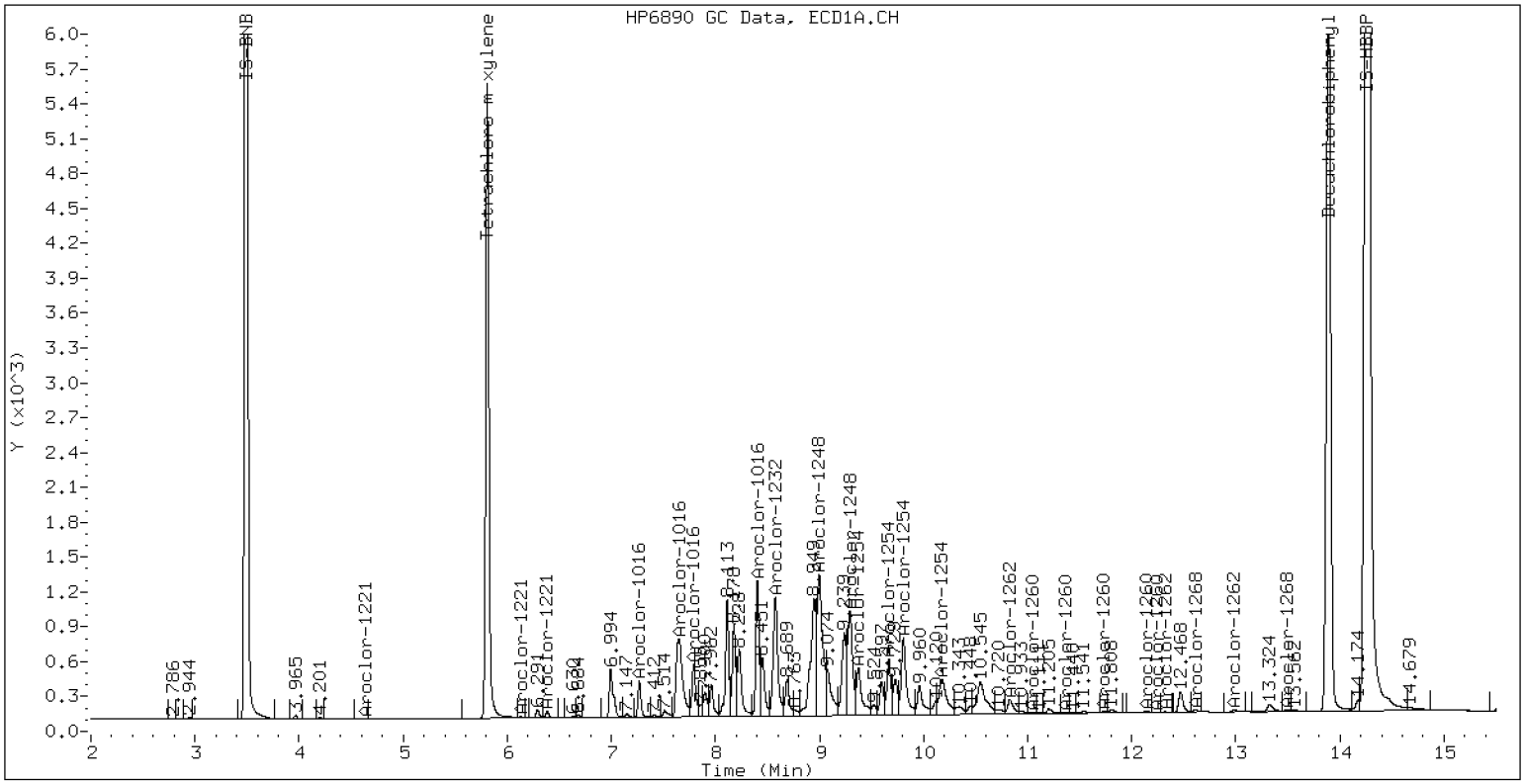
Total PCB Area Col2 (5.786 - 14.018) = 794946 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

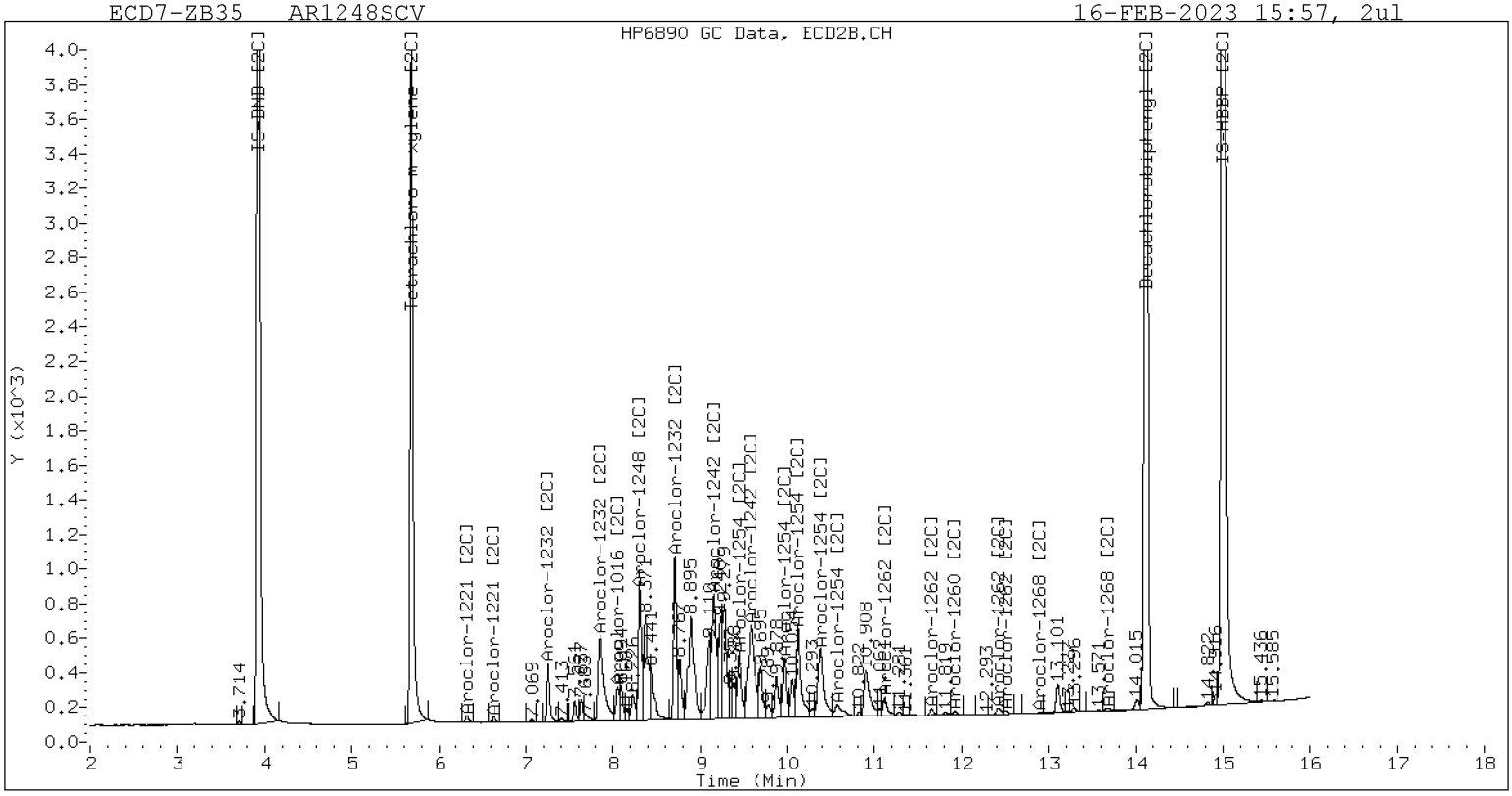
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 16-FEB-2023 15:57, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248SCV 16-FEB-2023 15:57, 2ul

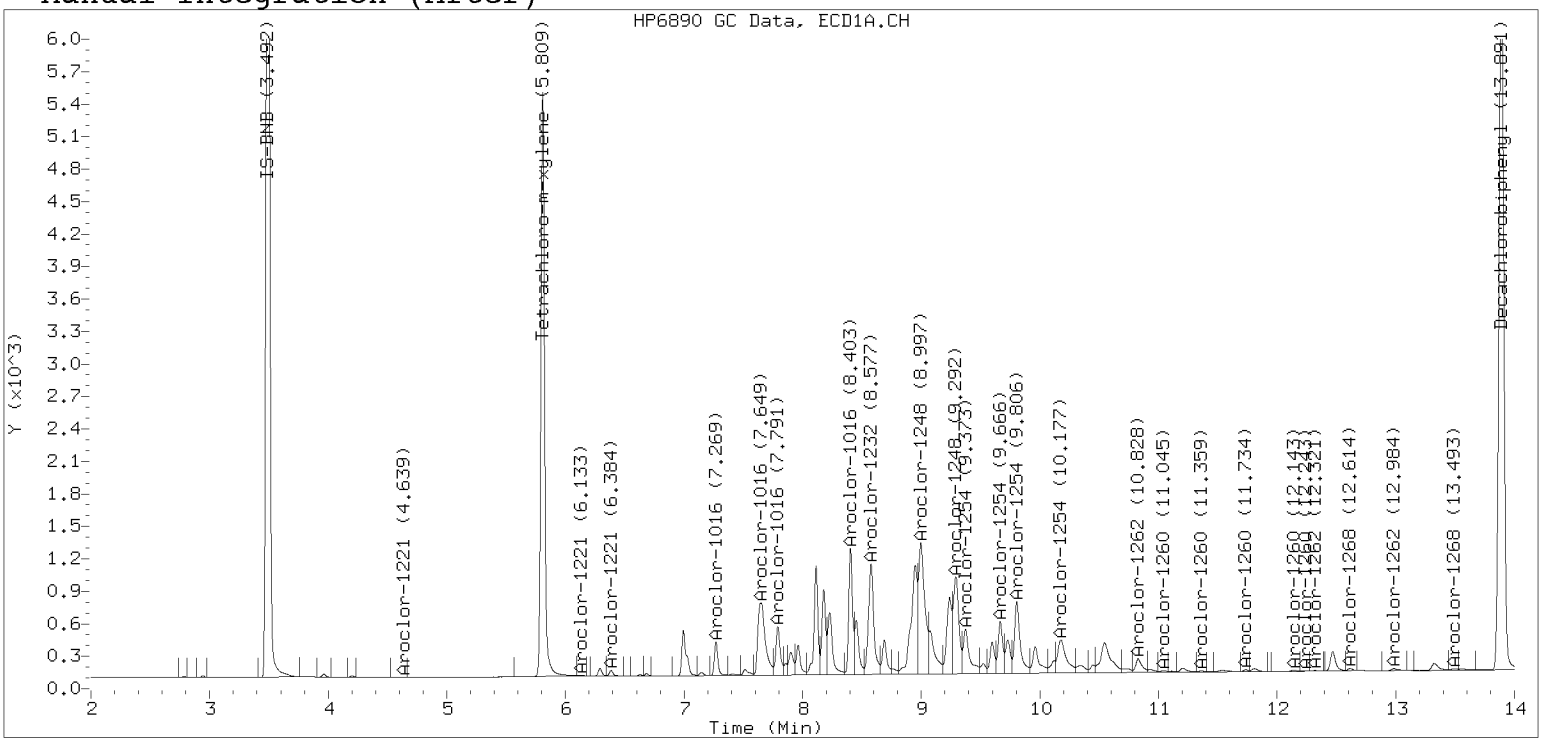


ZB-35 Manual Integration: NO

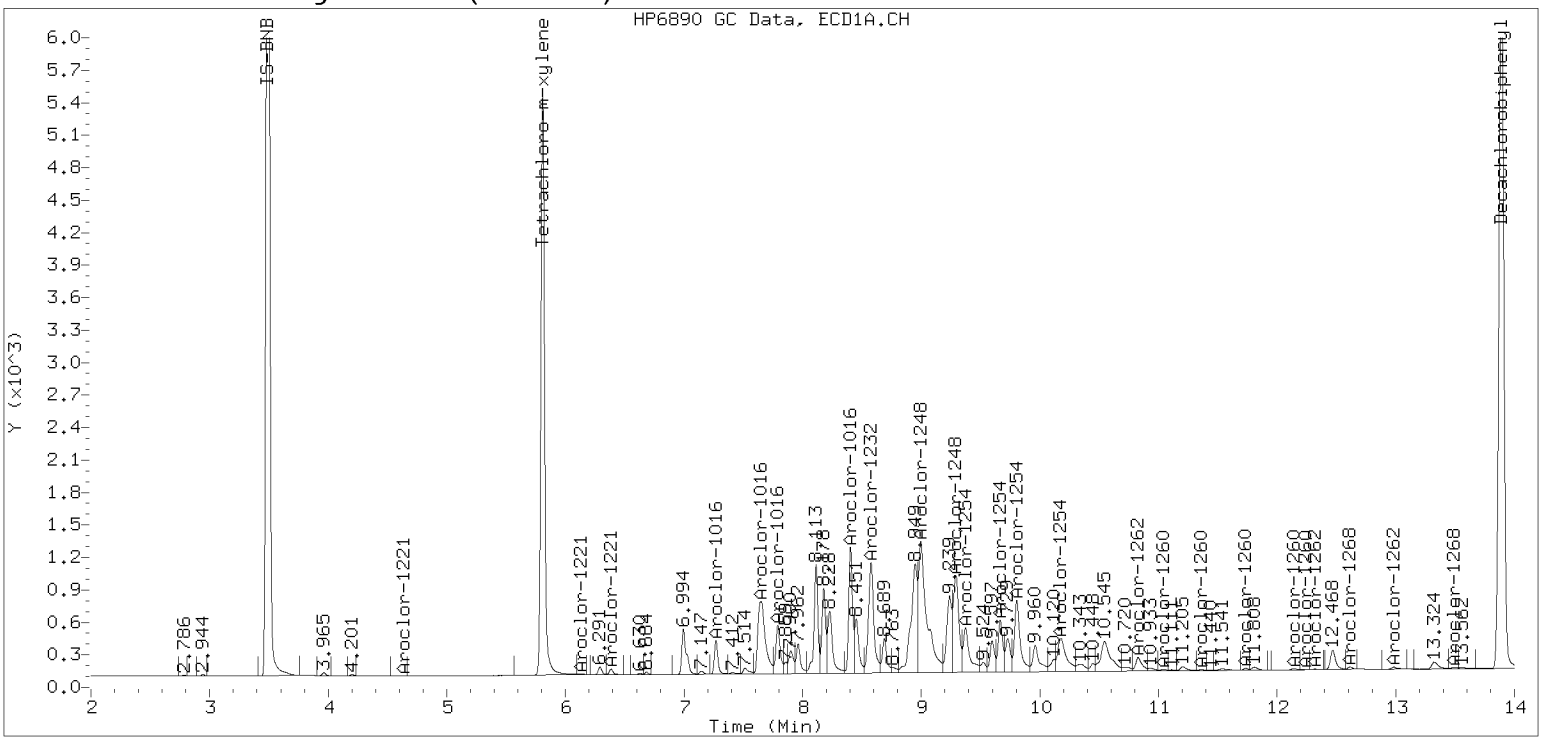
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230216.b/02162315ECD7.D Injection Date: 16-FEB-2023 15:57

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162316ECD7.D
Data file 2: /230216.b/230216.b/02162316ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 16-FEB-2023 16:18
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	242127	5.685	-0.000	193580	36.7	37.0	0.9	Tetrachloro-m-xylene
13.890	-0.001	377360	14.118	0.000	394229	40.3	40.4	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	465227	-7.6
Hexabromobiphenyl	647433	1063495	64.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	387434	15.0
Hexabromobiphenyl	382032	700154	83.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	281	1.7	1	7.256	0.002	379	1.8
Aroclor-1016	2	7.655	0.005	996	1.8	2	---			0.0
Aroclor-1016	3	7.792	0.005	684	2.7	3	8.097	0.048	526	2.8
Aroclor-1016	4	8.404	0.002	18193	110.8	4	8.305	0.001	23002	153.0
Total Col1Ave (4 peaks):		29.3			Total Col2Ave (3 peaks):		52.5	RPD = 57*		
Corrected Ave (3 peaks):		2.1			Corrected Ave: < 3 Peaks					
Aroclor-1221	1	---		0.0	1	---				0.0
Aroclor-1221	2	---		0.0	2	6.323	0.026	2104		34.0
Aroclor-1221	3	---		0.0	3	6.632	0.010	433		4.2
Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks					
Aroclor-1232	1	---		0.0	1	---				0.0
Aroclor-1232	2	---		0.0	2	7.256	0.001	379		3.9
Aroclor-1232	3	7.655	0.001	996	4.4	3	---			0.0
Aroclor-1232	4	8.580	0.002	7144	76.4	4	8.714	0.001	15174	281.7
Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks					
Aroclor-1242	1	7.270	0.001	281	2.0	1	7.256	0.002	379	2.3
Aroclor-1242	2	7.655	0.003	996	2.3	2	---			0.0
Aroclor-1242	3	8.404	0.001	18193	137.3	3	9.163	0.004	23373	203.7
Aroclor-1242	4	8.580	0.003	7144	36.5	4	9.541	-0.046	35054	251.9
Total Col1Ave (4 peaks):		44.5			Total Col2Ave (3 peaks):		152.6	RPD = 110*		
Corrected Ave (3 peaks):		13.6			Corrected Ave: < 3 Peaks					
Aroclor-1248	1	8.404	0.001	18193	81.1	1	8.305	-0.000	23002	131.6
Aroclor-1248	2	8.580	0.003	7144	25.2	2	8.714	0.002	15174	82.5
Aroclor-1248	3	8.992	-0.004	93928	234.7	3	9.163	0.005	23373	110.0
Aroclor-1248	4	9.296	0.004	99099	391.5	4	9.541	-0.040	35054	136.0
Total Col1Ave (4 peaks):		183.1			Total Col2Ave (4 peaks):		115.0	RPD = 46*		
Corrected Ave (3 peaks):		113.7			Corrected Ave (3 peaks):		108.0	RPD = 5		
Aroclor-1254	1	9.296	0.001	99099	220.1	1	9.447	0.001	61772	226.1
Aroclor-1254	2	9.374	0.001	43324	244.4	2	9.966	-0.001	49637	225.0
Aroclor-1254	3	9.666	0.001	63930	222.8	3	10.119	-0.000	106246	221.1
Aroclor-1254	4	9.803	0.000	123663	216.5	4	10.369	-0.001	107021	225.7
Aroclor-1254	5	10.171	0.004	76902	220.7	5	10.565	-0.000	55207	230.4
Total Col1Ave (5 peaks):		224.9			Total Col2Ave (5 peaks):		225.6	RPD = 0		
Corrected Ave (4 peaks):		220.0			Corrected Ave (4 peaks):		224.5	RPD = 2		
Aroclor-1260	1	11.041	0.000	8242	22.5	1	11.657	0.007	30319	78.1
Aroclor-1260	2	11.360	0.003	8312	22.2	2	11.918	0.004	22042	22.6
Aroclor-1260	3	11.734	0.003	19109	19.2	3	12.445	0.012	1692	6.5
Aroclor-1260	4	12.137	0.002	15342	30.4	4	12.500	0.002	12899	19.7
Aroclor-1260	5	12.238	-0.002	582	2.7	NS	---			----
Total Col1Ave (5 peaks):		19.4			Total Col2Ave (4 peaks):		31.7	RPD = 48*		
Corrected Ave (4 peaks):		16.6			Corrected Ave (3 peaks):		16.2	RPD = 2		
Aroclor-1262	1	10.824	-0.000	138302	445.0	1	11.278	0.081	13621	26.0
Aroclor-1262	2	12.238	-0.004	582	1.1	2	11.657	0.008	30319	67.1
Aroclor-1262	3	12.316	-0.001	714	1.3	3	12.445	0.013	1692	3.4
Aroclor-1262	4	12.988	0.003	961	2.0	4	12.500	0.000	12899	16.5
Total Col1Ave (4 peaks):		112.4			Total Col2Ave (4 peaks):		28.3	RPD = 120*		
Corrected Ave (3 peaks):		1.5			Corrected Ave (3 peaks):		15.3	RPD = 165*		
Aroclor-1268	1	12.238	-0.005	582	0.4	1	12.445	0.014	1692	1.3
Aroclor-1268	2	12.316	0.002	714	0.5	2	12.500	0.002	12899	9.6
Aroclor-1268	3	12.719	0.022	539	0.5	3	12.892	0.002	76	0.1
Aroclor-1268	4	13.497	0.010	695	0.2	4	13.700	-0.007	290	0.1
Total Col1Ave (4 peaks):		0.4			Total Col2Ave (4 peaks):		2.8	RPD = 148*		
Corrected Ave (3 peaks):		0.4			Corrected Ave (3 peaks):		0.5	RPD = 28		

Total PCB Area Col1 (5.908 - 13.791) = 1311525 Col1 Total PCB = 0.2 ppm*

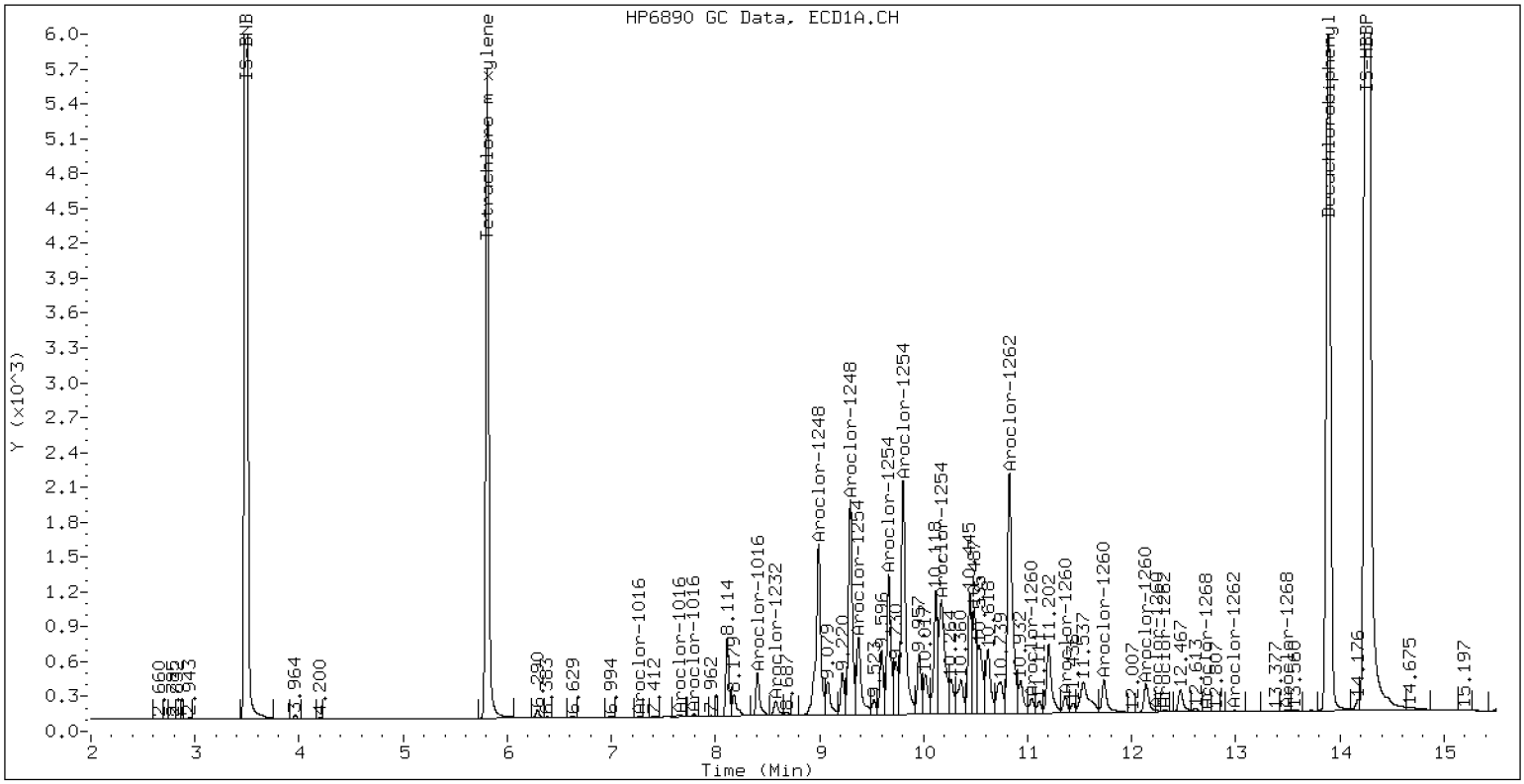
Total PCB Area Col2 (5.786 - 14.018) = 1040357 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

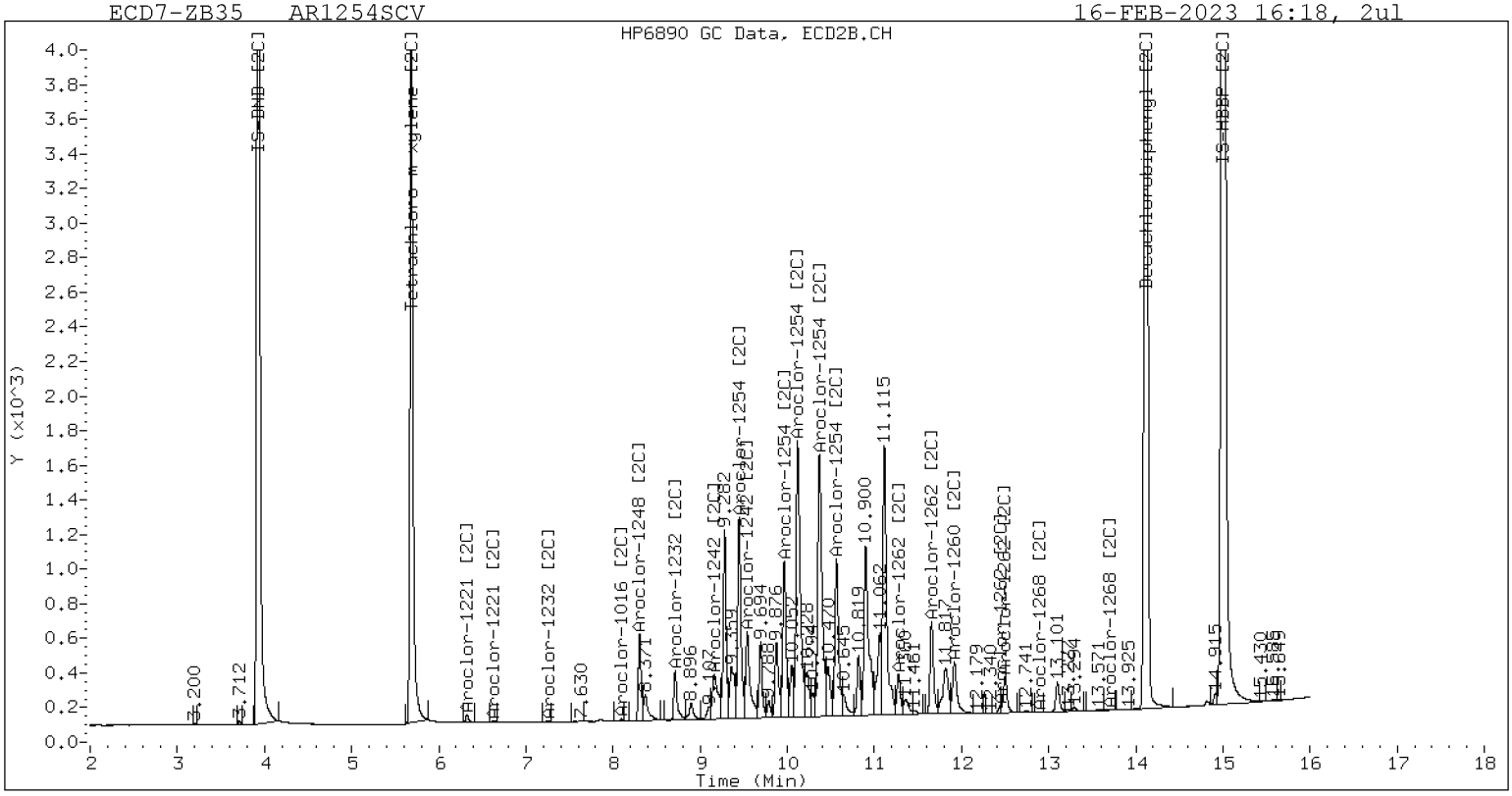
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162317ECD7.D
Data file 2: /230216.b/230216.b/02162317ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 16-FEB-2023 16:39
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	245197	5.686	-0.000	191474	37.2	37.2	0.0	Tetrachloro-m-xylene
13.890	-0.001	375224	14.118	0.000	392997	40.4	40.5	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	464367	-7.7
Hexabromobiphenyl	647433	1054321	62.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	381247	13.2
Hexabromobiphenyl	382032	695925	82.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	4790	28.3	1	7.255	0.001	5664	27.1
Aroclor-1016	2	7.656	0.006	10623	19.6	2	7.858	0.007	8417	19.0
Aroclor-1016	3	7.793	0.006	5360	21.5	3	8.058	0.009	4104	22.5
Aroclor-1016	4	8.405	0.003	2485	15.2	4	8.306	0.002	3192	21.6
Total Col1Ave (4 peaks):					21.2	Total Col2Ave (4 peaks):				22.5 RPD = 6
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				21.0 RPD = 11
Aroclor-1221	1	4.733	0.000	9001	249.5	1	4.958	0.000	7198	254.0
Aroclor-1221	2	6.133	-0.000	16485	245.0	2	6.297	-0.001	14187	233.2
Aroclor-1221	3	6.383	-0.000	37665	242.0	3	6.621	-0.000	23991	235.4
Total Col1Ave (3 peaks):					245.5	Total Col2Ave (3 peaks):				240.8 RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.733	0.001	9001	404.1	1	4.958	-0.000	7198	425.7
Aroclor-1232	2	6.133	-0.000	16485	350.7	2	7.255	0.001	5664	59.8
Aroclor-1232	3	7.656	0.002	10623	47.0	3	7.858	0.003	8417	44.5
Aroclor-1232	4	8.581	0.002	2585	27.7	4	8.714	0.001	2167	40.9
Total Col1Ave (4 peaks):					207.4	Total Col2Ave (4 peaks):				142.7 RPD = 37
Corrected Ave (3 peaks):					141.8	Corrected Ave (3 peaks):				48.4 RPD = 98*
Aroclor-1242	1	7.270	0.001	4790	34.6	1	7.255	0.001	5664	34.3
Aroclor-1242	2	7.656	0.004	10623	24.3	2	7.858	0.005	8417	23.6
Aroclor-1242	3	8.405	0.002	2485	18.8	3	9.168	0.009	2109	18.7
Aroclor-1242	4	8.581	0.003	2585	13.2	4	9.541	-0.046	4209	30.7
Total Col1Ave (4 peaks):					22.7	Total Col2Ave (4 peaks):				26.8 RPD = 17
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				24.3 RPD = 26
Aroclor-1248	1	8.405	0.002	2485	11.1	1	8.306	0.001	3192	18.6
Aroclor-1248	2	8.581	0.003	2585	9.1	2	8.714	0.002	2167	12.0
Aroclor-1248	3	8.992	-0.004	27170	68.0	3	9.168	0.010	2109	10.1
Aroclor-1248	4	9.299	0.007	25808	102.2	4	9.541	-0.040	4209	16.6
Total Col1Ave (4 peaks):					47.6	Total Col2Ave (4 peaks):				14.3 RPD = 108*
Corrected Ave (3 peaks):					29.4	Corrected Ave (3 peaks):				12.9 RPD = 78*
Aroclor-1254	1	9.299	0.004	25808	57.4	1	9.448	0.001	19163	71.3
Aroclor-1254	2	9.371	-0.003	3696	20.9	2	9.969	0.002	3305	15.2
Aroclor-1254	3	9.667	0.002	4053	14.2	3	10.144	0.024	96736	204.5
Aroclor-1254	4	9.803	0.000	10960	19.2	4	10.368	-0.002	117175	251.1
Aroclor-1254	5	10.117	-0.050	153073	440.2	5	10.565	-0.001	154306	654.4
Total Col1Ave (5 peaks):					110.4	Total Col2Ave (5 peaks):				239.3 RPD = 74*
Corrected Ave (4 peaks):					27.9	Corrected Ave (4 peaks):				135.5 RPD = 132*
Aroclor-1260	1	11.041	0.001	267479	735.9	1	11.649	-0.001	203895	528.3
Aroclor-1260	2	11.358	0.000	225792	607.2	2	11.914	-0.000	486211	500.8
Aroclor-1260	3	11.730	-0.000	549436	558.0	3	12.431	-0.001	236526	910.9
Aroclor-1260	4	12.135	0.001	182085	364.2	4	12.499	0.001	362057	555.9
Aroclor-1260	5	12.241	0.000	234096	1091.8	NS	---			----
Total Col1Ave (5 peaks):					671.4	Total Col2Ave (4 peaks):				624.0 RPD = 7
Corrected Ave (4 peaks):					566.3	Corrected Ave (3 peaks):				528.4 RPD = 7
Aroclor-1262	1	10.823	-0.002	146525	475.6	1	11.197	-0.001	236244	454.2
Aroclor-1262	2	12.241	-0.001	234096	463.6	2	11.649	0.001	203895	454.1
Aroclor-1262	3	12.314	-0.002	250166	459.4	3	12.431	-0.000	236526	483.8
Aroclor-1262	4	12.984	-0.000	210767	447.6	4	12.499	-0.001	362057	465.4
Total Col1Ave (4 peaks):					461.6	Total Col2Ave (4 peaks):				464.4 RPD = 1
Corrected Ave (3 peaks):					456.9	Corrected Ave (3 peaks):				457.9 RPD = 0
Aroclor-1268	1	12.241	-0.002	234096	176.9	1	12.431	0.000	236526	186.9
Aroclor-1268	2	12.314	0.000	250166	190.3	2	12.499	0.001	362057	272.0
Aroclor-1268	3	12.719	0.022	91155	81.7	3	12.889	-0.001	11970	11.5
Aroclor-1268	4	13.485	-0.002	72883	21.3	4	13.706	-0.001	72588	19.9
Total Col1Ave (4 peaks):					117.6	Total Col2Ave (4 peaks):				122.6 RPD = 4

Corrected Ave (3 peaks): 93.3 Corrected Ave (3 peaks): 72.8 RPD = 25

Total PCB Area Col1 (5.908 - 13.791) = 3768590 Col1 Total PCB = 0.7 ppm*

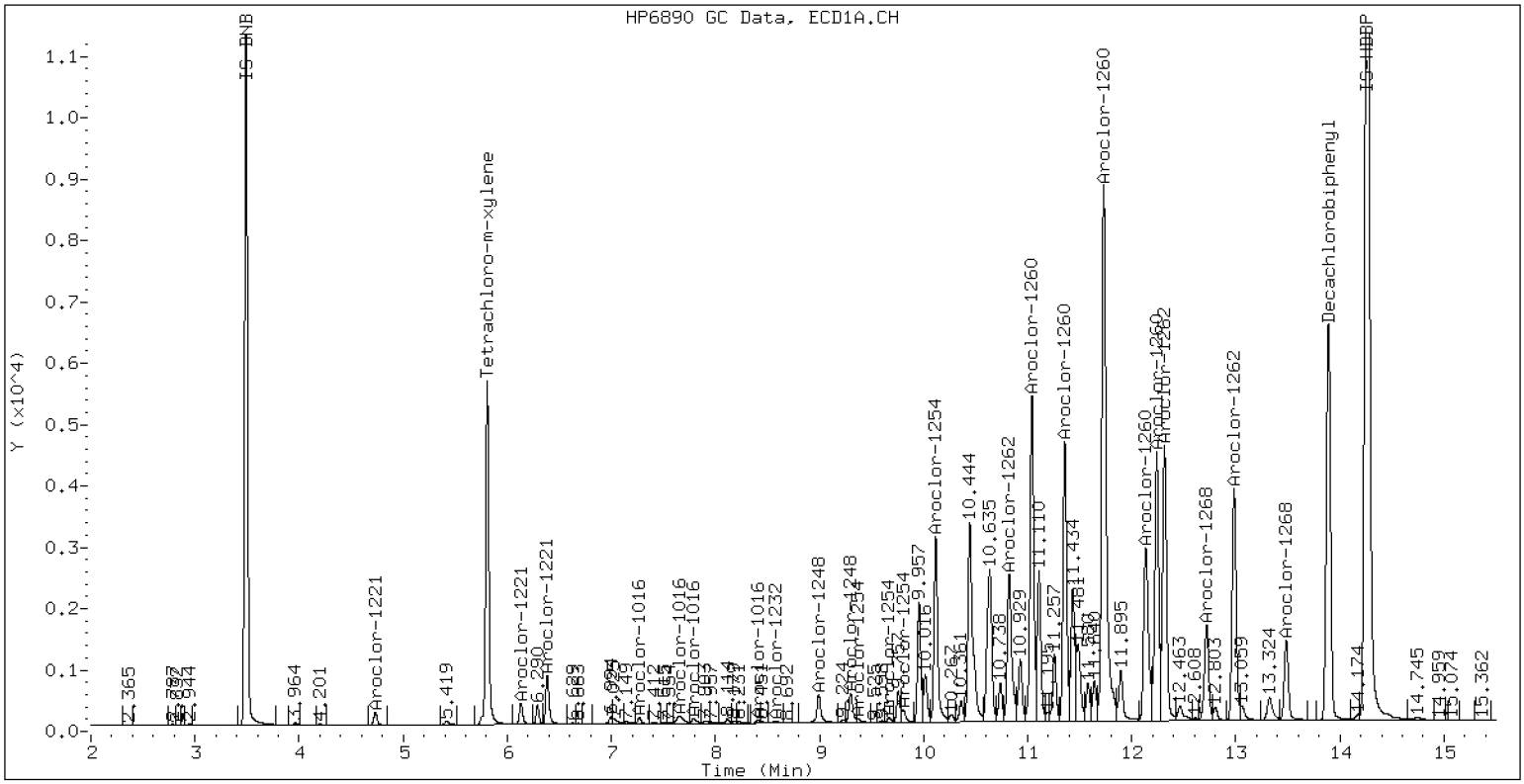
Total PCB Area Col2 (5.786 - 14.018) = 3174752 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

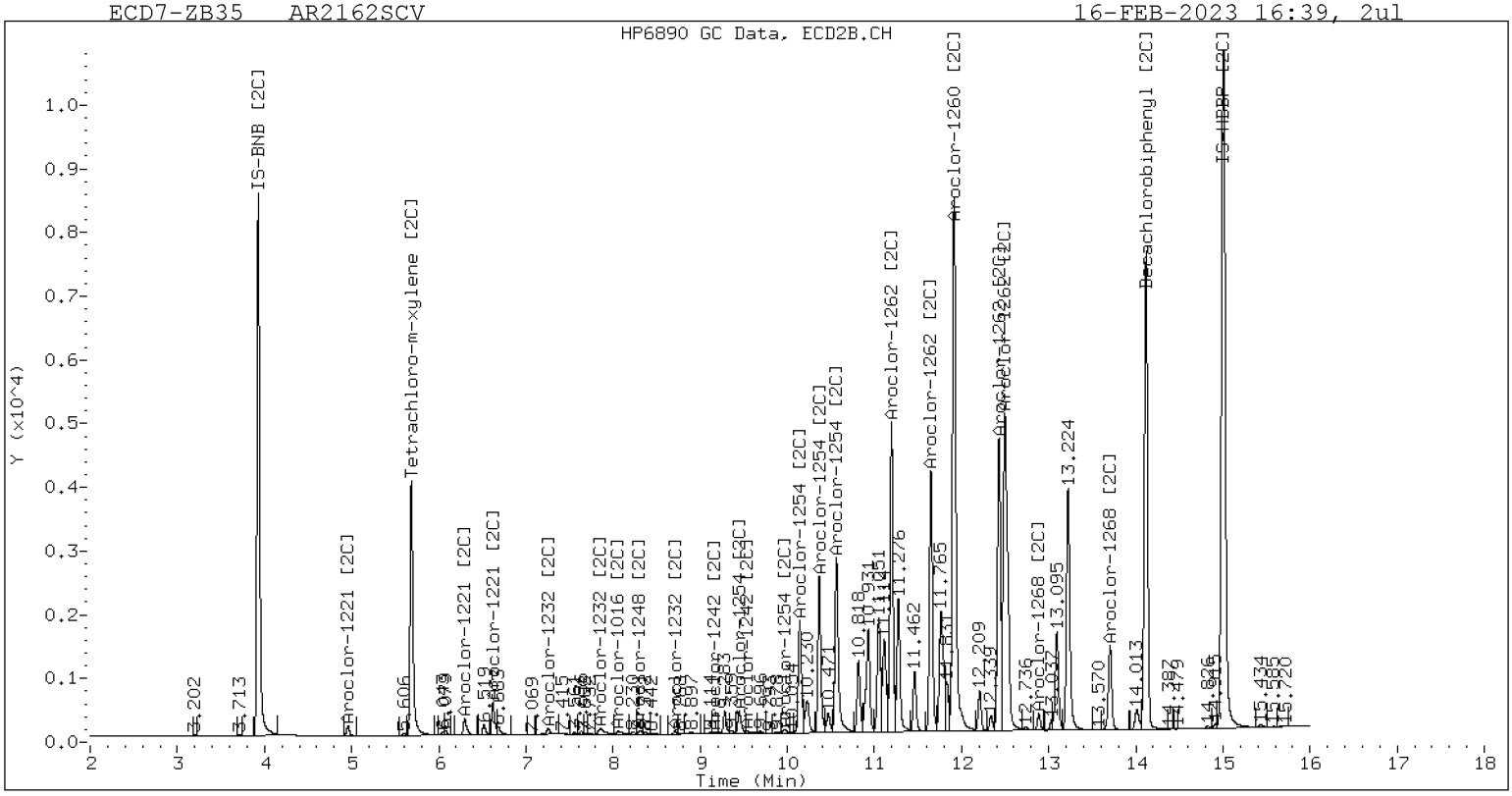
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162318ECD7.D
Data file 2: /230216.b/230216.b/02162318ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 16-FEB-2023 17:00
Report Date: 02/17/2023 08:59
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	232649	5.686	0.000	184511	35.5	35.9	1.3	Tetrachloro-m-xylene
13.892	0.001	534256	14.118	0.000	561270	58.0	58.0	0.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	503318	462340	-8.1
Hexabromobiphenyl	647433	1046529	61.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	336911	380640	13.0
Hexabromobiphenyl	382032	694272	81.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	17406	103.4	1	7.255	0.001	21798	104.5
Aroclor-1016	2	7.654	0.004	51620	95.7	2	7.856	0.005	43831	98.9
Aroclor-1016	3	7.791	0.004	24787	100.0	3	8.054	0.005	19284	105.9
Aroclor-1016	4	8.404	0.002	15491	94.9	4	8.306	0.002	13712	92.8
Total Col1Ave (4 peaks):		98.5				Total Col2Ave (4 peaks):		100.5	RPD = 2	
Corrected Ave (3 peaks):		96.9				Corrected Ave (3 peaks):		98.8	RPD = 2	
Aroclor-1221	1	4.732	-0.000	4903	136.5	1	4.959	0.001	3678	130.0
Aroclor-1221	2	6.133	-0.000	8309	124.0	2	6.298	0.001	8756	144.1
Aroclor-1221	3	6.383	-0.000	26751	172.7	3	6.622	0.001	18239	179.3
Total Col1Ave (3 peaks):		144.4				Total Col2Ave (3 peaks):		151.1	RPD = 5	
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.732	0.000	4903	221.1	1	4.959	0.000	3678	217.9
Aroclor-1232	2	6.133	-0.000	8309	177.5	2	7.255	0.000	21798	230.4
Aroclor-1232	3	7.654	-0.000	51620	229.6	3	7.856	0.001	43831	231.9
Aroclor-1232	4	8.579	0.000	21552	231.9	4	8.712	-0.000	12876	243.3
Total Col1Ave (4 peaks):		215.0				Total Col2Ave (4 peaks):		230.9	RPD = 7	
Corrected Ave (3 peaks):		209.4				Corrected Ave (3 peaks):		226.7	RPD = 8	
Aroclor-1242	1	7.269	0.000	17406	126.4	1	7.255	0.001	21798	132.4
Aroclor-1242	2	7.654	0.002	51620	118.4	2	7.856	0.004	43831	122.9
Aroclor-1242	3	8.404	0.001	15491	117.6	3	9.165	0.005	12931	114.7
Aroclor-1242	4	8.579	0.002	21552	110.8	4	9.594	0.007	15412	112.7
Total Col1Ave (4 peaks):		118.3				Total Col2Ave (4 peaks):		120.7	RPD = 2	
Corrected Ave (3 peaks):		115.6				Corrected Ave (3 peaks):		116.8	RPD = 1	
Aroclor-1248	1	8.404	0.001	15491	69.5	1	8.306	0.001	13712	79.9
Aroclor-1248	2	8.579	0.002	21552	76.6	2	8.712	0.001	12876	71.3
Aroclor-1248	3	9.000	0.004	33860	85.1	3	9.165	0.007	12931	61.9
Aroclor-1248	4	9.290	-0.001	24418	97.1	4	9.594	0.012	15412	60.9
Total Col1Ave (4 peaks):		82.1				Total Col2Ave (4 peaks):		68.5	RPD = 18	
Corrected Ave (3 peaks):		77.1				Corrected Ave (3 peaks):		64.7	RPD = 17	
Aroclor-1254	1	9.290	-0.005	24418	54.6	1	9.448	0.001	4331	16.1
Aroclor-1254	2	9.376	0.002	6352	36.1	2	9.971	0.003	2773	12.8
Aroclor-1254	3	9.670	0.005	3662	12.8	3	10.125	0.006	5733	12.1
Aroclor-1254	4	9.810	0.007	5791	10.2	4	10.384	0.014	5128	11.0
Aroclor-1254	5	10.182	0.014	3705	10.7	5	10.569	0.004	1684	7.2
Total Col1Ave (5 peaks):		24.9				Total Col2Ave (5 peaks):		11.8	RPD = 71*	
Corrected Ave (4 peaks):		17.5				Corrected Ave (4 peaks):		10.8	RPD = 47*	
Aroclor-1260	1	11.044	0.003	48916	135.6	1	11.643	-0.006	62935	163.5
Aroclor-1260	2	11.360	0.003	3252	8.8	2	11.917	0.002	28103	29.0
Aroclor-1260	3	11.734	0.004	29505	30.2	3	12.431	-0.001	298982	1154.1
Aroclor-1260	4	12.140	0.005	787	1.6	4	12.498	-0.000	314634	484.3
Aroclor-1260	5	12.242	0.002	307715	1445.8	NS	---			----
Total Col1Ave (5 peaks):		324.4				Total Col2Ave (4 peaks):		457.7	RPD = 34	
Corrected Ave (4 peaks):		44.0				Corrected Ave (3 peaks):		225.6	RPD = 135*	
Aroclor-1262	1	10.828	0.003	1495	4.9	1	11.199	0.001	44764	86.3
Aroclor-1262	2	12.242	0.000	307715	613.9	2	11.643	-0.005	62935	140.5
Aroclor-1262	3	12.314	-0.002	306654	567.3	3	12.431	0.000	298982	613.0
Aroclor-1262	4	12.985	0.001	125311	268.1	4	12.498	-0.002	314634	405.4
Total Col1Ave (4 peaks):		363.6				Total Col2Ave (4 peaks):		311.3	RPD = 15	
Corrected Ave (3 peaks):		280.1				Corrected Ave (3 peaks):		210.7	RPD = 28	
Aroclor-1268	1	12.242	-0.000	307715	234.3	1	12.431	0.001	298982	236.8
Aroclor-1268	2	12.314	0.000	306654	235.0	2	12.498	-0.000	314634	236.9
Aroclor-1268	3	12.698	0.000	256747	231.8	3	12.891	0.001	246279	236.7
Aroclor-1268	4	13.487	-0.000	801249	236.1	4	13.707	0.001	846369	232.8
Total Col1Ave (4 peaks):		234.3				Total Col2Ave (4 peaks):		235.8	RPD = 1	

Corrected Ave (3 peaks): 233.7 Corrected Ave (3 peaks): 235.5 RPD = 1

Total PCB Area Col1 (5.908 - 13.791) = 2519204 Col1 Total PCB = 0.5 ppm*

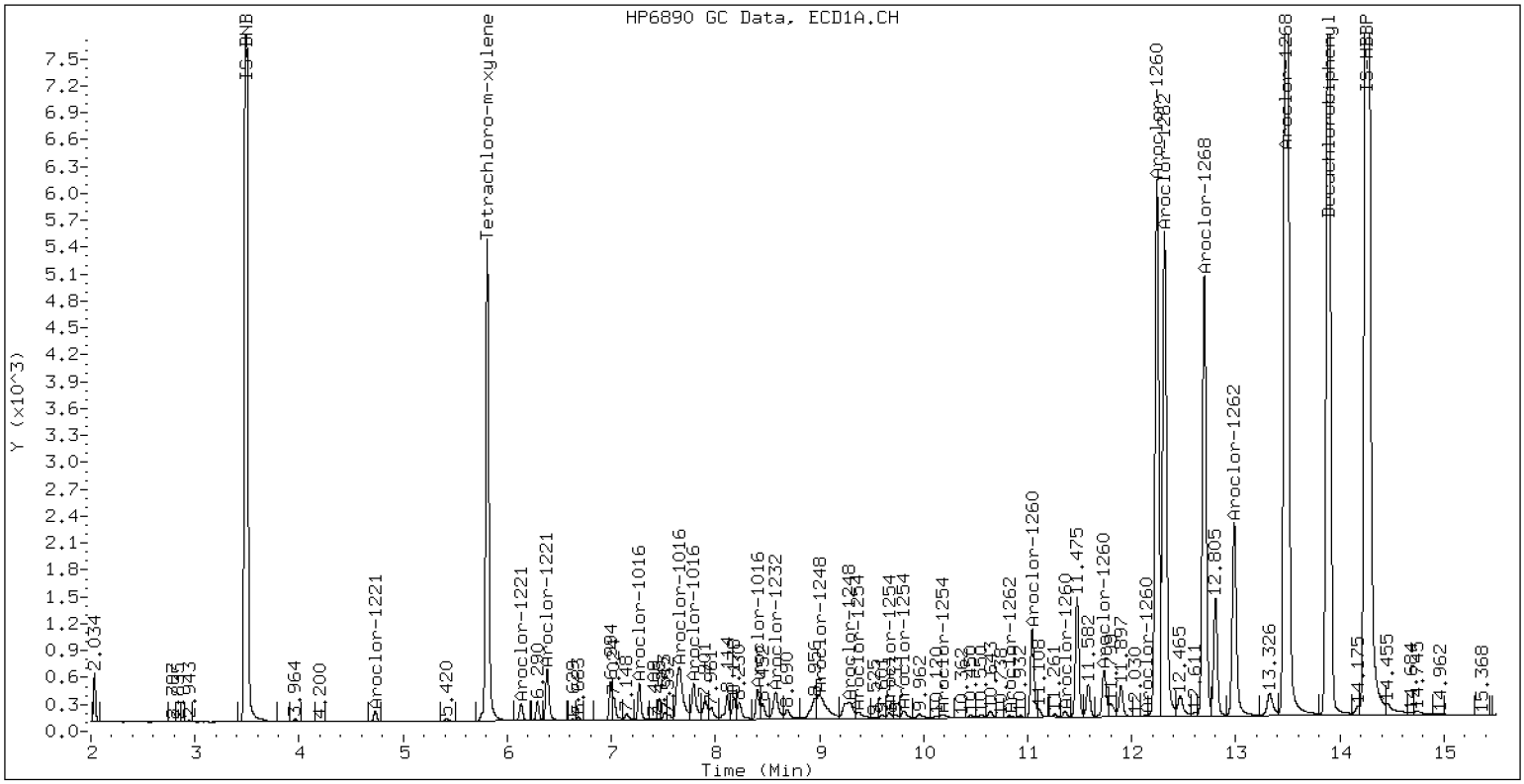
Total PCB Area Col2 (5.786 - 14.018) = 2392191 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

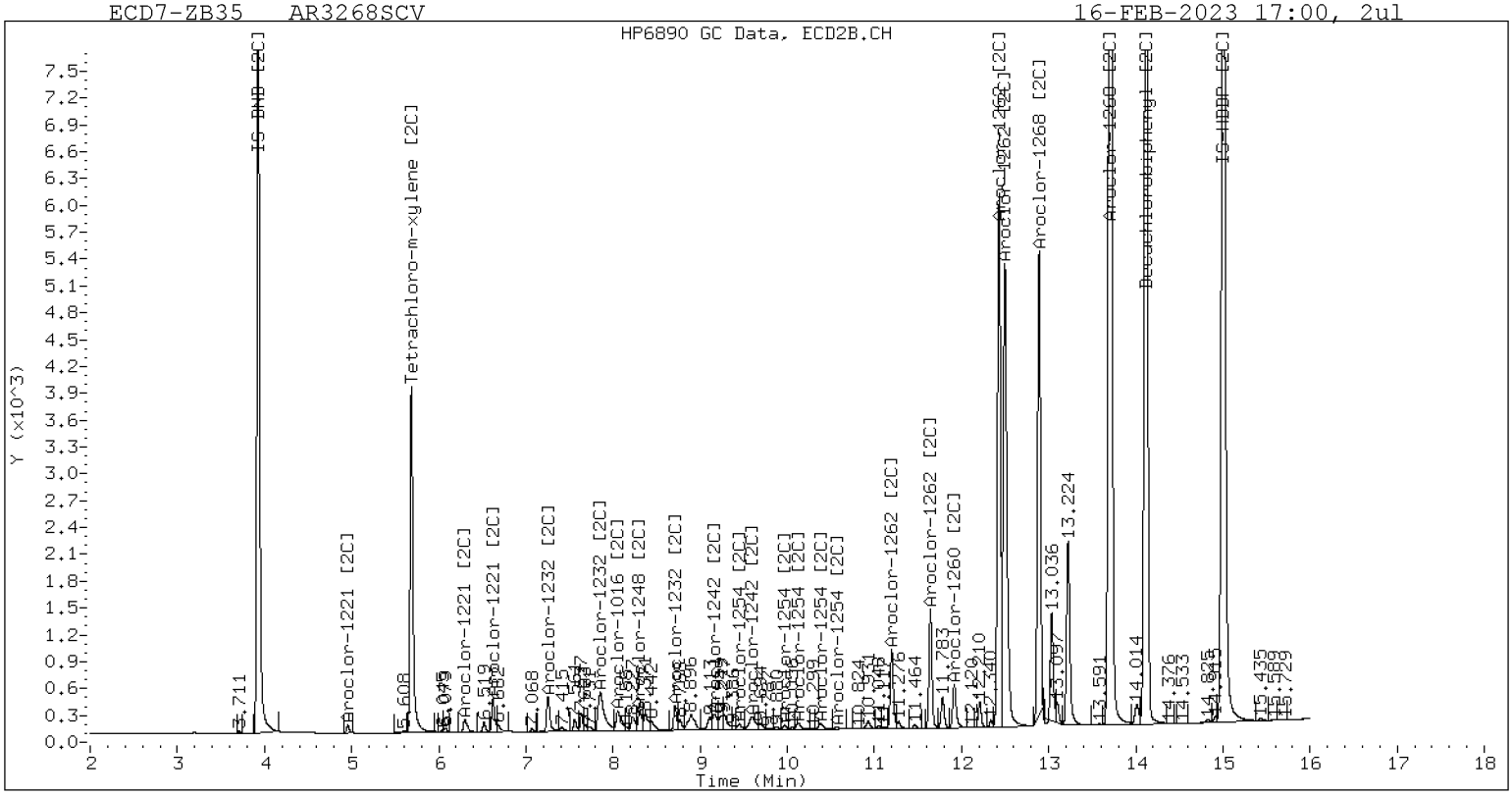
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.260	-0.003	442624	9.911	-0.001	632750	0.085	0.087	2.1	2,4-DDE
10.293	-0.003	576653	10.667	0.002	928581	0.039	0.168#	124.2*	2,4-DDT
9.683	-0.004	755059	10.209	-0.002	423742	0.086	0.103	18.9	4,4-DDE
10.254	-0.027	674155	10.667	0.002	928581	0.000	0.168#	----	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.284	0.021	2688	9.920	0.008	10374	0.001	0.001	93.2*	2,4-DDE
0.000	-10.296	0	10.673	0.007	190492	0.000	0.035#	----	2,4-DDT
9.692	0.005	7700	10.234	0.022	295	0.001	0.000	169.6*	4,4-DDE
10.259	-0.022	174757	10.673	0.007	190492	0.000	0.035#	----	4,4-DDD

\# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0222

Instrument: ECD7
Calibration ID: FJ00100

Printed: 2/17/2023 9:56:55AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0222-CAL1	QC		1		L000856	L000844		
SLB0222-CAL2	QC		2		L000859	L000844		
SLB0222-CAL3	QC		3		L000858	L000844		
SLB0222-CAL4	QC		4		L000731	L000844		
SLB0222-CAL5	QC		5		L000857	L000844		
SLB0222-CAL6	QC		6		L000855	L000844		
SLB0222-CAL7	QC		7		L000860	L000844		
SLB0222-CAL8	QC		8		L000861	L000844		
SLB0222-CAL9	QC		9		L000862	L000844		
SLB0222-CALA	QC		10		L000863	L000844		
SLB0222-CALB	QC		11		L000864	L000844		
SLB0222-SCV1	QC		12		K007655	L000844		
SLB0222-SCV2	QC		13		K007656	L000844		
SLB0222-SCV3	QC		14		K007657	L000844		
SLB0222-SCV4	QC		15		K007658	L000844		
SLB0222-SCV5	QC		16		K007659	L000844		
SLB0222-SCV6	QC		17		K007660	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	16-FEB-2023 11:02	02162301ECD7.D	1	IB	
2	16-FEB-2023 11:23	02162302ECD7.D	1	0.25PPMAR1660	
3	16-FEB-2023 11:44	02162303ECD7.D	1	0.02PPMAR1660	
4	16-FEB-2023 12:05	02162304ECD7.D	1	0.05PPMAR1660	
5	16-FEB-2023 12:27	02162305ECD7.D	1	1.0PPMAR1660	
6	16-FEB-2023 12:48	02162306ECD7.D	1	0.1PPMAR1660	
7	16-FEB-2023 13:09	02162307ECD7.D	1	0.5PPMAR1660	
8	16-FEB-2023 13:30	02162308ECD7.D	1	0.25PPMAR1242	
9	16-FEB-2023 13:51	02162309ECD7.D	1	0.25PPMAR1248	
10	16-FEB-2023 14:12	02162310ECD7.D	1	0.25PPMAR1254	
11	16-FEB-2023 14:33	02162311ECD7.D	1	0.25PPMAR2168	
12	16-FEB-2023 14:54	02162312ECD7.D	1	0.25PPMAR3268	
13	16-FEB-2023 15:15	02162313ECD7.D	1	AR1660SCV	
14	16-FEB-2023 15:36	02162314ECD7.D	1	AR1242SCV	
15	16-FEB-2023 15:57	02162315ECD7.D	1	AR1248SCV	
16	16-FEB-2023 16:18	02162316ECD7.D	1	AR1254SCV	
17	16-FEB-2023 16:39	02162317ECD7.D	1	AR2162SCV	
18	16-FEB-2023 17:00	02162318ECD7.D	1	AR3268SCV	
19	16-FEB-2023 17:21	02162319ECD7.D	1	DDTS	
20	16-FEB-2023 17:42	02162320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 16-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	Aroclor-1248,
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1803	02162321ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1824	02162322ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1845	02162323ECD7.D	BLB0303-BLK1		1	NO MANUAL INTEGRATION
1906	02162324ECD7.D	BLB0303-BS1		1	NO MANUAL INTEGRATION
1927	02162325ECD7.D	BLB0303-BSD1		1	NO MANUAL INTEGRATION
1948	02162326ECD7.D	23B0153-01		1	NO MANUAL INTEGRATION
2009	02162327ECD7.D	23B0179-01		1	NO MANUAL INTEGRATION
2030	02162328ECD7.D	23B0179-03		1	NO MANUAL INTEGRATION
2051	02162329ECD7.D	23B0218-01		1	NO MANUAL INTEGRATION
2112	02162330ECD7.D	23B0243-01		1	NO MANUAL INTEGRATION
2133	02162331ECD7.D	23B0250-03		1	NO MANUAL INTEGRATION
2154	02162332ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2215	02162333ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1803	02162321ECD7.D			1	NO MANUAL INTEGRATION
1824	02162322ECD7.D			1	NO MANUAL INTEGRATION
1845	02162323ECD7.D			1	NO MANUAL INTEGRATION
1906	02162324ECD7.D			1	NO MANUAL INTEGRATION
1927	02162325ECD7.D			1	NO MANUAL INTEGRATION
1948	02162326ECD7.D			1	NO MANUAL INTEGRATION
2009	02162327ECD7.D			1	NO MANUAL INTEGRATION
2030	02162328ECD7.D			1	NO MANUAL INTEGRATION
2051	02162329ECD7.D			1	NO MANUAL INTEGRATION
2112	02162330ECD7.D			1	NO MANUAL INTEGRATION
2133	02162331ECD7.D			1	NO MANUAL INTEGRATION
2154	02162332ECD7.D			1	NO MANUAL INTEGRATION
2215	02162333ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 17-Feb-2023 12:03

02162301ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162302ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162303ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162304ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162305ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162306ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162307ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162308ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162309ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162310ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162311ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162312ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162313ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162314ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162315ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162316ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162317ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162318ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162319ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162320ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00591	+++++	0.00591	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01209	+++++	0.01209	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02807	+++++	0.02807	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02450	+++++	0.02450	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.08017	+++++	0.08017	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02382	+++++	0.02382	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03598	+++++	0.03598	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00369	+++++	0.00369	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.00832	*****	0.00832	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04160	*****	0.04160	0.000
(4)	*****	*****	*****	*****	*****	*****	0.01781	*****	0.01781	0.000
7 Aroclor-1016(1)	0.02947	0.03102	0.03310	0.03018	0.02824	0.02635	*****	*****	0.02973	7.802
(2)	0.09270	0.09812	0.10598	0.10203	0.09861	0.09356	*****	*****	0.09850	5.108
(3)	0.04878	0.04900	0.05127	0.04400	0.04091	0.03796	*****	*****	0.04532	11.523
(4)	0.02676	0.02802	0.03162	0.03050	0.02939	0.02864	*****	*****	0.02915	5.988
6 Aroclor-1248(1)	*****	*****	*****	*****	*****	*****	0.04002	*****	0.04002	0.000
(2)	*****	*****	*****	*****	*****	*****	0.05105	*****	0.05105	0.000
(3)	*****	*****	*****	*****	*****	*****	0.09765	*****	0.09765	0.000
(4)	*****	*****	*****	*****	*****	*****	0.04833	*****	0.04833	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.08153	+++++	0.08153	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.03481	+++++	0.03481	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.05224	+++++	0.05224	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.10237	+++++	0.10237	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++	0.06657	+++++	0.06657	0.000
9 Aroclor-1260(1)	0.04727	0.04543	0.04428	0.05181	0.04013	0.04040	+++++	+++++	0.04489	9.818
(2)	0.04940	0.04636	0.04450	0.05350	0.04100	0.04208	+++++	+++++	0.04614	10.182
(3)	0.13737	0.12829	0.11740	0.13317	0.10468	0.10790	+++++	+++++	0.12147	11.161
(4)	0.07198	0.06638	0.05997	0.06473	0.05485	0.05864	+++++	+++++	0.06276	9.803
(5)	0.03296	0.02981	0.02640	0.02723	0.02328	0.02447	+++++	+++++	0.02736	13.015
10 Aroclor-1262(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03235	+++++	0.03235	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****				
	0.05106	*****							0.05106	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.05544	*****							0.05544	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.05052	*****							0.05052	0.000
11 Aroclor-1268(1)	*****	*****	*****	*****	*****	*****				
	0.13216	*****							0.13216	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.13180	*****							0.13180	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.10919	*****							0.10919	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.32374	*****							0.32374	0.000
42 2,4-DDE	*****	*****	*****	*****	*****	*****				
	*****	904							904	0.000
43 2,4-DDD	*****	*****	*****	*****	*****	*****				
	*****	1034							1034	0.000
44 2,4-DDT	*****	*****	*****	*****	*****	*****				
	*****	2557							2557	0.000
46 4,4-DDE	*****	*****	*****	*****	*****	*****				
	*****	1539							1539	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1484	1484	0.000
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.10039	1.10217	1.21997	1.14965	1.11792	1.09461	+++++	+++++	1.13079	4.246
$ 13 Decachlorobiphenyl	0.86442	0.90302	0.93081	0.84813	0.79576	0.79145	+++++	+++++	0.85560	6.556

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
1 Aroclor-1221 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00586	+++++	0.00586	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01285	+++++	0.01285	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02169	+++++	0.02169	0.000
4 Aroclor-1232 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00356	+++++	0.00356	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01991	+++++	0.01991	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04054	+++++	0.04054	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01126	+++++	0.01126	0.000
3 Aroclor-1242 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03499	+++++	0.03499	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****				
	0.07771	*****							0.07771	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.02434	*****							0.02434	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.03226	*****							0.03226	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****				
	0.03616	*****							0.03616	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.03892	*****							0.03892	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.04756	*****							0.04756	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.05882	*****							0.05882	0.000
7 Aroclor-1016 [2C](1)	0.04424	0.04724	0.04678	0.04314	0.04099	0.03795				
	*****	*****							0.04339	8.142
(2)	0.08512	0.09615	0.10417	0.09824	0.09554	0.09130				
	*****	*****							0.09509	6.775
(3)	0.02919	0.04165	0.04478	0.04029	0.03925	0.03764				
	*****	*****							0.03880	13.639
(4)	0.02850	0.03377	0.03419	0.03004	0.02878	0.02724				
	*****	*****							0.03042	9.538

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.05804	+++++	0.05804	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.04691	+++++	0.04691	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.10233	+++++	0.10233	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.10233	+++++	0.10233	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++	0.05700	+++++	0.05700	0.000
10 Aroclor-1262 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.07830	+++++	0.07830	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.06658	+++++	0.06658	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.07090	+++++	0.07090	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.11355	+++++	0.11355	0.000
9 Aroclor-1260 [2C](1)	0.06075	0.05974	0.05912	0.06129	0.05231	0.05307	+++++	+++++	0.05771	6.881
(2)	0.14748	0.15106	0.15181	0.15367	0.13396	0.13809	+++++	+++++	0.14601	5.547

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(3)	0.03683	0.03729	0.03582	0.03647	0.03501	0.03694	#####	#####	0.03639	2.314
(4)	0.09319	0.09919	0.09881	0.09587	0.08985	0.09008	#####	#####	0.09450	4.373
11 Aroclor-1268 [2C](1)	#####	#####	#####	#####	#####	#####	0.18682	#####	0.18682	0.000
(2)	#####	#####	#####	#####	#####	#####	0.19880	#####	0.19880	0.000
(3)	#####	#####	#####	#####	#####	#####	0.16548	#####	0.16548	0.000
(4)	#####	#####	#####	#####	#####	#####	0.51118	#####	0.51118	0.000
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	1528	1528	0.000
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####	#####	866	866	0.000
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	863	863	0.000
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1162	1162	0.000
46 4,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1277	1277	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
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Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.04342	1.10521	1.15322	1.09675	1.05187	1.03851	+++++	+++++	1.08150	4.159
$ 13 Decachlorobiphenyl [2C]	1.20915	1.27122	1.31190	1.29209	1.22961	1.30389	+++++	+++++	1.26964	3.291

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.492	3.492	3.491	3.493	3.492	3.491	3.492	3.392-3.592	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.810	5.808	5.808	5.811	5.808	5.809	5.810	5.710-5.910	5.809	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.271	7.271	7.270	7.270	7.270	7.269	7.271	7.171-7.371	7.270	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.043	11.044	11.043	11.040	11.042	11.041	11.043	10.943-11.143	11.042	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.894	13.892	13.891	13.892	13.890	13.890	13.894	13.794-13.994	13.892	0.002
* 12 IS-HBBP	14.263	14.263	14.261	14.261	14.262	14.262	14.263	14.163-14.363	14.262	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.263	9.213-9.313	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.805	9.755-9.855	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.296	10.246-10.346	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.687	9.587-9.787	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.281	10.181-10.381	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.758	10.658-10.858	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.928	3.930	3.929	3.929	3.928	3.828-4.028	3.929	0.001
$ 2 Tetrachloro-m-xylene [	5.685	5.686	5.685	5.688	5.687	5.686	5.685	5.585-5.785	5.686	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.254	7.255	7.254	7.254	7.254	7.254	7.254	7.154-7.354	7.254	0.000
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.651	11.652	11.652	11.650	11.651	11.650	11.651	11.551-11.751	11.651	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.117	14.118	14.117	14.120	14.117	14.118	14.117	14.017-14.217	14.118	0.001
* 12 IS-HBBP [2C]	15.006	15.006	15.004	15.005	15.005	15.005	15.006	14.906-15.106	15.005	0.001
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.912	9.862-9.962	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.538	9.488-9.588	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.211	10.111-10.311	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.666	10.566-10.766	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.095	10.995-11.195	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162301ECD7.D
Data file 2: /230216.b/230216.b/02162301ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 16-FEB-2023 11:02
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.823	0.015	232765	5.680	-0.005	190174	39.3	39.2	0.1	Tetrachloro-m-xylene
13.900	0.009	322325	14.118	0.000	335746	40.3	39.2	2.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	417912	-2.8
Hexabromobiphenyl	975457	908024	-6.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	359487	-2.0
Hexabromobiphenyl	646884	614725	-5.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	11.361	0.004	128	0.4	2	---			0.0
Aroclor-1260	3	11.801	0.071	128	0.2	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.705	0.008	993	1.0	3	---			0.0
Aroclor-1268	4	13.493	0.006	2534	0.9	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 24426 Col1 Total PCB = 0.0 ppm*

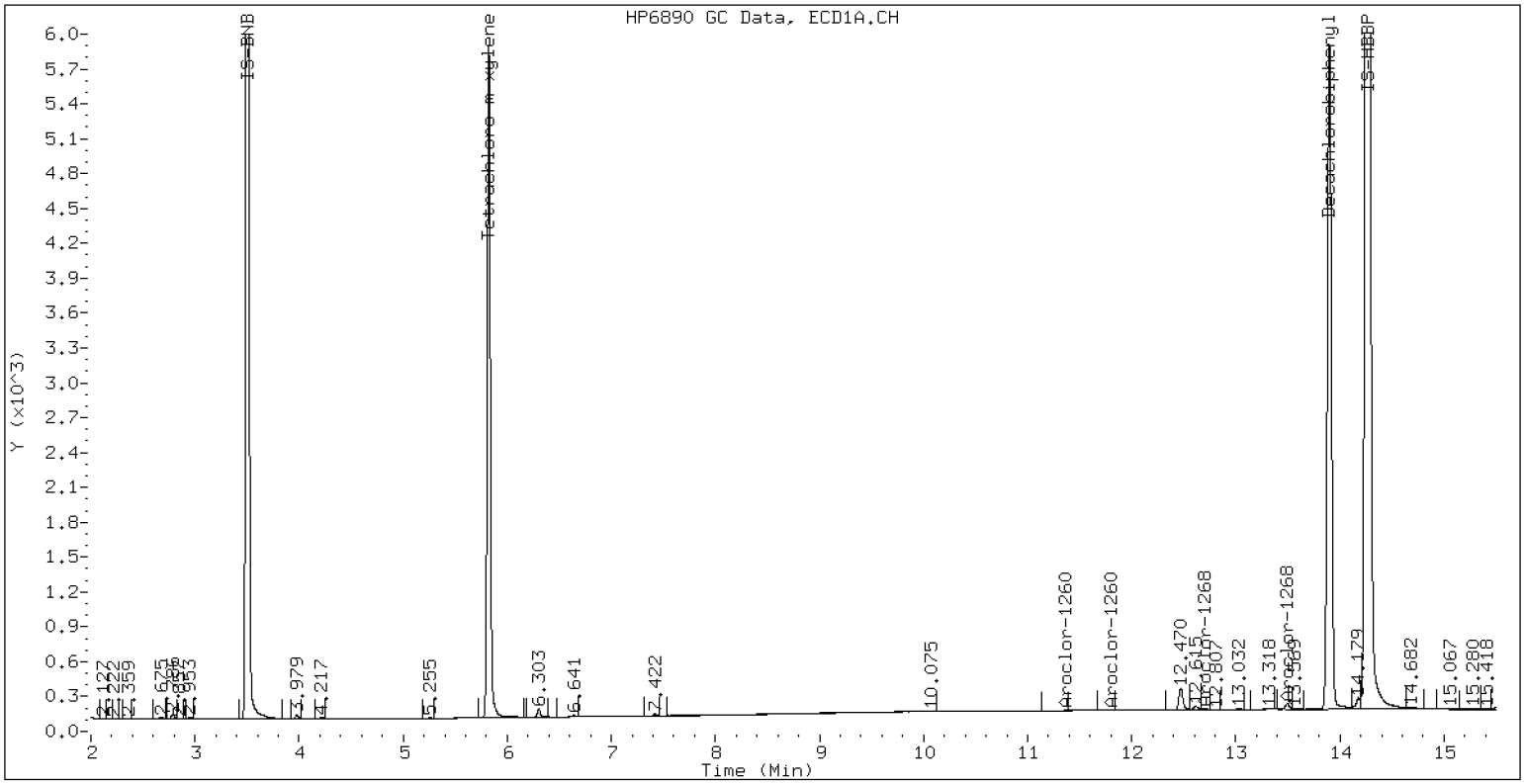
Total PCB Area Col2 (5.786 - 14.018) = 13907 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

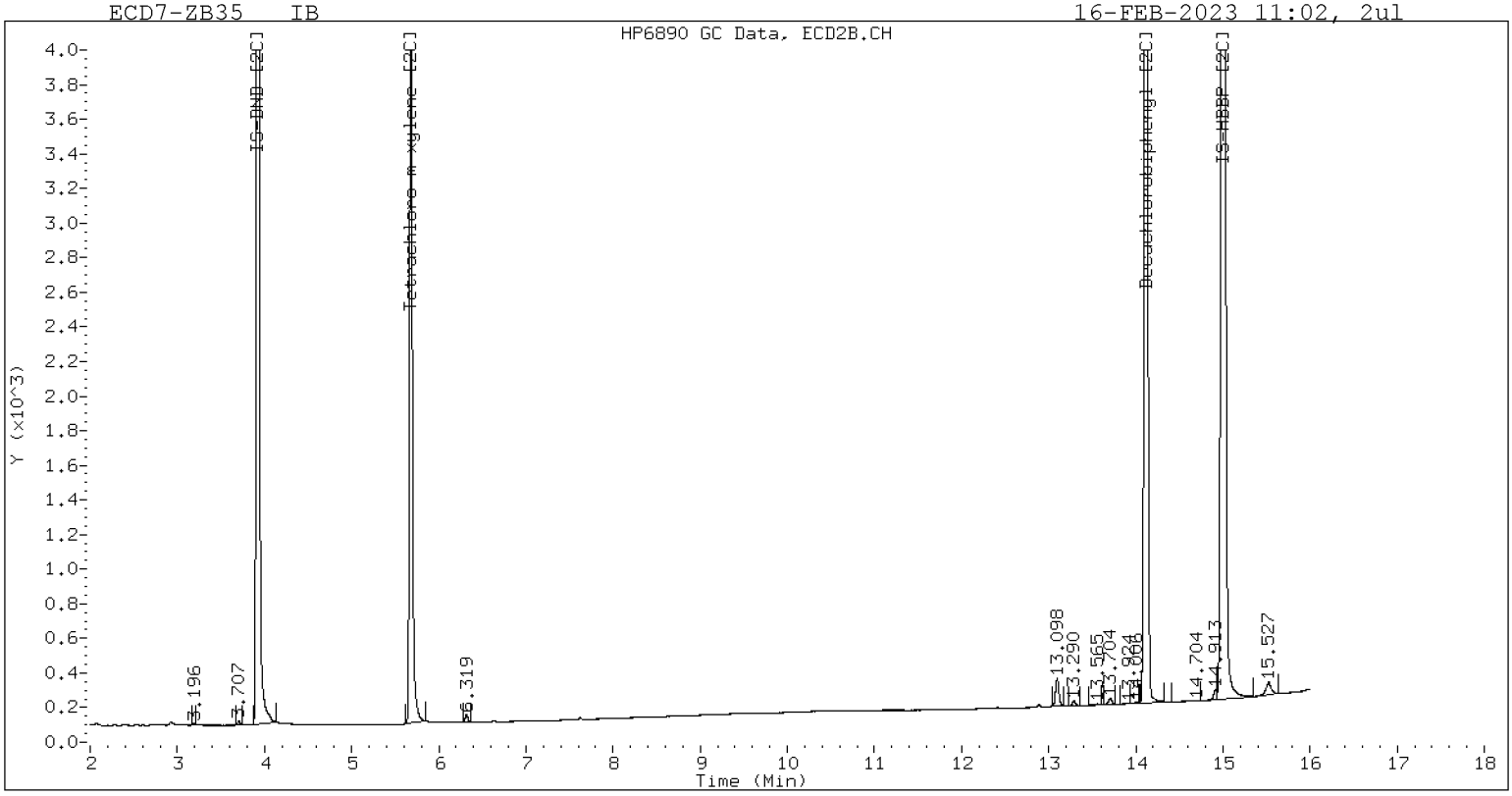
PCB Dual Column Chromatograms

ECD7-ZB5 IB 16-FEB-2023 11:02, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 16-FEB-2023 11:02, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162302ECD7.D
Data file 2: /230216.b/230216.b/02162302ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:23
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	248401	5.685	-0.001	199672	40.7	40.3	0.9	Tetrachloro-m-xylene
13.894	0.003	351670	14.117	-0.001	367148	40.9	40.7	0.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	430055	0.0
Hexabromobiphenyl	975457	975457	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	366754	0.0
Hexabromobiphenyl	646884	646884	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	39579	252.7	1	7.254	-0.000	49228	245.0
Aroclor-1016	2	7.652	0.002	129647	258.5	2	7.850	-0.002	109879	257.4
Aroclor-1016	3	7.790	0.003	55577	241.0	3	8.050	0.000	45802	261.0
Aroclor-1016	4	8.404	0.001	38982	256.8	4	8.304	-0.000	35428	248.9
Total Col1Ave (4 peaks):					252.3	Total Col2Ave (4 peaks):				253.1 RPD = 0
Corrected Ave (3 peaks):					250.2	Corrected Ave (3 peaks):				250.4 RPD = 0
CalAmt %D:					0.9	CalAmt %D:				1.2
Aroclor-1260	1	11.043	0.002	87165	259.2	1	11.651	0.001	84564	235.7
Aroclor-1260	2	11.360	0.003	89579	260.4	2	11.916	0.001	216735	240.2
Aroclor-1260	3	11.733	0.003	234880	257.8	3	12.434	0.001	55401	229.5
Aroclor-1260	4	12.137	0.002	120991	261.6	4	12.499	0.001	143975	237.8
Aroclor-1260	5	12.243	0.003	50521	254.7	NS	---			----
Total Col1Ave (5 peaks):					258.7	Total Col2Ave (4 peaks):				235.8 RPD = 9
Corrected Ave (4 peaks):					258.0	Corrected Ave (3 peaks):				234.4 RPD = 10
CalAmt %D:					3.5	CalAmt %D:				-5.7

Total PCB Area Col1 (5.908 - 13.791) = 2424171 Col1 Total PCB = 0.5 ppm*

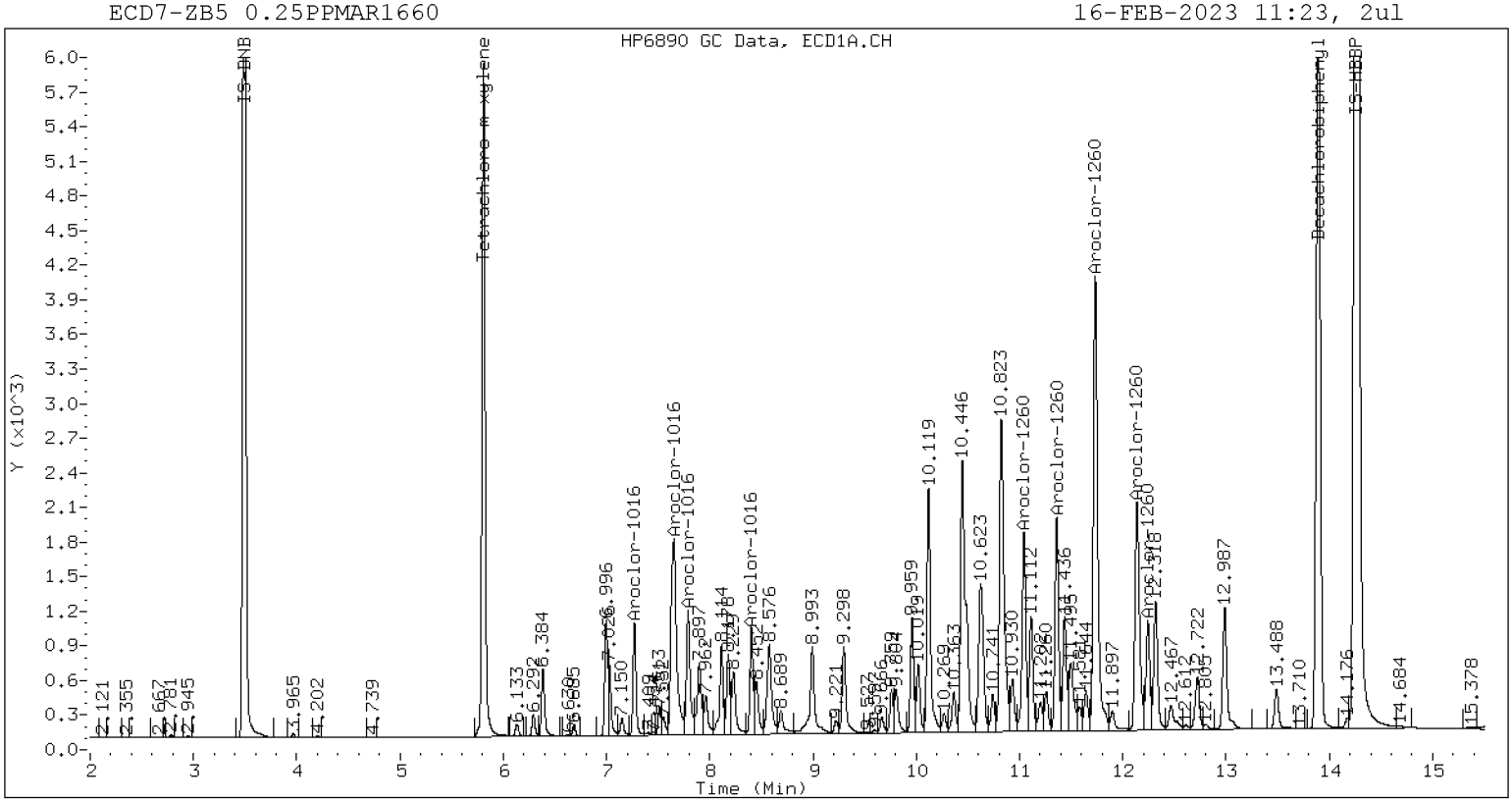
Total PCB Area Col2 (5.786 - 14.018) = 2014487 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

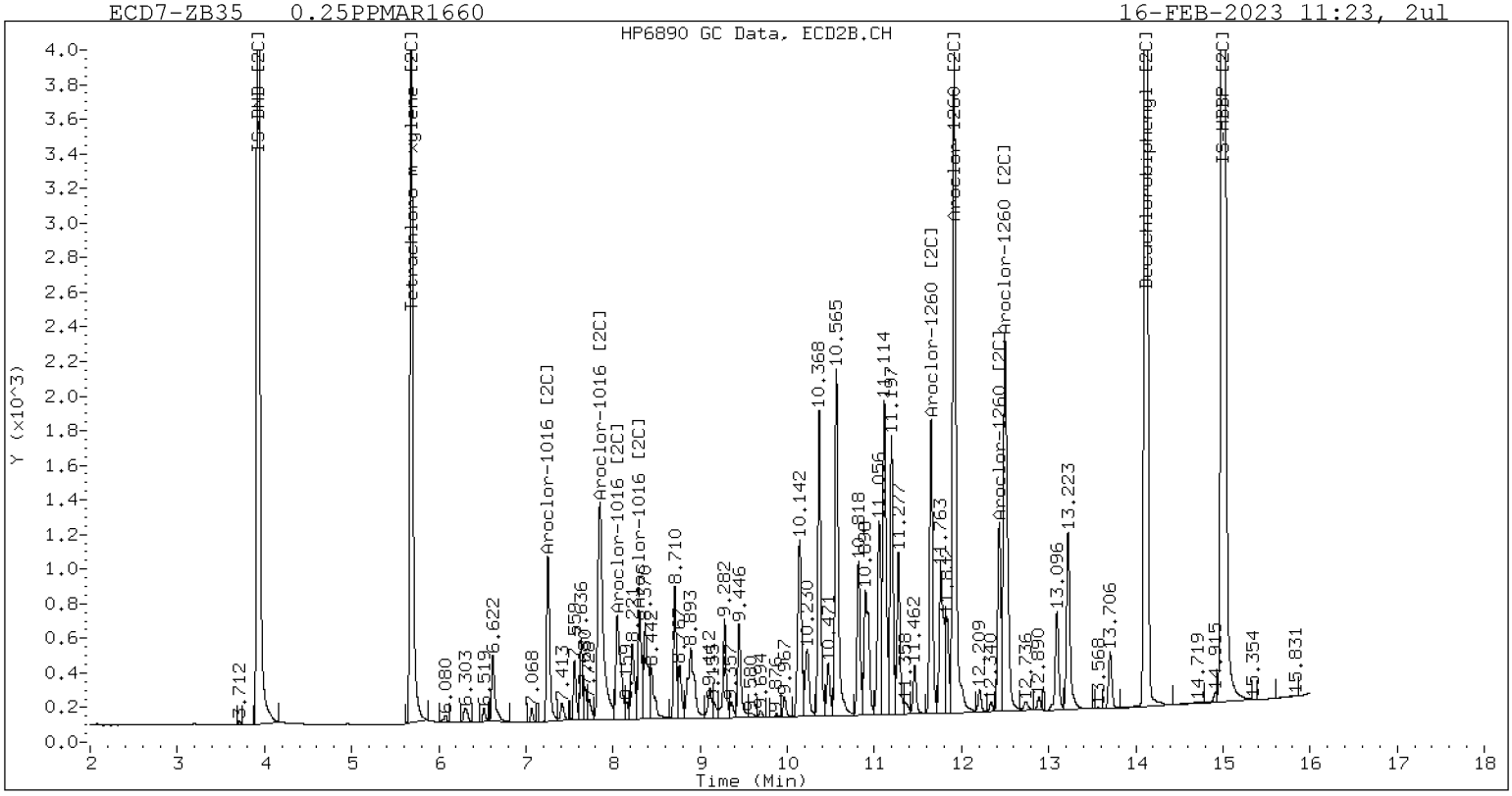
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162303ECD7.D
Data file 2: /230216.b/230216.b/02162303ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:44
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	19708	5.686	0.000	15503	3.3	3.2	3.1	Tetrachloro-m-xylene
13.892	0.001	28479	14.118	-0.000	26541	3.3	2.9	12.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	422641	-1.7
Hexabromobiphenyl	975457	970275	-0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	360534	-1.7
Hexabromobiphenyl	646884	649373	0.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	3348	21.8	1	7.255	0.001	4345	22.0
Aroclor-1016	2	7.655	0.005	10129	20.6	2	7.856	0.005	7672	18.3
Aroclor-1016	3	7.792	0.005	5159	22.8	3	8.056	0.007	2574	14.9
Aroclor-1016	4	8.405	0.003	3035	20.3	4	8.307	0.003	2795	20.0
Total Col1Ave (4 peaks):					21.4	Total Col2Ave (4 peaks):				18.8 RPD = 13
Corrected Ave (3 peaks):					20.9	Corrected Ave (3 peaks):				17.7 RPD = 16
CalAmt %D:					6.8	CalAmt %D:				-6.0
Aroclor-1260	1	11.044	0.003	6763	20.2	1	11.652	0.002	7499	20.8
Aroclor-1260	2	11.360	0.003	6806	19.9	2	11.918	0.003	18116	20.0
Aroclor-1260	3	11.737	0.006	19311	21.3	3	12.434	0.002	5444	22.5
Aroclor-1260	4	12.141	0.006	9169	19.9	4	12.502	0.004	12209	20.1
Aroclor-1260	5	12.243	0.003	4138	21.0	NS	---			----
Total Col1Ave (5 peaks):					20.5	Total Col2Ave (4 peaks):				20.8 RPD = 2
Corrected Ave (4 peaks):					20.3	Corrected Ave (3 peaks):				20.3 RPD = 0
CalAmt %D:					2.3	CalAmt %D:				4.2

Total PCB Area Col1 (5.908 - 13.791) = 207302 Col1 Total PCB = 0.0 ppm*

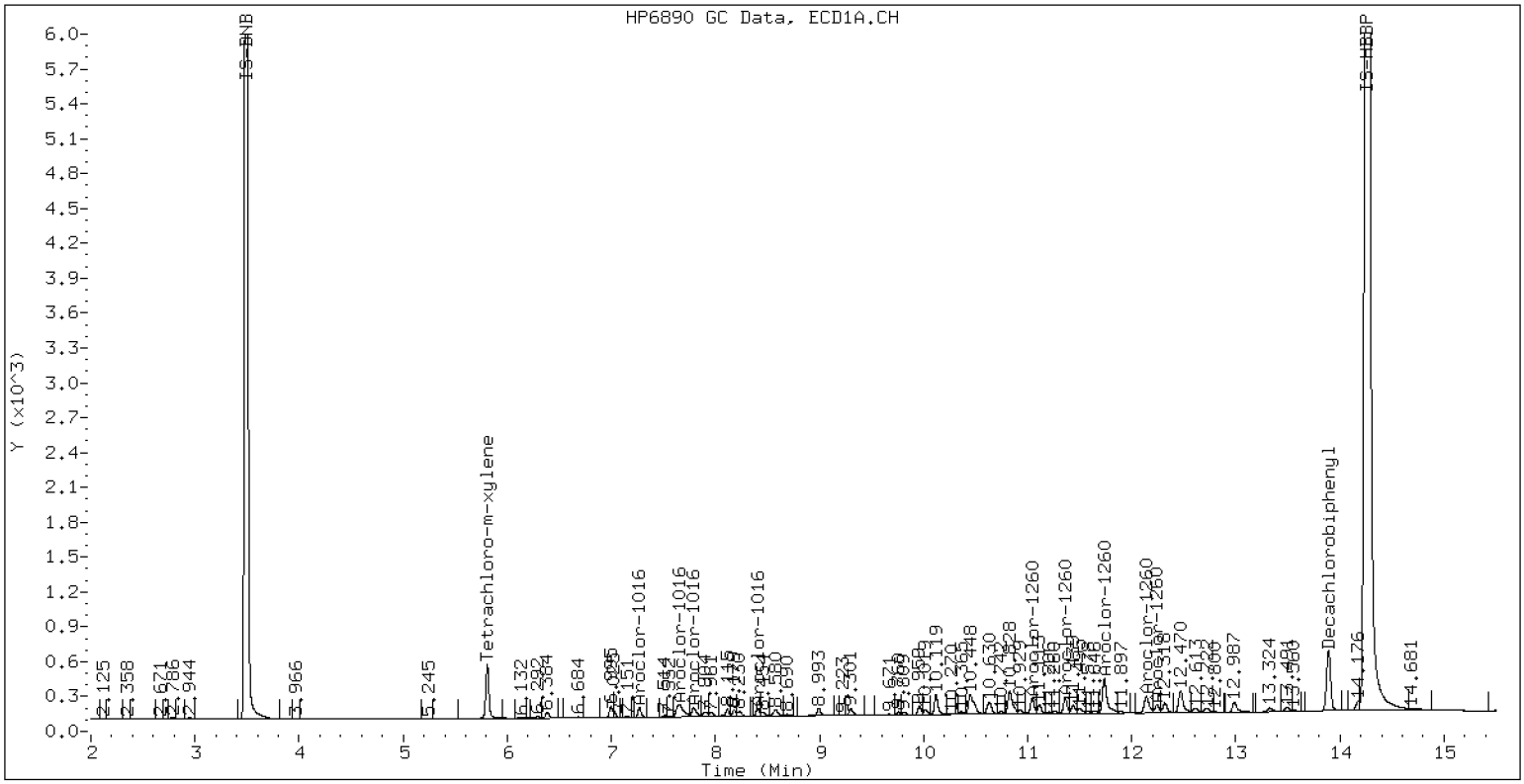
Total PCB Area Col2 (5.786 - 14.018) = 173637 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

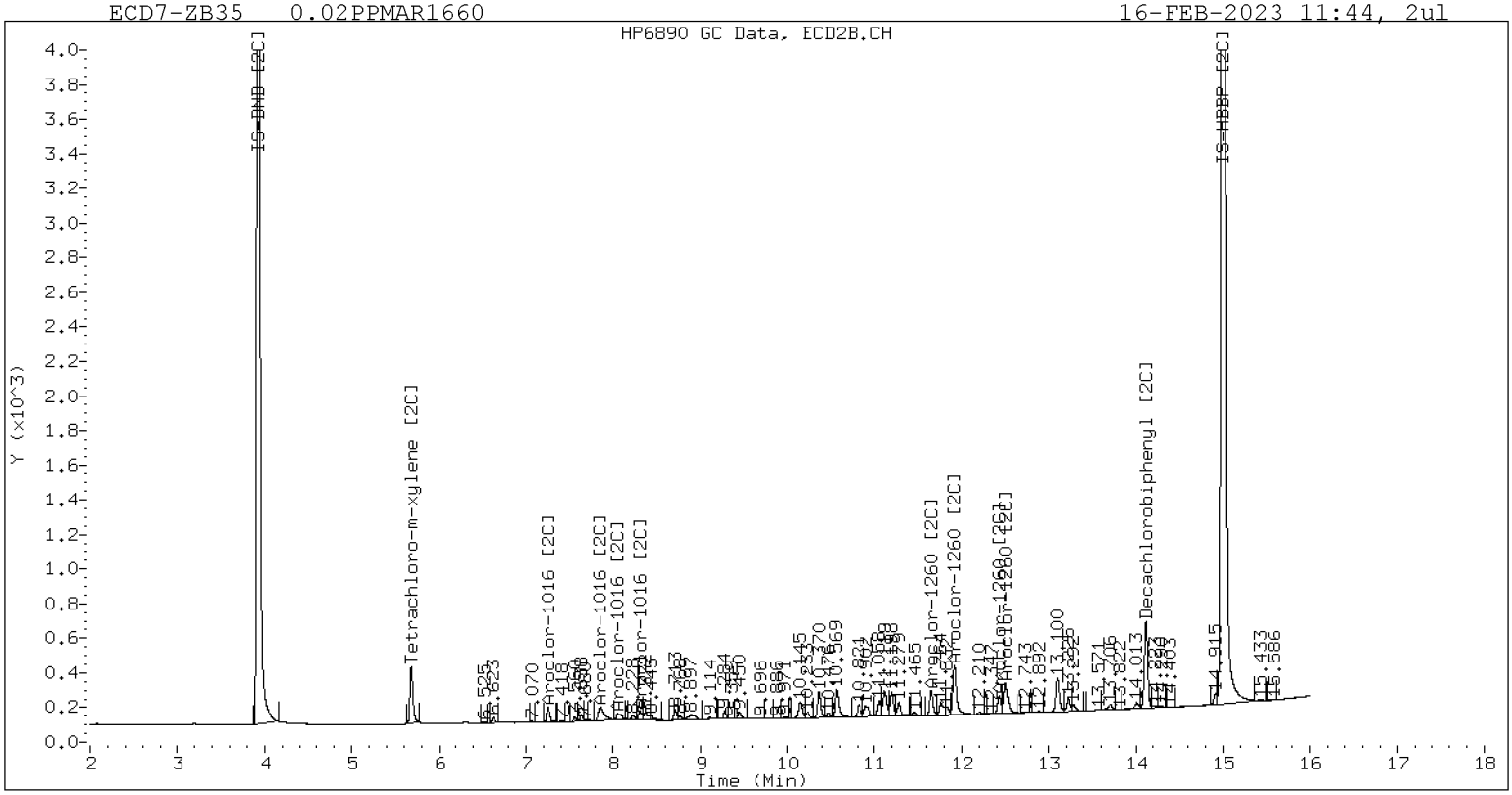
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162304ECD7.D
Data file 2: /230216.b/230216.b/02162304ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:05
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	49106	5.685	-0.001	38865	8.2	8.0	2.4	Tetrachloro-m-xylene
13.891	0.000	72151	14.117	-0.001	67392	8.4	7.4	12.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	424165	-1.4
Hexabromobiphenyl	975457	974643	-0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361606	-1.4
Hexabromobiphenyl	646884	650523	0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	8215	53.2	1	7.254	-0.000	10626	53.6
Aroclor-1016	2	7.653	0.003	24630	49.8	2	7.855	0.003	20708	49.2
Aroclor-1016	3	7.791	0.004	12297	54.1	3	8.055	0.006	9105	52.6
Aroclor-1016	4	8.404	0.001	7438	49.7	4	8.306	0.001	7620	54.3
Total Col1Ave (4 peaks):					51.7	Total Col2Ave (4 peaks):				52.4 RPD = 1
Corrected Ave (3 peaks):					50.9	Corrected Ave (3 peaks):				51.8 RPD = 2
CalAmt %D:					3.4	CalAmt %D:				4.9
Aroclor-1260	1	11.043	0.002	16909	50.3	1	11.652	0.002	17146	47.5
Aroclor-1260	2	11.359	0.002	17012	49.5	2	11.917	0.003	43102	47.5
Aroclor-1260	3	11.734	0.003	45560	50.0	3	12.435	0.003	11385	46.9
Aroclor-1260	4	12.138	0.003	22213	48.1	4	12.501	0.003	28474	46.8
Aroclor-1260	5	12.241	0.001	9728	49.1	NS	---			----
Total Col1Ave (5 peaks):					49.4	Total Col2Ave (4 peaks):				47.2 RPD = 5
Corrected Ave (4 peaks):					49.2	Corrected Ave (3 peaks):				47.1 RPD = 4
CalAmt %D:					-1.2	CalAmt %D:				-5.6

Total PCB Area Col1 (5.908 - 13.791) = 481905 Col1 Total PCB = 0.1 ppm*

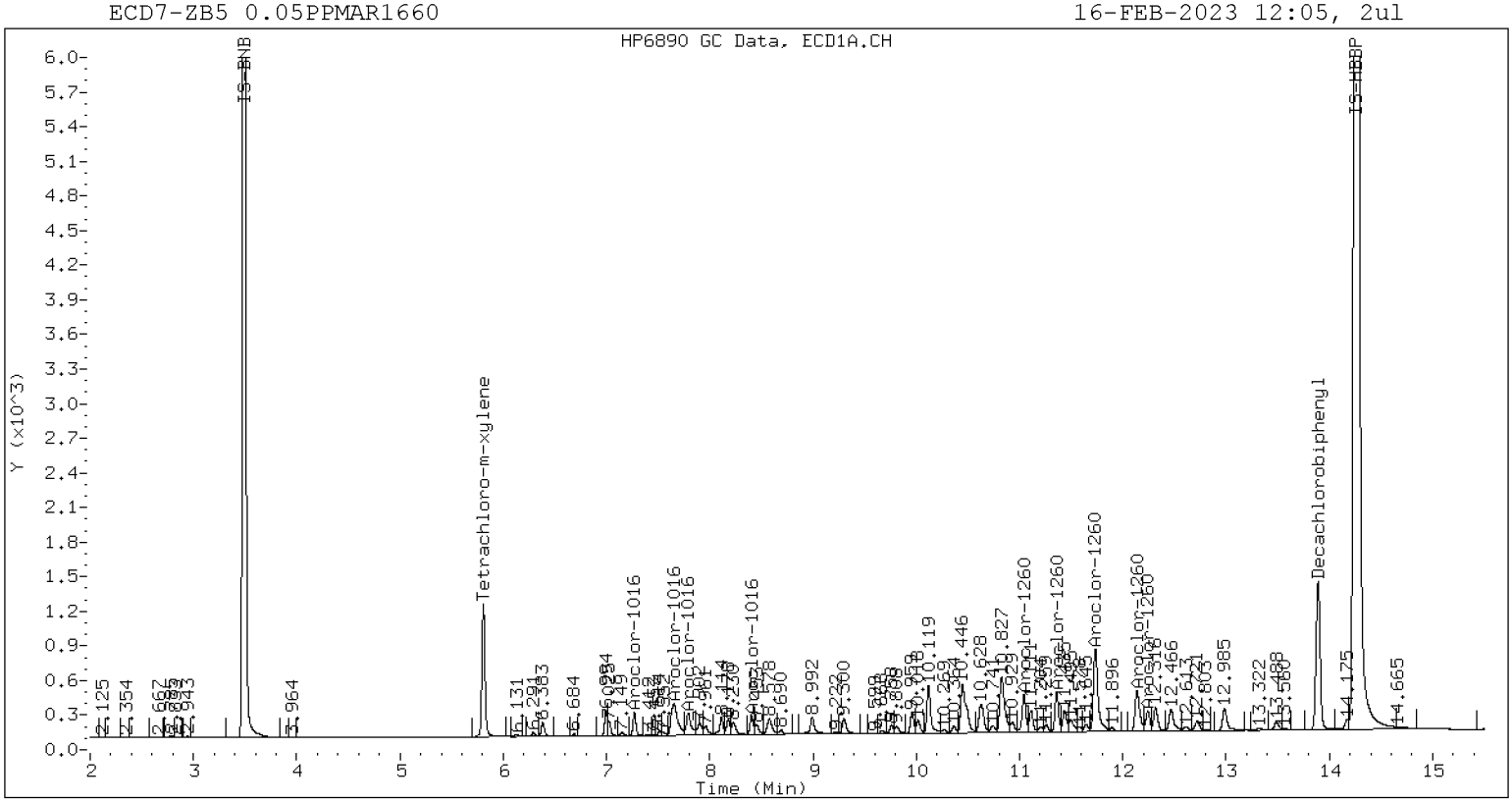
Total PCB Area Col2 (5.786 - 14.018) = 410066 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

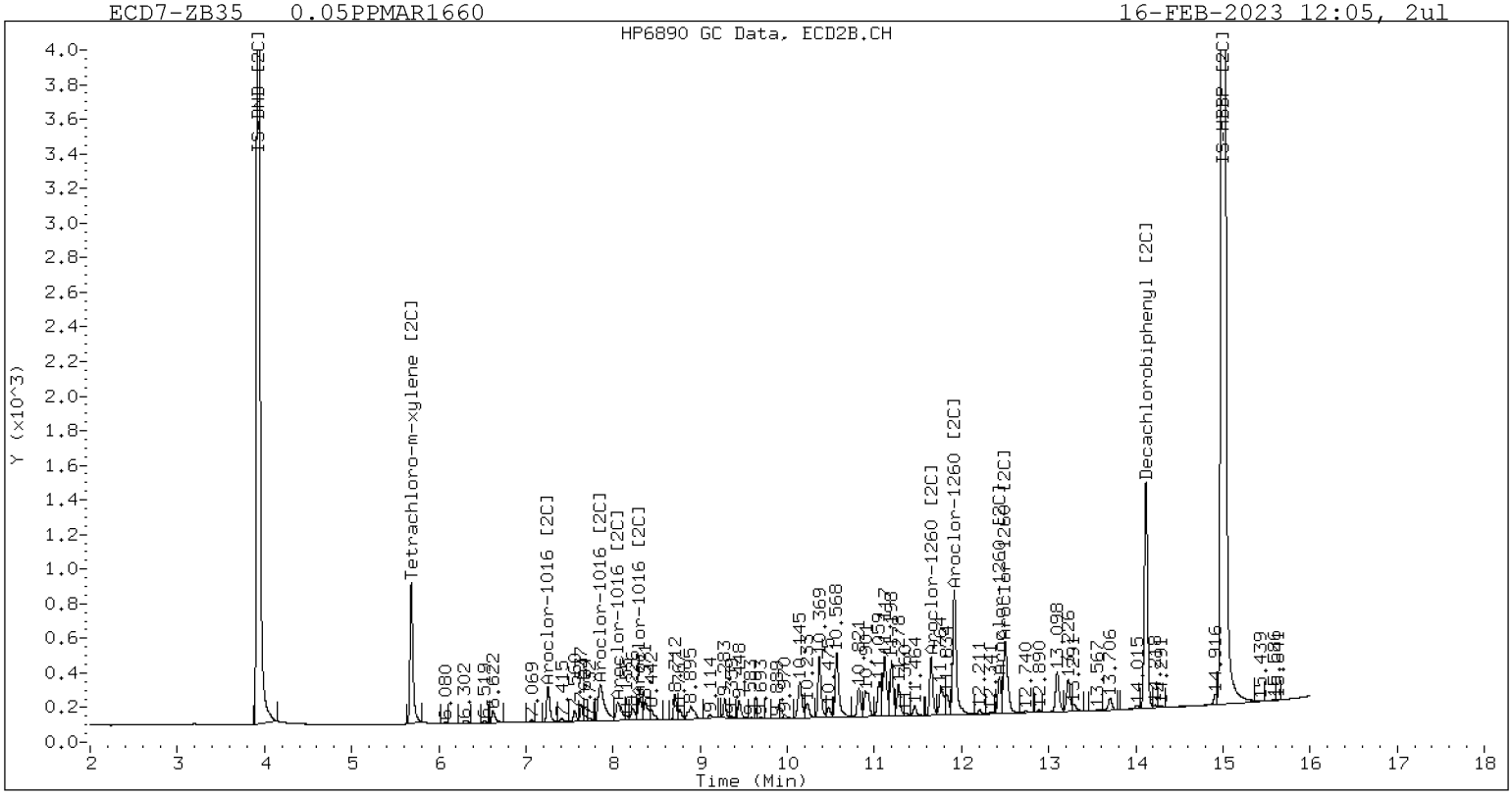
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162305ECD7.D
Data file 2: /230216.b/230216.b/02162305ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:27
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.003	891683	5.688	0.002	726379	151.2	152.9	1.1	Tetrachloro-m-xylene
13.892	0.001	1202823	14.120	0.002	1376073	143.7	154.6	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	415564	-3.4
Hexabromobiphenyl	975457	950630	-2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	352163	-4.0
Hexabromobiphenyl	646884	638267	-1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	0.001	132049	872.6	1	7.254	0.000	163920	849.6
Aroclor-1016	2	7.649	-0.001	456308	941.6	2	7.849	-0.003	390554	952.8
Aroclor-1016	3	7.787	-0.000	188528	845.9	3	8.049	-0.000	164163	974.1
Aroclor-1016	4	8.403	0.000	141381	963.9	4	8.304	0.000	120741	883.4
Total Col1Ave (4 peaks):					906.0	Total Col2Ave (4 peaks):				915.0 RPD = 1
Corrected Ave (3 peaks):					886.7	Corrected Ave (3 peaks):				895.3 RPD = 1
CalAmt %D:			-9.4			CalAmt %D:		-8.5		
Aroclor-1260	1	11.040	-0.000	311922	951.8	1	11.650	-0.000	297569	840.7
Aroclor-1260	2	11.356	-0.001	324926	969.1	2	11.914	-0.001	734323	824.7
Aroclor-1260	3	11.729	-0.001	820597	924.2	3	12.432	0.000	215979	906.9
Aroclor-1260	4	12.131	-0.003	448823	995.6	4	12.498	0.000	521208	872.6
Aroclor-1260	5	12.240	0.000	188496	975.0	NS	---			----
Total Col1Ave (5 peaks):					963.1	Total Col2Ave (4 peaks):				861.2 RPD = 11
Corrected Ave (4 peaks):					955.0	Corrected Ave (3 peaks):				846.0 RPD = 12
CalAmt %D:			-3.7			CalAmt %D:		-13.9		

Total PCB Area Col1 (5.908 - 13.791) = 8716327 Col1 Total PCB = 1.9 ppm*

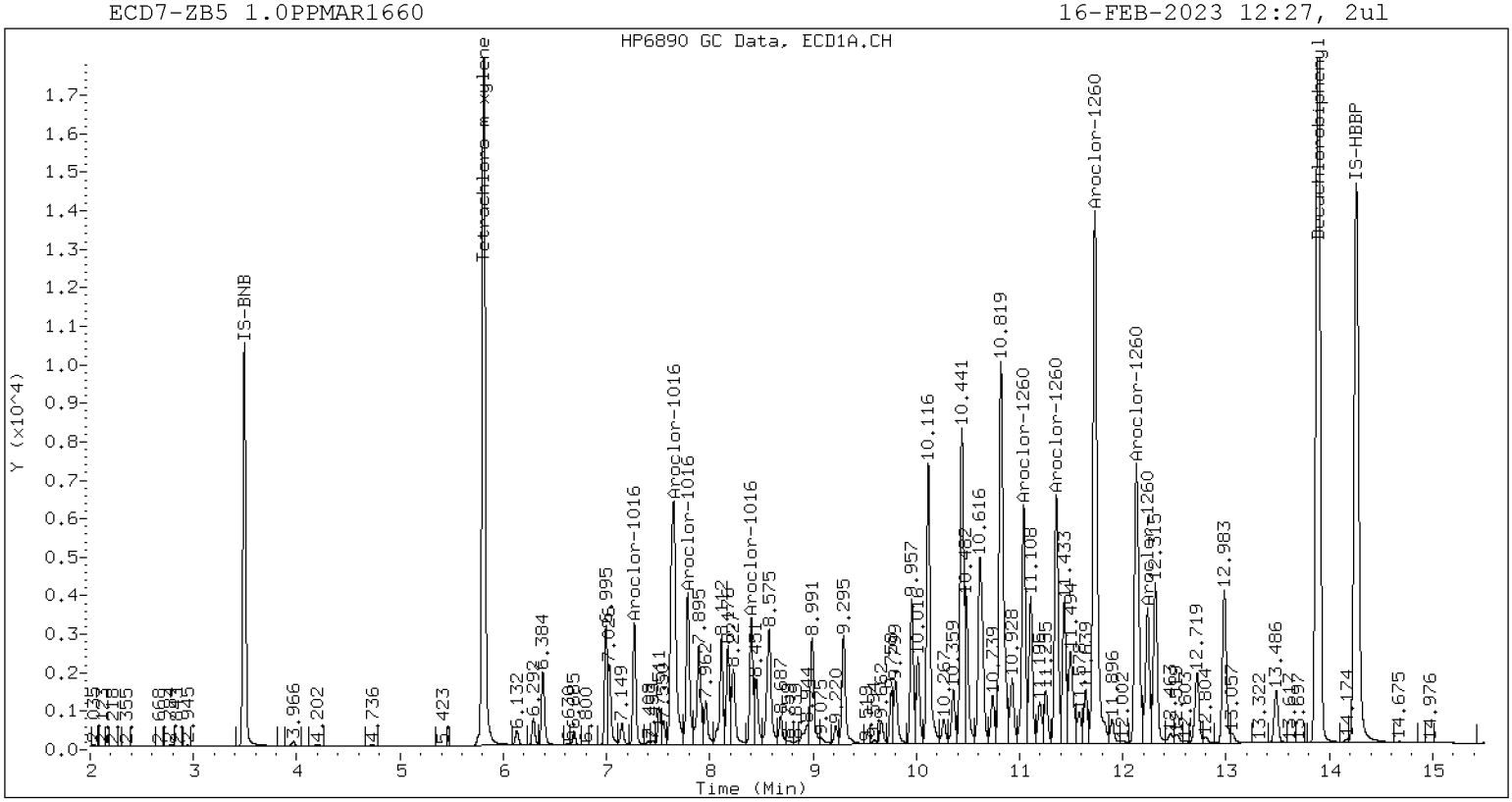
Total PCB Area Col2 (5.786 - 14.018) = 7274392 Col2 Total PCB = 1.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

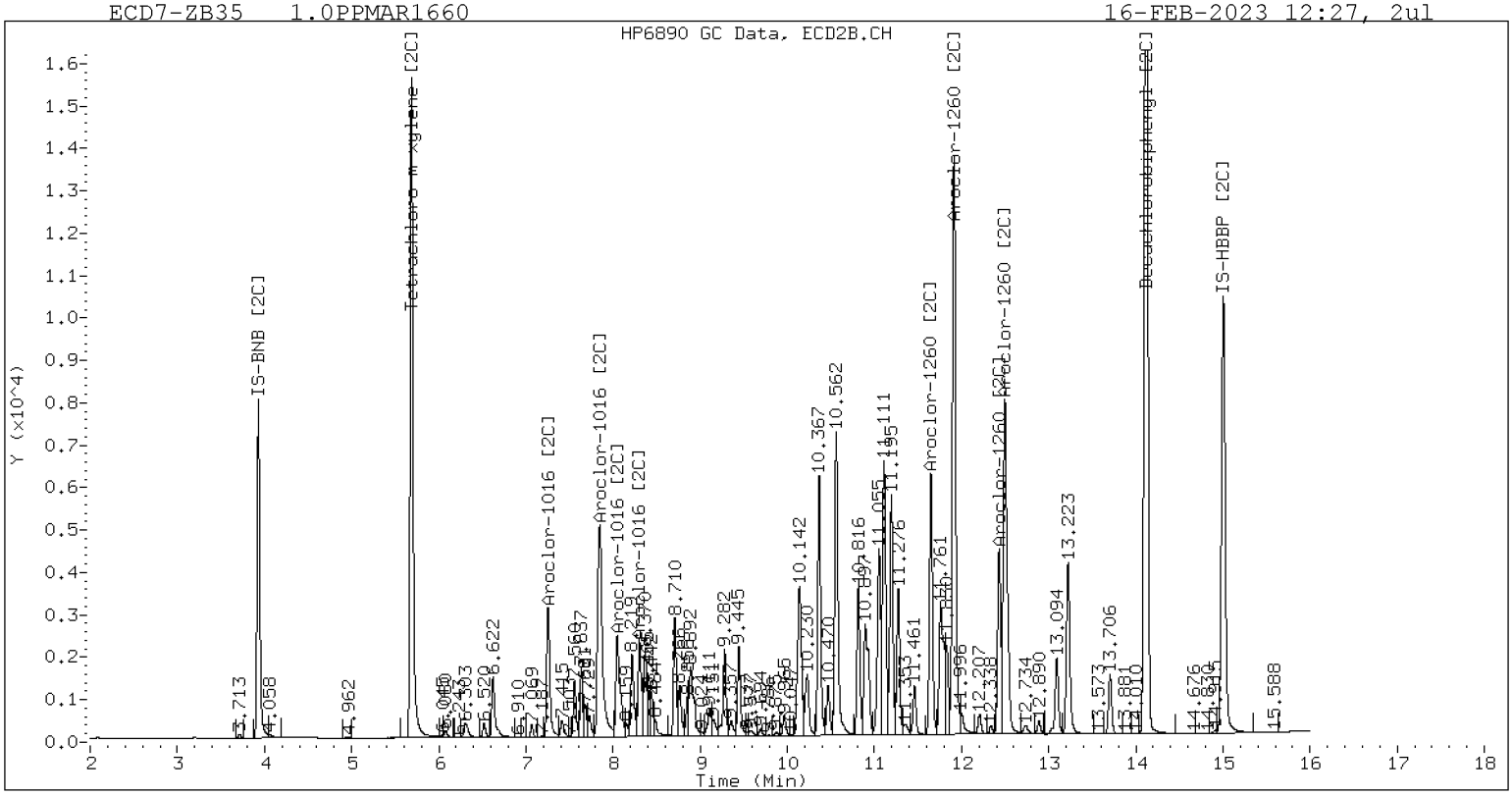
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162306ECD7.D
Data file 2: /230216.b/230216.b/02162306ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:48
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	97353	5.687	0.001	77790	16.1	16.0	1.1	Tetrachloro-m-xylene
13.890	-0.001	143814	14.117	-0.001	141007	16.6	15.4	7.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	425206	-1.1
Hexabromobiphenyl	975457	982762	0.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361068	-1.6
Hexabromobiphenyl	646884	654989	1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	15562	100.5	1	7.254	-0.000	20282	102.5
Aroclor-1016	2	7.653	0.003	49218	99.3	2	7.855	0.004	43303	103.0
Aroclor-1016	3	7.790	0.003	23916	104.9	3	8.054	0.005	18932	109.6
Aroclor-1016	4	8.404	0.002	14884	99.2	4	8.306	0.002	15145	108.1
Total Col1Ave (4 peaks):					101.0	Total Col2Ave (4 peaks):				105.8 RPD = 5
Corrected Ave (3 peaks):					99.6	Corrected Ave (3 peaks):				104.5 RPD = 5
CalAmt %D:					1.0	CalAmt %D:				5.8
Aroclor-1260	1	11.042	0.002	34109	100.7	1	11.651	0.001	34102	93.9
Aroclor-1260	2	11.358	0.001	34951	100.8	2	11.917	0.002	87139	95.4
Aroclor-1260	3	11.733	0.003	92326	100.6	3	12.434	0.001	21226	86.9
Aroclor-1260	4	12.137	0.003	45803	98.3	4	12.500	0.002	57343	93.6
Aroclor-1260	5	12.241	0.001	19653	98.3	NS	---			----
Total Col1Ave (5 peaks):					99.7	Total Col2Ave (4 peaks):				92.4 RPD = 8
Corrected Ave (4 peaks):					99.5	Corrected Ave (3 peaks):				91.4 RPD = 8
CalAmt %D:					-0.3	CalAmt %D:				-7.6

Total PCB Area Col1 (5.908 - 13.791) = 948624 Col1 Total PCB = 0.2 ppm*

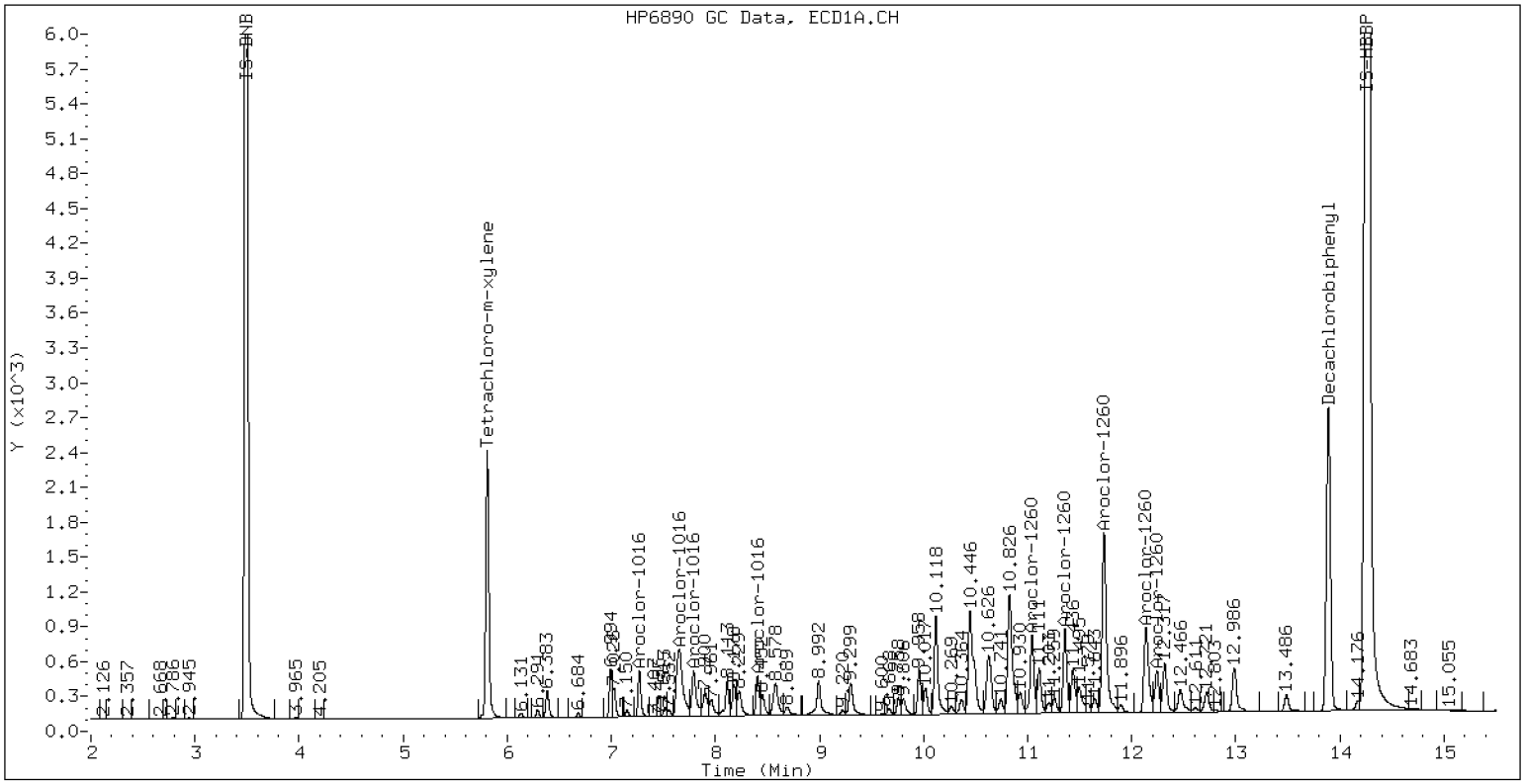
Total PCB Area Col2 (5.786 - 14.018) = 817080 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

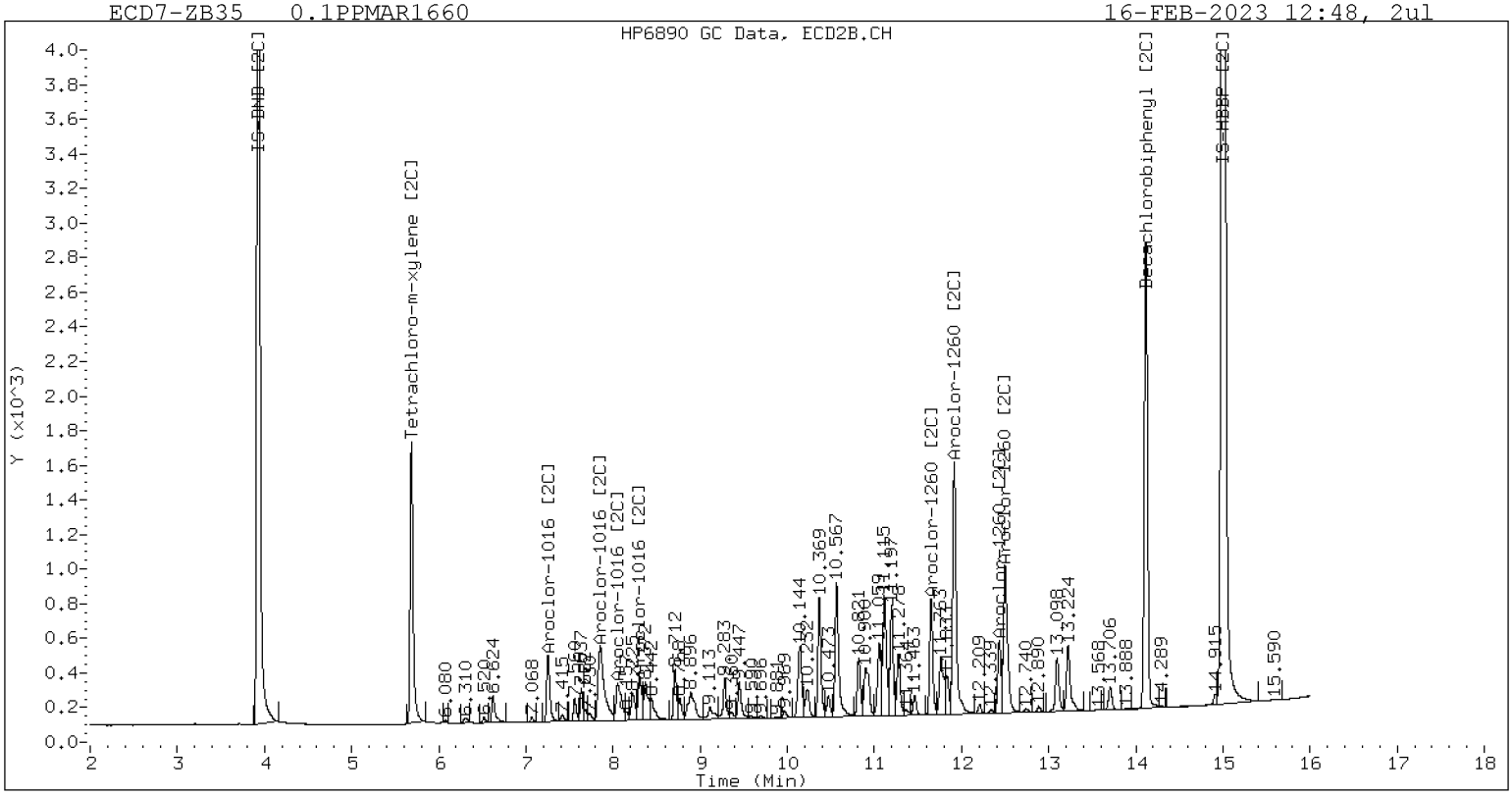
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162307ECD7.D
Data file 2: /230216.b/230216.b/02162307ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 13:09
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	472991	5.686	0.001	380587	78.5	78.1	0.6	Tetrachloro-m-xylene
13.890	-0.001	654829	14.118	-0.000	723440	75.9	79.7	5.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	424511	-1.3
Hexabromobiphenyl	975457	980103	0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361199	-1.5
Hexabromobiphenyl	646884	650552	0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	74222	480.1	1	7.254	0.000	92105	465.4
Aroclor-1016	2	7.650	0.000	249600	504.2	2	7.851	0.000	210359	500.4
Aroclor-1016	3	7.787	0.000	104974	461.1	3	8.049	0.000	87658	507.1
Aroclor-1016	4	8.402	0.000	75363	503.0	4	8.304	0.000	65546	467.6
Total Col1Ave (4 peaks):				487.1		Total Col2Ave (4 peaks):			485.1	RPD = 0
Corrected Ave (3 peaks):				481.4		Corrected Ave (3 peaks):			477.8	RPD = 1
CalAmt %D:				-2.6		CalAmt %D:			-3.0	
Aroclor-1260	1	11.041	0.000	166809	493.7	1	11.650	0.000	160885	446.0
Aroclor-1260	2	11.357	0.000	172259	498.3	2	11.915	0.000	410338	452.2
Aroclor-1260	3	11.731	0.000	445028	486.1	3	12.432	0.000	110865	456.7
Aroclor-1260	4	12.134	0.000	236535	508.9	4	12.498	0.000	278934	458.2
Aroclor-1260	5	12.240	0.000	98968	496.5	NS	---			----
Total Col1Ave (5 peaks):				496.7		Total Col2Ave (4 peaks):			453.3	RPD = 9
Corrected Ave (4 peaks):				493.7		Corrected Ave (3 peaks):			451.6	RPD = 9
CalAmt %D:				-0.7		CalAmt %D:			-9.3	

Total PCB Area Col1 (5.908 - 13.791) = 4638448 Col1 Total PCB = 1.0 ppm*

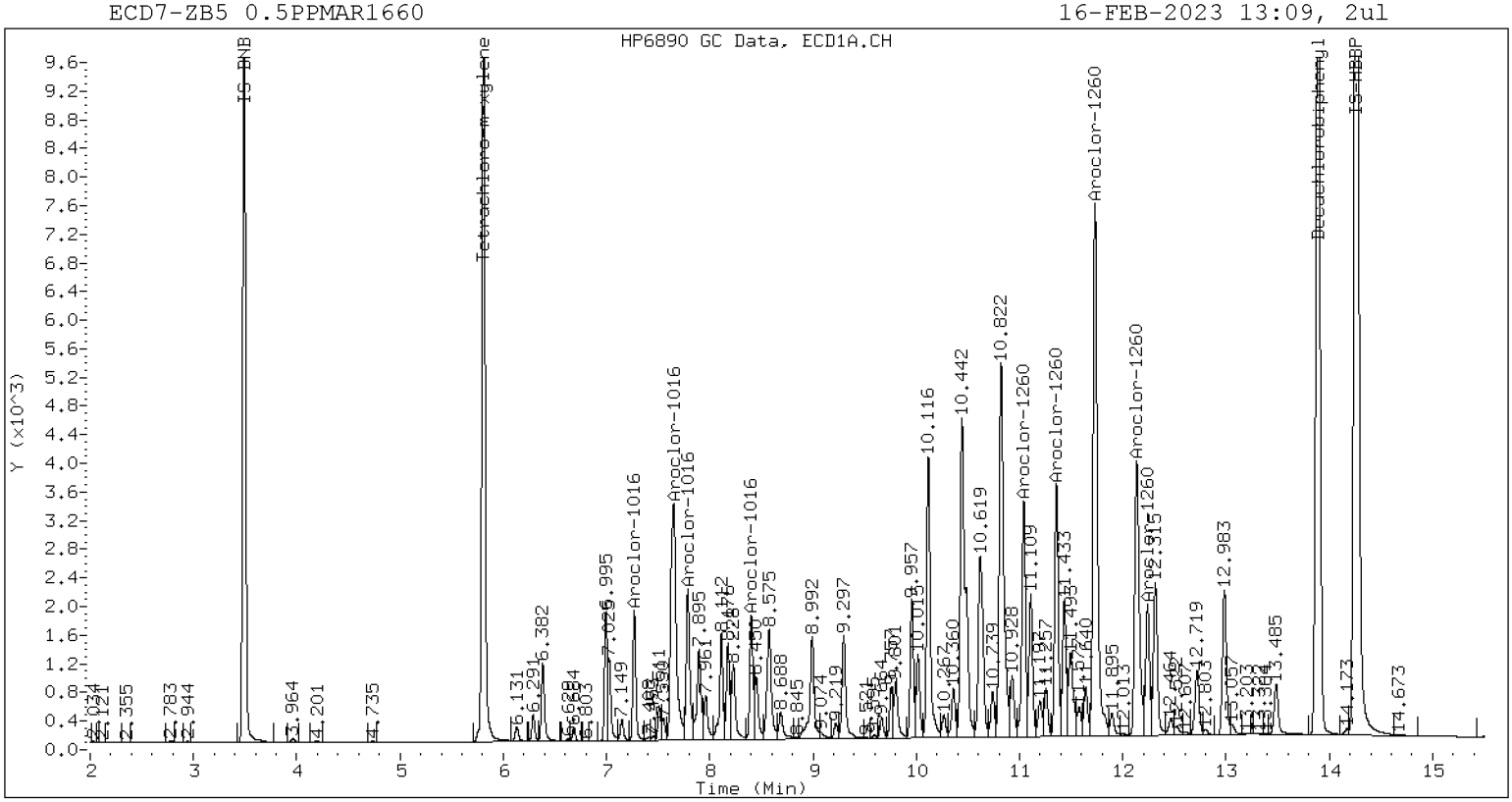
Total PCB Area Col2 (5.786 - 14.018) = 3867644 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

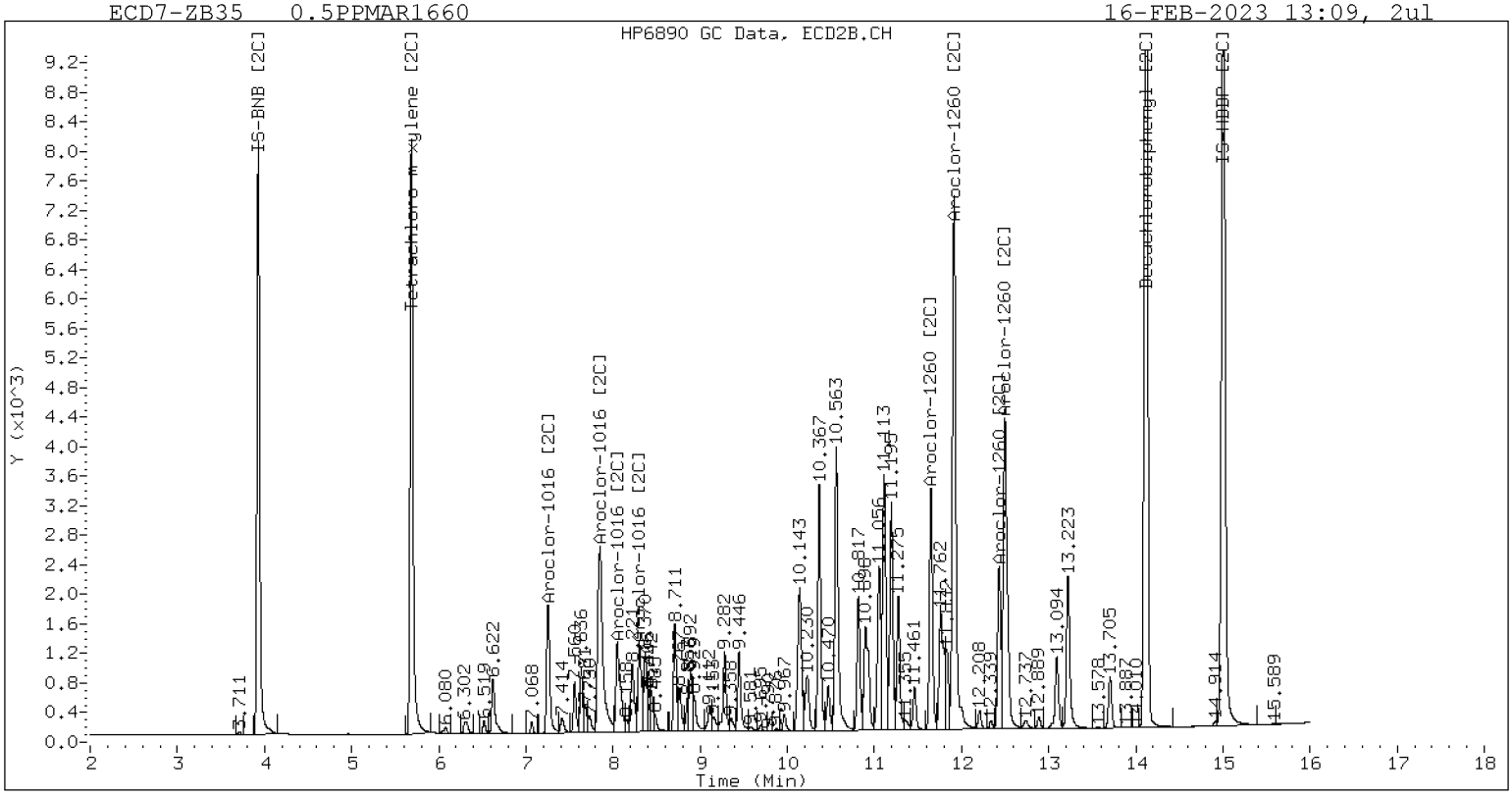
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162308ECD7.D
Data file 2: /230216.b/230216.b/02162308ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 16-FEB-2023 13:30
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	287664	5.686	0.000	229806	46.8	46.6	0.6	Tetrachloro-m-xylene
13.891	0.000	335023	14.117	-0.001	345735	37.9	37.1	2.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	432799	0.6
Hexabromobiphenyl	975457	1004715	3.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	365812	-0.3
Hexabromobiphenyl	646884	667992	3.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.269	0.000	32233	250.0	1	7.254	0.000	39556	250.0
Aroclor-1242	2	7.652	0.000	102000	250.0	2	7.853	0.000	85705	250.0
Aroclor-1242	3	8.403	0.000	30824	250.0	3	9.160	0.000	27091	250.0
Aroclor-1242	4	8.577	0.000	45526	250.0	4	9.587	0.000	32851	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 766603 Col1 Total PCB = 0.2 ppm*

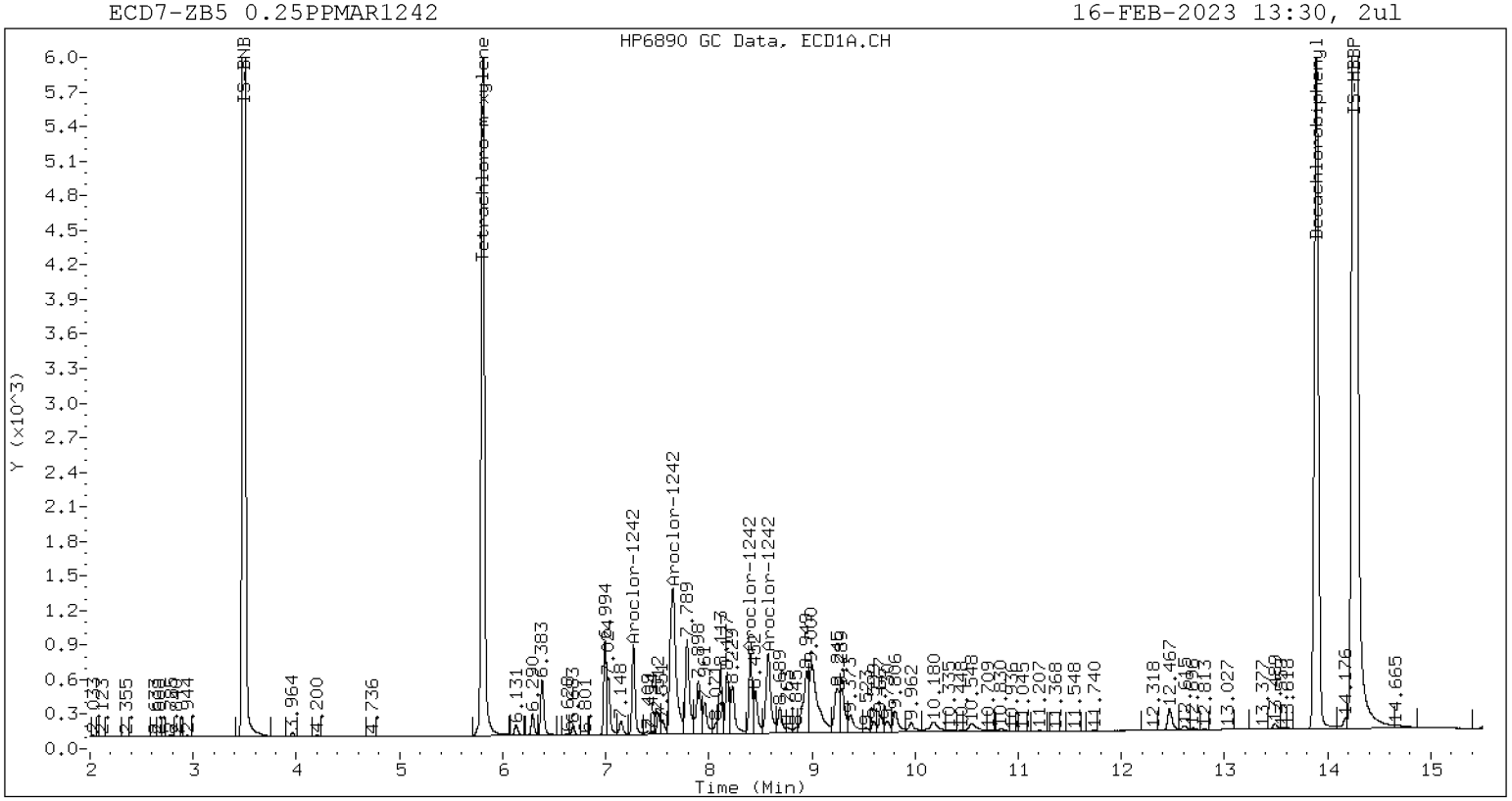
Total PCB Area Col2 (5.786 - 14.018) = 618238 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

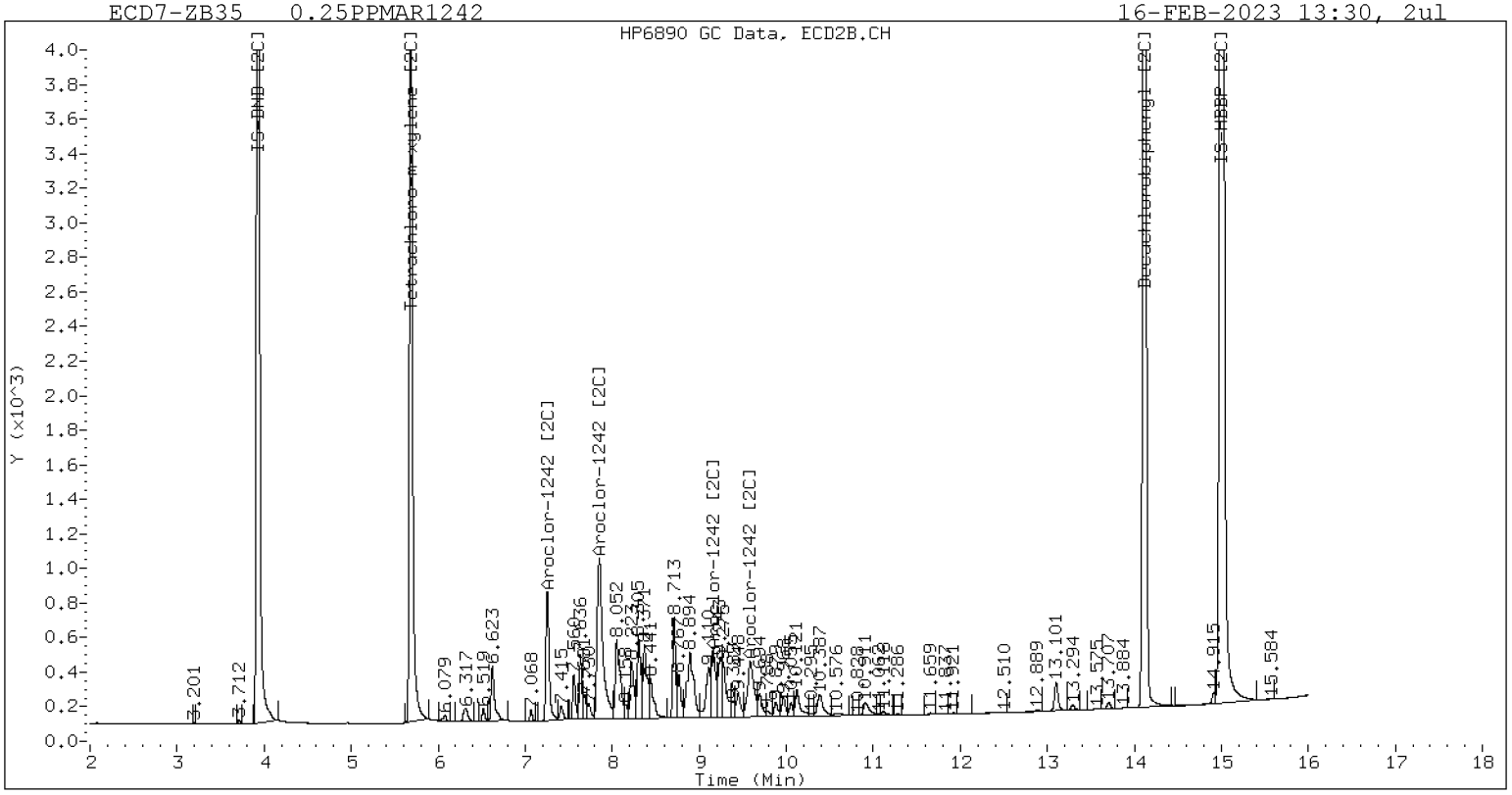
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162309ECD7.D
Data file 2: /230216.b/230216.b/02162309ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 16-FEB-2023 13:51
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	235858	5.688	0.002	191205	38.1	38.3	0.5	Tetrachloro-m-xylene
13.889	-0.002	339581	14.117	-0.001	351690	38.5	38.0	1.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	435779	1.3
Hexabromobiphenyl	975457	1000233	2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	369685	0.8
Hexabromobiphenyl	646884	662877	2.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.403	0.000	52538	250.0	1	8.305	0.000	41694	250.0
Aroclor-1248	2	8.577	0.000	66305	250.0	2	8.712	0.000	43865	250.0
Aroclor-1248	3	8.996	0.000	93719	250.0	3	9.159	0.000	50687	250.0
Aroclor-1248	4	9.292	0.000	59273	250.0	4	9.581	0.000	61479	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1025602 Col1 Total PCB = 0.2 ppm*

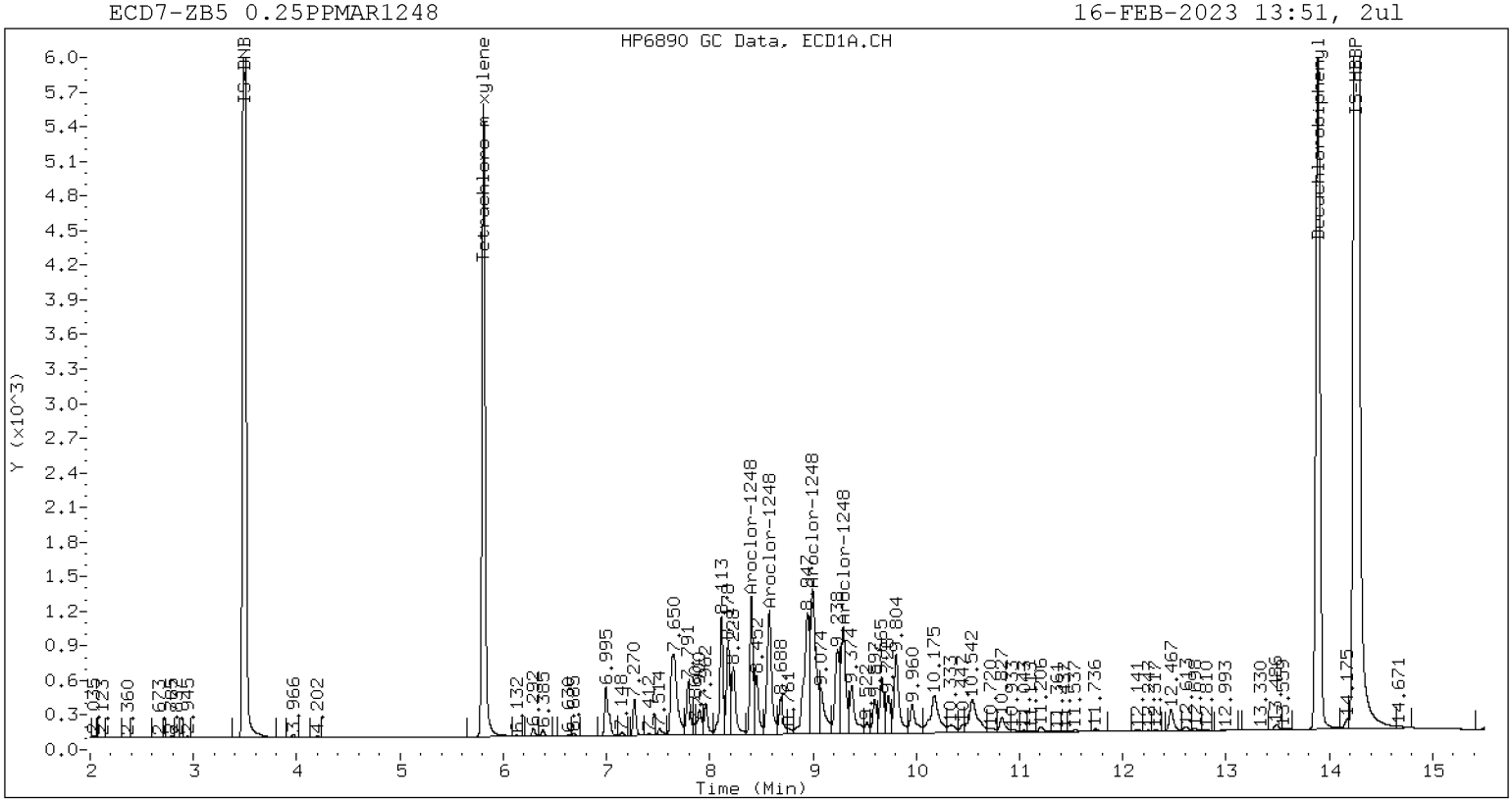
Total PCB Area Col2 (5.786 - 14.018) = 824415 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

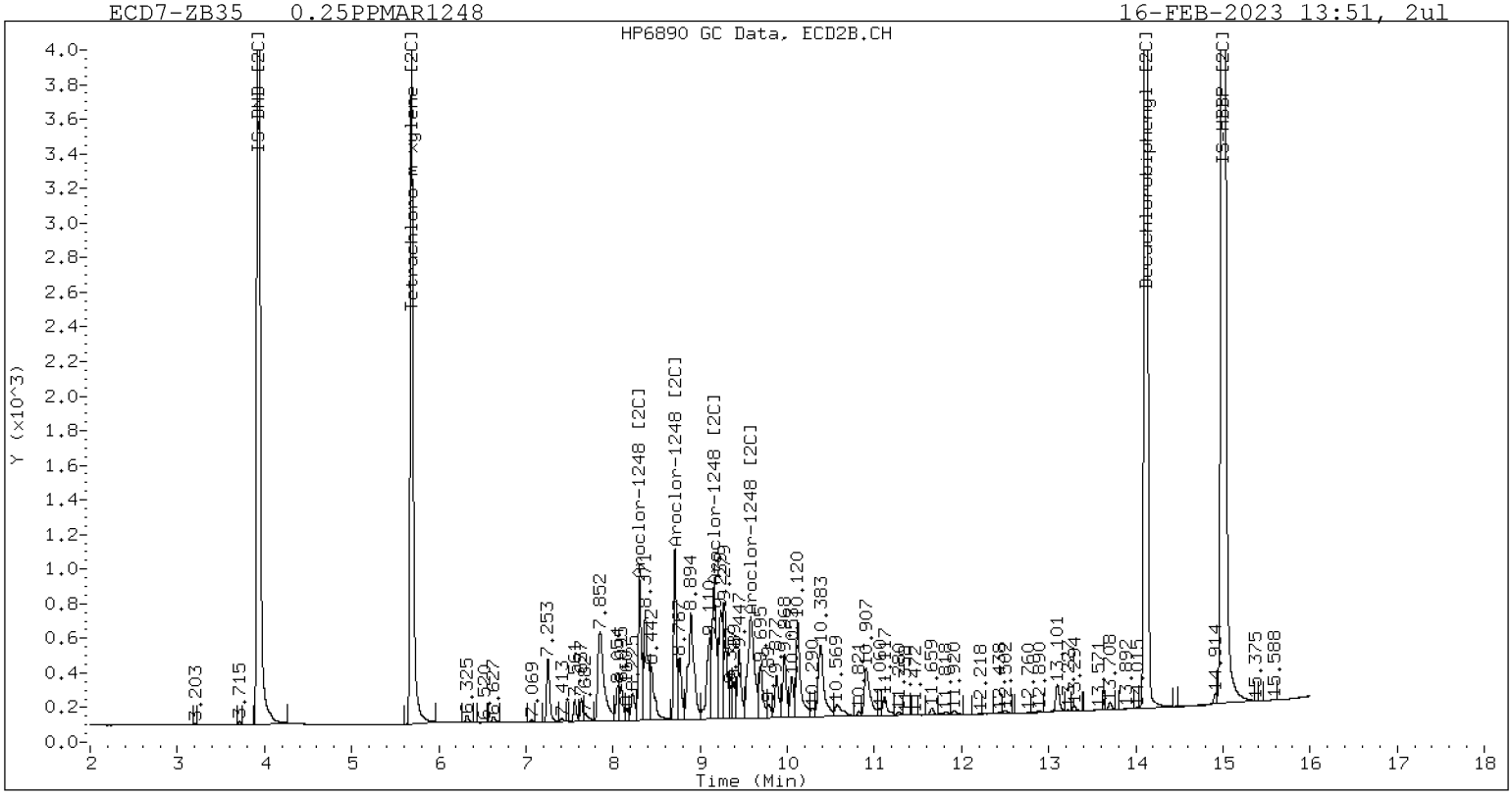
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162310ECD7.D
Data file 2: /230216.b/230216.b/02162310ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 16-FEB-2023 14:12
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235903	5.686	0.001	191667	38.0	38.3	0.7	Tetrachloro-m-xylene
13.891	0.000	345464	14.117	-0.001	355579	38.7	38.0	1.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	437427	1.7
Hexabromobiphenyl	975457	1013635	3.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	371000	1.2
Hexabromobiphenyl	646884	671465	3.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.295	0.000	105834	250.0	1	9.447	0.000	65393	250.0
Aroclor-1254	2	9.374	0.000	41671	250.0	2	9.967	0.000	52822	250.0
Aroclor-1254	3	9.665	0.000	67447	250.0	3	10.120	0.000	115063	250.0
Aroclor-1254	4	9.803	0.000	134258	250.0	4	10.370	0.000	113530	250.0
Aroclor-1254	5	10.167	0.000	81893	250.0	5	10.566	0.000	57361	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1385653 Col1 Total PCB = 0.3 ppm*

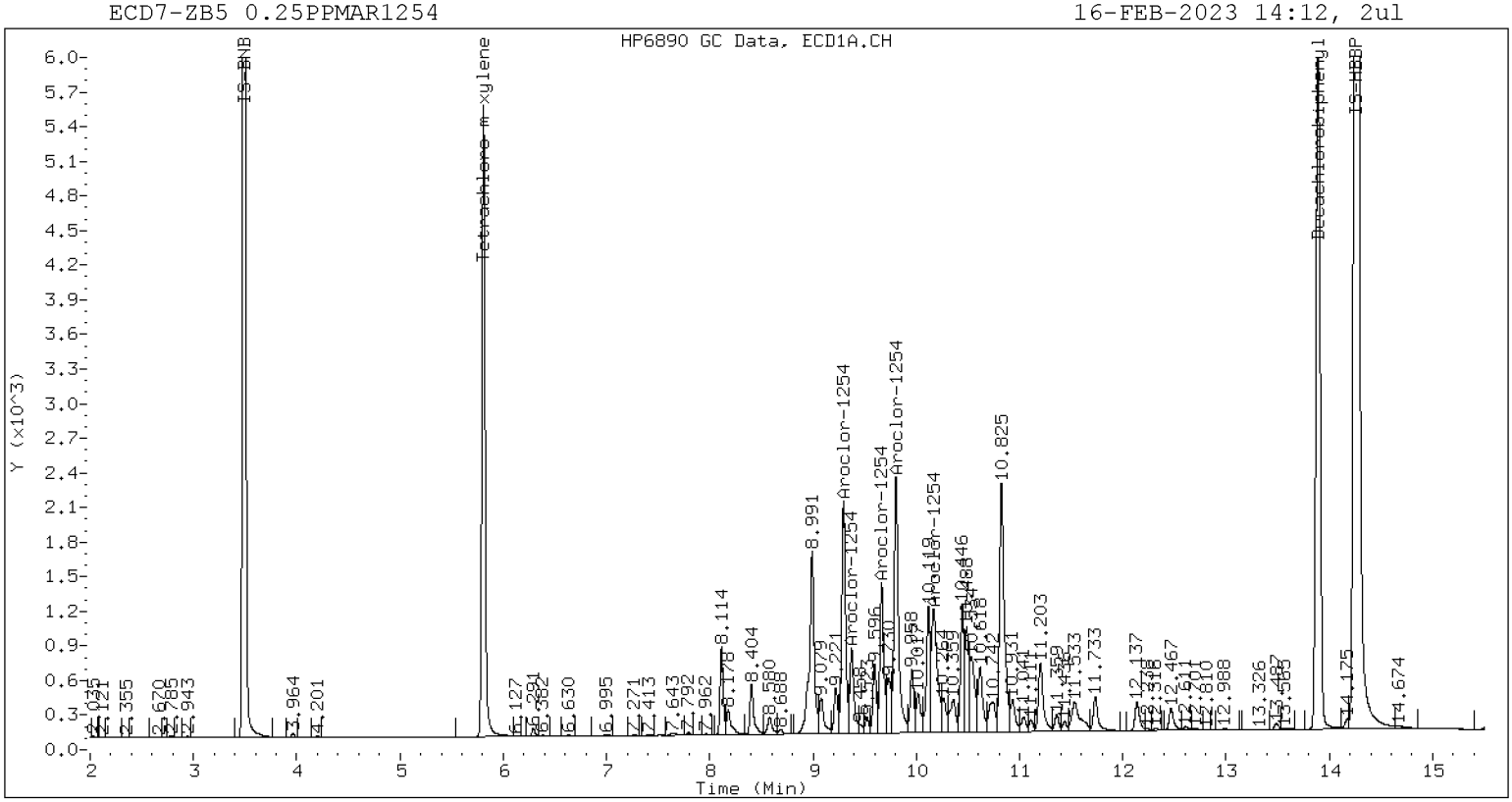
Total PCB Area Col2 (5.786 - 14.018) = 1106329 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

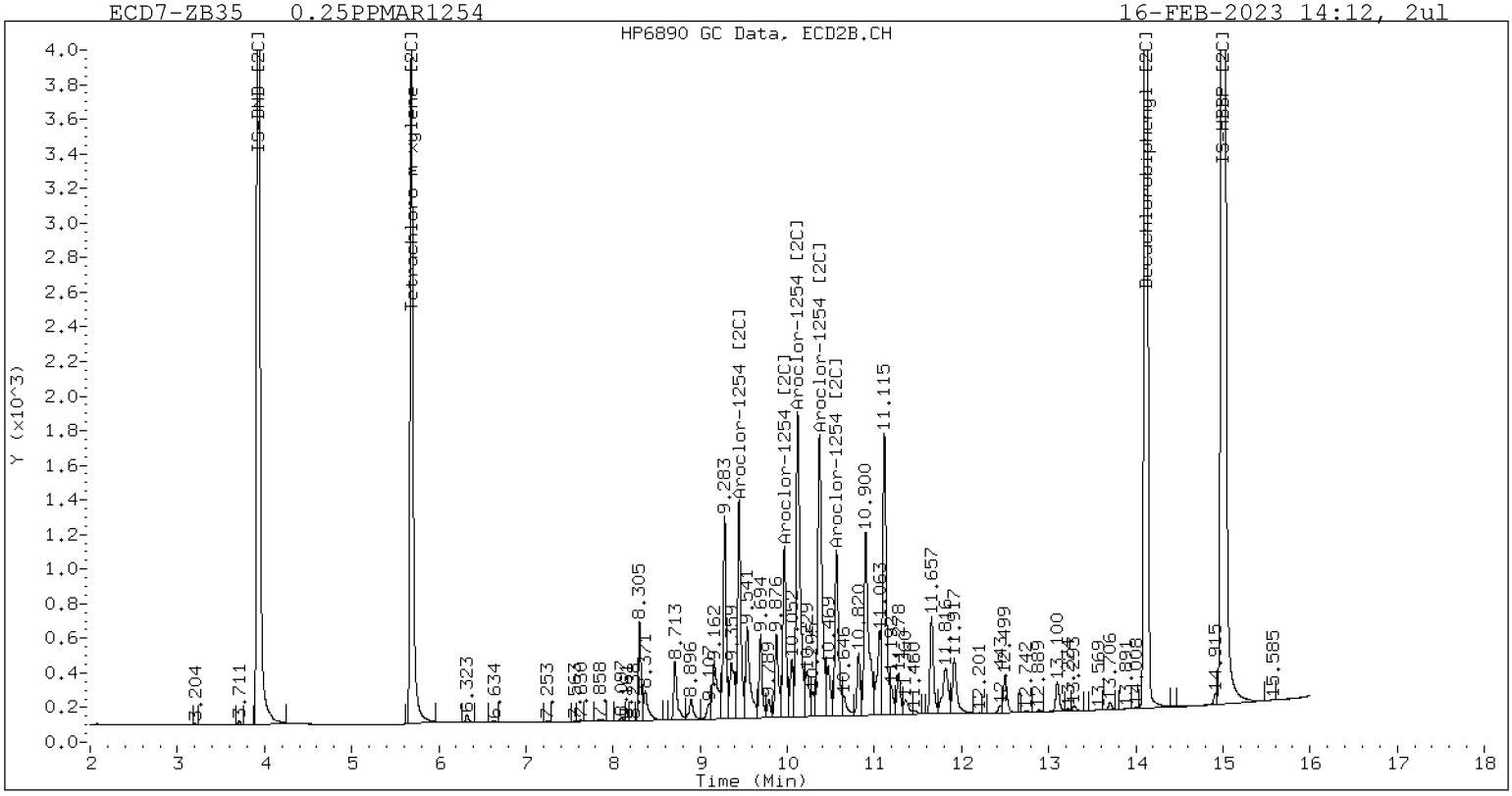
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162311ECD7.D
Data file 2: /230216.b/230216.b/02162311ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2168
Client ID:
Injection Date: 16-FEB-2023 14:33
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	241501	5.686	-0.000	189710	38.6	38.6	0.2	Tetrachloro-m-xylene
13.891	0.000	336556	14.118	0.000	345795	38.0	37.2	2.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	440775	2.5
Hexabromobiphenyl	975457	1005738	3.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	364664	-0.6
Hexabromobiphenyl	646884	666787	3.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1221	1	4.732	0.000	8560	250.0	1	4.958	0.000	6777	250.0
Aroclor-1221	2	6.133	0.000	15969	250.0	2	6.298	0.000	14550	250.0
Aroclor-1221	3	6.383	0.000	36928	250.0	3	6.622	0.000	24370	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.824	0.000	73471	250.0	1	11.198	0.000	124591	250.0
Aroclor-1262	2	12.242	0.000	120422	250.0	2	11.649	0.000	107557	250.0
Aroclor-1262	3	12.317	0.000	129860	250.0	3	12.431	0.000	117102	250.0
Aroclor-1262	4	12.984	0.000	112297	250.0	4	12.500	0.000	186359	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1985753 Col1 Total PCB = 0.4 ppm*

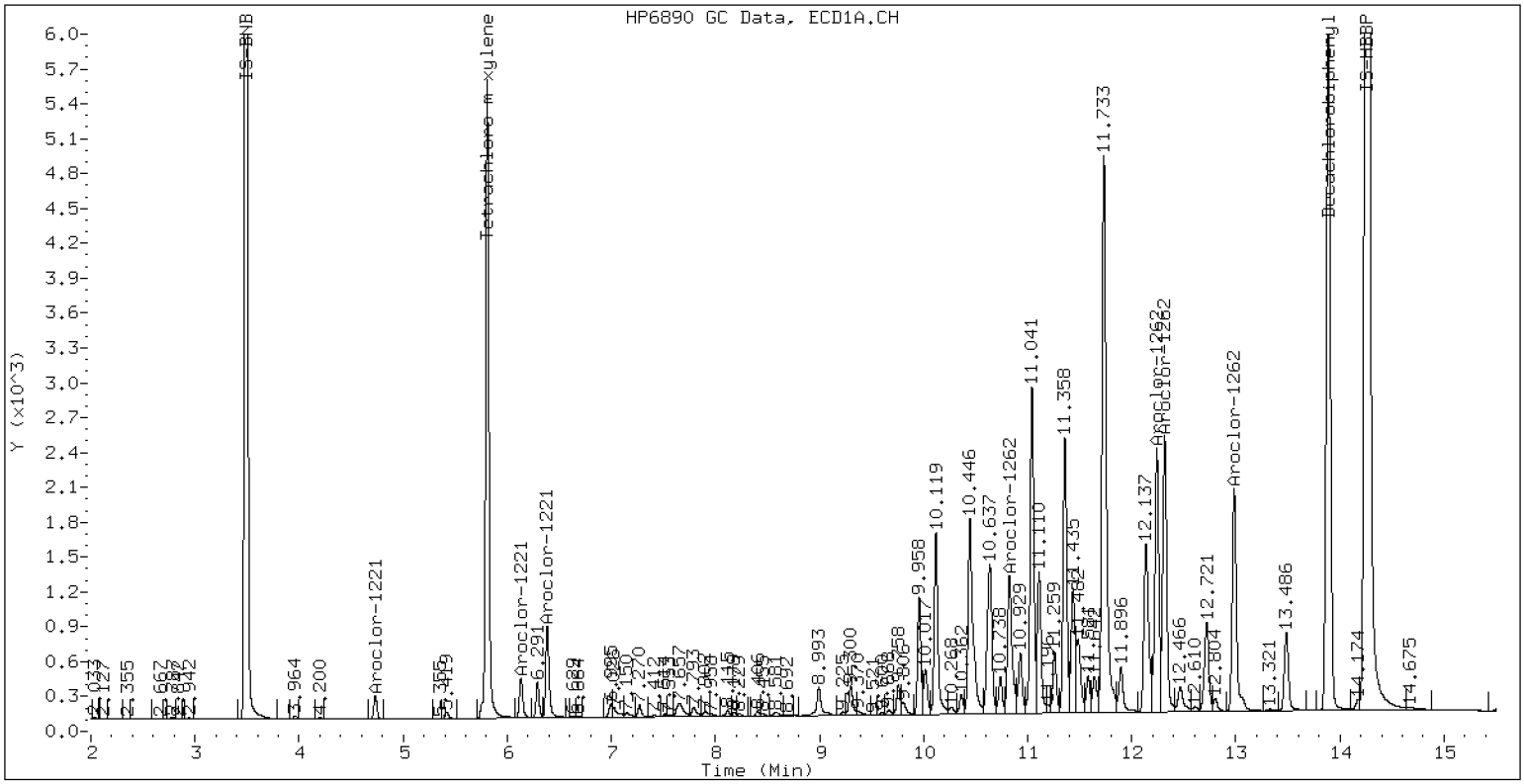
Total PCB Area Col2 (5.786 - 14.018) = 1689172 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

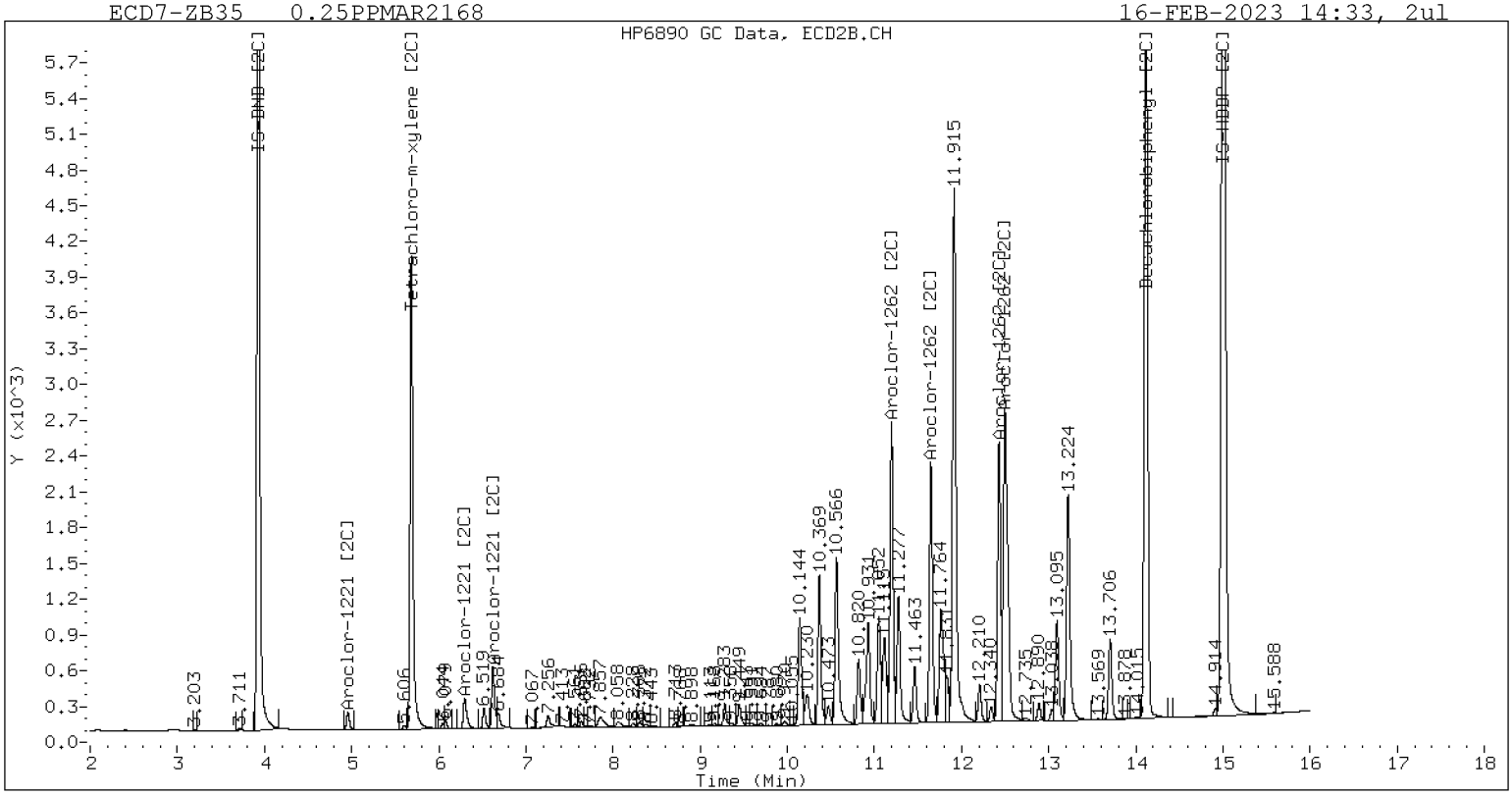
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162312ECD7.D
Data file 2: /230216.b/230216.b/02162312ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 16-FEB-2023 14:54
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	244394	5.686	0.000	193636	39.3	39.4	0.2	Tetrachloro-m-xylene
13.891	0.000	497881	14.118	0.000	532832	55.7	57.0	2.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	438085	1.9
Hexabromobiphenyl	975457	1014892	4.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	364382	-0.6
Hexabromobiphenyl	646884	669957	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.732	0.000	5253	250.0	1	4.958	0.000	4040	250.0
Aroclor-1232	2	6.133	0.000	11086	250.0	2	7.254	0.000	22642	250.0
Aroclor-1232	3	7.654	0.000	53251	250.0	3	7.855	0.000	45239	250.0
Aroclor-1232	4	8.579	0.000	22019	250.0	4	8.712	0.000	12663	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.243	0.000	318381	250.0	1	12.431	0.000	304552	250.0
Aroclor-1268	2	12.314	0.000	316432	250.0	2	12.498	0.000	320370	250.0
Aroclor-1268	3	12.697	0.000	268530	250.0	3	12.890	0.000	250965	250.0
Aroclor-1268	4	13.487	0.000	822664	250.0	4	13.707	0.000	877009	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 2577331 Col1 Total PCB = 0.5 ppm*

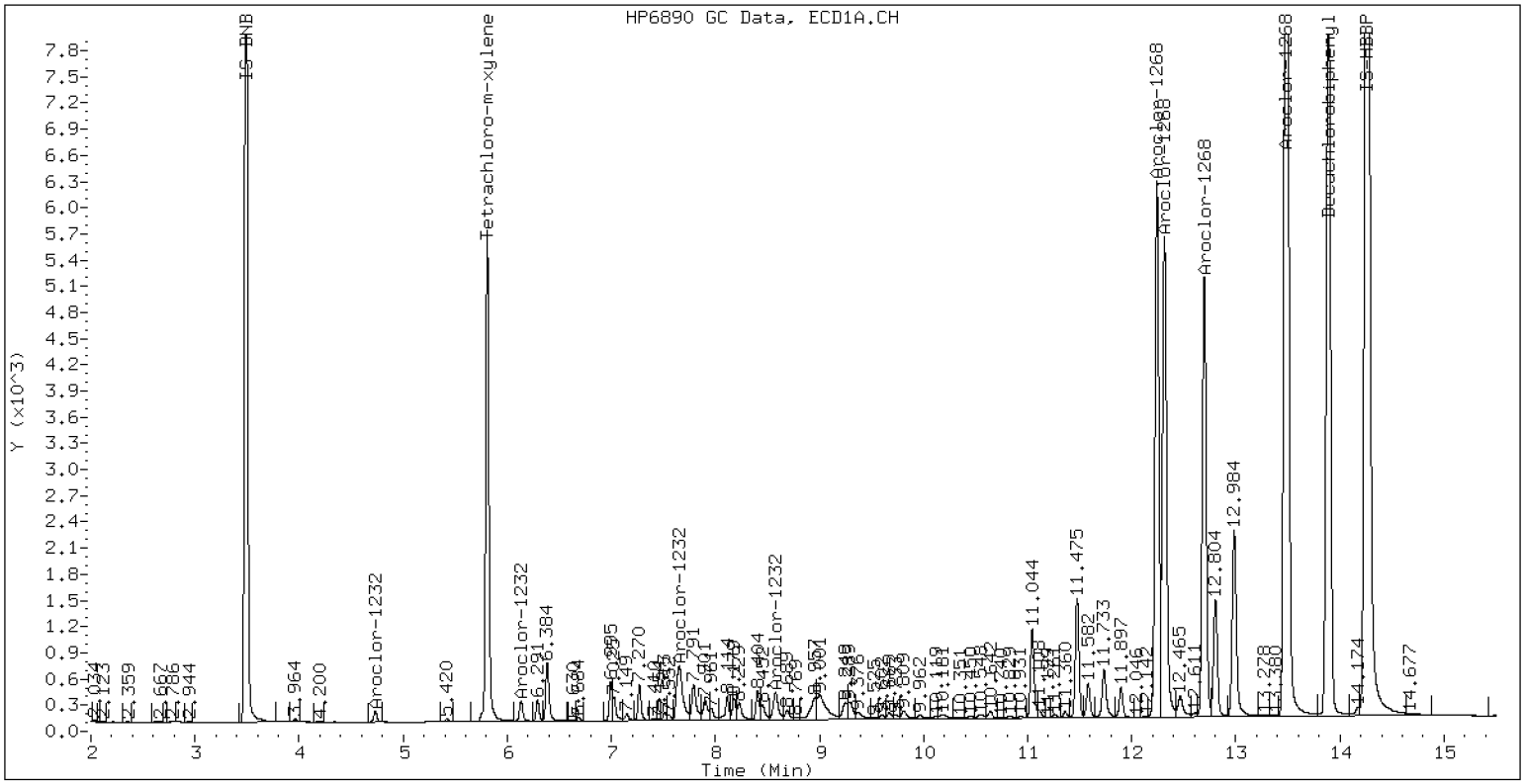
Total PCB Area Col2 (5.786 - 14.018) = 2462840 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

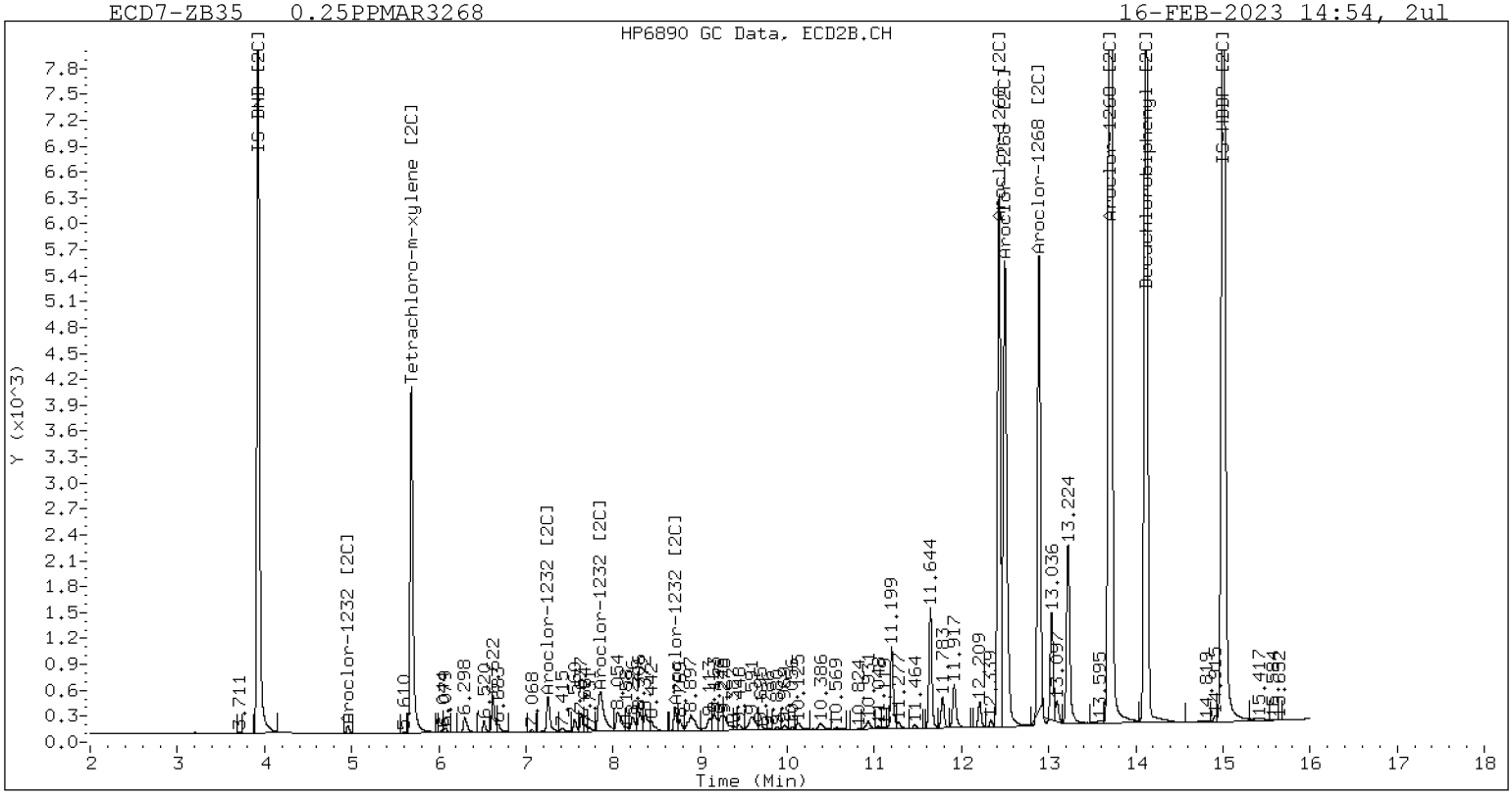
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162313ECD7.D
Data file 2: /230216.b/230216.b/02162313ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 16-FEB-2023 15:15
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	242919	5.685	-0.001	193061	37.3	37.2	0.3	Tetrachloro-m-xylene
13.891	-0.000	374845	14.118	0.000	388292	40.4	40.0	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	458820	6.7
Hexabromobiphenyl	975457	1052678	7.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	384524	4.8
Hexabromobiphenyl	646884	695386	7.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.269	0.000	36442	218.1	1	7.253	-0.001	45357	215.3
Aroclor-1016	2	7.652	0.002	116510	217.8	2	7.853	0.002	99069	221.4
Aroclor-1016	3	7.789	0.002	51841	210.7	3	8.052	0.003	42476	230.8
Aroclor-1016	4	8.403	0.001	35760	220.8	4	8.305	0.001	32151	215.4
Total Col1Ave (4 peaks):					216.8	Total Col2Ave (4 peaks):				220.7 RPD = 2
Corrected Ave (3 peaks):					215.5	Corrected Ave (3 peaks):				217.4 RPD = 1
Aroclor-1221	1	4.732	0.000	272	7.6	1	---			0.0
Aroclor-1221	2	6.131	-0.002	4384	65.9	2	6.302	0.004	5219	85.0
Aroclor-1221	3	6.383	-0.000	24508	159.4	3	6.622	0.001	21028	204.6
Total Col1Ave (3 peaks):					77.7	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.732	0.000	272	12.4	1	---			0.0
Aroclor-1232	2	6.131	-0.002	4384	94.4	2	7.253	-0.001	45357	474.6
Aroclor-1232	3	7.652	-0.002	116510	522.3	3	7.853	-0.002	99069	518.8
Aroclor-1232	4	8.577	-0.002	49511	536.7	4	8.712	-0.001	31220	584.1
Total Col1Ave (4 peaks):					291.4	Total Col2Ave (3 peaks):				525.8 RPD = 57*
Corrected Ave (3 peaks):					209.7	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	36442	266.6	1	7.253	-0.001	45357	272.7
Aroclor-1242	2	7.652	0.000	116510	269.4	2	7.853	0.000	99069	274.9
Aroclor-1242	3	8.403	0.000	35760	273.6	3	9.113	-0.047	17818	156.4
Aroclor-1242	4	8.577	-0.000	49511	256.5	4	9.582	-0.005	1661	12.0
Total Col1Ave (4 peaks):					266.5	Total Col2Ave (4 peaks):				179.0 RPD = 39
Corrected Ave (3 peaks):					264.1	Corrected Ave (3 peaks):				147.1 RPD = 57*
Aroclor-1248	1	8.403	0.000	35760	161.6	1	8.305	-0.001	32151	185.3
Aroclor-1248	2	8.577	-0.000	49511	177.3	2	8.712	0.000	31220	171.1
Aroclor-1248	3	8.992	-0.004	46666	118.2	3	9.113	-0.046	17818	84.5
Aroclor-1248	4	9.299	0.007	30647	122.8	4	9.582	0.001	1661	6.5
Total Col1Ave (4 peaks):					145.0	Total Col2Ave (4 peaks):				111.8 RPD = 26
Corrected Ave (3 peaks):					134.2	Corrected Ave (3 peaks):				87.4 RPD = 42*
Aroclor-1254	1	9.299	0.004	30647	69.0	1	9.447	0.001	22012	81.2
Aroclor-1254	2	---			0.0	2	9.969	0.002	2772	12.7
Aroclor-1254	3	9.667	0.002	3608	12.7	3	10.144	0.025	57546	120.6
Aroclor-1254	4	9.805	0.002	12639	22.4	4	10.369	-0.002	77590	164.8
Aroclor-1254	5	10.117	-0.050	100524	292.6	5	10.566	-0.000	106735	448.8
Total Col1Ave (4 peaks):					99.2	Total Col2Ave (5 peaks):				165.6 RPD = 50*
Corrected Ave (3 peaks):					34.7	Corrected Ave (4 peaks):				94.8 RPD = 93*
Aroclor-1260	1	11.042	0.002	99629	274.5	1	11.651	0.001	89434	231.9
Aroclor-1260	2	11.359	0.002	100112	269.7	2	11.915	0.001	237947	245.3
Aroclor-1260	3	11.732	0.002	260880	265.3	3	12.433	0.001	63686	245.4
Aroclor-1260	4	12.137	0.003	124998	250.4	4	12.500	0.002	157792	242.5
Aroclor-1260	5	12.242	0.001	58944	275.3	NS	---			----
Total Col1Ave (5 peaks):					267.0	Total Col2Ave (4 peaks):				241.3 RPD = 10
Corrected Ave (4 peaks):					265.0	Corrected Ave (3 peaks):				239.9 RPD = 10
Aroclor-1262	1	10.824	-0.001	144319	469.2	1	11.197	-0.000	90434	174.0
Aroclor-1262	2	12.242	-0.000	58944	116.9	2	11.651	0.002	89434	199.3
Aroclor-1262	3	12.316	-0.001	73272	134.8	3	12.433	0.002	63686	130.4
Aroclor-1262	4	12.985	0.001	66451	141.3	4	12.500	-0.000	157792	203.0
Total Col1Ave (4 peaks):					215.5	Total Col2Ave (4 peaks):				176.7 RPD = 20
Corrected Ave (3 peaks):					131.0	Corrected Ave (3 peaks):				167.9 RPD = 25
Aroclor-1268	1	12.242	-0.001	58944	44.6	1	12.433	0.002	63686	50.4
Aroclor-1268	2	12.316	0.002	73272	55.8	2	12.500	0.002	157792	118.6
Aroclor-1268	3	12.722	0.025	29543	26.5	3	12.890	0.000	1866	1.8
Aroclor-1268	4	13.486	-0.001	13453	3.9	4	13.707	0.000	11995	3.3
Total Col1Ave (4 peaks):					32.7	Total Col2Ave (4 peaks):				43.5 RPD = 28
Corrected Ave (3 peaks):					25.0	Corrected Ave (3 peaks):				18.5 RPD = 30

Total PCB Area Col1 (5.908 - 13.791) = 2405704 Col1 Total PCB = 0.5 ppm*

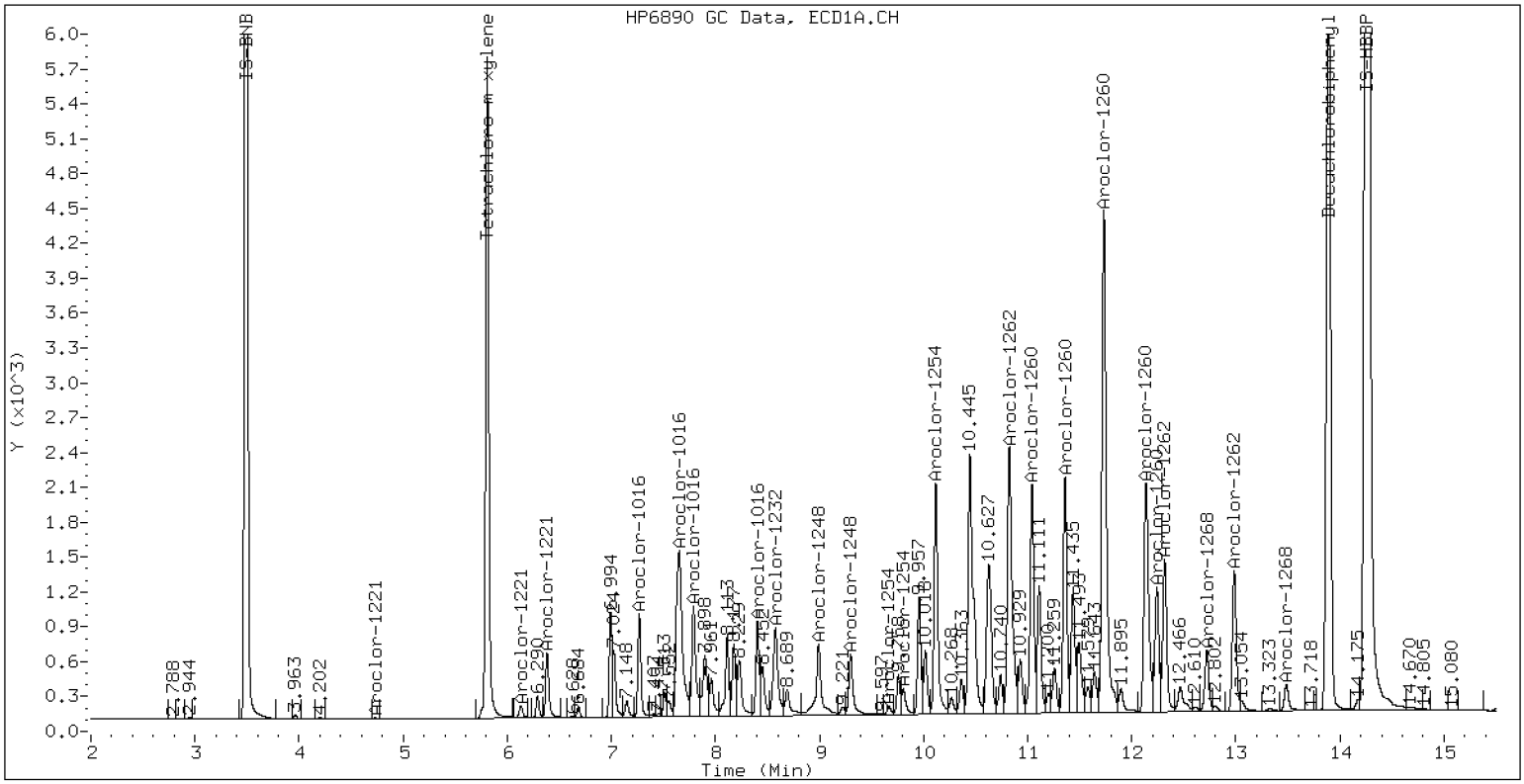
Total PCB Area Col2 (5.786 - 14.018) = 1998655 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

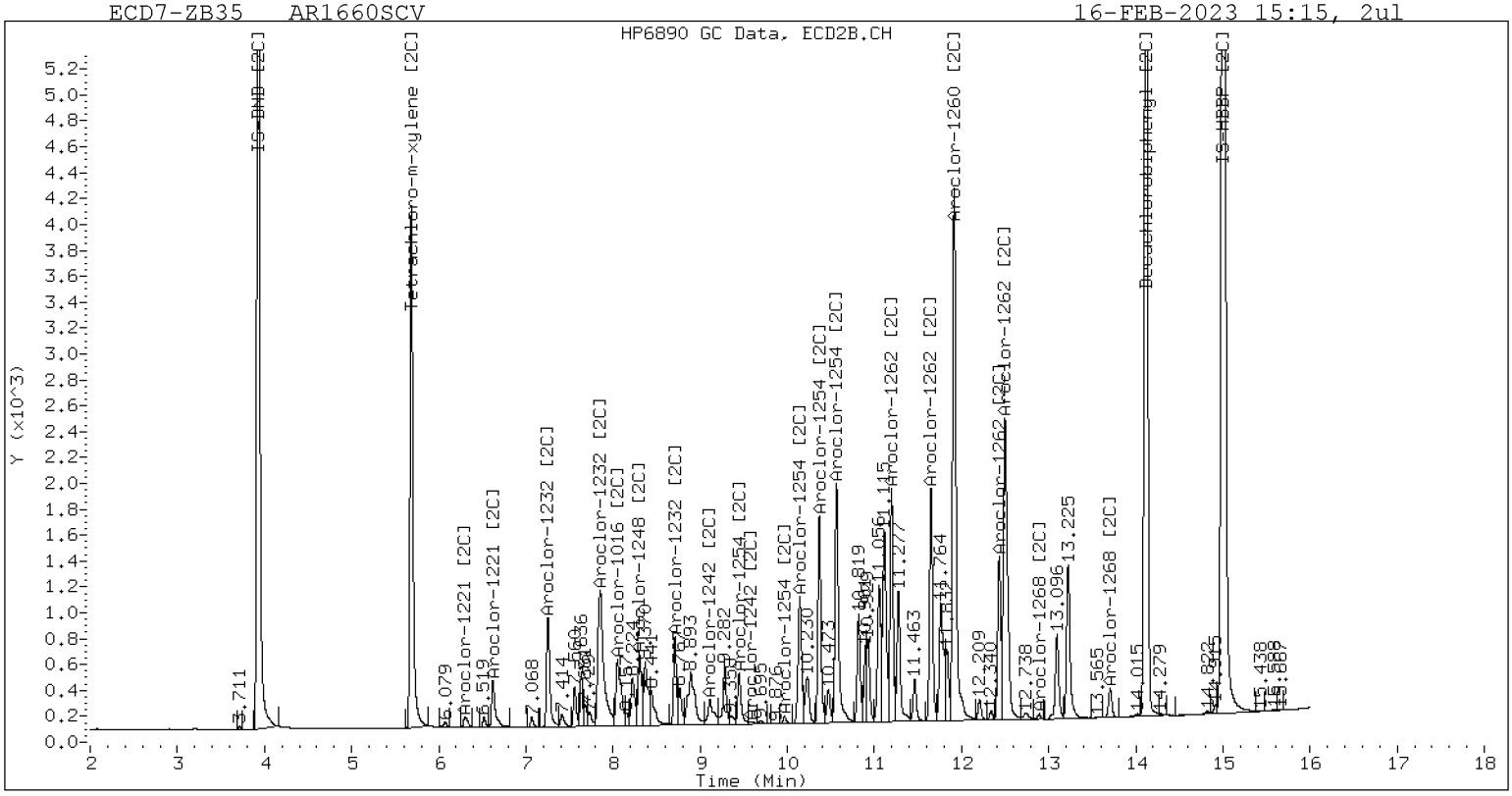
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162314ECD7.D
Data file 2: /230216.b/230216.b/02162314ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 16-FEB-2023 15:36
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	240392	5.686	0.000	191518	36.8	36.8	0.0	Tetrachloro-m-xylene
13.891	0.000	372444	14.118	-0.000	384306	40.3	39.9	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	460847	7.2
Hexabromobiphenyl	975457	1048824	7.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	386112	5.3
Hexabromobiphenyl	646884	690141	6.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	26450	157.6	1	7.253	-0.001	35202	166.4
Aroclor-1016	2	7.651	0.001	91590	170.4	2	7.851	-0.000	76062	169.2
Aroclor-1016	3	7.789	0.002	38405	155.4	3	8.051	0.002	31745	171.8
Aroclor-1016	4	8.403	0.001	28918	177.8	4	8.304	0.000	24379	162.7
Total Col1Ave (4 peaks):					165.3	Total Col2Ave (4 peaks):				167.5 RPD = 1
Corrected Ave (3 peaks):					161.1	Corrected Ave (3 peaks):				166.1 RPD = 3
Aroclor-1221	1	4.736	0.004	158	4.4	1	---			0.0
Aroclor-1221	2	6.131	-0.002	3413	51.1	2	6.318	0.020	4305	69.9
Aroclor-1221	3	6.383	-0.000	18978	122.9	3	6.623	0.001	15561	150.8
Total Col1Ave (3 peaks):					59.5	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.736	0.004	158	7.1	1	---			0.0
Aroclor-1232	2	6.131	-0.002	3413	73.2	2	7.253	-0.001	35202	366.8
Aroclor-1232	3	7.651	-0.003	91590	408.8	3	7.851	-0.004	76062	396.7
Aroclor-1232	4	8.577	-0.002	48090	519.0	4	8.712	-0.001	24445	455.4
Total Col1Ave (4 peaks):					252.0	Total Col2Ave (3 peaks):				406.3 RPD = 47*
Corrected Ave (3 peaks):					163.0	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	26450	192.7	1	7.253	-0.000	35202	210.8
Aroclor-1242	2	7.651	-0.001	91590	210.8	2	7.851	-0.002	76062	210.2
Aroclor-1242	3	8.403	-0.000	28918	220.3	3	9.156	-0.004	26140	228.5
Aroclor-1242	4	8.577	-0.000	48090	248.0	4	9.580	-0.007	33659	242.7
Total Col1Ave (4 peaks):					217.9	Total Col2Ave (4 peaks):				223.1 RPD = 2
Corrected Ave (3 peaks):					207.9	Corrected Ave (3 peaks):				216.5 RPD = 4
Aroclor-1248	1	8.403	-0.000	28918	130.1	1	8.304	-0.001	24379	140.0
Aroclor-1248	2	8.577	-0.000	48090	171.5	2	8.712	0.000	24445	133.4
Aroclor-1248	3	8.997	0.001	47230	119.1	3	9.156	-0.003	26140	123.4
Aroclor-1248	4	9.292	0.001	23789	94.9	4	9.580	-0.001	33659	131.0
Total Col1Ave (4 peaks):					128.9	Total Col2Ave (4 peaks):				132.0 RPD = 2
Corrected Ave (3 peaks):					114.7	Corrected Ave (3 peaks):				129.3 RPD = 12
Aroclor-1254	1	9.292	-0.003	23789	53.3	1	9.446	-0.000	12605	46.3
Aroclor-1254	2	9.374	0.001	9634	54.9	2	9.967	-0.000	8527	38.8
Aroclor-1254	3	9.666	0.001	10685	37.6	3	10.119	-0.001	16959	35.4
Aroclor-1254	4	9.803	-0.000	18245	32.2	4	10.375	0.005	17612	37.3
Aroclor-1254	5	10.169	0.001	13394	38.8	5	10.568	0.003	5160	21.6
Total Col1Ave (5 peaks):					43.4	Total Col2Ave (5 peaks):				35.9 RPD = 19
Corrected Ave (4 peaks):					40.5	Corrected Ave (4 peaks):				33.3 RPD = 20
Aroclor-1260	1	11.043	0.002	200	0.6	1	11.659	0.009	1919	5.0
Aroclor-1260	2	11.361	0.004	305	0.8	2	11.922	0.007	1126	1.2
Aroclor-1260	3	11.735	0.004	595	0.6	3	12.438	0.006	127	0.5
Aroclor-1260	4	12.143	0.009	717	1.4	4	12.501	0.003	670	1.0
Aroclor-1260	5	12.318	0.078	265	1.2	NS	---			----
Total Col1Ave (5 peaks):					0.9	Total Col2Ave (4 peaks):				1.9 RPD = 70*
Corrected Ave (4 peaks):					0.8	Corrected Ave (3 peaks):				0.9 RPD = 11
Aroclor-1262	1	10.827	0.003	7919	25.8	1	11.117	-0.081	6747	13.1
Aroclor-1262	2	12.318	0.076	265	0.5	2	11.659	0.010	1919	4.3
Aroclor-1262	3	---			0.0	3	12.438	0.007	127	0.3
Aroclor-1262	4	13.032	0.048	704	1.5	4	12.501	0.001	670	0.9
Total Col1Ave (3 peaks):					9.3	Total Col2Ave (4 peaks):				4.6 RPD = 67*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				1.8
Aroclor-1268	1	12.318	0.075	265	0.2	1	12.438	0.007	127	0.1
Aroclor-1268	2	---			0.0	2	12.501	0.003	670	0.5
Aroclor-1268	3	12.613	-0.084	2956	2.7	3	---			0.0
Aroclor-1268	4	13.493	0.006	820	0.2	4	13.707	0.000	334	0.1
Total Col1Ave (3 peaks):					1.0	Total Col2Ave (3 peaks):				0.2 RPD = 126*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 754431 Col1 Total PCB = 0.1 ppm*

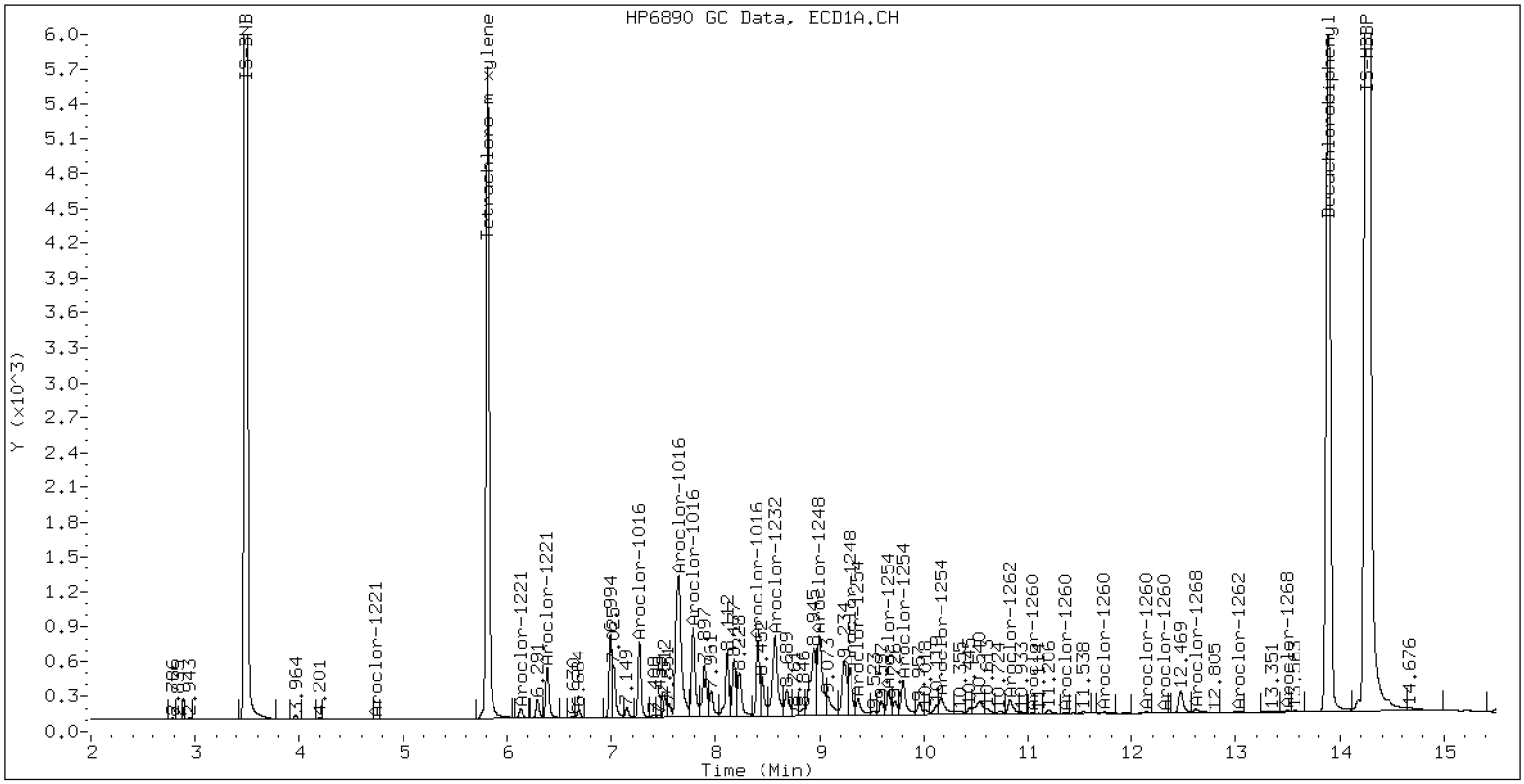
Total PCB Area Col2 (5.786 - 14.018) = 609458 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

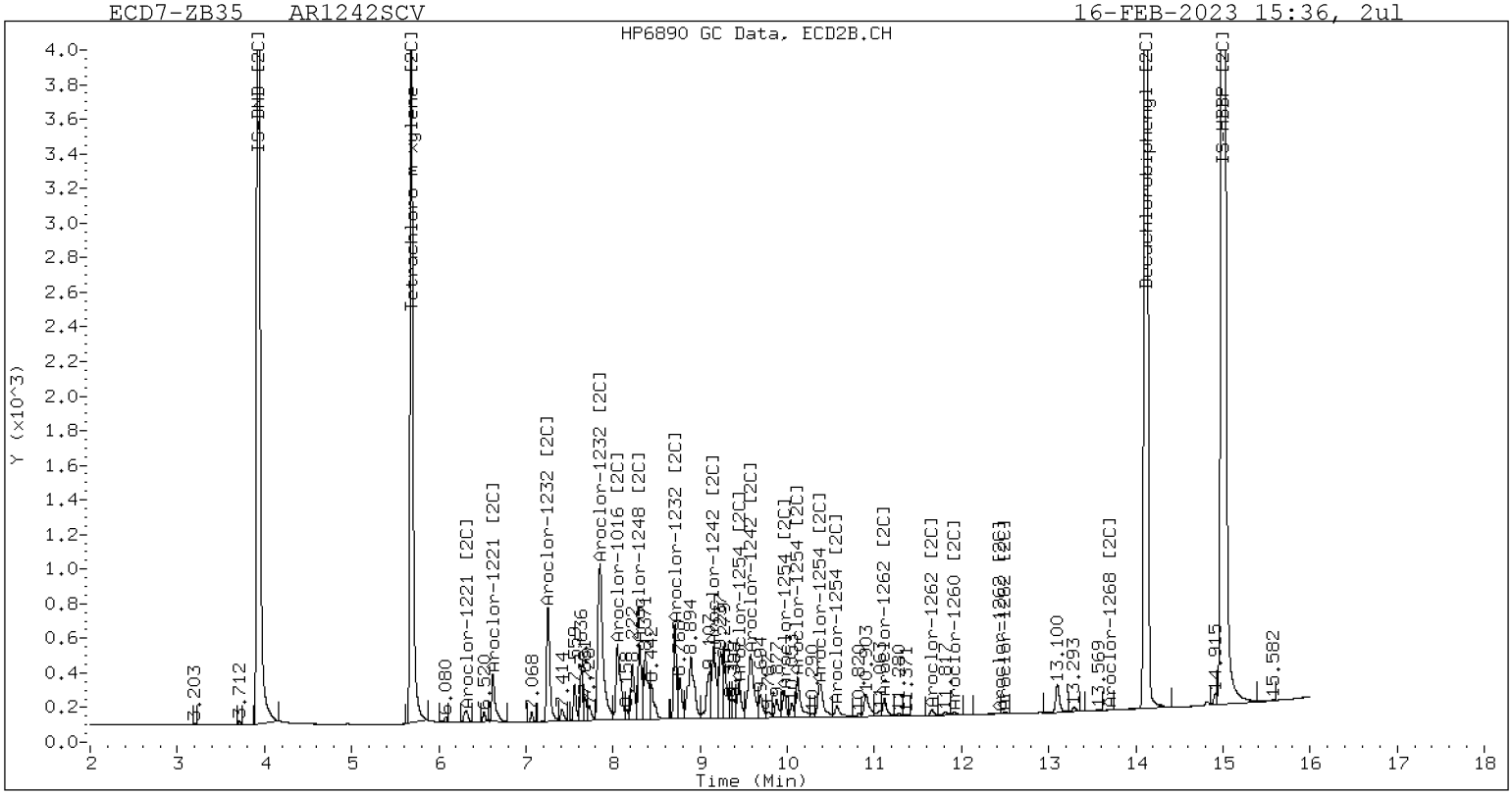
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162315ECD7.D
Data file 2: /230216.b/230216.b/02162315ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 16-FEB-2023 15:57
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235232	5.686	0.000	187353	36.5	36.5	0.1	Tetrachloro-m-xylene
13.891	0.000	371896	14.118	0.000	374279	41.4	40.1	3.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	454293	5.6
Hexabromobiphenyl	975457	1020262	4.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	380923	3.9
Hexabromobiphenyl	646884	669927	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	12869	77.8	1	7.252	-0.002	17659	84.6
Aroclor-1016	2	7.649	-0.001	59048	111.5	2	7.852	0.001	49924	112.6
Aroclor-1016	3	7.791	0.004	23385	96.0	3	8.054	0.004	9755	53.5
Aroclor-1016	4	8.403	0.001	51659	322.2	4	8.305	0.001	40334	272.8
Total Col1Ave (4 peaks):					151.9	Total Col2Ave (4 peaks):				130.9 RPD = 15
Corrected Ave (3 peaks):					95.1	Corrected Ave (3 peaks):				83.6 RPD = 13
Aroclor-1221	1	4.639	-0.093	125	3.5	1	---			0.0
Aroclor-1221	2	6.133	-0.000	396	6.0	2	6.324	0.026	2135	35.1
Aroclor-1221	3	6.384	0.001	2262	14.9	3	6.626	0.005	1703	16.7
Total Col1Ave (3 peaks):					8.1	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.639	-0.093	125	5.7	1	---			0.0
Aroclor-1232	2	6.133	0.000	396	8.6	2	7.252	-0.003	17659	186.5
Aroclor-1232	3	7.649	-0.005	59048	267.3	3	7.852	-0.003	49924	263.9
Aroclor-1232	4	8.577	-0.002	65165	713.5	4	8.712	-0.000	42481	802.3
Total Col1Ave (4 peaks):					248.8	Total Col2Ave (3 peaks):				417.6 RPD = 51*
Corrected Ave (3 peaks):					93.9	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	12869	95.1	1	7.252	-0.002	17659	107.2
Aroclor-1242	2	7.649	-0.003	59048	137.9	2	7.852	-0.000	49924	139.9
Aroclor-1242	3	8.403	0.000	51659	399.2	3	9.160	0.001	49159	435.7
Aroclor-1242	4	8.577	-0.000	65165	340.9	4	9.582	-0.005	57018	416.7
Total Col1Ave (4 peaks):					243.3	Total Col2Ave (4 peaks):				274.8 RPD = 12
Corrected Ave (3 peaks):					191.3	Corrected Ave (3 peaks):				221.2 RPD = 15
Aroclor-1248	1	8.403	0.000	51659	235.8	1	8.305	-0.000	40334	234.7
Aroclor-1248	2	8.577	-0.000	65165	235.7	2	8.712	0.000	42481	235.0
Aroclor-1248	3	8.997	0.001	90358	231.2	3	9.160	0.002	49159	235.3
Aroclor-1248	4	9.292	0.000	60263	243.8	4	9.582	0.001	57018	225.0
Total Col1Ave (4 peaks):					236.6	Total Col2Ave (4 peaks):				232.5 RPD = 2
Corrected Ave (3 peaks):					234.2	Corrected Ave (3 peaks):				231.6 RPD = 1
Aroclor-1254	1	9.292	-0.003	60263	137.1	1	9.447	0.001	22366	83.3
Aroclor-1254	2	9.373	-0.000	30778	177.8	2	9.968	0.001	20179	93.0
Aroclor-1254	3	9.666	0.001	25929	92.5	3	10.121	0.001	37594	79.6
Aroclor-1254	4	9.806	0.003	44678	80.1	4	10.384	0.014	37032	79.4
Aroclor-1254	5	10.177	0.010	31103	91.4	5	10.571	0.005	8221	34.9
Total Col1Ave (5 peaks):					115.8	Total Col2Ave (5 peaks):				74.0 RPD = 44*
Corrected Ave (4 peaks):					100.3	Corrected Ave (4 peaks):				69.3 RPD = 37
Aroclor-1260	1	11.045	0.004	1084	3.1	1	11.659	0.009	1947	5.2
Aroclor-1260	2	11.359	0.002	556	1.5	2	11.920	0.006	1354	1.4
Aroclor-1260	3	11.734	0.003	872	0.9	3	12.426	-0.006	2386	9.5
Aroclor-1260	4	12.143	0.009	431	0.9	4	12.501	0.004	1186	1.9
Aroclor-1260	5	12.243	0.003	275	1.3	NS	---			----
Total Col1Ave (5 peaks):					1.6	Total Col2Ave (4 peaks):				4.5 RPD = 98*
Corrected Ave (4 peaks):					1.2	Corrected Ave (3 peaks):				2.9 RPD = 84*
Aroclor-1262	1	10.828	0.003	9454	31.7	1	11.119	-0.079	7326	14.6
Aroclor-1262	2	12.243	0.001	275	0.6	2	11.659	0.010	1947	4.5
Aroclor-1262	3	12.321	0.005	357	0.7	3	12.426	-0.005	2386	5.1
Aroclor-1262	4	12.984	-0.001	1676	3.7	4	12.501	0.002	1186	1.6
Total Col1Ave (4 peaks):					9.2	Total Col2Ave (4 peaks):				6.4 RPD = 35
Corrected Ave (3 peaks):					1.6	Corrected Ave (3 peaks):				3.7 RPD = 78*
Aroclor-1268	1	12.243	0.000	275	0.2	1	12.426	-0.004	2386	2.0
Aroclor-1268	2	12.321	0.007	357	0.3	2	12.501	0.004	1186	0.9
Aroclor-1268	3	12.614	-0.084	992	0.9	3	12.898	0.008	102	0.1
Aroclor-1268	4	13.493	0.006	969	0.3	4	13.674	-0.032	1135	0.3
Total Col1Ave (4 peaks):					0.4	Total Col2Ave (4 peaks):				0.8 RPD = 64*
Corrected Ave (3 peaks):					0.3	Corrected Ave (3 peaks):				0.5 RPD = 53*

Total PCB Area Col1 (5.908 - 13.791) = 1015830 Col1 Total PCB = 0.2 ppm*

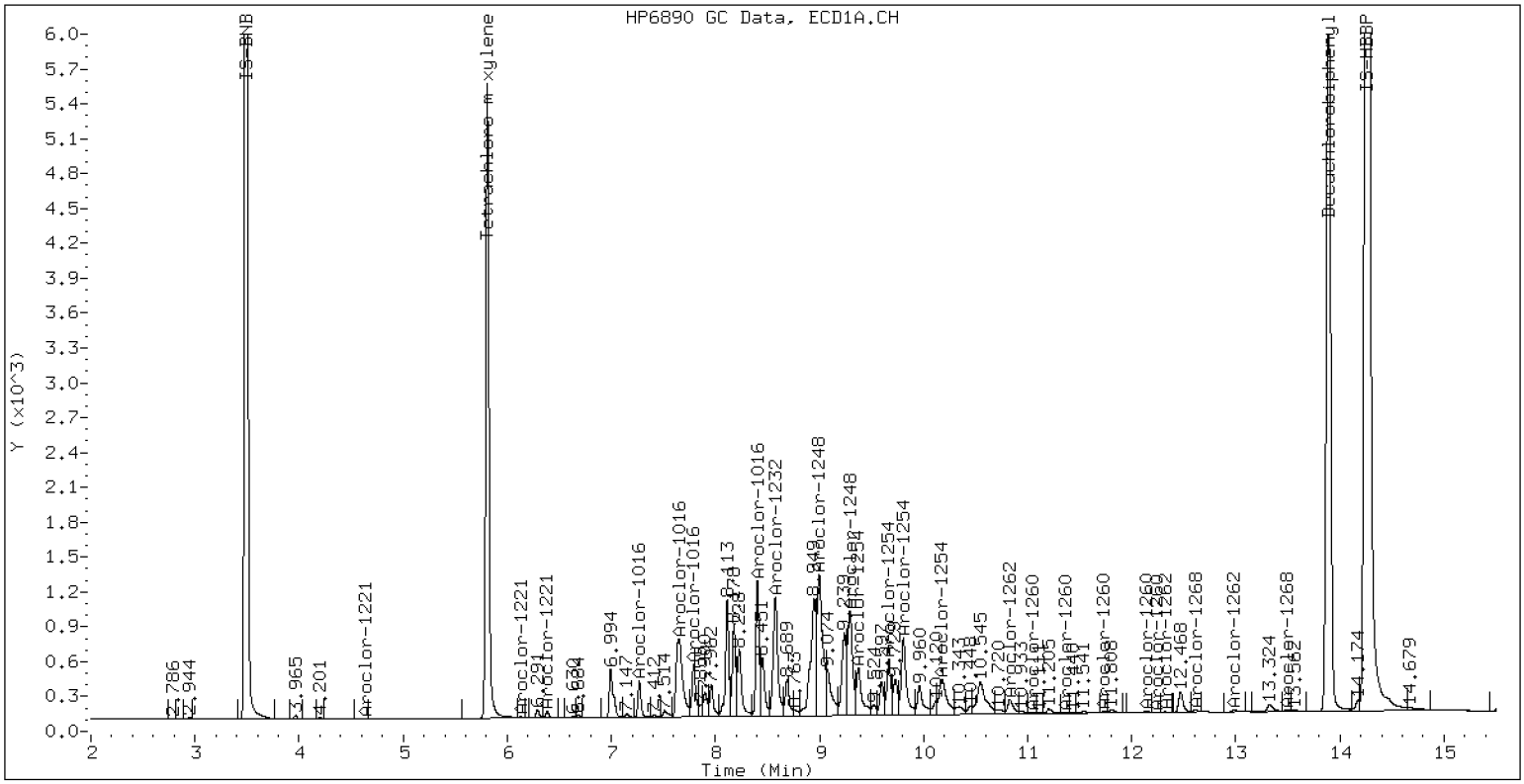
Total PCB Area Col2 (5.786 - 14.018) = 794946 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

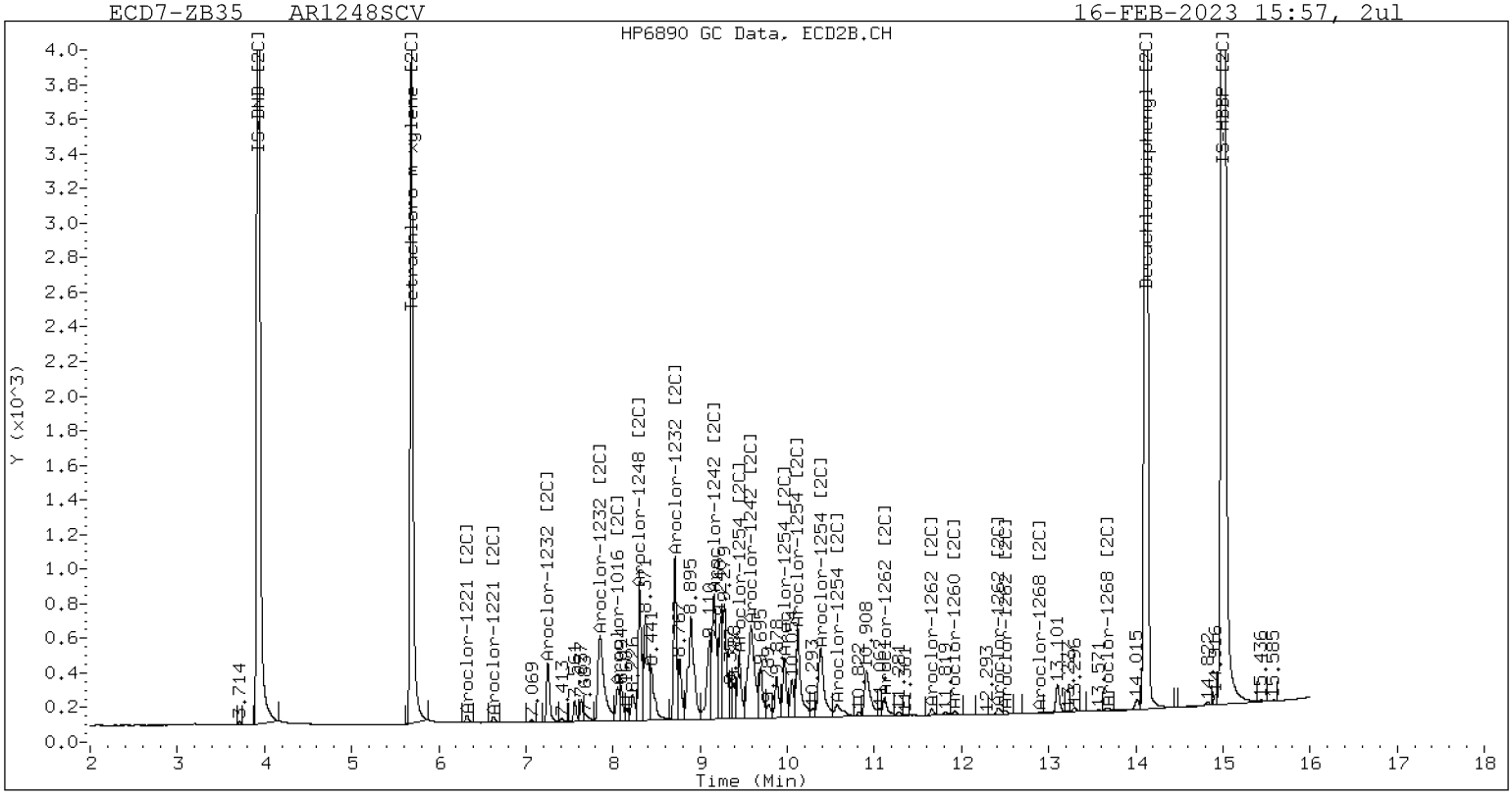
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 16-FEB-2023 15:57, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248SCV 16-FEB-2023 15:57, 2ul

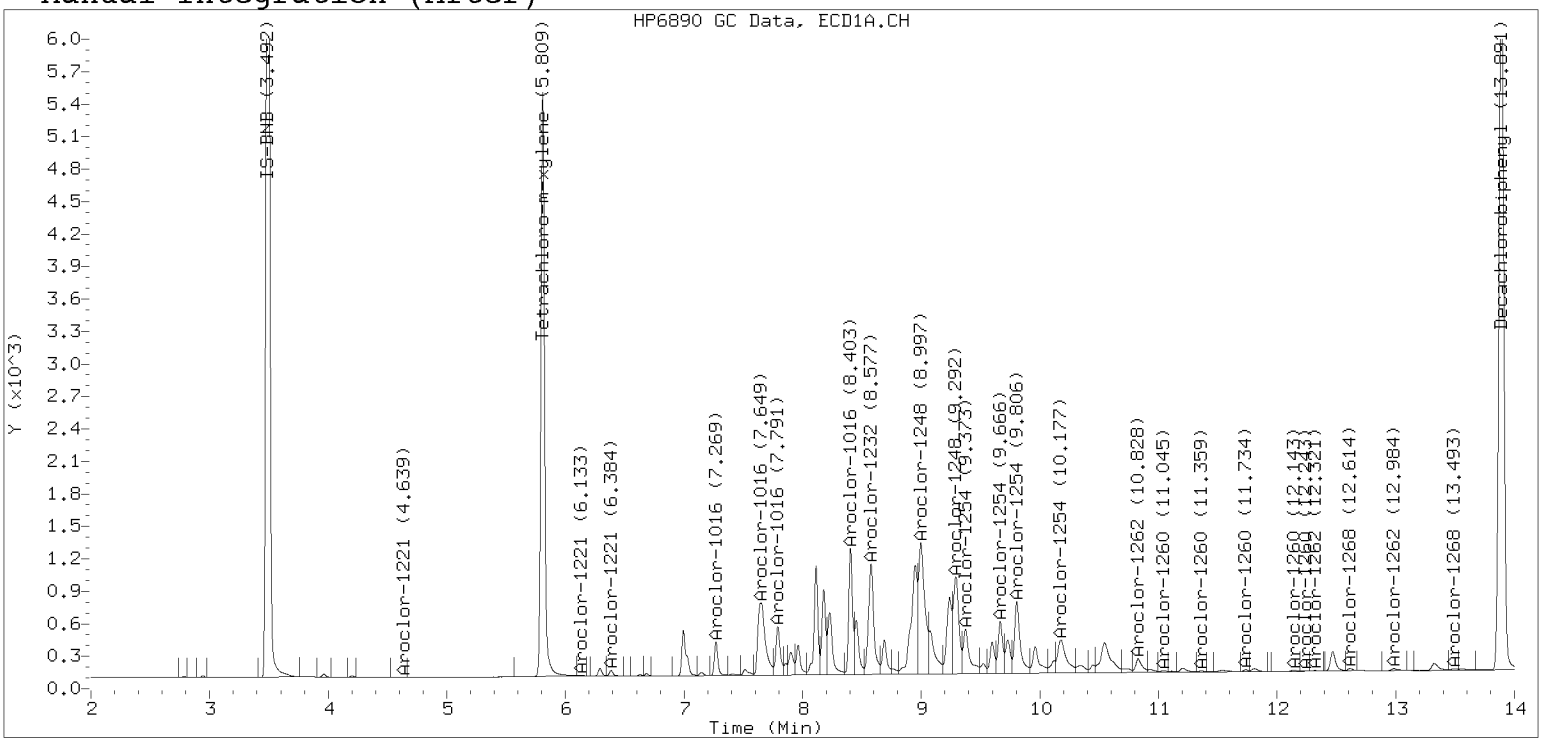


ZB-35 Manual Integration: NO

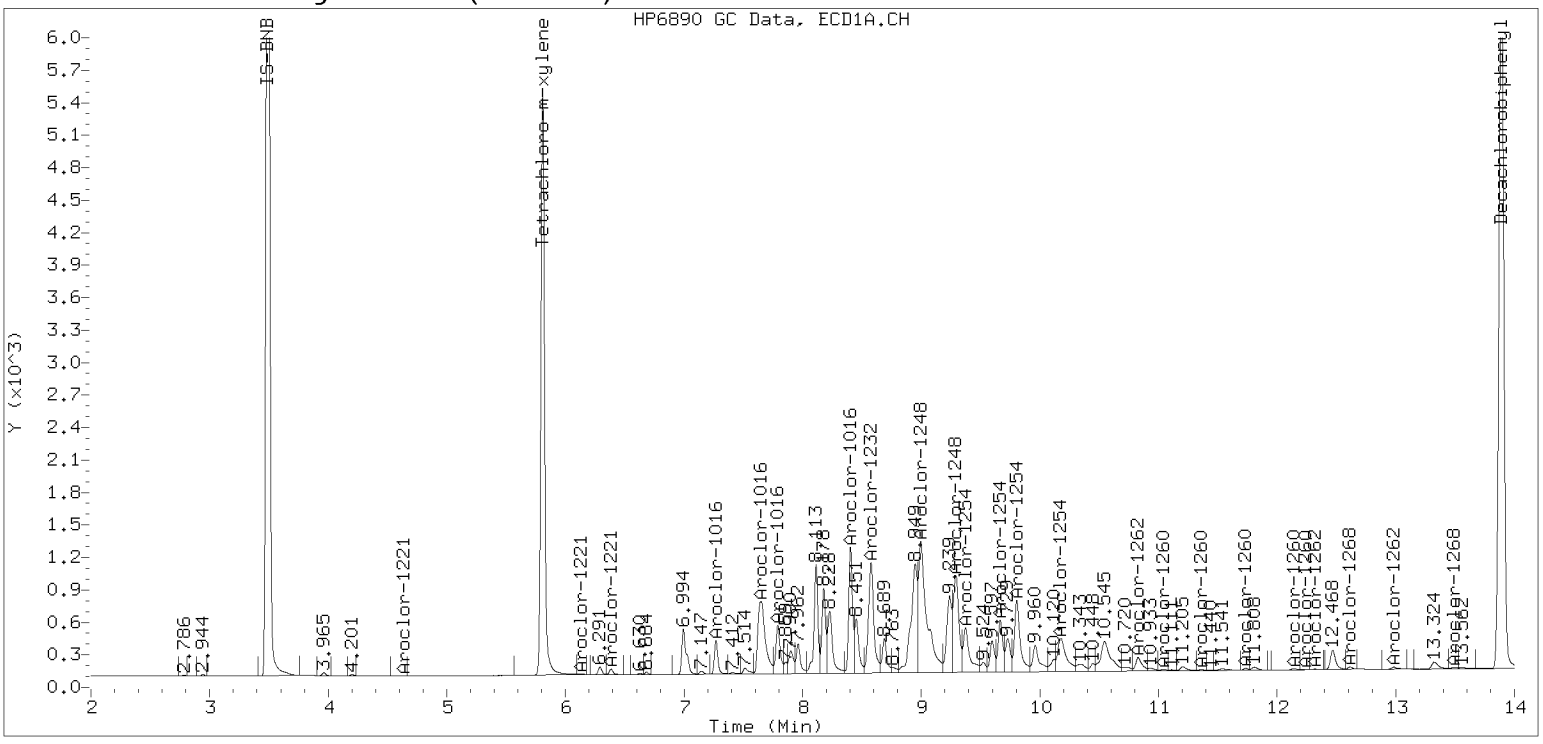
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230216.b/02162315ECD7.D Injection Date: 16-FEB-2023 15:57

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162316ECD7.D
Data file 2: /230216.b/230216.b/02162316ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 16-FEB-2023 16:18
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	242127	5.685	-0.000	193580	36.7	37.0	0.9	Tetrachloro-m-xylene
13.890	-0.001	377360	14.118	0.000	394229	40.3	40.4	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	465227	8.2
Hexabromobiphenyl	975457	1063495	9.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	387434	5.6
Hexabromobiphenyl	646884	700154	8.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	281	1.7	1	7.256	0.002	379	1.8
Aroclor-1016	2	7.655	0.005	996	1.8	2	---			0.0
Aroclor-1016	3	7.792	0.005	684	2.7	3	8.097	0.048	526	2.8
Aroclor-1016	4	8.404	0.002	18193	110.8	4	8.305	0.001	23002	153.0
Total Col1Ave (4 peaks):		29.3				Total Col2Ave (3 peaks):		52.5	RPD = 57*	
Corrected Ave (3 peaks):		2.1				Corrected Ave: < 3 Peaks				
Aroclor-1221	1	---		0.0		1	---			0.0
Aroclor-1221	2	---		0.0		2	6.323	0.026	2104	34.0
Aroclor-1221	3	---		0.0		3	6.632	0.010	433	4.2
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---		0.0		1	---			0.0
Aroclor-1232	2	---		0.0		2	7.256	0.001	379	3.9
Aroclor-1232	3	7.655	0.001	996	4.4	3	---			0.0
Aroclor-1232	4	8.580	0.002	7144	76.4	4	8.714	0.001	15174	281.7
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	7.270	0.001	281	2.0	1	7.256	0.002	379	2.3
Aroclor-1242	2	7.655	0.003	996	2.3	2	---			0.0
Aroclor-1242	3	8.404	0.001	18193	137.3	3	9.163	0.004	23373	203.7
Aroclor-1242	4	8.580	0.003	7144	36.5	4	9.541	-0.046	35054	251.9
Total Col1Ave (4 peaks):		44.5				Total Col2Ave (3 peaks):		152.6	RPD = 110*	
Corrected Ave (3 peaks):		13.6				Corrected Ave: < 3 Peaks				
Aroclor-1248	1	8.404	0.001	18193	81.1	1	8.305	-0.000	23002	131.6
Aroclor-1248	2	8.580	0.003	7144	25.2	2	8.714	0.002	15174	82.5
Aroclor-1248	3	8.992	-0.004	93928	234.7	3	9.163	0.005	23373	110.0
Aroclor-1248	4	9.296	0.004	99099	391.5	4	9.541	-0.040	35054	136.0
Total Col1Ave (4 peaks):		183.1				Total Col2Ave (4 peaks):		115.0	RPD = 46*	
Corrected Ave (3 peaks):		113.7				Corrected Ave (3 peaks):		108.0	RPD = 5	
Aroclor-1254	1	9.296	0.001	99099	220.1	1	9.447	0.001	61772	226.1
Aroclor-1254	2	9.374	0.001	43324	244.4	2	9.966	-0.001	49637	225.0
Aroclor-1254	3	9.666	0.001	63930	222.8	3	10.119	-0.000	106246	221.1
Aroclor-1254	4	9.803	0.000	123663	216.5	4	10.369	-0.001	107021	225.7
Aroclor-1254	5	10.171	0.004	76902	220.7	5	10.565	-0.000	55207	230.4
Total Col1Ave (5 peaks):		224.9				Total Col2Ave (5 peaks):		225.6	RPD = 0	
Corrected Ave (4 peaks):		220.0				Corrected Ave (4 peaks):		224.5	RPD = 2	
Aroclor-1260	1	11.041	0.000	8242	22.5	1	11.657	0.007	30319	78.1
Aroclor-1260	2	11.360	0.003	8312	22.2	2	11.918	0.004	22042	22.6
Aroclor-1260	3	11.734	0.003	19109	19.2	3	12.445	0.012	1692	6.5
Aroclor-1260	4	12.137	0.002	15342	30.4	4	12.500	0.002	12899	19.7
Aroclor-1260	5	12.238	-0.002	582	2.7	NS	---			----
Total Col1Ave (5 peaks):		19.4				Total Col2Ave (4 peaks):		31.7	RPD = 48*	
Corrected Ave (4 peaks):		16.6				Corrected Ave (3 peaks):		16.2	RPD = 2	
Aroclor-1262	1	10.824	-0.000	138302	445.0	1	11.278	0.081	13621	26.0
Aroclor-1262	2	12.238	-0.004	582	1.1	2	11.657	0.008	30319	67.1
Aroclor-1262	3	12.316	-0.001	714	1.3	3	12.445	0.013	1692	3.4
Aroclor-1262	4	12.988	0.003	961	2.0	4	12.500	0.000	12899	16.5
Total Col1Ave (4 peaks):		112.4				Total Col2Ave (4 peaks):		28.3	RPD = 120*	
Corrected Ave (3 peaks):		1.5				Corrected Ave (3 peaks):		15.3	RPD = 165*	
Aroclor-1268	1	12.238	-0.005	582	0.4	1	12.445	0.014	1692	1.3
Aroclor-1268	2	12.316	0.002	714	0.5	2	12.500	0.002	12899	9.6
Aroclor-1268	3	12.719	0.022	539	0.5	3	12.892	0.002	76	0.1
Aroclor-1268	4	13.497	0.010	695	0.2	4	13.700	-0.007	290	0.1
Total Col1Ave (4 peaks):		0.4				Total Col2Ave (4 peaks):		2.8	RPD = 148*	
Corrected Ave (3 peaks):		0.4				Corrected Ave (3 peaks):		0.5	RPD = 28	

Total PCB Area Col1 (5.908 - 13.791) = 1311525 Col1 Total PCB = 0.3 ppm*

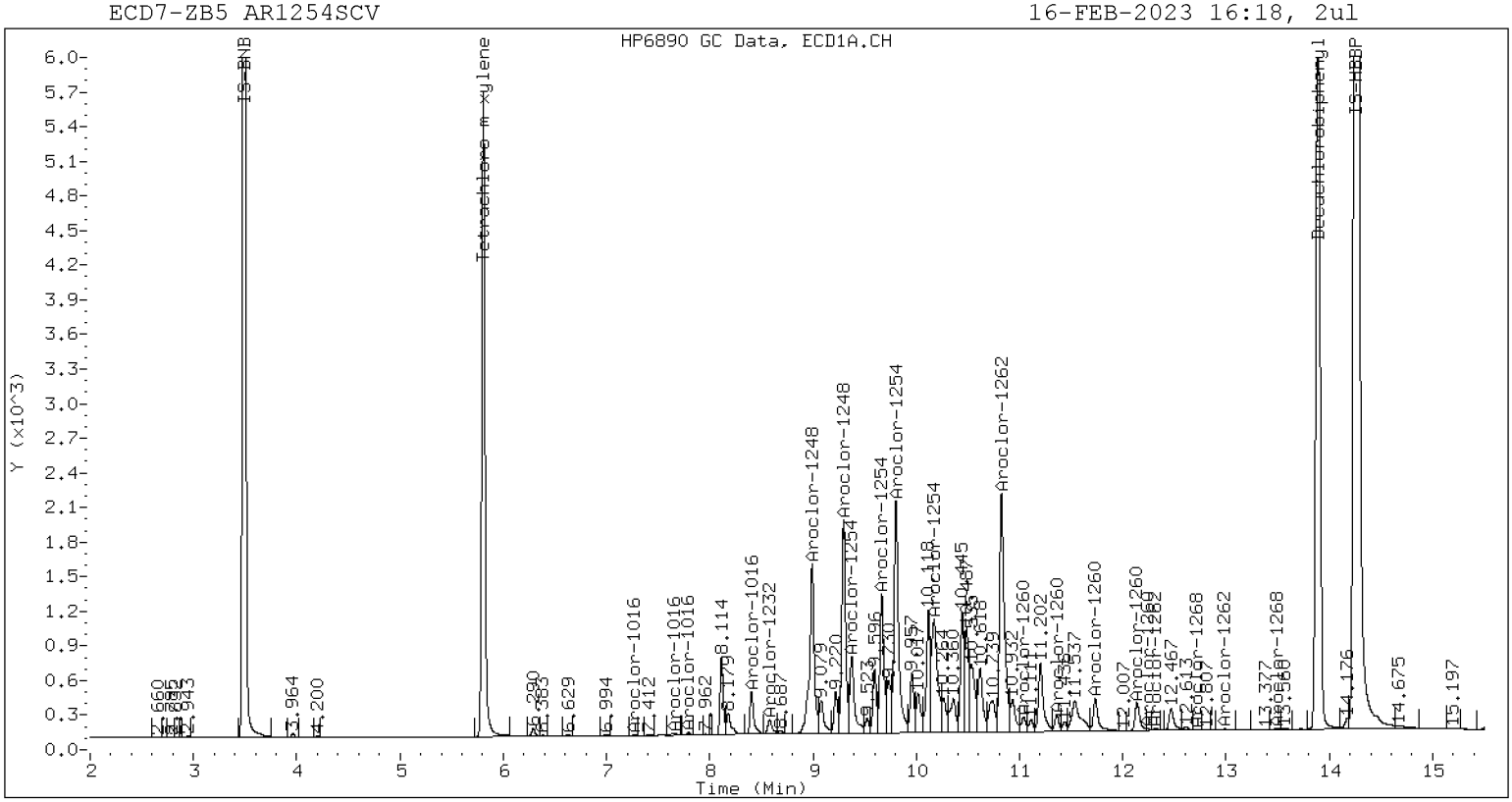
Total PCB Area Col2 (5.786 - 14.018) = 1040357 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

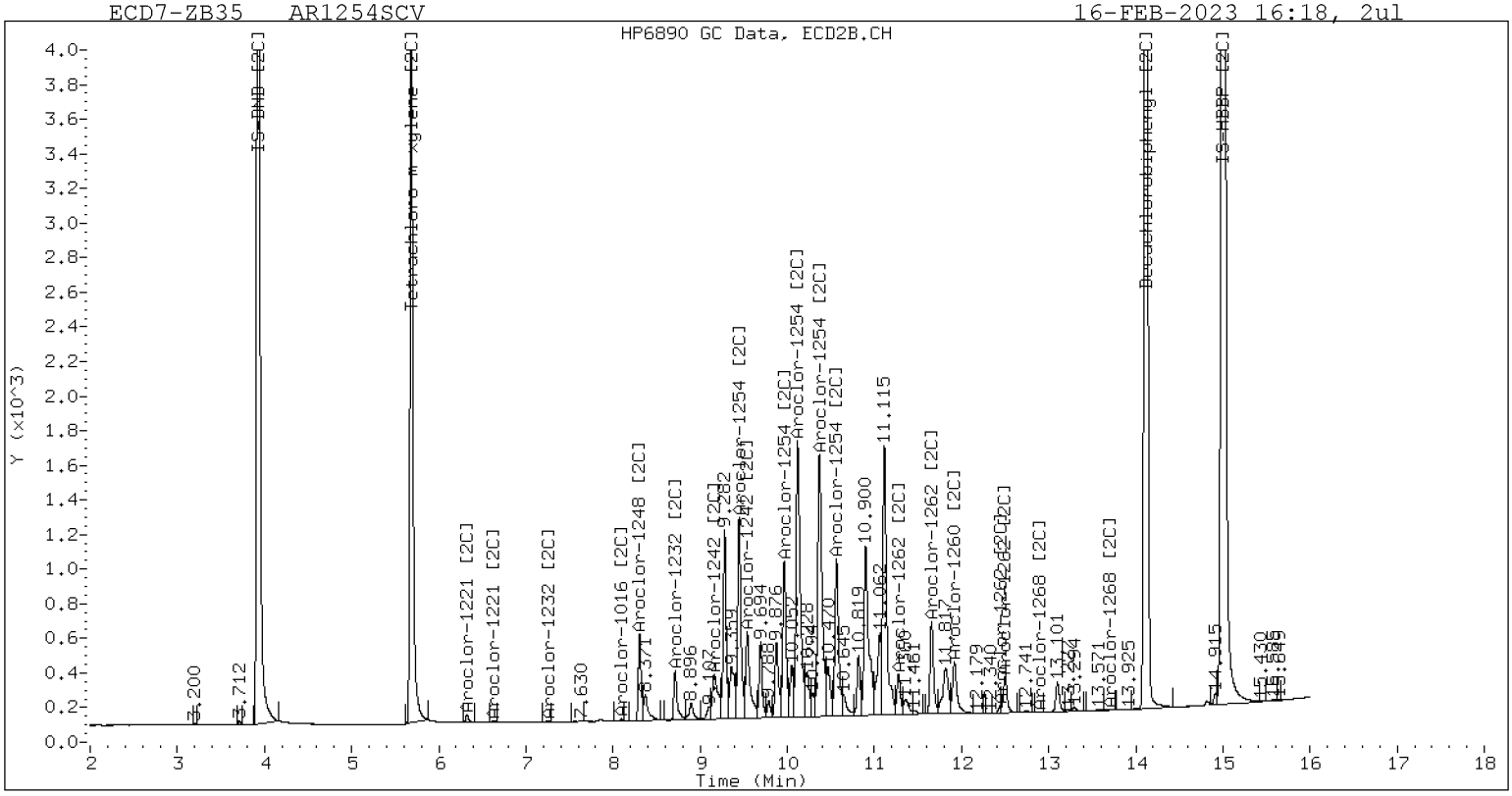
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162317ECD7.D
Data file 2: /230216.b/230216.b/02162317ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 16-FEB-2023 16:39
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	245197	5.686	-0.000	191474	37.2	37.2	0.0	Tetrachloro-m-xylene
13.890	-0.001	375224	14.118	0.000	392997	40.4	40.5	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	464367	8.0
Hexabromobiphenyl	975457	1054321	8.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	381247	4.0
Hexabromobiphenyl	646884	695925	7.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	4790	28.3	1	7.255	0.001	5664	27.1
Aroclor-1016	2	7.656	0.006	10623	19.6	2	7.858	0.007	8417	19.0
Aroclor-1016	3	7.793	0.006	5360	21.5	3	8.058	0.009	4104	22.5
Aroclor-1016	4	8.405	0.003	2485	15.2	4	8.306	0.002	3192	21.6
Total Col1Ave (4 peaks):					21.2	Total Col2Ave (4 peaks):				22.5 RPD = 6
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				21.0 RPD = 11
Aroclor-1221	1	4.733	0.000	9001	249.5	1	4.958	0.000	7198	254.0
Aroclor-1221	2	6.133	-0.000	16485	245.0	2	6.297	-0.001	14187	233.2
Aroclor-1221	3	6.383	-0.000	37665	242.0	3	6.621	-0.000	23991	235.4
Total Col1Ave (3 peaks):					245.5	Total Col2Ave (3 peaks):				240.8 RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.733	0.001	9001	404.1	1	4.958	-0.000	7198	425.7
Aroclor-1232	2	6.133	-0.000	16485	350.7	2	7.255	0.001	5664	59.8
Aroclor-1232	3	7.656	0.002	10623	47.0	3	7.858	0.003	8417	44.5
Aroclor-1232	4	8.581	0.002	2585	27.7	4	8.714	0.001	2167	40.9
Total Col1Ave (4 peaks):					207.4	Total Col2Ave (4 peaks):				142.7 RPD = 37
Corrected Ave (3 peaks):					141.8	Corrected Ave (3 peaks):				48.4 RPD = 98*
Aroclor-1242	1	7.270	0.001	4790	34.6	1	7.255	0.001	5664	34.3
Aroclor-1242	2	7.656	0.004	10623	24.3	2	7.858	0.005	8417	23.6
Aroclor-1242	3	8.405	0.002	2485	18.8	3	9.168	0.009	2109	18.7
Aroclor-1242	4	8.581	0.003	2585	13.2	4	9.541	-0.046	4209	30.7
Total Col1Ave (4 peaks):					22.7	Total Col2Ave (4 peaks):				26.8 RPD = 17
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				24.3 RPD = 26
Aroclor-1248	1	8.405	0.002	2485	11.1	1	8.306	0.001	3192	18.6
Aroclor-1248	2	8.581	0.003	2585	9.1	2	8.714	0.002	2167	12.0
Aroclor-1248	3	8.992	-0.004	27170	68.0	3	9.168	0.010	2109	10.1
Aroclor-1248	4	9.299	0.007	25808	102.2	4	9.541	-0.040	4209	16.6
Total Col1Ave (4 peaks):					47.6	Total Col2Ave (4 peaks):				14.3 RPD = 108*
Corrected Ave (3 peaks):					29.4	Corrected Ave (3 peaks):				12.9 RPD = 78*
Aroclor-1254	1	9.299	0.004	25808	57.4	1	9.448	0.001	19163	71.3
Aroclor-1254	2	9.371	-0.003	3696	20.9	2	9.969	0.002	3305	15.2
Aroclor-1254	3	9.667	0.002	4053	14.2	3	10.144	0.024	96736	204.5
Aroclor-1254	4	9.803	0.000	10960	19.2	4	10.368	-0.002	117175	251.1
Aroclor-1254	5	10.117	-0.050	153073	440.2	5	10.565	-0.001	154306	654.4
Total Col1Ave (5 peaks):					110.4	Total Col2Ave (5 peaks):				239.3 RPD = 74*
Corrected Ave (4 peaks):					27.9	Corrected Ave (4 peaks):				135.5 RPD = 132*
Aroclor-1260	1	11.041	0.001	267479	735.9	1	11.649	-0.001	203895	528.3
Aroclor-1260	2	11.358	0.000	225792	607.2	2	11.914	-0.000	486211	500.8
Aroclor-1260	3	11.730	-0.000	549436	558.0	3	12.431	-0.001	236526	910.9
Aroclor-1260	4	12.135	0.001	182085	364.2	4	12.499	0.001	362057	555.9
Aroclor-1260	5	12.241	0.000	234096	1091.8	NS	---			----
Total Col1Ave (5 peaks):					671.4	Total Col2Ave (4 peaks):				624.0 RPD = 7
Corrected Ave (4 peaks):					566.3	Corrected Ave (3 peaks):				528.4 RPD = 7
Aroclor-1262	1	10.823	-0.002	146525	475.6	1	11.197	-0.001	236244	454.2
Aroclor-1262	2	12.241	-0.001	234096	463.6	2	11.649	0.001	203895	454.1
Aroclor-1262	3	12.314	-0.002	250166	459.4	3	12.431	-0.000	236526	483.8
Aroclor-1262	4	12.984	-0.000	210767	447.6	4	12.499	-0.001	362057	465.4
Total Col1Ave (4 peaks):					461.6	Total Col2Ave (4 peaks):				464.4 RPD = 1
Corrected Ave (3 peaks):					456.9	Corrected Ave (3 peaks):				457.9 RPD = 0
Aroclor-1268	1	12.241	-0.002	234096	176.9	1	12.431	0.000	236526	186.9
Aroclor-1268	2	12.314	0.000	250166	190.3	2	12.499	0.001	362057	272.0
Aroclor-1268	3	12.719	0.022	91155	81.7	3	12.889	-0.001	11970	11.5
Aroclor-1268	4	13.485	-0.002	72883	21.3	4	13.706	-0.001	72588	19.9
Total Col1Ave (4 peaks):					117.6	Total Col2Ave (4 peaks):				122.6 RPD = 4

Corrected Ave (3 peaks): 93.3 Corrected Ave (3 peaks): 72.8 RPD = 25

Total PCB Area Col1 (5.908 - 13.791) = 3768590 Col1 Total PCB = 0.7 ppm*

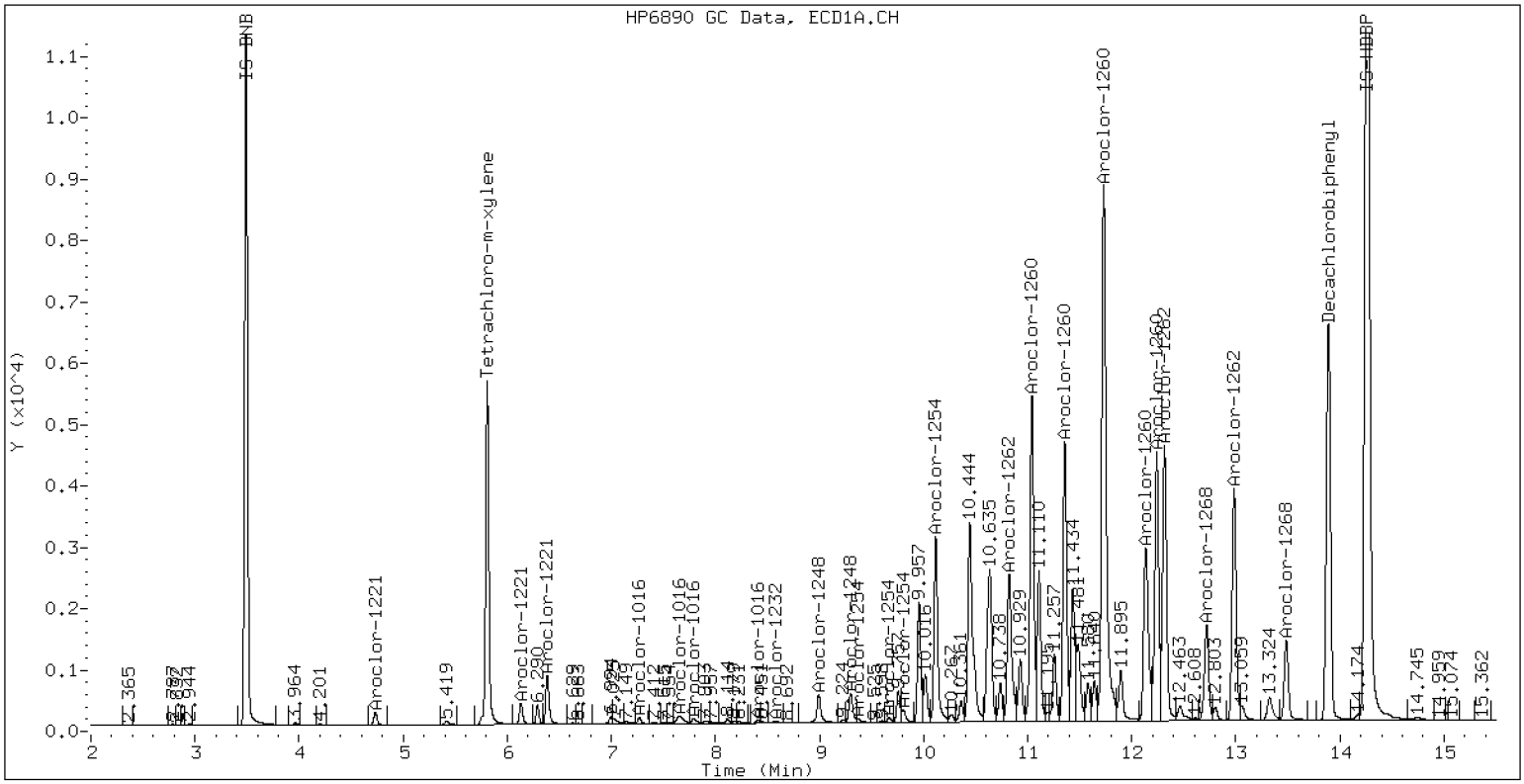
Total PCB Area Col2 (5.786 - 14.018) = 3174752 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

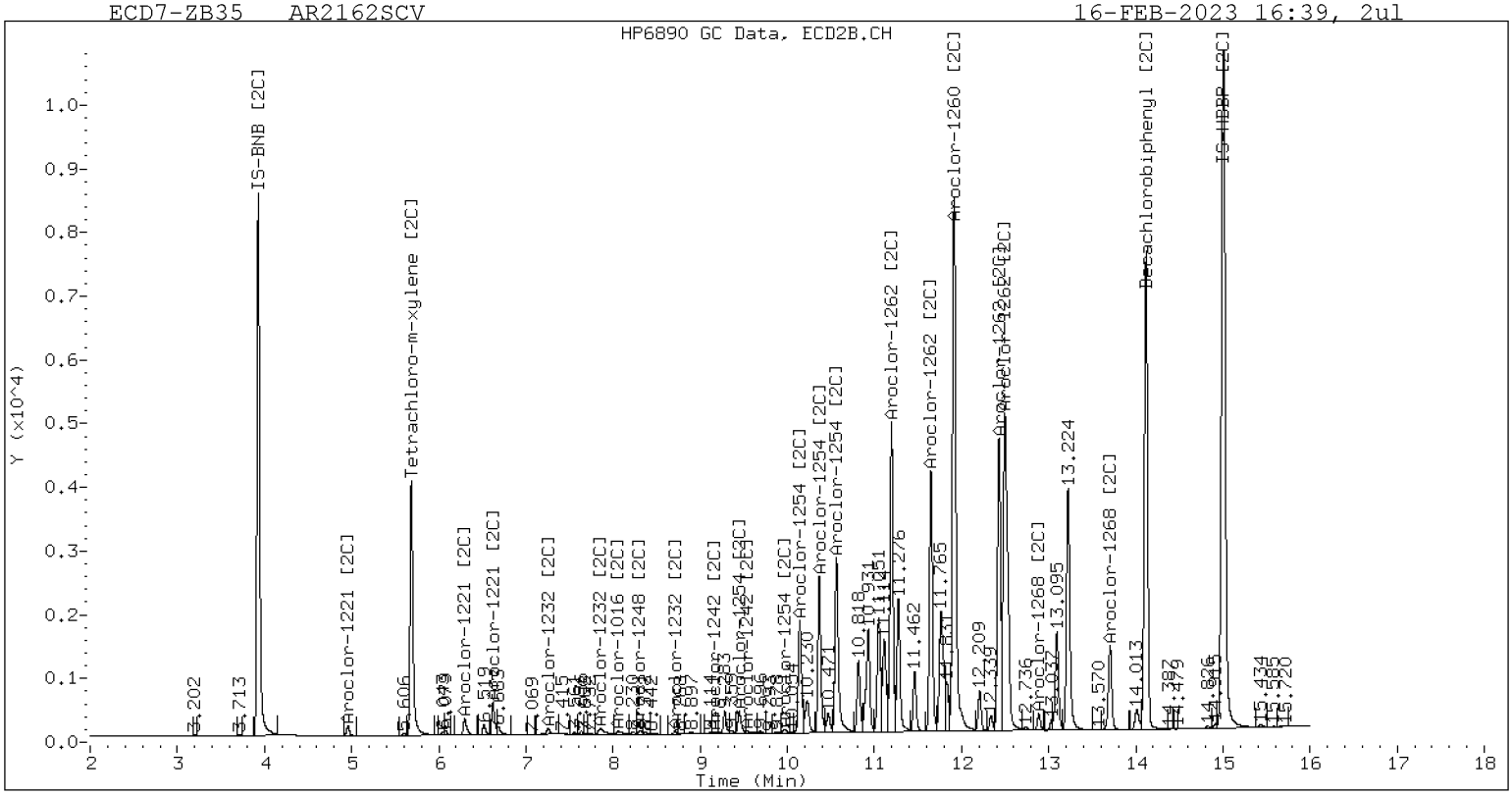
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162318ECD7.D
Data file 2: /230216.b/230216.b/02162318ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 16-FEB-2023 17:00
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	232649	5.686	0.000	184511	35.5	35.9	1.3	Tetrachloro-m-xylene
13.892	0.001	534256	14.118	0.000	561270	58.0	58.0	0.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	462340	7.5
Hexabromobiphenyl	975457	1046529	7.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	380640	3.8
Hexabromobiphenyl	646884	694272	7.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	17406	103.4	1	7.255	0.001	21798	104.5
Aroclor-1016	2	7.654	0.004	51620	95.7	2	7.856	0.005	43831	98.9
Aroclor-1016	3	7.791	0.004	24787	100.0	3	8.054	0.005	19284	105.9
Aroclor-1016	4	8.404	0.002	15491	94.9	4	8.306	0.002	13712	92.8
Total Col1Ave (4 peaks):		98.5		Total Col2Ave (4 peaks):		100.5	RPD = 2			
Corrected Ave (3 peaks):		96.9		Corrected Ave (3 peaks):		98.8	RPD = 2			
Aroclor-1221	1	4.732	-0.000	4903	136.5	1	4.959	0.001	3678	130.0
Aroclor-1221	2	6.133	-0.000	8309	124.0	2	6.298	0.001	8756	144.1
Aroclor-1221	3	6.383	-0.000	26751	172.7	3	6.622	0.001	18239	179.3
Total Col1Ave (3 peaks):		144.4		Total Col2Ave (3 peaks):		151.1	RPD = 5			
Corrected Ave: < 3 Peaks				Corrected Ave: < 3 Peaks						
Aroclor-1232	1	4.732	0.000	4903	221.1	1	4.959	0.000	3678	217.9
Aroclor-1232	2	6.133	-0.000	8309	177.5	2	7.255	0.000	21798	230.4
Aroclor-1232	3	7.654	-0.000	51620	229.6	3	7.856	0.001	43831	231.9
Aroclor-1232	4	8.579	0.000	21552	231.9	4	8.712	-0.000	12876	243.3
Total Col1Ave (4 peaks):		215.0		Total Col2Ave (4 peaks):		230.9	RPD = 7			
Corrected Ave (3 peaks):		209.4		Corrected Ave (3 peaks):		226.7	RPD = 8			
Aroclor-1242	1	7.269	0.000	17406	126.4	1	7.255	0.001	21798	132.4
Aroclor-1242	2	7.654	0.002	51620	118.4	2	7.856	0.004	43831	122.9
Aroclor-1242	3	8.404	0.001	15491	117.6	3	9.165	0.005	12931	114.7
Aroclor-1242	4	8.579	0.002	21552	110.8	4	9.594	0.007	15412	112.7
Total Col1Ave (4 peaks):		118.3		Total Col2Ave (4 peaks):		120.7	RPD = 2			
Corrected Ave (3 peaks):		115.6		Corrected Ave (3 peaks):		116.8	RPD = 1			
Aroclor-1248	1	8.404	0.001	15491	69.5	1	8.306	0.001	13712	79.9
Aroclor-1248	2	8.579	0.002	21552	76.6	2	8.712	0.001	12876	71.3
Aroclor-1248	3	9.000	0.004	33860	85.1	3	9.165	0.007	12931	61.9
Aroclor-1248	4	9.290	-0.001	24418	97.1	4	9.594	0.012	15412	60.9
Total Col1Ave (4 peaks):		82.1		Total Col2Ave (4 peaks):		68.5	RPD = 18			
Corrected Ave (3 peaks):		77.1		Corrected Ave (3 peaks):		64.7	RPD = 17			
Aroclor-1254	1	9.290	-0.005	24418	54.6	1	9.448	0.001	4331	16.1
Aroclor-1254	2	9.376	0.002	6352	36.1	2	9.971	0.003	2773	12.8
Aroclor-1254	3	9.670	0.005	3662	12.8	3	10.125	0.006	5733	12.1
Aroclor-1254	4	9.810	0.007	5791	10.2	4	10.384	0.014	5128	11.0
Aroclor-1254	5	10.182	0.014	3705	10.7	5	10.569	0.004	1684	7.2
Total Col1Ave (5 peaks):		24.9		Total Col2Ave (5 peaks):		11.8	RPD = 71*			
Corrected Ave (4 peaks):		17.5		Corrected Ave (4 peaks):		10.8	RPD = 47*			
Aroclor-1260	1	11.044	0.003	48916	135.6	1	11.643	-0.006	62935	163.5
Aroclor-1260	2	11.360	0.003	3252	8.8	2	11.917	0.002	28103	29.0
Aroclor-1260	3	11.734	0.004	29505	30.2	3	12.431	-0.001	298982	1154.1
Aroclor-1260	4	12.140	0.005	787	1.6	4	12.498	-0.000	314634	484.3
Aroclor-1260	5	12.242	0.002	307715	1445.8	NS	---			----
Total Col1Ave (5 peaks):		324.4		Total Col2Ave (4 peaks):		457.7	RPD = 34			
Corrected Ave (4 peaks):		44.0		Corrected Ave (3 peaks):		225.6	RPD = 135*			
Aroclor-1262	1	10.828	0.003	1495	4.9	1	11.199	0.001	44764	86.3
Aroclor-1262	2	12.242	0.000	307715	613.9	2	11.643	-0.005	62935	140.5
Aroclor-1262	3	12.314	-0.002	306654	567.3	3	12.431	0.000	298982	613.0
Aroclor-1262	4	12.985	0.001	125311	268.1	4	12.498	-0.002	314634	405.4
Total Col1Ave (4 peaks):		363.6		Total Col2Ave (4 peaks):		311.3	RPD = 15			
Corrected Ave (3 peaks):		280.1		Corrected Ave (3 peaks):		210.7	RPD = 28			
Aroclor-1268	1	12.242	-0.000	307715	234.3	1	12.431	0.001	298982	236.8
Aroclor-1268	2	12.314	0.000	306654	235.0	2	12.498	-0.000	314634	236.9
Aroclor-1268	3	12.698	0.000	256747	231.8	3	12.891	0.001	246279	236.7
Aroclor-1268	4	13.487	-0.000	801249	236.1	4	13.707	0.001	846369	232.8
Total Col1Ave (4 peaks):		234.3		Total Col2Ave (4 peaks):		235.8	RPD = 1			

Corrected Ave (3 peaks): 233.7 Corrected Ave (3 peaks): 235.5 RPD = 1

Total PCB Area Col1 (5.908 - 13.791) = 2519204 Col1 Total PCB = 0.5 ppm*

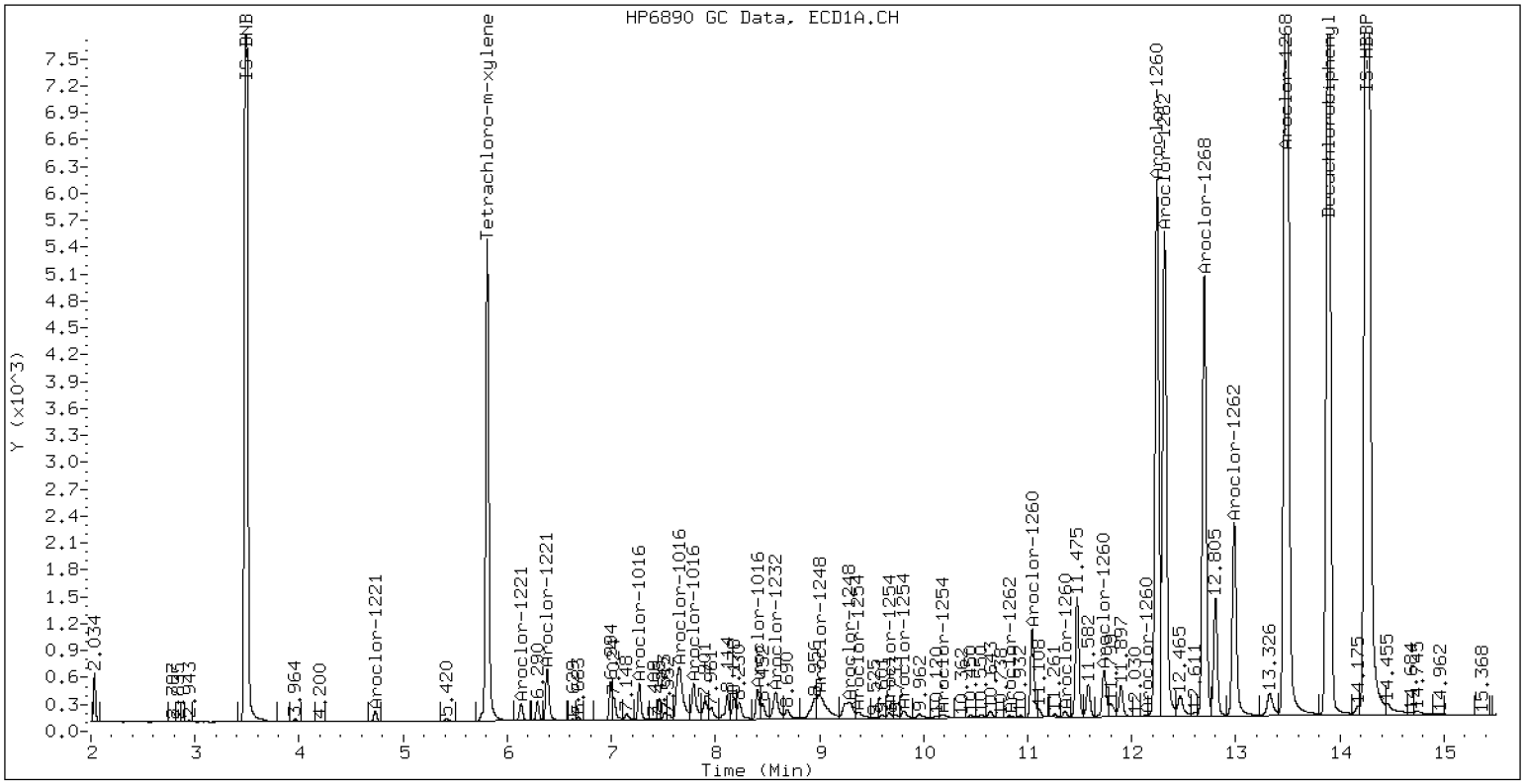
Total PCB Area Col2 (5.786 - 14.018) = 2392191 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

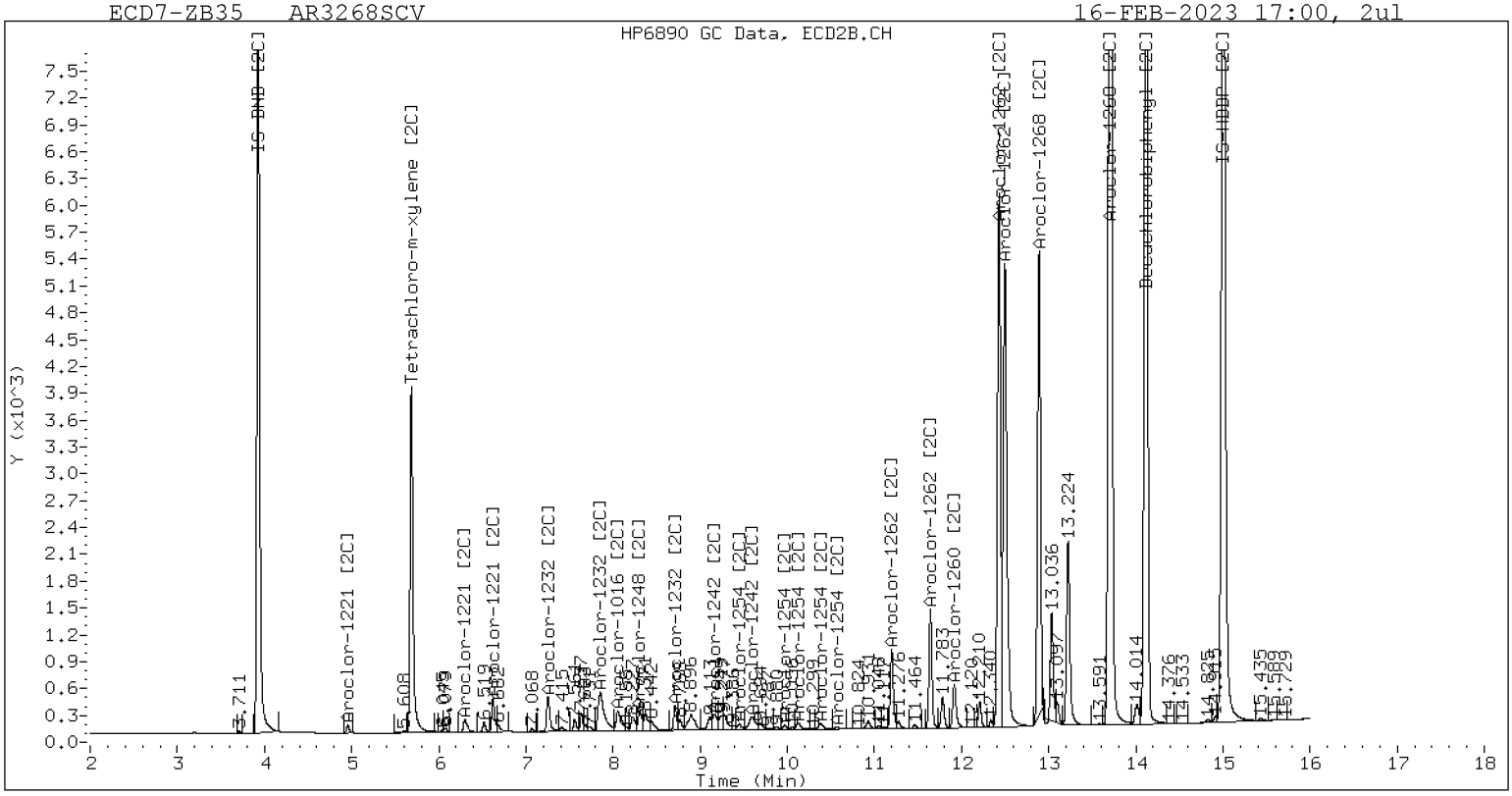
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.260	-0.003	442624	9.911	-0.001	632750	0.085	0.087	2.1	2,4-DDE
10.293	-0.003	576653	10.667	0.002	928581	0.039	0.168#	124.2*	2,4-DDT
9.683	-0.004	755059	10.209	-0.002	423742	0.086	0.103	18.9	4,4-DDE
10.254	-0.027	674155	10.667	0.002	928581	0.000	0.168#	----	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.284	0.021	2688	9.920	0.008	10374	0.001	0.001	93.2*	2,4-DDE
0.000	-10.296	0	10.673	0.007	190492	0.000	0.035#	----	2,4-DDT
9.692	0.005	7700	10.234	0.022	295	0.001	0.000	169.6*	4,4-DDE
10.259	-0.022	174757	10.673	0.007	190492	0.000	0.035#	----	4,4-DDD

\# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0222

Instrument: ECD7
Calibration ID: GB00045

Printed: 2/17/2023 12:18:06PM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0222-CAL1	QC		1		L000856	L000844		
SLB0222-CAL2	QC		2		L000859	L000844		
SLB0222-CAL3	QC		3		L000858	L000844		
SLB0222-CAL4	QC		4		L000731	L000844		
SLB0222-CAL5	QC		5		L000857	L000844		
SLB0222-CAL6	QC		6		L000855	L000844		
SLB0222-CAL7	QC		7		L000860	L000844		
SLB0222-CAL8	QC		8		L000861	L000844		
SLB0222-CAL9	QC		9		L000862	L000844		
SLB0222-CALA	QC		10		L000863	L000844		
SLB0222-CALB	QC		11		L000864	L000844		
SLB0222-SCV1	QC		12		K007655	L000844		
SLB0222-SCV2	QC		13		K007656	L000844		
SLB0222-SCV3	QC		14		K007657	L000844		
SLB0222-SCV4	QC		15		K007658	L000844		
SLB0222-SCV5	QC		16		K007659	L000844		
SLB0222-SCV6	QC		17		K007660	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	16-FEB-2023 11:02	02162301ECD7.D	1	IB	
2	16-FEB-2023 11:23	02162302ECD7.D	1	0.25PPMAR1660	
3	16-FEB-2023 11:44	02162303ECD7.D	1	0.02PPMAR1660	
4	16-FEB-2023 12:05	02162304ECD7.D	1	0.05PPMAR1660	
5	16-FEB-2023 12:27	02162305ECD7.D	1	1.0PPMAR1660	
6	16-FEB-2023 12:48	02162306ECD7.D	1	0.1PPMAR1660	
7	16-FEB-2023 13:09	02162307ECD7.D	1	0.5PPMAR1660	
8	16-FEB-2023 13:30	02162308ECD7.D	1	0.25PPMAR1242	
9	16-FEB-2023 13:51	02162309ECD7.D	1	0.25PPMAR1248	
10	16-FEB-2023 14:12	02162310ECD7.D	1	0.25PPMAR1254	
11	16-FEB-2023 14:33	02162311ECD7.D	1	0.25PPMAR2168	
12	16-FEB-2023 14:54	02162312ECD7.D	1	0.25PPMAR3268	
13	16-FEB-2023 15:15	02162313ECD7.D	1	AR1660SCV	
14	16-FEB-2023 15:36	02162314ECD7.D	1	AR1242SCV	
15	16-FEB-2023 15:57	02162315ECD7.D	1	AR1248SCV	
16	16-FEB-2023 16:18	02162316ECD7.D	1	AR1254SCV	
17	16-FEB-2023 16:39	02162317ECD7.D	1	AR2162SCV	
18	16-FEB-2023 17:00	02162318ECD7.D	1	AR3268SCV	
19	16-FEB-2023 17:21	02162319ECD7.D	1	DDTS	
20	16-FEB-2023 17:42	02162320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 16-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	Aroclor-1248,
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1803	02162321ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1824	02162322ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1845	02162323ECD7.D	BLB0303-BLK1		1	NO MANUAL INTEGRATION
1906	02162324ECD7.D	BLB0303-BS1		1	NO MANUAL INTEGRATION
1927	02162325ECD7.D	BLB0303-BSD1		1	NO MANUAL INTEGRATION
1948	02162326ECD7.D	23B0153-01		1	NO MANUAL INTEGRATION
2009	02162327ECD7.D	23B0179-01		1	NO MANUAL INTEGRATION
2030	02162328ECD7.D	23B0179-03		1	NO MANUAL INTEGRATION
2051	02162329ECD7.D	23B0218-01		1	NO MANUAL INTEGRATION
2112	02162330ECD7.D	23B0243-01		1	NO MANUAL INTEGRATION
2133	02162331ECD7.D	23B0250-03		1	NO MANUAL INTEGRATION
2154	02162332ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2215	02162333ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1803	02162321ECD7.D			1	NO MANUAL INTEGRATION
1824	02162322ECD7.D			1	NO MANUAL INTEGRATION
1845	02162323ECD7.D			1	NO MANUAL INTEGRATION
1906	02162324ECD7.D			1	NO MANUAL INTEGRATION
1927	02162325ECD7.D			1	NO MANUAL INTEGRATION
1948	02162326ECD7.D			1	NO MANUAL INTEGRATION
2009	02162327ECD7.D			1	NO MANUAL INTEGRATION
2030	02162328ECD7.D			1	NO MANUAL INTEGRATION
2051	02162329ECD7.D			1	NO MANUAL INTEGRATION
2112	02162330ECD7.D			1	NO MANUAL INTEGRATION
2133	02162331ECD7.D			1	NO MANUAL INTEGRATION
2154	02162332ECD7.D			1	NO MANUAL INTEGRATION
2215	02162333ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 17-Feb-2023 12:03

02162301ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162302ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162303ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162304ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162305ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162306ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162307ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162308ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162309ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162310ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162311ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162312ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162313ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162314ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162315ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162316ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162317ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162318ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162319ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03
02162320ECD7.D	Data Locked	richardl, 17-Feb-2023 12:03

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00591	+++++	0.00591	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01209	+++++	0.01209	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02807	+++++	0.02807	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02450	+++++	0.02450	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.08017	+++++	0.08017	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02382	+++++	0.02382	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03598	+++++	0.03598	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00369	+++++	0.00369	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
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Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.00832	*****	0.00832	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04160	*****	0.04160	0.000
(4)	*****	*****	*****	*****	*****	*****	0.01781	*****	0.01781	0.000
7 Aroclor-1016(1)	0.02947	0.03102	0.03310	0.03018	0.02824	0.02635	*****	*****	0.02973	7.802
(2)	0.09270	0.09812	0.10598	0.10203	0.09861	0.09356	*****	*****	0.09850	5.108
(3)	0.04878	0.04900	0.05127	0.04400	0.04091	0.03796	*****	*****	0.04532	11.523
(4)	0.02676	0.02802	0.03162	0.03050	0.02939	0.02864	*****	*****	0.02915	5.988
6 Aroclor-1248(1)	*****	*****	*****	*****	*****	*****	0.04002	*****	0.04002	0.000
(2)	*****	*****	*****	*****	*****	*****	0.05105	*****	0.05105	0.000
(3)	*****	*****	*****	*****	*****	*****	0.09765	*****	0.09765	0.000
(4)	*****	*****	*****	*****	*****	*****	0.04833	*****	0.04833	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.08153	+++++							0.08153	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03481	+++++							0.03481	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05224	+++++							0.05224	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.10237	+++++							0.10237	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.06657	+++++							0.06657	0.000
9 Aroclor-1260(1)	0.04727	0.04543	0.04428	0.05181	0.04013	0.04040				
	+++++	+++++							0.04489	9.818
(2)	0.04940	0.04636	0.04450	0.05350	0.04100	0.04208				
	+++++	+++++							0.04614	10.182
(3)	0.13737	0.12829	0.11740	0.13317	0.10468	0.10790				
	+++++	+++++							0.12147	11.161
(4)	0.07198	0.06638	0.05997	0.06473	0.05485	0.05864				
	+++++	+++++							0.06276	9.803
(5)	0.03296	0.02981	0.02640	0.02723	0.02328	0.02447				
	+++++	+++++							0.02736	13.015
10 Aroclor-1262(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03235	+++++							0.03235	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05106	+++++							0.05106	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05544	+++++							0.05544	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05052	+++++							0.05052	0.000
11 Aroclor-1268(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.13216	+++++							0.13216	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.13180	+++++							0.13180	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.10919	+++++							0.10919	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.32374	+++++							0.32374	0.000
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	904							904	0.000
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	1034							1034	0.000
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	2557							2557	0.000
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++				
	+++++	1539							1539	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m
Last Edit : 25-Jan-2023 10:02 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1484	1484	0.000
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.10039	1.10217	1.21997	1.14965	1.11792	1.09461	+++++	+++++	1.13079	4.246
$ 13 Decachlorobiphenyl	0.86442	0.90302	0.93081	0.84813	0.79576	0.79145	+++++	+++++	0.85560	6.556

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242314ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242315ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242313ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242318ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242316ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242323ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
1 Aroclor-1221 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00586	+++++	0.00586	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01285	+++++	0.01285	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02169	+++++	0.02169	0.000
4 Aroclor-1232 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00356	+++++	0.00356	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01991	+++++	0.01991	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04054	+++++	0.04054	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01126	+++++	0.01126	0.000
3 Aroclor-1242 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03499	+++++	0.03499	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****				
	0.07771	*****							0.07771	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.02434	*****							0.02434	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.03226	*****							0.03226	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****				
	0.03616	*****							0.03616	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.03892	*****							0.03892	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.04756	*****							0.04756	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.05882	*****							0.05882	0.000
7 Aroclor-1016 [2C](1)	0.04424	0.04724	0.04678	0.04314	0.04099	0.03795				
	*****	*****							0.04339	8.142
(2)	0.08512	0.09615	0.10417	0.09824	0.09554	0.09130				
	*****	*****							0.09509	6.775
(3)	0.02919	0.04165	0.04478	0.04029	0.03925	0.03764				
	*****	*****							0.03880	13.639
(4)	0.02850	0.03377	0.03419	0.03004	0.02878	0.02724				
	*****	*****							0.03042	9.538

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	*****	*****	*****	*****	*****	*****				
	0.05804	*****							0.05804	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.04691	*****							0.04691	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.10233	*****							0.10233	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.10233	*****							0.10233	0.000
(5)	*****	*****	*****	*****	*****	*****				
	0.05700	*****							0.05700	0.000
10 Aroclor-1262 [2C](1)	*****	*****	*****	*****	*****	*****				
	0.07830	*****							0.07830	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.06658	*****							0.06658	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.07090	*****							0.07090	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.11355	*****							0.11355	0.000
9 Aroclor-1260 [2C](1)	0.06075	0.05974	0.05912	0.06129	0.05231	0.05307				
	*****	*****							0.05771	6.881
(2)	0.14748	0.15106	0.15181	0.15367	0.13396	0.13809				
	*****	*****							0.14601	5.547

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(3)	0.03683	0.03729	0.03582	0.03647	0.03501	0.03694	#####	#####	0.03639	2.314
(4)	0.09319	0.09919	0.09881	0.09587	0.08985	0.09008	#####	#####	0.09450	4.373
11 Aroclor-1268 [2C](1)	#####	#####	#####	#####	#####	#####	0.18682	#####	0.18682	0.000
(2)	#####	#####	#####	#####	#####	#####	0.19880	#####	0.19880	0.000
(3)	#####	#####	#####	#####	#####	#####	0.16548	#####	0.16548	0.000
(4)	#####	#####	#####	#####	#####	#####	0.51118	#####	0.51118	0.000
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	1528	1528	0.000
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####	#####	866	866	0.000
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	863	863	0.000
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1162	1162	0.000
46 4,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	1277	1277	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 24-JAN-2023 21:57
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230124.b\PCB.m\PCB2.m
Last Edit : 25-Jan-2023 09:58 JoshuaR
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.04342	1.10521	1.15322	1.09675	1.05187	1.03851	+++++	+++++	1.08150	4.159
$ 13 Decachlorobiphenyl [2C]	1.20915	1.27122	1.31190	1.29209	1.22961	1.30389	+++++	+++++	1.26964	3.291

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.492	3.492	3.491	3.493	3.492	3.491	3.492	3.392-3.592	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.810	5.808	5.808	5.811	5.808	5.809	5.810	5.710-5.910	5.809	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.271	7.271	7.270	7.270	7.270	7.269	7.271	7.171-7.371	7.270	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.043	11.044	11.043	11.040	11.042	11.041	11.043	10.943-11.143	11.042	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.894	13.892	13.891	13.892	13.890	13.890	13.894	13.794-13.994	13.892	0.002
* 12 IS-HBBP	14.263	14.263	14.261	14.261	14.262	14.262	14.263	14.163-14.363	14.262	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.263	9.213-9.313	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.805	9.755-9.855	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.296	10.246-10.346	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.687	9.587-9.787	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.281	10.181-10.381	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.758	10.658-10.858	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.928	3.930	3.929	3.929	3.928	3.828-4.028	3.929	0.001
$ 2 Tetrachloro-m-xylene [	5.685	5.686	5.685	5.688	5.687	5.686	5.685	5.585-5.785	5.686	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.254	7.255	7.254	7.254	7.254	7.254	7.254	7.154-7.354	7.254	0.000
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.651	11.652	11.652	11.650	11.651	11.650	11.651	11.551-11.751	11.651	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.117	14.118	14.117	14.120	14.117	14.118	14.117	14.017-14.217	14.118	0.001
* 12 IS-HBBP [2C]	15.006	15.006	15.004	15.005	15.005	15.005	15.006	14.906-15.106	15.005	0.001
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.912	9.862-9.962	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.538	9.488-9.588	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.211	10.111-10.311	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.666	10.566-10.766	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.095	10.995-11.195	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162301ECD7.D
Data file 2: /230216.b/230216.b/02162301ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 16-FEB-2023 11:02
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.823	0.015	232765	5.680	-0.005	190174	39.3	39.2	0.1	Tetrachloro-m-xylene
13.900	0.009	322325	14.118	0.000	335746	40.3	39.2	2.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	417912	-2.8
Hexabromobiphenyl	975457	908024	-6.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	359487	-2.0
Hexabromobiphenyl	646884	614725	-5.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	11.361	0.004	128	0.4	2	---			0.0
Aroclor-1260	3	11.801	0.071	128	0.2	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.705	0.008	993	1.0	3	---			0.0
Aroclor-1268	4	13.493	0.006	2534	0.9	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 24426 Col1 Total PCB = 0.0 ppm*

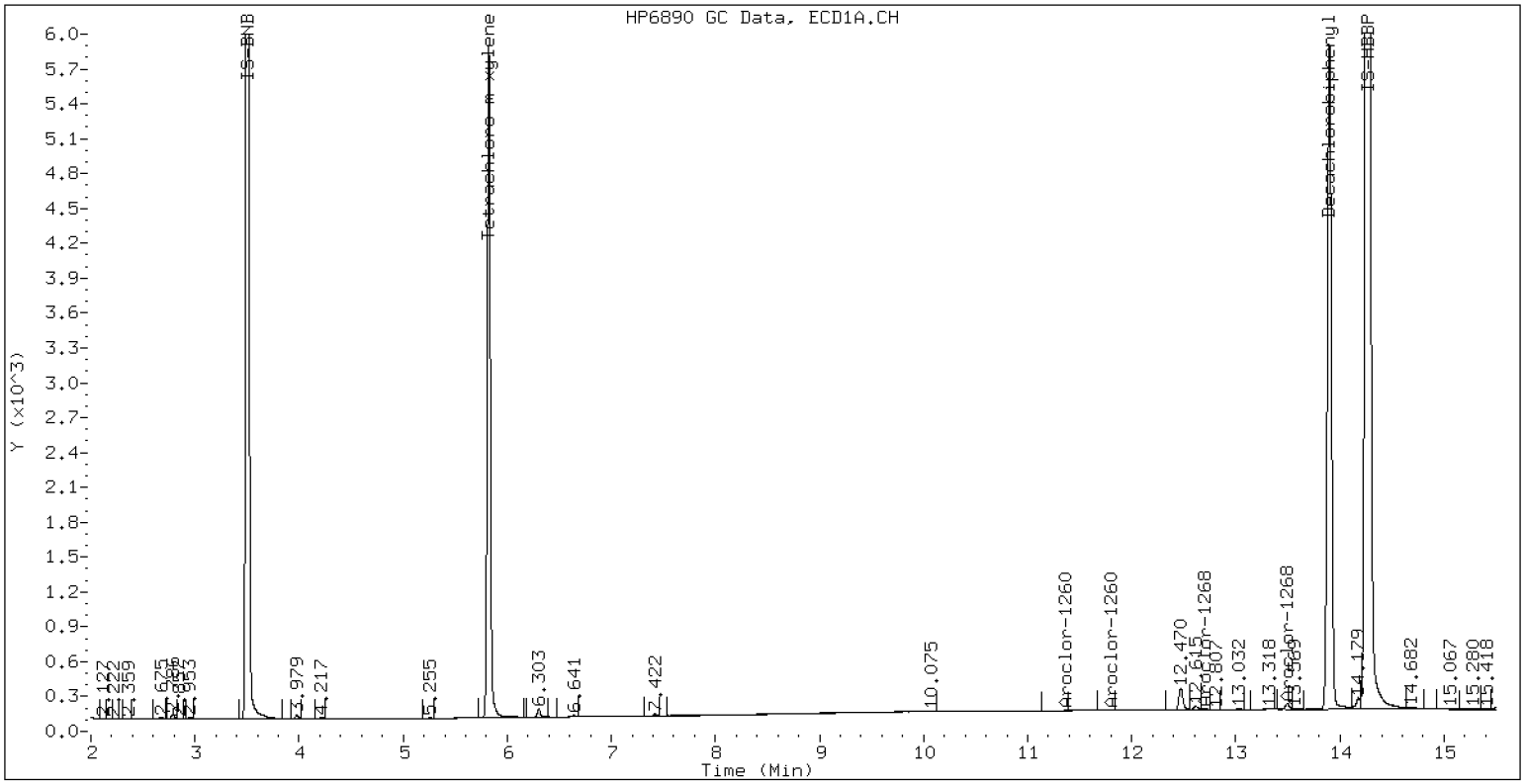
Total PCB Area Col2 (5.786 - 14.018) = 13907 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

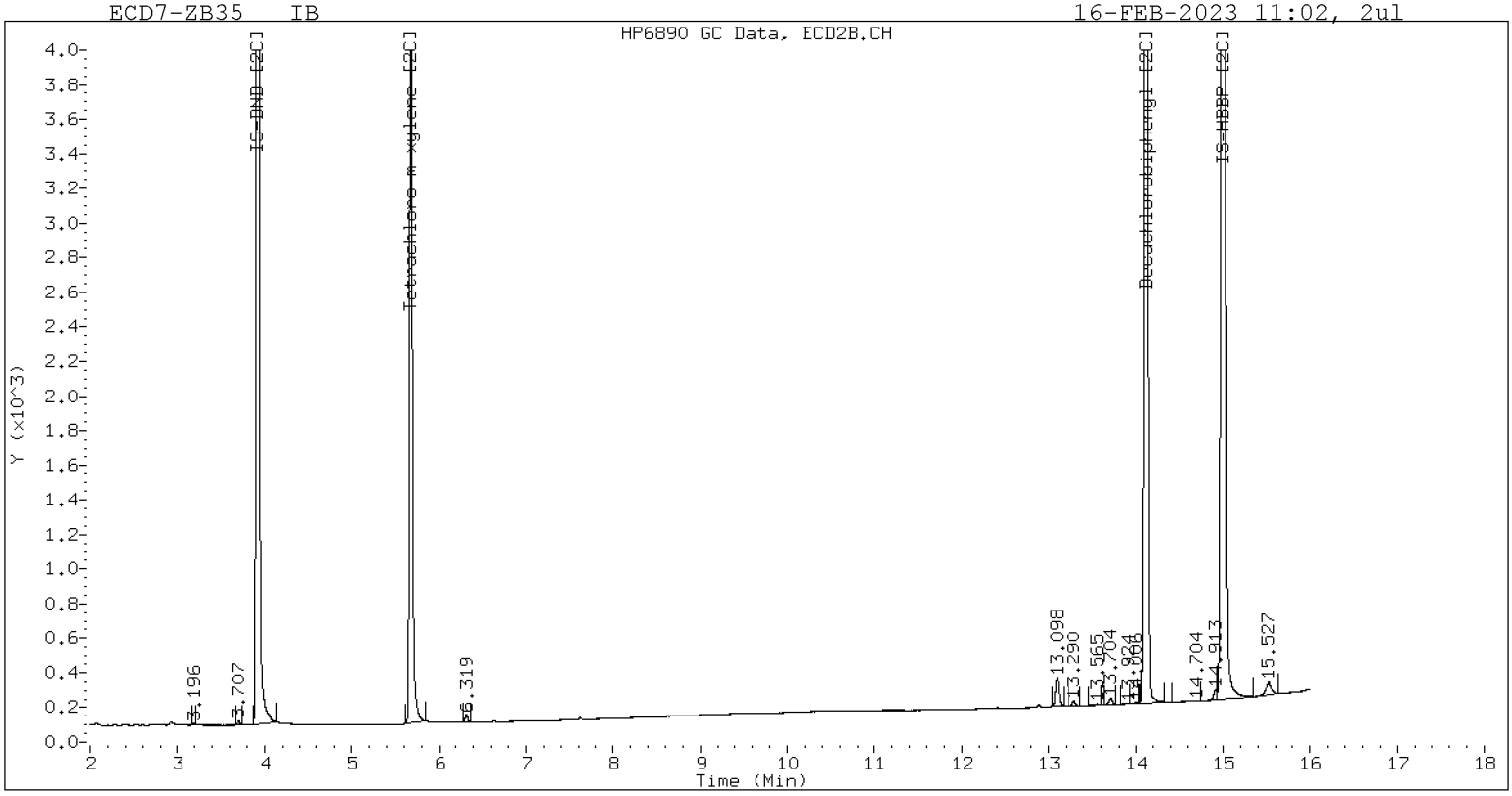
PCB Dual Column Chromatograms

ECD7-ZB5 IB 16-FEB-2023 11:02, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 16-FEB-2023 11:02, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162302ECD7.D
Data file 2: /230216.b/230216.b/02162302ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:23
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	248401	5.685	-0.001	199672	40.7	40.3	0.9	Tetrachloro-m-xylene
13.894	0.003	351670	14.117	-0.001	367148	40.9	40.7	0.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	430055	0.0
Hexabromobiphenyl	975457	975457	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	366754	0.0
Hexabromobiphenyl	646884	646884	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	39579	252.7	1	7.254	-0.000	49228	245.0
Aroclor-1016	2	7.652	0.002	129647	258.5	2	7.850	-0.002	109879	257.4
Aroclor-1016	3	7.790	0.003	55577	241.0	3	8.050	0.000	45802	261.0
Aroclor-1016	4	8.404	0.001	38982	256.8	4	8.304	-0.000	35428	248.9
Total Col1Ave (4 peaks):					252.3	Total Col2Ave (4 peaks):				253.1 RPD = 0
Corrected Ave (3 peaks):					250.2	Corrected Ave (3 peaks):				250.4 RPD = 0
			CalAmt %D:		0.9			CalAmt %D:		1.2
Aroclor-1260	1	11.043	0.002	87165	259.2	1	11.651	0.001	84564	235.7
Aroclor-1260	2	11.360	0.003	89579	260.4	2	11.916	0.001	216735	240.2
Aroclor-1260	3	11.733	0.003	234880	257.8	3	12.434	0.001	55401	229.5
Aroclor-1260	4	12.137	0.002	120991	261.6	4	12.499	0.001	143975	237.8
Aroclor-1260	5	12.243	0.003	50521	254.7	NS	---			----
Total Col1Ave (5 peaks):					258.7	Total Col2Ave (4 peaks):				235.8 RPD = 9
Corrected Ave (4 peaks):					258.0	Corrected Ave (3 peaks):				234.4 RPD = 10
			CalAmt %D:		3.5			CalAmt %D:		-5.7

Total PCB Area Col1 (5.908 - 13.791) = 2424171 Col1 Total PCB = 0.5 ppm*

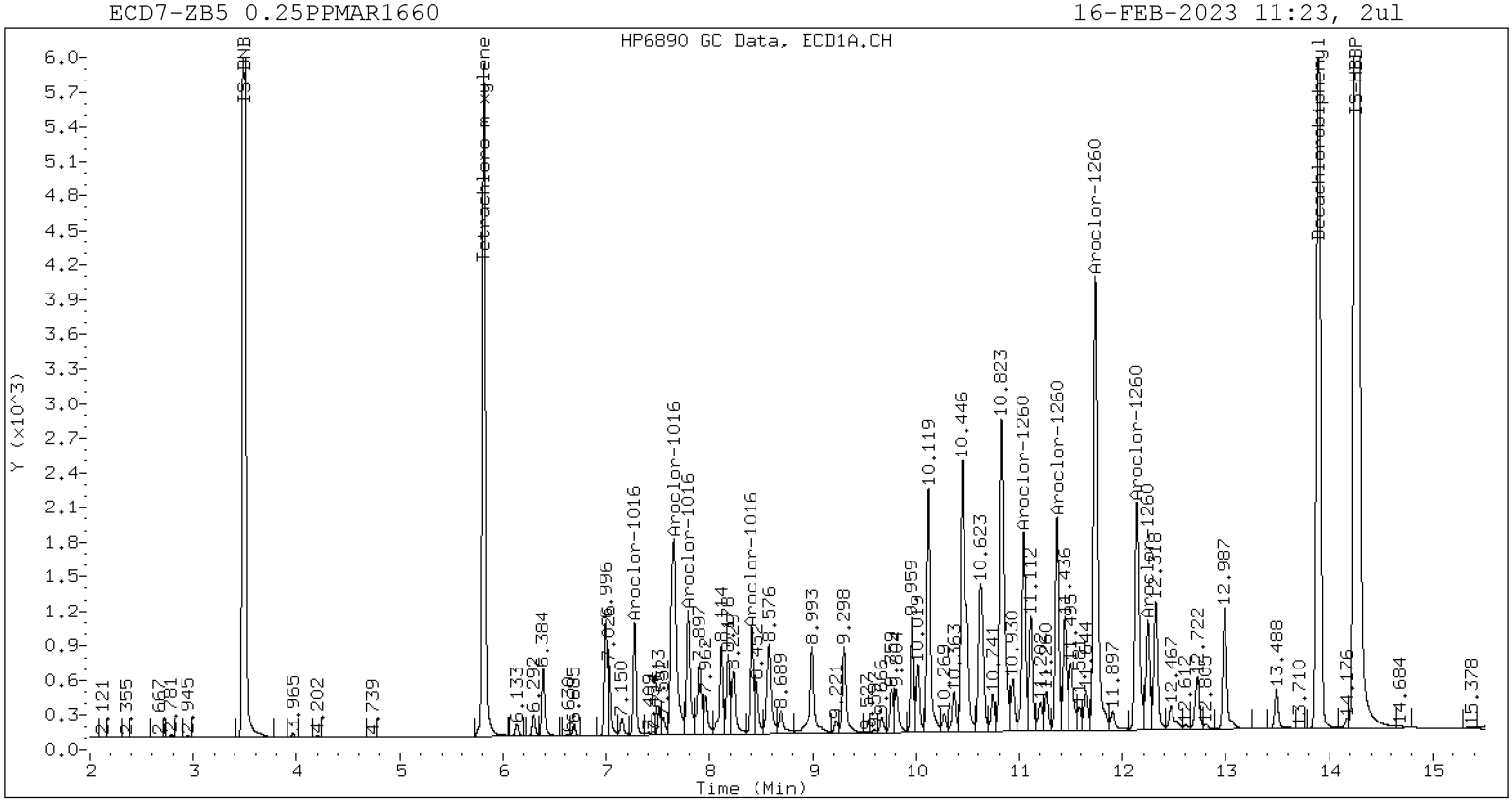
Total PCB Area Col2 (5.786 - 14.018) = 2014487 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

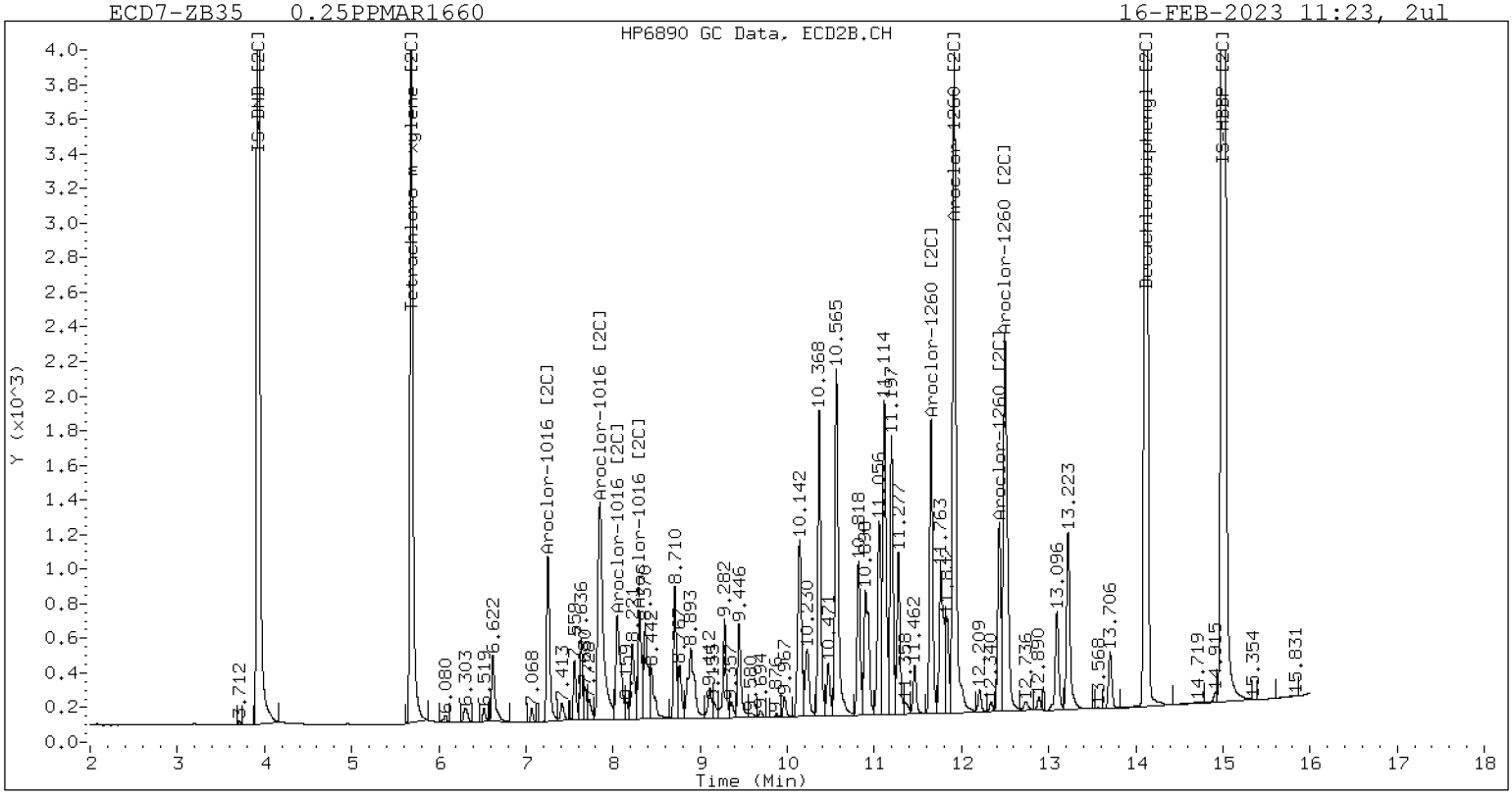
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162303ECD7.D
Data file 2: /230216.b/230216.b/02162303ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:44
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	19708	5.686	0.000	15503	3.3	3.2	3.1	Tetrachloro-m-xylene
13.892	0.001	28479	14.118	-0.000	26541	3.3	2.9	12.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	422641	-1.7
Hexabromobiphenyl	975457	970275	-0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	360534	-1.7
Hexabromobiphenyl	646884	649373	0.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.002	3348	21.8	1	7.255	0.001	4345	22.0
Aroclor-1016	2	7.655	0.005	10129	20.6	2	7.856	0.005	7672	18.3
Aroclor-1016	3	7.792	0.005	5159	22.8	3	8.056	0.007	2574	14.9
Aroclor-1016	4	8.405	0.003	3035	20.3	4	8.307	0.003	2795	20.0
Total Col1Ave (4 peaks):					21.4	Total Col2Ave (4 peaks):				18.8 RPD = 13
Corrected Ave (3 peaks):					20.9	Corrected Ave (3 peaks):				17.7 RPD = 16
CalAmt %D:					6.8	CalAmt %D:				-6.0
Aroclor-1260	1	11.044	0.003	6763	20.2	1	11.652	0.002	7499	20.8
Aroclor-1260	2	11.360	0.003	6806	19.9	2	11.918	0.003	18116	20.0
Aroclor-1260	3	11.737	0.006	19311	21.3	3	12.434	0.002	5444	22.5
Aroclor-1260	4	12.141	0.006	9169	19.9	4	12.502	0.004	12209	20.1
Aroclor-1260	5	12.243	0.003	4138	21.0	NS	---			----
Total Col1Ave (5 peaks):					20.5	Total Col2Ave (4 peaks):				20.8 RPD = 2
Corrected Ave (4 peaks):					20.3	Corrected Ave (3 peaks):				20.3 RPD = 0
CalAmt %D:					2.3	CalAmt %D:				4.2

Total PCB Area Col1 (5.908 - 13.791) = 207302 Col1 Total PCB = 0.0 ppm*

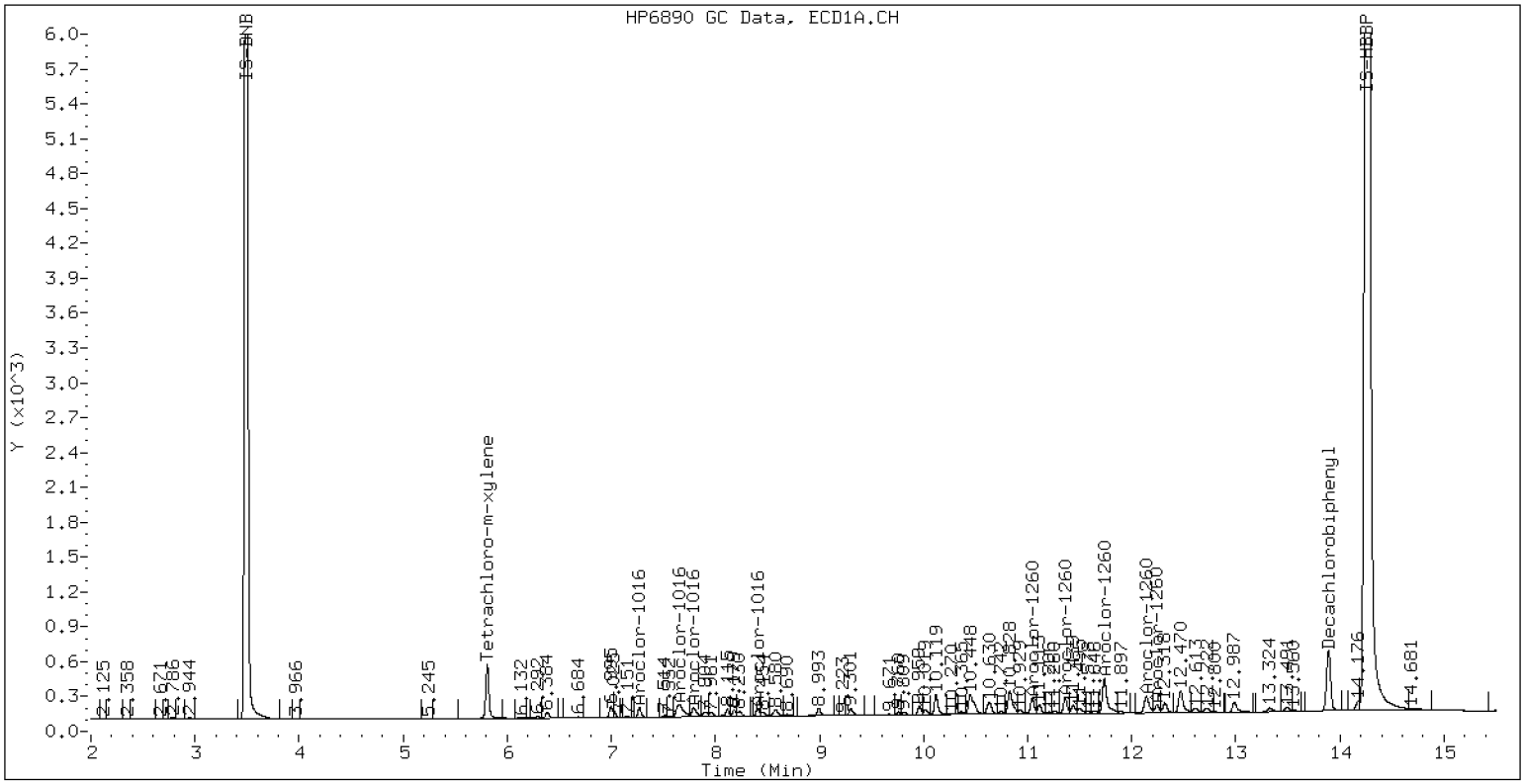
Total PCB Area Col2 (5.786 - 14.018) = 173637 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

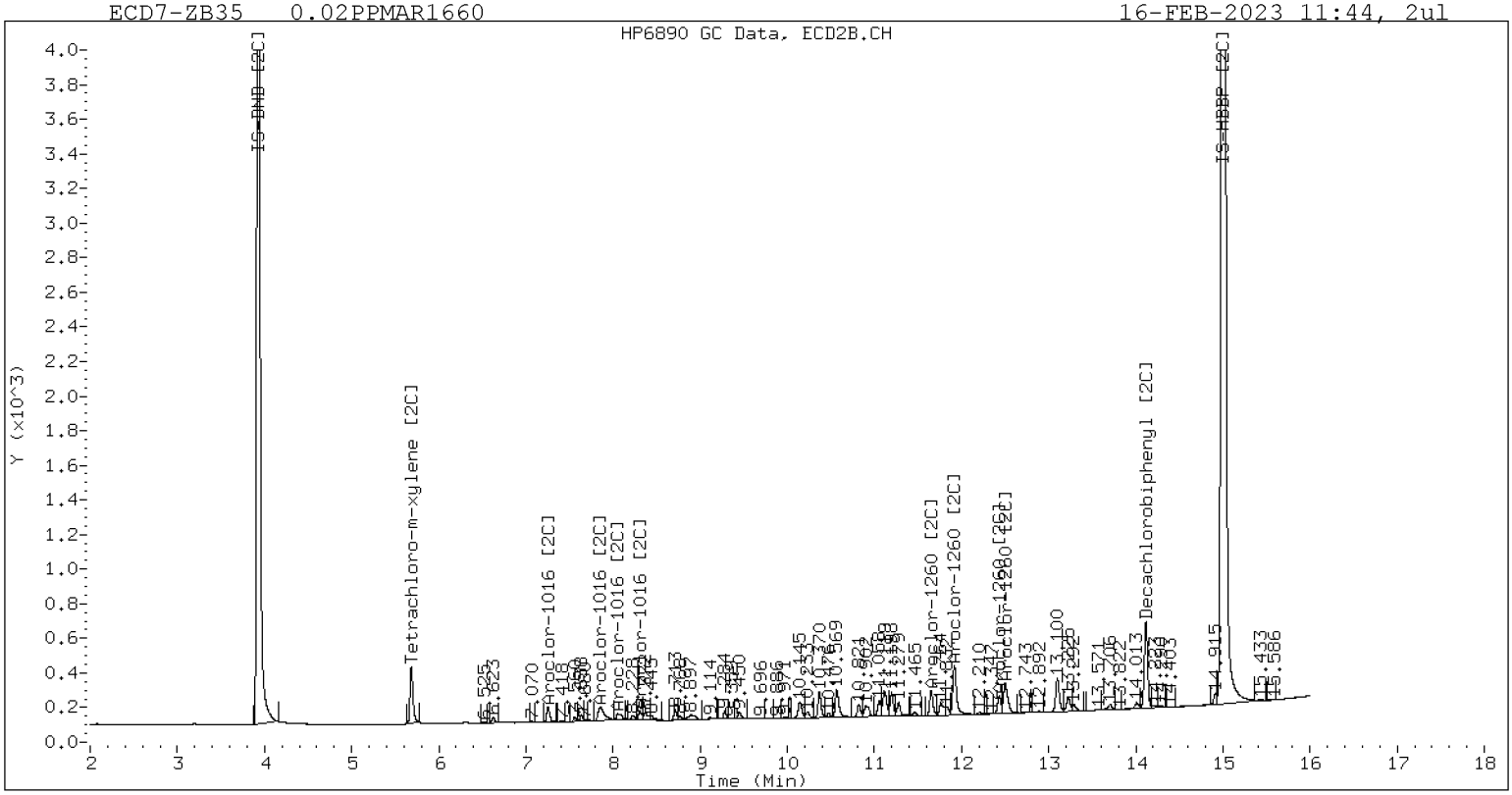
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162304ECD7.D
Data file 2: /230216.b/230216.b/02162304ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:05
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	49106	5.685	-0.001	38865	8.2	8.0	2.4	Tetrachloro-m-xylene
13.891	0.000	72151	14.117	-0.001	67392	8.4	7.4	12.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	424165	-1.4
Hexabromobiphenyl	975457	974643	-0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361606	-1.4
Hexabromobiphenyl	646884	650523	0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	8215	53.2	1	7.254	-0.000	10626	53.6
Aroclor-1016	2	7.653	0.003	24630	49.8	2	7.855	0.003	20708	49.2
Aroclor-1016	3	7.791	0.004	12297	54.1	3	8.055	0.006	9105	52.6
Aroclor-1016	4	8.404	0.001	7438	49.7	4	8.306	0.001	7620	54.3
Total Col1Ave (4 peaks):					51.7	Total Col2Ave (4 peaks):				52.4 RPD = 1
Corrected Ave (3 peaks):					50.9	Corrected Ave (3 peaks):				51.8 RPD = 2
CalAmt %D:					3.4	CalAmt %D:				4.9
Aroclor-1260	1	11.043	0.002	16909	50.3	1	11.652	0.002	17146	47.5
Aroclor-1260	2	11.359	0.002	17012	49.5	2	11.917	0.003	43102	47.5
Aroclor-1260	3	11.734	0.003	45560	50.0	3	12.435	0.003	11385	46.9
Aroclor-1260	4	12.138	0.003	22213	48.1	4	12.501	0.003	28474	46.8
Aroclor-1260	5	12.241	0.001	9728	49.1	NS	---			----
Total Col1Ave (5 peaks):					49.4	Total Col2Ave (4 peaks):				47.2 RPD = 5
Corrected Ave (4 peaks):					49.2	Corrected Ave (3 peaks):				47.1 RPD = 4
CalAmt %D:					-1.2	CalAmt %D:				-5.6

Total PCB Area Col1 (5.908 - 13.791) = 481905 Col1 Total PCB = 0.1 ppm*

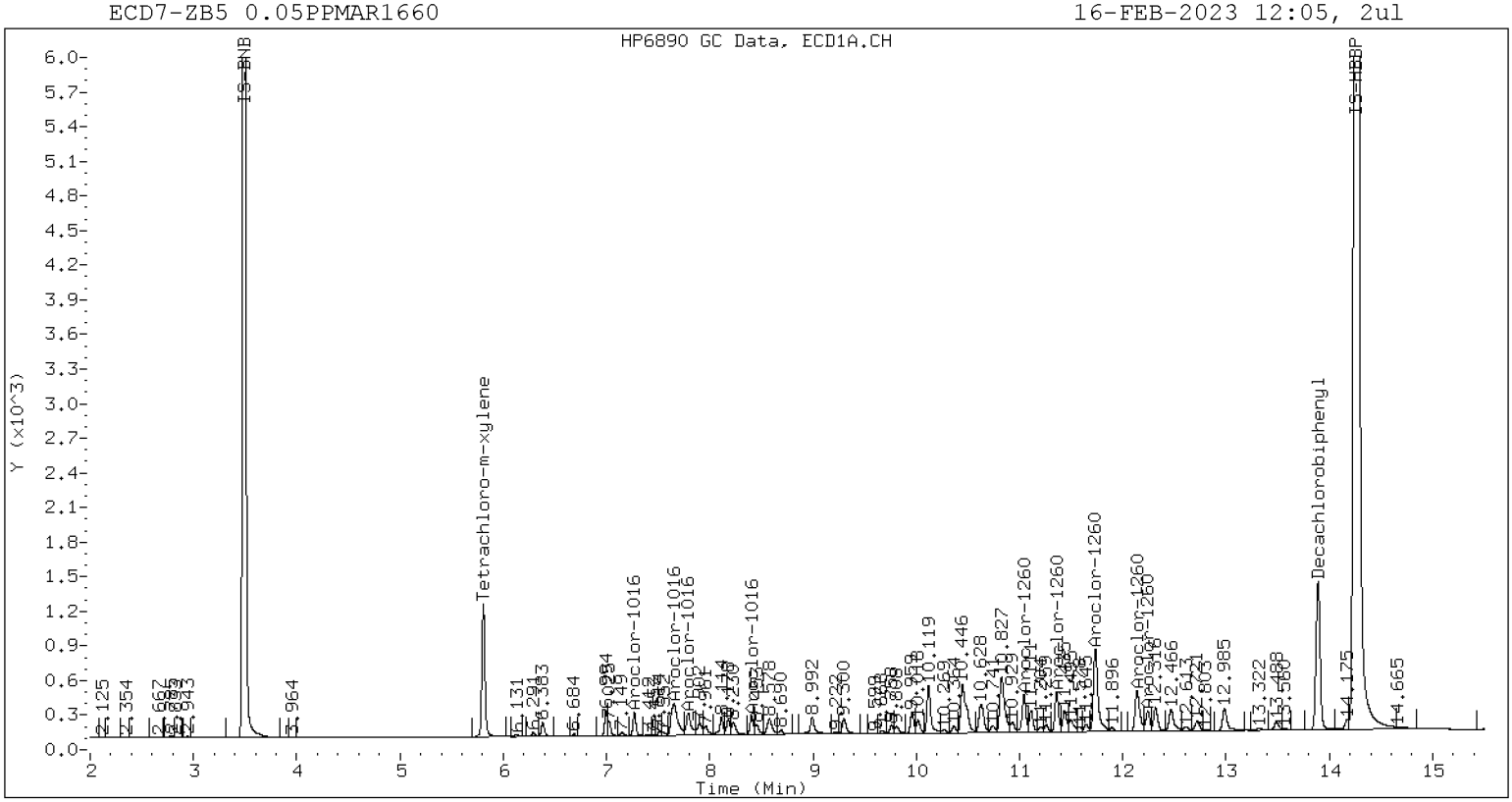
Total PCB Area Col2 (5.786 - 14.018) = 410066 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

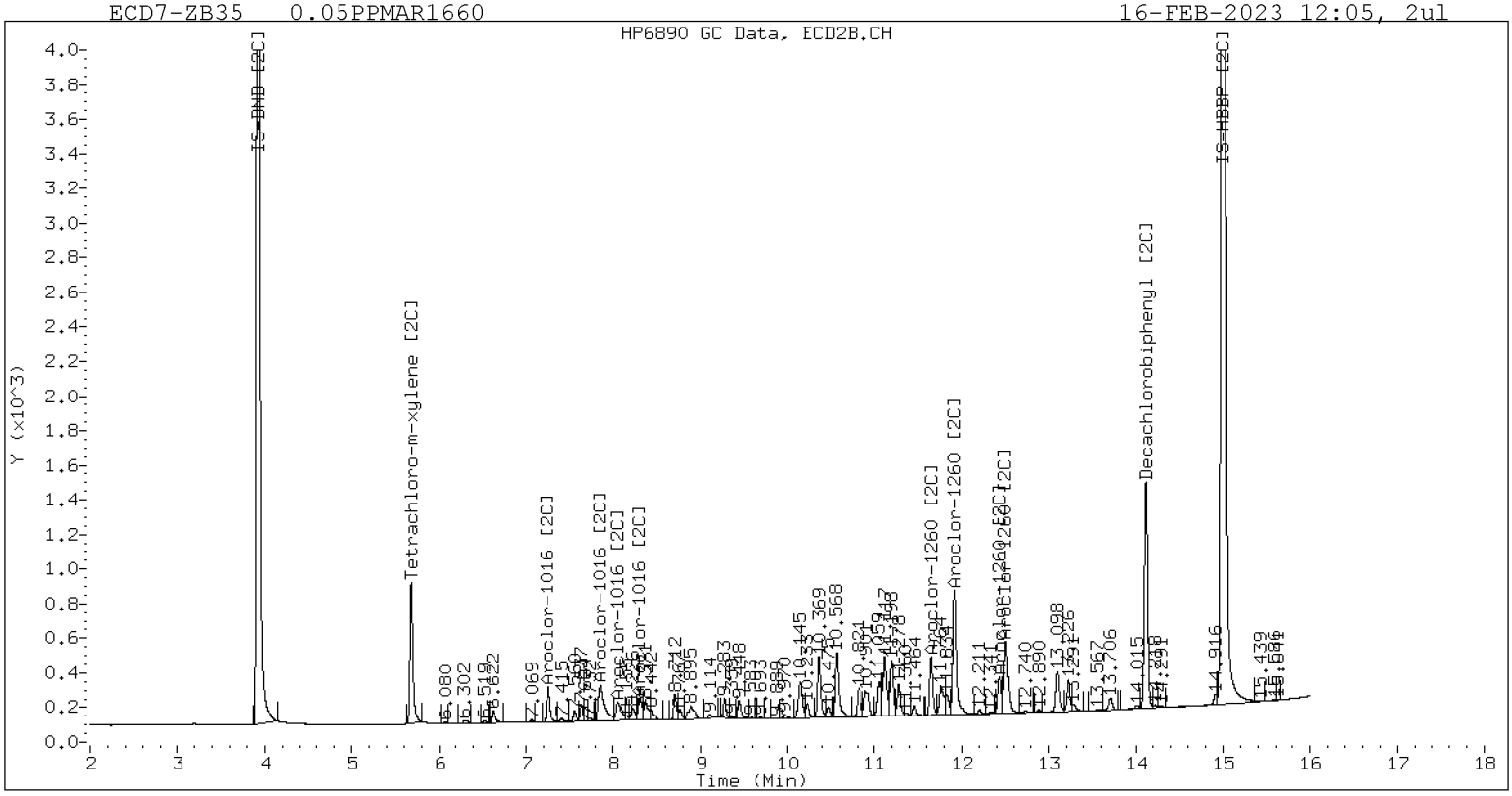
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162305ECD7.D
Data file 2: /230216.b/230216.b/02162305ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:27
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.003	891683	5.688	0.002	726379	151.2	152.9	1.1	Tetrachloro-m-xylene
13.892	0.001	1202823	14.120	0.002	1376073	143.7	154.6	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	415564	-3.4
Hexabromobiphenyl	975457	950630	-2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	352163	-4.0
Hexabromobiphenyl	646884	638267	-1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	132049	872.6	1	7.254	0.000	163920	849.6
Aroclor-1016	2	7.649	-0.001	456308	941.6	2	7.849	-0.003	390554	952.8
Aroclor-1016	3	7.787	-0.000	188528	845.9	3	8.049	-0.000	164163	974.1
Aroclor-1016	4	8.403	0.000	141381	963.9	4	8.304	0.000	120741	883.4
Total Col1Ave (4 peaks):					906.0	Total Col2Ave (4 peaks):				915.0 RPD = 1
Corrected Ave (3 peaks):					886.7	Corrected Ave (3 peaks):				895.3 RPD = 1
CalAmt %D:					-9.4	CalAmt %D:				-8.5
Aroclor-1260	1	11.040	-0.000	311922	951.8	1	11.650	-0.000	297569	840.7
Aroclor-1260	2	11.356	-0.001	324926	969.1	2	11.914	-0.001	734323	824.7
Aroclor-1260	3	11.729	-0.001	820597	924.2	3	12.432	0.000	215979	906.9
Aroclor-1260	4	12.131	-0.003	448823	995.6	4	12.498	0.000	521208	872.6
Aroclor-1260	5	12.240	0.000	188496	975.0	NS	---			----
Total Col1Ave (5 peaks):					963.1	Total Col2Ave (4 peaks):				861.2 RPD = 11
Corrected Ave (4 peaks):					955.0	Corrected Ave (3 peaks):				846.0 RPD = 12
CalAmt %D:					-3.7	CalAmt %D:				-13.9

Total PCB Area Col1 (5.908 - 13.791) = 8716327 Col1 Total PCB = 1.9 ppm*

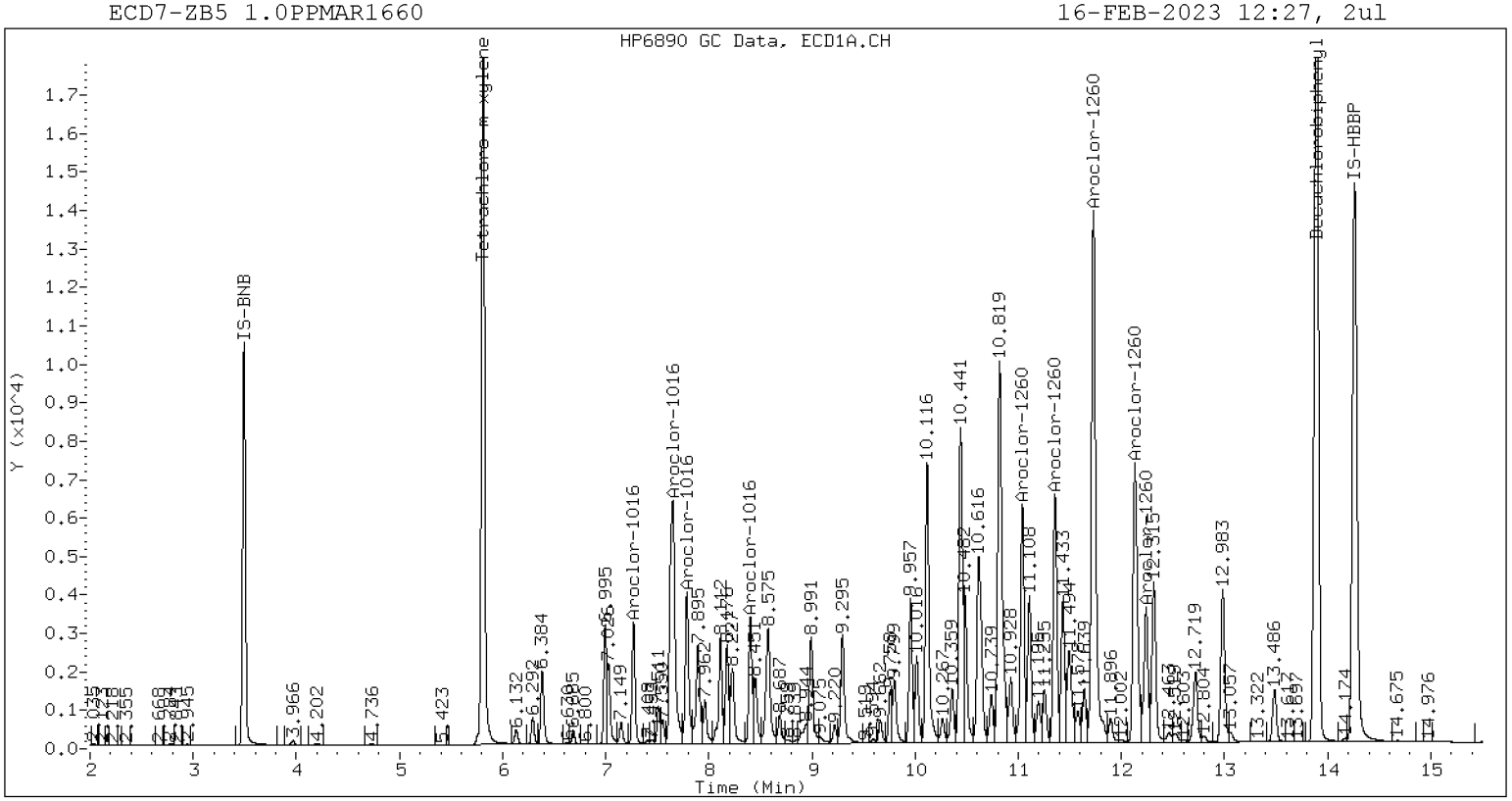
Total PCB Area Col2 (5.786 - 14.018) = 7274392 Col2 Total PCB = 1.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

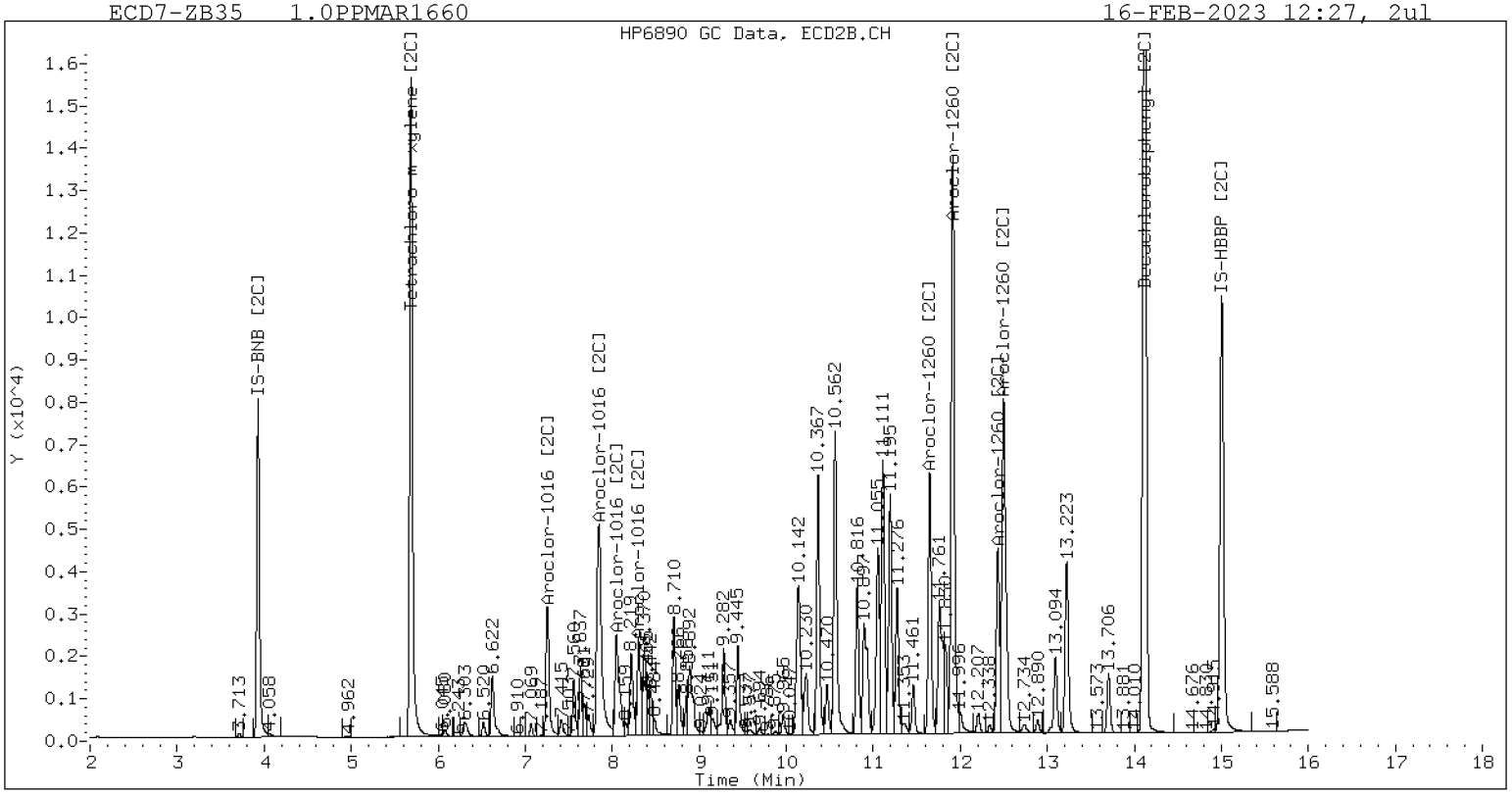
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162306ECD7.D
Data file 2: /230216.b/230216.b/02162306ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:48
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	97353	5.687	0.001	77790	16.1	16.0	1.1	Tetrachloro-m-xylene
13.890	-0.001	143814	14.117	-0.001	141007	16.6	15.4	7.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	425206	-1.1
Hexabromobiphenyl	975457	982762	0.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361068	-1.6
Hexabromobiphenyl	646884	654989	1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	15562	100.5	1	7.254	-0.000	20282	102.5
Aroclor-1016	2	7.653	0.003	49218	99.3	2	7.855	0.004	43303	103.0
Aroclor-1016	3	7.790	0.003	23916	104.9	3	8.054	0.005	18932	109.6
Aroclor-1016	4	8.404	0.002	14884	99.2	4	8.306	0.002	15145	108.1
Total Col1Ave (4 peaks):					101.0	Total Col2Ave (4 peaks):				105.8 RPD = 5
Corrected Ave (3 peaks):					99.6	Corrected Ave (3 peaks):				104.5 RPD = 5
CalAmt %D:					1.0	CalAmt %D:				5.8
Aroclor-1260	1	11.042	0.002	34109	100.7	1	11.651	0.001	34102	93.9
Aroclor-1260	2	11.358	0.001	34951	100.8	2	11.917	0.002	87139	95.4
Aroclor-1260	3	11.733	0.003	92326	100.6	3	12.434	0.001	21226	86.9
Aroclor-1260	4	12.137	0.003	45803	98.3	4	12.500	0.002	57343	93.6
Aroclor-1260	5	12.241	0.001	19653	98.3	NS	---			----
Total Col1Ave (5 peaks):					99.7	Total Col2Ave (4 peaks):				92.4 RPD = 8
Corrected Ave (4 peaks):					99.5	Corrected Ave (3 peaks):				91.4 RPD = 8
CalAmt %D:					-0.3	CalAmt %D:				-7.6

Total PCB Area Col1 (5.908 - 13.791) = 948624 Col1 Total PCB = 0.2 ppm*

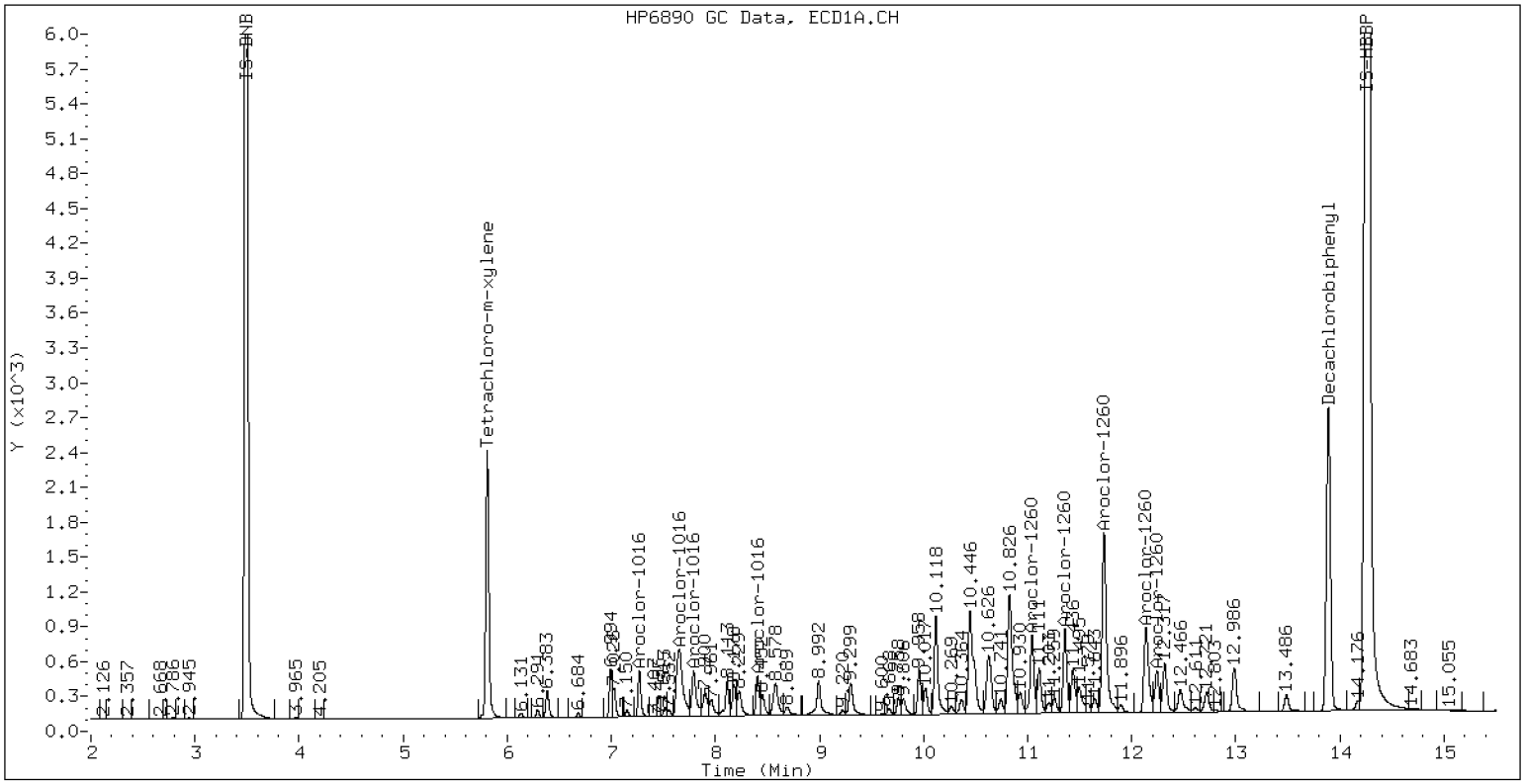
Total PCB Area Col2 (5.786 - 14.018) = 817080 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

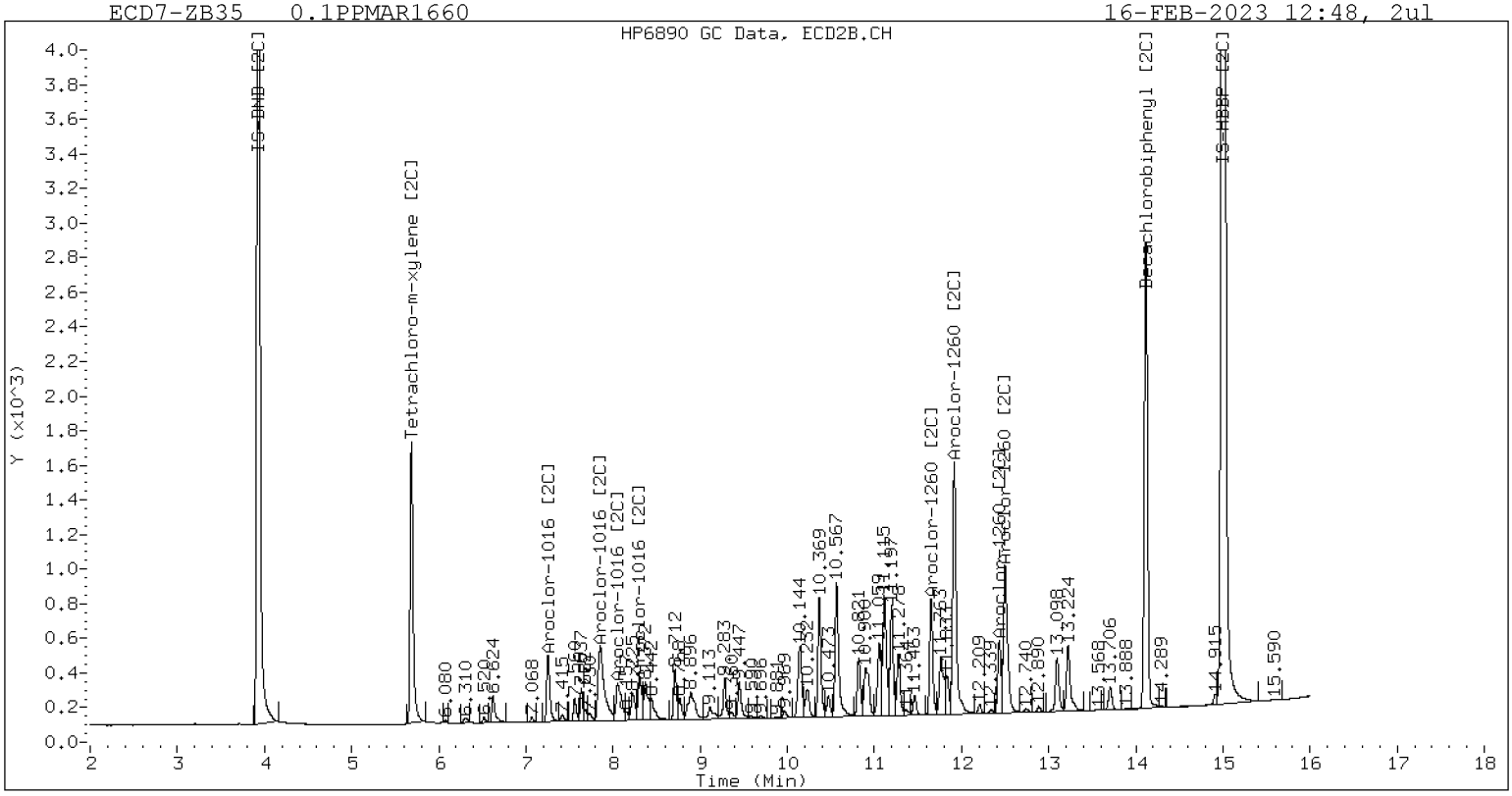
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162307ECD7.D
Data file 2: /230216.b/230216.b/02162307ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 13:09
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	472991	5.686	0.001	380587	78.5	78.1	0.6	Tetrachloro-m-xylene
13.890	-0.001	654829	14.118	-0.000	723440	75.9	79.7	5.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	424511	-1.3
Hexabromobiphenyl	975457	980103	0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361199	-1.5
Hexabromobiphenyl	646884	650552	0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	74222	480.1	1	7.254	0.000	92105	465.4
Aroclor-1016	2	7.650	0.000	249600	504.2	2	7.851	0.000	210359	500.4
Aroclor-1016	3	7.787	0.000	104974	461.1	3	8.049	0.000	87658	507.1
Aroclor-1016	4	8.402	0.000	75363	503.0	4	8.304	0.000	65546	467.6
Total Col1Ave (4 peaks):					487.1	Total Col2Ave (4 peaks):				485.1 RPD = 0
Corrected Ave (3 peaks):					481.4	Corrected Ave (3 peaks):				477.8 RPD = 1
CalAmt %D:					-2.6	CalAmt %D:				-3.0
Aroclor-1260	1	11.041	0.000	166809	493.7	1	11.650	0.000	160885	446.0
Aroclor-1260	2	11.357	0.000	172259	498.3	2	11.915	0.000	410338	452.2
Aroclor-1260	3	11.731	0.000	445028	486.1	3	12.432	0.000	110865	456.7
Aroclor-1260	4	12.134	0.000	236535	508.9	4	12.498	0.000	278934	458.2
Aroclor-1260	5	12.240	0.000	98968	496.5	NS	---			----
Total Col1Ave (5 peaks):					496.7	Total Col2Ave (4 peaks):				453.3 RPD = 9
Corrected Ave (4 peaks):					493.7	Corrected Ave (3 peaks):				451.6 RPD = 9
CalAmt %D:					-0.7	CalAmt %D:				-9.3

Total PCB Area Col1 (5.908 - 13.791) = 4638448 Col1 Total PCB = 1.0 ppm*

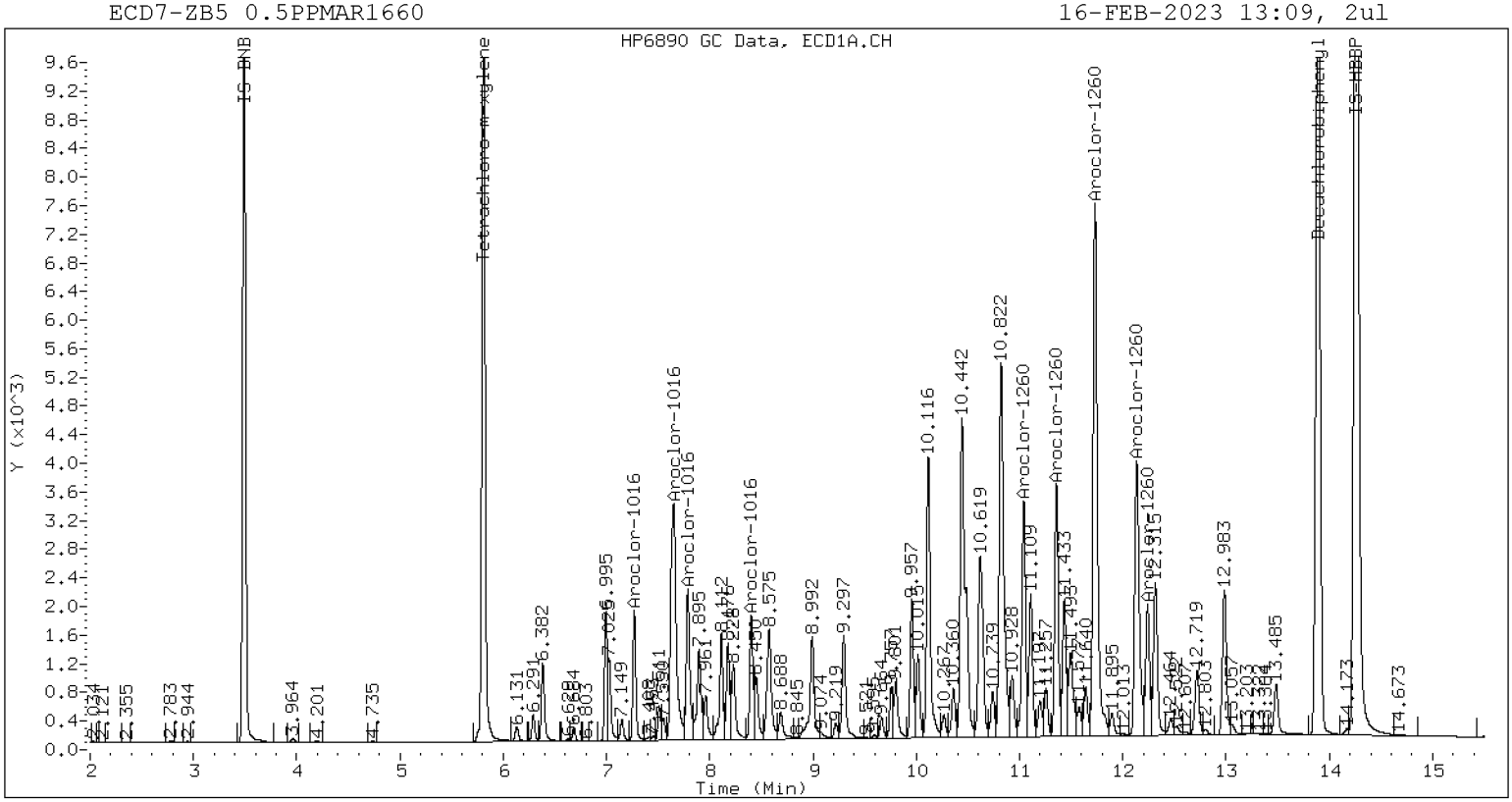
Total PCB Area Col2 (5.786 - 14.018) = 3867644 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

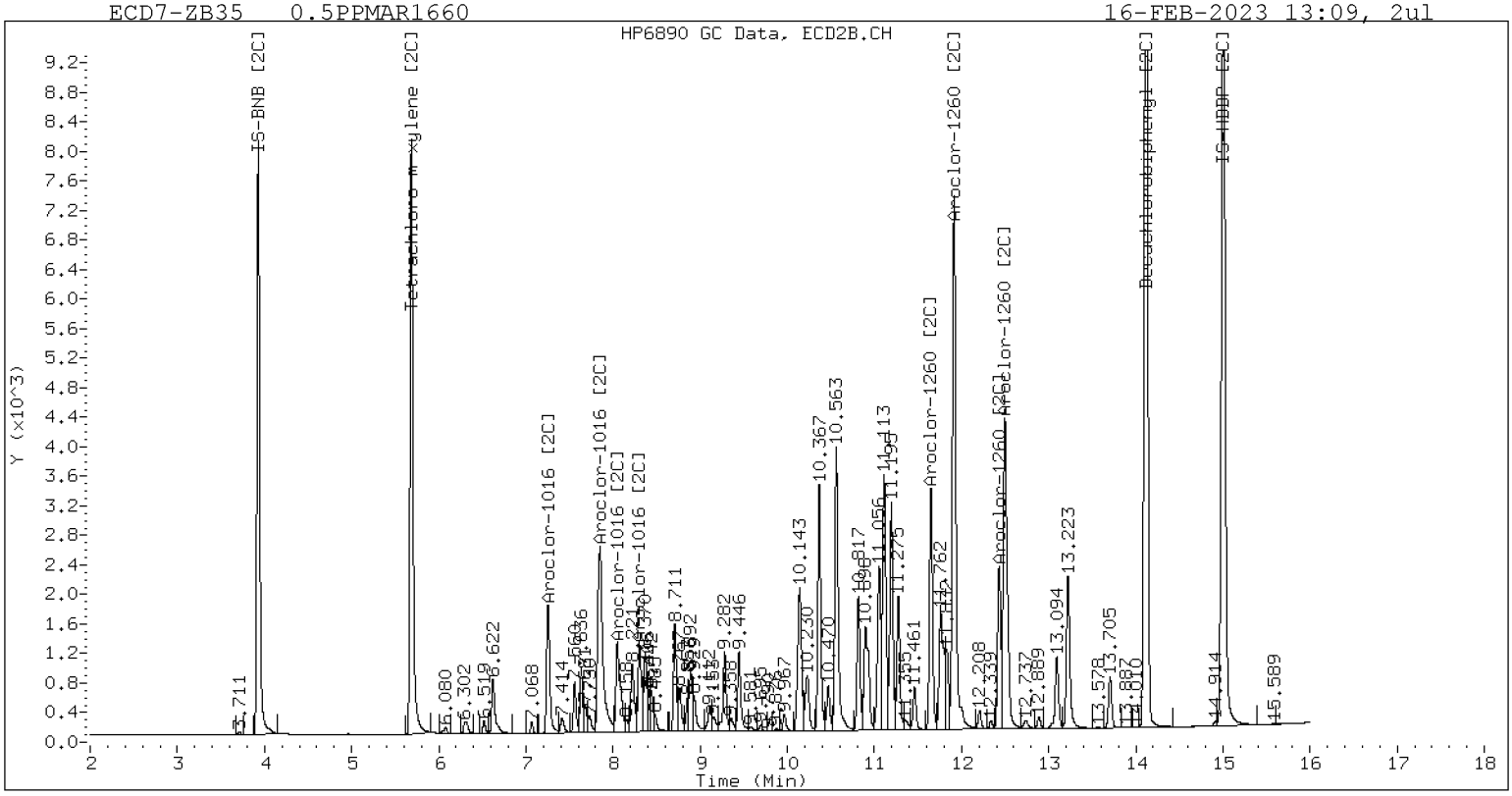
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162308ECD7.D
Data file 2: /230216.b/230216.b/02162308ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 16-FEB-2023 13:30
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	287664	5.686	0.000	229806	46.8	46.6	0.6	Tetrachloro-m-xylene
13.891	0.000	335023	14.117	-0.001	345735	37.9	37.1	2.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	432799	0.6
Hexabromobiphenyl	975457	1004715	3.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	365812	-0.3
Hexabromobiphenyl	646884	667992	3.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.269	0.000	32233	250.0	1	7.254	0.000	39556	250.0
Aroclor-1242	2	7.652	0.000	102000	250.0	2	7.853	0.000	85705	250.0
Aroclor-1242	3	8.403	0.000	30824	250.0	3	9.160	0.000	27091	250.0
Aroclor-1242	4	8.577	0.000	45526	250.0	4	9.587	0.000	32851	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 766603 Col1 Total PCB = 0.2 ppm*

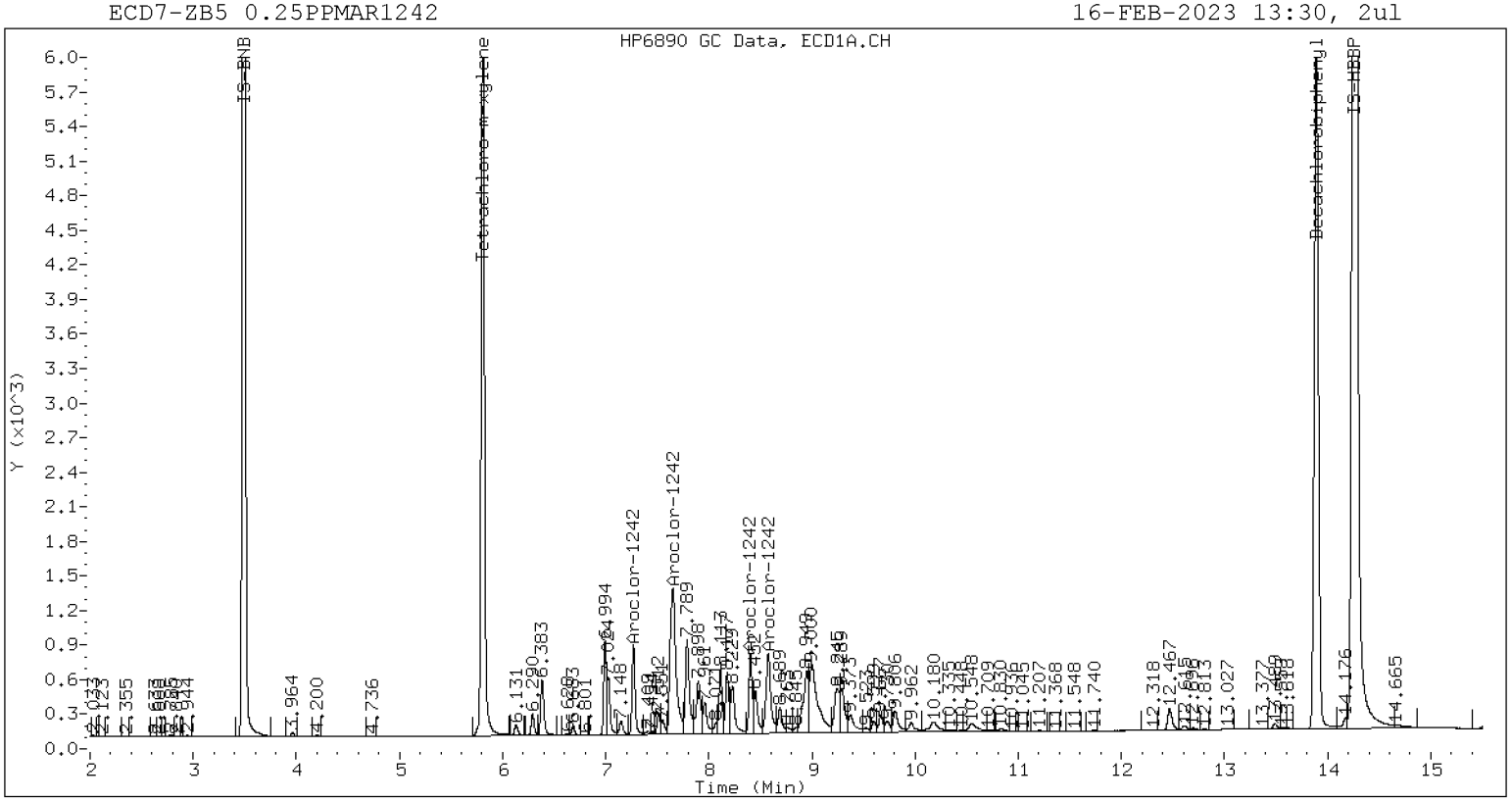
Total PCB Area Col2 (5.786 - 14.018) = 618238 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

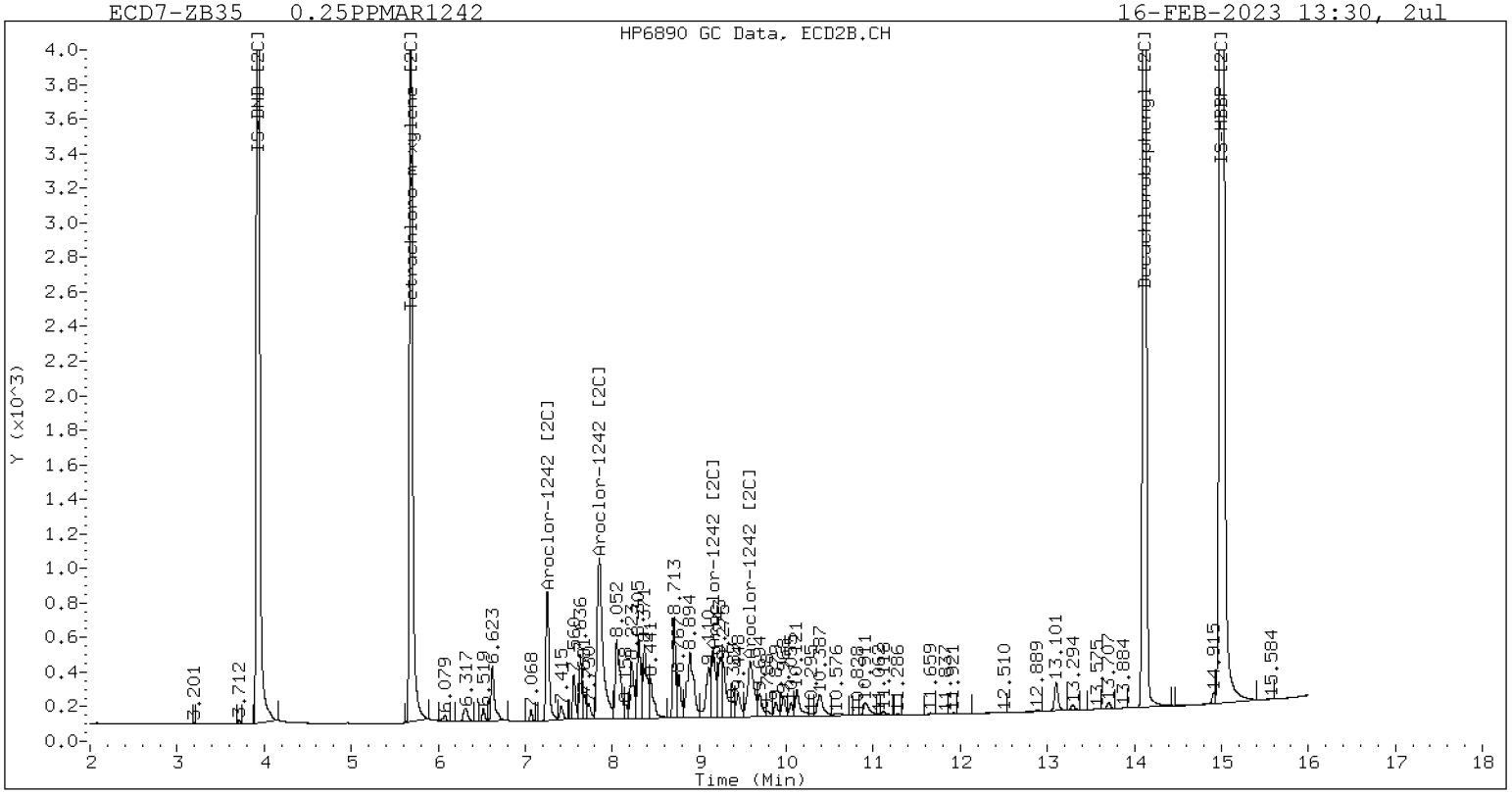
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162309ECD7.D
Data file 2: /230216.b/230216.b/02162309ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 16-FEB-2023 13:51
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	235858	5.688	0.002	191205	38.1	38.3	0.5	Tetrachloro-m-xylene
13.889	-0.002	339581	14.117	-0.001	351690	38.5	38.0	1.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	435779	1.3
Hexabromobiphenyl	975457	1000233	2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	369685	0.8
Hexabromobiphenyl	646884	662877	2.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.403	0.000	52538	250.0	1	8.305	0.000	41694	250.0
Aroclor-1248	2	8.577	0.000	66305	250.0	2	8.712	0.000	43865	250.0
Aroclor-1248	3	8.996	0.000	93719	250.0	3	9.159	0.000	50687	250.0
Aroclor-1248	4	9.292	0.000	59273	250.0	4	9.581	0.000	61479	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1025602 Col1 Total PCB = 0.2 ppm*

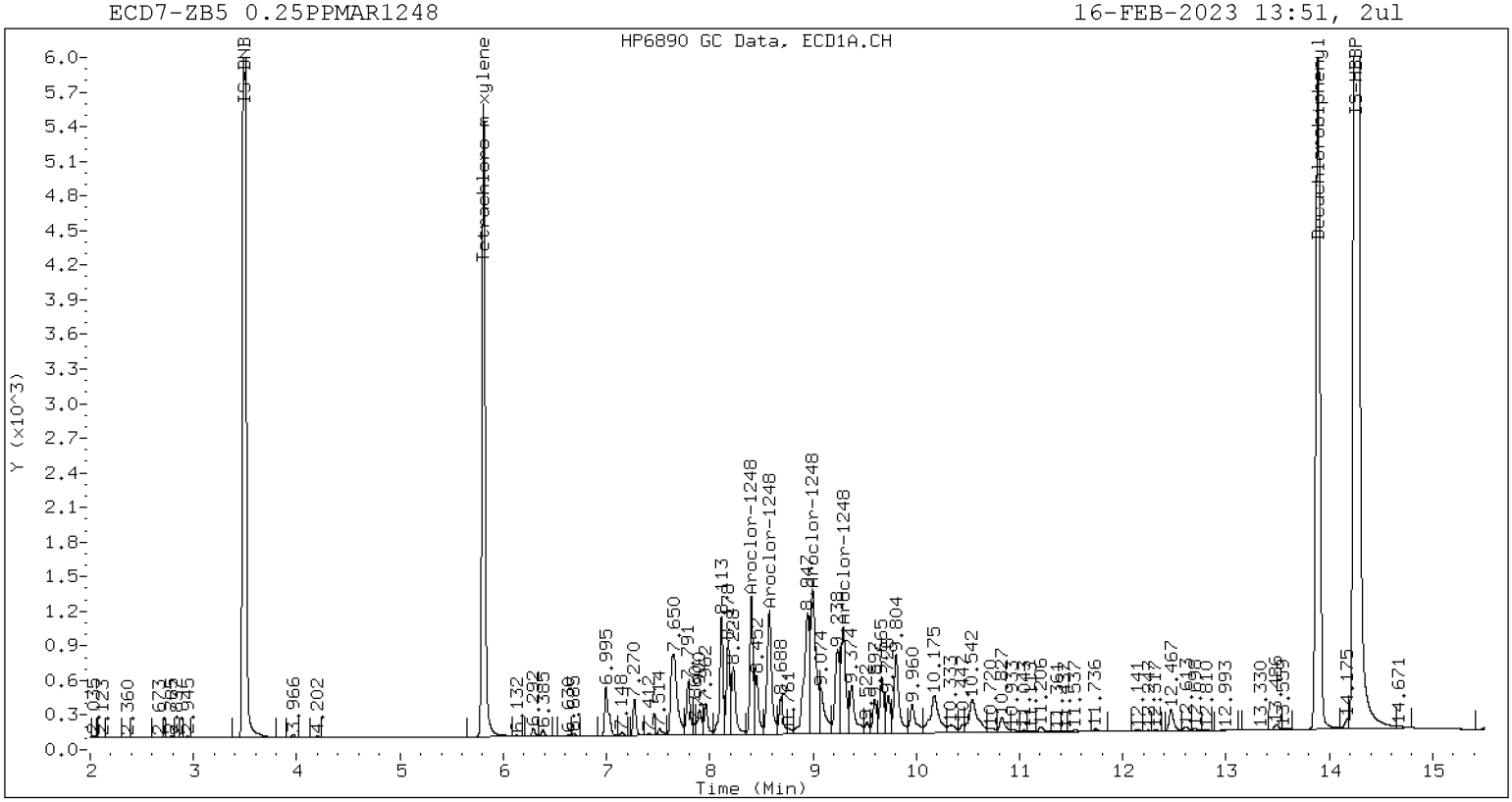
Total PCB Area Col2 (5.786 - 14.018) = 824415 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

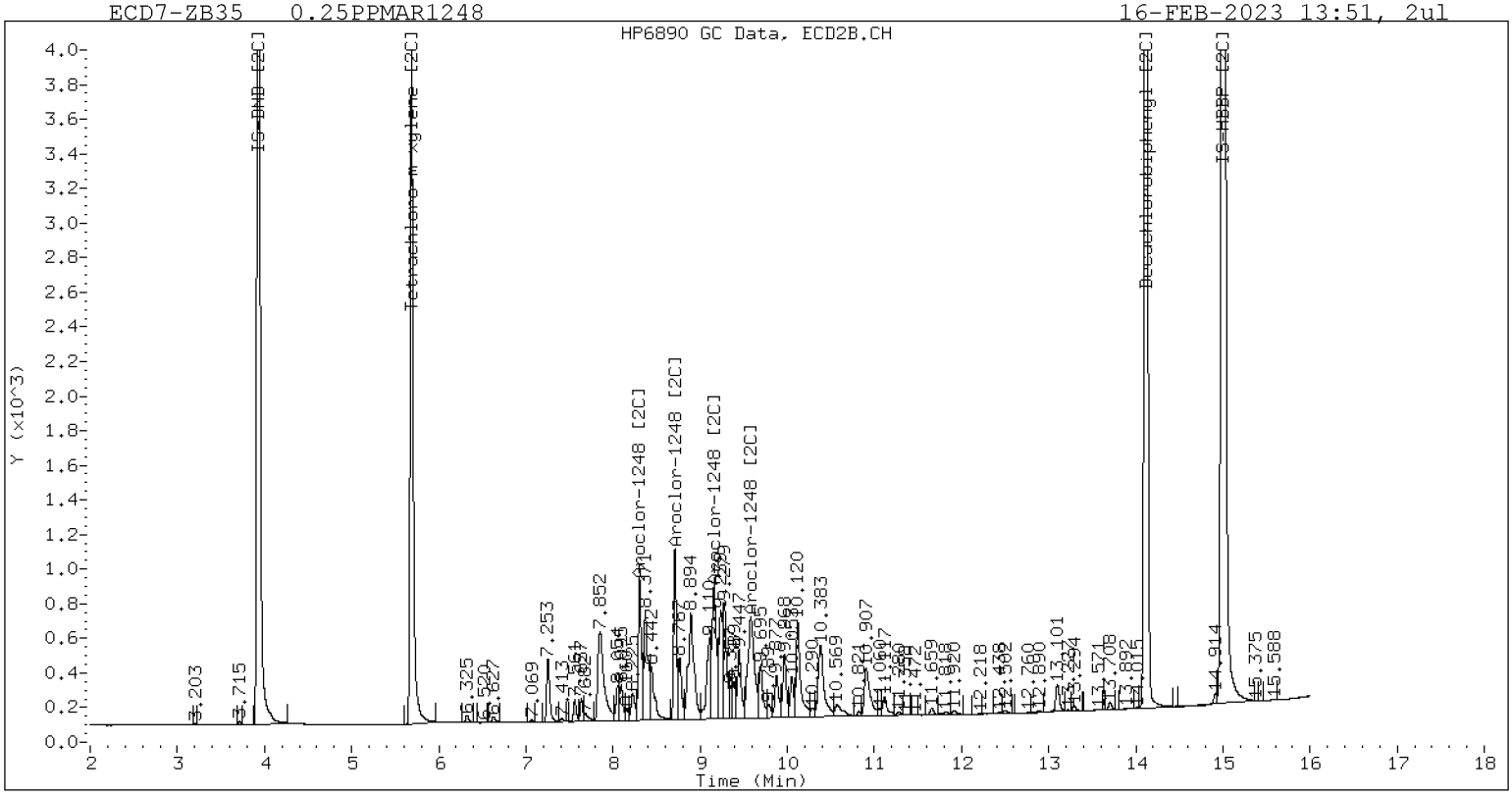
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162310ECD7.D
Data file 2: /230216.b/230216.b/02162310ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 16-FEB-2023 14:12
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235903	5.686	0.001	191667	38.0	38.3	0.7	Tetrachloro-m-xylene
13.891	0.000	345464	14.117	-0.001	355579	38.7	38.0	1.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	437427	1.7
Hexabromobiphenyl	975457	1013635	3.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	371000	1.2
Hexabromobiphenyl	646884	671465	3.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.295	0.000	105834	250.0	1	9.447	0.000	65393	250.0
Aroclor-1254	2	9.374	0.000	41671	250.0	2	9.967	0.000	52822	250.0
Aroclor-1254	3	9.665	0.000	67447	250.0	3	10.120	0.000	115063	250.0
Aroclor-1254	4	9.803	0.000	134258	250.0	4	10.370	0.000	113530	250.0
Aroclor-1254	5	10.167	0.000	81893	250.0	5	10.566	0.000	57361	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1385653 Col1 Total PCB = 0.3 ppm*

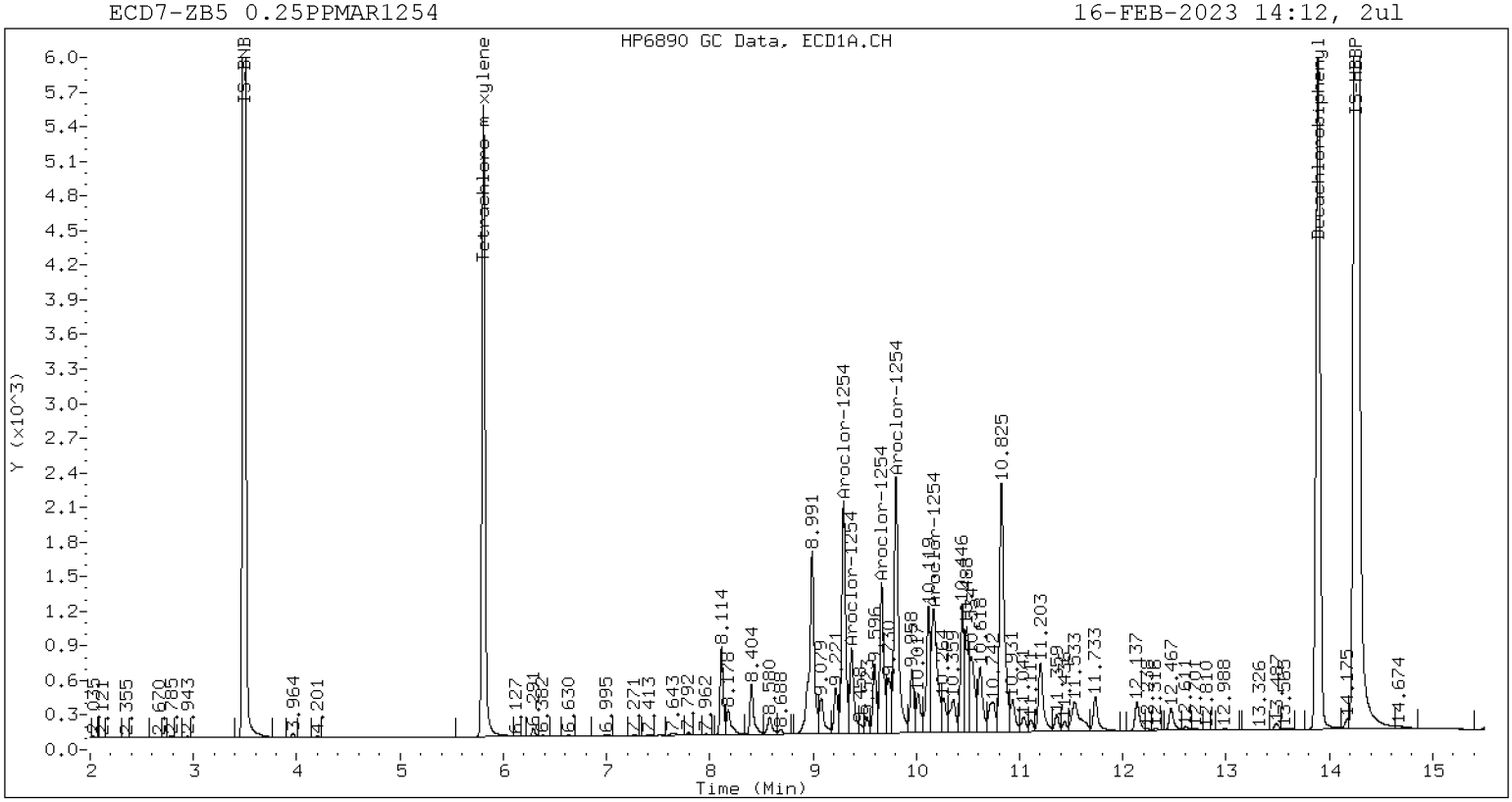
Total PCB Area Col2 (5.786 - 14.018) = 1106329 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

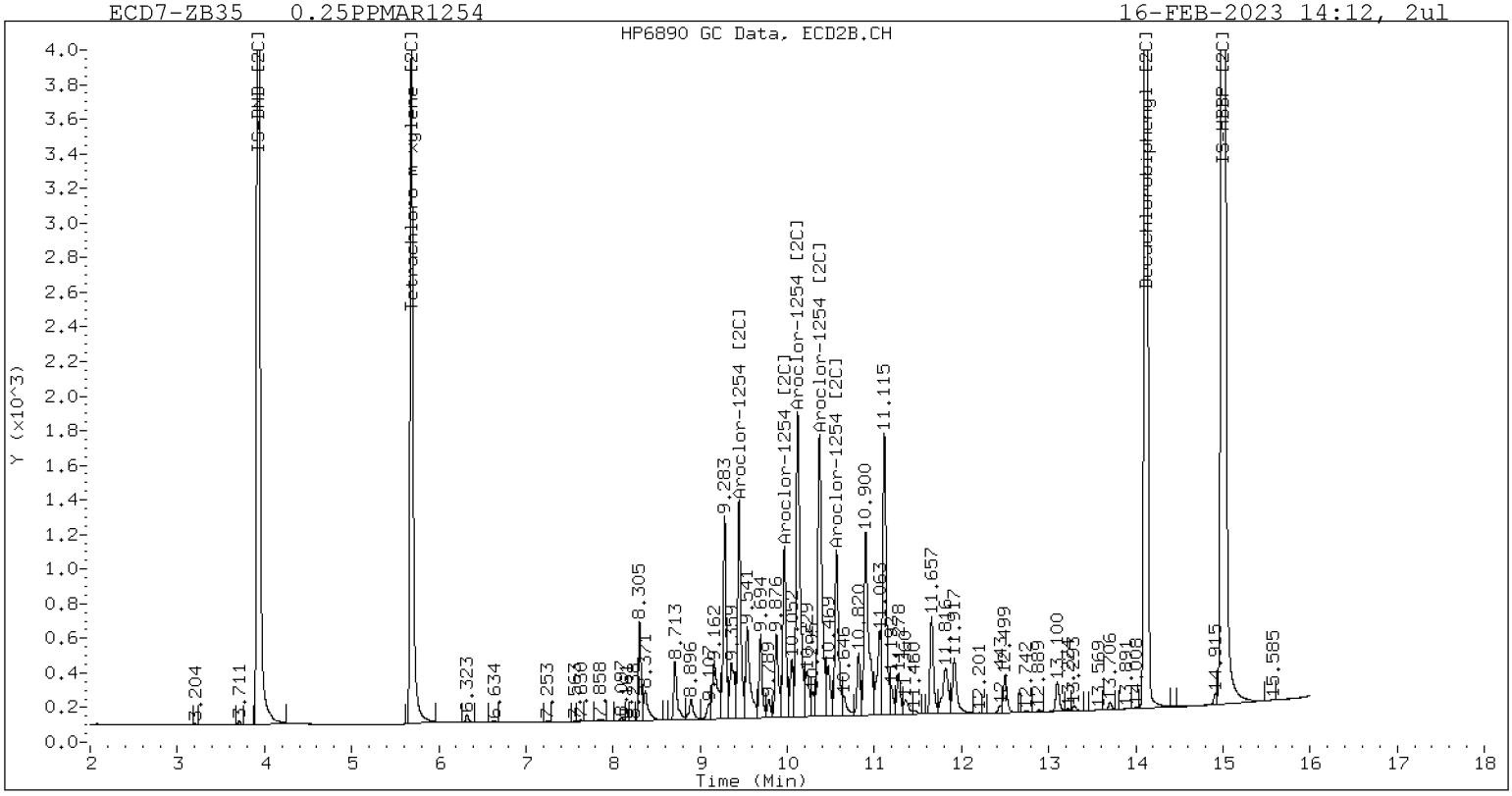
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162311ECD7.D
Data file 2: /230216.b/230216.b/02162311ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2168
Client ID:
Injection Date: 16-FEB-2023 14:33
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	241501	5.686	-0.000	189710	38.6	38.6	0.2	Tetrachloro-m-xylene
13.891	0.000	336556	14.118	0.000	345795	38.0	37.2	2.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	440775	2.5
Hexabromobiphenyl	975457	1005738	3.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	364664	-0.6
Hexabromobiphenyl	646884	666787	3.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1221	1	4.732	0.000	8560	250.0	1	4.958	0.000	6777	250.0
Aroclor-1221	2	6.133	0.000	15969	250.0	2	6.298	0.000	14550	250.0
Aroclor-1221	3	6.383	0.000	36928	250.0	3	6.622	0.000	24370	250.0
	Total Col1Ave (3 peaks):				250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.824	0.000	73471	250.0	1	11.198	0.000	124591	250.0
Aroclor-1262	2	12.242	0.000	120422	250.0	2	11.649	0.000	107557	250.0
Aroclor-1262	3	12.317	0.000	129860	250.0	3	12.431	0.000	117102	250.0
Aroclor-1262	4	12.984	0.000	112297	250.0	4	12.500	0.000	186359	250.0
	Total Col1Ave (4 peaks):				250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
	Corrected Ave (3 peaks):				250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1985753 Col1 Total PCB = 0.4 ppm*

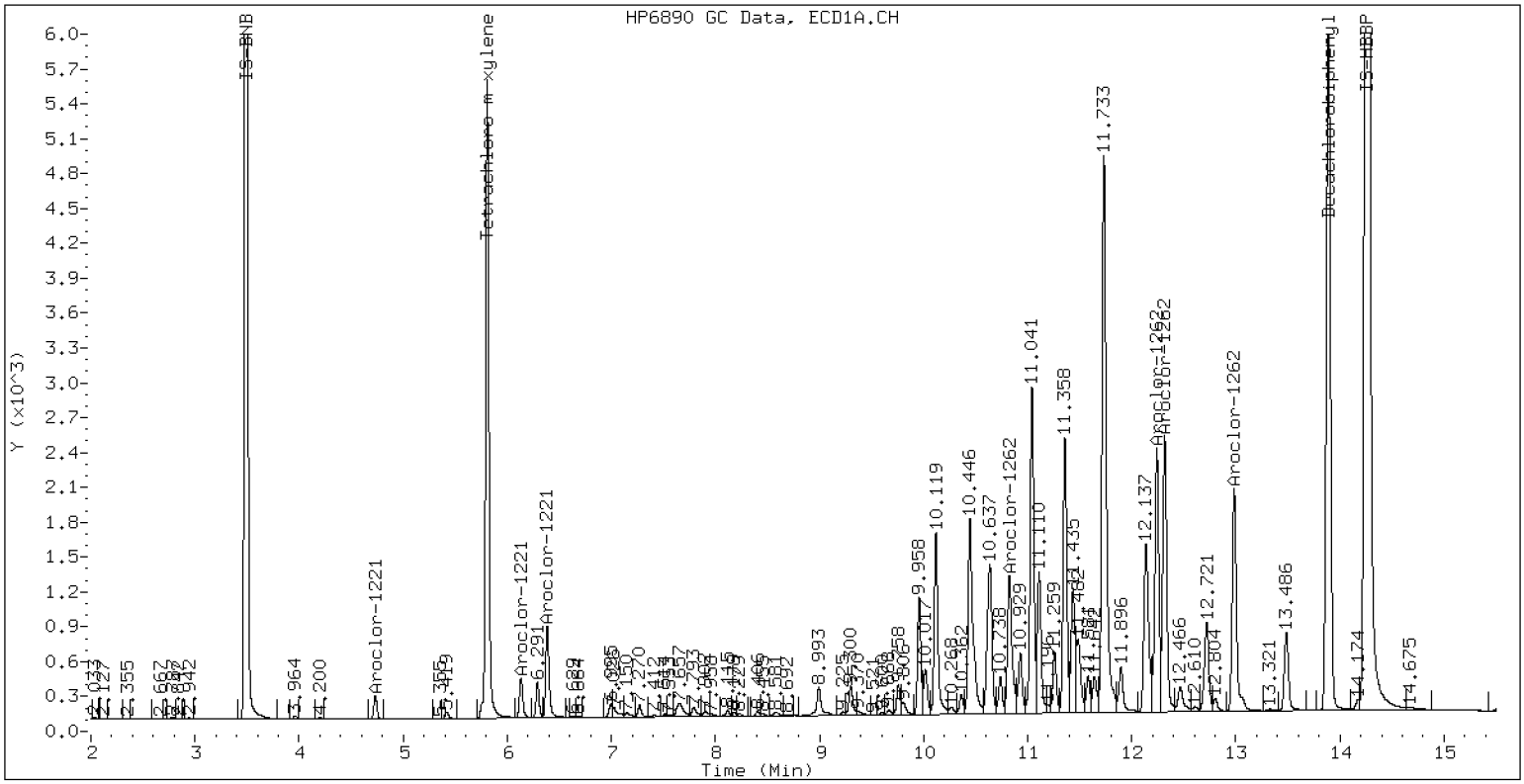
Total PCB Area Col2 (5.786 - 14.018) = 1689172 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

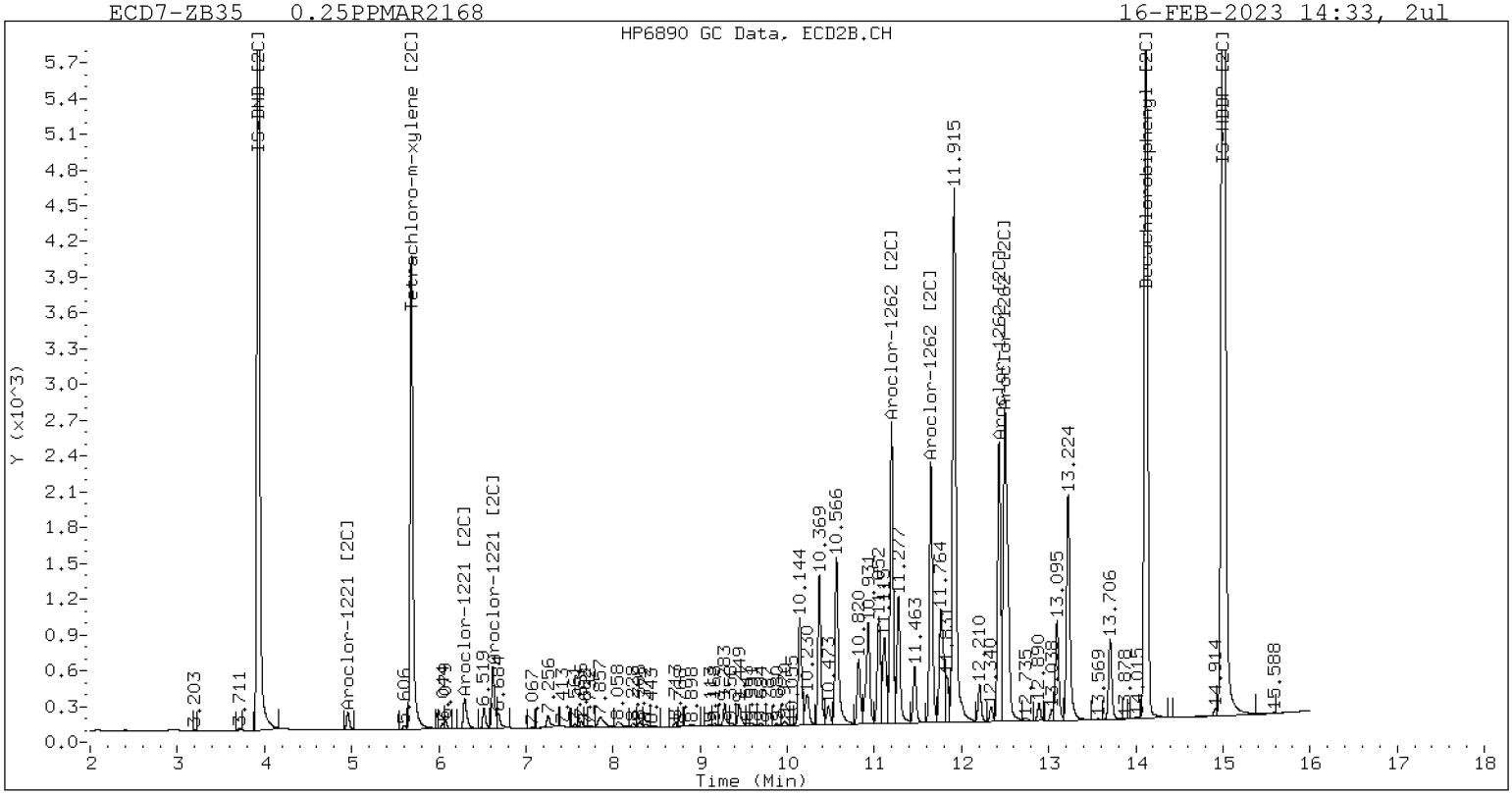
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162312ECD7.D
Data file 2: /230216.b/230216.b/02162312ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 16-FEB-2023 14:54
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	244394	5.686	0.000	193636	39.3	39.4	0.2	Tetrachloro-m-xylene
13.891	0.000	497881	14.118	0.000	532832	55.7	57.0	2.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	438085	1.9
Hexabromobiphenyl	975457	1014892	4.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	364382	-0.6
Hexabromobiphenyl	646884	669957	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.732	0.000	5253	250.0	1	4.958	0.000	4040	250.0
Aroclor-1232	2	6.133	0.000	11086	250.0	2	7.254	0.000	22642	250.0
Aroclor-1232	3	7.654	0.000	53251	250.0	3	7.855	0.000	45239	250.0
Aroclor-1232	4	8.579	0.000	22019	250.0	4	8.712	0.000	12663	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.243	0.000	318381	250.0	1	12.431	0.000	304552	250.0
Aroclor-1268	2	12.314	0.000	316432	250.0	2	12.498	0.000	320370	250.0
Aroclor-1268	3	12.697	0.000	268530	250.0	3	12.890	0.000	250965	250.0
Aroclor-1268	4	13.487	0.000	822664	250.0	4	13.707	0.000	877009	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 2577331 Col1 Total PCB = 0.5 ppm*

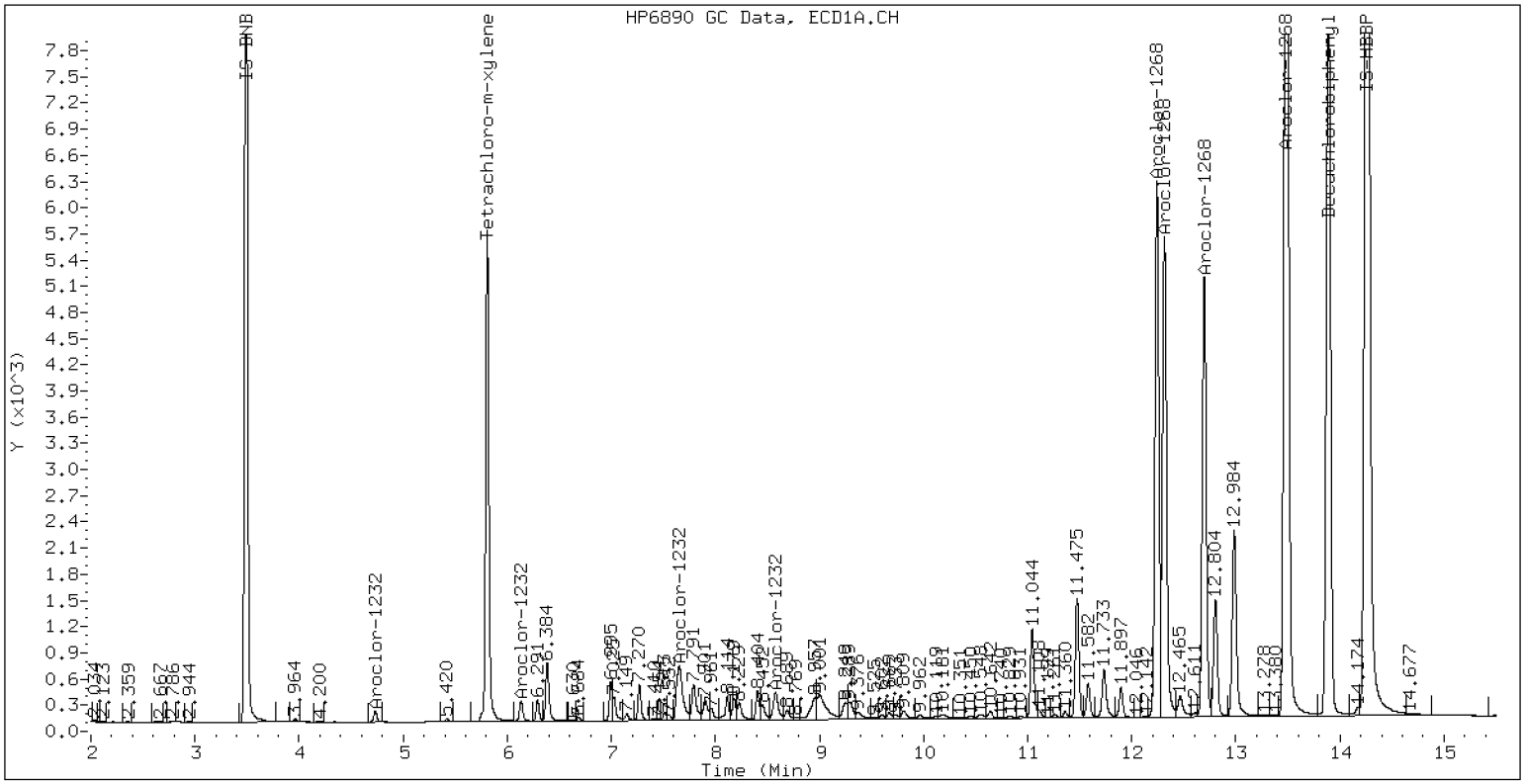
Total PCB Area Col2 (5.786 - 14.018) = 2462840 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

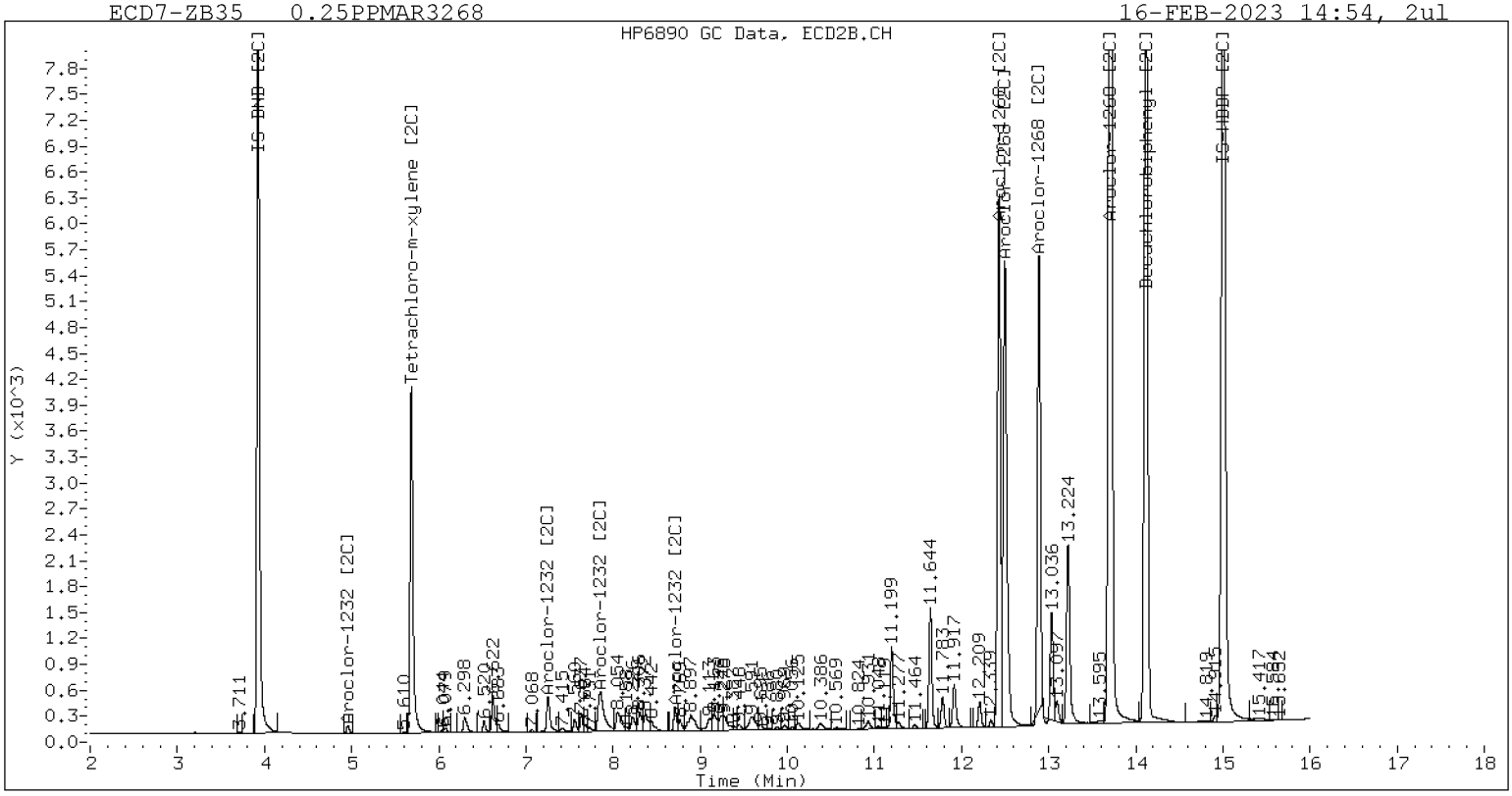
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162313ECD7.D
Data file 2: /230216.b/230216.b/02162313ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 16-FEB-2023 15:15
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	242919	5.685	-0.001	193061	37.3	37.2	0.3	Tetrachloro-m-xylene
13.891	-0.000	374845	14.118	0.000	388292	40.4	40.0	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	458820	6.7
Hexabromobiphenyl	975457	1052678	7.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	384524	4.8
Hexabromobiphenyl	646884	695386	7.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	36442	218.1	1	7.253	-0.001	45357	215.3
Aroclor-1016	2	7.652	0.002	116510	217.8	2	7.853	0.002	99069	221.4
Aroclor-1016	3	7.789	0.002	51841	210.7	3	8.052	0.003	42476	230.8
Aroclor-1016	4	8.403	0.001	35760	220.8	4	8.305	0.001	32151	215.4
Total Col1Ave (4 peaks):					216.8	Total Col2Ave (4 peaks):				220.7 RPD = 2
Corrected Ave (3 peaks):					215.5	Corrected Ave (3 peaks):				217.4 RPD = 1
Aroclor-1221	1	4.732	0.000	272	7.6	1	---			0.0
Aroclor-1221	2	6.131	-0.002	4384	65.9	2	6.302	0.004	5219	85.0
Aroclor-1221	3	6.383	-0.000	24508	159.4	3	6.622	0.001	21028	204.6
Total Col1Ave (3 peaks):					77.7	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.732	0.000	272	12.4	1	---			0.0
Aroclor-1232	2	6.131	-0.002	4384	94.4	2	7.253	-0.001	45357	474.6
Aroclor-1232	3	7.652	-0.002	116510	522.3	3	7.853	-0.002	99069	518.8
Aroclor-1232	4	8.577	-0.002	49511	536.7	4	8.712	-0.001	31220	584.1
Total Col1Ave (4 peaks):					291.4	Total Col2Ave (3 peaks):				525.8 RPD = 57*
Corrected Ave (3 peaks):					209.7	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	36442	266.6	1	7.253	-0.001	45357	272.7
Aroclor-1242	2	7.652	0.000	116510	269.4	2	7.853	0.000	99069	274.9
Aroclor-1242	3	8.403	0.000	35760	273.6	3	9.113	-0.047	17818	156.4
Aroclor-1242	4	8.577	-0.000	49511	256.5	4	9.582	-0.005	1661	12.0
Total Col1Ave (4 peaks):					266.5	Total Col2Ave (4 peaks):				179.0 RPD = 39
Corrected Ave (3 peaks):					264.1	Corrected Ave (3 peaks):				147.1 RPD = 57*
Aroclor-1248	1	8.403	0.000	35760	161.6	1	8.305	-0.001	32151	185.3
Aroclor-1248	2	8.577	-0.000	49511	177.3	2	8.712	0.000	31220	171.1
Aroclor-1248	3	8.992	-0.004	46666	118.2	3	9.113	-0.046	17818	84.5
Aroclor-1248	4	9.299	0.007	30647	122.8	4	9.582	0.001	1661	6.5
Total Col1Ave (4 peaks):					145.0	Total Col2Ave (4 peaks):				111.8 RPD = 26
Corrected Ave (3 peaks):					134.2	Corrected Ave (3 peaks):				87.4 RPD = 42*
Aroclor-1254	1	9.299	0.004	30647	69.0	1	9.447	0.001	22012	81.2
Aroclor-1254	2	---			0.0	2	9.969	0.002	2772	12.7
Aroclor-1254	3	9.667	0.002	3608	12.7	3	10.144	0.025	57546	120.6
Aroclor-1254	4	9.805	0.002	12639	22.4	4	10.369	-0.002	77590	164.8
Aroclor-1254	5	10.117	-0.050	100524	292.6	5	10.566	-0.000	106735	448.8
Total Col1Ave (4 peaks):					99.2	Total Col2Ave (5 peaks):				165.6 RPD = 50*
Corrected Ave (3 peaks):					34.7	Corrected Ave (4 peaks):				94.8 RPD = 93*
Aroclor-1260	1	11.042	0.002	99629	274.5	1	11.651	0.001	89434	231.9
Aroclor-1260	2	11.359	0.002	100112	269.7	2	11.915	0.001	237947	245.3
Aroclor-1260	3	11.732	0.002	260880	265.3	3	12.433	0.001	63686	245.4
Aroclor-1260	4	12.137	0.003	124998	250.4	4	12.500	0.002	157792	242.5
Aroclor-1260	5	12.242	0.001	58944	275.3	NS	---			----
Total Col1Ave (5 peaks):					267.0	Total Col2Ave (4 peaks):				241.3 RPD = 10
Corrected Ave (4 peaks):					265.0	Corrected Ave (3 peaks):				239.9 RPD = 10
Aroclor-1262	1	10.824	-0.001	144319	469.2	1	11.197	-0.000	90434	174.0
Aroclor-1262	2	12.242	-0.000	58944	116.9	2	11.651	0.002	89434	199.3
Aroclor-1262	3	12.316	-0.001	73272	134.8	3	12.433	0.002	63686	130.4
Aroclor-1262	4	12.985	0.001	66451	141.3	4	12.500	-0.000	157792	203.0
Total Col1Ave (4 peaks):					215.5	Total Col2Ave (4 peaks):				176.7 RPD = 20
Corrected Ave (3 peaks):					131.0	Corrected Ave (3 peaks):				167.9 RPD = 25
Aroclor-1268	1	12.242	-0.001	58944	44.6	1	12.433	0.002	63686	50.4
Aroclor-1268	2	12.316	0.002	73272	55.8	2	12.500	0.002	157792	118.6
Aroclor-1268	3	12.722	0.025	29543	26.5	3	12.890	0.000	1866	1.8
Aroclor-1268	4	13.486	-0.001	13453	3.9	4	13.707	0.000	11995	3.3
Total Col1Ave (4 peaks):					32.7	Total Col2Ave (4 peaks):				43.5 RPD = 28
Corrected Ave (3 peaks):					25.0	Corrected Ave (3 peaks):				18.5 RPD = 30

Total PCB Area Col1 (5.908 - 13.791) = 2405704 Col1 Total PCB = 0.5 ppm*

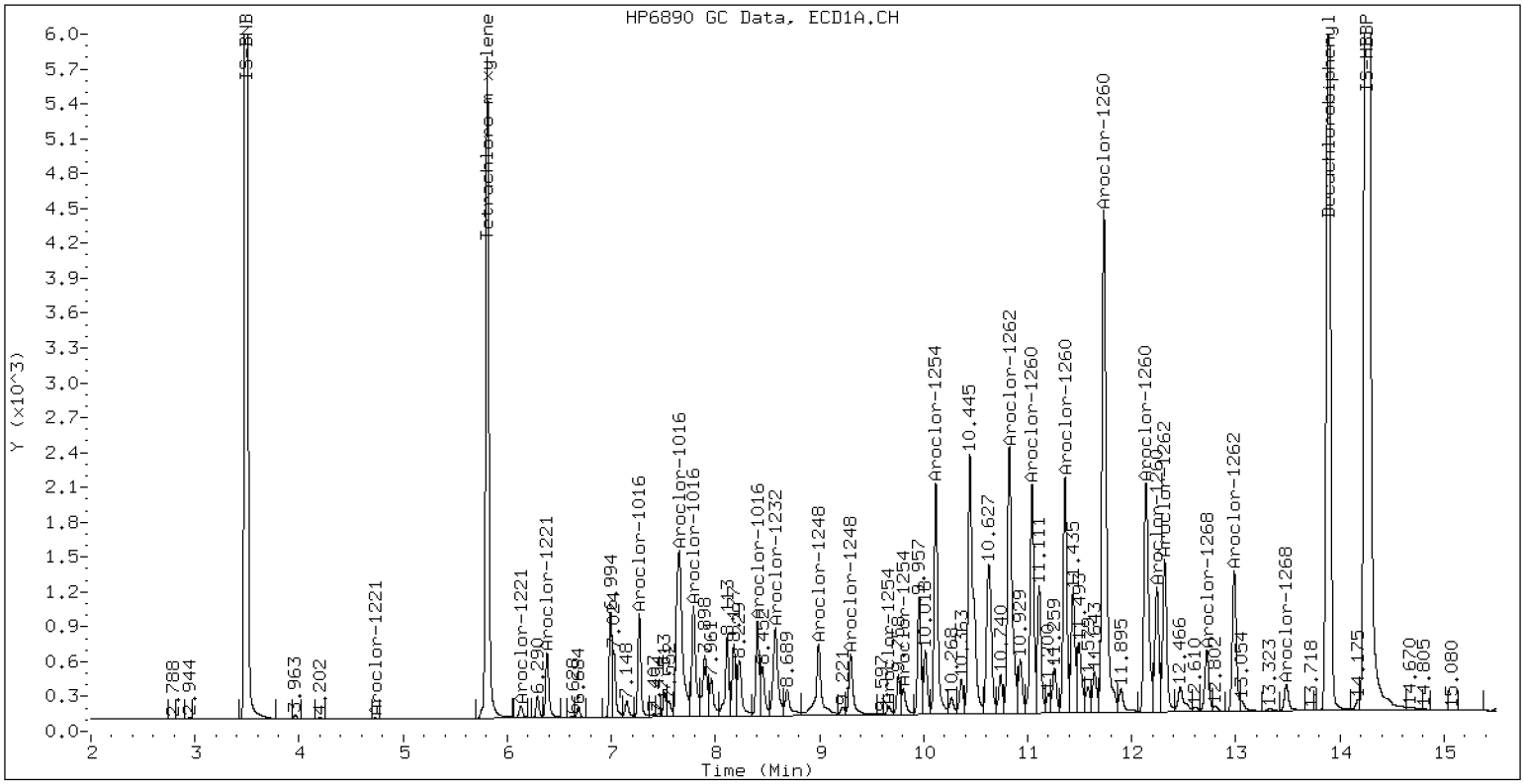
Total PCB Area Col2 (5.786 - 14.018) = 1998655 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

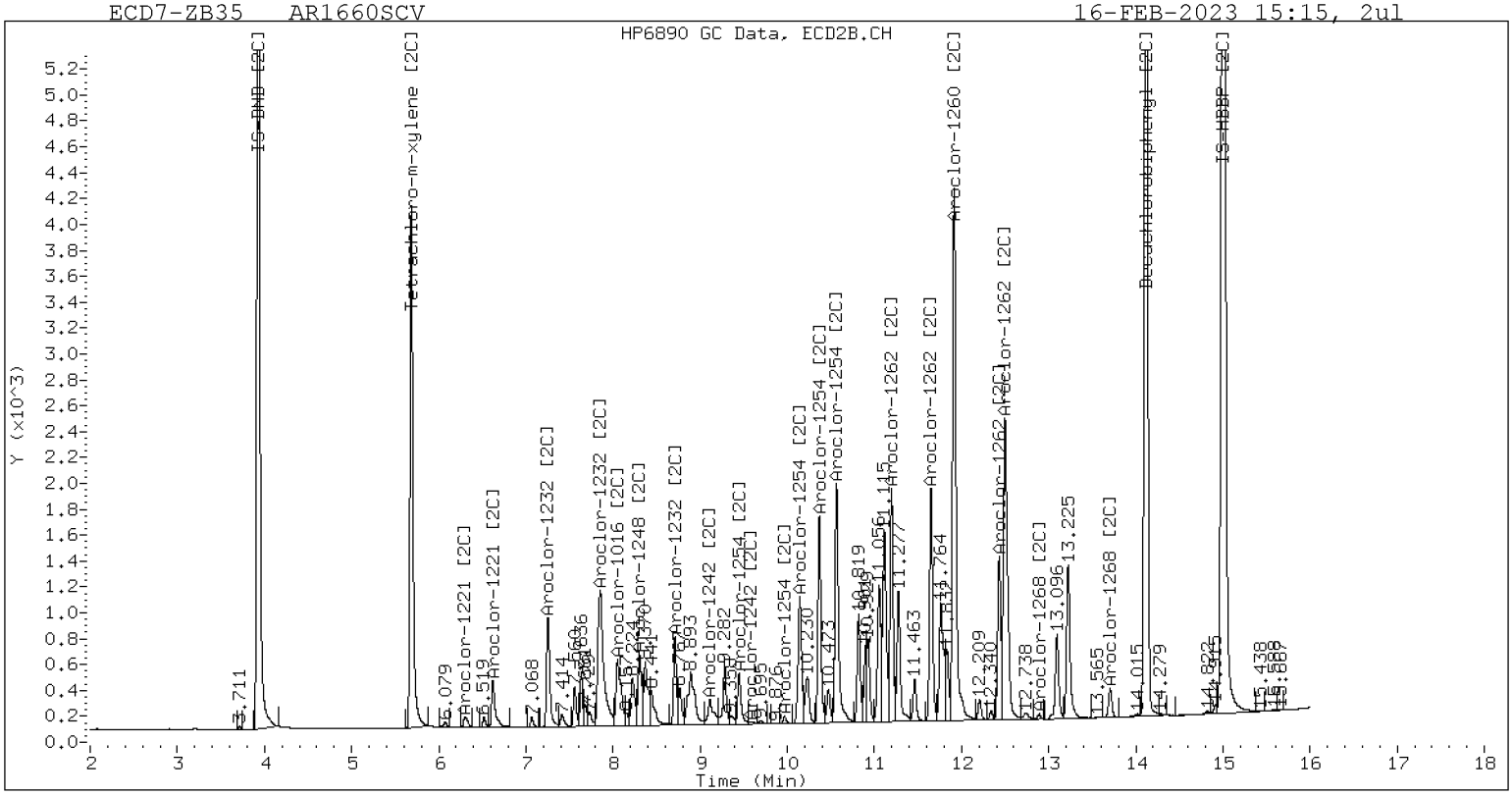
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162314ECD7.D
Data file 2: /230216.b/230216.b/02162314ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 16-FEB-2023 15:36
Report Date: 02/17/2023 11:55
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	240392	5.686	0.000	191518	36.8	36.8	0.0	Tetrachloro-m-xylene
13.891	0.000	372444	14.118	-0.000	384306	40.3	39.9	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	460847	7.2
Hexabromobiphenyl	975457	1048824	7.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	386112	5.3
Hexabromobiphenyl	646884	690141	6.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	26450	157.6	1	7.253	-0.001	35202	166.4
Aroclor-1016	2	7.651	0.001	91590	170.4	2	7.851	-0.000	76062	169.2
Aroclor-1016	3	7.789	0.002	38405	155.4	3	8.051	0.002	31745	171.8
Aroclor-1016	4	8.403	0.001	28918	177.8	4	8.304	0.000	24379	162.7
Total Col1Ave (4 peaks):		165.3				Total Col2Ave (4 peaks):			167.5	RPD = 1
Corrected Ave (3 peaks):		161.1				Corrected Ave (3 peaks):			166.1	RPD = 3
Aroclor-1221	1	4.736	0.004	158	4.4	1	---			0.0
Aroclor-1221	2	6.131	-0.002	3413	51.1	2	6.318	0.020	4305	69.9
Aroclor-1221	3	6.383	-0.000	18978	122.9	3	6.623	0.001	15561	150.8
Total Col1Ave (3 peaks):		59.5				Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.736	0.004	158	7.1	1	---			0.0
Aroclor-1232	2	6.131	-0.002	3413	73.2	2	7.253	-0.001	35202	366.8
Aroclor-1232	3	7.651	-0.003	91590	408.8	3	7.851	-0.004	76062	396.7
Aroclor-1232	4	8.577	-0.002	48090	519.0	4	8.712	-0.001	24445	455.4
Total Col1Ave (4 peaks):		252.0				Total Col2Ave (3 peaks):			406.3	RPD = 47*
Corrected Ave (3 peaks):		163.0				Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	26450	192.7	1	7.253	-0.000	35202	210.8
Aroclor-1242	2	7.651	-0.001	91590	210.8	2	7.851	-0.002	76062	210.2
Aroclor-1242	3	8.403	-0.000	28918	220.3	3	9.156	-0.004	26140	228.5
Aroclor-1242	4	8.577	-0.000	48090	248.0	4	9.580	-0.007	33659	242.7
Total Col1Ave (4 peaks):		217.9				Total Col2Ave (4 peaks):			223.1	RPD = 2
Corrected Ave (3 peaks):		207.9				Corrected Ave (3 peaks):			216.5	RPD = 4
Aroclor-1248	1	8.403	-0.000	28918	130.1	1	8.304	-0.001	24379	140.0
Aroclor-1248	2	8.577	-0.000	48090	171.5	2	8.712	0.000	24445	133.4
Aroclor-1248	3	8.997	0.001	47230	119.1	3	9.156	-0.003	26140	123.4
Aroclor-1248	4	9.292	0.001	23789	94.9	4	9.580	-0.001	33659	131.0
Total Col1Ave (4 peaks):		128.9				Total Col2Ave (4 peaks):			132.0	RPD = 2
Corrected Ave (3 peaks):		114.7				Corrected Ave (3 peaks):			129.3	RPD = 12
Aroclor-1254	1	9.292	-0.003	23789	53.3	1	9.446	-0.000	12605	46.3
Aroclor-1254	2	9.374	0.001	9634	54.9	2	9.967	-0.000	8527	38.8
Aroclor-1254	3	9.666	0.001	10685	37.6	3	10.119	-0.001	16959	35.4
Aroclor-1254	4	9.803	-0.000	18245	32.2	4	10.375	0.005	17612	37.3
Aroclor-1254	5	10.169	0.001	13394	38.8	5	10.568	0.003	5160	21.6
Total Col1Ave (5 peaks):		43.4				Total Col2Ave (5 peaks):			35.9	RPD = 19
Corrected Ave (4 peaks):		40.5				Corrected Ave (4 peaks):			33.3	RPD = 20
Aroclor-1260	1	11.043	0.002	200	0.6	1	11.659	0.009	1919	5.0
Aroclor-1260	2	11.361	0.004	305	0.8	2	11.922	0.007	1126	1.2
Aroclor-1260	3	11.735	0.004	595	0.6	3	12.438	0.006	127	0.5
Aroclor-1260	4	12.143	0.009	717	1.4	4	12.501	0.003	670	1.0
Aroclor-1260	5	12.318	0.078	265	1.2	NS	---			----
Total Col1Ave (5 peaks):		0.9				Total Col2Ave (4 peaks):			1.9	RPD = 70*
Corrected Ave (4 peaks):		0.8				Corrected Ave (3 peaks):			0.9	RPD = 11
Aroclor-1262	1	10.827	0.003	7919	25.8	1	11.117	-0.081	6747	13.1
Aroclor-1262	2	12.318	0.076	265	0.5	2	11.659	0.010	1919	4.3
Aroclor-1262	3	---			0.0	3	12.438	0.007	127	0.3
Aroclor-1262	4	13.032	0.048	704	1.5	4	12.501	0.001	670	0.9
Total Col1Ave (3 peaks):		9.3				Total Col2Ave (4 peaks):			4.6	RPD = 67*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):			1.8	
Aroclor-1268	1	12.318	0.075	265	0.2	1	12.438	0.007	127	0.1
Aroclor-1268	2	---			0.0	2	12.501	0.003	670	0.5
Aroclor-1268	3	12.613	-0.084	2956	2.7	3	---			0.0
Aroclor-1268	4	13.493	0.006	820	0.2	4	13.707	0.000	334	0.1
Total Col1Ave (3 peaks):		1.0				Total Col2Ave (3 peaks):			0.2	RPD = 126*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				

Total PCB Area Col1 (5.908 - 13.791) = 754431 Col1 Total PCB = 0.1 ppm*

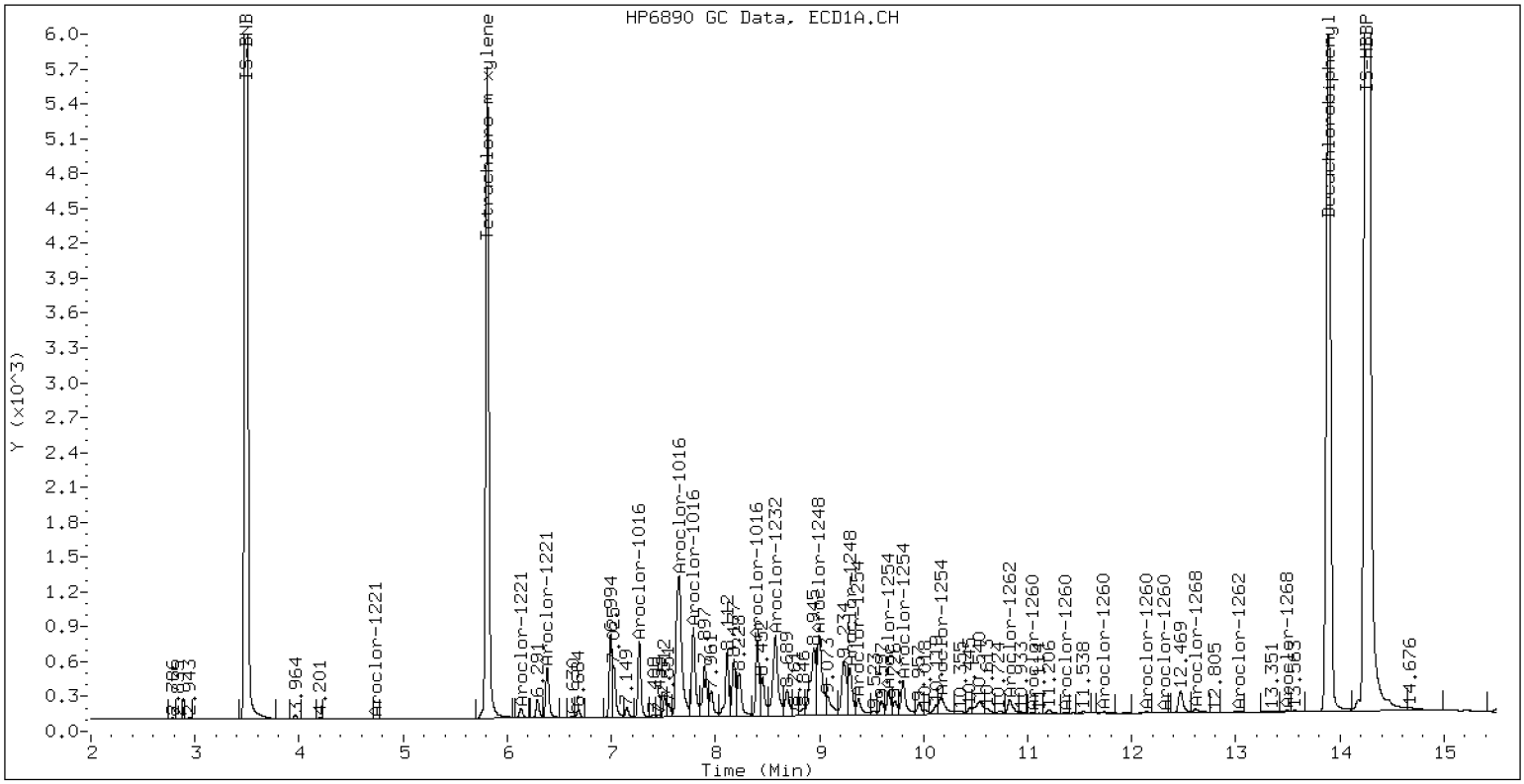
Total PCB Area Col2 (5.786 - 14.018) = 609458 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

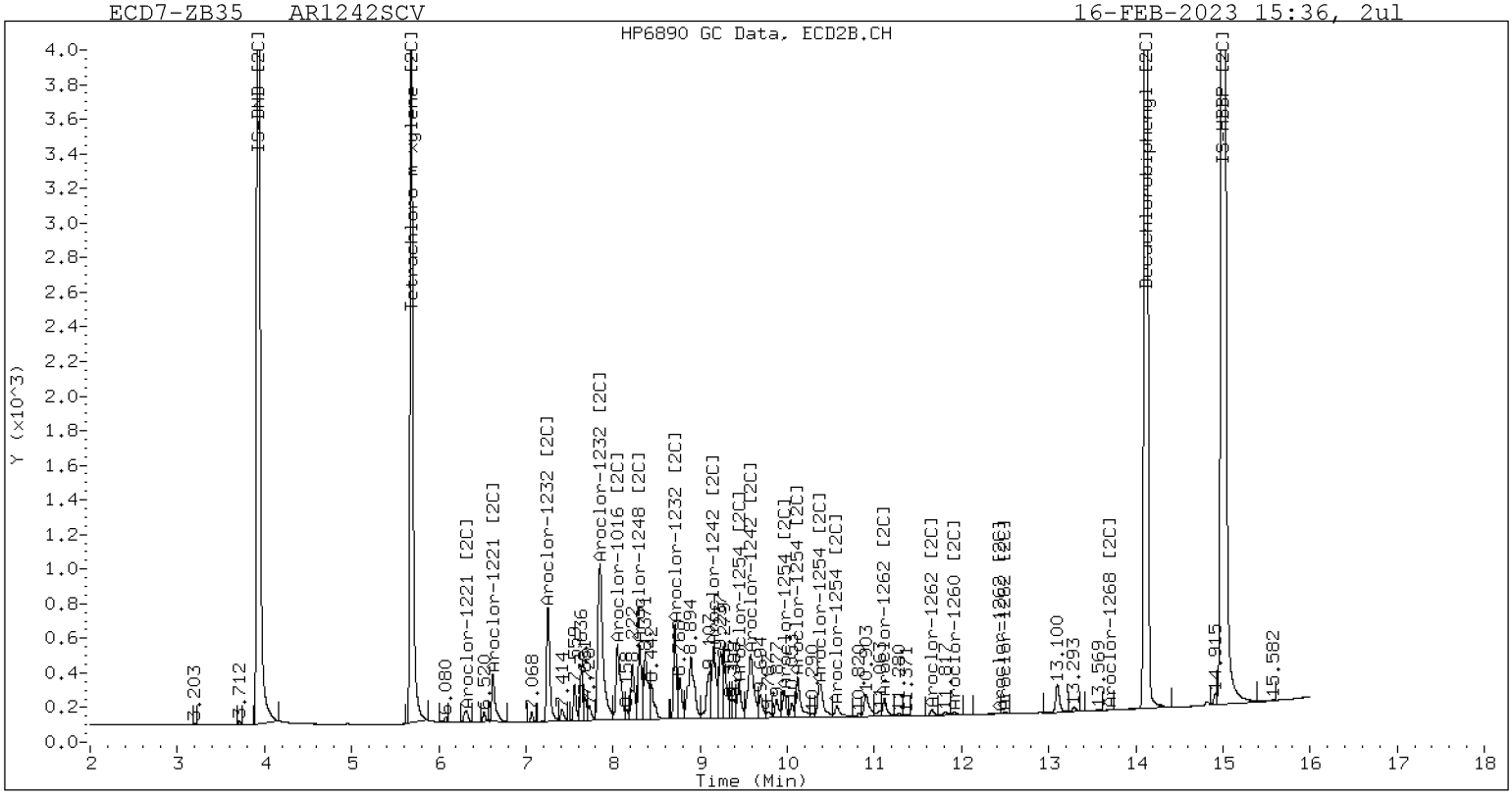
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162315ECD7.D
Data file 2: /230216.b/230216.b/02162315ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 16-FEB-2023 15:57
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235232	5.686	0.000	187353	36.5	36.5	0.1	Tetrachloro-m-xylene
13.891	0.000	371896	14.118	0.000	374279	41.4	40.1	3.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	454293	5.6
Hexabromobiphenyl	975457	1020262	4.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	380923	3.9
Hexabromobiphenyl	646884	669927	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	12869	77.8	1	7.252	-0.002	17659	84.6
Aroclor-1016	2	7.649	-0.001	59048	111.5	2	7.852	0.001	49924	112.6
Aroclor-1016	3	7.791	0.004	23385	96.0	3	8.054	0.004	9755	53.5
Aroclor-1016	4	8.403	0.001	51659	322.2	4	8.305	0.001	40334	272.8
Total Col1Ave (4 peaks):					151.9	Total Col2Ave (4 peaks):				130.9 RPD = 15
Corrected Ave (3 peaks):					95.1	Corrected Ave (3 peaks):				83.6 RPD = 13
Aroclor-1221	1	4.639	-0.093	125	3.5	1	---			0.0
Aroclor-1221	2	6.133	-0.000	396	6.0	2	6.324	0.026	2135	35.1
Aroclor-1221	3	6.384	0.001	2262	14.9	3	6.626	0.005	1703	16.7
Total Col1Ave (3 peaks):					8.1	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.639	-0.093	125	5.7	1	---			0.0
Aroclor-1232	2	6.133	0.000	396	8.6	2	7.252	-0.003	17659	186.5
Aroclor-1232	3	7.649	-0.005	59048	267.3	3	7.852	-0.003	49924	263.9
Aroclor-1232	4	8.577	-0.002	65165	713.5	4	8.712	-0.000	42481	802.3
Total Col1Ave (4 peaks):					248.8	Total Col2Ave (3 peaks):				417.6 RPD = 51*
Corrected Ave (3 peaks):					93.9	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	12869	95.1	1	7.252	-0.002	17659	107.2
Aroclor-1242	2	7.649	-0.003	59048	137.9	2	7.852	-0.000	49924	139.9
Aroclor-1242	3	8.403	0.000	51659	399.2	3	9.160	0.001	49159	435.7
Aroclor-1242	4	8.577	-0.000	65165	340.9	4	9.582	-0.005	57018	416.7
Total Col1Ave (4 peaks):					243.3	Total Col2Ave (4 peaks):				274.8 RPD = 12
Corrected Ave (3 peaks):					191.3	Corrected Ave (3 peaks):				221.2 RPD = 15
Aroclor-1248	1	8.403	0.000	51659	235.8	1	8.305	-0.000	40334	234.7
Aroclor-1248	2	8.577	-0.000	65165	235.7	2	8.712	0.000	42481	235.0
Aroclor-1248	3	8.997	0.001	90358	231.2	3	9.160	0.002	49159	235.3
Aroclor-1248	4	9.292	0.000	60263	243.8	4	9.582	0.001	57018	225.0
Total Col1Ave (4 peaks):					236.6	Total Col2Ave (4 peaks):				232.5 RPD = 2
Corrected Ave (3 peaks):					234.2	Corrected Ave (3 peaks):				231.6 RPD = 1
Aroclor-1254	1	9.292	-0.003	60263	137.1	1	9.447	0.001	22366	83.3
Aroclor-1254	2	9.373	-0.000	30778	177.8	2	9.968	0.001	20179	93.0
Aroclor-1254	3	9.666	0.001	25929	92.5	3	10.121	0.001	37594	79.6
Aroclor-1254	4	9.806	0.003	44678	80.1	4	10.384	0.014	37032	79.4
Aroclor-1254	5	10.177	0.010	31103	91.4	5	10.571	0.005	8221	34.9
Total Col1Ave (5 peaks):					115.8	Total Col2Ave (5 peaks):				74.0 RPD = 44*
Corrected Ave (4 peaks):					100.3	Corrected Ave (4 peaks):				69.3 RPD = 37
Aroclor-1260	1	11.045	0.004	1084	3.1	1	11.659	0.009	1947	5.2
Aroclor-1260	2	11.359	0.002	556	1.5	2	11.920	0.006	1354	1.4
Aroclor-1260	3	11.734	0.003	872	0.9	3	12.426	-0.006	2386	9.5
Aroclor-1260	4	12.143	0.009	431	0.9	4	12.501	0.004	1186	1.9
Aroclor-1260	5	12.243	0.003	275	1.3	NS	---			----
Total Col1Ave (5 peaks):					1.6	Total Col2Ave (4 peaks):				4.5 RPD = 98*
Corrected Ave (4 peaks):					1.2	Corrected Ave (3 peaks):				2.9 RPD = 84*
Aroclor-1262	1	10.828	0.003	9454	31.7	1	11.119	-0.079	7326	14.6
Aroclor-1262	2	12.243	0.001	275	0.6	2	11.659	0.010	1947	4.5
Aroclor-1262	3	12.321	0.005	357	0.7	3	12.426	-0.005	2386	5.1
Aroclor-1262	4	12.984	-0.001	1676	3.7	4	12.501	0.002	1186	1.6
Total Col1Ave (4 peaks):					9.2	Total Col2Ave (4 peaks):				6.4 RPD = 35
Corrected Ave (3 peaks):					1.6	Corrected Ave (3 peaks):				3.7 RPD = 78*
Aroclor-1268	1	12.243	0.000	275	0.2	1	12.426	-0.004	2386	2.0
Aroclor-1268	2	12.321	0.007	357	0.3	2	12.501	0.004	1186	0.9
Aroclor-1268	3	12.614	-0.084	992	0.9	3	12.898	0.008	102	0.1
Aroclor-1268	4	13.493	0.006	969	0.3	4	13.674	-0.032	1135	0.3
Total Col1Ave (4 peaks):					0.4	Total Col2Ave (4 peaks):				0.8 RPD = 64*
Corrected Ave (3 peaks):					0.3	Corrected Ave (3 peaks):				0.5 RPD = 53*

Total PCB Area Col1 (5.908 - 13.791) = 1015830 Col1 Total PCB = 0.2 ppm*

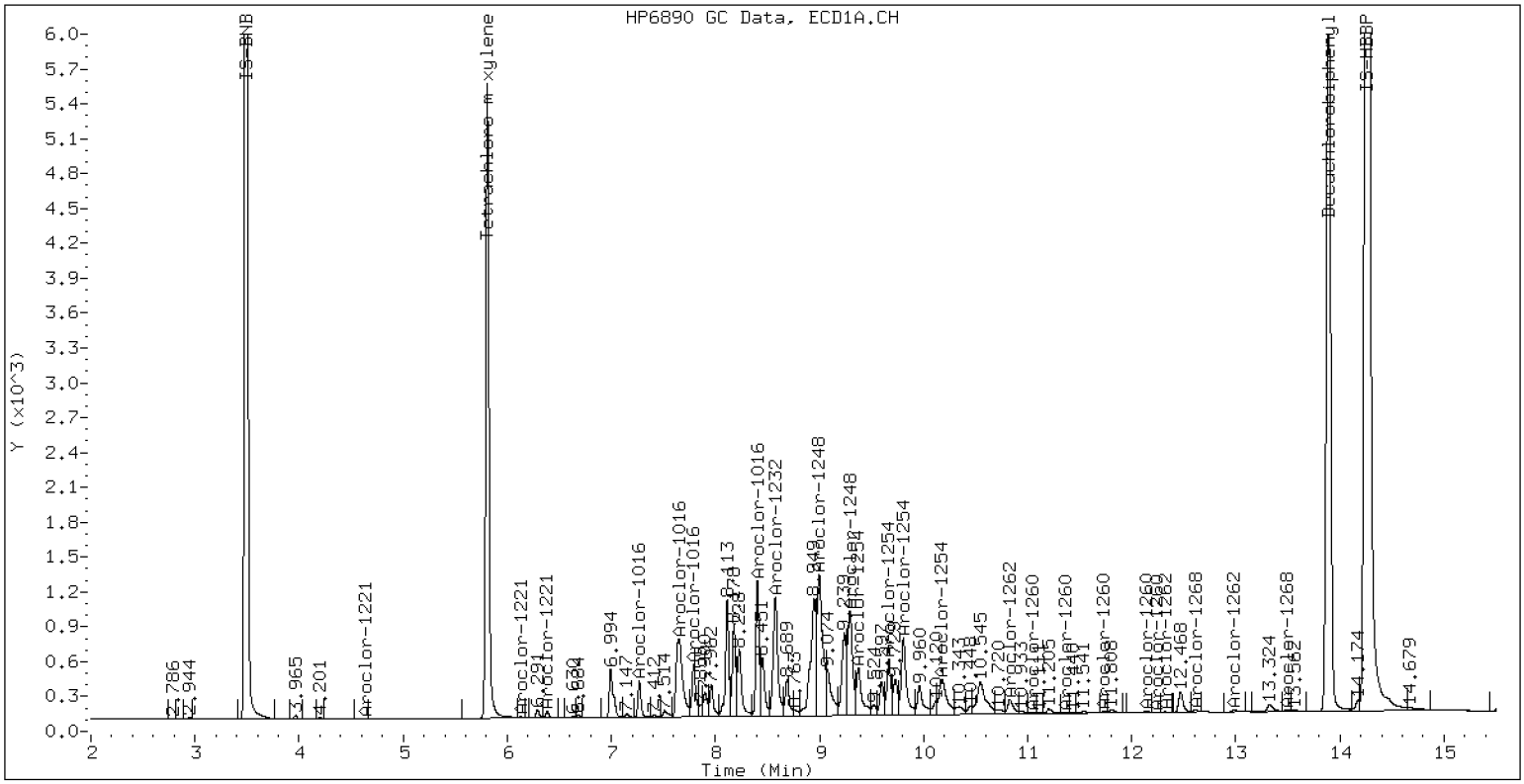
Total PCB Area Col2 (5.786 - 14.018) = 794946 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

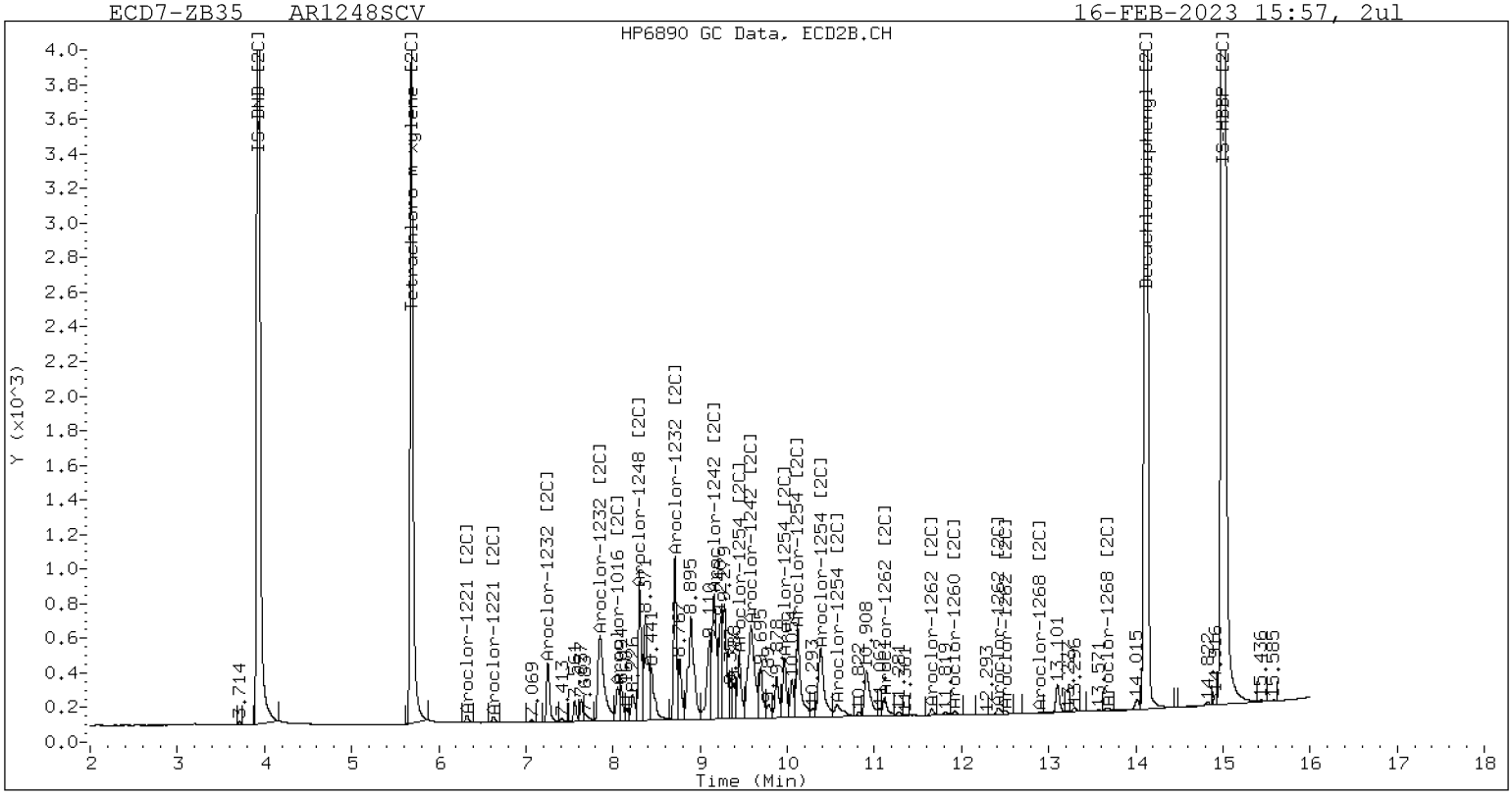
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 16-FEB-2023 15:57, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248SCV 16-FEB-2023 15:57, 2ul

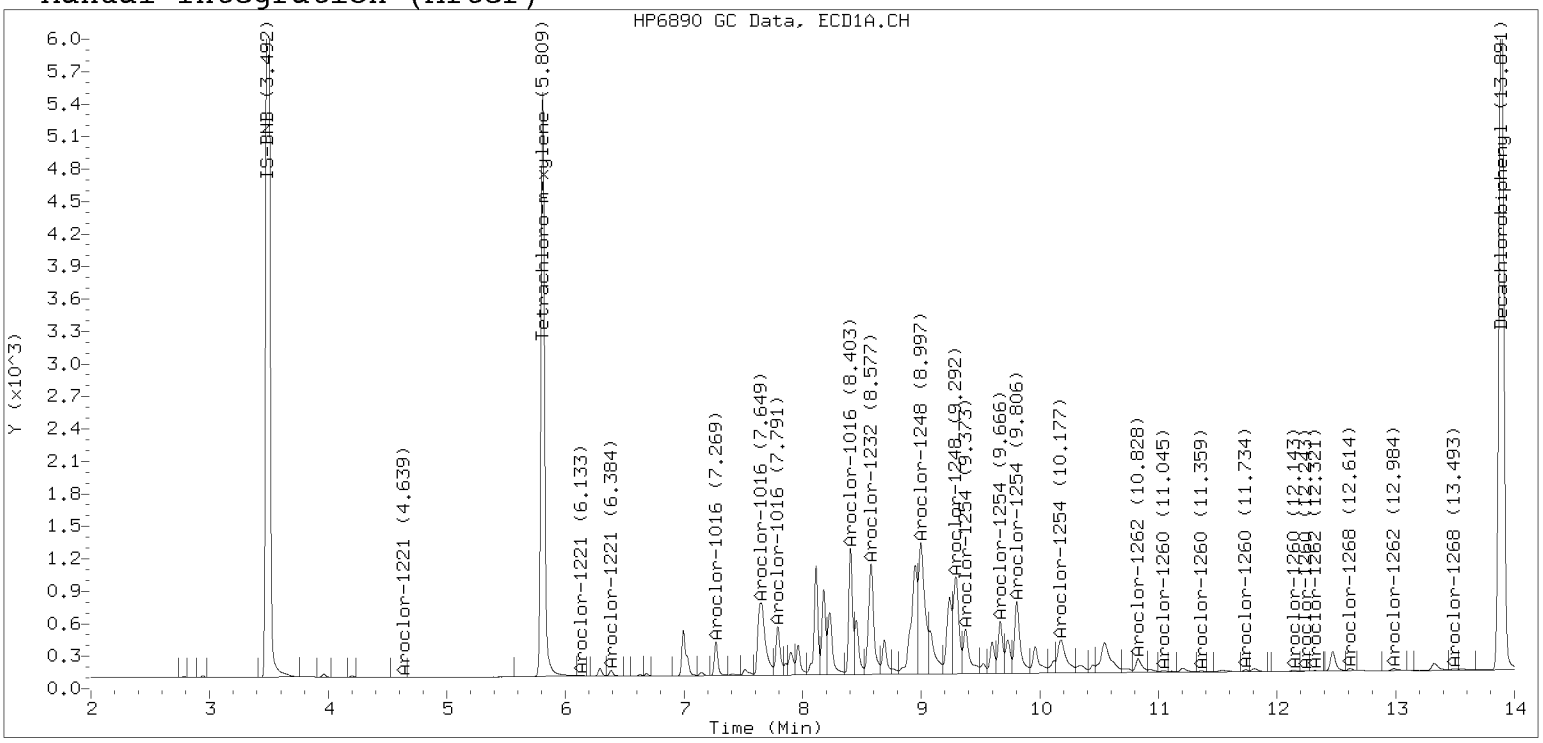


ZB-35 Manual Integration: NO

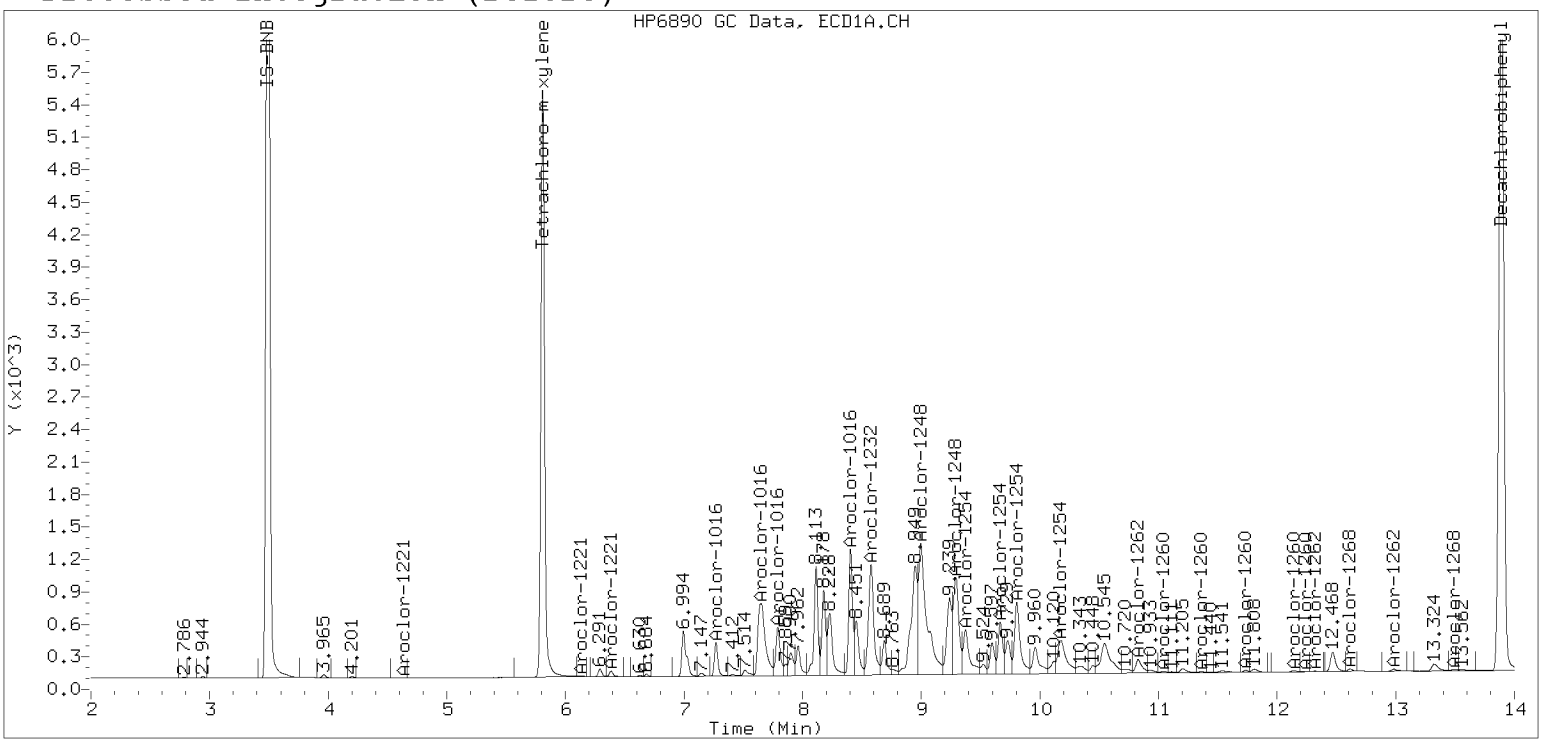
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230216.b/02162315ECD7.D Injection Date: 16-FEB-2023 15:57

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162316ECD7.D
Data file 2: /230216.b/230216.b/02162316ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 16-FEB-2023 16:18
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	242127	5.685	-0.000	193580	36.7	37.0	0.9	Tetrachloro-m-xylene
13.890	-0.001	377360	14.118	0.000	394229	40.3	40.4	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	465227	8.2
Hexabromobiphenyl	975457	1063495	9.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	387434	5.6
Hexabromobiphenyl	646884	700154	8.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	281	1.7	1	7.256	0.002	379	1.8
Aroclor-1016	2	7.655	0.005	996	1.8	2	---			0.0
Aroclor-1016	3	7.792	0.005	684	2.7	3	8.097	0.048	526	2.8
Aroclor-1016	4	8.404	0.002	18193	110.8	4	8.305	0.001	23002	153.0
Total Col1Ave (4 peaks):		29.3				Total Col2Ave (3 peaks):		52.5	RPD = 57*	
Corrected Ave (3 peaks):		2.1				Corrected Ave: < 3 Peaks				
Aroclor-1221	1	---		0.0		1	---			0.0
Aroclor-1221	2	---		0.0		2	6.323	0.026	2104	34.0
Aroclor-1221	3	---		0.0		3	6.632	0.010	433	4.2
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---		0.0		1	---			0.0
Aroclor-1232	2	---		0.0		2	7.256	0.001	379	3.9
Aroclor-1232	3	7.655	0.001	996	4.4	3	---			0.0
Aroclor-1232	4	8.580	0.002	7144	76.4	4	8.714	0.001	15174	281.7
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	7.270	0.001	281	2.0	1	7.256	0.002	379	2.3
Aroclor-1242	2	7.655	0.003	996	2.3	2	---			0.0
Aroclor-1242	3	8.404	0.001	18193	137.3	3	9.163	0.004	23373	203.7
Aroclor-1242	4	8.580	0.003	7144	36.5	4	9.541	-0.046	35054	251.9
Total Col1Ave (4 peaks):		44.5				Total Col2Ave (3 peaks):		152.6	RPD = 110*	
Corrected Ave (3 peaks):		13.6				Corrected Ave: < 3 Peaks				
Aroclor-1248	1	8.404	0.001	18193	81.1	1	8.305	-0.000	23002	131.6
Aroclor-1248	2	8.580	0.003	7144	25.2	2	8.714	0.002	15174	82.5
Aroclor-1248	3	8.992	-0.004	93928	234.7	3	9.163	0.005	23373	110.0
Aroclor-1248	4	9.296	0.004	99099	391.5	4	9.541	-0.040	35054	136.0
Total Col1Ave (4 peaks):		183.1				Total Col2Ave (4 peaks):		115.0	RPD = 46*	
Corrected Ave (3 peaks):		113.7				Corrected Ave (3 peaks):		108.0	RPD = 5	
Aroclor-1254	1	9.296	0.001	99099	220.1	1	9.447	0.001	61772	226.1
Aroclor-1254	2	9.374	0.001	43324	244.4	2	9.966	-0.001	49637	225.0
Aroclor-1254	3	9.666	0.001	63930	222.8	3	10.119	-0.000	106246	221.1
Aroclor-1254	4	9.803	0.000	123663	216.5	4	10.369	-0.001	107021	225.7
Aroclor-1254	5	10.171	0.004	76902	220.7	5	10.565	-0.000	55207	230.4
Total Col1Ave (5 peaks):		224.9				Total Col2Ave (5 peaks):		225.6	RPD = 0	
Corrected Ave (4 peaks):		220.0				Corrected Ave (4 peaks):		224.5	RPD = 2	
Aroclor-1260	1	11.041	0.000	8242	22.5	1	11.657	0.007	30319	78.1
Aroclor-1260	2	11.360	0.003	8312	22.2	2	11.918	0.004	22042	22.6
Aroclor-1260	3	11.734	0.003	19109	19.2	3	12.445	0.012	1692	6.5
Aroclor-1260	4	12.137	0.002	15342	30.4	4	12.500	0.002	12899	19.7
Aroclor-1260	5	12.238	-0.002	582	2.7	NS	---			----
Total Col1Ave (5 peaks):		19.4				Total Col2Ave (4 peaks):		31.7	RPD = 48*	
Corrected Ave (4 peaks):		16.6				Corrected Ave (3 peaks):		16.2	RPD = 2	
Aroclor-1262	1	10.824	-0.000	138302	445.0	1	11.278	0.081	13621	26.0
Aroclor-1262	2	12.238	-0.004	582	1.1	2	11.657	0.008	30319	67.1
Aroclor-1262	3	12.316	-0.001	714	1.3	3	12.445	0.013	1692	3.4
Aroclor-1262	4	12.988	0.003	961	2.0	4	12.500	0.000	12899	16.5
Total Col1Ave (4 peaks):		112.4				Total Col2Ave (4 peaks):		28.3	RPD = 120*	
Corrected Ave (3 peaks):		1.5				Corrected Ave (3 peaks):		15.3	RPD = 165*	
Aroclor-1268	1	12.238	-0.005	582	0.4	1	12.445	0.014	1692	1.3
Aroclor-1268	2	12.316	0.002	714	0.5	2	12.500	0.002	12899	9.6
Aroclor-1268	3	12.719	0.022	539	0.5	3	12.892	0.002	76	0.1
Aroclor-1268	4	13.497	0.010	695	0.2	4	13.700	-0.007	290	0.1
Total Col1Ave (4 peaks):		0.4				Total Col2Ave (4 peaks):		2.8	RPD = 148*	
Corrected Ave (3 peaks):		0.4				Corrected Ave (3 peaks):		0.5	RPD = 28	

Total PCB Area Col1 (5.908 - 13.791) = 1311525 Col1 Total PCB = 0.3 ppm*

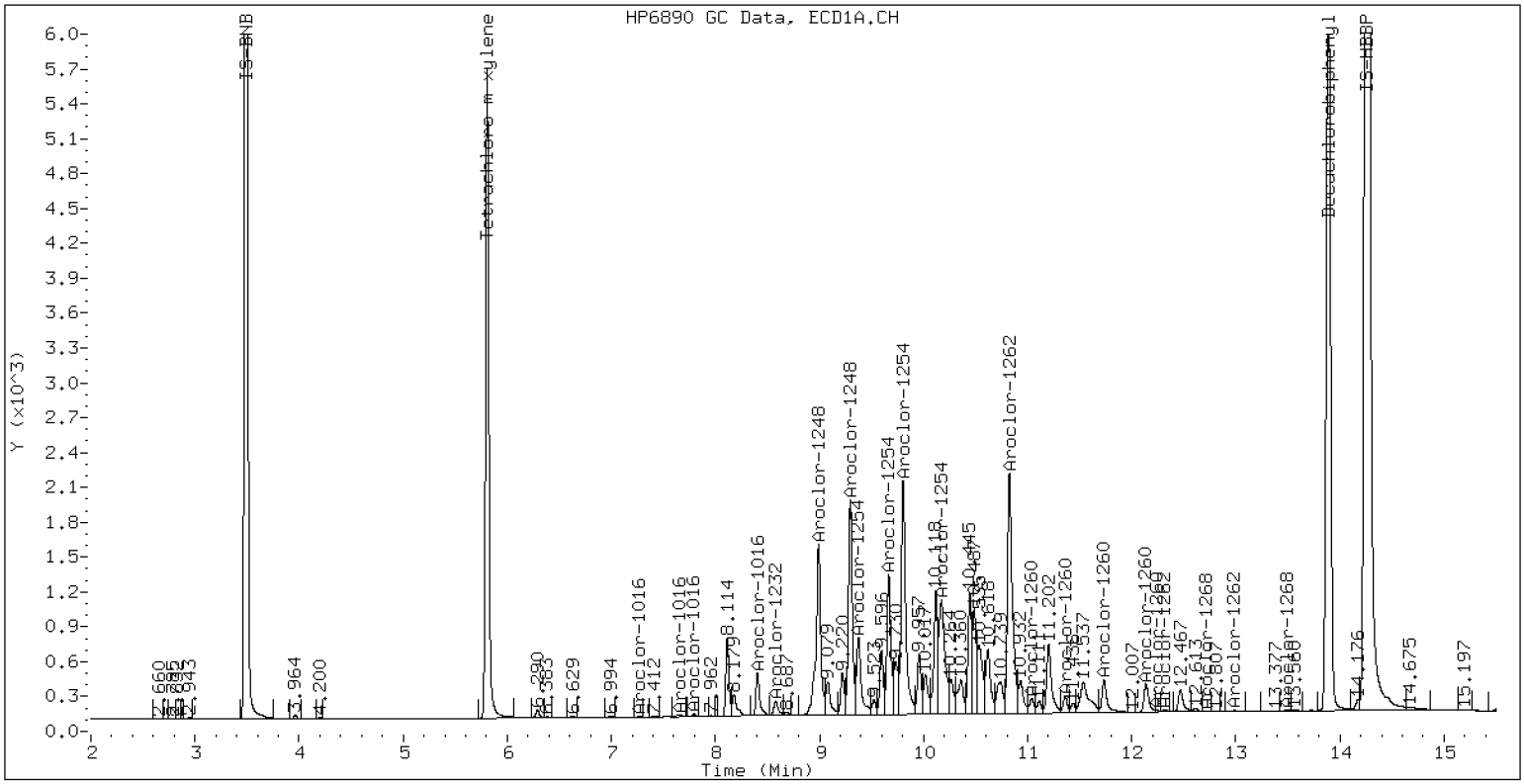
Total PCB Area Col2 (5.786 - 14.018) = 1040357 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

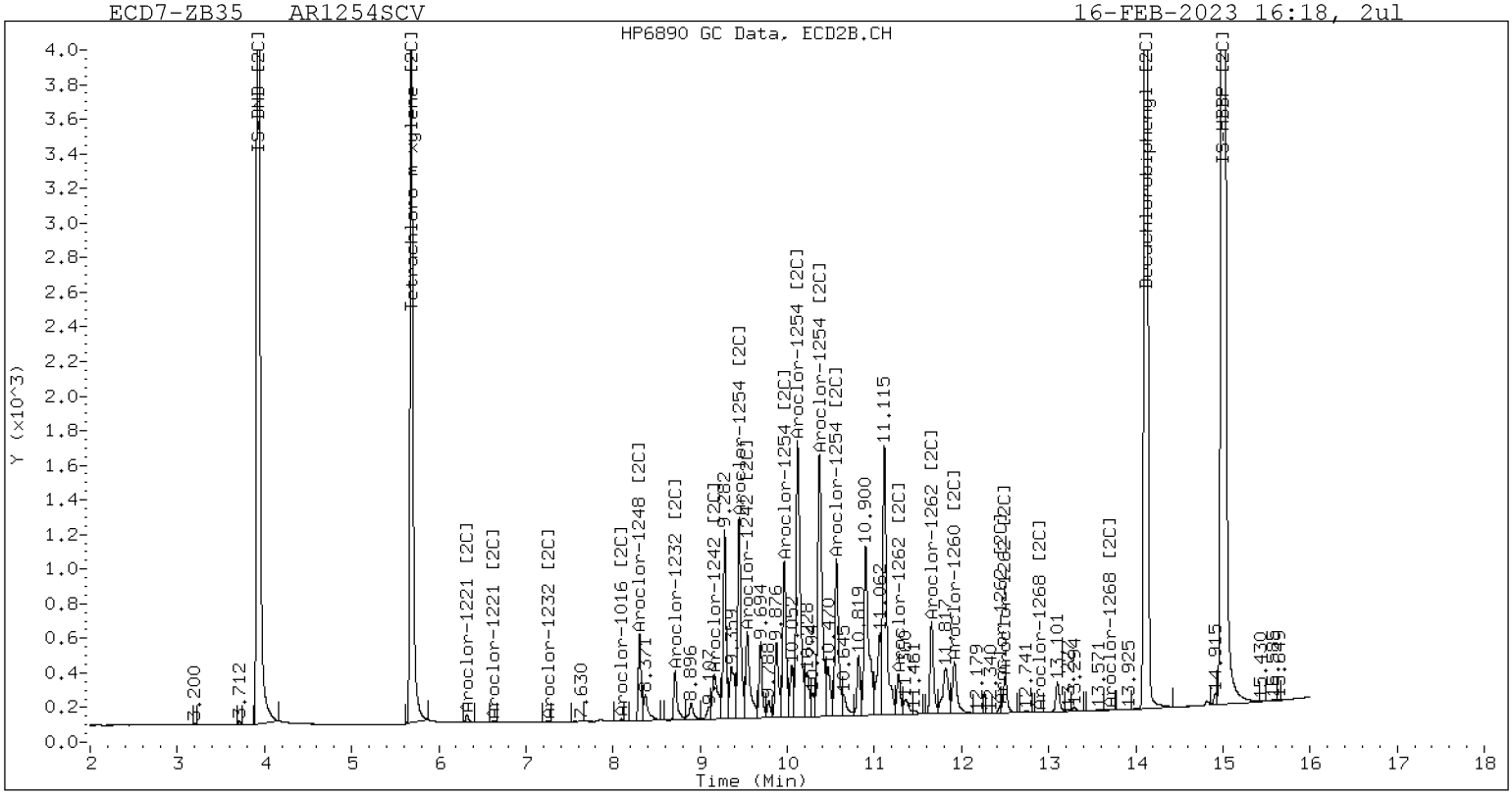
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162317ECD7.D
Data file 2: /230216.b/230216.b/02162317ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 16-FEB-2023 16:39
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	245197	5.686	-0.000	191474	37.2	37.2	0.0	Tetrachloro-m-xylene
13.890	-0.001	375224	14.118	0.000	392997	40.4	40.5	0.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	464367	8.0
Hexabromobiphenyl	975457	1054321	8.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	381247	4.0
Hexabromobiphenyl	646884	695925	7.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	4790	28.3	1	7.255	0.001	5664	27.1
Aroclor-1016	2	7.656	0.006	10623	19.6	2	7.858	0.007	8417	19.0
Aroclor-1016	3	7.793	0.006	5360	21.5	3	8.058	0.009	4104	22.5
Aroclor-1016	4	8.405	0.003	2485	15.2	4	8.306	0.002	3192	21.6
Total Col1Ave (4 peaks):					21.2	Total Col2Ave (4 peaks):				22.5 RPD = 6
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				21.0 RPD = 11
Aroclor-1221	1	4.733	0.000	9001	249.5	1	4.958	0.000	7198	254.0
Aroclor-1221	2	6.133	-0.000	16485	245.0	2	6.297	-0.001	14187	233.2
Aroclor-1221	3	6.383	-0.000	37665	242.0	3	6.621	-0.000	23991	235.4
Total Col1Ave (3 peaks):					245.5	Total Col2Ave (3 peaks):				240.8 RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.733	0.001	9001	404.1	1	4.958	-0.000	7198	425.7
Aroclor-1232	2	6.133	-0.000	16485	350.7	2	7.255	0.001	5664	59.8
Aroclor-1232	3	7.656	0.002	10623	47.0	3	7.858	0.003	8417	44.5
Aroclor-1232	4	8.581	0.002	2585	27.7	4	8.714	0.001	2167	40.9
Total Col1Ave (4 peaks):					207.4	Total Col2Ave (4 peaks):				142.7 RPD = 37
Corrected Ave (3 peaks):					141.8	Corrected Ave (3 peaks):				48.4 RPD = 98*
Aroclor-1242	1	7.270	0.001	4790	34.6	1	7.255	0.001	5664	34.3
Aroclor-1242	2	7.656	0.004	10623	24.3	2	7.858	0.005	8417	23.6
Aroclor-1242	3	8.405	0.002	2485	18.8	3	9.168	0.009	2109	18.7
Aroclor-1242	4	8.581	0.003	2585	13.2	4	9.541	-0.046	4209	30.7
Total Col1Ave (4 peaks):					22.7	Total Col2Ave (4 peaks):				26.8 RPD = 17
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				24.3 RPD = 26
Aroclor-1248	1	8.405	0.002	2485	11.1	1	8.306	0.001	3192	18.6
Aroclor-1248	2	8.581	0.003	2585	9.1	2	8.714	0.002	2167	12.0
Aroclor-1248	3	8.992	-0.004	27170	68.0	3	9.168	0.010	2109	10.1
Aroclor-1248	4	9.299	0.007	25808	102.2	4	9.541	-0.040	4209	16.6
Total Col1Ave (4 peaks):					47.6	Total Col2Ave (4 peaks):				14.3 RPD = 108*
Corrected Ave (3 peaks):					29.4	Corrected Ave (3 peaks):				12.9 RPD = 78*
Aroclor-1254	1	9.299	0.004	25808	57.4	1	9.448	0.001	19163	71.3
Aroclor-1254	2	9.371	-0.003	3696	20.9	2	9.969	0.002	3305	15.2
Aroclor-1254	3	9.667	0.002	4053	14.2	3	10.144	0.024	96736	204.5
Aroclor-1254	4	9.803	0.000	10960	19.2	4	10.368	-0.002	117175	251.1
Aroclor-1254	5	10.117	-0.050	153073	440.2	5	10.565	-0.001	154306	654.4
Total Col1Ave (5 peaks):					110.4	Total Col2Ave (5 peaks):				239.3 RPD = 74*
Corrected Ave (4 peaks):					27.9	Corrected Ave (4 peaks):				135.5 RPD = 132*
Aroclor-1260	1	11.041	0.001	267479	735.9	1	11.649	-0.001	203895	528.3
Aroclor-1260	2	11.358	0.000	225792	607.2	2	11.914	-0.000	486211	500.8
Aroclor-1260	3	11.730	-0.000	549436	558.0	3	12.431	-0.001	236526	910.9
Aroclor-1260	4	12.135	0.001	182085	364.2	4	12.499	0.001	362057	555.9
Aroclor-1260	5	12.241	0.000	234096	1091.8	NS	---			----
Total Col1Ave (5 peaks):					671.4	Total Col2Ave (4 peaks):				624.0 RPD = 7
Corrected Ave (4 peaks):					566.3	Corrected Ave (3 peaks):				528.4 RPD = 7
Aroclor-1262	1	10.823	-0.002	146525	475.6	1	11.197	-0.001	236244	454.2
Aroclor-1262	2	12.241	-0.001	234096	463.6	2	11.649	0.001	203895	454.1
Aroclor-1262	3	12.314	-0.002	250166	459.4	3	12.431	-0.000	236526	483.8
Aroclor-1262	4	12.984	-0.000	210767	447.6	4	12.499	-0.001	362057	465.4
Total Col1Ave (4 peaks):					461.6	Total Col2Ave (4 peaks):				464.4 RPD = 1
Corrected Ave (3 peaks):					456.9	Corrected Ave (3 peaks):				457.9 RPD = 0
Aroclor-1268	1	12.241	-0.002	234096	176.9	1	12.431	0.000	236526	186.9
Aroclor-1268	2	12.314	0.000	250166	190.3	2	12.499	0.001	362057	272.0
Aroclor-1268	3	12.719	0.022	91155	81.7	3	12.889	-0.001	11970	11.5
Aroclor-1268	4	13.485	-0.002	72883	21.3	4	13.706	-0.001	72588	19.9
Total Col1Ave (4 peaks):					117.6	Total Col2Ave (4 peaks):				122.6 RPD = 4

Corrected Ave (3 peaks): 93.3 Corrected Ave (3 peaks): 72.8 RPD = 25

Total PCB Area Col1 (5.908 - 13.791) = 3768590 Col1 Total PCB = 0.7 ppm*

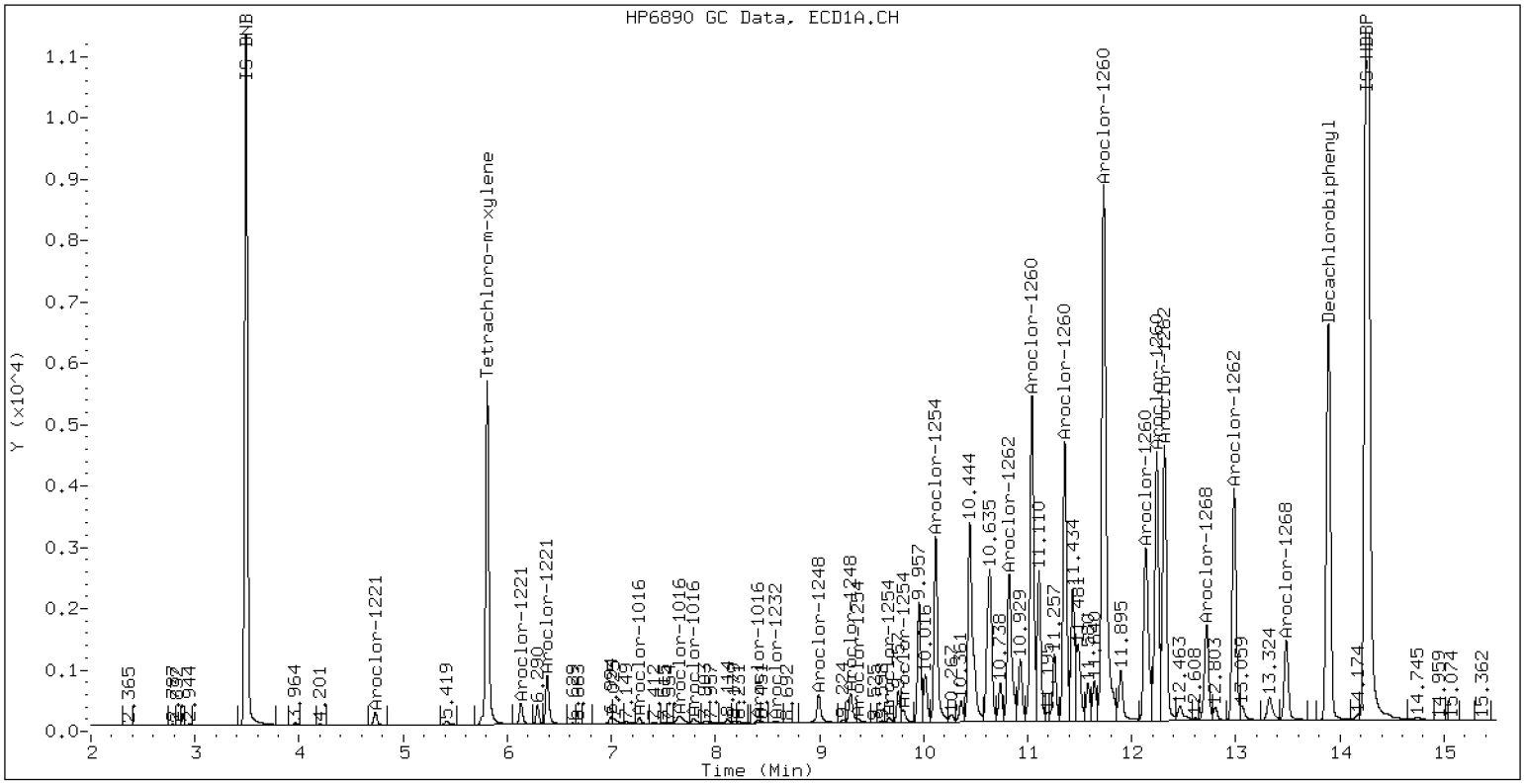
Total PCB Area Col2 (5.786 - 14.018) = 3174752 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

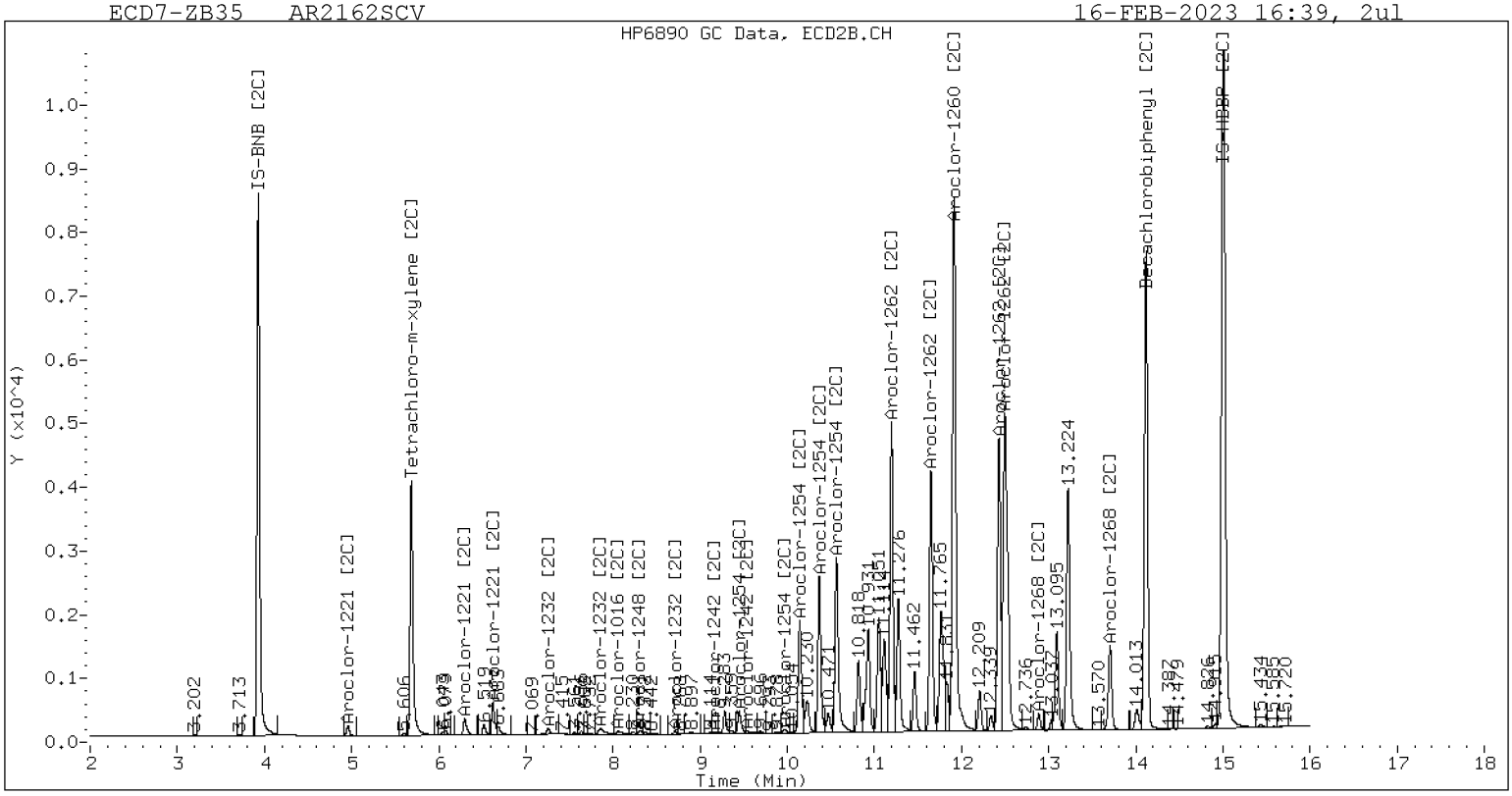
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162318ECD7.D
Data file 2: /230216.b/230216.b/02162318ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 16-FEB-2023 17:00
Report Date: 02/17/2023 11:56
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	232649	5.686	0.000	184511	35.5	35.9	1.3	Tetrachloro-m-xylene
13.892	0.001	534256	14.118	0.000	561270	58.0	58.0	0.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	462340	7.5
Hexabromobiphenyl	975457	1046529	7.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	380640	3.8
Hexabromobiphenyl	646884	694272	7.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-JAN-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	17406	103.4	1	7.255	0.001	21798	104.5
Aroclor-1016	2	7.654	0.004	51620	95.7	2	7.856	0.005	43831	98.9
Aroclor-1016	3	7.791	0.004	24787	100.0	3	8.054	0.005	19284	105.9
Aroclor-1016	4	8.404	0.002	15491	94.9	4	8.306	0.002	13712	92.8
Total Col1Ave (4 peaks):		98.5				Total Col2Ave (4 peaks):		100.5	RPD = 2	
Corrected Ave (3 peaks):		96.9				Corrected Ave (3 peaks):		98.8	RPD = 2	
Aroclor-1221	1	4.732	-0.000	4903	136.5	1	4.959	0.001	3678	130.0
Aroclor-1221	2	6.133	-0.000	8309	124.0	2	6.298	0.001	8756	144.1
Aroclor-1221	3	6.383	-0.000	26751	172.7	3	6.622	0.001	18239	179.3
Total Col1Ave (3 peaks):		144.4				Total Col2Ave (3 peaks):		151.1	RPD = 5	
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.732	0.000	4903	221.1	1	4.959	0.000	3678	217.9
Aroclor-1232	2	6.133	-0.000	8309	177.5	2	7.255	0.000	21798	230.4
Aroclor-1232	3	7.654	-0.000	51620	229.6	3	7.856	0.001	43831	231.9
Aroclor-1232	4	8.579	0.000	21552	231.9	4	8.712	-0.000	12876	243.3
Total Col1Ave (4 peaks):		215.0				Total Col2Ave (4 peaks):		230.9	RPD = 7	
Corrected Ave (3 peaks):		209.4				Corrected Ave (3 peaks):		226.7	RPD = 8	
Aroclor-1242	1	7.269	0.000	17406	126.4	1	7.255	0.001	21798	132.4
Aroclor-1242	2	7.654	0.002	51620	118.4	2	7.856	0.004	43831	122.9
Aroclor-1242	3	8.404	0.001	15491	117.6	3	9.165	0.005	12931	114.7
Aroclor-1242	4	8.579	0.002	21552	110.8	4	9.594	0.007	15412	112.7
Total Col1Ave (4 peaks):		118.3				Total Col2Ave (4 peaks):		120.7	RPD = 2	
Corrected Ave (3 peaks):		115.6				Corrected Ave (3 peaks):		116.8	RPD = 1	
Aroclor-1248	1	8.404	0.001	15491	69.5	1	8.306	0.001	13712	79.9
Aroclor-1248	2	8.579	0.002	21552	76.6	2	8.712	0.001	12876	71.3
Aroclor-1248	3	9.000	0.004	33860	85.1	3	9.165	0.007	12931	61.9
Aroclor-1248	4	9.290	-0.001	24418	97.1	4	9.594	0.012	15412	60.9
Total Col1Ave (4 peaks):		82.1				Total Col2Ave (4 peaks):		68.5	RPD = 18	
Corrected Ave (3 peaks):		77.1				Corrected Ave (3 peaks):		64.7	RPD = 17	
Aroclor-1254	1	9.290	-0.005	24418	54.6	1	9.448	0.001	4331	16.1
Aroclor-1254	2	9.376	0.002	6352	36.1	2	9.971	0.003	2773	12.8
Aroclor-1254	3	9.670	0.005	3662	12.8	3	10.125	0.006	5733	12.1
Aroclor-1254	4	9.810	0.007	5791	10.2	4	10.384	0.014	5128	11.0
Aroclor-1254	5	10.182	0.014	3705	10.7	5	10.569	0.004	1684	7.2
Total Col1Ave (5 peaks):		24.9				Total Col2Ave (5 peaks):		11.8	RPD = 71*	
Corrected Ave (4 peaks):		17.5				Corrected Ave (4 peaks):		10.8	RPD = 47*	
Aroclor-1260	1	11.044	0.003	48916	135.6	1	11.643	-0.006	62935	163.5
Aroclor-1260	2	11.360	0.003	3252	8.8	2	11.917	0.002	28103	29.0
Aroclor-1260	3	11.734	0.004	29505	30.2	3	12.431	-0.001	298982	1154.1
Aroclor-1260	4	12.140	0.005	787	1.6	4	12.498	-0.000	314634	484.3
Aroclor-1260	5	12.242	0.002	307715	1445.8	NS	---			----
Total Col1Ave (5 peaks):		324.4				Total Col2Ave (4 peaks):		457.7	RPD = 34	
Corrected Ave (4 peaks):		44.0				Corrected Ave (3 peaks):		225.6	RPD = 135*	
Aroclor-1262	1	10.828	0.003	1495	4.9	1	11.199	0.001	44764	86.3
Aroclor-1262	2	12.242	0.000	307715	613.9	2	11.643	-0.005	62935	140.5
Aroclor-1262	3	12.314	-0.002	306654	567.3	3	12.431	0.000	298982	613.0
Aroclor-1262	4	12.985	0.001	125311	268.1	4	12.498	-0.002	314634	405.4
Total Col1Ave (4 peaks):		363.6				Total Col2Ave (4 peaks):		311.3	RPD = 15	
Corrected Ave (3 peaks):		280.1				Corrected Ave (3 peaks):		210.7	RPD = 28	
Aroclor-1268	1	12.242	-0.000	307715	234.3	1	12.431	0.001	298982	236.8
Aroclor-1268	2	12.314	0.000	306654	235.0	2	12.498	-0.000	314634	236.9
Aroclor-1268	3	12.698	0.000	256747	231.8	3	12.891	0.001	246279	236.7
Aroclor-1268	4	13.487	-0.000	801249	236.1	4	13.707	0.001	846369	232.8
Total Col1Ave (4 peaks):		234.3				Total Col2Ave (4 peaks):		235.8	RPD = 1	

Corrected Ave (3 peaks): 233.7 Corrected Ave (3 peaks): 235.5 RPD = 1

Total PCB Area Col1 (5.908 - 13.791) = 2519204 Col1 Total PCB = 0.5 ppm*

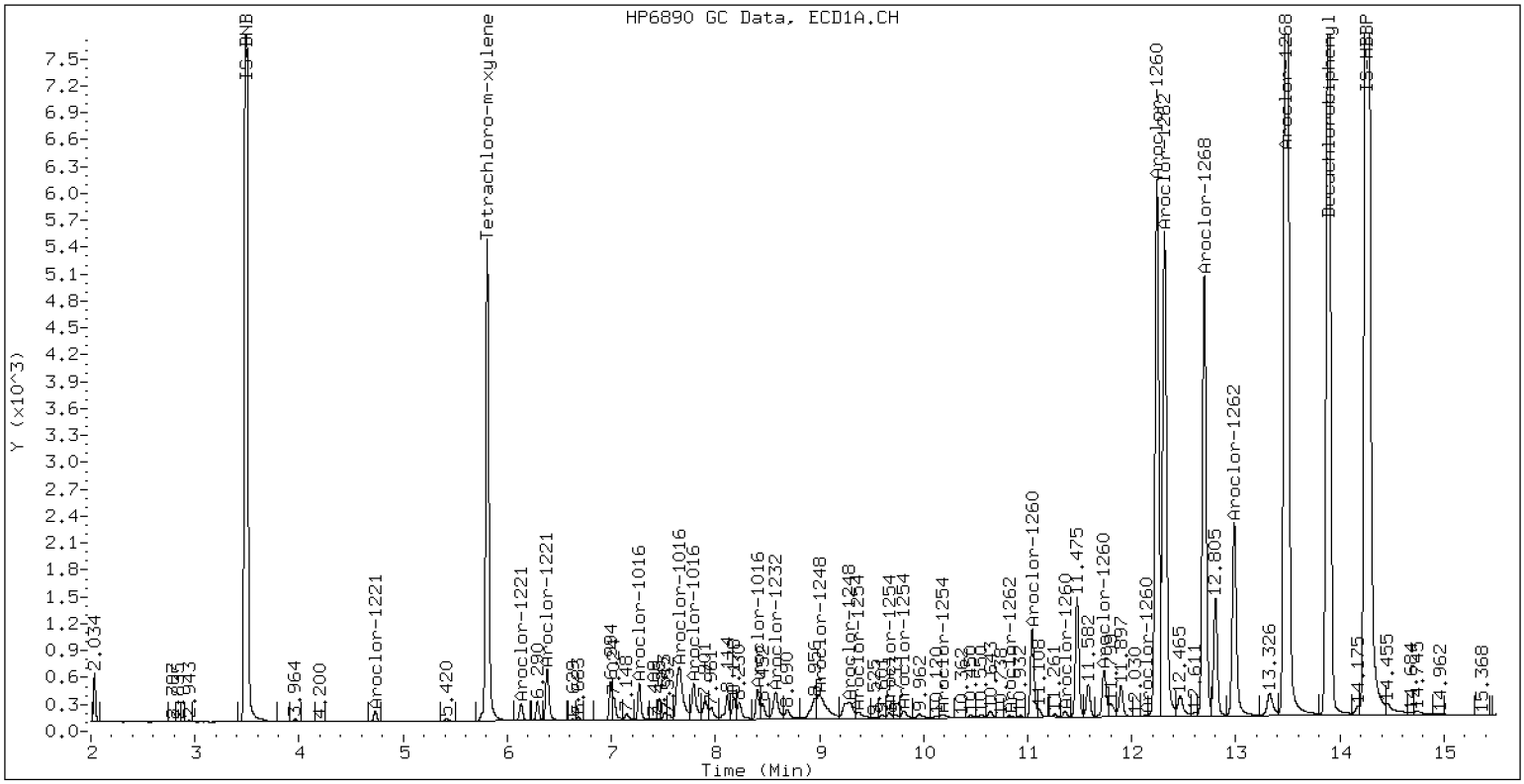
Total PCB Area Col2 (5.786 - 14.018) = 2392191 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

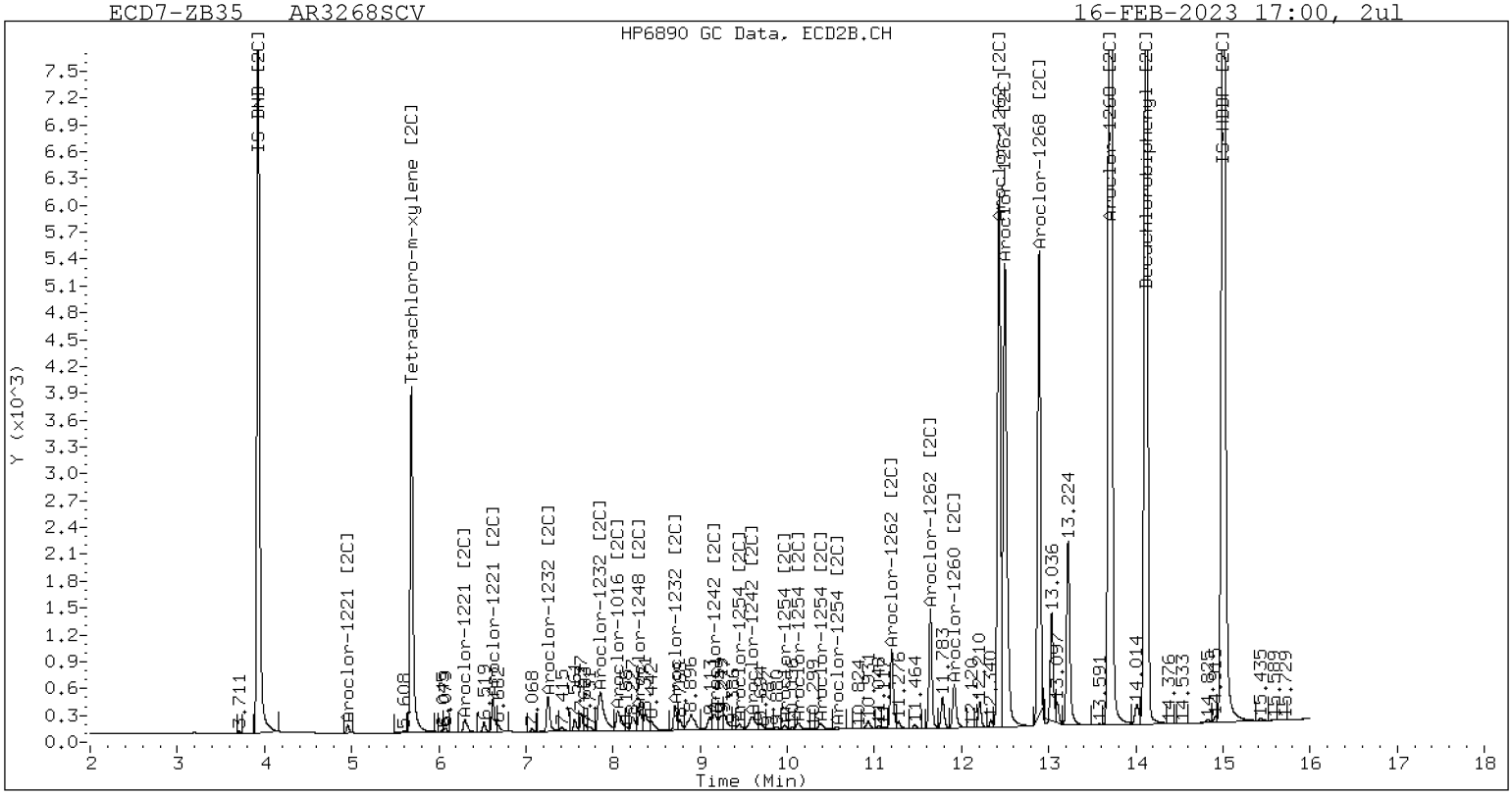
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.260	-0.003	442624	9.911	-0.001	632750	0.085	0.087	2.1	2,4-DDE
10.293	-0.003	576653	10.667	0.002	928581	0.039	0.168#	124.2*	2,4-DDT
9.683	-0.004	755059	10.209	-0.002	423742	0.086	0.103	18.9	4,4-DDE
10.254	-0.027	674155	10.667	0.002	928581	0.000	0.168#	----	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.284	0.021	2688	9.920	0.008	10374	0.001	0.001	93.2*	2,4-DDE
0.000	-10.296	0	10.673	0.007	190492	0.000	0.035#	----	2,4-DDT
9.692	0.005	7700	10.234	0.022	295	0.001	0.000	169.6*	4,4-DDE
10.259	-0.022	174757	10.673	0.007	190492	0.000	0.035#	----	4,4-DDD

\# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0222

Instrument: ECD7
Calibration ID: GB00045

Printed: 2/17/2023 12:18:06PM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0222-CAL1	QC		1		L000856	L000844		
SLB0222-CAL2	QC		2		L000859	L000844		
SLB0222-CAL3	QC		3		L000858	L000844		
SLB0222-CAL4	QC		4		L000731	L000844		
SLB0222-CAL5	QC		5		L000857	L000844		
SLB0222-CAL6	QC		6		L000855	L000844		
SLB0222-CAL7	QC		7		L000860	L000844		
SLB0222-CAL8	QC		8		L000861	L000844		
SLB0222-CAL9	QC		9		L000862	L000844		
SLB0222-CALA	QC		10		L000863	L000844		
SLB0222-CALB	QC		11		L000864	L000844		
SLB0222-SCV1	QC		12		K007655	L000844		
SLB0222-SCV2	QC		13		K007656	L000844		
SLB0222-SCV3	QC		14		K007657	L000844		
SLB0222-SCV4	QC		15		K007658	L000844		
SLB0222-SCV5	QC		16		K007659	L000844		
SLB0222-SCV6	QC		17		K007660	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	16-FEB-2023 11:02	02162301ECD7.D	1	IB	
2	16-FEB-2023 11:23	02162302ECD7.D	1	0.25PPMAR1660	
3	16-FEB-2023 11:44	02162303ECD7.D	1	0.02PPMAR1660	
4	16-FEB-2023 12:05	02162304ECD7.D	1	0.05PPMAR1660	
5	16-FEB-2023 12:27	02162305ECD7.D	1	1.0PPMAR1660	
6	16-FEB-2023 12:48	02162306ECD7.D	1	0.1PPMAR1660	
7	16-FEB-2023 13:09	02162307ECD7.D	1	0.5PPMAR1660	
8	16-FEB-2023 13:30	02162308ECD7.D	1	0.25PPMAR1242	
9	16-FEB-2023 13:51	02162309ECD7.D	1	0.25PPMAR1248	
10	16-FEB-2023 14:12	02162310ECD7.D	1	0.25PPMAR1254	
11	16-FEB-2023 14:33	02162311ECD7.D	1	0.25PPMAR2168	
12	16-FEB-2023 14:54	02162312ECD7.D	1	0.25PPMAR3268	
13	16-FEB-2023 15:15	02162313ECD7.D	1	AR1660SCV	
14	16-FEB-2023 15:36	02162314ECD7.D	1	AR1242SCV	
15	16-FEB-2023 15:57	02162315ECD7.D	1	AR1248SCV	
16	16-FEB-2023 16:18	02162316ECD7.D	1	AR1254SCV	
17	16-FEB-2023 16:39	02162317ECD7.D	1	AR2162SCV	
18	16-FEB-2023 17:00	02162318ECD7.D	1	AR3268SCV	
19	16-FEB-2023 17:21	02162319ECD7.D	1	DDTS	
20	16-FEB-2023 17:42	02162320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 16-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2168		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV		1	Aroclor-1248,
1618	02162316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1700	02162318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1803	02162321ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1824	02162322ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1845	02162323ECD7.D	BLB0303-BLK1		1	NO MANUAL INTEGRATION
1906	02162324ECD7.D	BLB0303-BS1		1	NO MANUAL INTEGRATION
1927	02162325ECD7.D	BLB0303-BSD1		1	NO MANUAL INTEGRATION
1948	02162326ECD7.D	23B0153-01		1	NO MANUAL INTEGRATION
2009	02162327ECD7.D	23B0179-01		1	NO MANUAL INTEGRATION
2030	02162328ECD7.D	23B0179-03		1	NO MANUAL INTEGRATION
2051	02162329ECD7.D	23B0218-01		1	NO MANUAL INTEGRATION
2112	02162330ECD7.D	23B0243-01		1	NO MANUAL INTEGRATION
2133	02162331ECD7.D	23B0250-03		1	NO MANUAL INTEGRATION
2154	02162332ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2215	02162333ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1102	02162301ECD7.D	IB		1	NO MANUAL INTEGRATION
1123	02162302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1144	02162303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1205	02162304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1227	02162305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1248	02162306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1309	02162307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1330	02162308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1351	02162309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1412	02162310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1433	02162311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1454	02162312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1515	02162313ECD7.D	AR1660SCV	1		NO MANUAL INTEGRATION
1536	02162314ECD7.D	AR1242SCV	1		NO MANUAL INTEGRATION
1557	02162315ECD7.D	AR1248SCV	1		NO MANUAL INTEGRATION
1618	02162316ECD7.D	AR1254SCV	1		NO MANUAL INTEGRATION
1639	02162317ECD7.D	AR2162SCV	1		NO MANUAL INTEGRATION
1700	02162318ECD7.D	AR3268SCV	1		NO MANUAL INTEGRATION
1721	02162319ECD7.D	DDTS	1		NO MANUAL INTEGRATION
1742	02162320ECD7.D	DDT BD	1		NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230216.b\230216.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1803	02162321ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1824	02162322ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1845	02162323ECD7.D	BLB0303-BLK1		1	NO MANUAL INTEGRATION
1906	02162324ECD7.D	BLB0303-BS1		1	NO MANUAL INTEGRATION
1927	02162325ECD7.D	BLB0303-BSD1		1	NO MANUAL INTEGRATION
1948	02162326ECD7.D	23B0153-01		1	NO MANUAL INTEGRATION
2009	02162327ECD7.D	23B0179-01		1	NO MANUAL INTEGRATION
2030	02162328ECD7.D	23B0179-03		1	NO MANUAL INTEGRATION
2051	02162329ECD7.D	23B0218-01		1	NO MANUAL INTEGRATION
2112	02162330ECD7.D	23B0243-01		1	NO MANUAL INTEGRATION
2133	02162331ECD7.D	23B0250-03		1	NO MANUAL INTEGRATION
2154	02162332ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2215	02162333ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION

Security Status Report

Date: 17-Feb-2023 18:28

02162301ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162302ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162303ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162304ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162305ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162306ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162307ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162308ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162309ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162310ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162311ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162312ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162313ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162314ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162315ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162316ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162317ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162318ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162319ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28
02162320ECD7.D	Data Locked	richardl, 17-Feb-2023 18:28

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m
Last Edit : 17-Feb-2023 11:52 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230216.b\02162303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230216.b\02162304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230216.b\02162306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230216.b\02162302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230216.b\02162307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230216.b\02162305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230216.b\02162312ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00621	+++++	0.00621	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01159	+++++	0.01159	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02681	+++++	0.02681	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02383	+++++	0.02383	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.07542	+++++	0.07542	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02279	+++++	0.02279	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03366	+++++	0.03366	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00384	+++++	0.00384	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m
Last Edit : 17-Feb-2023 11:52 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.00810	+++++							0.00810	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03890	+++++							0.03890	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.01608	+++++							0.01608	0.000
7 Aroclor-1016(1)	0.03169	0.03099	0.02928	0.02945	0.02797	0.02542				
	+++++	+++++							0.02913	7.707
(2)	0.09586	0.09291	0.09260	0.09647	0.09408	0.08784				
	+++++	+++++							0.09329	3.308
(3)	0.04883	0.04639	0.04500	0.04135	0.03957	0.03629				
	+++++	+++++							0.04290	10.874
(4)	0.02872	0.02806	0.02800	0.02901	0.02840	0.02722				
	+++++	+++++							0.02824	2.231
6 Aroclor-1248(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03858	+++++							0.03858	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04869	+++++							0.04869	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.06882	+++++							0.06882	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04353	+++++							0.04353	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m
Last Edit : 17-Feb-2023 11:52 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.07742	+++++							0.07742	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.03048	+++++							0.03048	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.04934	+++++							0.04934	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.09822	+++++							0.09822	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.05991	+++++							0.05991	0.000
9 Aroclor-1260(1)	0.02788	0.02776	0.02777	0.02859	0.02723	0.02625				
	+++++	+++++							0.02758	2.845
(2)	0.02806	0.02793	0.02845	0.02939	0.02812	0.02734				
	+++++	+++++							0.02821	2.405
(3)	0.07961	0.07479	0.07516	0.07705	0.07265	0.06906				
	+++++	+++++							0.07472	4.859
(4)	0.03780	0.03647	0.03729	0.03969	0.03861	0.03777				
	+++++	+++++							0.03794	2.929
(5)	0.01706	0.01597	0.01600	0.01657	0.01616	0.01586				
	+++++	+++++							0.01627	2.827
10 Aroclor-1262(1)	+++++	+++++	+++++	+++++	+++++	+++++				
	0.02338	+++++							0.02338	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m
Last Edit : 17-Feb-2023 11:52 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****				
	0.03832	*****							0.03832	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.04132	*****							0.04132	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.03573	*****							0.03573	0.000
11 Aroclor-1268(1)	*****	*****	*****	*****	*****	*****				
	0.10039	*****							0.10039	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.09977	*****							0.09977	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.08467	*****							0.08467	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.25939	*****							0.25939	0.000
42 2,4-DDE	*****	*****	*****	*****	*****	*****				
	*****	904							904	0.000
43 2,4-DDD	*****	*****	*****	*****	*****	*****				
	*****	1034							1034	0.000
44 2,4-DDT	*****	*****	*****	*****	*****	*****				
	*****	2557							2557	0.000
46 4,4-DDE	*****	*****	*****	*****	*****	*****				
	*****	1539							1539	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m
Last Edit : 17-Feb-2023 11:52 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	1484	1484	0.000
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.16576	1.15771	1.14477	1.15521	1.11420	1.07286	+++++	+++++	1.13509	3.117
$ 13 Decachlorobiphenyl	0.73379	0.74028	0.73168	0.72104	0.66812	0.63265	+++++	+++++	0.70459	6.231

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Last Edit : 17-Feb-2023 17:17 jrains
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230216.b\230216.b\02162303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230216.b\230216.b\02162304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242317ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230216.b\230216.b\02162302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230216.b\230216.b\02162307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230216.b\230216.b\02162305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230216.b\230216.b\02162312ECD7.D
Level 8: \\target\share\chem4\ecd7.i\230124.b\230124.b\01242330ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	RRF	% RSD
1 Aroclor-1221 [2C](1)	*****	*****	*****	*****	*****	*****	0.00595	*****	0.00595	0.000
(2)	*****	*****	*****	*****	*****	*****	0.01277	*****	0.01277	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02139	*****	0.02139	0.000
4 Aroclor-1232 [2C](1)	*****	*****	*****	*****	*****	*****	0.00355	*****	0.00355	0.000
(2)	*****	*****	*****	*****	*****	*****	0.01988	*****	0.01988	0.000
(3)	*****	*****	*****	*****	*****	*****	0.03973	*****	0.03973	0.000
(4)	*****	*****	*****	*****	*****	*****	0.01112	*****	0.01112	0.000
3 Aroclor-1242 [2C](1)	*****	*****	*****	*****	*****	*****	0.03460	*****	0.03460	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Last Edit : 17-Feb-2023 17:17 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****				
	0.07497	*****							0.07497	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.02370	*****							0.02370	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.02874	*****							0.02874	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****				
	0.03609	*****							0.03609	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.03797	*****							0.03797	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.04387	*****							0.04387	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.05322	*****							0.05322	0.000
7 Aroclor-1016 [2C](1)	0.04821	0.04702	0.04678	0.04295	0.04080	0.03724				
	*****	*****							0.04383	9.755
(2)	0.08512	0.09163	0.10417	0.09587	0.09318	0.08872				
	*****	*****							0.09312	7.047
(3)	0.02856	0.04029	0.04478	0.03996	0.03883	0.03729				
	*****	*****							0.03829	14.062
(4)	0.03101	0.03372	0.03419	0.03091	0.02903	0.02743				
	*****	*****							0.03105	8.418

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Last Edit : 17-Feb-2023 17:17 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.05640	+++++	0.05640	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.04556	+++++	0.04556	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.09925	+++++	0.09925	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.09792	+++++	0.09792	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++	0.04948	+++++	0.04948	0.000
10 Aroclor-1262 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.05979	+++++	0.05979	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.05162	+++++	0.05162	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.05620	+++++	0.05620	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.08944	+++++	0.08944	0.000
9 Aroclor-1260 [2C](1)	0.04619	0.04217	0.05912	0.04183	0.03957	0.03730	+++++	+++++	0.04436	17.610
(2)	0.11159	0.10601	0.15181	0.10721	0.10092	0.09204	+++++	+++++	0.11160	18.642

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Last Edit : 17-Feb-2023 17:17 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
(3)	0.03353	0.02800	0.03582	0.02741	0.02727	0.02707				
	*****	*****							0.02985	12.802
(4)	0.07520	0.07003	0.09881	0.07122	0.06860	0.06533				
	*****	*****							0.07487	16.253
11 Aroclor-1268 [2C](1)	*****	*****	*****	*****	*****	*****				
	0.14547	*****							0.14547	0.000
(2)	*****	*****	*****	*****	*****	*****				
	0.15302	*****							0.15302	0.000
(3)	*****	*****	*****	*****	*****	*****				
	0.11987	*****							0.11987	0.000
(4)	*****	*****	*****	*****	*****	*****				
	0.41890	*****							0.41890	0.000
41 2,4-DDE [2C]	*****	*****	*****	*****	*****	*****				
	*****	1528							1528	0.000
42 2,4-DDD [2C]	*****	*****	*****	*****	*****	*****				
	*****	866							866	0.000
44 4,4-DDE [2C]	*****	*****	*****	*****	*****	*****				
	*****	863							863	0.000
45 4,4-DDD/2,4-DDT [2C]	*****	*****	*****	*****	*****	*****				
	*****	1162							1162	0.000
46 4,4-DDT [2C]	*****	*****	*****	*****	*****	*****				
	*****	1277							1277	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-JAN-2023 16:00
End Cal Date : 16-FEB-2023 14:54
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Last Edit : 17-Feb-2023 17:17 jrains
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	0.000e+00 Level 8	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.07500	1.07479	1.15322	1.08886	1.05368	1.03131	+++++	+++++	1.07948	3.832
$ 13 Decachlorobiphenyl [2C]	1.02179	1.03597	1.31190	1.13513	1.11204	1.07798	+++++	+++++	1.11580	9.441

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.492	3.492	3.491	3.493	3.492	3.491	3.492	3.392-3.592	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.810	5.808	5.808	5.811	5.808	5.809	5.810	5.710-5.910	5.809	0.001
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.271	7.271	7.270	7.270	7.270	7.269	7.271	7.171-7.371	7.270	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.043	11.044	11.043	11.040	11.042	11.041	11.043	10.943-11.143	11.042	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.894	13.892	13.891	13.892	13.890	13.890	13.894	13.794-13.994	13.892	0.002
* 12 IS-HBBP	14.263	14.263	14.261	14.261	14.262	14.262	14.263	14.163-14.363	14.262	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.260	9.210-9.310	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.801	9.751-9.851	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.293	10.243-10.343	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.683	9.583-9.783	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.254	10.154-10.354	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.754	10.654-10.854	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02162302ECD7	02162303ECD7	02162304ECD7	02162305ECD7	02162306ECD7	02162307ECD7
INJ.DATE:	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023	16-FEB-2023
INJ.TIME:	11:23	11:44	12:05	12:27	12:48	13:09

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.928	3.930	3.929	3.929	3.928	3.828-4.028	3.929	0.001
$ 2 Tetrachloro-m-xylene [	5.685	5.686	5.685	5.688	5.687	5.686	5.685	5.585-5.785	5.686	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.254	7.255	7.254	7.254	7.254	7.254	7.254	7.154-7.354	7.254	0.000
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.651	11.652	11.652	11.650	11.651	11.650	11.651	11.551-11.751	11.651	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.117	14.118	14.117	14.120	14.117	14.118	14.117	14.017-14.217	14.118	0.001
* 12 IS-HBBP [2C]	15.006	15.006	15.004	15.005	15.005	15.005	15.006	14.906-15.106	15.005	0.001
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.911	9.861-9.961	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.536	9.486-9.586	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.209	10.109-10.309	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.667	10.567-10.767	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230216.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230216.b\230216.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.092	10.992-11.192	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162301ECD7.D
Data file 2: /230216.b/230216.b/02162301ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 16-FEB-2023 11:02
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.823	0.015	232765	5.680	-0.005	190174	39.3	39.7	1.1	Tetrachloro-m-xylene
13.900	0.009	322325	14.118	0.000	335746	40.3	40.6	0.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	417912	-2.8
Hexabromobiphenyl	975457	908024	-6.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	359487	-2.0
Hexabromobiphenyl	646884	614725	-5.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	11.361	0.004	128	0.4	2	---			0.0
Aroclor-1260	3	11.801	0.071	128	0.2	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.705	0.008	993	1.0	3	---			0.0
Aroclor-1268	4	13.493	0.006	2534	0.9	4	---			0.0
		Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks			

Total PCB Area Col1 (5.908 - 13.791) = 24426 Col1 Total PCB = 0.0 ppm*

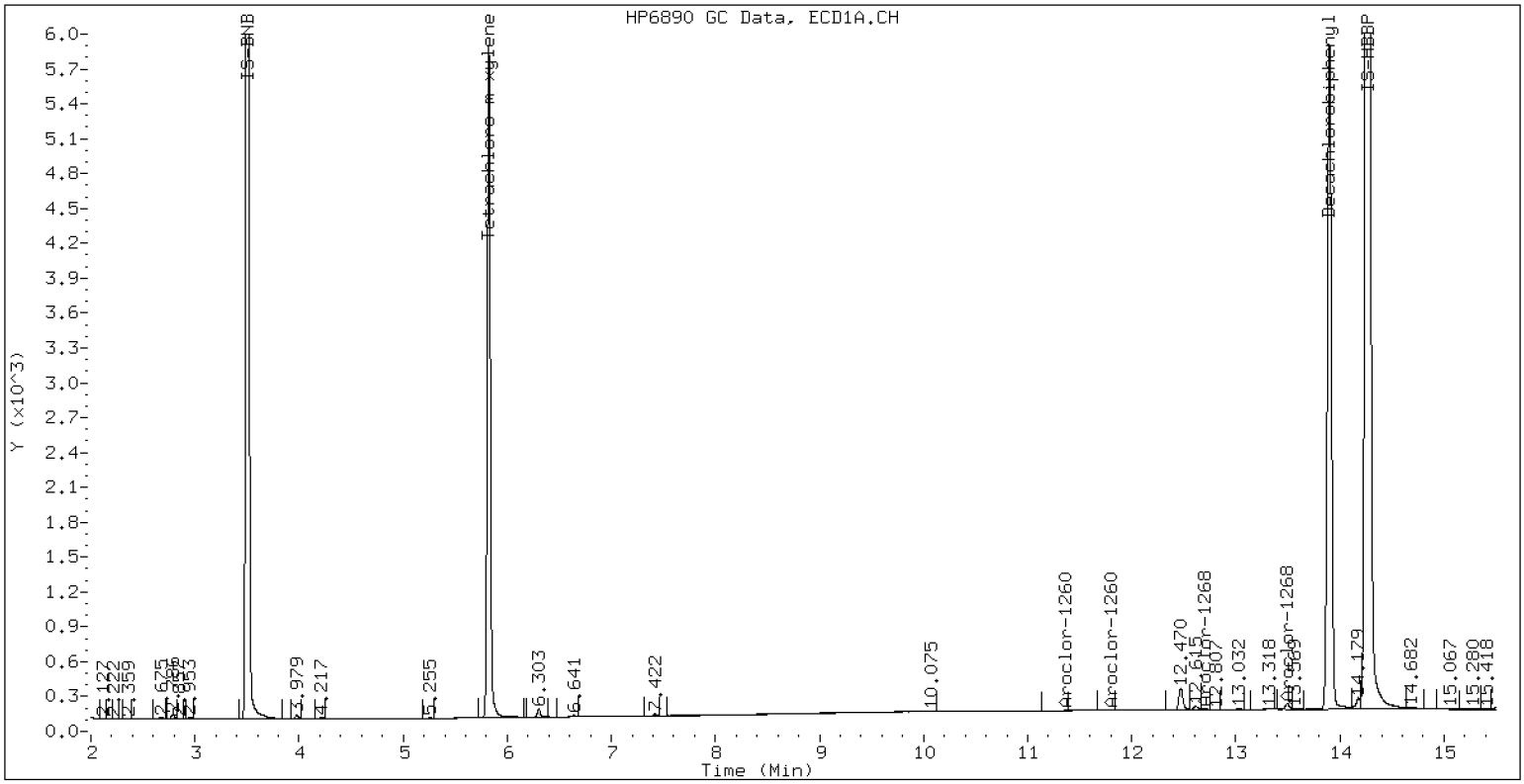
Total PCB Area Col2 (5.786 - 14.018) = 13889 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

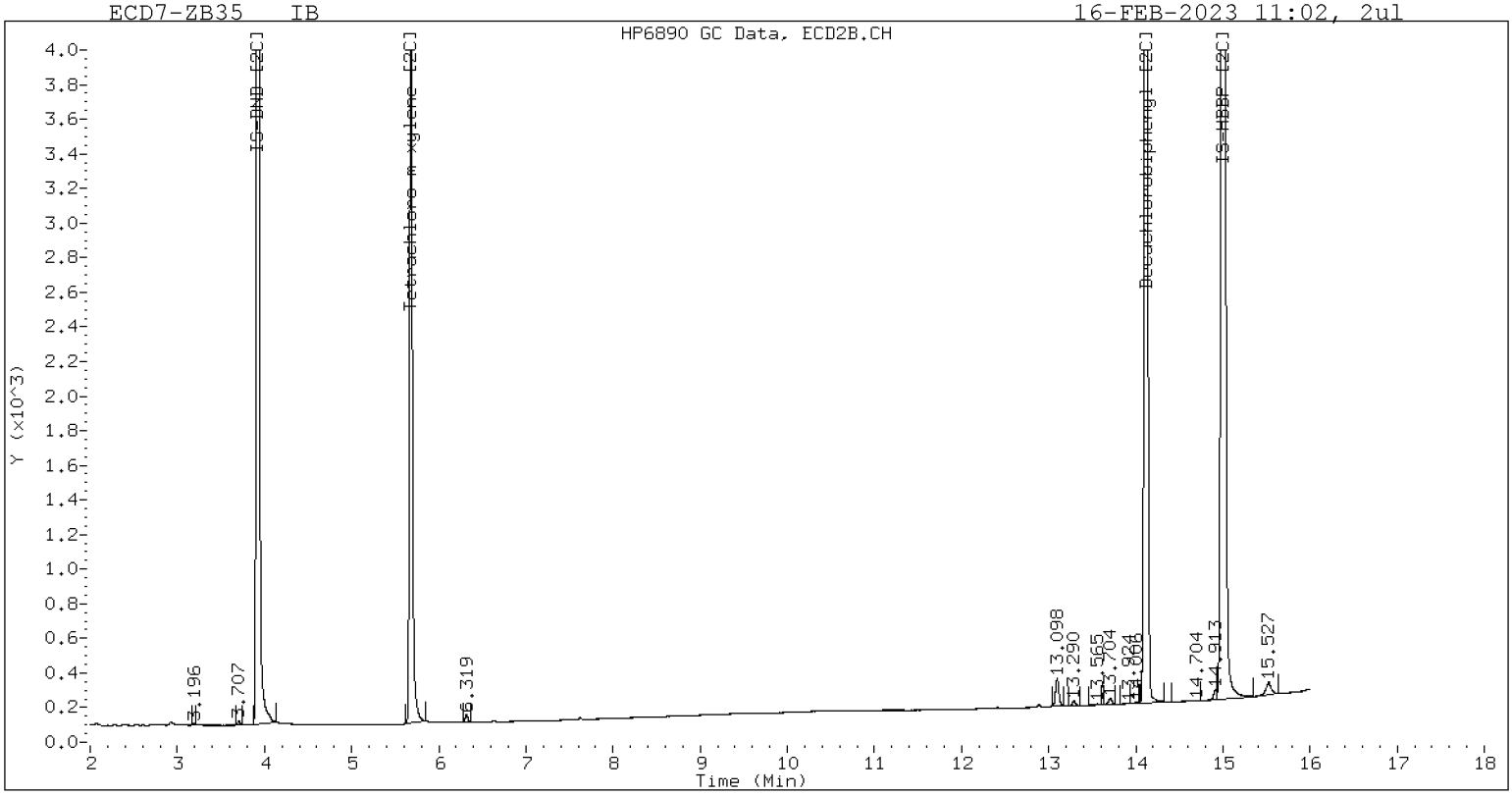
PCB Dual Column Chromatograms

ECD7-ZB5 IB 16-FEB-2023 11:02, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 16-FEB-2023 11:02, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162302ECD7.D
Data file 2: /230216.b/230216.b/02162302ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:23
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	248401	5.685	-0.001	199672	40.7	40.8	0.3	Tetrachloro-m-xylene
13.894	0.003	351670	14.117	-0.001	367148	40.9	42.2	3.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	430055	0.0
Hexabromobiphenyl	975457	975457	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	366754	0.0
Hexabromobiphenyl	646884	646884	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	39579	252.7	1	7.254	-0.000	49228	246.7
Aroclor-1016	2	7.652	0.002	129647	258.5	2	7.850	-0.002	109879	261.2
Aroclor-1016	3	7.790	0.003	55577	241.0	3	8.050	0.000	45802	264.2
Aroclor-1016	4	8.404	0.001	38982	256.8	4	8.304	-0.000	35428	249.7
Total Col1Ave (4 peaks):					252.3	Total Col2Ave (4 peaks):				255.5 RPD = 1
Corrected Ave (3 peaks):					250.2	Corrected Ave (3 peaks):				252.6 RPD = 1
CalAmt %D:					0.9	CalAmt %D:				2.2
Aroclor-1260	1	11.043	0.002	87165	259.2	1	11.651	0.001	84745	252.1
Aroclor-1260	2	11.360	0.003	89579	260.4	2	11.916	0.001	217336	257.7
Aroclor-1260	3	11.733	0.003	234880	257.8	3	12.434	0.001	55703	243.2
Aroclor-1260	4	12.137	0.002	120991	261.6	4	12.499	0.001	144903	254.5
Aroclor-1260	5	12.243	0.003	50521	254.7	NS	---			----
Total Col1Ave (5 peaks):					258.7	Total Col2Ave (4 peaks):				251.9 RPD = 3
Corrected Ave (4 peaks):					258.0	Corrected Ave (3 peaks):				249.9 RPD = 3
CalAmt %D:					3.5	CalAmt %D:				0.7

Total PCB Area Col1 (5.908 - 13.791) = 2424171 Col1 Total PCB = 0.5 ppm*

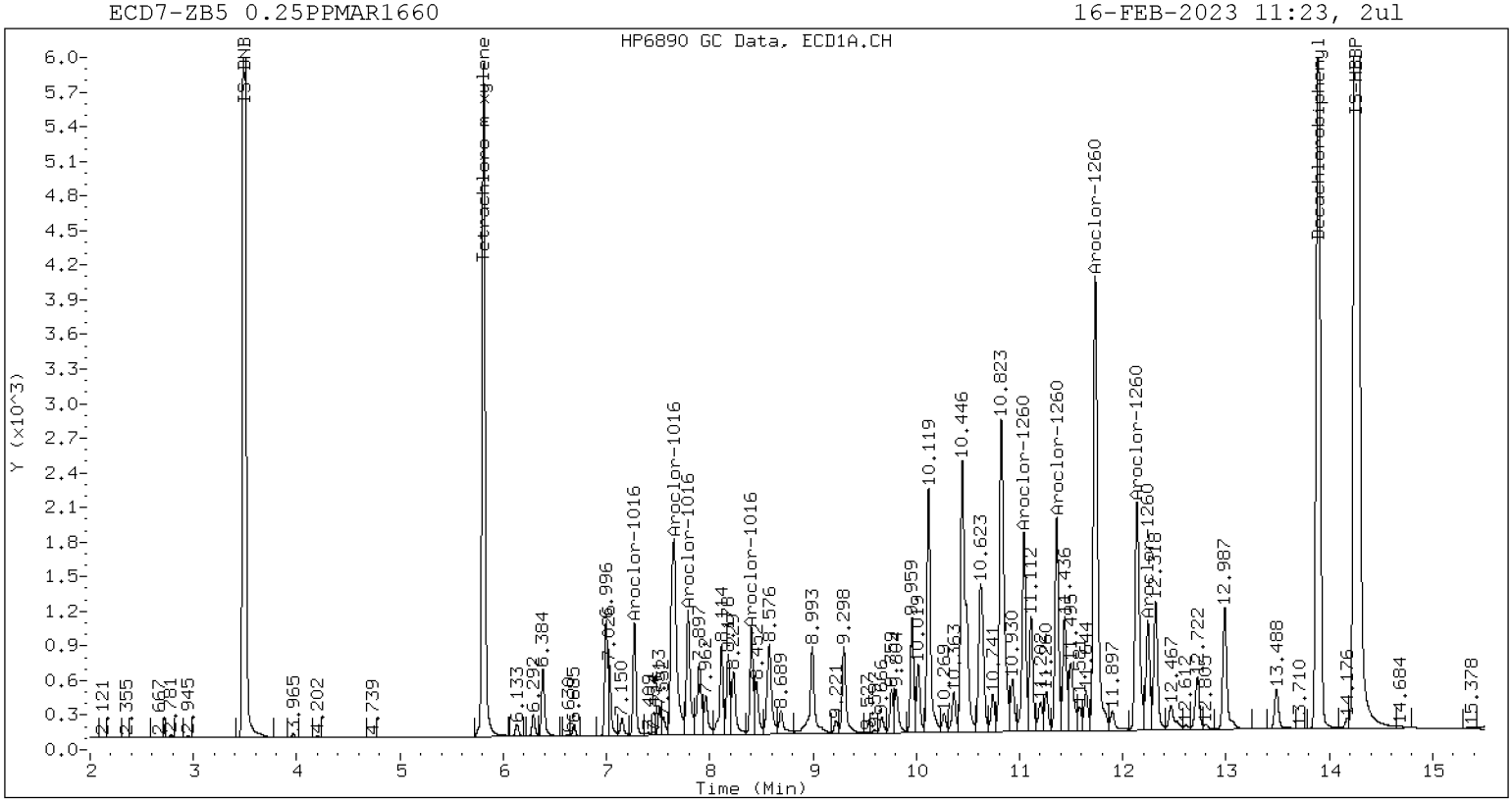
Total PCB Area Col2 (5.786 - 14.018) = 2020270 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

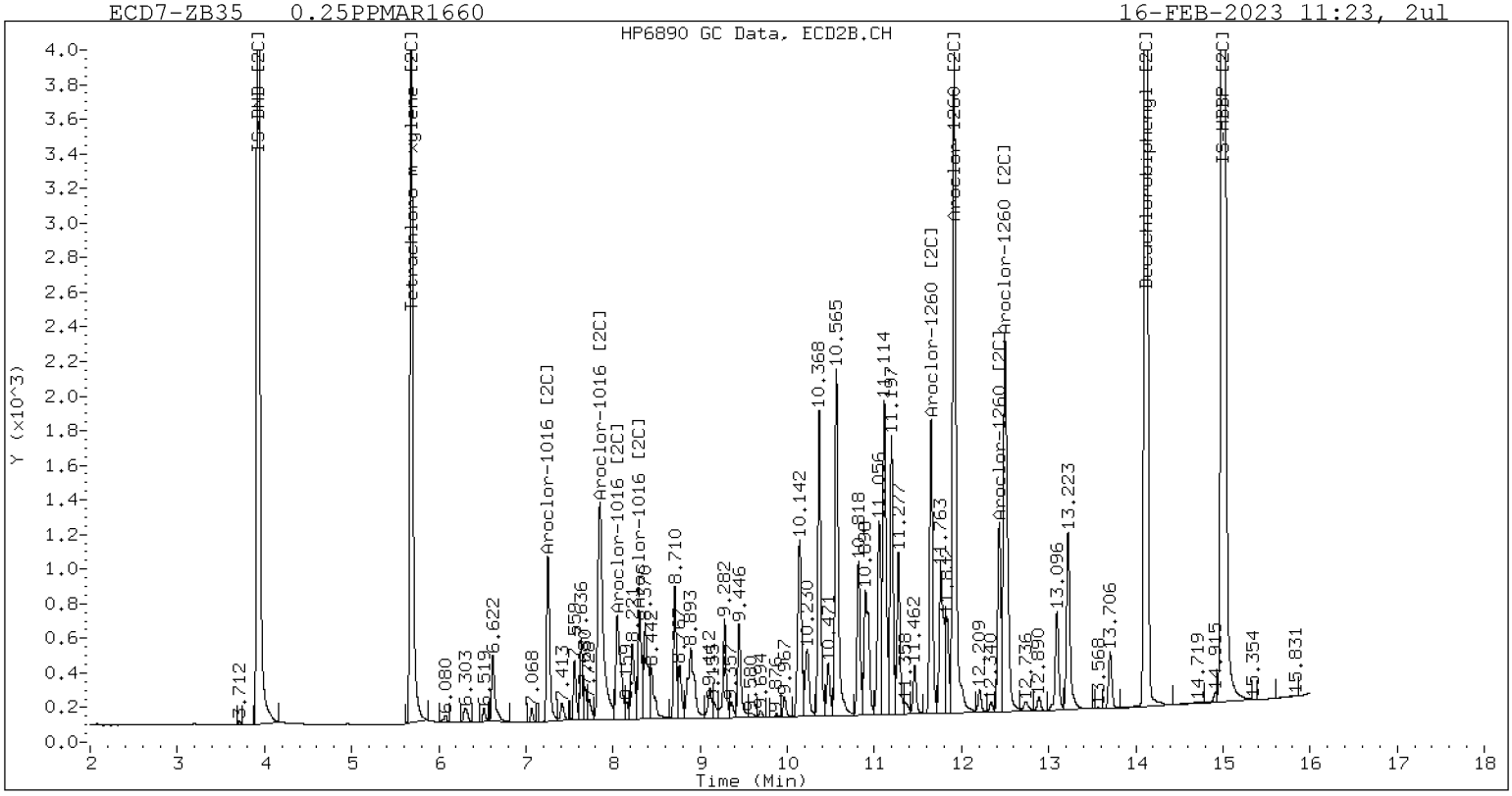
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 16-FEB-2023 11:23, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162303ECD7.D
Data file 2: /230216.b/230216.b/02162303ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 11:44
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	19708	5.686	0.000	15503	3.3	3.2	1.9	Tetrachloro-m-xylene
13.892	0.001	28479	14.118	-0.000	26541	3.3	3.0	9.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	422641	-1.7
Hexabromobiphenyl	975457	970275	-0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	360534	-1.7
Hexabromobiphenyl	646884	649373	0.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.002	3348	21.8	1	7.255	0.001	4345	22.2
Aroclor-1016	2	7.655	0.005	10129	20.6	2	7.856	0.005	7672	18.6
Aroclor-1016	3	7.792	0.005	5159	22.8	3	8.056	0.007	2574	15.1
Aroclor-1016	4	8.405	0.003	3035	20.3	4	8.307	0.003	2795	20.0
Total Col1Ave (4 peaks):					21.4	Total Col2Ave (4 peaks):				19.0 RPD = 12
Corrected Ave (3 peaks):					20.9	Corrected Ave (3 peaks):				17.9 RPD = 15
CalAmt %D:					6.8	CalAmt %D:				-5.2
Aroclor-1260	1	11.044	0.003	6763	20.2	1	11.652	0.002	7423	22.0
Aroclor-1260	2	11.360	0.003	6806	19.9	2	11.918	0.003	18049	21.3
Aroclor-1260	3	11.737	0.006	19311	21.3	3	12.434	0.002	5444	23.7
Aroclor-1260	4	12.141	0.006	9169	19.9	4	12.502	0.004	12209	21.4
Aroclor-1260	5	12.243	0.003	4138	21.0	NS	---			----
Total Col1Ave (5 peaks):					20.5	Total Col2Ave (4 peaks):				22.1 RPD = 8
Corrected Ave (4 peaks):					20.3	Corrected Ave (3 peaks):				21.6 RPD = 6
CalAmt %D:					2.3	CalAmt %D:				10.4

Total PCB Area Col1 (5.908 - 13.791) = 207302 Col1 Total PCB = 0.0 ppm*

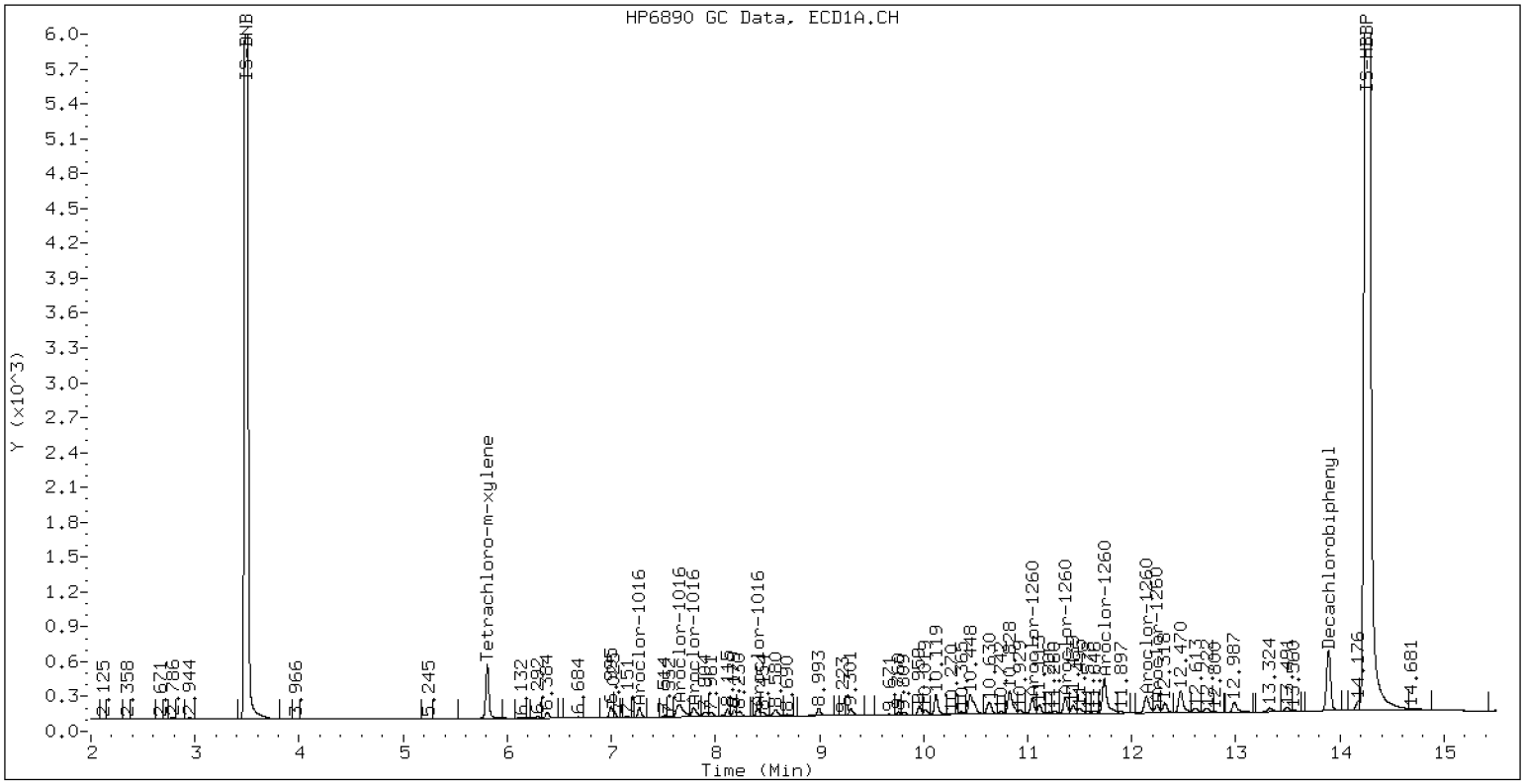
Total PCB Area Col2 (5.786 - 14.018) = 173646 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

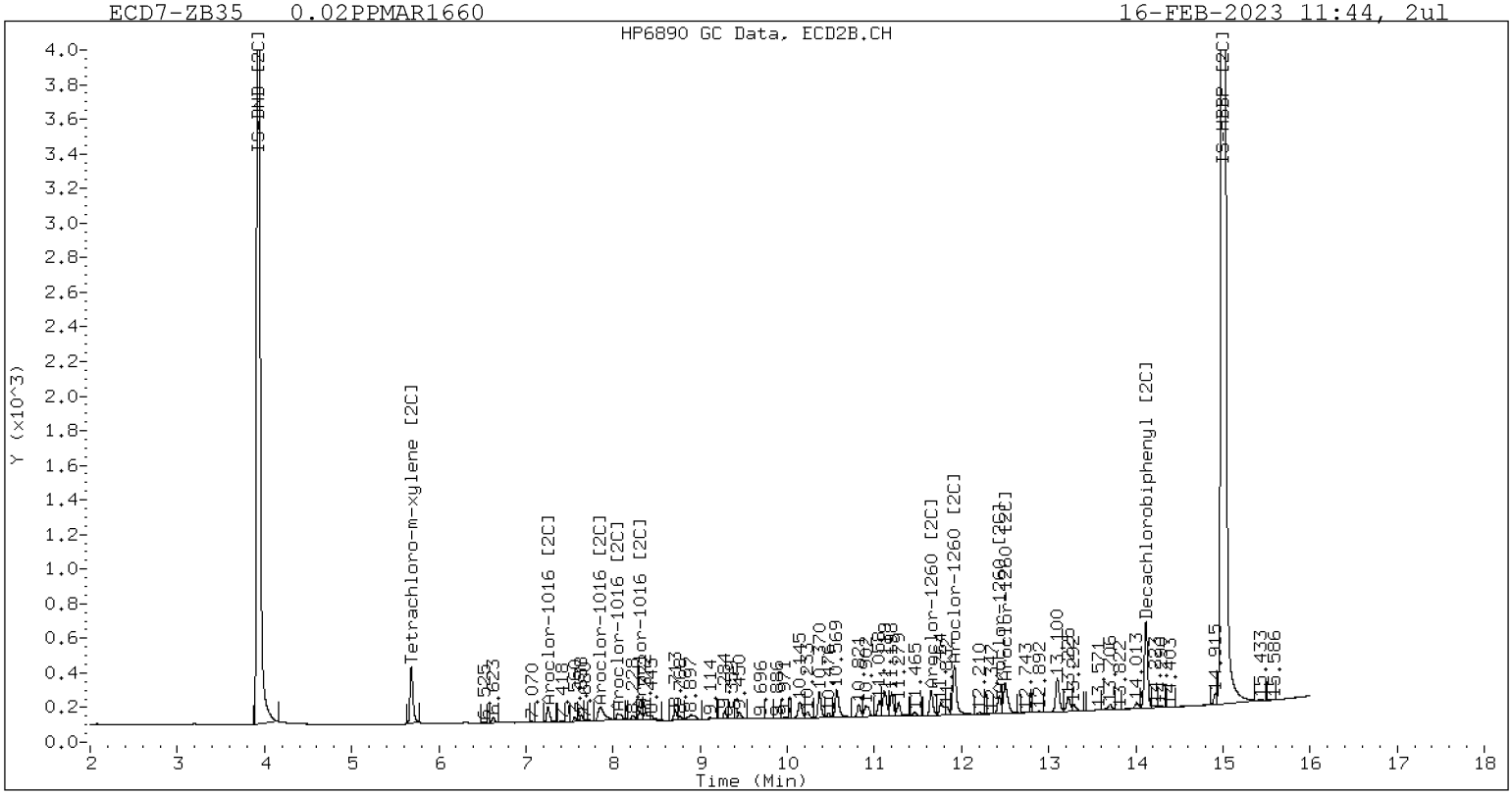
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 16-FEB-2023 11:44, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162304ECD7.D
Data file 2: /230216.b/230216.b/02162304ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:05
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	49106	5.685	-0.001	38865	8.2	8.1	1.2	Tetrachloro-m-xylene
13.891	0.000	72151	14.117	-0.001	67392	8.4	7.7	8.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	424165	-1.4
Hexabromobiphenyl	975457	974643	-0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361606	-1.4
Hexabromobiphenyl	646884	650523	0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	8215	53.2	1	7.254	-0.000	10626	54.0
Aroclor-1016	2	7.653	0.003	24630	49.8	2	7.855	0.003	20708	49.9
Aroclor-1016	3	7.791	0.004	12297	54.1	3	8.055	0.006	9105	53.3
Aroclor-1016	4	8.404	0.001	7438	49.7	4	8.306	0.001	7620	54.5
Total Col1Ave (4 peaks):					51.7	Total Col2Ave (4 peaks):				52.9 RPD = 2
Corrected Ave (3 peaks):					50.9	Corrected Ave (3 peaks):				52.4 RPD = 3
CalAmt %D:					3.4	CalAmt %D:				5.9
Aroclor-1260	1	11.043	0.002	16909	50.3	1	11.652	0.002	17256	51.0
Aroclor-1260	2	11.359	0.002	17012	49.5	2	11.917	0.003	43189	50.9
Aroclor-1260	3	11.734	0.003	45560	50.0	3	12.435	0.003	11385	49.4
Aroclor-1260	4	12.138	0.003	22213	48.1	4	12.501	0.003	28474	49.7
Aroclor-1260	5	12.241	0.001	9728	49.1	NS	---			----
Total Col1Ave (5 peaks):					49.4	Total Col2Ave (4 peaks):				50.3 RPD = 2
Corrected Ave (4 peaks):					49.2	Corrected Ave (3 peaks):				50.0 RPD = 2
CalAmt %D:					-1.2	CalAmt %D:				0.6

Total PCB Area Col1 (5.908 - 13.791) = 481905 Col1 Total PCB = 0.1 ppm*

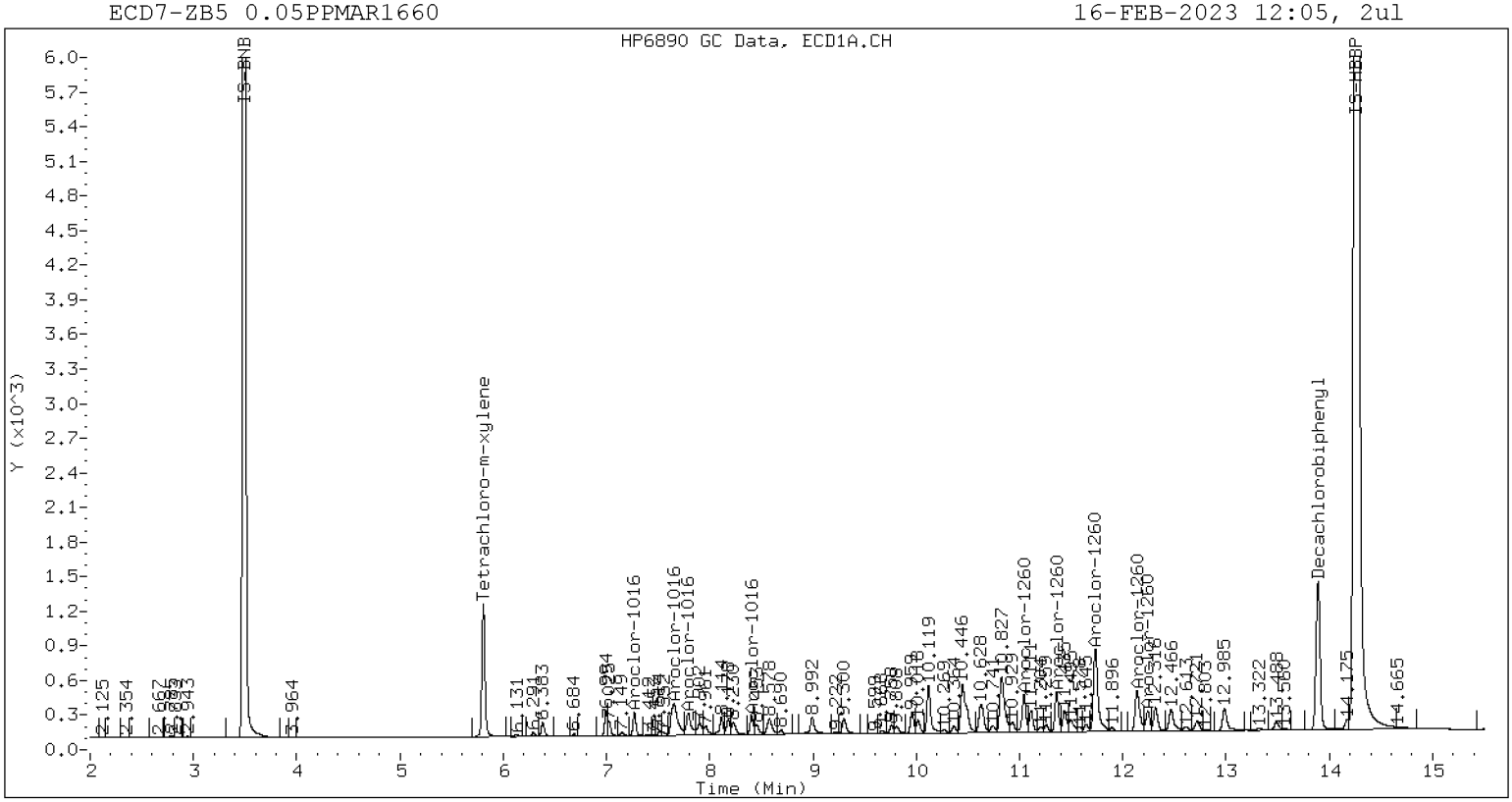
Total PCB Area Col2 (5.786 - 14.018) = 410803 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

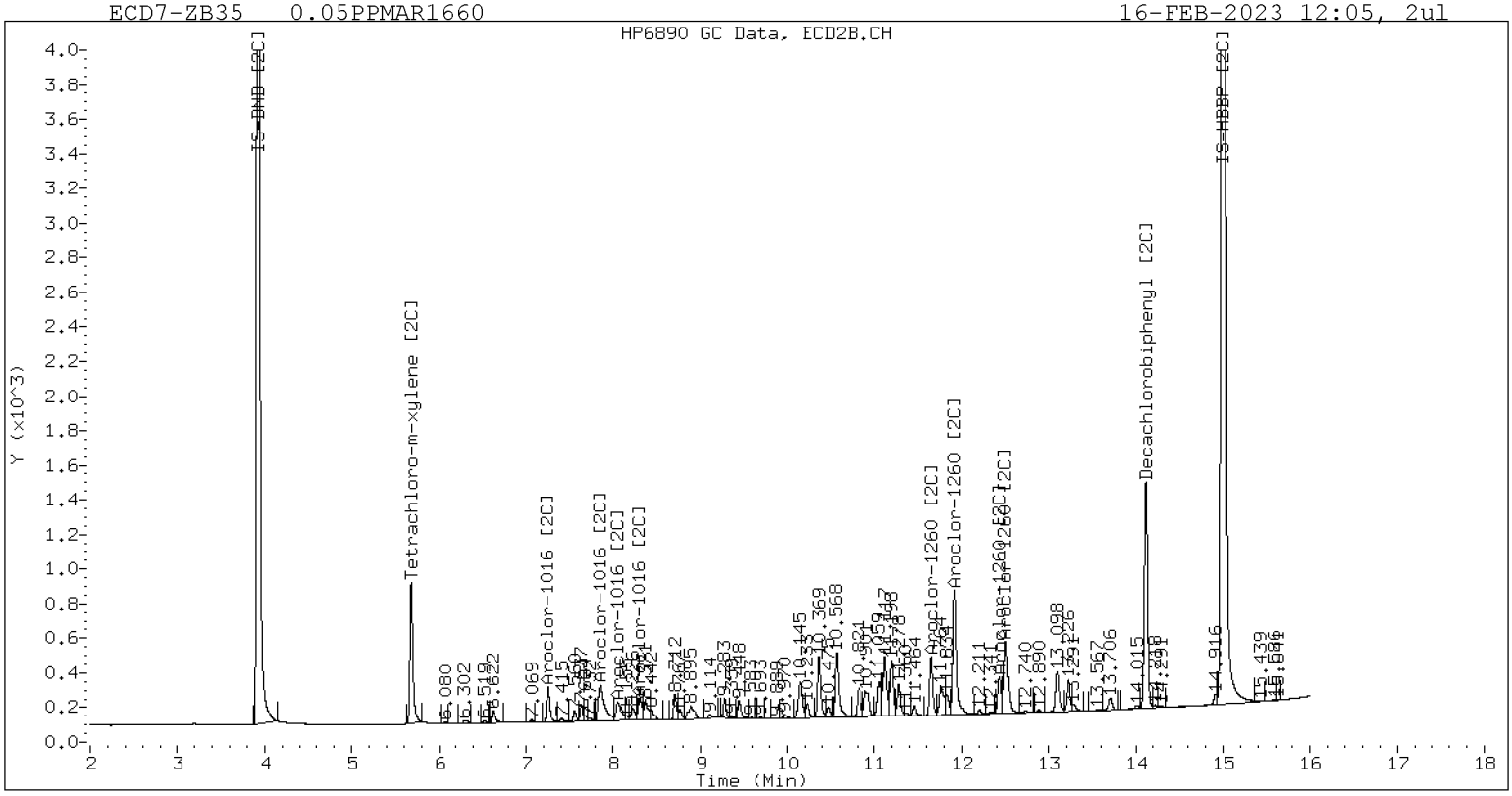
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 16-FEB-2023 12:05, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162305ECD7.D
Data file 2: /230216.b/230216.b/02162305ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:27
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.003	891683	5.688	0.002	726379	151.2	154.7	2.3	Tetrachloro-m-xylene
13.892	0.001	1202823	14.120	0.002	1376073	143.7	160.2	10.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	415564	-3.4
Hexabromobiphenyl	975457	950630	-2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	352163	-4.0
Hexabromobiphenyl	646884	638267	-1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	0.001	132049	872.6	1	7.254	0.000	163920	855.5
Aroclor-1016	2	7.649	-0.001	456308	941.6	2	7.849	-0.003	390554	967.1
Aroclor-1016	3	7.787	-0.000	188528	845.9	3	8.049	-0.000	164163	986.2
Aroclor-1016	4	8.403	0.000	141381	963.9	4	8.304	0.000	120741	886.4
Total Col1Ave (4 peaks):					906.0	Total Col2Ave (4 peaks):				923.8 RPD = 2
Corrected Ave (3 peaks):					886.7	Corrected Ave (3 peaks):				903.0 RPD = 2
CalAmt %D:			-9.4			CalAmt %D:		-7.6		
Aroclor-1260	1	11.040	-0.000	311922	951.8	1	11.650	-0.000	300342	905.5
Aroclor-1260	2	11.356	-0.001	324926	969.1	2	11.914	-0.001	736751	885.4
Aroclor-1260	3	11.729	-0.001	820597	924.2	3	12.432	0.000	217636	963.0
Aroclor-1260	4	12.131	-0.003	448823	995.6	4	12.498	0.000	525525	935.5
Aroclor-1260	5	12.240	0.000	188496	975.0	NS	---			----
Total Col1Ave (5 peaks):					963.1	Total Col2Ave (4 peaks):				922.3 RPD = 4
Corrected Ave (4 peaks):					955.0	Corrected Ave (3 peaks):				908.8 RPD = 5
CalAmt %D:			-3.7			CalAmt %D:		-7.8		

Total PCB Area Col1 (5.908 - 13.791) = 8716327 Col1 Total PCB = 1.9 ppm*

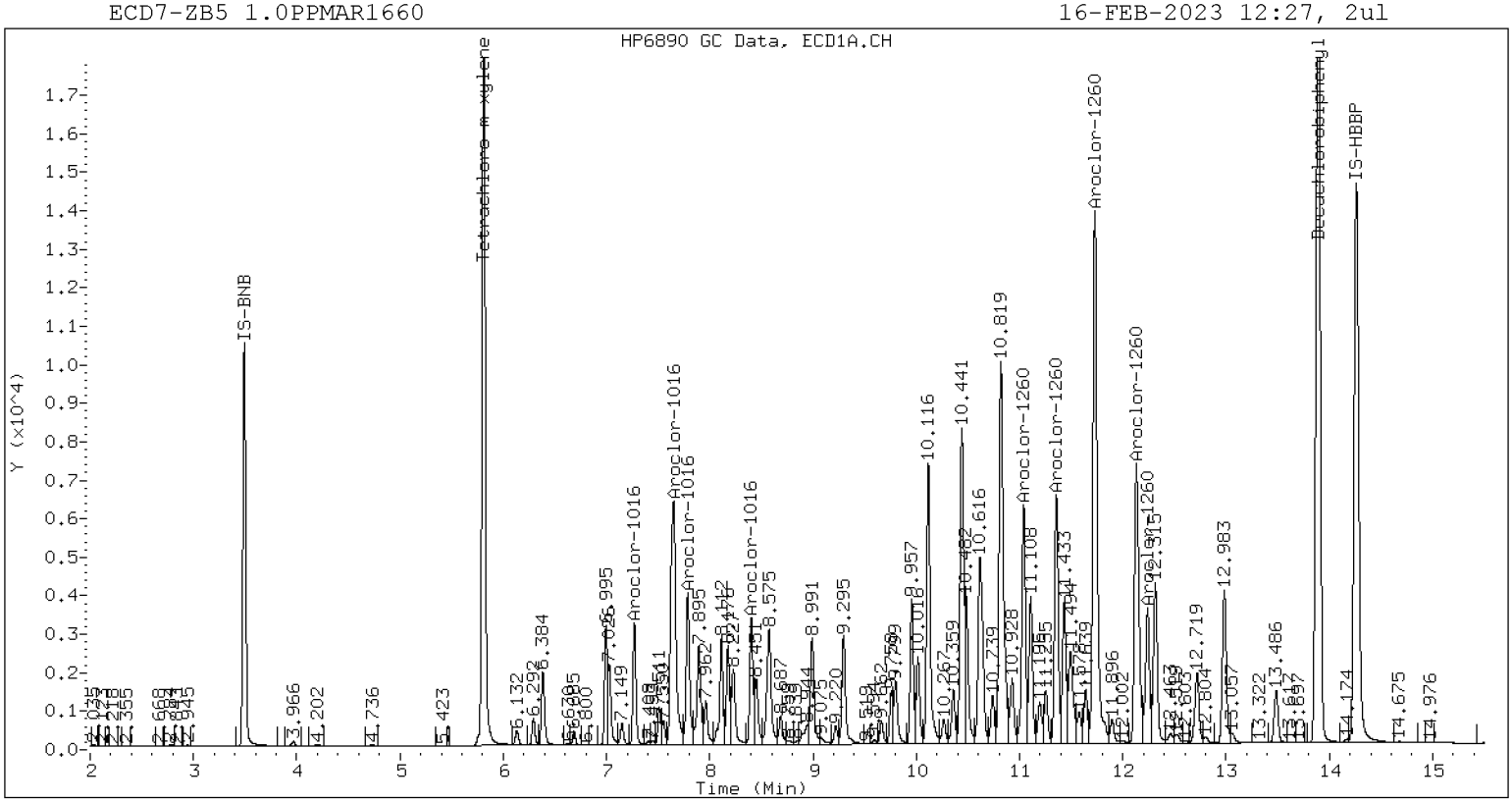
Total PCB Area Col2 (5.786 - 14.018) = 7321222 Col2 Total PCB = 1.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

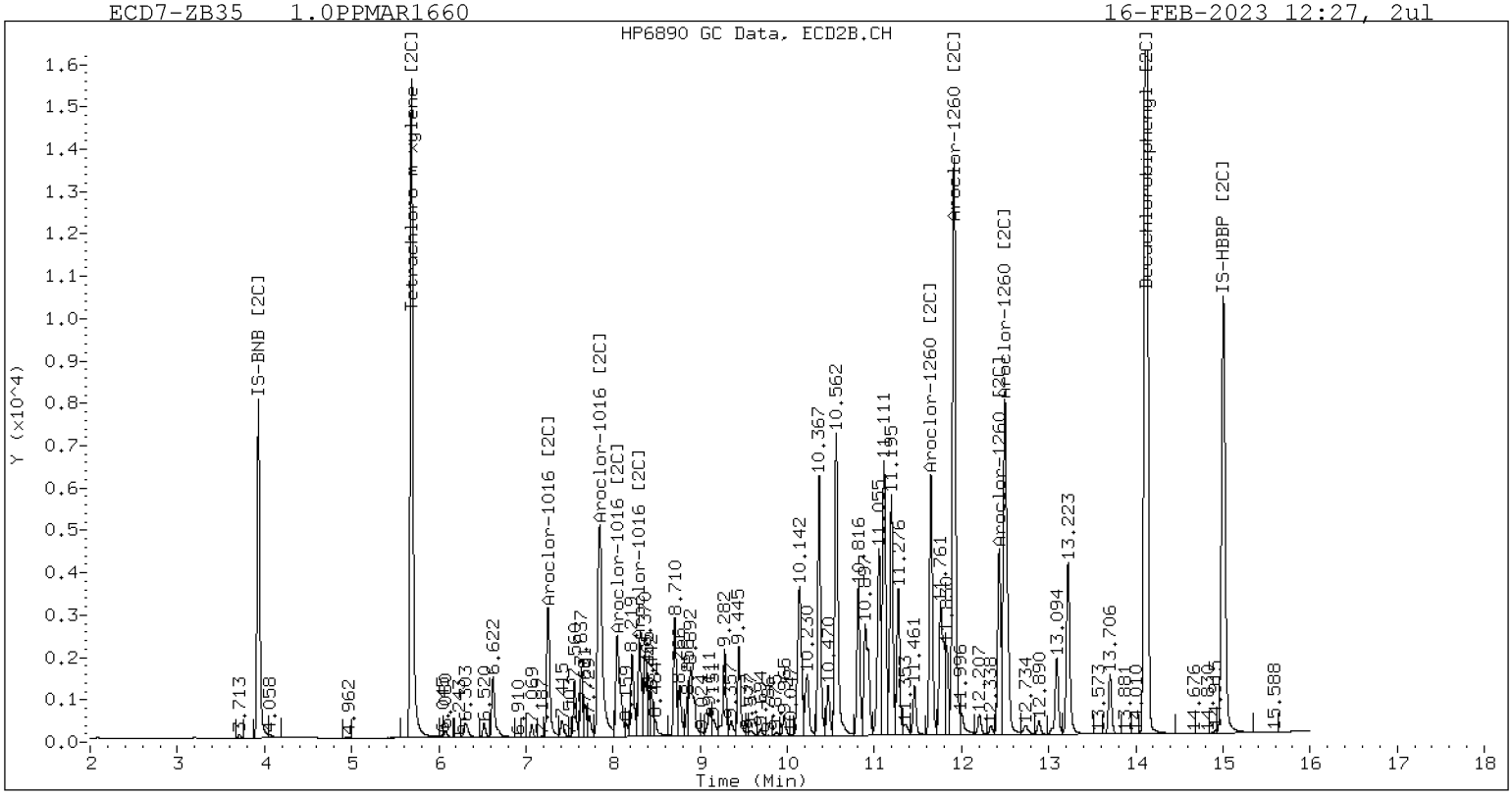
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 16-FEB-2023 12:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162306ECD7.D
Data file 2: /230216.b/230216.b/02162306ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 12:48
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	97353	5.687	0.001	77790	16.1	16.2	0.1	Tetrachloro-m-xylene
13.890	-0.001	143814	14.117	-0.001	141007	16.6	16.0	3.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	425206	-1.1
Hexabromobiphenyl	975457	982762	0.7

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361068	-1.6
Hexabromobiphenyl	646884	654989	1.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	15562	100.5	1	7.254	-0.000	20282	103.2
Aroclor-1016	2	7.653	0.003	49218	99.3	2	7.855	0.004	43303	104.6
Aroclor-1016	3	7.790	0.003	23916	104.9	3	8.054	0.005	18932	110.9
Aroclor-1016	4	8.404	0.002	14884	99.2	4	8.306	0.002	15145	108.4
Total Col1Ave (4 peaks):					101.0	Total Col2Ave (4 peaks):				106.8 RPD = 6
Corrected Ave (3 peaks):					99.6	Corrected Ave (3 peaks):				105.4 RPD = 6
CalAmt %D:					1.0	CalAmt %D:				6.8
Aroclor-1260	1	11.042	0.002	34109	100.7	1	11.651	0.001	34253	100.6
Aroclor-1260	2	11.358	0.001	34951	100.8	2	11.917	0.002	87588	102.6
Aroclor-1260	3	11.733	0.003	92326	100.6	3	12.434	0.001	21412	92.3
Aroclor-1260	4	12.137	0.003	45803	98.3	4	12.500	0.002	57826	100.3
Aroclor-1260	5	12.241	0.001	19653	98.3	NS	---			----
Total Col1Ave (5 peaks):					99.7	Total Col2Ave (4 peaks):				99.0 RPD = 1
Corrected Ave (4 peaks):					99.5	Corrected Ave (3 peaks):				97.8 RPD = 2
CalAmt %D:					-0.3	CalAmt %D:				-1.0

Total PCB Area Col1 (5.908 - 13.791) = 948624 Col1 Total PCB = 0.2 ppm*

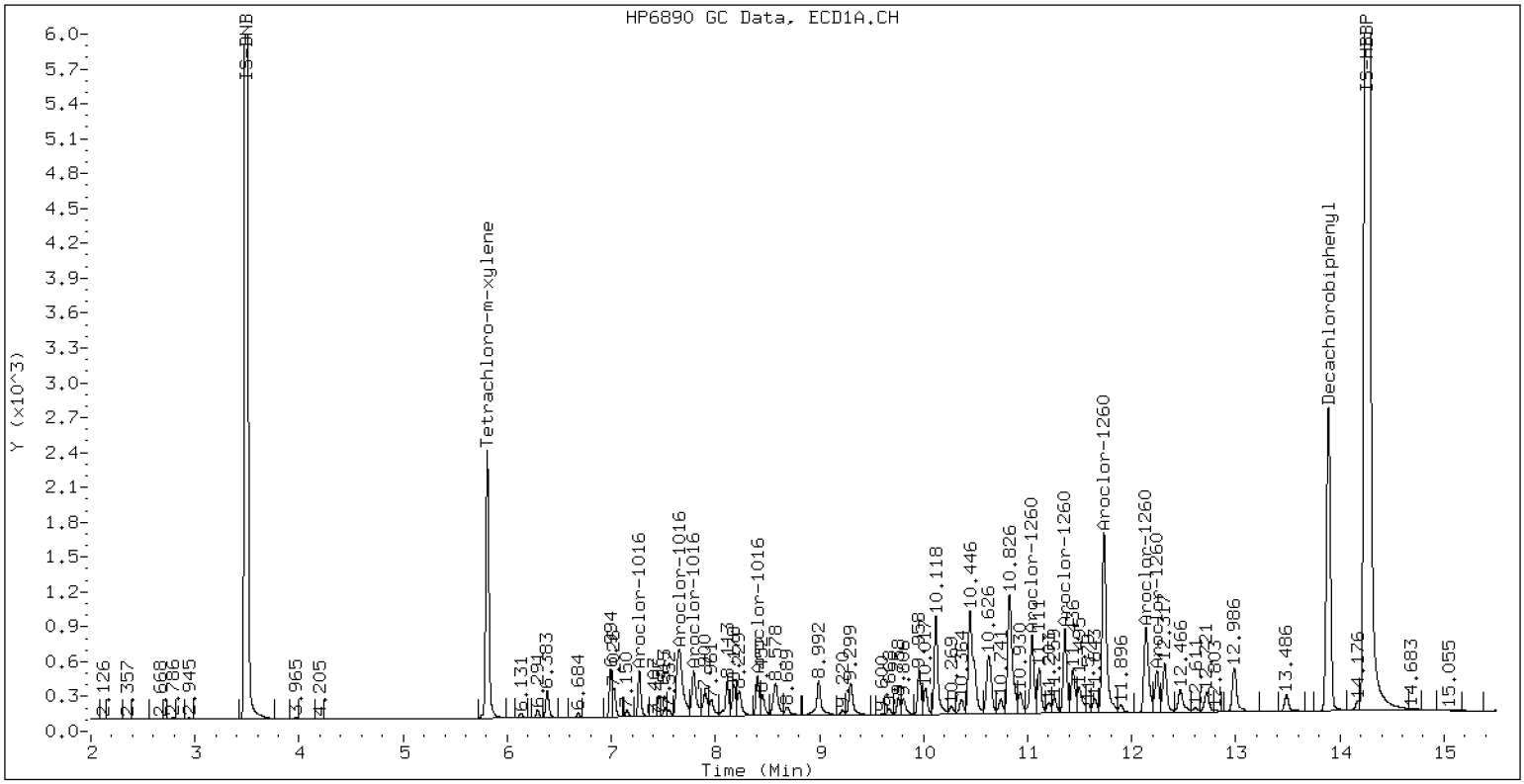
Total PCB Area Col2 (5.786 - 14.018) = 820966 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

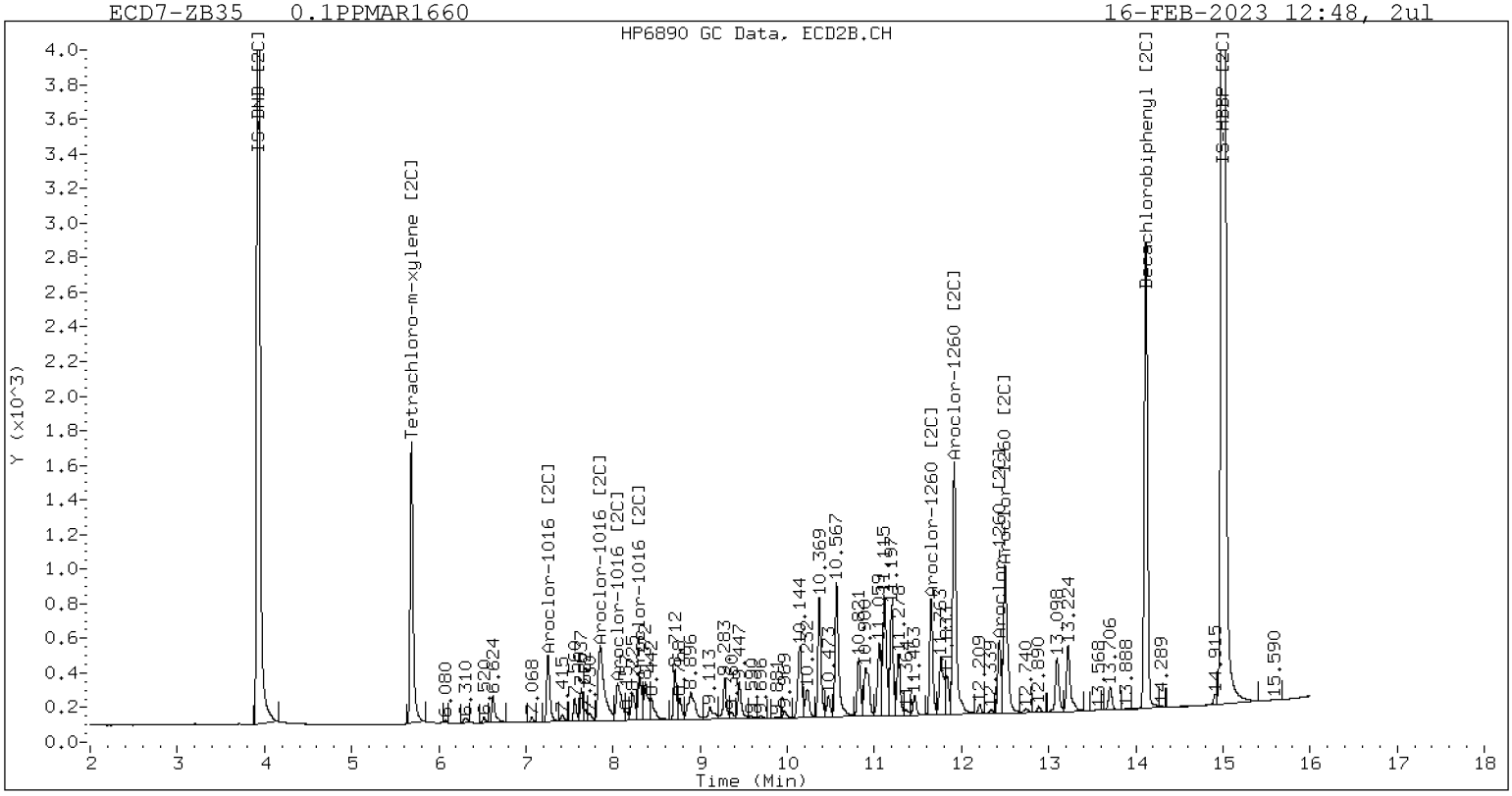
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 16-FEB-2023 12:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162307ECD7.D
Data file 2: /230216.b/230216.b/02162307ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 16-FEB-2023 13:09
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	472991	5.686	0.001	380587	78.5	79.0	0.6	Tetrachloro-m-xylene
13.890	-0.001	654829	14.118	-0.000	723440	75.9	82.6	8.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	424511	-1.3
Hexabromobiphenyl	975457	980103	0.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	361199	-1.5
Hexabromobiphenyl	646884	650552	0.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	74222	480.1	1	7.254	0.000	92105	468.7
Aroclor-1016	2	7.650	0.000	249600	504.2	2	7.851	0.000	210359	507.8
Aroclor-1016	3	7.787	0.000	104974	461.1	3	8.049	0.000	87658	513.4
Aroclor-1016	4	8.402	0.000	75363	503.0	4	8.304	0.000	65546	469.2
Total Col1Ave (4 peaks):				487.1		Total Col2Ave (4 peaks):			489.8	RPD = 1
Corrected Ave (3 peaks):				481.4		Corrected Ave (3 peaks):			481.9	RPD = 0
CalAmt %D:				-2.6		CalAmt %D:			-2.0	
Aroclor-1260	1	11.041	0.000	166809	493.7	1	11.650	0.000	162166	479.7
Aroclor-1260	2	11.357	0.000	172259	498.3	2	11.915	0.000	412895	486.8
Aroclor-1260	3	11.731	0.000	445028	486.1	3	12.432	0.000	111590	484.4
Aroclor-1260	4	12.134	0.000	236535	508.9	4	12.498	0.000	280820	490.4
Aroclor-1260	5	12.240	0.000	98968	496.5	NS	---			----
Total Col1Ave (5 peaks):				496.7		Total Col2Ave (4 peaks):			485.3	RPD = 2
Corrected Ave (4 peaks):				493.7		Corrected Ave (3 peaks):			483.6	RPD = 2
CalAmt %D:				-0.7		CalAmt %D:			-2.9	

Total PCB Area Col1 (5.908 - 13.791) = 4638448 Col1 Total PCB = 1.0 ppm*

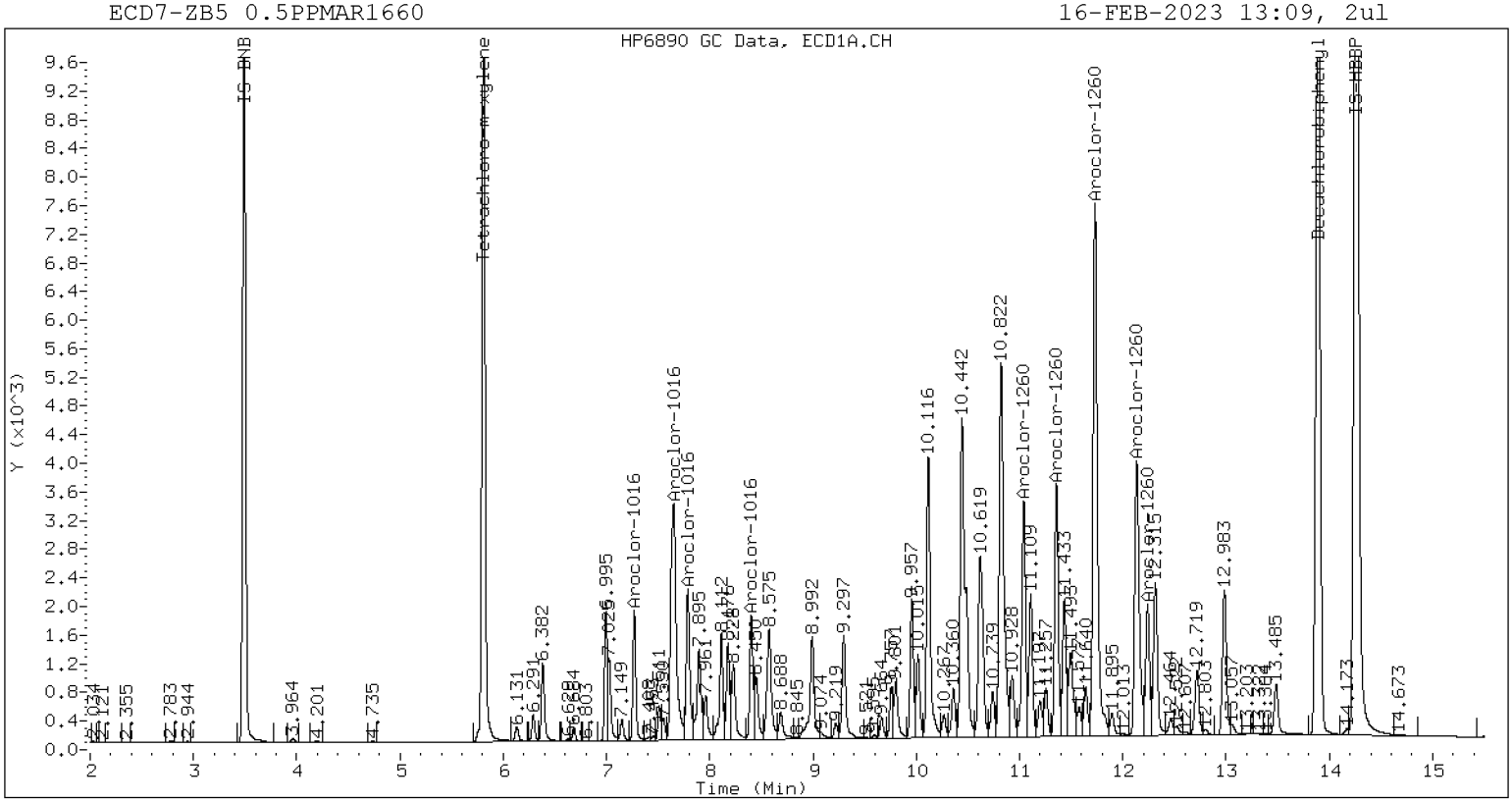
Total PCB Area Col2 (5.786 - 14.018) = 3887359 Col2 Total PCB = 1.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

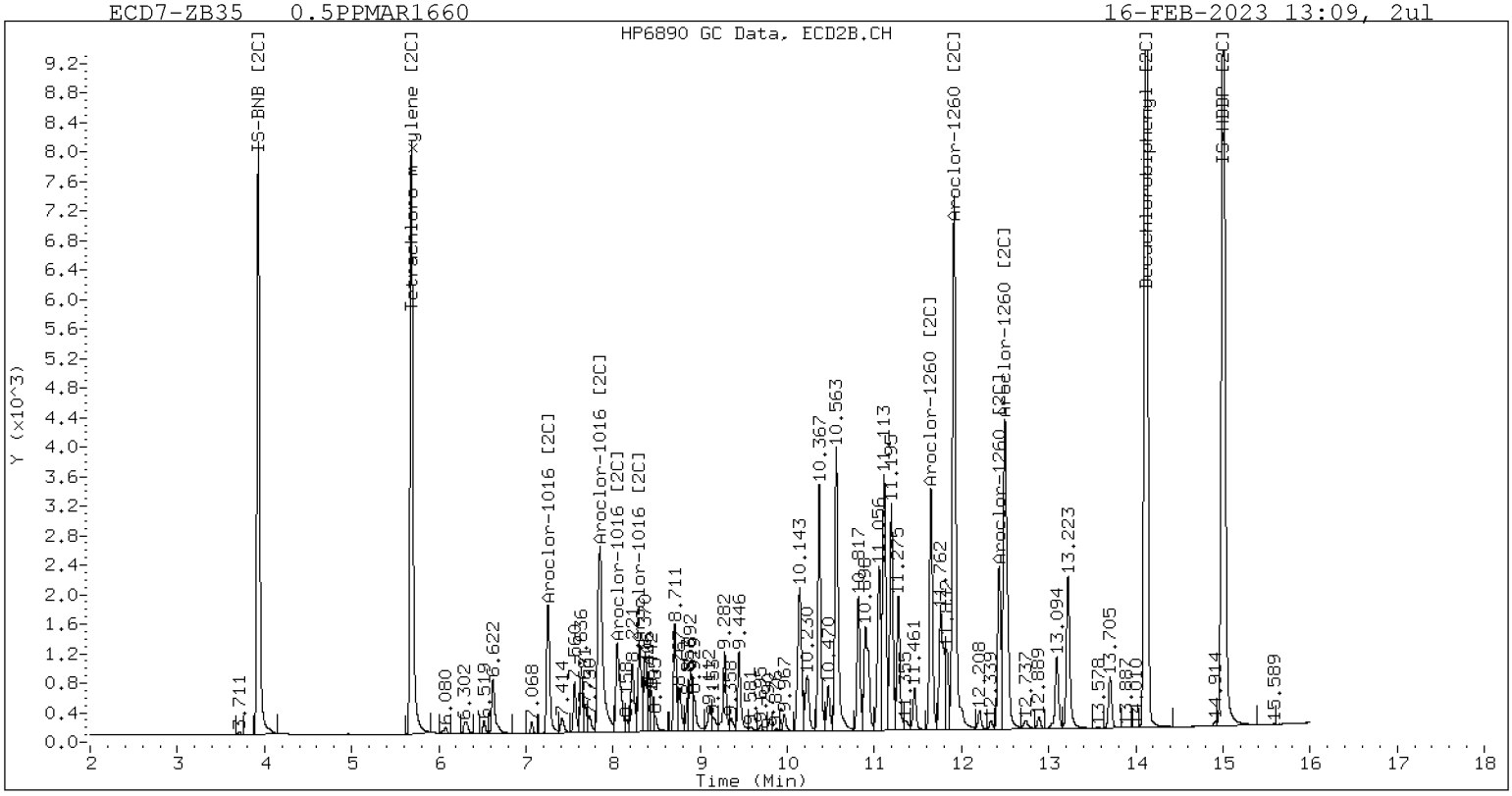
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 16-FEB-2023 13:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162308ECD7.D
Data file 2: /230216.b/230216.b/02162308ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 16-FEB-2023 13:30
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	287664	5.686	0.000	229806	46.8	47.1	0.6	Tetrachloro-m-xylene
13.891	0.000	335023	14.117	-0.001	345735	37.9	38.5	1.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	432799	0.6
Hexabromobiphenyl	975457	1004715	3.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	365812	-0.3
Hexabromobiphenyl	646884	667992	3.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.269	0.000	32233	250.0	1	7.254	0.000	39556	250.0
Aroclor-1242	2	7.652	0.000	102000	250.0	2	7.853	0.000	85705	250.0
Aroclor-1242	3	8.403	0.000	30824	250.0	3	9.160	0.000	27091	250.0
Aroclor-1242	4	8.577	0.000	45526	250.0	4	9.587	0.000	32851	250.0

Total Col1Ave (4 peaks): 250.0 Total Col2Ave (4 peaks): 250.0 RPD = 0

Corrected Ave (3 peaks): 250.0 Corrected Ave (3 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 766603 Col1 Total PCB = 0.2 ppm*

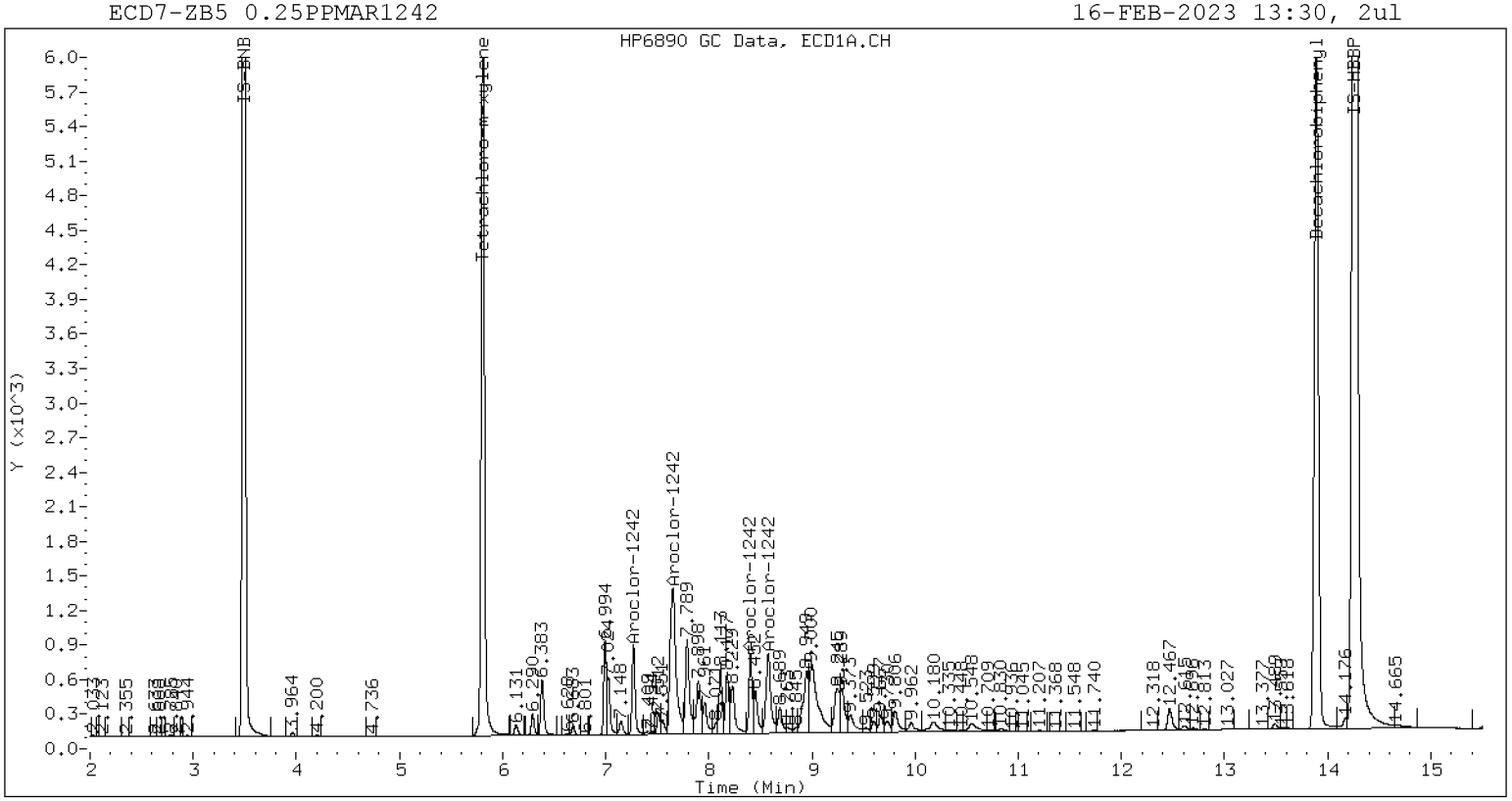
Total PCB Area Col2 (5.786 - 14.018) = 619257 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

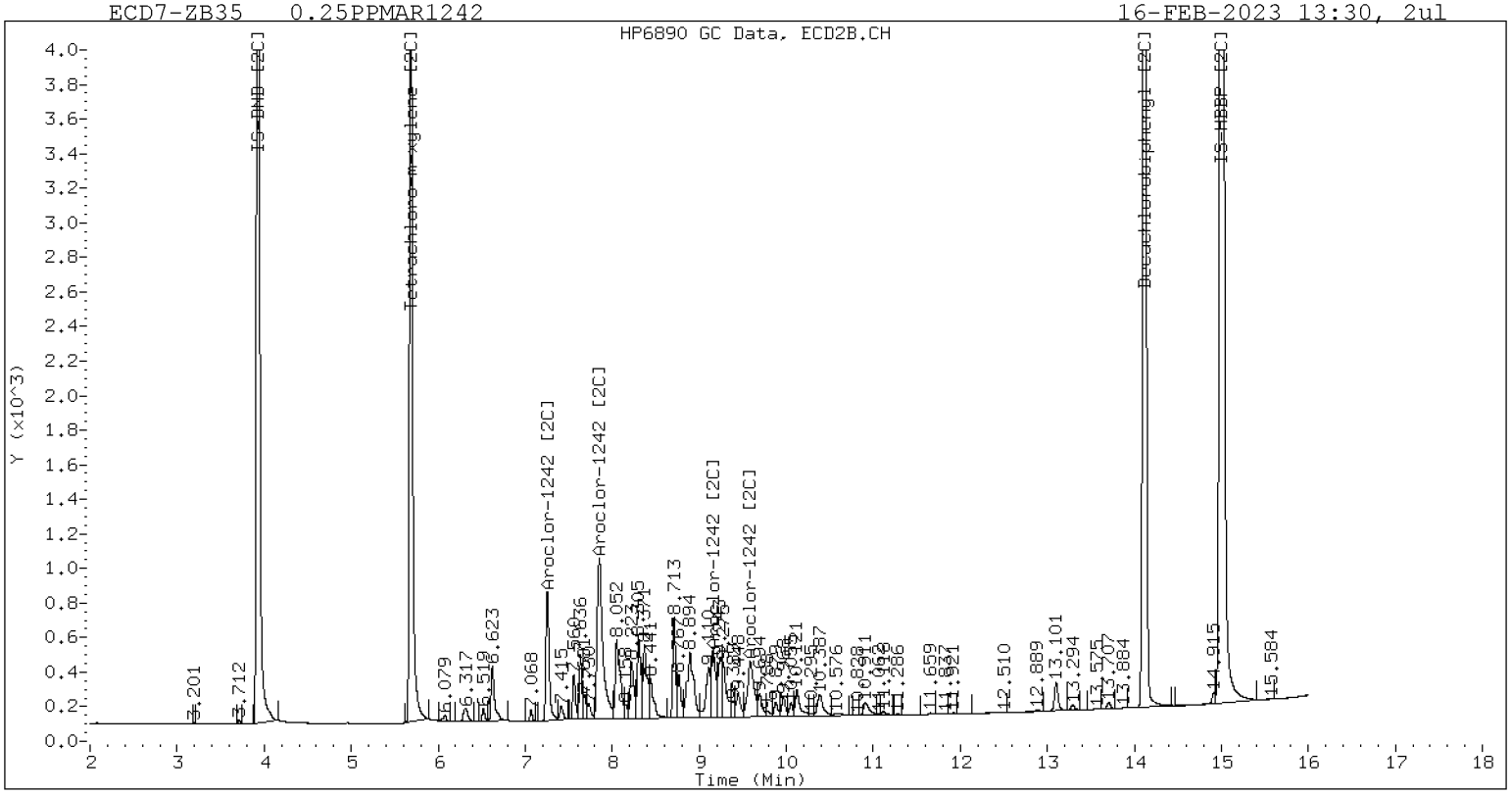
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 16-FEB-2023 13:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162309ECD7.D
Data file 2: /230216.b/230216.b/02162309ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 16-FEB-2023 13:51
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.001	235858	5.688	0.002	191205	38.1	38.8	1.7	Tetrachloro-m-xylene
13.889	-0.002	339581	14.117	-0.001	351690	38.5	39.4	2.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	435779	1.3
Hexabromobiphenyl	975457	1000233	2.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	369685	0.8
Hexabromobiphenyl	646884	662877	2.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1248	1	8.403	0.000	52538	250.0	1	8.305	0.000	41694	250.0
Aroclor-1248	2	8.577	0.000	66305	250.0	2	8.712	0.000	43865	250.0
Aroclor-1248	3	8.996	0.000	93719	250.0	3	9.159	0.000	50687	250.0
Aroclor-1248	4	9.292	0.000	59273	250.0	4	9.581	0.000	61479	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1025602 Col1 Total PCB = 0.2 ppm*

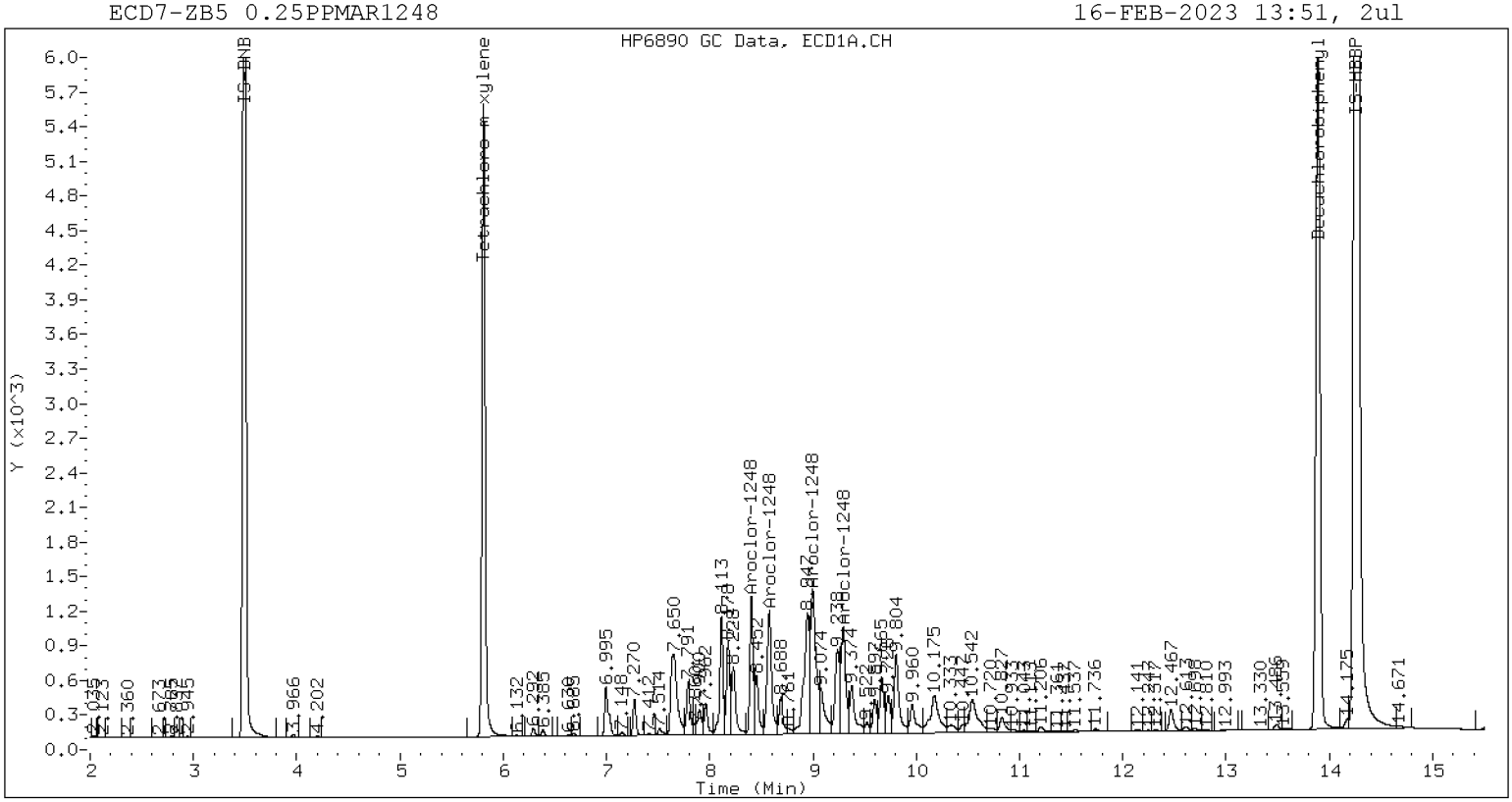
Total PCB Area Col2 (5.786 - 14.018) = 824656 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

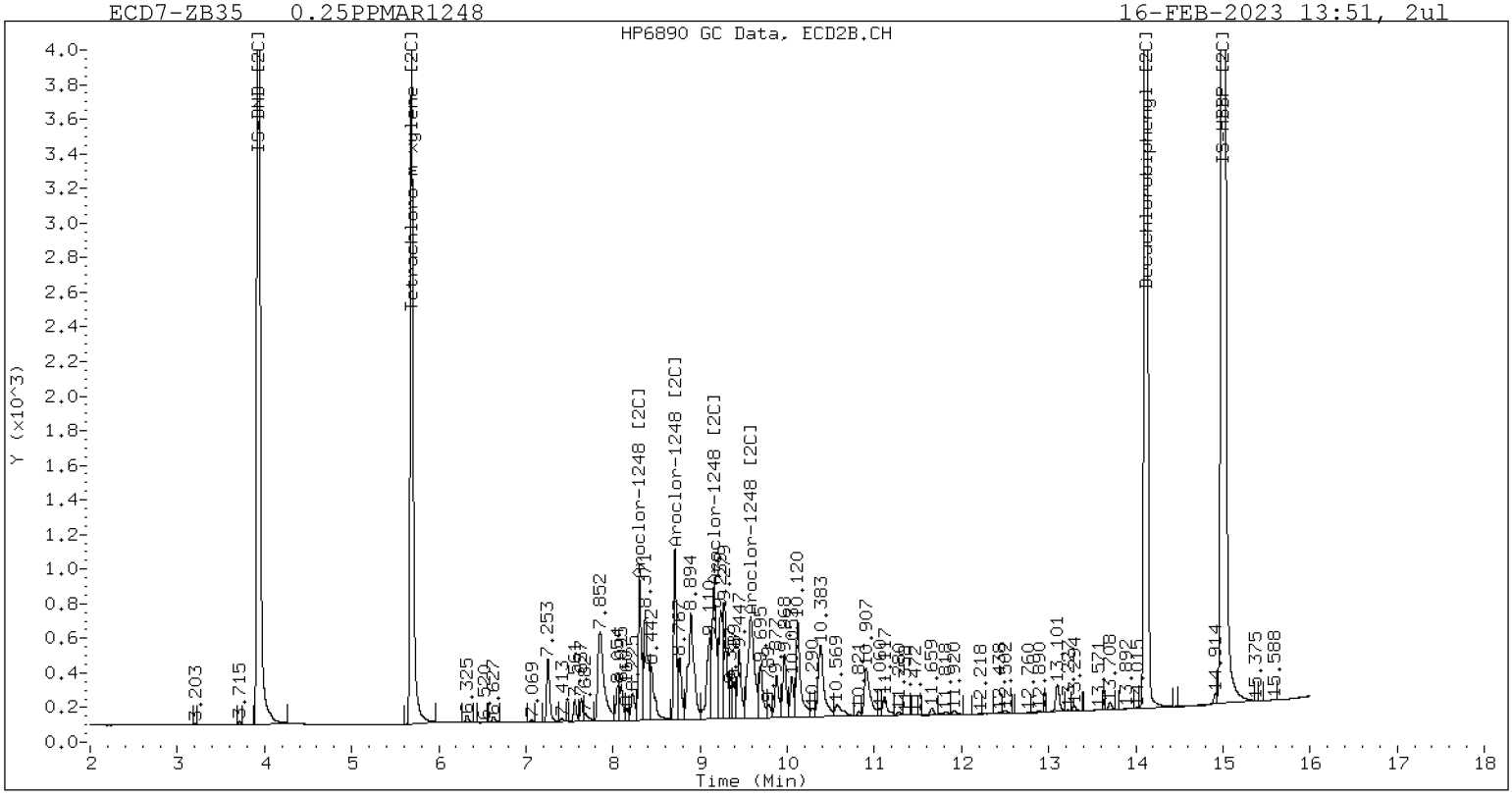
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 16-FEB-2023 13:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162310ECD7.D
Data file 2: /230216.b/230216.b/02162310ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 16-FEB-2023 14:12
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235903	5.686	0.001	191667	38.0	38.7	1.9	Tetrachloro-m-xylene
13.891	0.000	345464	14.117	-0.001	355579	38.7	39.4	1.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	437427	1.7
Hexabromobiphenyl	975457	1013635	3.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	371000	1.2
Hexabromobiphenyl	646884	671465	3.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.295	0.000	105834	250.0	1	9.447	0.000	65393	250.0
Aroclor-1254	2	9.374	0.000	41671	250.0	2	9.967	0.000	52822	250.0
Aroclor-1254	3	9.665	0.000	67447	250.0	3	10.120	0.000	115063	250.0
Aroclor-1254	4	9.803	0.000	134258	250.0	4	10.370	0.000	113530	250.0
Aroclor-1254	5	10.167	0.000	81893	250.0	5	10.566	0.000	57361	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1385653 Col1 Total PCB = 0.3 ppm*

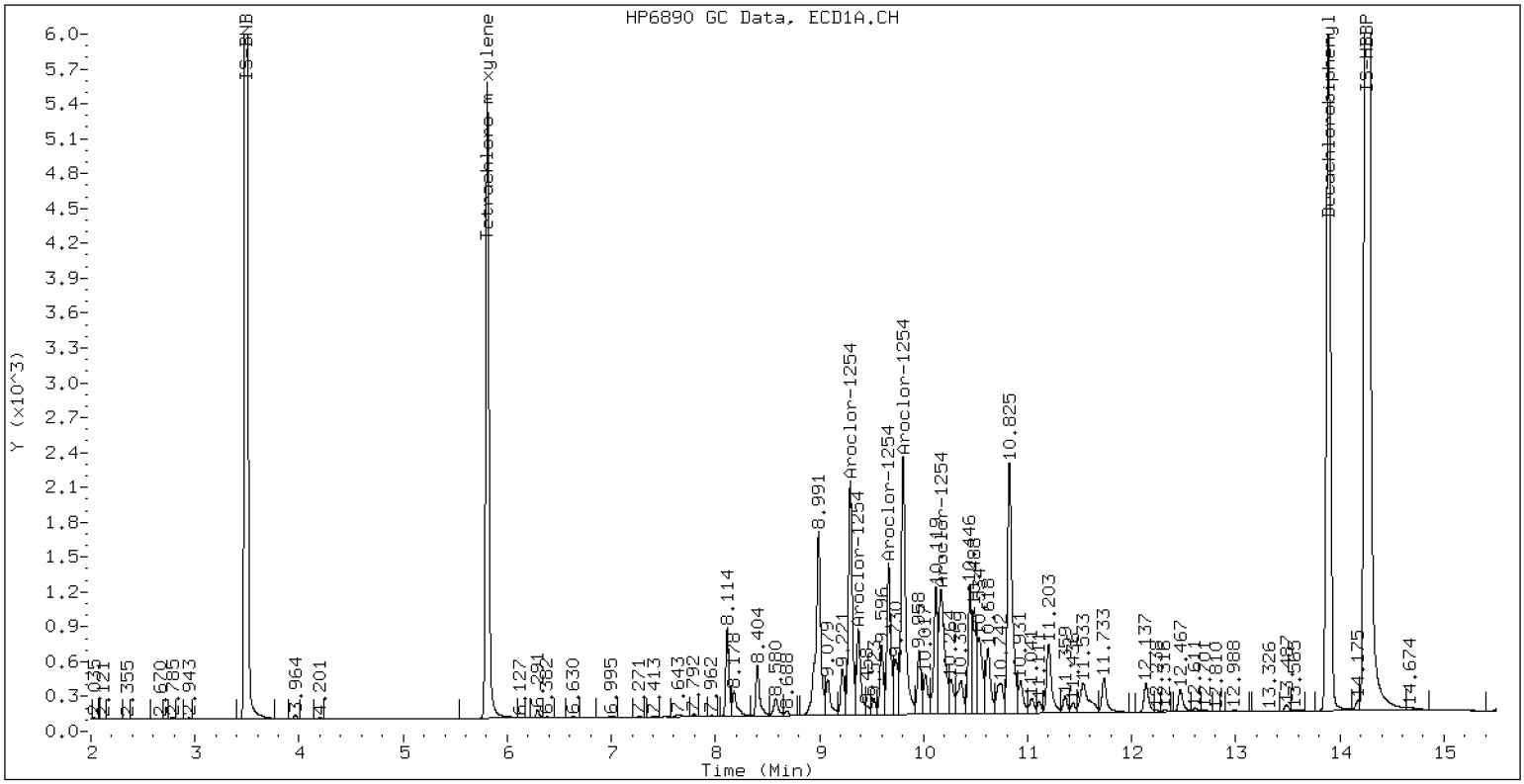
Total PCB Area Col2 (5.786 - 14.018) = 1106767 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

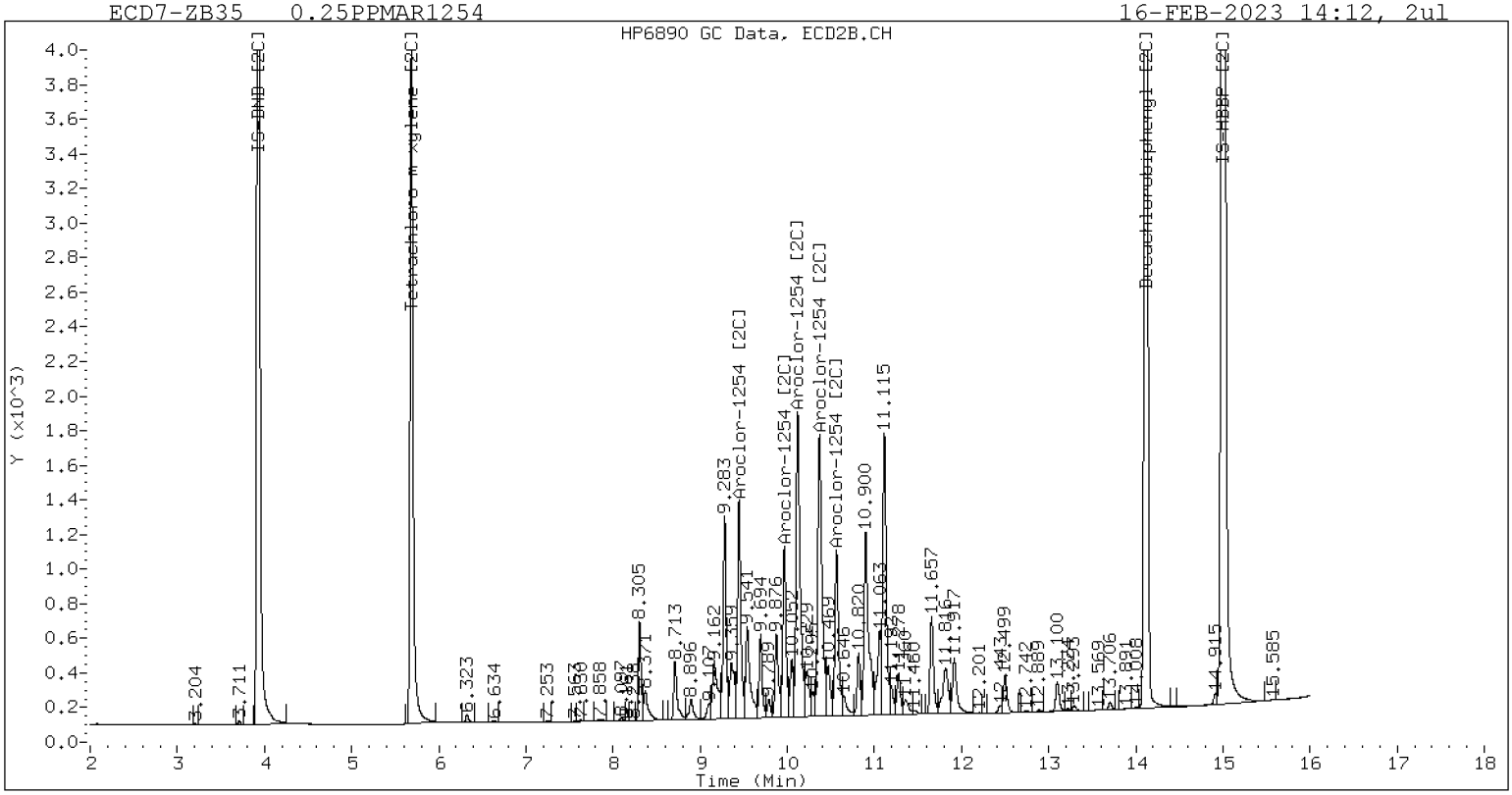
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 16-FEB-2023 14:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162311ECD7.D
Data file 2: /230216.b/230216.b/02162311ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2168
Client ID:
Injection Date: 16-FEB-2023 14:33
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	241501	5.686	-0.000	189710	38.6	39.0	1.0	Tetrachloro-m-xylene
13.891	0.000	336556	14.118	0.000	345795	38.0	38.5	1.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	440775	2.5
Hexabromobiphenyl	975457	1005738	3.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	364664	-0.6
Hexabromobiphenyl	646884	666787	3.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1221	1	4.732	0.000	8560	250.0	1	4.958	0.000	6777	250.0
Aroclor-1221	2	6.133	0.000	15969	250.0	2	6.298	0.000	14550	250.0
Aroclor-1221	3	6.383	0.000	36928	250.0	3	6.622	0.000	24370	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.824	0.000	73471	250.0	1	11.198	0.000	124925	250.0
Aroclor-1262	2	12.242	0.000	120422	250.0	2	11.649	0.000	108193	250.0
Aroclor-1262	3	12.317	0.000	129860	250.0	3	12.431	0.000	117508	250.0
Aroclor-1262	4	12.984	0.000	112297	250.0	4	12.500	0.000	187426	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 1985753 Col1 Total PCB = 0.4 ppm*

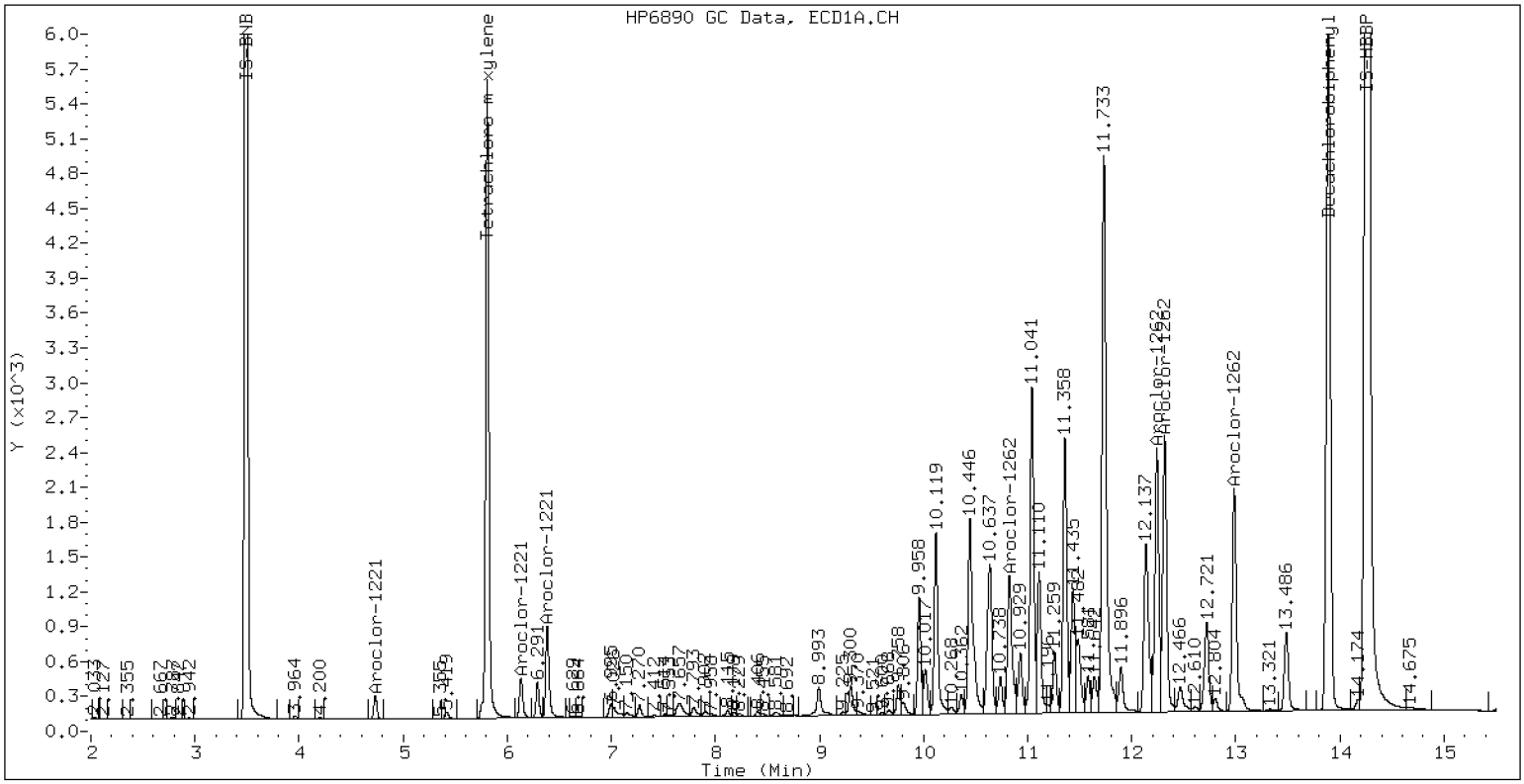
Total PCB Area Col2 (5.786 - 14.018) = 1701530 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

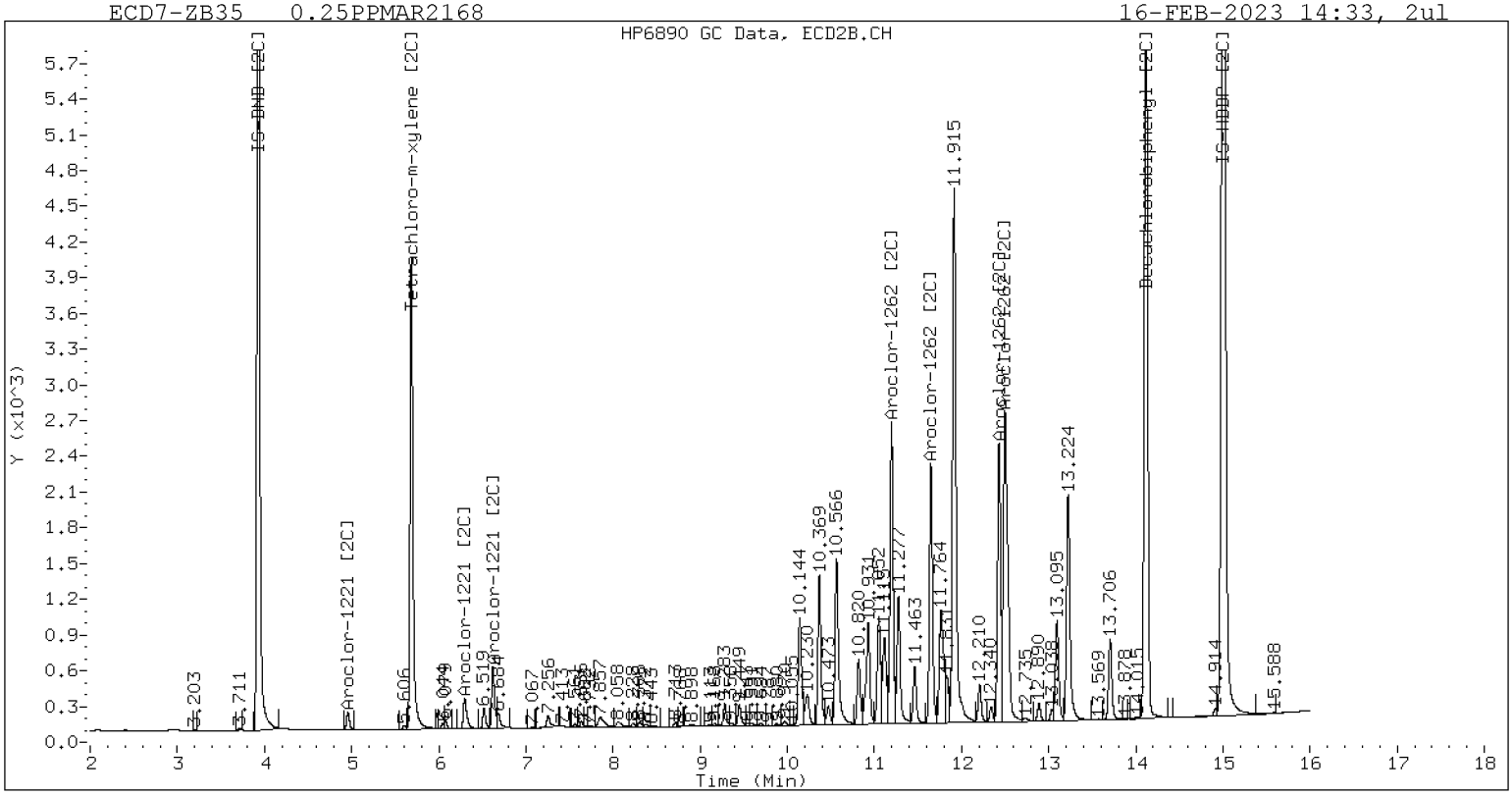
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2168 16-FEB-2023 14:33, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162312ECD7.D
Data file 2: /230216.b/230216.b/02162312ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 16-FEB-2023 14:54
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	244394	5.686	0.000	193636	39.3	39.9	1.3	Tetrachloro-m-xylene
13.891	0.000	497881	14.118	0.000	536206	55.7	59.5	6.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	438085	1.9
Hexabromobiphenyl	975457	1014892	4.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	364382	-0.6
Hexabromobiphenyl	646884	669957	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.732	0.000	5253	250.0	1	4.958	0.000	4040	250.0
Aroclor-1232	2	6.133	0.000	11086	250.0	2	7.254	0.000	22642	250.0
Aroclor-1232	3	7.654	0.000	53251	250.0	3	7.855	0.000	45239	250.0
Aroclor-1232	4	8.579	0.000	22019	250.0	4	8.712	0.000	12663	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.243	0.000	318381	250.0	1	12.431	0.000	304790	250.0
Aroclor-1268	2	12.314	0.000	316432	250.0	2	12.498	0.000	322594	250.0
Aroclor-1268	3	12.697	0.000	268530	250.0	3	12.890	0.000	275533	250.0
Aroclor-1268	4	13.487	0.000	822664	250.0	4	13.707	0.000	883899	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 2577331 Col1 Total PCB = 0.5 ppm*

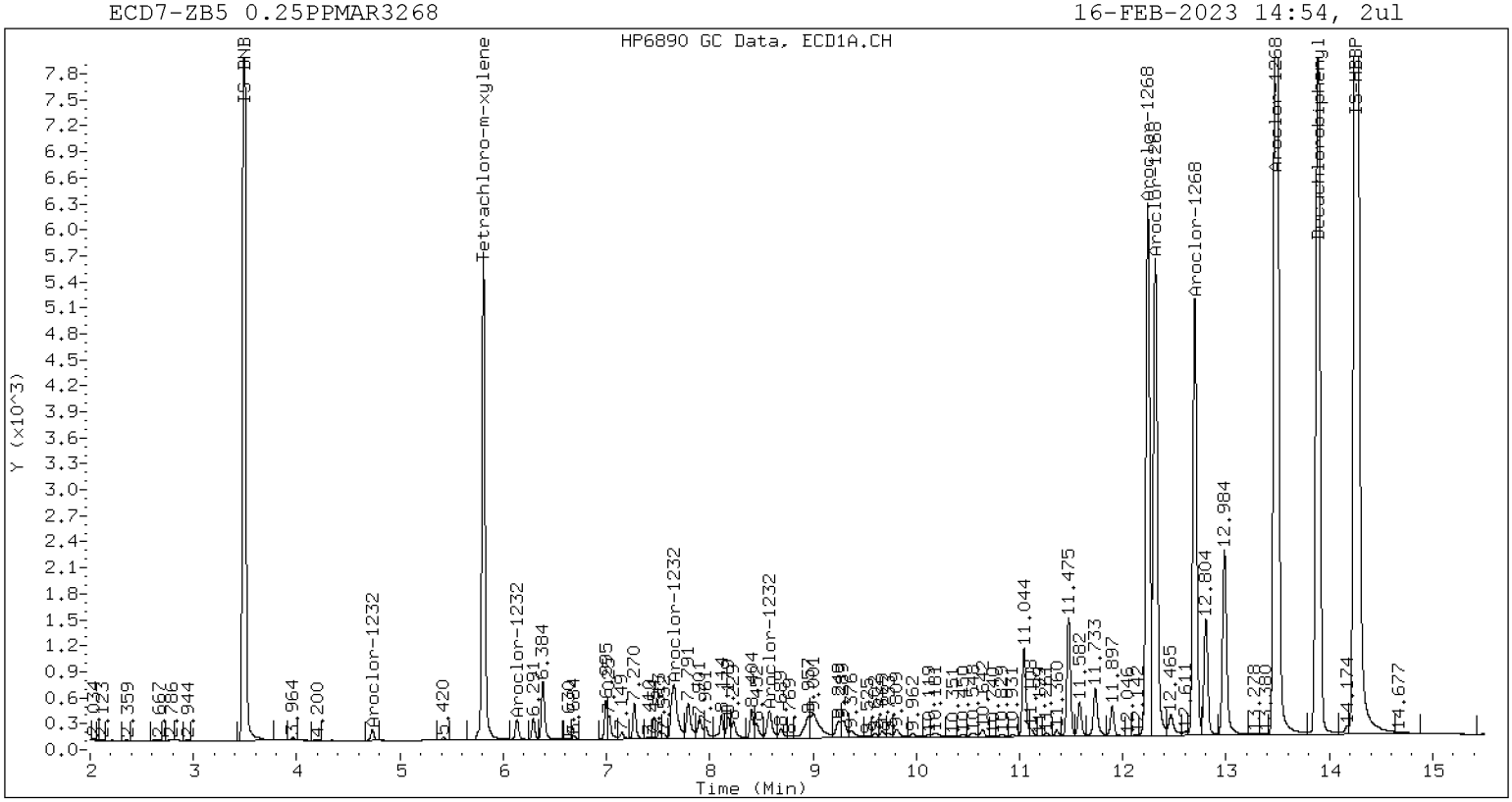
Total PCB Area Col2 (5.786 - 14.018) = 2525066 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

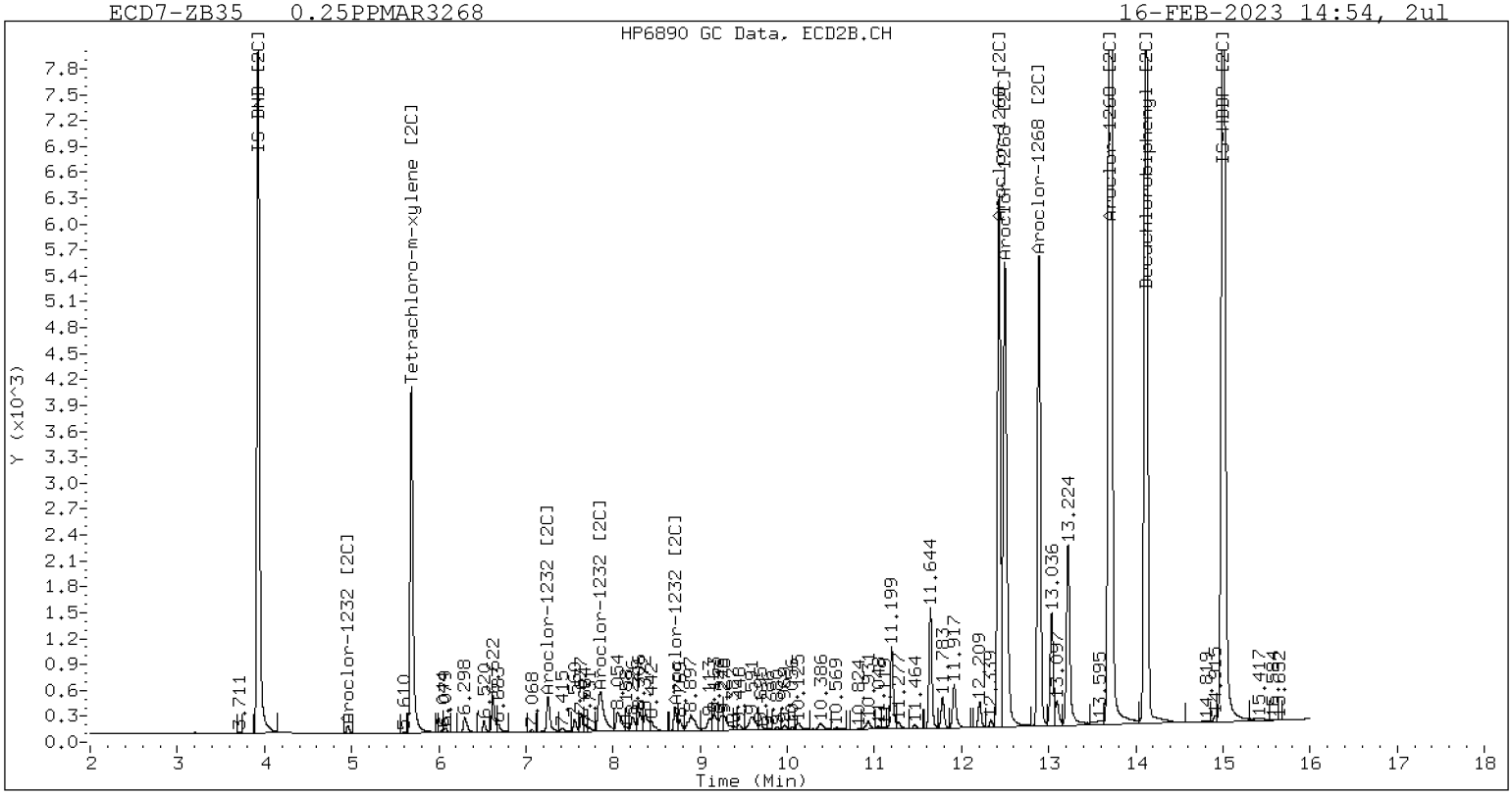
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 16-FEB-2023 14:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162313ECD7.D
Data file 2: /230216.b/230216.b/02162313ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 16-FEB-2023 15:15
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.001	242919	5.685	-0.001	193061	37.3	37.7	0.9	Tetrachloro-m-xylene
13.891	-0.000	374845	14.118	0.000	388292	40.4	41.5	2.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	458820	6.7
Hexabromobiphenyl	975457	1052678	7.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	384524	4.8
Hexabromobiphenyl	646884	695386	7.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	36442	218.1	1	7.253	-0.001	45357	216.8
Aroclor-1016	2	7.652	0.002	116510	217.8	2	7.853	0.002	99069	224.7
Aroclor-1016	3	7.789	0.002	51841	210.7	3	8.052	0.003	42476	233.7
Aroclor-1016	4	8.403	0.001	35760	220.8	4	8.305	0.001	32151	216.2
Total Col1Ave (4 peaks):					216.8	Total Col2Ave (4 peaks):				222.8 RPD = 3
Corrected Ave (3 peaks):					215.5	Corrected Ave (3 peaks):				219.2 RPD = 2
Aroclor-1221	1	4.732	0.000	272	7.6	1	---			0.0
Aroclor-1221	2	6.131	-0.002	4384	65.9	2	6.302	0.004	5219	85.0
Aroclor-1221	3	6.383	-0.000	24508	159.4	3	6.622	0.001	21028	204.6
Total Col1Ave (3 peaks):					77.7	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.732	0.000	272	12.4	1	---			0.0
Aroclor-1232	2	6.131	-0.002	4384	94.4	2	7.253	-0.001	45357	474.6
Aroclor-1232	3	7.652	-0.002	116510	522.3	3	7.853	-0.002	99069	518.8
Aroclor-1232	4	8.577	-0.002	49511	536.7	4	8.712	-0.001	31220	584.1
Total Col1Ave (4 peaks):					291.4	Total Col2Ave (3 peaks):				525.8 RPD = 57*
Corrected Ave (3 peaks):					209.7	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	36442	266.6	1	7.253	-0.001	45357	272.7
Aroclor-1242	2	7.652	0.000	116510	269.4	2	7.853	0.000	99069	274.9
Aroclor-1242	3	8.403	0.000	35760	273.6	3	9.113	-0.047	17818	156.4
Aroclor-1242	4	8.577	-0.000	49511	256.5	4	9.582	-0.005	1661	12.0
Total Col1Ave (4 peaks):					266.5	Total Col2Ave (4 peaks):				179.0 RPD = 39
Corrected Ave (3 peaks):					264.1	Corrected Ave (3 peaks):				147.1 RPD = 57*
Aroclor-1248	1	8.403	0.000	35760	161.6	1	8.305	-0.001	32151	185.3
Aroclor-1248	2	8.577	-0.000	49511	177.3	2	8.712	0.000	31220	171.1
Aroclor-1248	3	8.992	-0.004	46666	118.2	3	9.113	-0.046	17818	84.5
Aroclor-1248	4	9.299	0.007	30647	122.8	4	9.582	0.001	1661	6.5
Total Col1Ave (4 peaks):					145.0	Total Col2Ave (4 peaks):				111.8 RPD = 26
Corrected Ave (3 peaks):					134.2	Corrected Ave (3 peaks):				87.4 RPD = 42*
Aroclor-1254	1	9.299	0.004	30647	69.0	1	9.447	0.001	22012	81.2
Aroclor-1254	2	---			0.0	2	9.969	0.002	2772	12.7
Aroclor-1254	3	9.667	0.002	3608	12.7	3	10.144	0.025	57572	120.7
Aroclor-1254	4	9.805	0.002	12639	22.4	4	10.369	-0.002	77699	165.1
Aroclor-1254	5	10.117	-0.050	100524	292.6	5	10.566	-0.000	107143	450.5
Total Col1Ave (4 peaks):					99.2	Total Col2Ave (5 peaks):				166.0 RPD = 50*
Corrected Ave (3 peaks):					34.7	Corrected Ave (4 peaks):				94.9 RPD = 93*
Aroclor-1260	1	11.042	0.002	99629	274.5	1	11.651	0.001	90044	249.2
Aroclor-1260	2	11.359	0.002	100112	269.7	2	11.915	0.001	239120	263.8
Aroclor-1260	3	11.732	0.002	260880	265.3	3	12.433	0.001	64011	260.0
Aroclor-1260	4	12.137	0.003	124998	250.4	4	12.500	0.002	158594	259.1
Aroclor-1260	5	12.242	0.001	58944	275.3	NS	---			----
Total Col1Ave (5 peaks):					267.0	Total Col2Ave (4 peaks):				258.0 RPD = 3
Corrected Ave (4 peaks):					265.0	Corrected Ave (3 peaks):				256.1 RPD = 3
Aroclor-1262	1	10.824	-0.001	144319	469.2	1	11.197	-0.000	90698	174.0
Aroclor-1262	2	12.242	-0.000	58944	116.9	2	11.651	0.002	90044	199.5
Aroclor-1262	3	12.316	-0.001	73272	134.8	3	12.433	0.002	64011	130.6
Aroclor-1262	4	12.985	0.001	66451	141.3	4	12.500	-0.000	158594	202.8
Total Col1Ave (4 peaks):					215.5	Total Col2Ave (4 peaks):				176.7 RPD = 20
Corrected Ave (3 peaks):					131.0	Corrected Ave (3 peaks):				168.0 RPD = 25
Aroclor-1268	1	12.242	-0.001	58944	44.6	1	12.433	0.002	64011	50.6
Aroclor-1268	2	12.316	0.002	73272	55.8	2	12.500	0.002	158594	118.4
Aroclor-1268	3	12.722	0.025	29543	26.5	3	12.890	0.000	2263	2.0
Aroclor-1268	4	13.486	-0.001	13453	3.9	4	13.707	0.000	11996	3.3
Total Col1Ave (4 peaks):					32.7	Total Col2Ave (4 peaks):				43.6 RPD = 28
Corrected Ave (3 peaks):					25.0	Corrected Ave (3 peaks):				18.6 RPD = 29

Total PCB Area Col1 (5.908 - 13.791) = 2405704 Col1 Total PCB = 0.5 ppm*

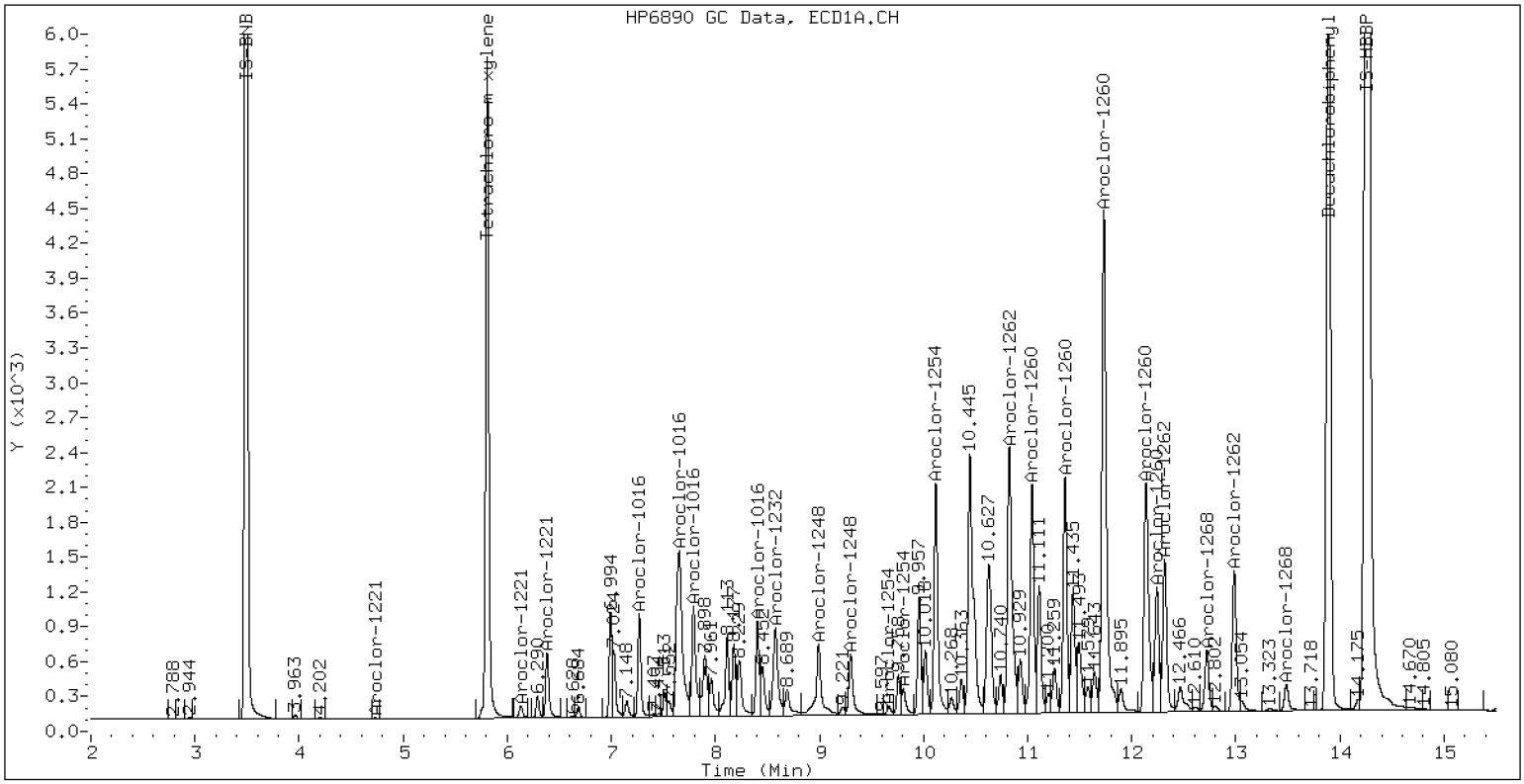
Total PCB Area Col2 (5.786 - 14.018) = 2007876 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

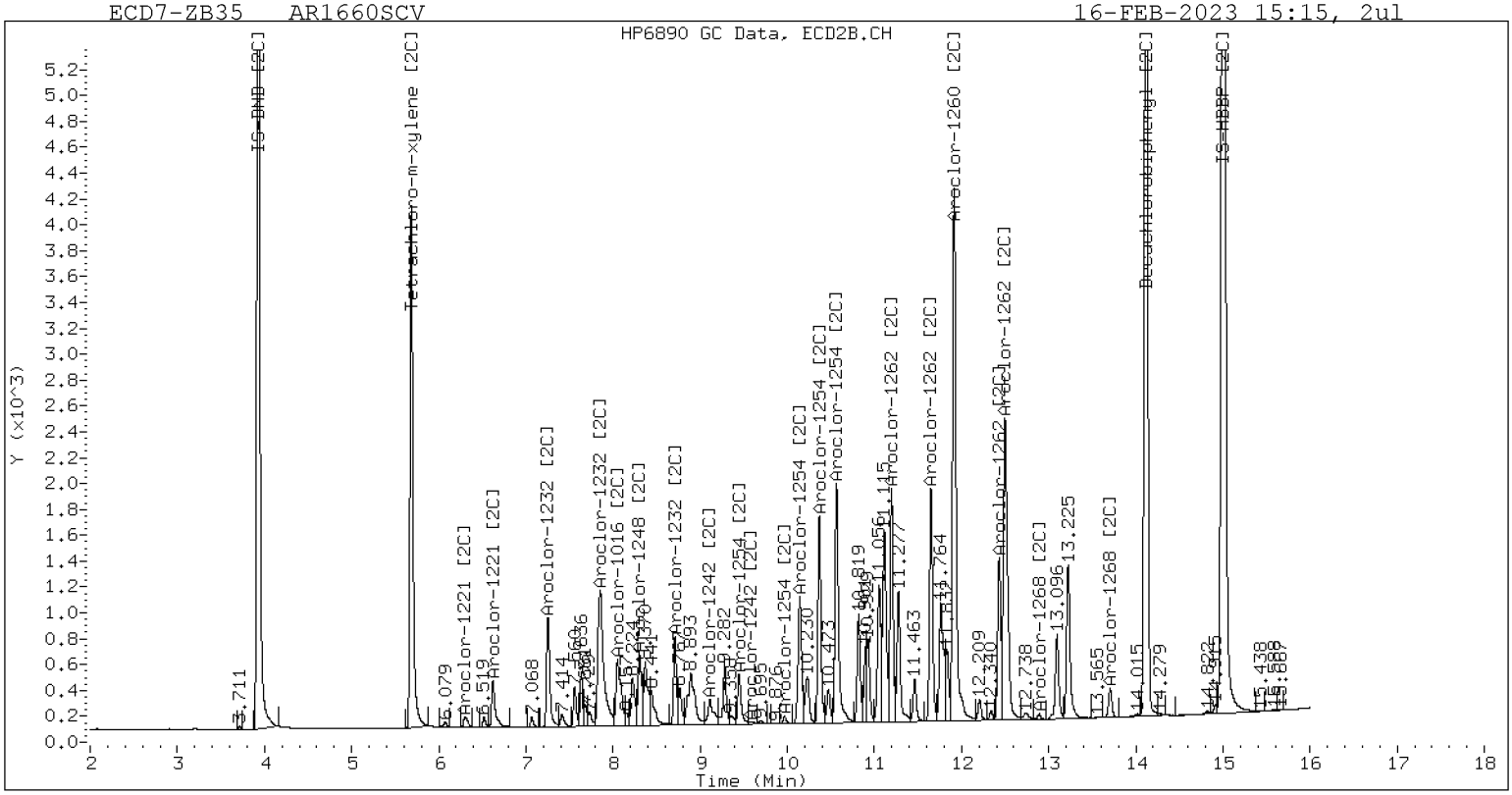
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 16-FEB-2023 15:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162314ECD7.D
Data file 2: /230216.b/230216.b/02162314ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 16-FEB-2023 15:36
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	240392	5.686	0.000	191518	36.8	37.2	1.2	Tetrachloro-m-xylene
13.891	0.000	372444	14.118	-0.000	384306	40.3	41.4	2.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	460847	7.2
Hexabromobiphenyl	975457	1048824	7.5

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	386112	5.3
Hexabromobiphenyl	646884	690141	6.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	26450	157.6	1	7.253	-0.001	35202	167.6
Aroclor-1016	2	7.651	0.001	91590	170.4	2	7.851	-0.000	76062	171.8
Aroclor-1016	3	7.789	0.002	38405	155.4	3	8.051	0.002	31745	173.9
Aroclor-1016	4	8.403	0.001	28918	177.8	4	8.304	0.000	24379	163.2
	Total Col1Ave (4 peaks):				165.3		Total Col2Ave (4 peaks):			169.1 RPD = 2
	Corrected Ave (3 peaks):				161.1		Corrected Ave (3 peaks):			167.5 RPD = 4
Aroclor-1221	1	4.736	0.004	158	4.4	1	---			0.0
Aroclor-1221	2	6.131	-0.002	3413	51.1	2	6.318	0.020	4305	69.9
Aroclor-1221	3	6.383	-0.000	18978	122.9	3	6.623	0.001	15561	150.8
	Total Col1Ave (3 peaks):				59.5		Col2Ave: <3 Quant Peaks			
Aroclor-1232	1	4.736	0.004	158	7.1	1	---			0.0
Aroclor-1232	2	6.131	-0.002	3413	73.2	2	7.253	-0.001	35202	366.8
Aroclor-1232	3	7.651	-0.003	91590	408.8	3	7.851	-0.004	76062	396.7
Aroclor-1232	4	8.577	-0.002	48090	519.0	4	8.712	-0.001	24445	455.4
	Total Col1Ave (4 peaks):				252.0		Total Col2Ave (3 peaks):			406.3 RPD = 47*
	Corrected Ave (3 peaks):				163.0		Corrected Ave: < 3 Peaks			
Aroclor-1242	1	7.269	0.000	26450	192.7	1	7.253	-0.000	35202	210.8
Aroclor-1242	2	7.651	-0.001	91590	210.8	2	7.851	-0.002	76062	210.2
Aroclor-1242	3	8.403	-0.000	28918	220.3	3	9.156	-0.004	26140	228.5
Aroclor-1242	4	8.577	-0.000	48090	248.0	4	9.580	-0.007	33659	242.7
	Total Col1Ave (4 peaks):				217.9		Total Col2Ave (4 peaks):			223.1 RPD = 2
	Corrected Ave (3 peaks):				207.9		Corrected Ave (3 peaks):			216.5 RPD = 4
Aroclor-1248	1	8.403	-0.000	28918	130.1	1	8.304	-0.001	24379	140.0
Aroclor-1248	2	8.577	-0.000	48090	171.5	2	8.712	0.000	24445	133.4
Aroclor-1248	3	8.997	0.001	47230	119.1	3	9.156	-0.003	26140	123.4
Aroclor-1248	4	9.292	0.001	23789	94.9	4	9.580	-0.001	33659	131.0
	Total Col1Ave (4 peaks):				128.9		Total Col2Ave (4 peaks):			132.0 RPD = 2
	Corrected Ave (3 peaks):				114.7		Corrected Ave (3 peaks):			129.3 RPD = 12
Aroclor-1254	1	9.292	-0.003	23789	53.3	1	9.446	-0.000	12605	46.3
Aroclor-1254	2	9.374	0.001	9634	54.9	2	9.967	-0.000	8527	38.8
Aroclor-1254	3	9.666	0.001	10685	37.6	3	10.119	-0.001	16959	35.4
Aroclor-1254	4	9.803	-0.000	18245	32.2	4	10.375	0.005	17612	37.3
Aroclor-1254	5	10.169	0.001	13394	38.8	5	10.568	0.003	5160	21.6
	Total Col1Ave (5 peaks):				43.4		Total Col2Ave (5 peaks):			35.9 RPD = 19
	Corrected Ave (4 peaks):				40.5		Corrected Ave (4 peaks):			33.3 RPD = 20
Aroclor-1260	1	11.043	0.002	200	0.6	1	11.659	0.009	1883	5.3
Aroclor-1260	2	11.361	0.004	305	0.8	2	11.922	0.007	1118	1.2
Aroclor-1260	3	11.735	0.004	595	0.6	3	12.438	0.006	127	0.5
Aroclor-1260	4	12.143	0.009	717	1.4	4	12.501	0.003	670	1.1
Aroclor-1260	5	12.318	0.078	265	1.2	NS	---			----
	Total Col1Ave (5 peaks):				0.9		Total Col2Ave (4 peaks):			2.0 RPD = 74*
	Corrected Ave (4 peaks):				0.8		Corrected Ave (3 peaks):			1.0 RPD = 17
Aroclor-1262	1	10.827	0.003	7919	25.8	1	11.117	-0.081	6747	13.0
Aroclor-1262	2	12.318	0.076	265	0.5	2	11.659	0.010	1883	4.2
Aroclor-1262	3	---			0.0	3	12.438	0.007	127	0.3
Aroclor-1262	4	13.032	0.048	704	1.5	4	12.501	0.001	670	0.9
	Total Col1Ave (3 peaks):				9.3		Total Col2Ave (4 peaks):			4.6 RPD = 68*
	Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):			1.8
Aroclor-1268	1	12.318	0.075	265	0.2	1	12.438	0.007	127	0.1
Aroclor-1268	2	---			0.0	2	12.501	0.003	670	0.5
Aroclor-1268	3	12.613	-0.084	2956	2.7	3	12.895	0.005	26	0.0
Aroclor-1268	4	13.493	0.006	820	0.2	4	13.707	0.000	334	0.1
	Total Col1Ave (3 peaks):				1.0		Total Col2Ave (4 peaks):			0.2 RPD = 141*
	Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):			0.1

Total PCB Area Col1 (5.908 - 13.791) = 754431 Col1 Total PCB = 0.1 ppm*

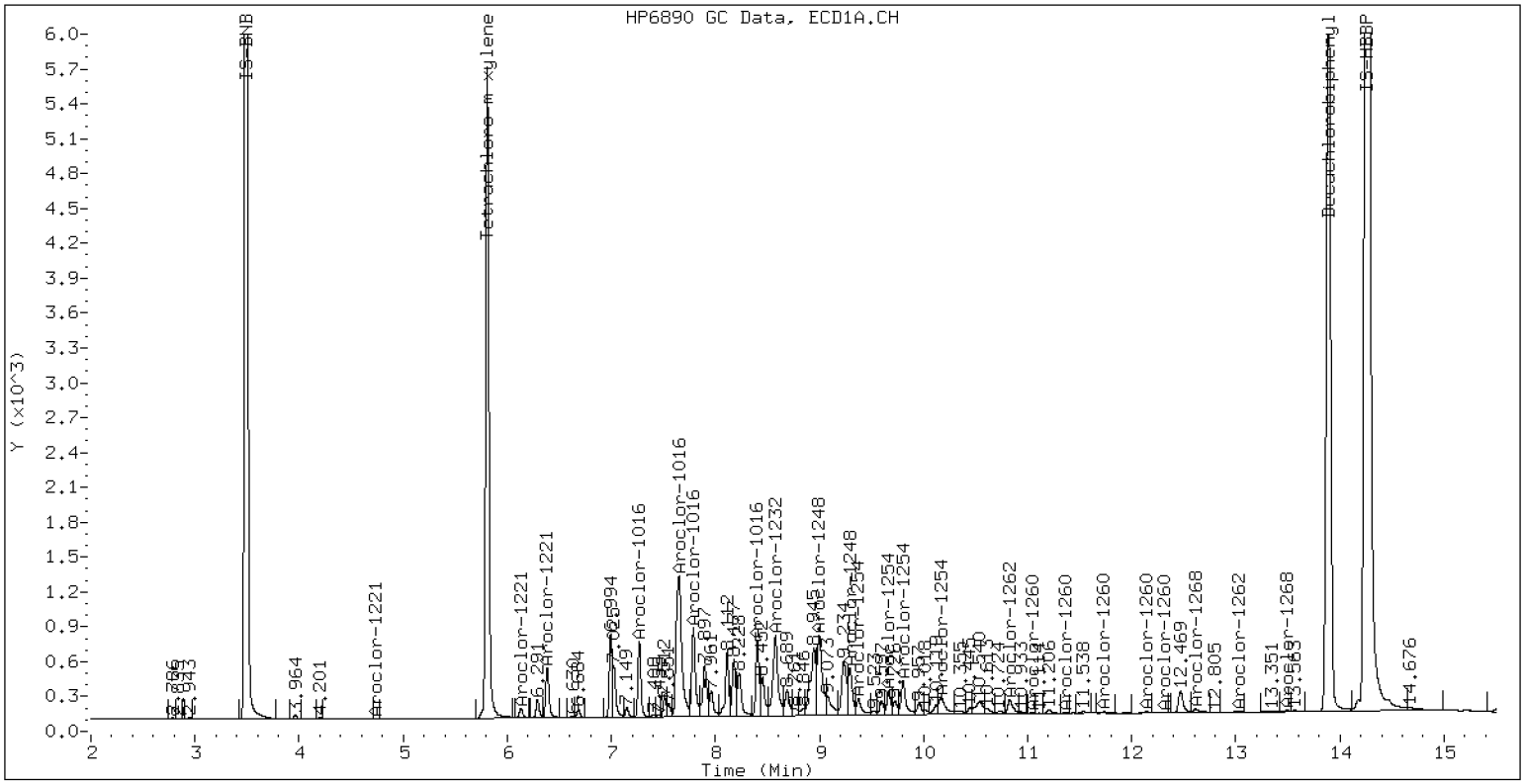
Total PCB Area Col2 (5.786 - 14.018) = 609528 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

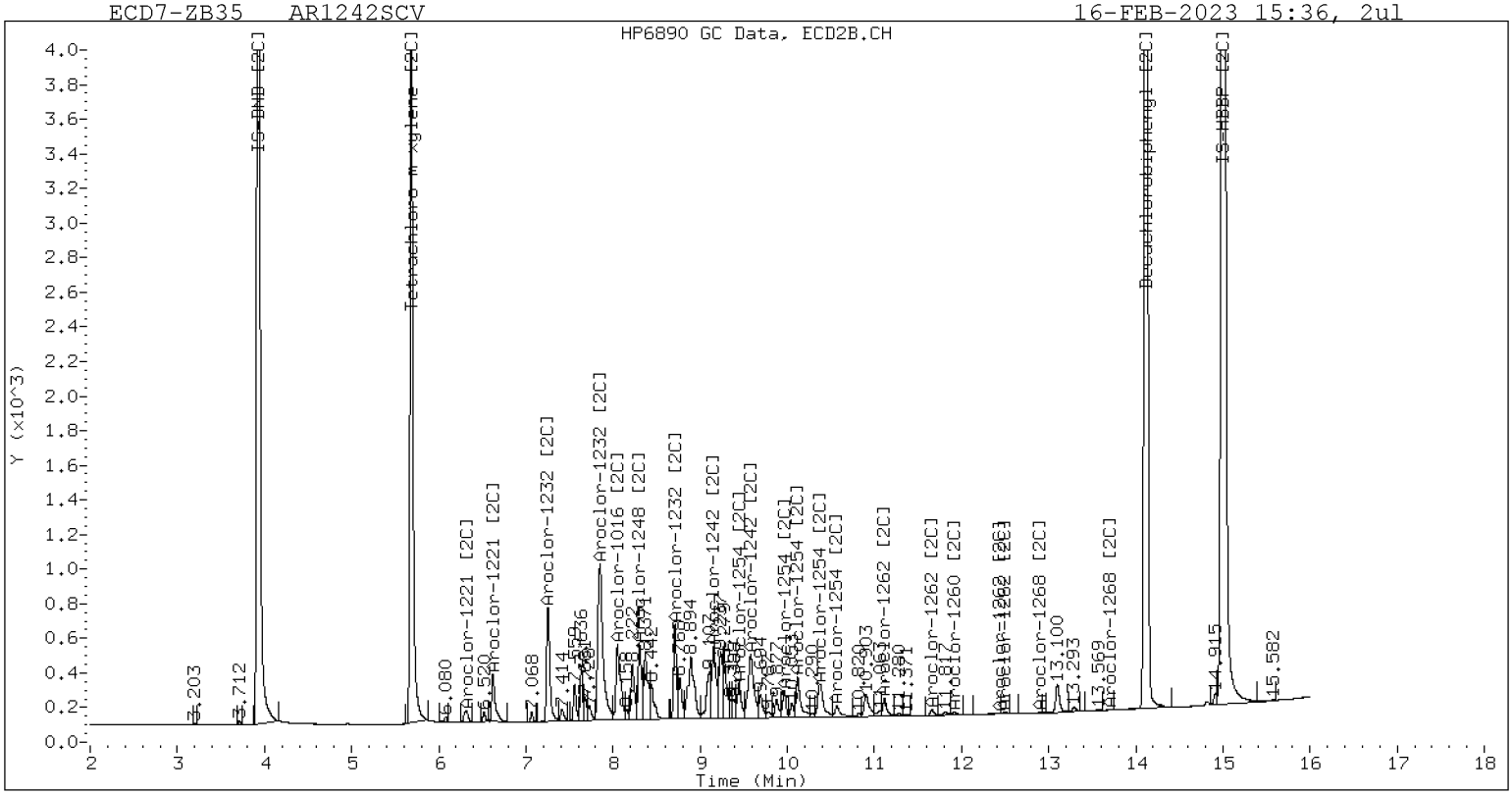
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 16-FEB-2023 15:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162315ECD7.D
Data file 2: /230216.b/230216.b/02162315ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 16-FEB-2023 15:57
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	235232	5.686	0.000	187353	36.5	36.9	1.1	Tetrachloro-m-xylene
13.891	0.000	371896	14.118	0.000	374279	41.4	41.5	0.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	454293	5.6
Hexabromobiphenyl	975457	1020262	4.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	380923	3.9
Hexabromobiphenyl	646884	669927	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	12869	77.8	1	7.252	-0.002	17659	85.2
Aroclor-1016	2	7.649	-0.001	59048	111.5	2	7.852	0.001	49924	114.3
Aroclor-1016	3	7.791	0.004	23385	96.0	3	8.054	0.004	9755	54.2
Aroclor-1016	4	8.403	0.001	51659	322.2	4	8.305	0.001	40334	273.8
Total Col1Ave (4 peaks):		151.9				Total Col2Ave (4 peaks):			131.9	RPD = 14
Corrected Ave (3 peaks):		95.1				Corrected Ave (3 peaks):			84.6	RPD = 12
Aroclor-1221	1	4.639	-0.093	125	3.5	1	---			0.0
Aroclor-1221	2	6.133	-0.000	396	6.0	2	6.324	0.026	2135	35.1
Aroclor-1221	3	6.384	0.001	2262	14.9	3	6.626	0.005	1703	16.7
Total Col1Ave (3 peaks):		8.1				Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.639	-0.093	125	5.7	1	---			0.0
Aroclor-1232	2	6.133	0.000	396	8.6	2	7.252	-0.003	17659	186.5
Aroclor-1232	3	7.649	-0.005	59048	267.3	3	7.852	-0.003	49924	263.9
Aroclor-1232	4	8.577	-0.002	65165	713.5	4	8.712	-0.000	42481	802.3
Total Col1Ave (4 peaks):		248.8				Total Col2Ave (3 peaks):			417.6	RPD = 51*
Corrected Ave (3 peaks):		93.9				Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	0.000	12869	95.1	1	7.252	-0.002	17659	107.2
Aroclor-1242	2	7.649	-0.003	59048	137.9	2	7.852	-0.000	49924	139.9
Aroclor-1242	3	8.403	0.000	51659	399.2	3	9.160	0.001	49159	435.7
Aroclor-1242	4	8.577	-0.000	65165	340.9	4	9.582	-0.005	57018	416.7
Total Col1Ave (4 peaks):		243.3				Total Col2Ave (4 peaks):			274.8	RPD = 12
Corrected Ave (3 peaks):		191.3				Corrected Ave (3 peaks):			221.2	RPD = 15
Aroclor-1248	1	8.403	0.000	51659	235.8	1	8.305	-0.000	40334	234.7
Aroclor-1248	2	8.577	-0.000	65165	235.7	2	8.712	0.000	42481	235.0
Aroclor-1248	3	8.997	0.001	90358	231.2	3	9.160	0.002	49159	235.3
Aroclor-1248	4	9.292	0.000	60263	243.8	4	9.582	0.001	57018	225.0
Total Col1Ave (4 peaks):		236.6				Total Col2Ave (4 peaks):			232.5	RPD = 2
Corrected Ave (3 peaks):		234.2				Corrected Ave (3 peaks):			231.6	RPD = 1
Aroclor-1254	1	9.292	-0.003	60263	137.1	1	9.447	0.001	22366	83.3
Aroclor-1254	2	9.373	-0.000	30778	177.8	2	9.968	0.001	20179	93.0
Aroclor-1254	3	9.666	0.001	25929	92.5	3	10.121	0.001	37594	79.6
Aroclor-1254	4	9.806	0.003	44678	80.1	4	10.384	0.014	37032	79.4
Aroclor-1254	5	10.177	0.010	31103	91.4	5	10.571	0.005	8221	34.9
Total Col1Ave (5 peaks):		115.8				Total Col2Ave (5 peaks):			74.0	RPD = 44*
Corrected Ave (4 peaks):		100.3				Corrected Ave (4 peaks):			69.3	RPD = 37
Aroclor-1260	1	11.045	0.004	1084	3.1	1	11.659	0.009	2037	5.9
Aroclor-1260	2	11.359	0.002	556	1.5	2	11.920	0.006	1374	1.6
Aroclor-1260	3	11.734	0.003	872	0.9	3	12.426	-0.006	2386	10.1
Aroclor-1260	4	12.143	0.009	431	0.9	4	12.501	0.004	1186	2.0
Aroclor-1260	5	12.243	0.003	275	1.3	NS	---			----
Total Col1Ave (5 peaks):		1.6				Total Col2Ave (4 peaks):			4.9	RPD = 103*
Corrected Ave (4 peaks):		1.2				Corrected Ave (3 peaks):			3.1	RPD = 92*
Aroclor-1262	1	10.828	0.003	9454	31.7	1	11.119	-0.079	7326	14.6
Aroclor-1262	2	12.243	0.001	275	0.6	2	11.659	0.010	2037	4.7
Aroclor-1262	3	12.321	0.005	357	0.7	3	12.426	-0.005	2386	5.1
Aroclor-1262	4	12.984	-0.001	1676	3.7	4	12.501	0.002	1186	1.6
Total Col1Ave (4 peaks):		9.2				Total Col2Ave (4 peaks):			6.5	RPD = 34
Corrected Ave (3 peaks):		1.6				Corrected Ave (3 peaks):			3.8	RPD = 79*
Aroclor-1268	1	12.243	0.000	275	0.2	1	12.426	-0.004	2386	2.0
Aroclor-1268	2	12.321	0.007	357	0.3	2	12.501	0.004	1186	0.9
Aroclor-1268	3	12.614	-0.084	992	0.9	3	12.898	0.008	80	0.1
Aroclor-1268	4	13.493	0.006	969	0.3	4	13.674	-0.032	1135	0.3
Total Col1Ave (4 peaks):		0.4				Total Col2Ave (4 peaks):			0.8	RPD = 63*
Corrected Ave (3 peaks):		0.3				Corrected Ave (3 peaks):			0.4	RPD = 50*

Total PCB Area Col1 (5.908 - 13.791) = 1015830 Col1 Total PCB = 0.2 ppm*

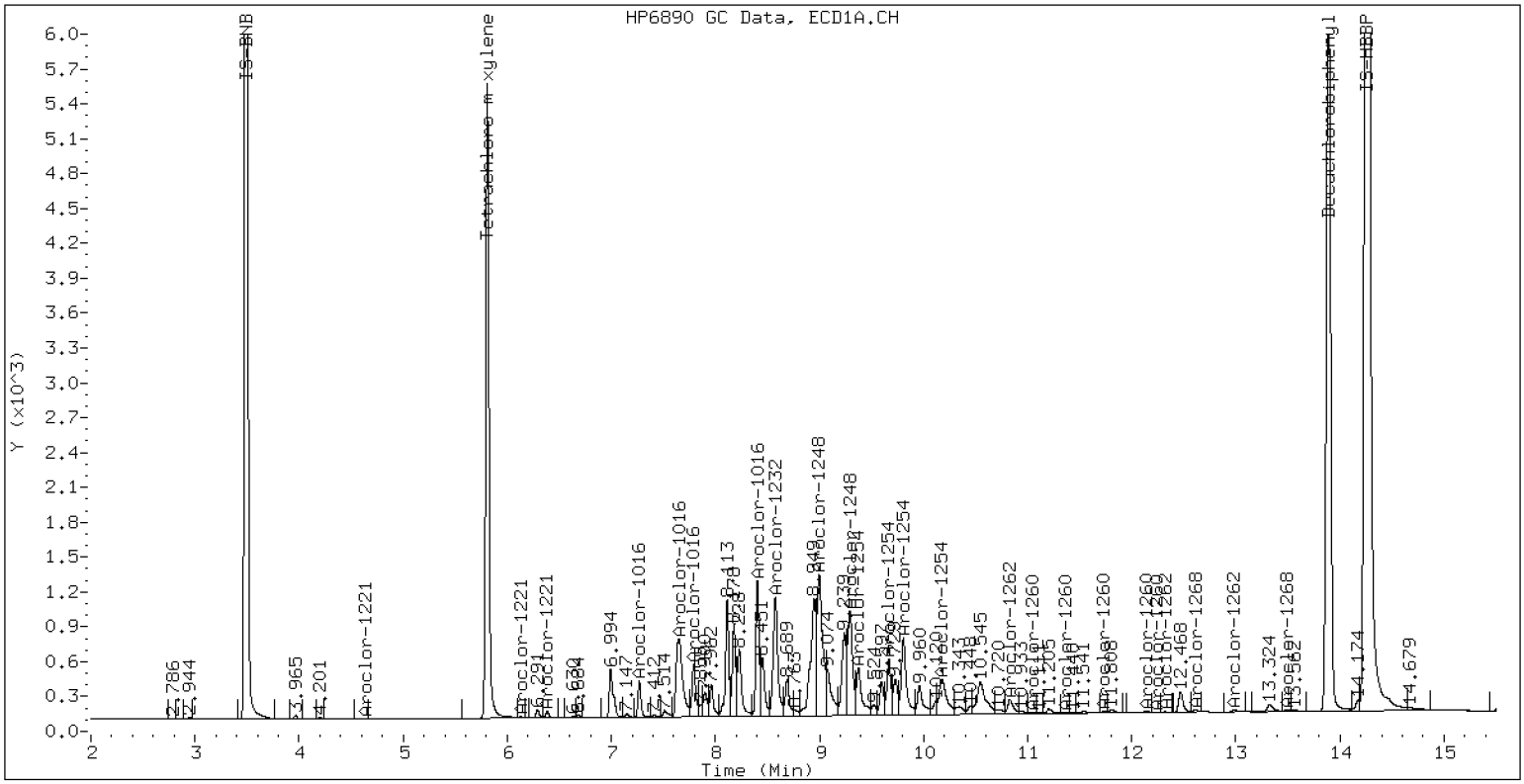
Total PCB Area Col2 (5.786 - 14.018) = 795098 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

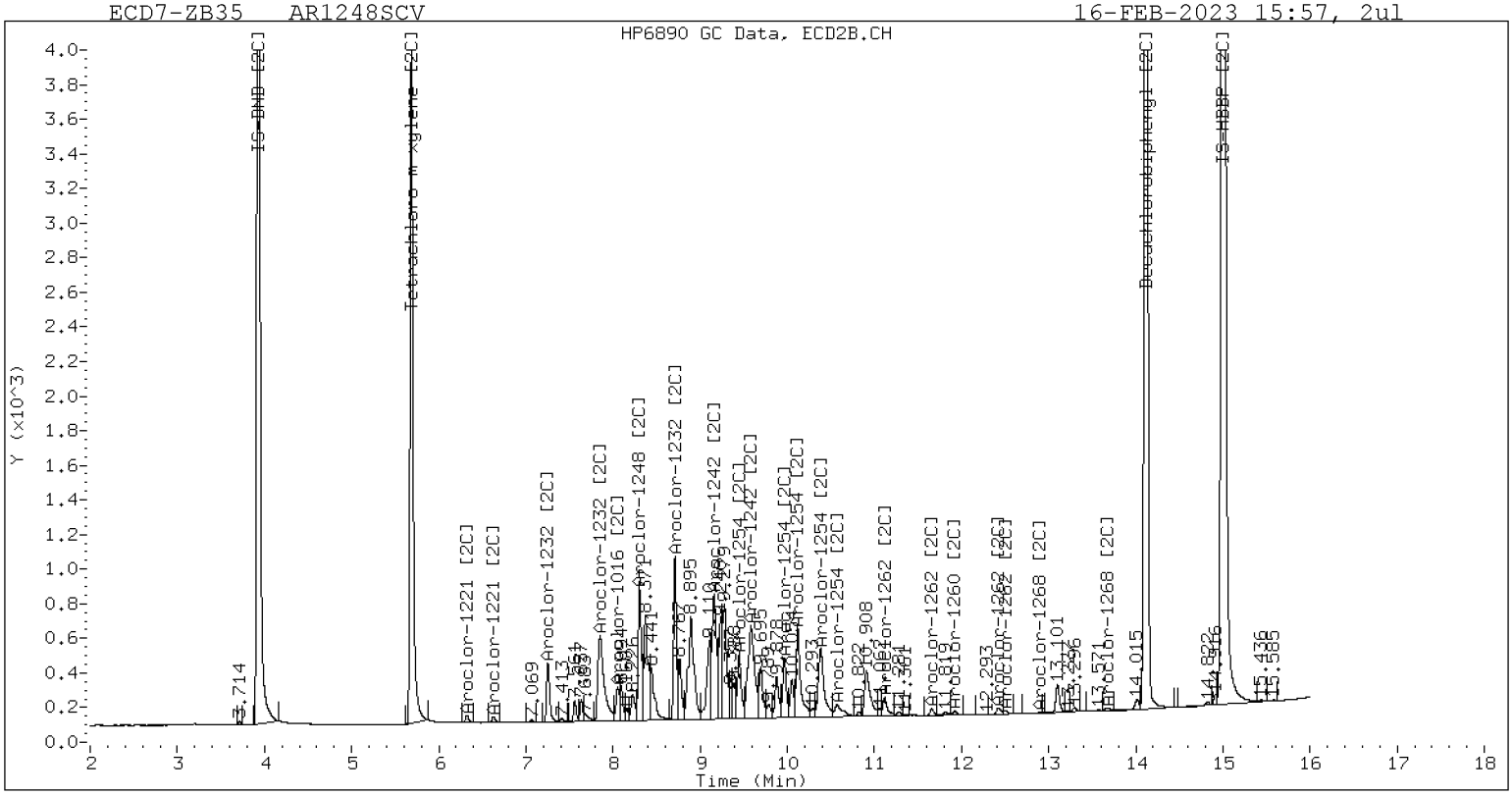
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 16-FEB-2023 15:57, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248SCV 16-FEB-2023 15:57, 2ul

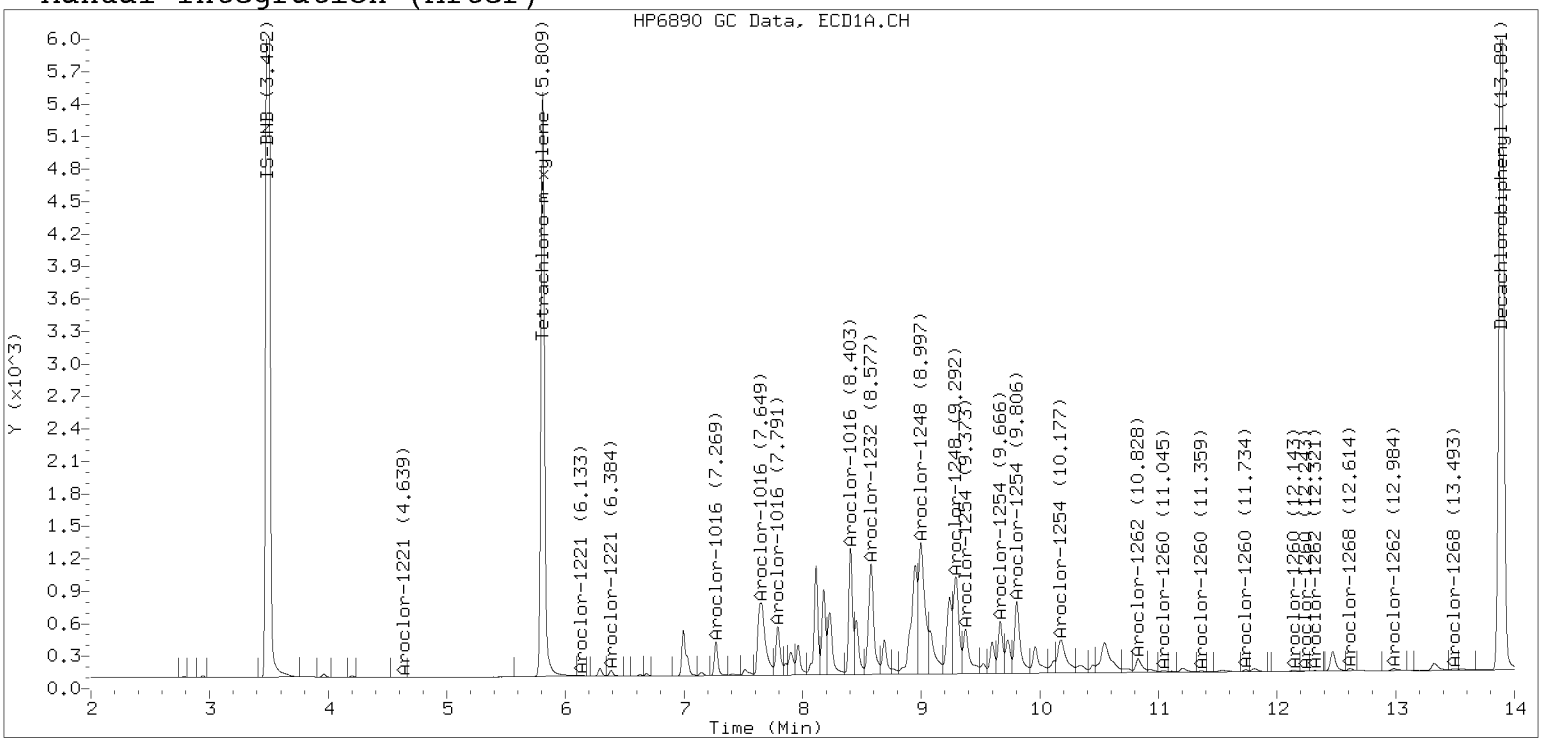


ZB-35 Manual Integration: NO

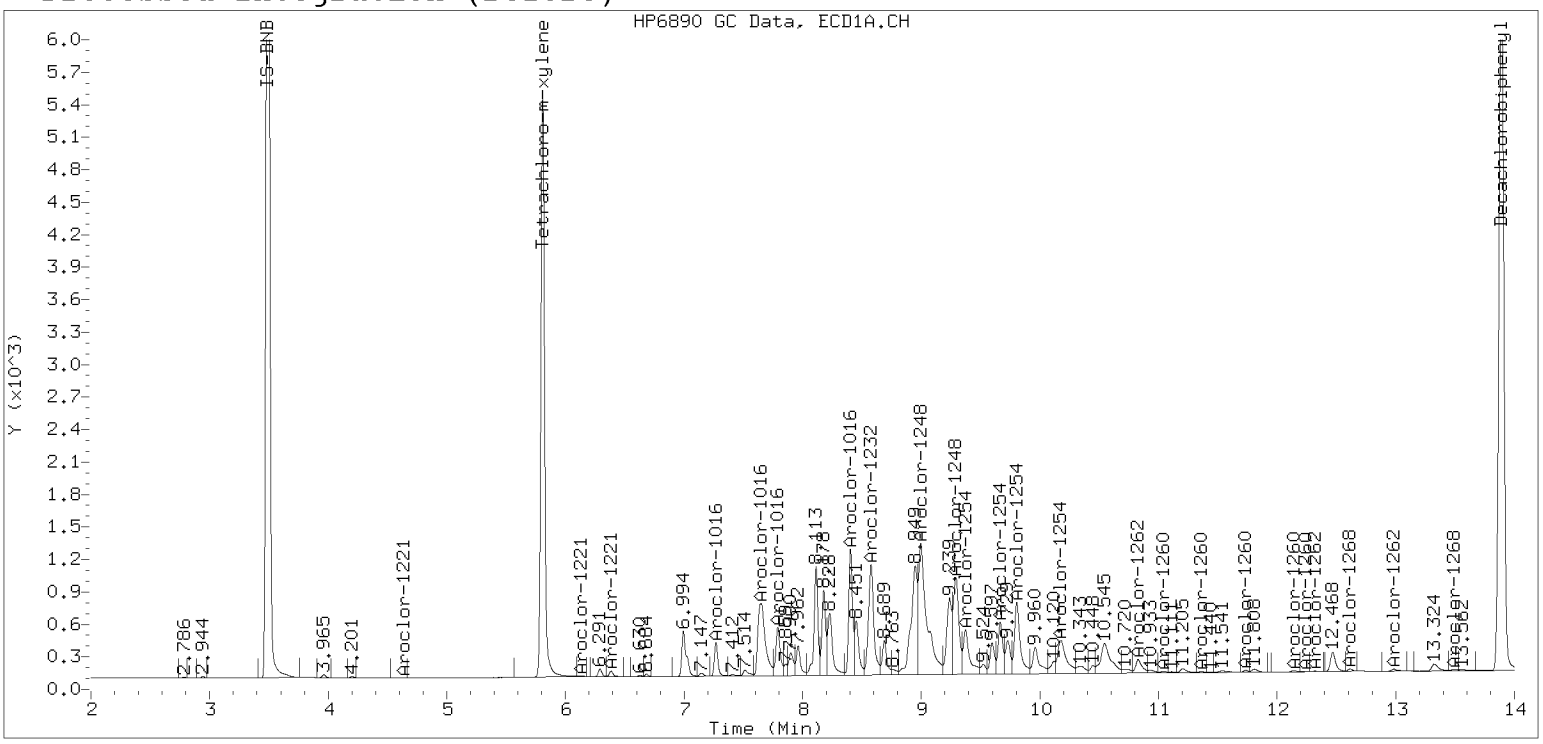
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230216.b/02162315ECD7.D Injection Date: 16-FEB-2023 15:57

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162316ECD7.D
Data file 2: /230216.b/230216.b/02162316ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 16-FEB-2023 16:18
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	242127	5.685	-0.000	193580	36.7	37.5	2.1	Tetrachloro-m-xylene
13.890	-0.001	377360	14.118	0.000	394229	40.3	41.8	3.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	465227	8.2
Hexabromobiphenyl	975457	1063495	9.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	387434	5.6
Hexabromobiphenyl	646884	700154	8.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	281	1.7	1	7.256	0.002	379	1.8
Aroclor-1016	2	7.655	0.005	996	1.8	2	---			0.0
Aroclor-1016	3	7.792	0.005	684	2.7	3	8.097	0.048	526	2.9
Aroclor-1016	4	8.404	0.002	18193	110.8	4	8.305	0.001	23002	153.5
	Total Col1Ave (4 peaks):				29.3	Total Col2Ave (3 peaks):				52.7 RPD = 57*
	Corrected Ave (3 peaks):				2.1	Corrected Ave: < 3 Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.323	0.026	2104	34.0
Aroclor-1221	3	---			0.0	3	6.632	0.010	433	4.2
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.256	0.001	379	3.9
Aroclor-1232	3	7.655	0.001	996	4.4	3	---			0.0
Aroclor-1232	4	8.580	0.002	7144	76.4	4	8.714	0.001	15174	281.7
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	7.270	0.001	281	2.0	1	7.256	0.002	379	2.3
Aroclor-1242	2	7.655	0.003	996	2.3	2	---			0.0
Aroclor-1242	3	8.404	0.001	18193	137.3	3	9.163	0.004	23373	203.7
Aroclor-1242	4	8.580	0.003	7144	36.5	4	9.541	-0.046	35054	251.9
	Total Col1Ave (4 peaks):				44.5	Total Col2Ave (3 peaks):				152.6 RPD = 110*
	Corrected Ave (3 peaks):				13.6	Corrected Ave: < 3 Peaks				
Aroclor-1248	1	8.404	0.001	18193	81.1	1	8.305	-0.000	23002	131.6
Aroclor-1248	2	8.580	0.003	7144	25.2	2	8.714	0.002	15174	82.5
Aroclor-1248	3	8.992	-0.004	93928	234.7	3	9.163	0.005	23373	110.0
Aroclor-1248	4	9.296	0.004	99099	391.5	4	9.541	-0.040	35054	136.0
	Total Col1Ave (4 peaks):				183.1	Total Col2Ave (4 peaks):				115.0 RPD = 46*
	Corrected Ave (3 peaks):				113.7	Corrected Ave (3 peaks):				108.0 RPD = 5
Aroclor-1254	1	9.296	0.001	99099	220.1	1	9.447	0.001	61772	226.1
Aroclor-1254	2	9.374	0.001	43324	244.4	2	9.966	-0.001	49637	225.0
Aroclor-1254	3	9.666	0.001	63930	222.8	3	10.119	-0.000	106246	221.1
Aroclor-1254	4	9.803	0.000	123663	216.5	4	10.369	-0.001	107021	225.7
Aroclor-1254	5	10.171	0.004	76902	220.7	5	10.565	-0.000	55207	230.4
	Total Col1Ave (5 peaks):				224.9	Total Col2Ave (5 peaks):				225.6 RPD = 0
	Corrected Ave (4 peaks):				220.0	Corrected Ave (4 peaks):				224.5 RPD = 2
Aroclor-1260	1	11.041	0.000	8242	22.5	1	11.657	0.007	30310	83.3
Aroclor-1260	2	11.360	0.003	8312	22.2	2	11.918	0.004	22031	24.1
Aroclor-1260	3	11.734	0.003	19109	19.2	3	12.445	0.012	1692	6.8
Aroclor-1260	4	12.137	0.002	15342	30.4	4	12.500	0.002	12899	20.9
Aroclor-1260	5	12.238	-0.002	582	2.7	NS	---			----
	Total Col1Ave (5 peaks):				19.4	Total Col2Ave (4 peaks):				33.8 RPD = 54*
	Corrected Ave (4 peaks):				16.6	Corrected Ave (3 peaks):				17.3 RPD = 4
Aroclor-1262	1	10.824	-0.000	138302	445.0	1	11.278	0.081	13621	26.0
Aroclor-1262	2	12.238	-0.004	582	1.1	2	11.657	0.008	30310	66.7
Aroclor-1262	3	12.316	-0.001	714	1.3	3	12.445	0.013	1692	3.4
Aroclor-1262	4	12.988	0.003	961	2.0	4	12.500	0.000	12899	16.4
	Total Col1Ave (4 peaks):				112.4	Total Col2Ave (4 peaks):				28.1 RPD = 120*
	Corrected Ave (3 peaks):				1.5	Corrected Ave (3 peaks):				15.3 RPD = 164*
Aroclor-1268	1	12.238	-0.005	582	0.4	1	12.445	0.014	1692	1.3
Aroclor-1268	2	12.316	0.002	714	0.5	2	12.500	0.002	12899	9.6
Aroclor-1268	3	12.719	0.022	539	0.5	3	12.892	0.002	60	0.1
Aroclor-1268	4	13.497	0.010	695	0.2	4	13.700	-0.007	290	0.1
	Total Col1Ave (4 peaks):				0.4	Total Col2Ave (4 peaks):				2.8 RPD = 148*
	Corrected Ave (3 peaks):				0.4	Corrected Ave (3 peaks):				0.5 RPD = 27

Total PCB Area Col1 (5.908 - 13.791) = 1311525 Col1 Total PCB = 0.3 ppm*

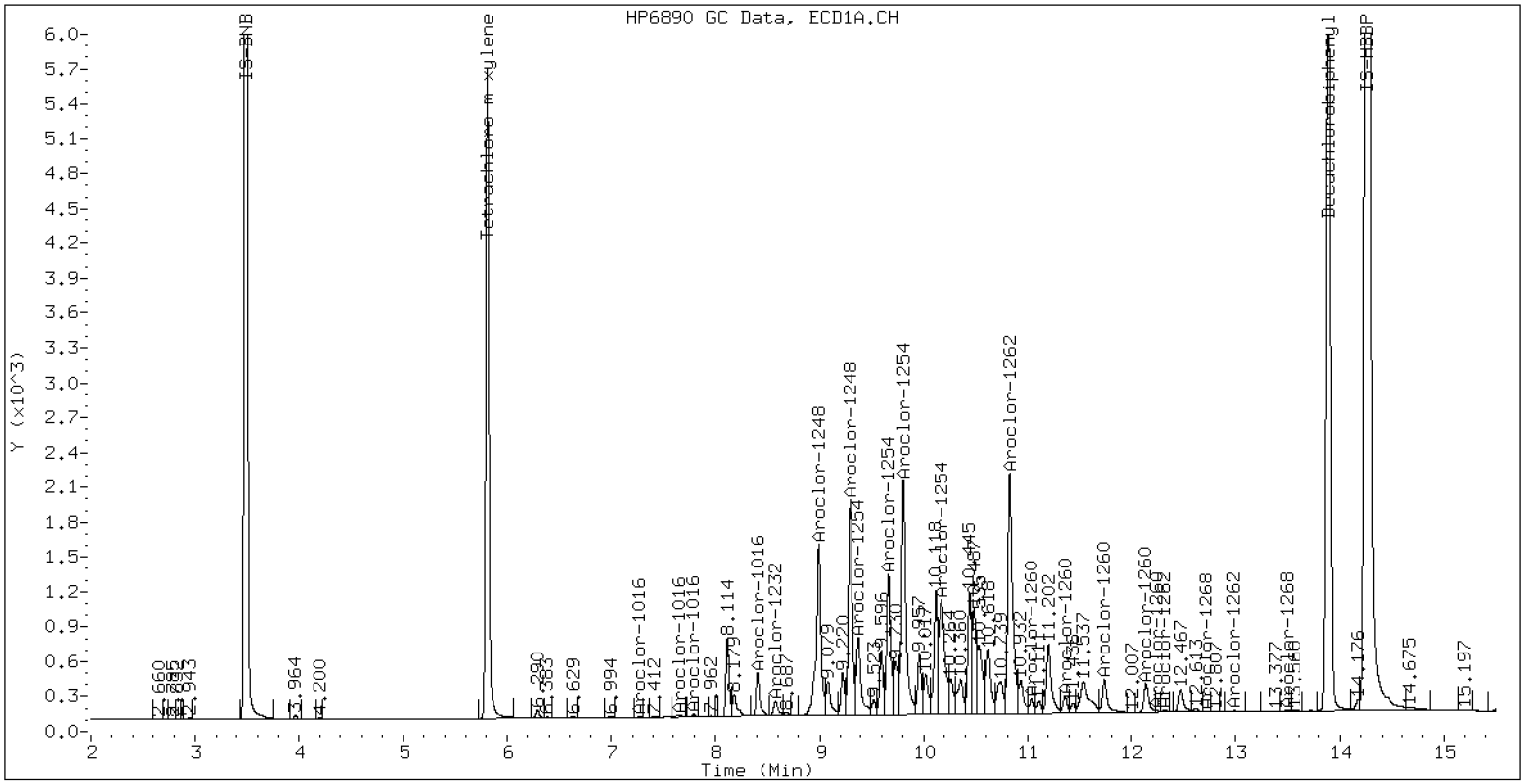
Total PCB Area Col2 (5.786 - 14.018) = 1040417 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

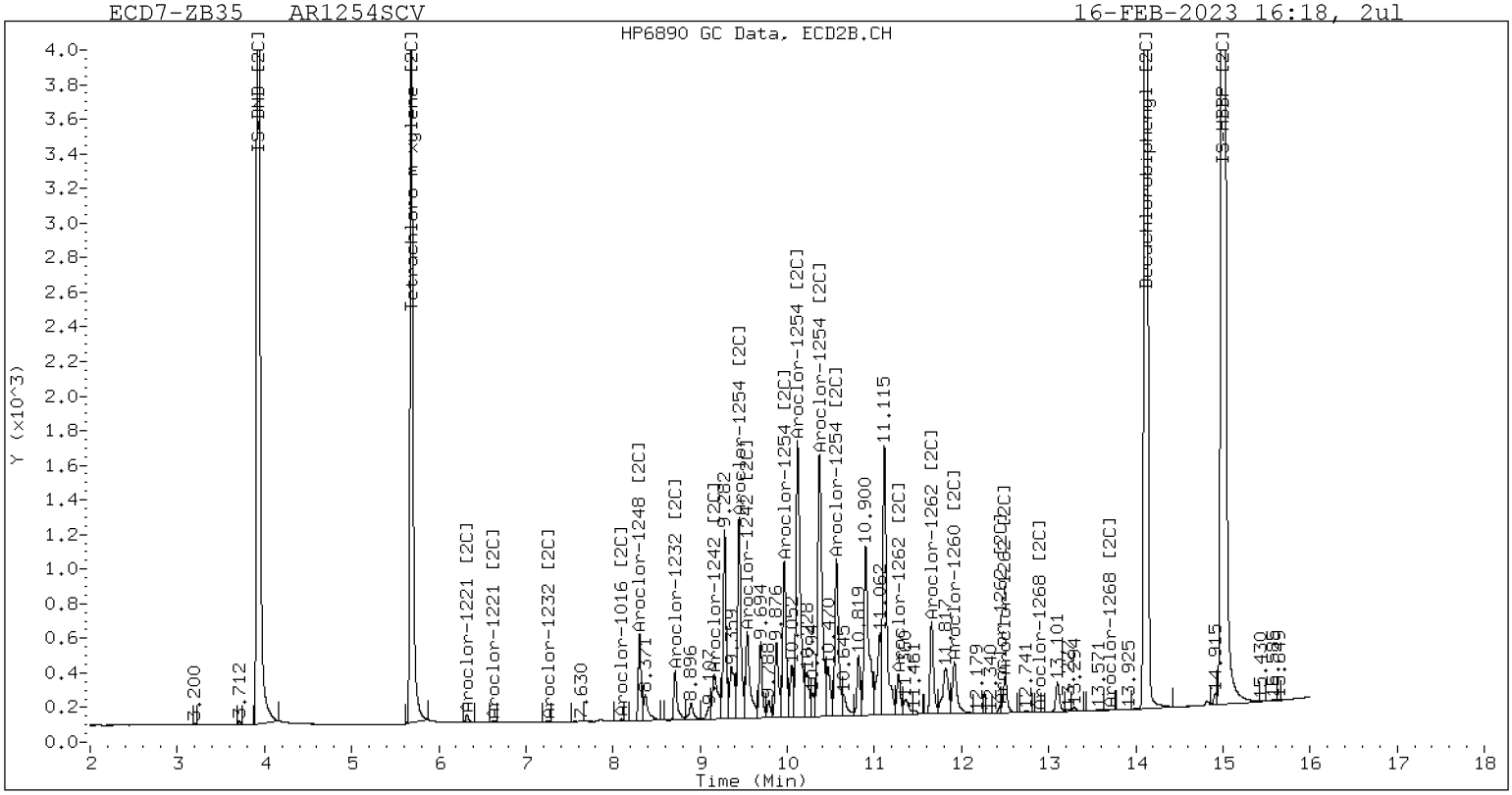
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 16-FEB-2023 16:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162317ECD7.D
Data file 2: /230216.b/230216.b/02162317ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 16-FEB-2023 16:39
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	245197	5.686	-0.000	191474	37.2	37.7	1.2	Tetrachloro-m-xylene
13.890	-0.001	375224	14.118	0.000	392997	40.4	42.0	3.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	464367	8.0
Hexabromobiphenyl	975457	1054321	8.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	381247	4.0
Hexabromobiphenyl	646884	695925	7.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.001	4790	28.3	1	7.255	0.001	5664	27.3
Aroclor-1016	2	7.656	0.006	10623	19.6	2	7.858	0.007	8417	19.3
Aroclor-1016	3	7.793	0.006	5360	21.5	3	8.058	0.009	4104	22.8
Aroclor-1016	4	8.405	0.003	2485	15.2	4	8.306	0.002	3192	21.6
Total Col1Ave (4 peaks):					21.2	Total Col2Ave (4 peaks):				22.7 RPD = 7
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				21.2 RPD = 12
Aroclor-1221	1	4.733	0.000	9001	249.5	1	4.958	0.000	7198	254.0
Aroclor-1221	2	6.133	-0.000	16485	245.0	2	6.297	-0.001	14187	233.2
Aroclor-1221	3	6.383	-0.000	37665	242.0	3	6.621	-0.000	23991	235.4
Total Col1Ave (3 peaks):					245.5	Total Col2Ave (3 peaks):				240.8 RPD = 2
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.733	0.001	9001	404.1	1	4.958	-0.000	7198	425.7
Aroclor-1232	2	6.133	-0.000	16485	350.7	2	7.255	0.001	5664	59.8
Aroclor-1232	3	7.656	0.002	10623	47.0	3	7.858	0.003	8417	44.5
Aroclor-1232	4	8.581	0.002	2585	27.7	4	8.714	0.001	2167	40.9
Total Col1Ave (4 peaks):					207.4	Total Col2Ave (4 peaks):				142.7 RPD = 37
Corrected Ave (3 peaks):					141.8	Corrected Ave (3 peaks):				48.4 RPD = 98*
Aroclor-1242	1	7.270	0.001	4790	34.6	1	7.255	0.001	5664	34.3
Aroclor-1242	2	7.656	0.004	10623	24.3	2	7.858	0.005	8417	23.6
Aroclor-1242	3	8.405	0.002	2485	18.8	3	9.168	0.009	2109	18.7
Aroclor-1242	4	8.581	0.003	2585	13.2	4	9.541	-0.046	4209	30.7
Total Col1Ave (4 peaks):					22.7	Total Col2Ave (4 peaks):				26.8 RPD = 17
Corrected Ave (3 peaks):					18.8	Corrected Ave (3 peaks):				24.3 RPD = 26
Aroclor-1248	1	8.405	0.002	2485	11.1	1	8.306	0.001	3192	18.6
Aroclor-1248	2	8.581	0.003	2585	9.1	2	8.714	0.002	2167	12.0
Aroclor-1248	3	8.992	-0.004	27170	68.0	3	9.168	0.010	2109	10.1
Aroclor-1248	4	9.299	0.007	25808	102.2	4	9.541	-0.040	4209	16.6
Total Col1Ave (4 peaks):					47.6	Total Col2Ave (4 peaks):				14.3 RPD = 108*
Corrected Ave (3 peaks):					29.4	Corrected Ave (3 peaks):				12.9 RPD = 78*
Aroclor-1254	1	9.299	0.004	25808	57.4	1	9.448	0.001	19163	71.3
Aroclor-1254	2	9.371	-0.003	3696	20.9	2	9.969	0.002	3379	15.6
Aroclor-1254	3	9.667	0.002	4053	14.2	3	10.144	0.024	96918	204.9
Aroclor-1254	4	9.803	0.000	10960	19.2	4	10.368	-0.002	117515	251.8
Aroclor-1254	5	10.117	-0.050	153073	440.2	5	10.565	-0.001	155303	658.7
Total Col1Ave (5 peaks):					110.4	Total Col2Ave (5 peaks):				240.5 RPD = 74*
Corrected Ave (4 peaks):					27.9	Corrected Ave (4 peaks):				135.9 RPD = 132*
Aroclor-1260	1	11.041	0.001	267479	735.9	1	11.649	-0.001	205344	567.8
Aroclor-1260	2	11.358	0.000	225792	607.2	2	11.914	-0.000	489297	539.3
Aroclor-1260	3	11.730	-0.000	549436	558.0	3	12.431	-0.001	237419	963.5
Aroclor-1260	4	12.135	0.001	182085	364.2	4	12.499	0.001	364340	594.8
Aroclor-1260	5	12.241	0.000	234096	1091.8	NS	---			----
Total Col1Ave (5 peaks):					671.4	Total Col2Ave (4 peaks):				666.3 RPD = 1
Corrected Ave (4 peaks):					566.3	Corrected Ave (3 peaks):				567.3 RPD = 0
Aroclor-1262	1	10.823	-0.002	146525	475.6	1	11.197	-0.001	236850	454.1
Aroclor-1262	2	12.241	-0.001	234096	463.6	2	11.649	0.001	205344	454.6
Aroclor-1262	3	12.314	-0.002	250166	459.4	3	12.431	-0.000	237419	484.0
Aroclor-1262	4	12.984	-0.000	210767	447.6	4	12.499	-0.001	364340	465.6
Total Col1Ave (4 peaks):					461.6	Total Col2Ave (4 peaks):				464.6 RPD = 1
Corrected Ave (3 peaks):					456.9	Corrected Ave (3 peaks):				458.1 RPD = 0
Aroclor-1268	1	12.241	-0.002	234096	176.9	1	12.431	0.000	237419	187.5
Aroclor-1268	2	12.314	0.000	250166	190.3	2	12.499	0.001	364340	271.8
Aroclor-1268	3	12.719	0.022	91155	81.7	3	12.889	-0.001	13334	11.6
Aroclor-1268	4	13.485	-0.002	72883	21.3	4	13.706	-0.001	72610	19.8
Total Col1Ave (4 peaks):					117.6	Total Col2Ave (4 peaks):				122.7 RPD = 4

Corrected Ave (3 peaks): 93.3 Corrected Ave (3 peaks): 73.0 RPD = 24

Total PCB Area Col1 (5.908 - 13.791) = 3768590 Col1 Total PCB = 0.7 ppm*

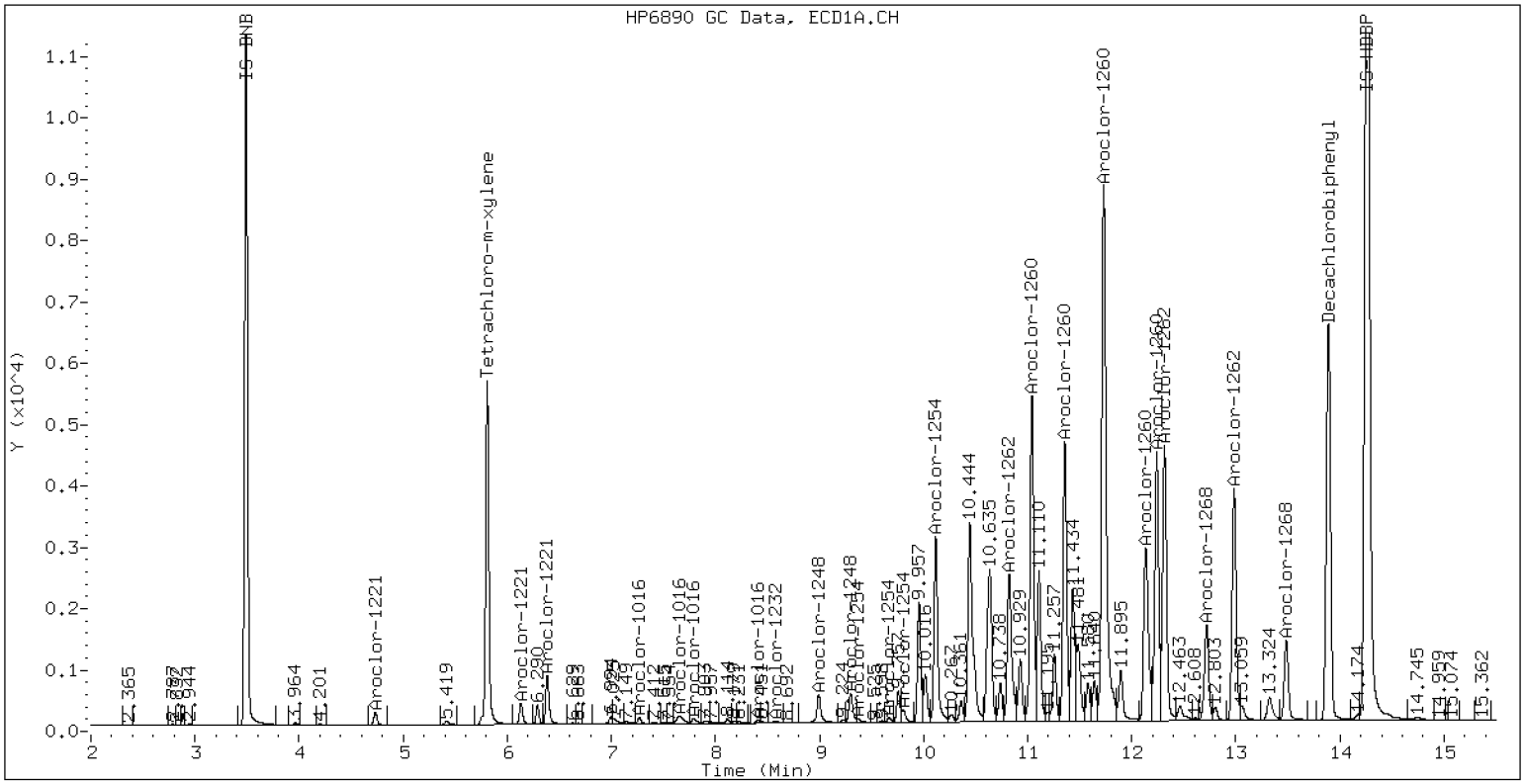
Total PCB Area Col2 (5.786 - 14.018) = 3198649 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

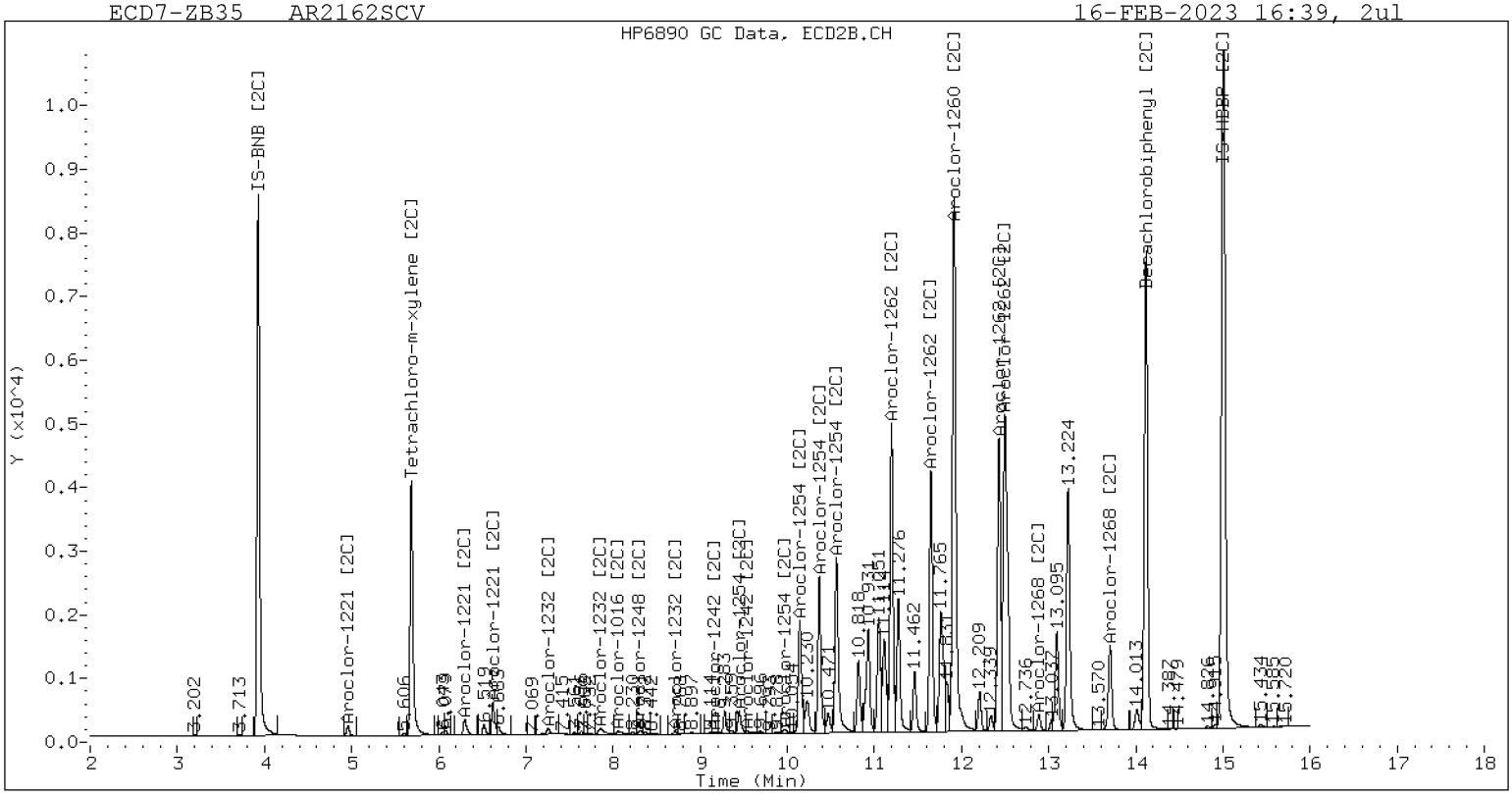
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 16-FEB-2023 16:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230216.b/02162318ECD7.D
Data file 2: /230216.b/230216.b/02162318ECD7.D
Method: \\target\share\chem4\ecd7.i\230216.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 16-FEB-2023 17:00
Report Date: 02/17/2023 18:12
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	232649	5.686	0.000	184511	35.5	36.4	2.5	Tetrachloro-m-xylene
13.892	0.001	534256	14.118	0.000	561270	58.0	60.1	3.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	462340	7.5
Hexabromobiphenyl	975457	1046529	7.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	380640	3.8
Hexabromobiphenyl	646884	694272	7.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	0.000	17406	103.4	1	7.255	0.001	21798	105.3
Aroclor-1016	2	7.654	0.004	51620	95.7	2	7.856	0.005	43831	100.4
Aroclor-1016	3	7.791	0.004	24787	100.0	3	8.054	0.005	19284	107.2
Aroclor-1016	4	8.404	0.002	15491	94.9	4	8.306	0.002	13712	93.1
Total Col1Ave (4 peaks):		98.5		Total Col2Ave (4 peaks):		101.5	RPD = 3			
Corrected Ave (3 peaks):		96.9		Corrected Ave (3 peaks):		99.6	RPD = 3			
Aroclor-1221	1	4.732	-0.000	4903	136.5	1	4.959	0.001	3678	130.0
Aroclor-1221	2	6.133	-0.000	8309	124.0	2	6.298	0.001	8756	144.1
Aroclor-1221	3	6.383	-0.000	26751	172.7	3	6.622	0.001	18239	179.3
Total Col1Ave (3 peaks):		144.4		Total Col2Ave (3 peaks):		151.1	RPD = 5			
Corrected Ave: < 3 Peaks				Corrected Ave: < 3 Peaks						
Aroclor-1232	1	4.732	0.000	4903	221.1	1	4.959	0.000	3678	217.9
Aroclor-1232	2	6.133	-0.000	8309	177.5	2	7.255	0.000	21798	230.4
Aroclor-1232	3	7.654	-0.000	51620	229.6	3	7.856	0.001	43831	231.9
Aroclor-1232	4	8.579	0.000	21552	231.9	4	8.712	-0.000	12876	243.3
Total Col1Ave (4 peaks):		215.0		Total Col2Ave (4 peaks):		230.9	RPD = 7			
Corrected Ave (3 peaks):		209.4		Corrected Ave (3 peaks):		226.7	RPD = 8			
Aroclor-1242	1	7.269	0.000	17406	126.4	1	7.255	0.001	21798	132.4
Aroclor-1242	2	7.654	0.002	51620	118.4	2	7.856	0.004	43831	122.9
Aroclor-1242	3	8.404	0.001	15491	117.6	3	9.165	0.005	12931	114.7
Aroclor-1242	4	8.579	0.002	21552	110.8	4	9.594	0.007	15412	112.7
Total Col1Ave (4 peaks):		118.3		Total Col2Ave (4 peaks):		120.7	RPD = 2			
Corrected Ave (3 peaks):		115.6		Corrected Ave (3 peaks):		116.8	RPD = 1			
Aroclor-1248	1	8.404	0.001	15491	69.5	1	8.306	0.001	13712	79.9
Aroclor-1248	2	8.579	0.002	21552	76.6	2	8.712	0.001	12876	71.3
Aroclor-1248	3	9.000	0.004	33860	85.1	3	9.165	0.007	12931	61.9
Aroclor-1248	4	9.290	-0.001	24418	97.1	4	9.594	0.012	15412	60.9
Total Col1Ave (4 peaks):		82.1		Total Col2Ave (4 peaks):		68.5	RPD = 18			
Corrected Ave (3 peaks):		77.1		Corrected Ave (3 peaks):		64.7	RPD = 17			
Aroclor-1254	1	9.290	-0.005	24418	54.6	1	9.448	0.001	4331	16.1
Aroclor-1254	2	9.376	0.002	6352	36.1	2	9.971	0.003	2773	12.8
Aroclor-1254	3	9.670	0.005	3662	12.8	3	10.125	0.006	5733	12.1
Aroclor-1254	4	9.810	0.007	5791	10.2	4	10.384	0.014	5128	11.0
Aroclor-1254	5	10.182	0.014	3705	10.7	5	10.569	0.004	1684	7.2
Total Col1Ave (5 peaks):		24.9		Total Col2Ave (5 peaks):		11.8	RPD = 71*			
Corrected Ave (4 peaks):		17.5		Corrected Ave (4 peaks):		10.8	RPD = 47*			
Aroclor-1260	1	11.044	0.003	48916	135.6	1	11.643	-0.006	63356	175.6
Aroclor-1260	2	11.360	0.003	3252	8.8	2	11.917	0.002	28356	31.3
Aroclor-1260	3	11.734	0.004	29505	30.2	3	12.431	-0.001	299116	1216.7
Aroclor-1260	4	12.140	0.005	787	1.6	4	12.498	-0.000	316006	517.1
Aroclor-1260	5	12.242	0.002	307715	1445.8	NS	---			----
Total Col1Ave (5 peaks):		324.4		Total Col2Ave (4 peaks):		485.2	RPD = 40			
Corrected Ave (4 peaks):		44.0		Corrected Ave (3 peaks):		241.4	RPD = 138*			
Aroclor-1262	1	10.828	0.003	1495	4.9	1	11.199	0.001	44764	86.0
Aroclor-1262	2	12.242	0.000	307715	613.9	2	11.643	-0.005	63356	140.6
Aroclor-1262	3	12.314	-0.002	306654	567.3	3	12.431	0.000	299116	611.2
Aroclor-1262	4	12.985	0.001	125311	268.1	4	12.498	-0.002	316006	404.8
Total Col1Ave (4 peaks):		363.6		Total Col2Ave (4 peaks):		310.7	RPD = 16			
Corrected Ave (3 peaks):		280.1		Corrected Ave (3 peaks):		210.5	RPD = 28			
Aroclor-1268	1	12.242	-0.000	307715	234.3	1	12.431	0.001	299116	236.8
Aroclor-1268	2	12.314	0.000	306654	235.0	2	12.498	-0.000	316006	236.3
Aroclor-1268	3	12.698	0.000	256747	231.8	3	12.891	0.001	264455	231.5
Aroclor-1268	4	13.487	-0.000	801249	236.1	4	13.707	0.001	846369	231.0
Total Col1Ave (4 peaks):		234.3		Total Col2Ave (4 peaks):		233.9	RPD = 0			

Corrected Ave (3 peaks): 233.7 Corrected Ave (3 peaks): 233.0 RPD = 0

Total PCB Area Col1 (5.908 - 13.791) = 2519204 Col1 Total PCB = 0.5 ppm*

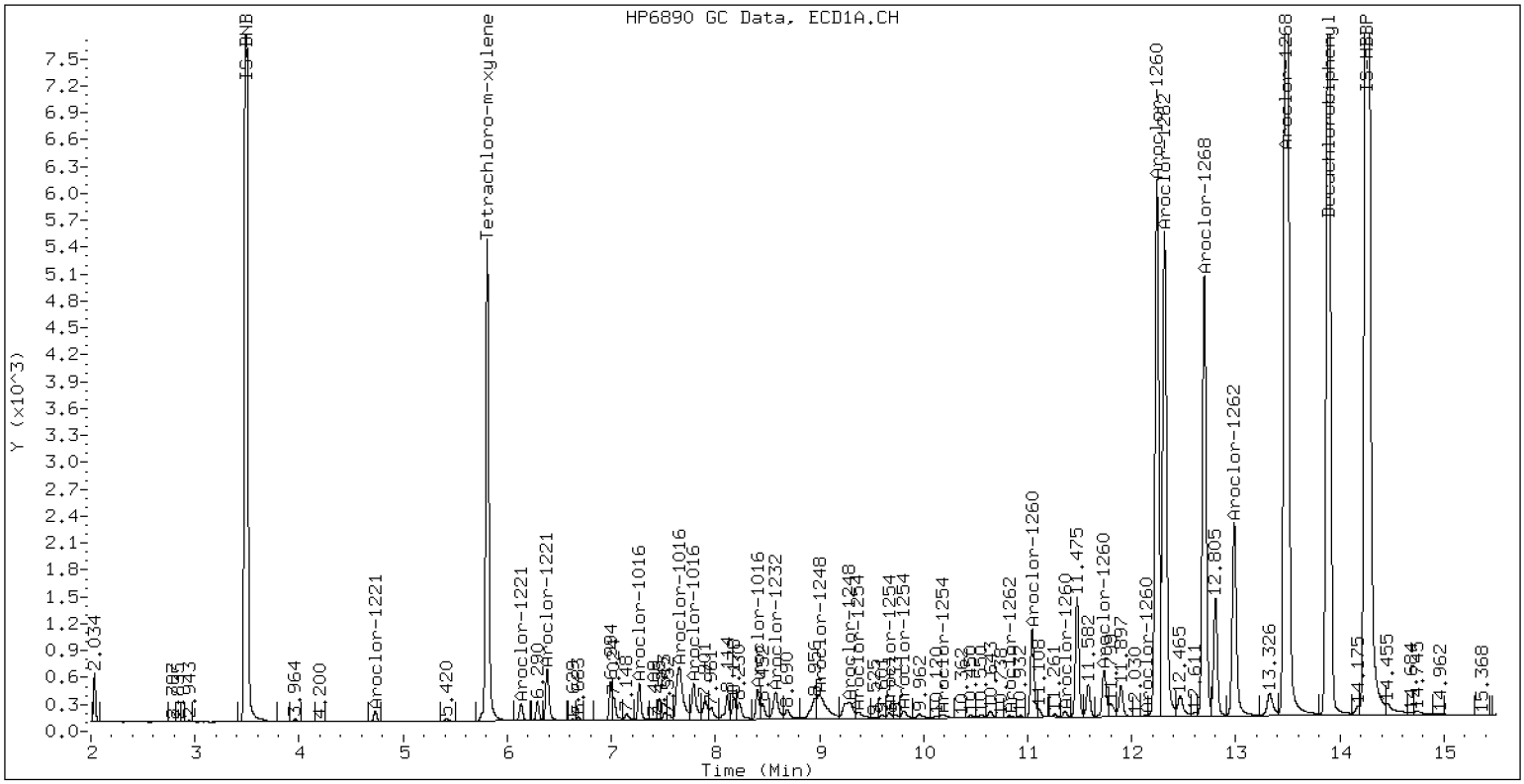
Total PCB Area Col2 (5.786 - 14.018) = 2428029 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

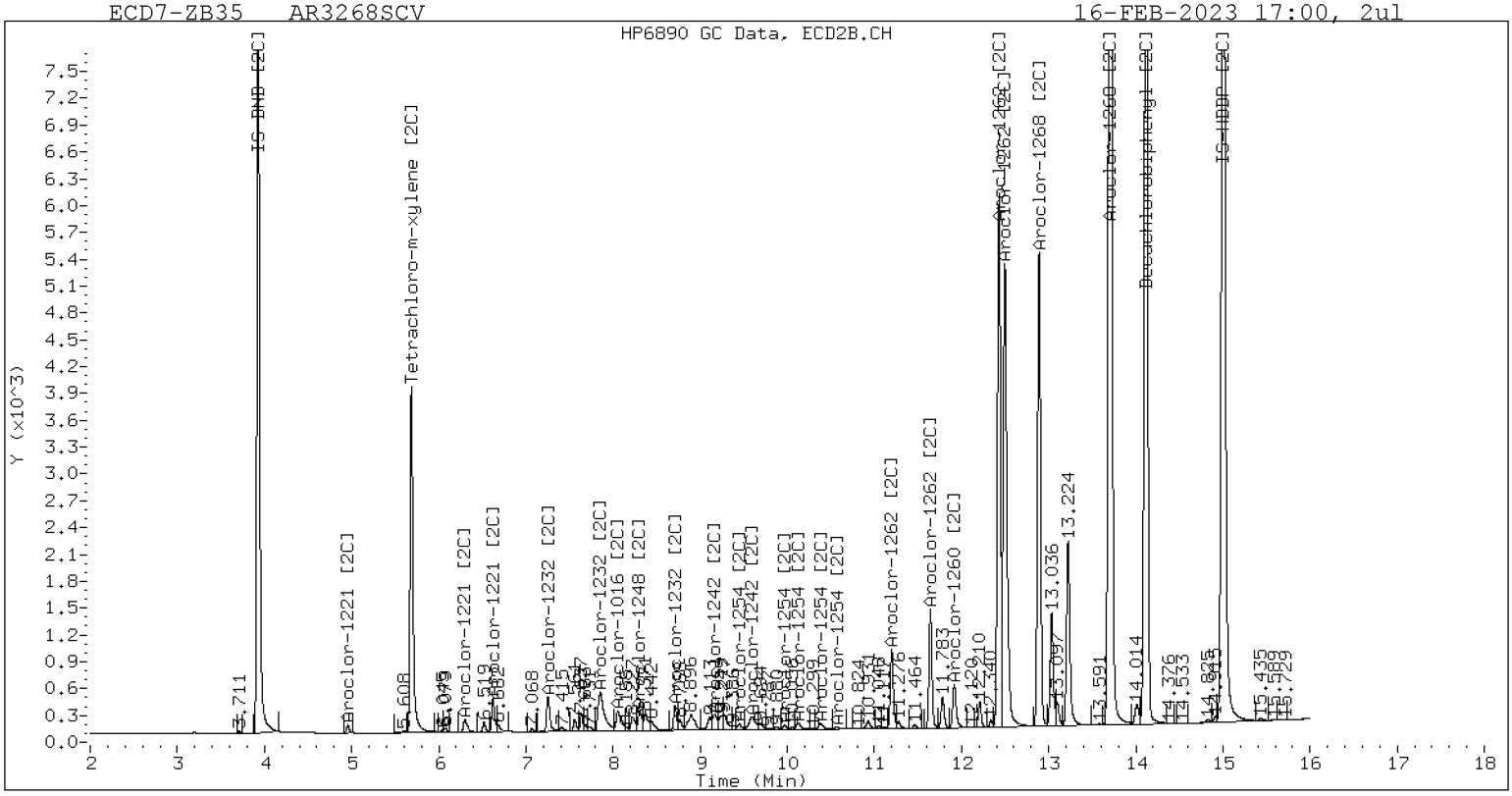
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 16-FEB-2023 17:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.260	0.000	442624	9.911	0.000	632750	0.100	0.100	0.0	2,4-DDE
10.293	0.000	576653	10.667	0.000	928581	0.100	0.200#	66.7*	2,4-DDT
9.683	0.000	755059	10.209	0.000	423742	0.100	0.100	0.0	4,4-DDE
10.254	0.000	674155	10.667	0.000	928581	0.100	0.200#	66.7*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230216.b/02162320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.284	0.024	2688	9.920	0.009	10374	0.001	0.002	91.6*	2,4-DDE
0.000	-10.293	0	10.673	0.006	192594	0.000	0.042#	----	2,4-DDT
9.692	0.009	7700	10.234	0.024	295	0.001	0.000	174.5*	4,4-DDE
10.259	0.005	174757	10.673	0.006	192594	0.026	0.042#	45.8*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00045
Laboratory ID: SLB0222-SCV1
Sequence: SLB0222
Sequence Name: AR1660SCV1
Standard ID: K007655

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1016	250.00	217	-13.3	20.00
Aroclor 1016 [2C]	250.00	223	-10.9	20.00
Aroclor 1260	250.00	267	6.8	20.00
Aroclor 1260 [2C]	250.00	258	3.2	20.00
Decachlorobiphenyl	40.000	40.4	1.1	20.00
Tetrachlorometaxylene	40.000	37.3	-6.7	20.00
Decachlorobiphenyl [2C]	40.000	41.5	3.7	20.00
Tetrachlorometaxylene [2C]	40.000	37.7	-5.9	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00045
Laboratory ID: SLB0222-SCV2
Sequence: SLB0222
Sequence Name: AR1242SCV2
Standard ID: K007656

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1242	250.00	218	-12.8	20.00
Aroclor 1242 [2C]	250.00	223	-10.8	20.00
Decachlorobiphenyl	40.000	40.3	0.8	20.00
Tetrachlorometaxylene	40.000	36.8	-8.1	20.00
Decachlorobiphenyl [2C]	40.000	41.4	3.5	20.00
Tetrachlorometaxylene [2C]	40.000	37.2	-7.0	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00045
Laboratory ID: SLB0222-SCV3
Sequence: SLB0222
Sequence Name: AR1248SCV3
Standard ID: K007657

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1248	250.00	237	-5.3	20.00
Aroclor 1248 [2C]	250.00	233	-7.0	20.00
Decachlorobiphenyl	40.000	41.4	3.5	20.00
Tetrachlorometaxylene	40.000	36.5	-8.8	20.00
Decachlorobiphenyl [2C]	40.000	41.5	3.8	20.00
Tetrachlorometaxylene [2C]	40.000	36.9	-7.8	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00045
Laboratory ID: SLB0222-SCV4
Sequence: SLB0222
Sequence Name: AR1254SCV4
Standard ID: K007658

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1254	250.00	225	-10.0	20.00
Aroclor 1254 [2C]	250.00	226	-9.7	20.00
Decachlorobiphenyl	40.000	40.3	0.7	20.00
Tetrachlorometaxylene	40.000	36.7	-8.3	20.00
Decachlorobiphenyl [2C]	40.000	41.8	4.6	20.00
Tetrachlorometaxylene [2C]	40.000	37.5	-6.3	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00045
Laboratory ID: SLB0222-SCV5
Sequence: SLB0222
Sequence Name: AR2162SCV5
Standard ID: K007659

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1221	250.00	246	-1.8	20.00
Aroclor 1221 [2C]	250.00	241	-3.7	20.00
Aroclor 1262	500.00	462	-7.7	20.00
Aroclor 1262 [2C]	500.00	465	-7.1	20.00
Decachlorobiphenyl	40.000	40.4	1.0	20.00
Tetrachlorometaxylene	40.000	37.2	-7.0	20.00
Decachlorobiphenyl [2C]	40.000	42.0	4.9	20.00
Tetrachlorometaxylene [2C]	40.000	37.7	-5.8	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00045
Laboratory ID: SLB0222-SCV6
Sequence: SLB0222
Sequence Name: AR3268SCV6
Standard ID: K007660

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1232	250.00	215	-14.0	20.00
Aroclor 1232 [2C]	250.00	231	-7.7	20.00
Aroclor 1268	250.00	234	-6.3	20.00
Aroclor 1268 [2C]	250.00	234	-6.4	20.00
Decachlorobiphenyl	40.000	58.0	44.9	20.00
Tetrachlorometaxylene	40.000	35.5	-11.3	20.00
Decachlorobiphenyl [2C]	40.000	60.1	50.2	20.00
Tetrachlorometaxylene [2C]	40.000	36.4	-9.1	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202311ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/20/23
Lab Sample ID:	SLB0274-ICV1	Injection Time:	13:41
Sequence Name:	AR1254ICV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1254	A	250.00	239	0.0630747	0.0592480		-4.5	+/-20
Aroclor-1254 (1)	A	250.00	227	0.0774229	0.0703693			
Aroclor-1254 (2)	A	250.00	265	0.0304845	0.0322912			
Aroclor-1254 (3)	A	250.00	235	0.0493409	0.0463073			
Aroclor-1254 (4)	A	250.00	232	0.0982165	0.0910418			
Aroclor-1254 (5)	A	250.00	235	0.0599089	0.0562303			
Aroclor 1254 [2C]	A	250.00	235	0.0697219	0.0653298		-5.8	+/-20
Aroclor-1254 (1) [2C]	A	250.00	234	0.0564037	0.0526823			
Aroclor-1254 (2) [2C]	A	250.00	238	0.0455608	0.0432918			
Aroclor-1254 (3) [2C]	A	250.00	231	0.0992457	0.0916748			
Aroclor-1254 (4) [2C]	A	250.00	232	0.0979235	0.0910082			
Aroclor-1254 (5) [2C]	A	250.00	242	0.0494758	0.0479916			
Decachlorobiphenyl	A	40.000	37.6	0.7045925	0.6631633		-6.0	+/-20
Tetrachlorometaxylene	A	40.000	35.2	1.1350860	1.0003400		-12.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.2	1.0765520	1.1076560		3.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	38.5	1.0668100	1.0267900		-3.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202311ECD7.D
Data file 2: /230220.b/230220.b/02202311ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254ICV1
Client ID:
Injection Date: 20-FEB-2023 13:41
Report Date: 02/21/2023 09:38
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	376335	5.685	-0.000	164120	35.3	38.5	8.8	Tetrachloro-m-xylene
13.892	0.001	524976	14.117	-0.000	279898	37.6	41.2	8.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	752414	75.0
Hexabromobiphenyl	975457	1583248	62.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	319676	-12.8
Hexabromobiphenyl	646884	505388	-21.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.297	0.002	165459	227.2	1	9.448	0.002	52629	233.5
Aroclor-1254	2	9.375	0.001	75926	264.8	2	9.967	0.002	43248	237.6
Aroclor-1254	3	9.667	0.002	108882	234.6	3	10.121	0.003	91582	230.9
Aroclor-1254	4	9.805	0.002	214066	231.7	4	10.371	0.003	90916	232.3
Aroclor-1254	5	10.172	0.005	132214	234.6	5	10.566	0.002	47943	242.5

Total Col1Ave (5 peaks): 238.6 Total Col2Ave (5 peaks): 235.4 RPD = 1

Corrected Ave (4 peaks): 232.1 Corrected Ave (4 peaks): 233.6 RPD = 1

CalAmt %D: -4.6 CalAmt %D: -5.9

Total PCB Area Col1 (5.908 - 13.791) = 2336630 Col1 Total PCB = 0.3 ppm*

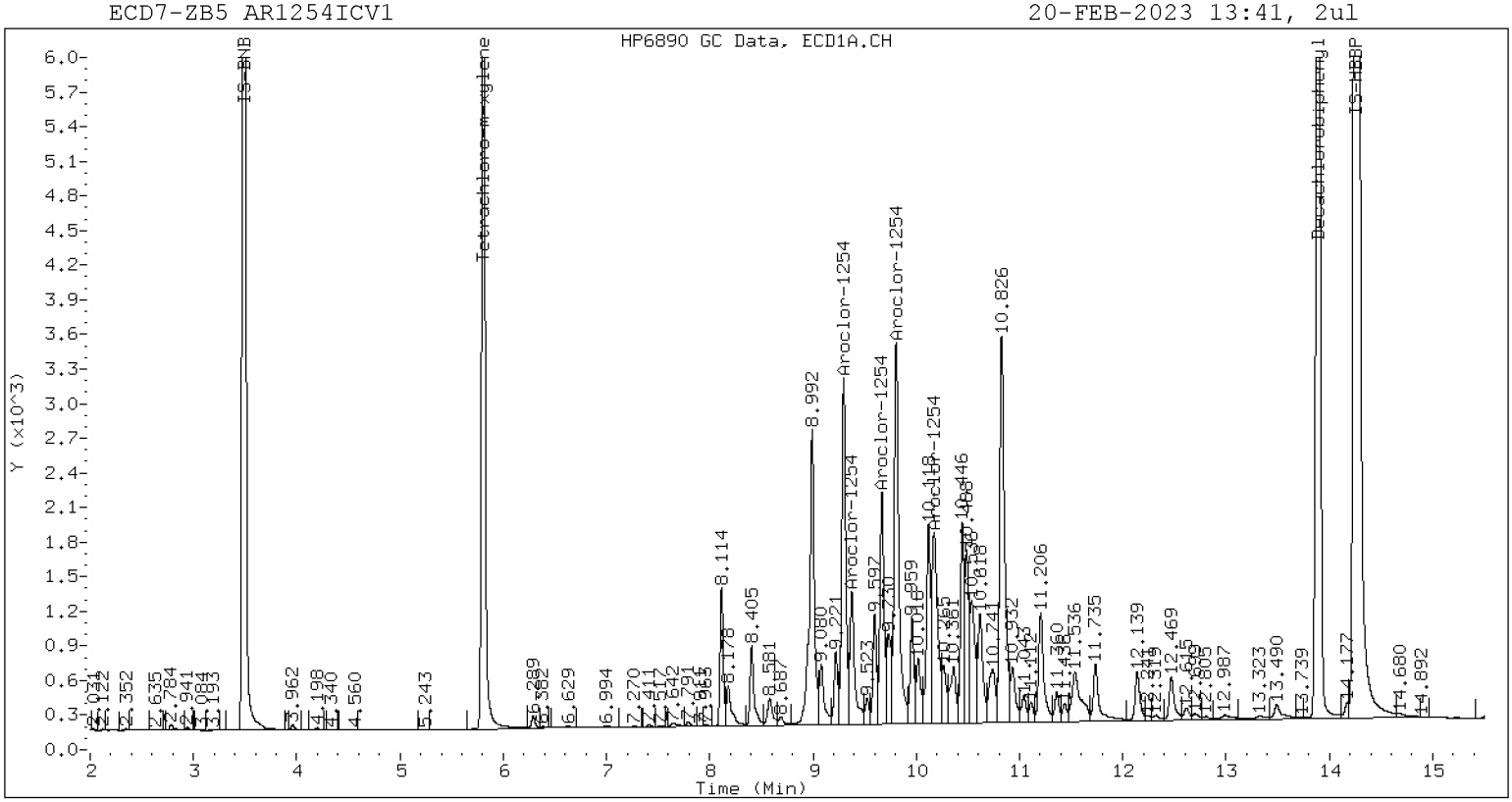
Total PCB Area Col2 (5.785 - 14.017) = 918211 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

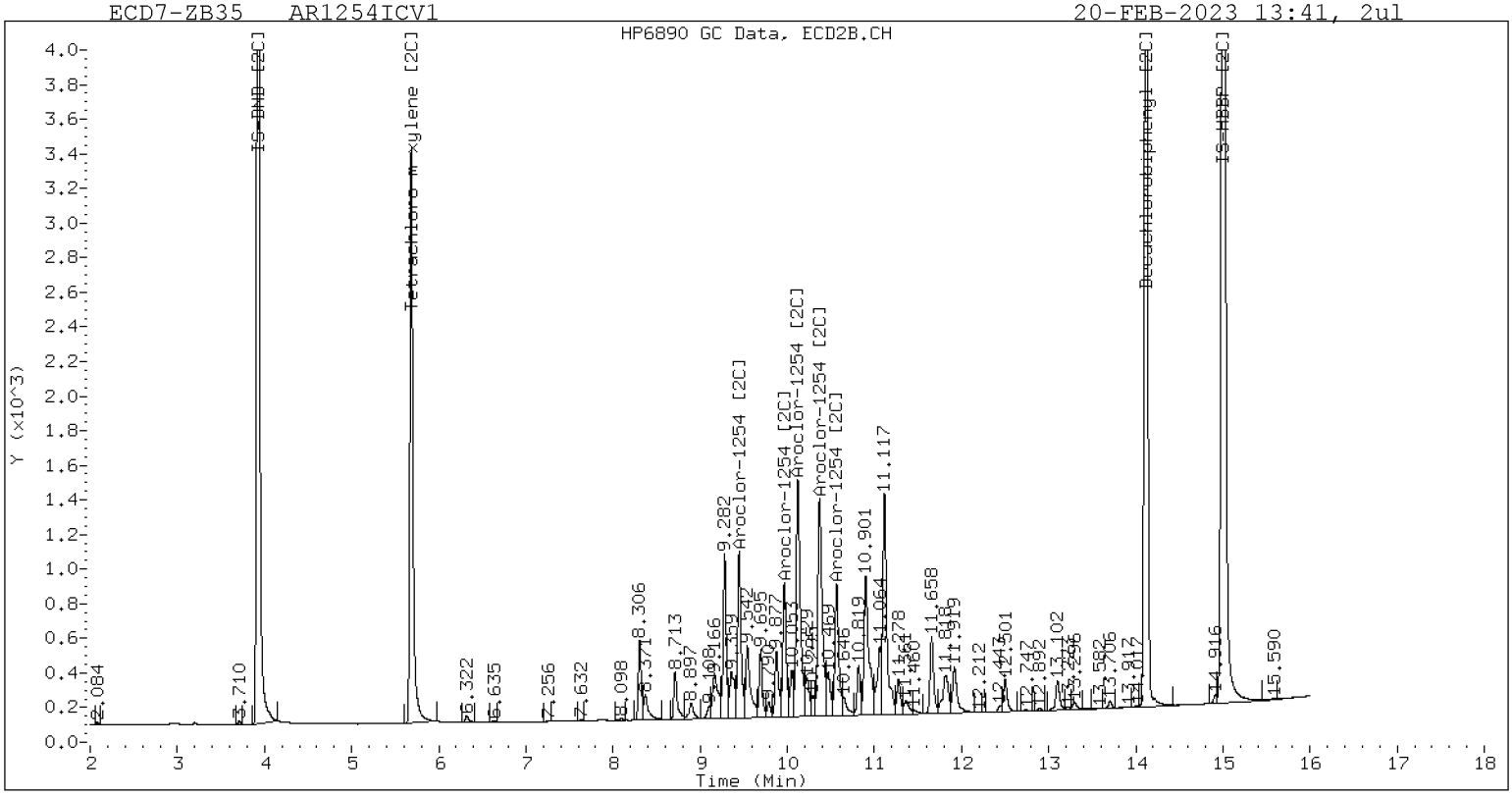
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254ICV1 20-FEB-2023 13:41, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254ICV1 20-FEB-2023 13:41, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202312ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/20/23
Lab Sample ID:	SLB0274-ICV2	Injection Time:	14:02
Sequence Name:	AR1660ICV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1016	A	250.00	213	0.0483914	0.0409882		-14.9	+/-20
Aroclor-1016 (1)	A	250.00	219	0.0291332	0.0255711		-12.4	
Aroclor-1016 (2)	A	250.00	211	0.0932933	0.0787764		-15.6	
Aroclor-1016 (3)	A	250.00	206	0.0429036	0.0353167		-17.6	
Aroclor-1016 (4)	A	250.00	215	0.0282354	0.0242885		-14.0	
Aroclor 1016 [2C]	A	250.00	219	0.0510062	0.0445696		-12.6	+/-20
Aroclor-1016 (1) [2C]	A	250.00	216	0.0435251	0.0375992		-13.6	
Aroclor-1016 (2) [2C]	A	250.00	218	0.0917441	0.0799003		-12.8	
Aroclor-1016 (3) [2C]	A	250.00	228	0.0378128	0.0344956		-8.8	
Aroclor-1016 (4) [2C]	A	250.00	212	0.0309428	0.0262831		-15.2	
Aroclor 1260	A	250.00	239	0.0369444	0.0349563		-4.5	+/-20
Aroclor-1260 (1)	A	250.00	237	0.0275801	0.0261601		-5.2	
Aroclor-1260 (2)	A	250.00	239	0.0282147	0.0270039		-4.4	
Aroclor-1260 (3)	A	250.00	230	0.0747199	0.0687013		-8.0	
Aroclor-1260 (4)	A	250.00	244	0.0379377	0.0369993		-2.4	
Aroclor-1260 (5)	A	250.00	244	0.0162699	0.0159167		-2.4	
Aroclor 1260 [2C]	A	250.00	235	0.0609398	0.0581845		-5.9	+/-20
Aroclor-1260 (1) [2C]	A	250.00	226	0.0414523	0.0376144		-9.6	
Aroclor-1260 (2) [2C]	A	250.00	242	0.1040347	0.1009812		-3.2	
Aroclor-1260 (3) [2C]	A	250.00	232	0.0282007	0.0263288		-7.2	
Aroclor-1260 (4) [2C]	A	250.00	241	0.0700714	0.0678137		-3.6	
Decachlorobiphenyl	A	40.000	37.8	0.7045925	0.6651421		-5.5	+/-20
Tetrachlorometaxylene	A	40.000	34.0	1.1350860	0.9648840		-15.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.2	1.0765520	1.0827660		0.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	36.5	1.0668100	0.9733037		-8.8	+/-20

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202312ECD7.D
Data file 2: /230220.b/230220.b/02202312ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660ICV2
Client ID:
Injection Date: 20-FEB-2023 14:02
Report Date: 02/21/2023 09:38
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	286091	5.684	-0.002	132016	34.0	36.5	7.1	Tetrachloro-m-xylene
13.891	-0.000	393518	14.117	0.001	223660	37.8	40.2	6.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	593006	37.9
Hexabromobiphenyl	975457	1183260	21.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	271274	-26.0
Hexabromobiphenyl	646884	413127	-36.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.268	-0.001	47387	219.4	1	7.252	-0.001	31874	216.0
Aroclor-1016	2	7.651	0.001	145984	211.1	2	7.851	-0.001	67734	217.7
Aroclor-1016	3	7.789	0.002	65447	205.8	3	8.051	0.001	29243	228.1
Aroclor-1016	4	8.403	0.000	45010	215.1	4	8.304	0.000	22281	212.4
Total Col1Ave (4 peaks):					212.8	Total Col2Ave (4 peaks):				218.5 RPD = 3
Corrected Ave (3 peaks):					210.6	Corrected Ave (3 peaks):				215.3 RPD = 2
CalAmt %D:					-14.9	CalAmt %D:				-12.6
Aroclor-1260	1	11.043	0.002	96732	237.1	1	11.651	0.002	48561	226.2
Aroclor-1260	2	11.359	0.002	99852	239.3	2	11.916	0.002	130369	242.0
Aroclor-1260	3	11.733	0.003	254036	229.9	3	12.434	0.001	33991	232.4
Aroclor-1260	4	12.137	0.002	136812	243.8	4	12.500	0.001	87549	240.8
Aroclor-1260	5	12.242	0.002	58855	244.6	NS	---			----
Total Col1Ave (5 peaks):					238.9	Total Col2Ave (4 peaks):				235.3 RPD = 2
Corrected Ave (4 peaks):					237.5	Corrected Ave (3 peaks):				233.1 RPD = 2
CalAmt %D:					-4.4	CalAmt %D:				-5.9

Total PCB Area Col1 (5.908 - 13.791) = 2824959 Col1 Total PCB = 0.4 ppm*

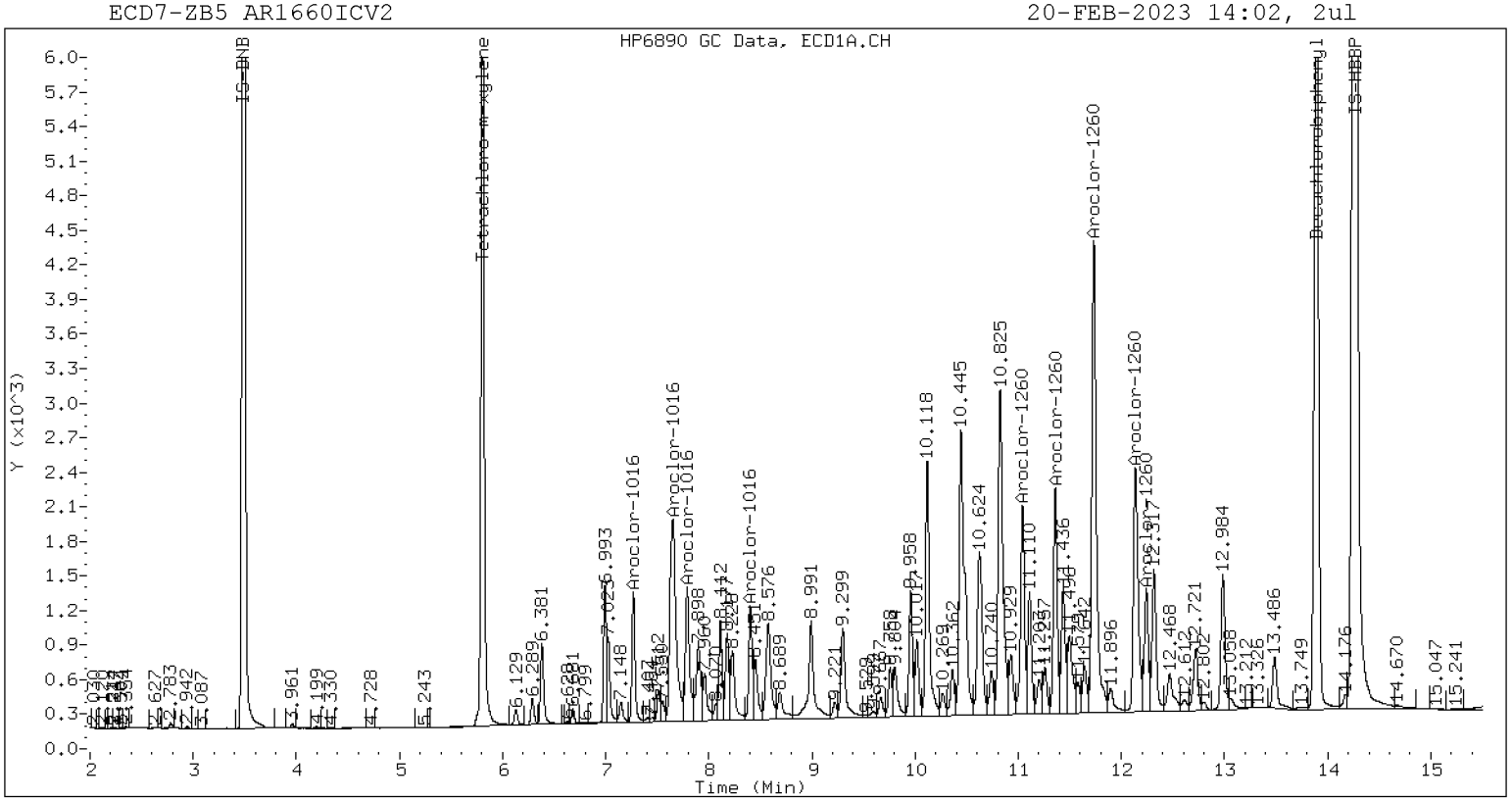
Total PCB Area Col2 (5.785 - 14.017) = 1230864 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

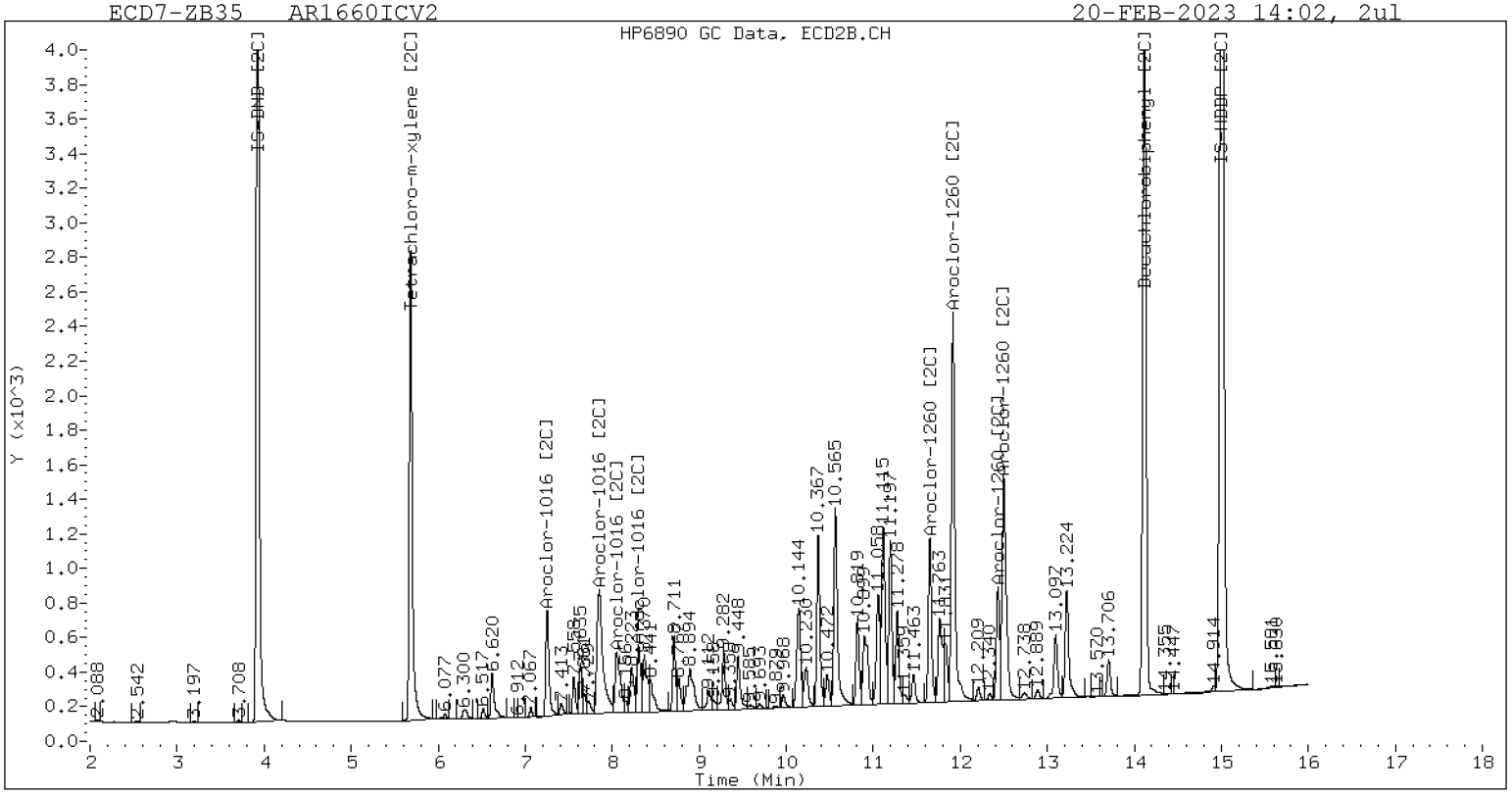
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660ICV2 20-FEB-2023 14:02, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660ICV2 20-FEB-2023 14:02, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02162313ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0222	Injection Date:	02/16/23
Lab Sample ID:	SLB0222-SCV1	Injection Time:	15:15
Sequence Name:	AR1660SCV1		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	217	0.0483914	0.0419429		-13.3	+/-20
Aroclor 1016 [2C]	A	250.00	223	0.0510062	0.0455739		-10.9	+/-20
Aroclor 1260	A	250.00	267	0.0369444	0.0391877		6.8	+/-20
Aroclor 1260 [2C]	A	250.00	258	0.0609398	0.0634778		3.2	+/-20
Decachlorobiphenyl	A	40.000	40.4	0.7045925	0.7121741		1.1	+/-20
Tetrachlorometaxylene	A	40.000	37.3	1.1350860	1.0588860		-6.7	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.5	1.0765520	1.1167670		3.7	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.7	1.0668100	1.0041560		-5.9	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02162314ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0222	Injection Date:	02/16/23
Lab Sample ID:	SLB0222-SCV2	Injection Time:	15:36
Sequence Name:	AR1242SCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	218	0.0389249	0.0338591		-12.8	+/-20
Aroclor 1242 [2C]	A	250.00	223	0.0405023	0.0354432		-10.8	+/-20
Decachlorobiphenyl	A	40.000	40.3	0.7045925	0.7102126		0.8	+/-20
Tetrachlorometaxylene	A	40.000	36.8	1.1350860	1.0432620		-8.1	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.4	1.0765520	1.1137030		3.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.2	1.0668100	0.9920334		-7.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02162315ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0222	Injection Date:	02/16/23
Lab Sample ID:	SLB0222-SCV3	Injection Time:	15:57
Sequence Name:	AR1248SCV3		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	237	0.0499033	0.0470965		-5.3	+/-20
Aroclor 1248 [2C]	A	250.00	233	0.0427878	0.0396914		-7.0	+/-20
Decachlorobiphenyl	A	40.000	41.4	0.7045925	0.7290206		3.5	+/-20
Tetrachlorometaxylene	A	40.000	36.5	1.1350860	1.0355960		-8.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.5	1.0765520	1.1173720		3.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	36.9	1.0668100	0.9836791		-7.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02162316ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0222	Injection Date:	02/16/23
Lab Sample ID:	SLB0222-SCV4	Injection Time:	16:18
Sequence Name:	AR1254SCV4		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	225	0.0630747	0.0559786		-10.0	+/-20
Aroclor 1254 [2C]	A	250.00	226	0.0697219	0.0627527		-9.7	+/-20
Decachlorobiphenyl	A	40.000	40.3	0.7045925	0.7096601		0.7	+/-20
Tetrachlorometaxylene	A	40.000	36.7	1.1350860	1.0408980		-8.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.8	1.0765520	1.1261210		4.6	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.5	1.0668100	0.9992928		-6.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02162317ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0222	Injection Date:	02/16/23
Lab Sample ID:	SLB0222-SCV5	Injection Time:	16:39
Sequence Name:	AR2162SCV5		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1221	A	250.00	246	0.0148725	0.0145060		-1.8	+/-20
Aroclor 1221 [2C]	A	250.00	241	0.0133667	0.0126955		-3.7	+/-20
Aroclor 1262	A	500.00	462	0.0346850	0.0319278		-7.7	+/-20
Aroclor 1262 [2C]	A	500.00	465	0.0642615	0.0600038		-7.1	+/-20
Decachlorobiphenyl	A	40.000	40.4	0.7045925	0.7117832		1.0	+/-20
Tetrachlorometaxylene	A	40.000	37.2	1.1350860	1.0560480		-7.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	42.0	1.0765520	1.1294230		4.9	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.7	1.0668100	1.0044620		-5.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02162318ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0222	Injection Date:	02/16/23
Lab Sample ID:	SLB0222-SCV6	Injection Time:	17:00
Sequence Name:	AR3268SCV6		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1232	A	250.00	215	0.0167290	0.0149473		-14.0	+/-20
Aroclor 1232 [2C]	A	250.00	231	0.0185704	0.0172726		-7.7	+/-20
Aroclor 1268	A	250.00	234	0.1360545	0.1278409		-6.3	+/-20
Aroclor 1268 [2C]	A	250.00	234	0.2093144	0.1988784		-6.4	+/-20
Decachlorobiphenyl	A	40.000	58.0	0.7045925	1.0210060		44.9	+/-20
Tetrachlorometaxylene	A	40.000	35.5	1.1350860	1.0063980		-11.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	60.1	1.0765520	1.6168590		50.2	+/-20
Tetrachlorometaxylene [2C]	A	40.000	36.4	1.0668100	0.9694777		-9.1	+/-20

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202329ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/20/23
Lab Sample ID:	SLB0274-CCV1	Injection Time:	20:00
Sequence Name:	AR1248CCV1		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	213	0.0499033	0.0426175		-14.7	+/-20
Aroclor-1248 (1)	A	250.00	226		0.0348550			
Aroclor-1248 (2)	A	250.00	224		0.0437253			
Aroclor-1248 (3)	A	250.00	215		0.0592149			
Aroclor-1248 (4)	A	250.00	188		0.0326748			
Aroclor 1248 [2C]	A	250.00	237	0.0427878	0.0404816		-5.4	+/-20
Aroclor-1248 (1) [2C]	A	250.00	240		0.0346808			
Aroclor-1248 (2) [2C]	A	250.00	230		0.0349874			
Aroclor-1248 (3) [2C]	A	250.00	240		0.0420614			
Aroclor-1248 (4) [2C]	A	250.00	236		0.0501969			
Decachlorobiphenyl	A	40.000	38.3	0.7045925	0.6750381		-4.3	+/-20
Tetrachlorometaxylene	A	40.000	35.7	1.1350860	1.0126740		-10.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.8	1.0765520	1.1257940		4.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.1	1.0668100	1.0688180		0.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202329ECD7.D
Data file 2: /230220.b/230220.b/02202329ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV1
Client ID:
Injection Date: 20-FEB-2023 20:00
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.002	378059	5.683	-0.002	164000	35.7	40.1	11.6	Tetrachloro-m-xylene
13.890	-0.001	329667	14.116	-0.000	224883	38.3	41.8	8.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	746655	73.6
Hexabromobiphenyl	975457	976736	0.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	306881	-16.3
Hexabromobiphenyl	646884	399510	-38.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.403	-0.000	81327	225.9	1	8.304	0.000	33259	240.2
Aroclor-1248	2	8.576	-0.001	102024	224.5	2	8.710	0.000	33553	230.4
Aroclor-1248	3	8.995	-0.001	138166	215.1	3	9.157	0.000	40337	239.7
Aroclor-1248	4	9.292	0.001	76240	187.7	4	9.580	0.000	48139	235.8
Total Col1Ave (4 peaks):					213.3	Total Col2Ave (4 peaks):				236.5 RPD = 10
Corrected Ave (3 peaks):					209.1	Corrected Ave (3 peaks):				235.3 RPD = 12
CalAmt %D:					-14.7	CalAmt %D:				-5.4

Total PCB Area Col1 (5.908 - 13.791) = 1650975 Col1 Total PCB = 0.2 ppm*

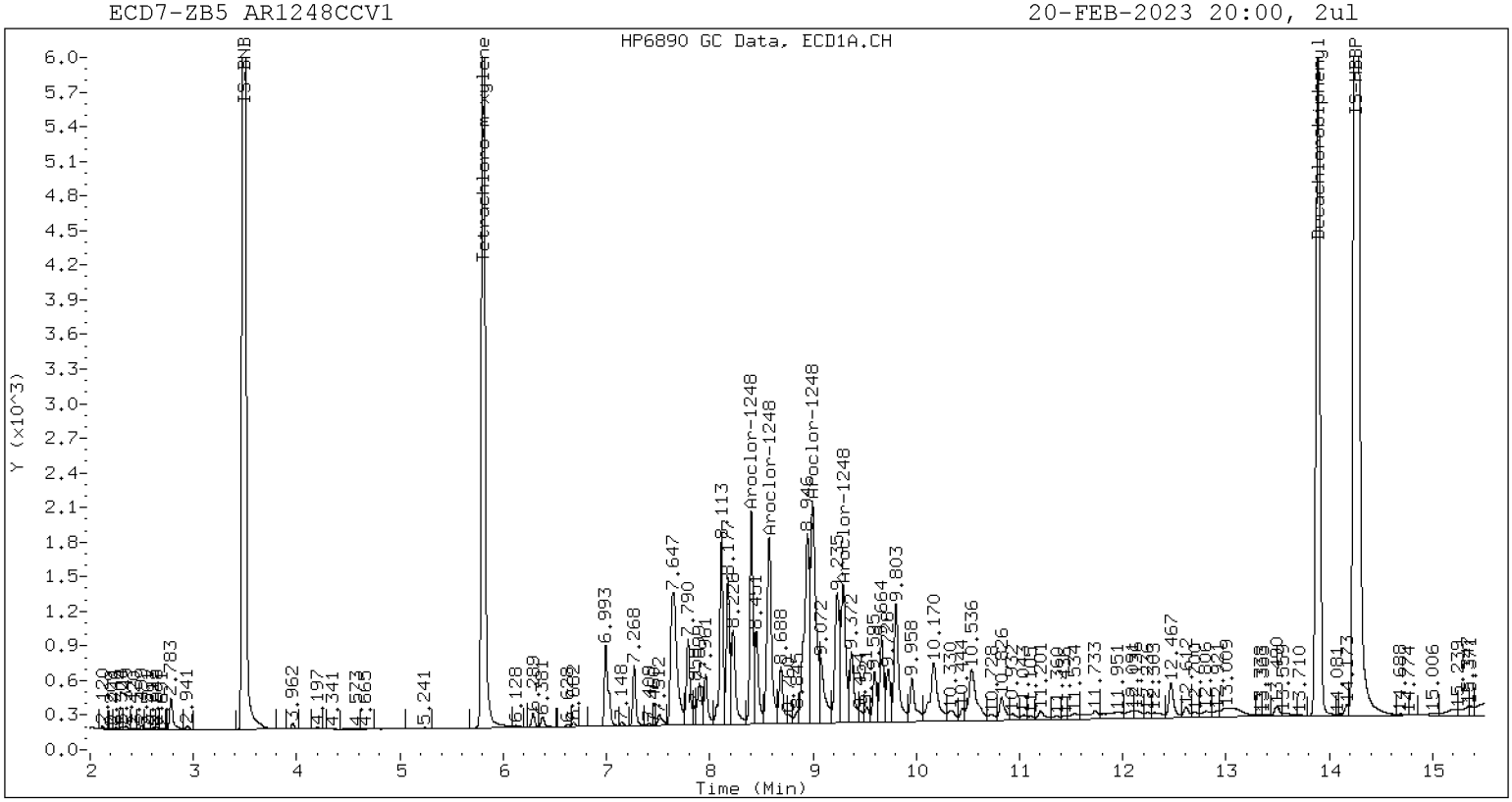
Total PCB Area Col2 (5.785 - 14.017) = 679649 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

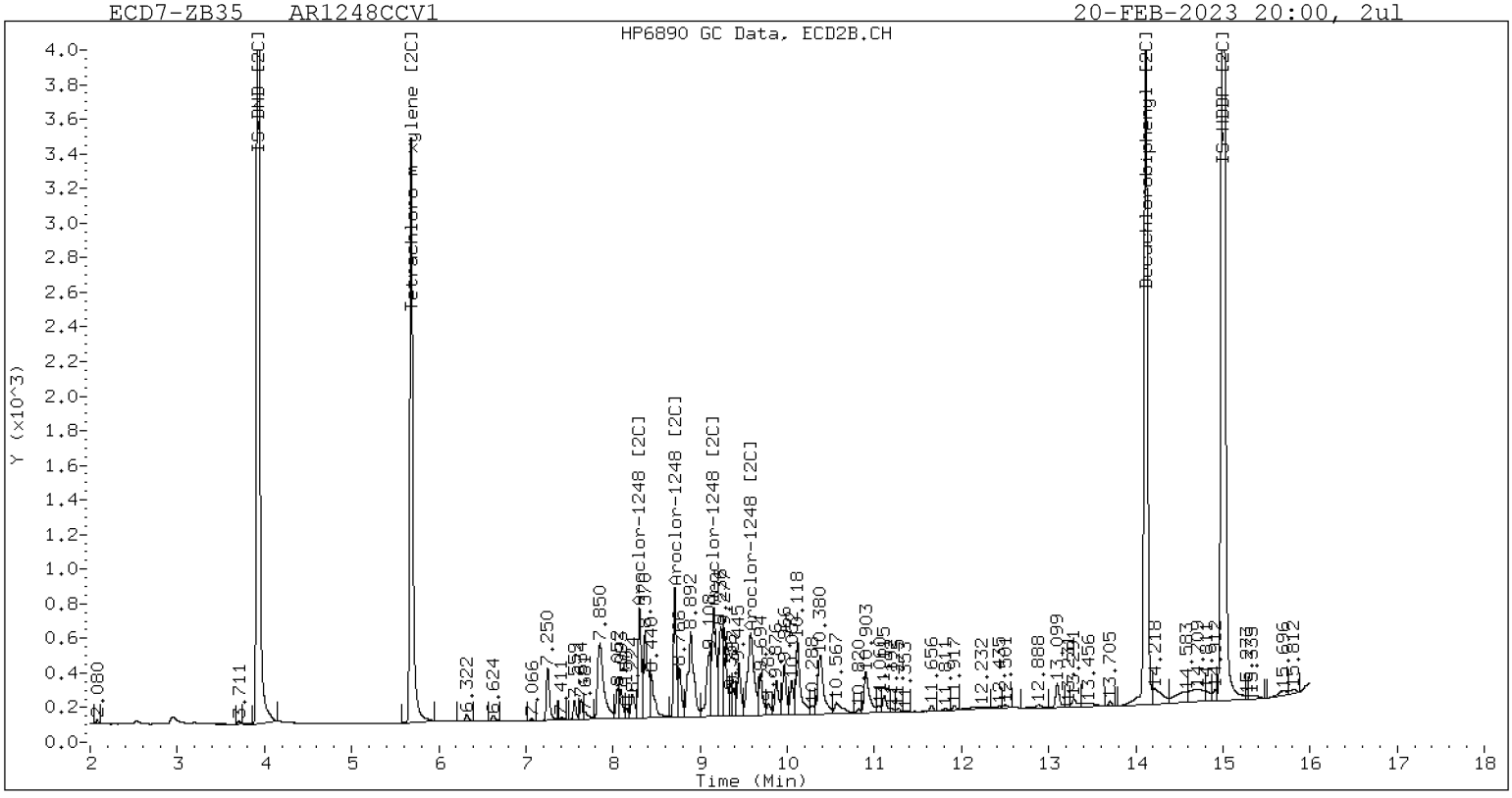
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV1 20-FEB-2023 20:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248CCV1 20-FEB-2023 20:00, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202330ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/20/23
Lab Sample ID:	SLB0274-CCV2	Injection Time:	20:21
Sequence Name:	AR1660CCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	236	0.0483914	0.0457556		-5.5	+/-20
Aroclor-1016 (1)	A	250.00	240	0.0291332	0.0279953		-4.0	
Aroclor-1016 (2)	A	250.00	237	0.0932933	0.0884444		-5.2	
Aroclor-1016 (3)	A	250.00	234	0.0429036	0.0401325		-6.4	
Aroclor-1016 (4)	A	250.00	234	0.0282354	0.0264503		-6.4	
Aroclor 1016 [2C]	A	250.00	253	0.0510062	0.0516959		1.2	+/-20
Aroclor-1016 (1) [2C]	A	250.00	251	0.0435251	0.0437099		0.4	
Aroclor-1016 (2) [2C]	A	250.00	253	0.0917441	0.0929529		1.2	
Aroclor-1016 (3) [2C]	A	250.00	262	0.0378128	0.0396908		4.8	
Aroclor-1016 (4) [2C]	A	250.00	246	0.0309428	0.0304299		-1.6	
Aroclor 1260	A	250.00	289	0.0369444	0.0425215		15.7	+/-20
Aroclor-1260 (1)	A	250.00	298	0.0275801	0.0329076		19.2	
Aroclor-1260 (2)	A	250.00	296	0.0282147	0.0334437		18.4	
Aroclor-1260 (3)	A	250.00	282	0.0747199	0.0843229		12.8	
Aroclor-1260 (4)	A	250.00	287	0.0379377	0.0435122		14.8	
Aroclor-1260 (5)	A	250.00	283	0.0162699	0.0184211		13.2	
Aroclor 1260 [2C]	A	250.00	270	0.0609398	0.0668601		7.9	+/-20
Aroclor-1260 (1) [2C]	A	250.00	260	0.0414523	0.0433086		4.0	
Aroclor-1260 (2) [2C]	A	250.00	281	0.1040347	0.1170951		12.4	
Aroclor-1260 (3) [2C]	A	250.00	264	0.0282007	0.0299048		5.6	
Aroclor-1260 (4) [2C]	A	250.00	274	0.0700714	0.0771319		9.6	
Decachlorobiphenyl	A	40.000	39.3	0.7045925	0.6918761		-1.8	+/-20
Tetrachlorometaxylene	A	40.000	37.6	1.1350860	1.0671790		-6.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	42.1	1.0765520	1.1324340		5.3	+/-20
Tetrachlorometaxylene [2C]	A	40.000	41.3	1.0668100	1.1020780		3.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202330ECD7.D
Data file 2: /230220.b/230220.b/02202330ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV2
Client ID:
Injection Date: 20-FEB-2023 20:21
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	395965	5.684	-0.001	166546	37.6	41.3	9.4	Tetrachloro-m-xylene
13.891	-0.000	432233	14.116	-0.001	244373	39.3	42.1	6.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	742078	72.6
Hexabromobiphenyl	975457	1249452	28.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	302240	-17.6
Hexabromobiphenyl	646884	431589	-33.3

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.268	-0.000	64921	240.2	1	7.252	-0.002	41284	251.1
Aroclor-1016	2	7.650	-0.000	205102	237.0	2	7.852	0.000	87794	253.3
Aroclor-1016	3	7.789	0.002	93067	233.9	3	8.051	-0.000	37488	262.4
Aroclor-1016	4	8.402	-0.000	61338	234.2	4	8.304	-0.000	28741	245.9
Total Col1Ave (4 peaks):					236.3	Total Col2Ave (4 peaks):				253.2 RPD = 7
Corrected Ave (3 peaks):					235.0	Corrected Ave (3 peaks):				250.1 RPD = 6
CalAmt %D:					-5.5	CalAmt %D:				1.3
Aroclor-1260	1	11.042	0.002	128489	298.3	1	11.650	0.001	58411	260.4
Aroclor-1260	2	11.359	0.001	130582	296.3	2	11.914	0.000	157928	280.7
Aroclor-1260	3	11.733	0.002	329242	282.1	3	12.432	-0.000	40333	263.9
Aroclor-1260	4	12.137	0.003	169895	286.7	4	12.498	-0.000	104029	273.9
Aroclor-1260	5	12.242	0.002	71926	283.1	NS	---			----
Total Col1Ave (5 peaks):					289.3	Total Col2Ave (4 peaks):				269.7 RPD = 7
Corrected Ave (4 peaks):					287.1	Corrected Ave (3 peaks):				266.1 RPD = 8
CalAmt %D:					15.7	CalAmt %D:				7.9

Total PCB Area Col1 (5.908 - 13.791) = 3763084 Col1 Total PCB = 0.4 ppm*

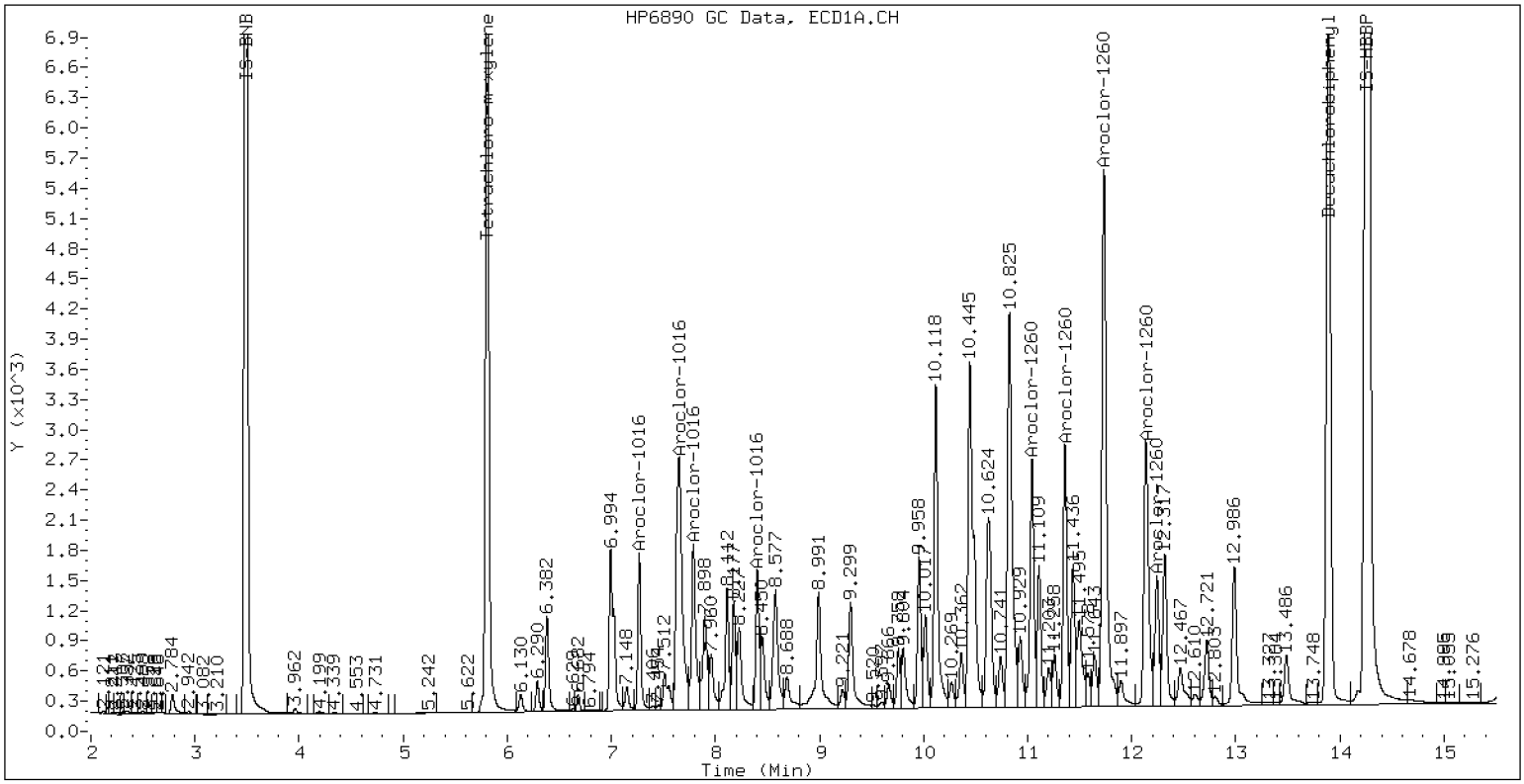
Total PCB Area Col2 (5.785 - 14.017) = 1526928 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

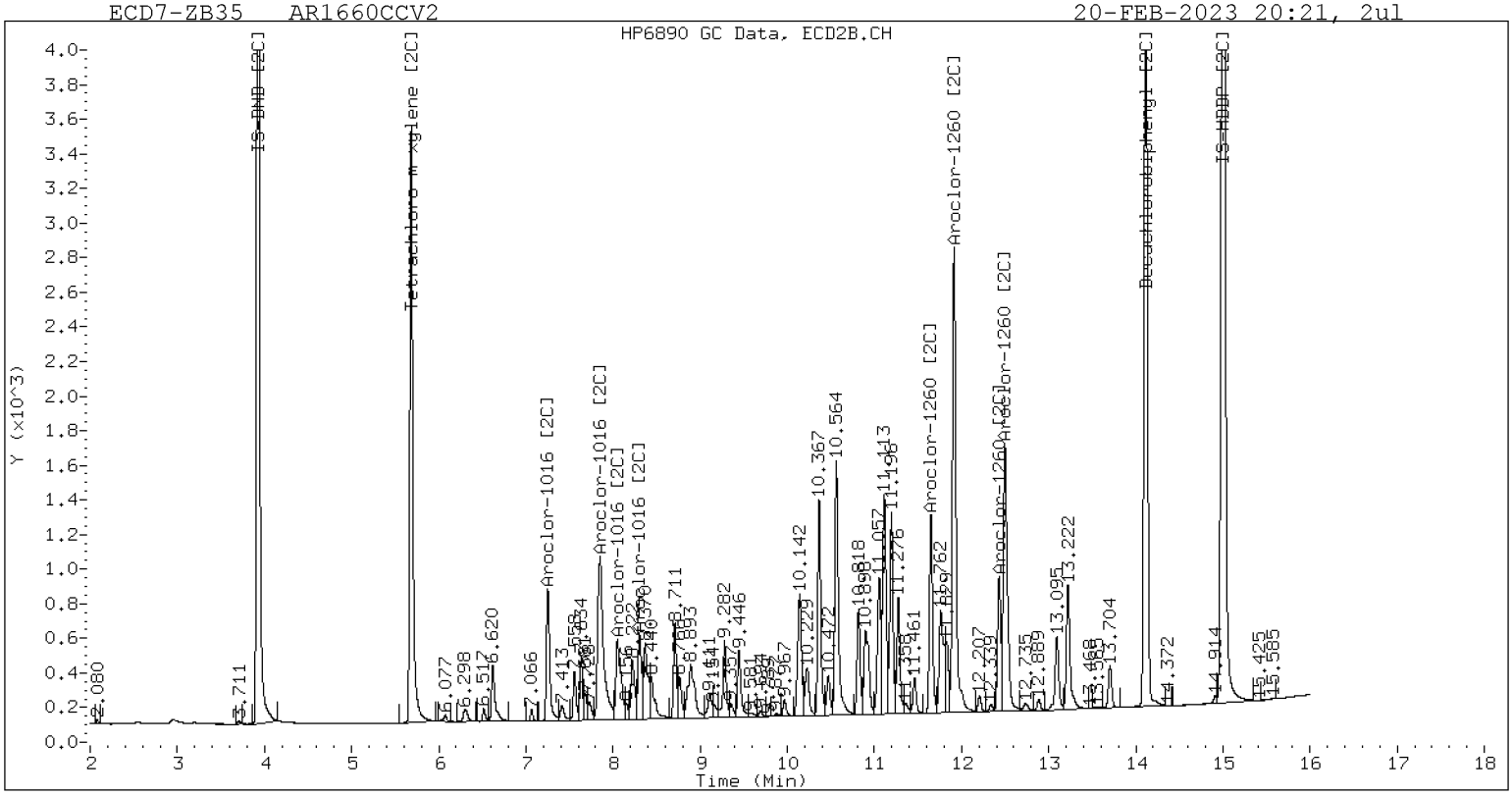
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV2 20-FEB-2023 20:21, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1660CCV2 20-FEB-2023 20:21, 2ul

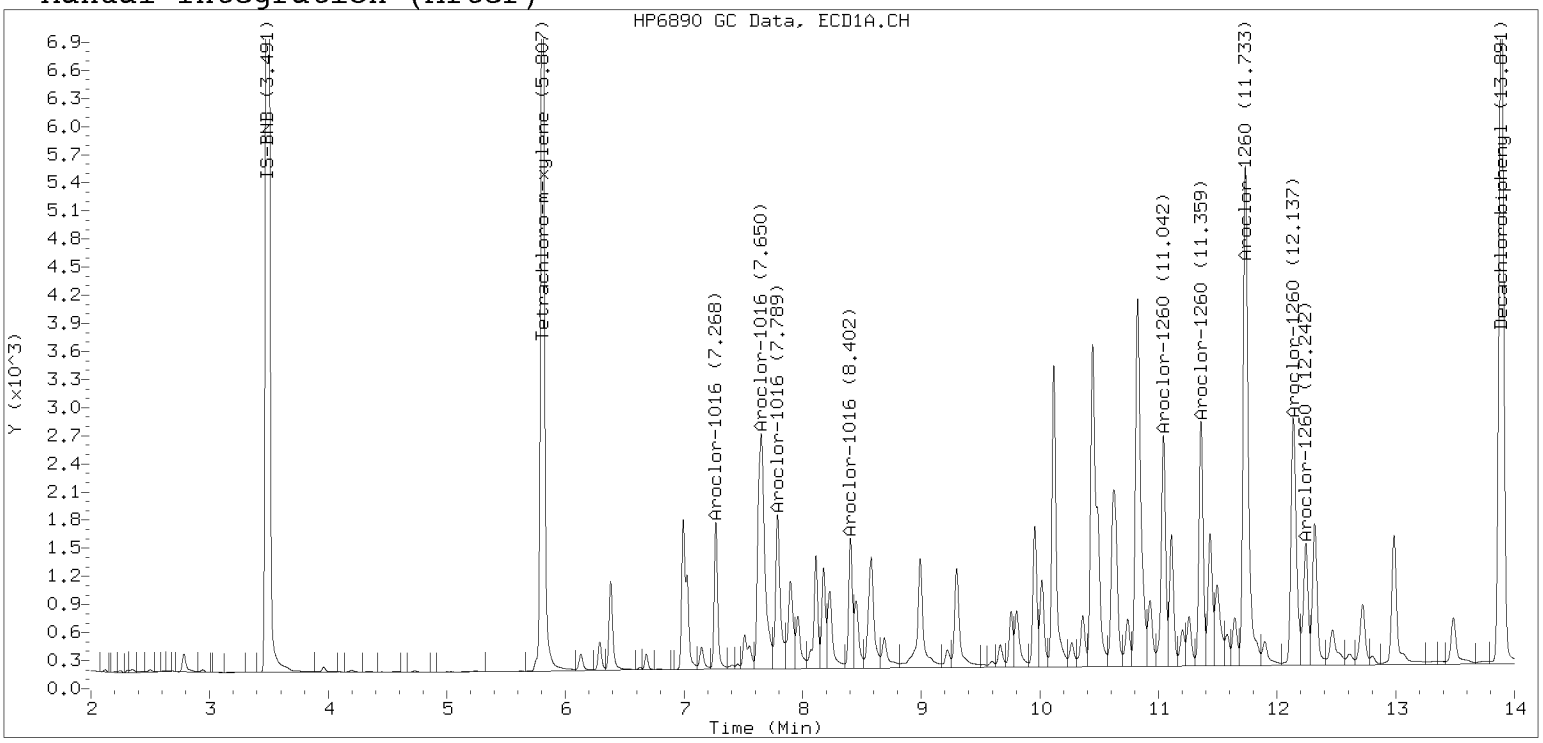


ZB-35 Manual Integration: NO

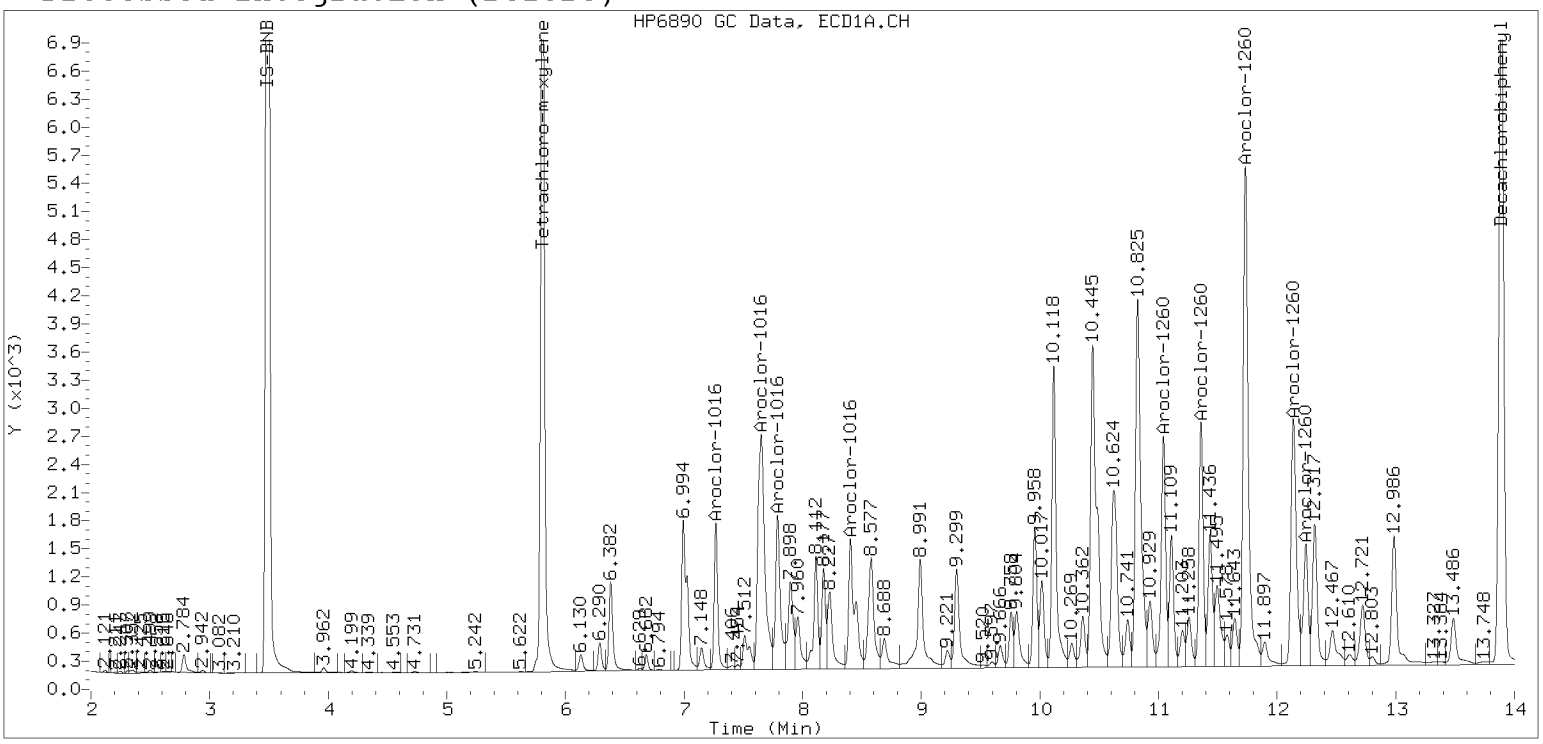
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230220.b/02202330ECD7.D Injection Date: 20-FEB-2023 20:21

Manual Integration (After)



Processed Integration (Before)



CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202343ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCV3	Injection Time:	00:54
Sequence Name:	AR1242CCV3		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1242	A	250.00	237	0.0389249	0.0367723		-5.4	+/-20	
Aroclor-1242 (1)	A	250.00	236		0.0225081				
Aroclor-1242 (2)	A	250.00	235		0.0708504				
Aroclor-1242 (3)	A	250.00	236		0.0215591				
Aroclor-1242 (4)	A	250.00	239		0.0321717				
Aroclor 1242 [2C]	A	250.00	245	0.0405023	0.0396974		-2.1	+/-20	
Aroclor-1242 (1) [2C]	A	250.00	250		0.0346036				
Aroclor-1242 (2) [2C]	A	250.00	244		0.0732615				
Aroclor-1242 (3) [2C]	A	250.00	243		0.0230404				
Aroclor-1242 (4) [2C]	A	250.00	242		0.0278842				
Decachlorobiphenyl	A	40.000	31.4	0.7045925	0.5534826		-21.5	+/-20	*
Tetrachlorometaxylene	A	40.000	44.0	1.1350860	1.2490740		10.0	+/-20	
Decachlorobiphenyl [2C]	A	40.000	39.0	1.0765520	1.0499460		-2.5	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	47.3	1.0668100	1.2617030		18.3	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202343ECD7.D
Data file 2: /230220.b/230220.b/02202343ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242CCV3
Client ID:
Injection Date: 21-FEB-2023 00:54
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	-0.000	534043	5.683	-0.002	216343	44.0	47.3	7.2	Tetrachloro-m-xylene
13.892	0.001	613011	14.116	-0.000	302293	31.4	39.0	21.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D	
Bromo-Nitrobenzene	430055	855102	98.8	
Hexabromobiphenyl	975457	2215105	127.1	<-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	342938	-6.5
Hexabromobiphenyl	646884	575826	-11.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.268	-0.001	60146	236.1	1	7.252	0.000	37084	250.0
Aroclor-1242	2	7.651	-0.000	189326	234.9	2	7.853	0.000	78513	244.3
Aroclor-1242	3	8.402	-0.001	57610	236.5	3	9.161	0.000	24692	243.1
Aroclor-1242	4	8.577	-0.000	85969	238.9	4	9.586	0.000	29883	242.6
Total Col1Ave (4 peaks):					236.6	Total Col2Ave (4 peaks):				245.0 RPD = 3
Corrected Ave (3 peaks):					235.8	Corrected Ave (3 peaks):				243.3 RPD = 3
CalAmt %D:					-5.4	CalAmt %D:				-2.0

Total PCB Area Col1 (5.908 - 13.791) = 1491915 Col1 Total PCB = 0.2 ppm*

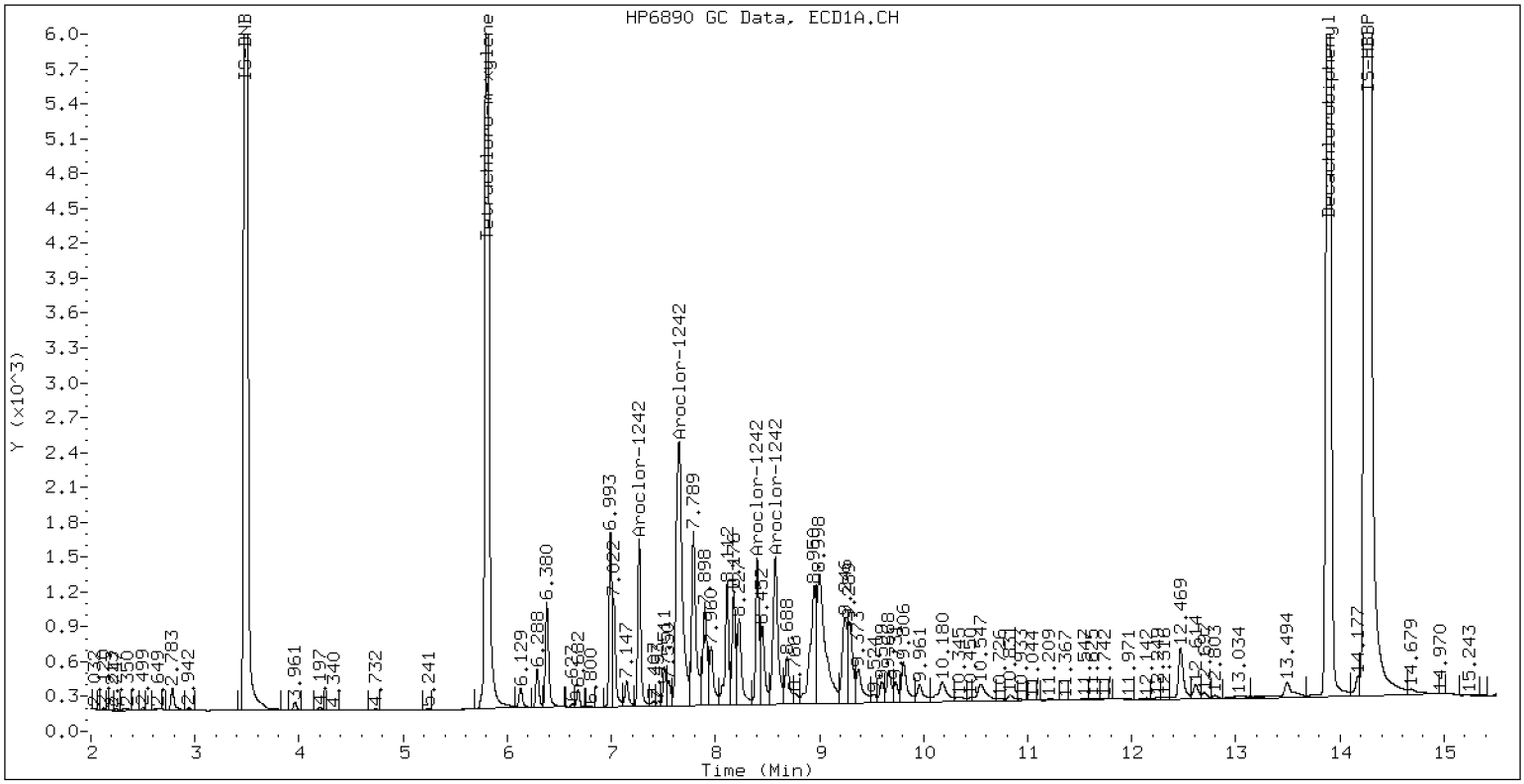
Total PCB Area Col2 (5.785 - 14.017) = 575108 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

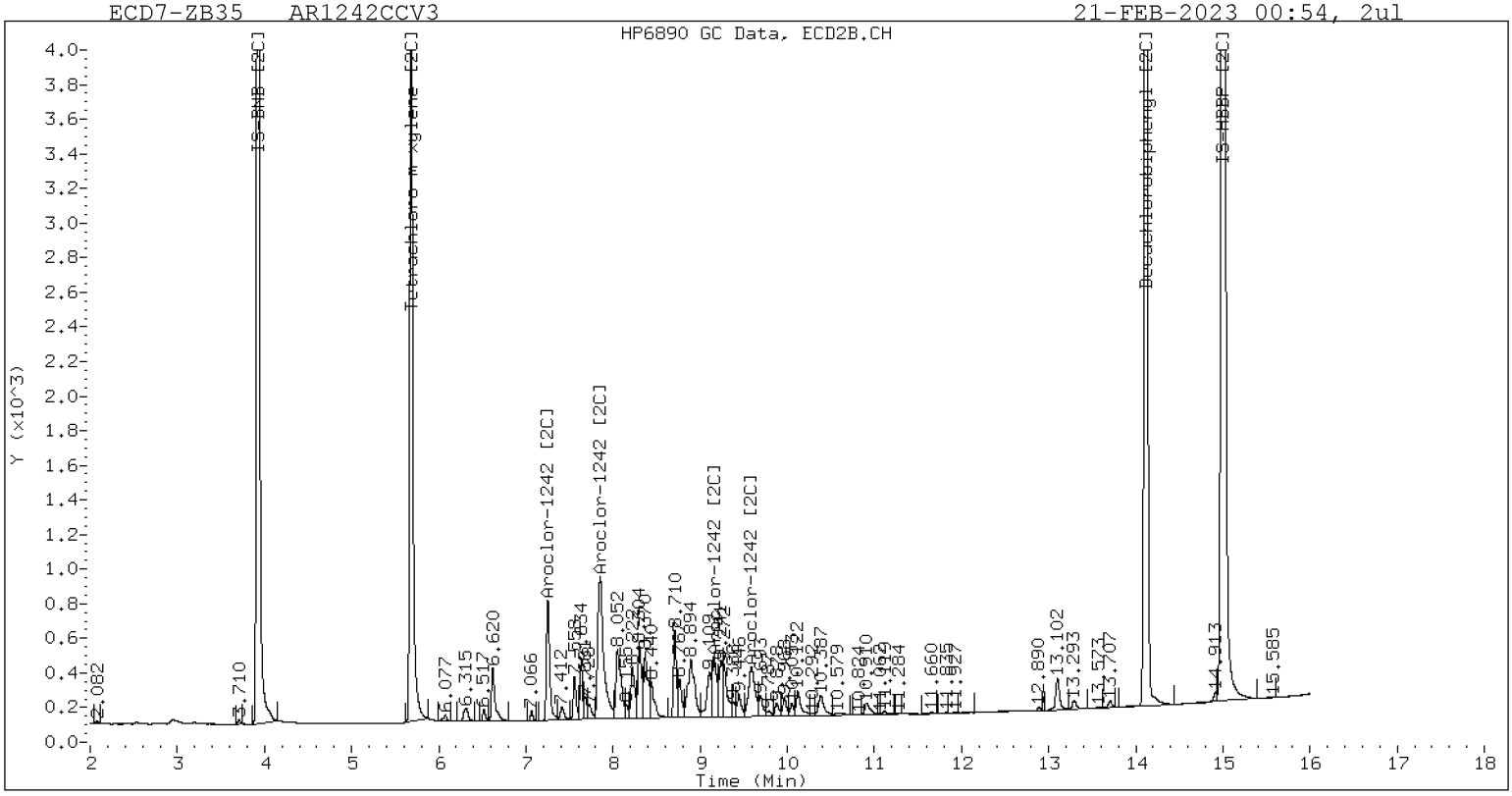
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242CCV3 21-FEB-2023 00:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242CCV3 21-FEB-2023 00:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202344ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCV4	Injection Time:	01:15
Sequence Name:	AR1660CCV4		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	237	0.0483914	0.0457472		-5.4	+/-20
Aroclor-1016 (1)	A	250.00	238	0.0291332	0.0277517		-4.8	
Aroclor-1016 (2)	A	250.00	238	0.0932933	0.0888231		-4.8	
Aroclor-1016 (3)	A	250.00	229	0.0429036	0.0392388		-8.4	
Aroclor-1016 (4)	A	250.00	241	0.0282354	0.0271750		-3.6	
Aroclor 1016 [2C]	A	250.00	245	0.0510062	0.0500077		-2.1	+/-20
Aroclor-1016 (1) [2C]	A	250.00	241	0.0435251	0.0419255		-3.6	
Aroclor-1016 (2) [2C]	A	250.00	246	0.0917441	0.0903771		-1.6	
Aroclor-1016 (3) [2C]	A	250.00	252	0.0378128	0.0380828		0.8	
Aroclor-1016 (4) [2C]	A	250.00	240	0.0309428	0.0296452		-4.0	
Aroclor 1260	A	250.00	209	0.0369444	0.0307641		-16.5	+/-20
Aroclor-1260 (1)	A	250.00	208	0.0275801	0.0229242		-16.8	
Aroclor-1260 (2)	A	250.00	212	0.0282147	0.0239337		-15.2	
Aroclor-1260 (3)	A	250.00	206	0.0747199	0.0615142		-17.6	
Aroclor-1260 (4)	A	250.00	211	0.0379377	0.0319759		-15.6	
Aroclor-1260 (5)	A	250.00	207	0.0162699	0.0134725		-17.2	
Aroclor 1260 [2C]	A	250.00	243	0.0609398	0.0602601		-3.0	+/-20
Aroclor-1260 (1) [2C]	A	250.00	230	0.0414523	0.0383316		-8.0	
Aroclor-1260 (2) [2C]	A	250.00	253	0.1040347	0.1056599		1.2	
Aroclor-1260 (3) [2C]	A	250.00	238	0.0282007	0.0269179		-4.8	
Aroclor-1260 (4) [2C]	A	250.00	249	0.0700714	0.0701310		-0.4	
Decachlorobiphenyl	A	40.000	33.3	0.7045925	0.5859814		-16.8	+/-20
Tetrachlorometaxylene	A	40.000	37.3	1.1350860	1.0586150		-6.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.5	1.0765520	1.0902500		1.3	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.8	1.0668100	1.0869670		2.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202344ECD7.D
Data file 2: /230220.b/230220.b/02202344ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV4
Client ID:
Injection Date: 21-FEB-2023 01:15
Report Date: 02/21/2023 09:39
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	431440	5.683	-0.002	177592	37.3	40.8	8.8	Tetrachloro-m-xylene
13.892	0.001	627657	14.117	0.000	299066	33.3	40.5	19.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	815103	89.5
Hexabromobiphenyl	975457	2142242	119.6 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	326766	-10.9
Hexabromobiphenyl	646884	548619	-15.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.268	-0.001	70689	238.1	1	7.252	-0.002	42812	240.8
Aroclor-1016	2	7.651	0.001	226250	238.0	2	7.851	-0.001	92288	246.3
Aroclor-1016	3	7.788	0.001	99949	228.6	3	8.051	0.000	38888	251.8
Aroclor-1016	4	8.402	-0.000	69220	240.6	4	8.303	-0.001	30272	239.5
Total Col1Ave (4 peaks):					236.4	Total Col2Ave (4 peaks):				244.6 RPD = 3
Corrected Ave (3 peaks):					234.9	Corrected Ave (3 peaks):				242.2 RPD = 3
CalAmt %D:					-5.5	CalAmt %D:				-2.2
Aroclor-1260	1	11.043	0.003	153466	207.8	1	11.651	0.001	65717	230.5
Aroclor-1260	2	11.359	0.002	160224	212.1	2	11.915	0.001	181147	253.3
Aroclor-1260	3	11.733	0.003	411807	205.8	3	12.434	0.001	46149	237.6
Aroclor-1260	4	12.138	0.004	214063	210.7	4	12.500	0.001	120235	249.0
Aroclor-1260	5	12.243	0.002	90192	207.0	NS	---			----
Total Col1Ave (5 peaks):					208.7	Total Col2Ave (4 peaks):				242.6 RPD = 15
Corrected Ave (4 peaks):					207.8	Corrected Ave (3 peaks):				239.0 RPD = 14
CalAmt %D:					-16.5	CalAmt %D:				-3.0

Total PCB Area Col1 (5.908 - 13.791) = 4368080 Col1 Total PCB = 0.5 ppm*

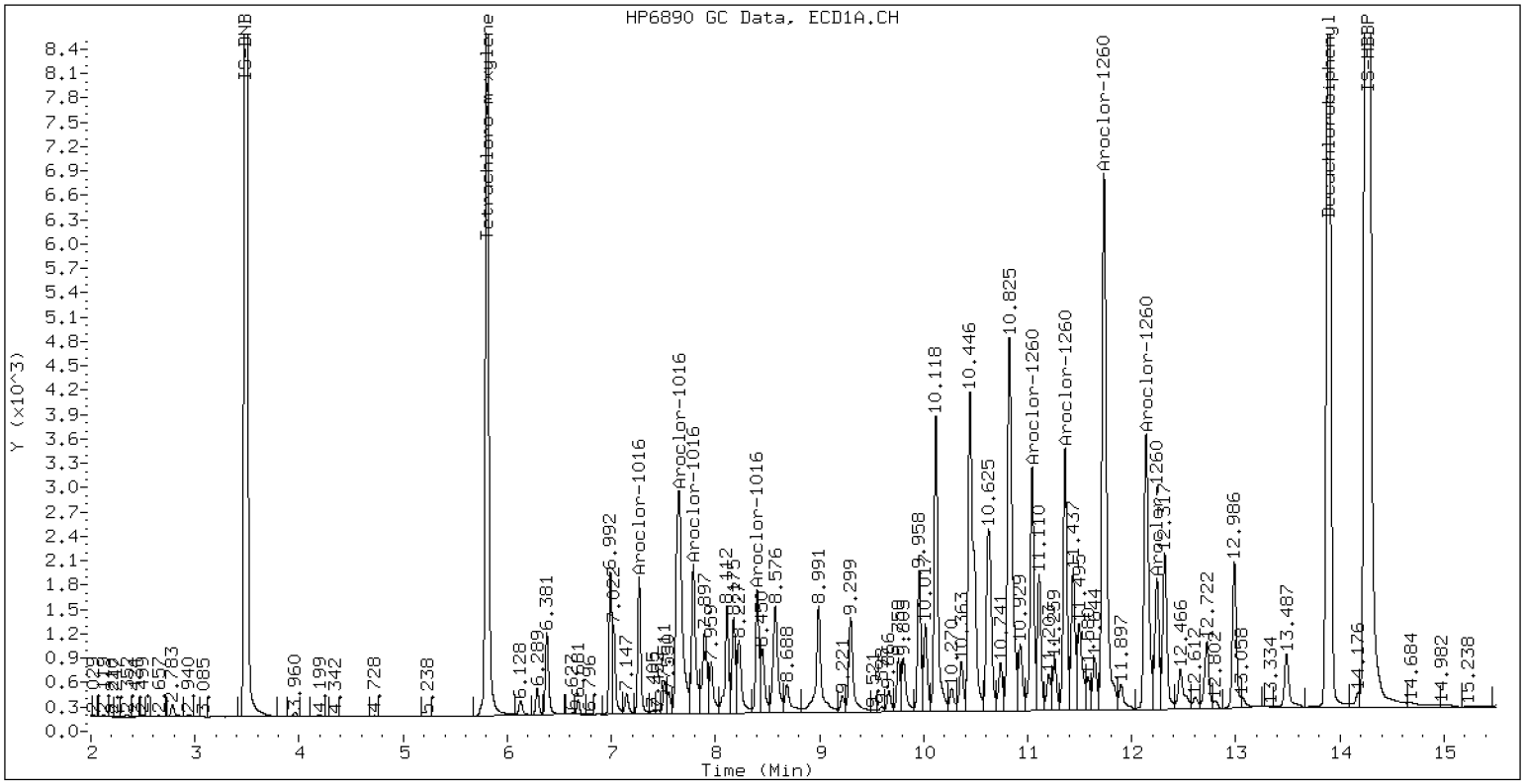
Total PCB Area Col2 (5.785 - 14.017) = 1677582 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

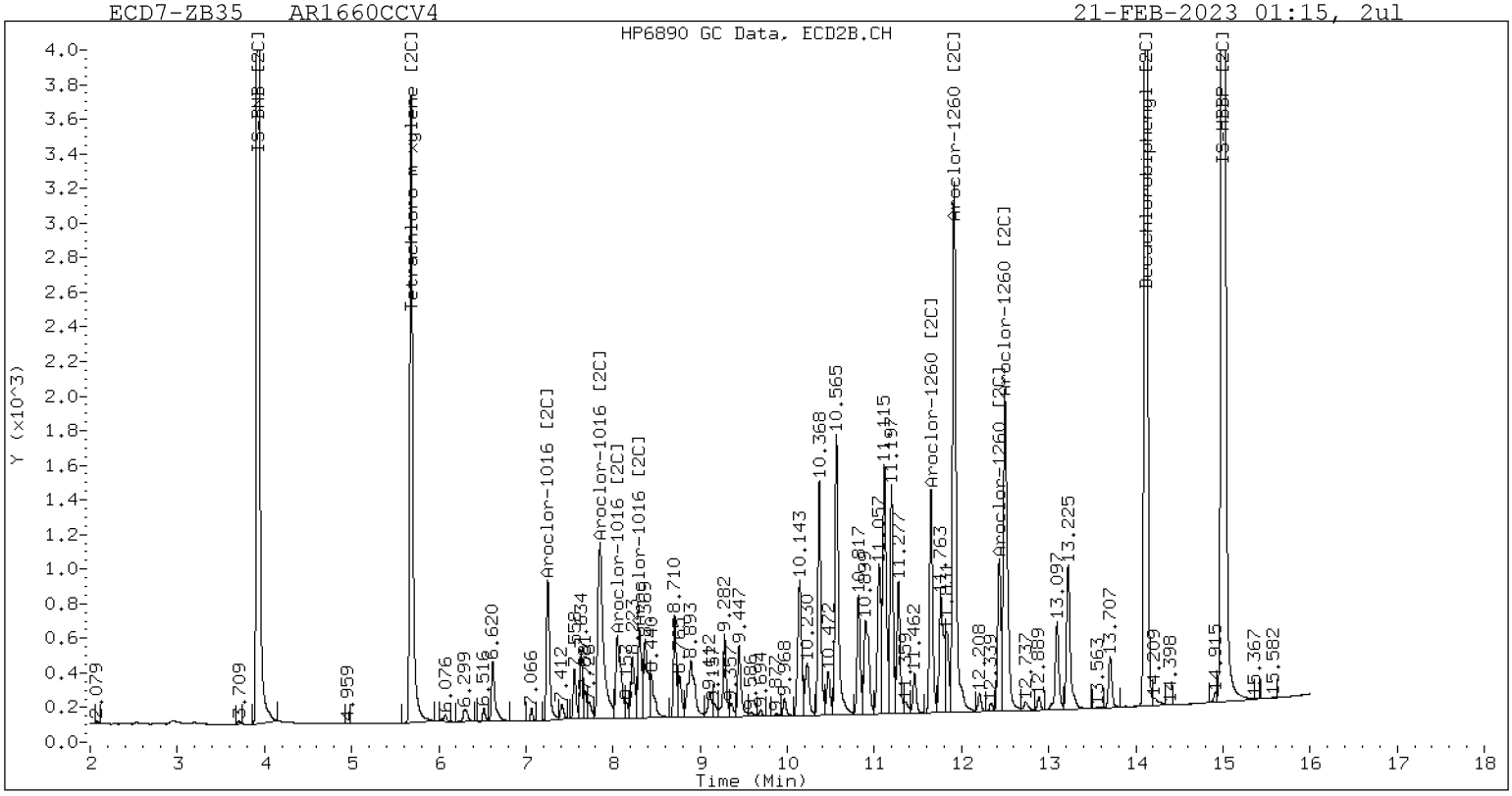
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV4 21-FEB-2023 01:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV4 21-FEB-2023 01:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202359ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCV5	Injection Time:	06:31
Sequence Name:	AR1254CCV5		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	228	0.0630747	0.0570172		-8.9	+/-20
Aroclor-1254 (1)	A	250.00	223		0.0692078			
Aroclor-1254 (2)	A	250.00	236		0.0288382			
Aroclor-1254 (3)	A	250.00	227		0.0447640			
Aroclor-1254 (4)	A	250.00	221		0.0867924			
Aroclor-1254 (5)	A	250.00	232		0.0554836			
Aroclor 1254 [2C]	A	250.00	235	0.0697219	0.0654768		-5.9	+/-20
Aroclor-1254 (1) [2C]	A	250.00	236		0.0533423			
Aroclor-1254 (2) [2C]	A	250.00	239		0.0435373			
Aroclor-1254 (3) [2C]	A	250.00	231		0.0916180			
Aroclor-1254 (4) [2C]	A	250.00	237		0.0928251			
Aroclor-1254 (5) [2C]	A	250.00	233		0.0460613			
Decachlorobiphenyl	A	40.000	37.9	0.7045925	0.6671059		-5.3	+/-20
Tetrachlorometaxylene	A	40.000	36.3	1.1350860	1.0293770		-9.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.1	1.0765520	1.1067700		2.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.3	1.0668100	1.0488160		-1.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202359ECD7.D
Data file 2: /230220.b/230220.b/02202359ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254CCV5
Client ID:
Injection Date: 21-FEB-2023 06:31
Report Date: 02/21/2023 09:40
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.000	397321	5.685	-0.000	171267	36.3	39.3	8.1	Tetrachloro-m-xylene
13.891	-0.000	380189	14.116	-0.000	244045	37.9	41.1	8.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	771964	79.5
Hexabromobiphenyl	975457	1139816	16.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	326591	-11.0
Hexabromobiphenyl	646884	441004	-31.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.295	0.000	166956	223.5	1	9.445	0.000	54441	236.4
Aroclor-1254	2	9.373	-0.001	69569	236.5	2	9.965	0.000	44434	238.9
Aroclor-1254	3	9.664	-0.001	107988	226.8	3	10.118	0.000	93505	230.8
Aroclor-1254	4	9.803	0.000	209377	220.9	4	10.367	0.000	94737	237.0
Aroclor-1254	5	10.166	-0.001	133848	231.5	5	10.564	0.000	47010	232.7

Total Col1Ave (5 peaks): 227.8 Total Col2Ave (5 peaks): 235.2 RPD = 3

Corrected Ave (4 peaks): 225.7 Corrected Ave (4 peaks): 234.2 RPD = 4

CalAmt %D: -8.9 CalAmt %D: -5.9

Total PCB Area Col1 (5.908 - 13.791) = 2235783 Col1 Total PCB = 0.3 ppm*

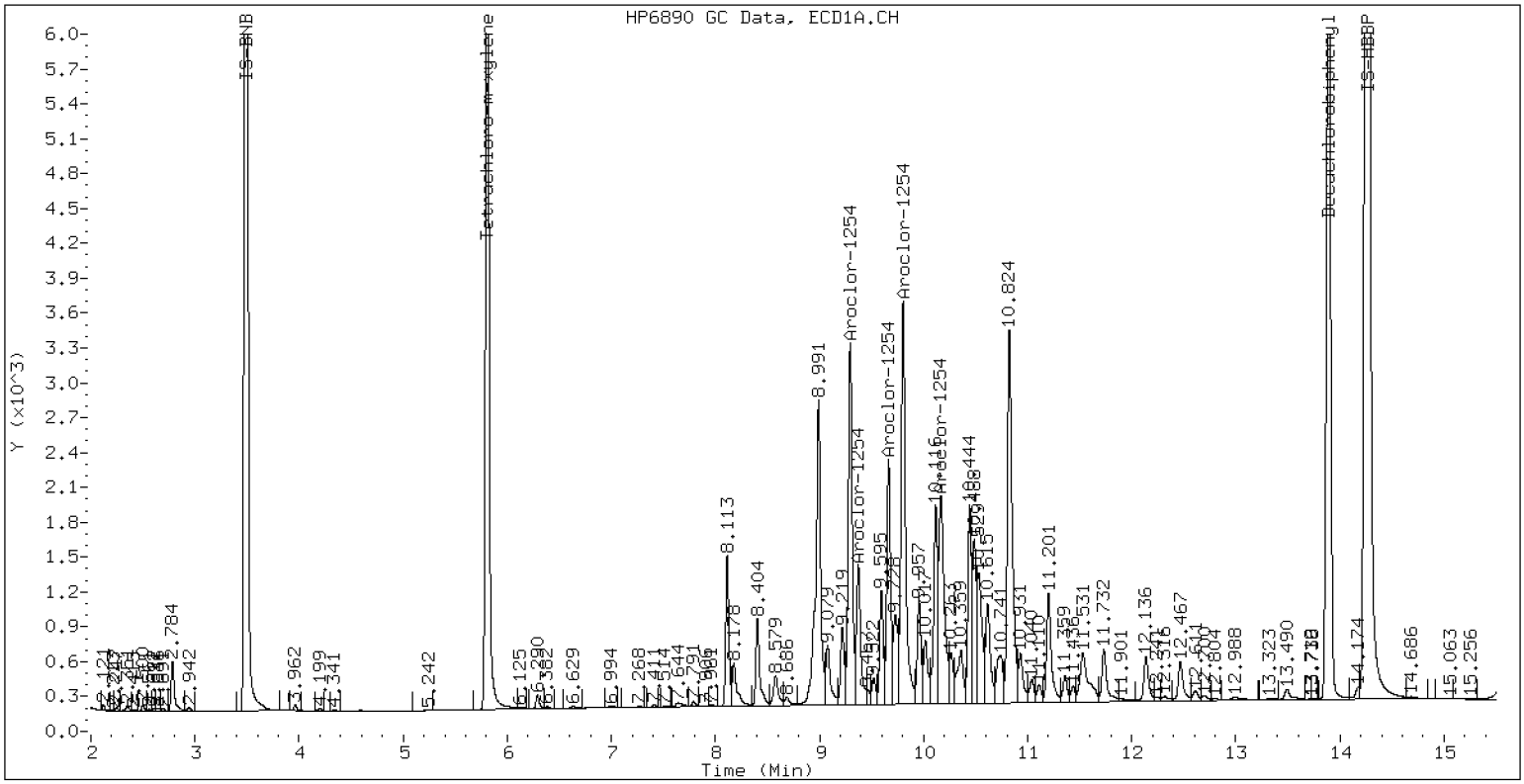
Total PCB Area Col2 (5.785 - 14.017) = 923776 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

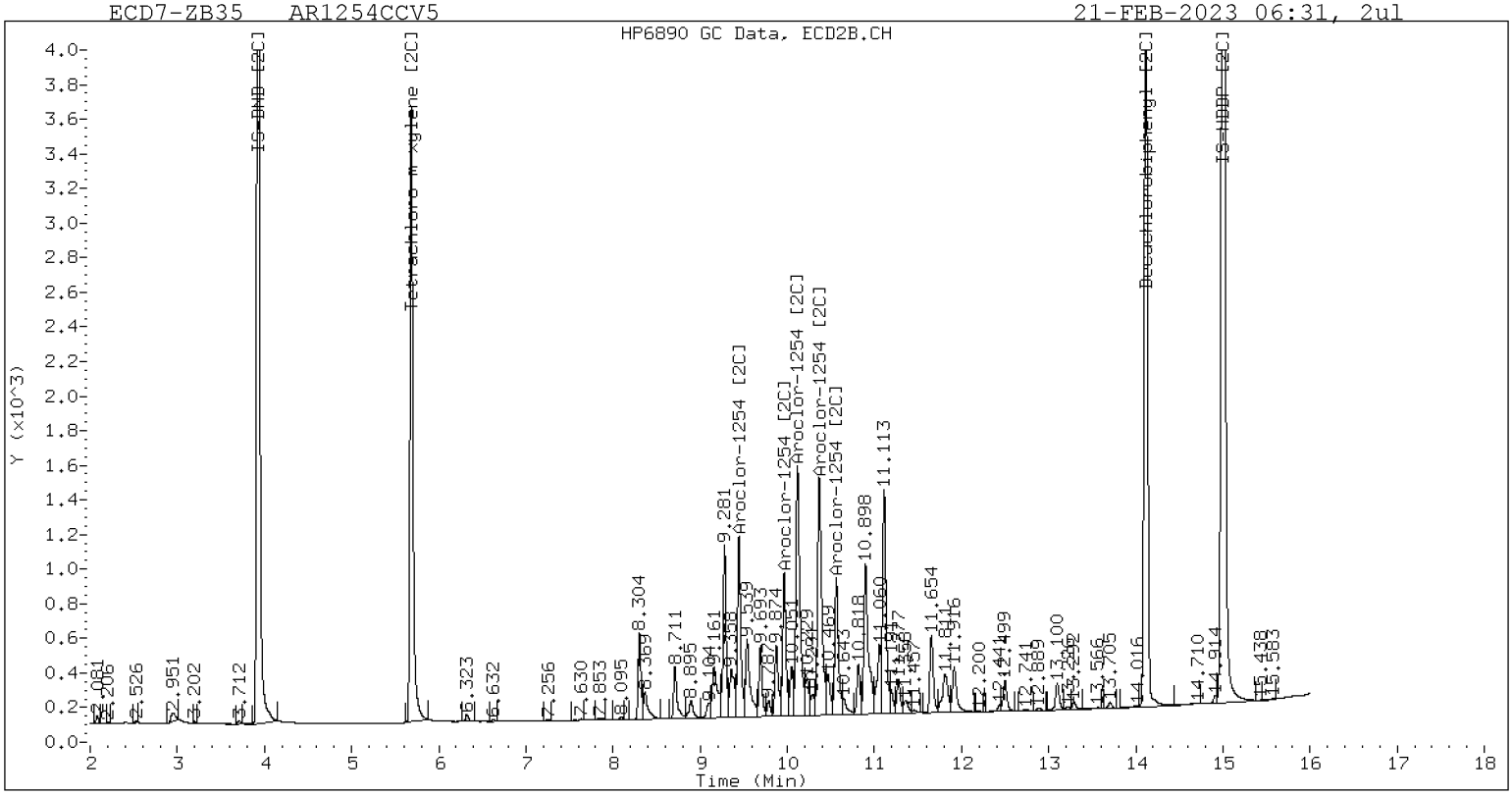
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254CCV5 21-FEB-2023 06:31, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254CCV5 21-FEB-2023 06:31, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202360ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCV6	Injection Time:	06:52
Sequence Name:	AR1660CCV6		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	244	0.0483914	0.0472745		-2.4	+/-20
Aroclor-1016 (1)	A	250.00	248	0.0291332	0.0289382		-0.8	
Aroclor-1016 (2)	A	250.00	246	0.0932933	0.0919602		-1.6	
Aroclor-1016 (3)	A	250.00	235	0.0429036	0.0403033		-6.0	
Aroclor-1016 (4)	A	250.00	247	0.0282354	0.0278960		-1.2	
Aroclor 1016 [2C]	A	250.00	250	0.0510062	0.0510843		-0.1	+/-20
Aroclor-1016 (1) [2C]	A	250.00	246	0.0435251	0.0429076		-1.6	
Aroclor-1016 (2) [2C]	A	250.00	252	0.0917441	0.0924107		0.8	
Aroclor-1016 (3) [2C]	A	250.00	258	0.0378128	0.0389497		3.2	
Aroclor-1016 (4) [2C]	A	250.00	243	0.0309428	0.0300693		-2.8	
Aroclor 1260	A	250.00	298	0.0369444	0.0439360		19.3	+/-20
Aroclor-1260 (1)	A	250.00	303	0.0275801	0.0334777		21.2	
Aroclor-1260 (2)	A	250.00	305	0.0282147	0.0344109		22.0	
Aroclor-1260 (3)	A	250.00	292	0.0747199	0.0874238		16.8	
Aroclor-1260 (4)	A	250.00	299	0.0379377	0.0453843		19.6	
Aroclor-1260 (5)	A	250.00	292	0.0162699	0.0189830		16.8	
Aroclor 1260 [2C]	A	250.00	267	0.0609398	0.0661611		6.6	+/-20
Aroclor-1260 (1) [2C]	A	250.00	258	0.0414523	0.0429495		3.2	
Aroclor-1260 (2) [2C]	A	250.00	279	0.1040347	0.1164453		11.6	
Aroclor-1260 (3) [2C]	A	250.00	260	0.0282007	0.0294429		4.0	
Aroclor-1260 (4) [2C]	A	250.00	269	0.0700714	0.0758069		7.6	
Decachlorobiphenyl	A	40.000	39.4	0.7045925	0.6948366		-1.5	+/-20
Tetrachlorometaxylene	A	40.000	38.6	1.1350860	1.0963620		-3.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.4	1.0765520	1.1133130		3.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	41.6	1.0668100	1.1095260		4.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202360ECD7.D
Data file 2: /230220.b/230220.b/02202360ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV6
Client ID:
Injection Date: 21-FEB-2023 06:52
Report Date: 02/21/2023 09:40
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.000	422805	5.685	0.000	181655	38.6	41.6	7.4	Tetrachloro-m-xylene
13.891	0.000	454001	14.117	0.000	262831	39.4	41.4	4.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	771287	79.3
Hexabromobiphenyl	975457	1306785	34.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	327446	-10.7
Hexabromobiphenyl	646884	472160	-27.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.000	69749	248.3	1	7.253	0.000	43906	246.5
Aroclor-1016	2	7.652	0.002	221649	246.4	2	7.852	0.000	94561	251.8
Aroclor-1016	3	7.788	0.001	97142	234.8	3	8.051	0.000	39856	257.5
Aroclor-1016	4	8.402	0.000	67237	247.0	4	8.304	0.000	30769	242.9
Total Col1Ave (4 peaks):					244.1	Total Col2Ave (4 peaks):				249.7 RPD = 2
Corrected Ave (3 peaks):					242.8	Corrected Ave (3 peaks):				247.1 RPD = 2
CalAmt %D:					-2.3	CalAmt %D:				-0.1
Aroclor-1260	1	11.041	0.001	136713	303.5	1	11.649	0.000	63372	258.3
Aroclor-1260	2	11.357	0.000	140524	304.9	2	11.914	0.000	171815	279.1
Aroclor-1260	3	11.732	0.002	357013	292.5	3	12.433	0.000	43443	259.8
Aroclor-1260	4	12.136	0.001	185336	299.1	4	12.498	0.000	111853	269.1
Aroclor-1260	5	12.241	0.001	77521	291.7	NS	---			----
Total Col1Ave (5 peaks):					298.3	Total Col2Ave (4 peaks):				266.6 RPD = 11
Corrected Ave (4 peaks):					296.7	Corrected Ave (3 peaks):				262.4 RPD = 12
CalAmt %D:					19.3	CalAmt %D:				6.6

Total PCB Area Col1 (5.908 - 13.791) = 4001244 Col1 Total PCB = 0.5 ppm*

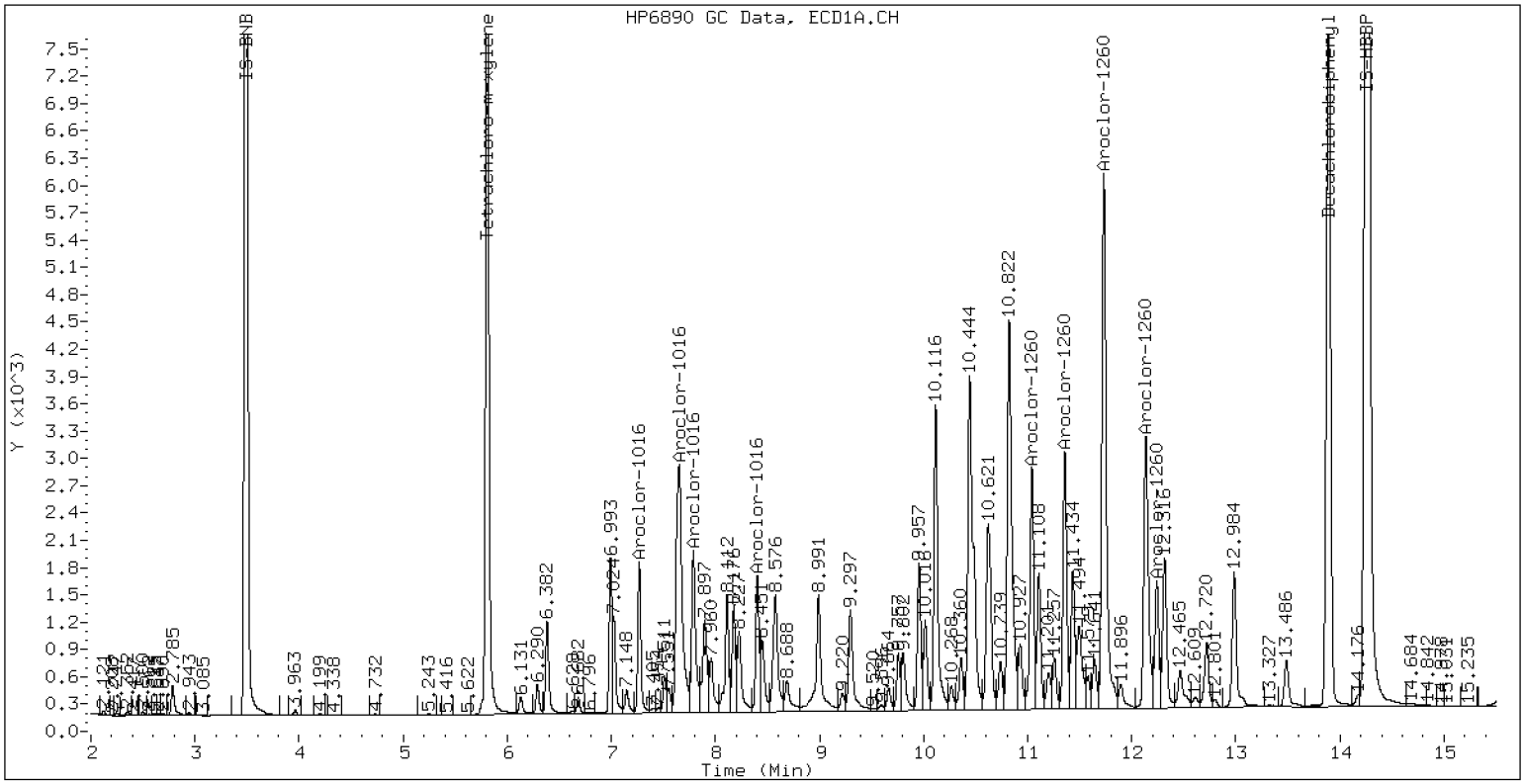
Total PCB Area Col2 (5.785 - 14.017) = 1648566 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

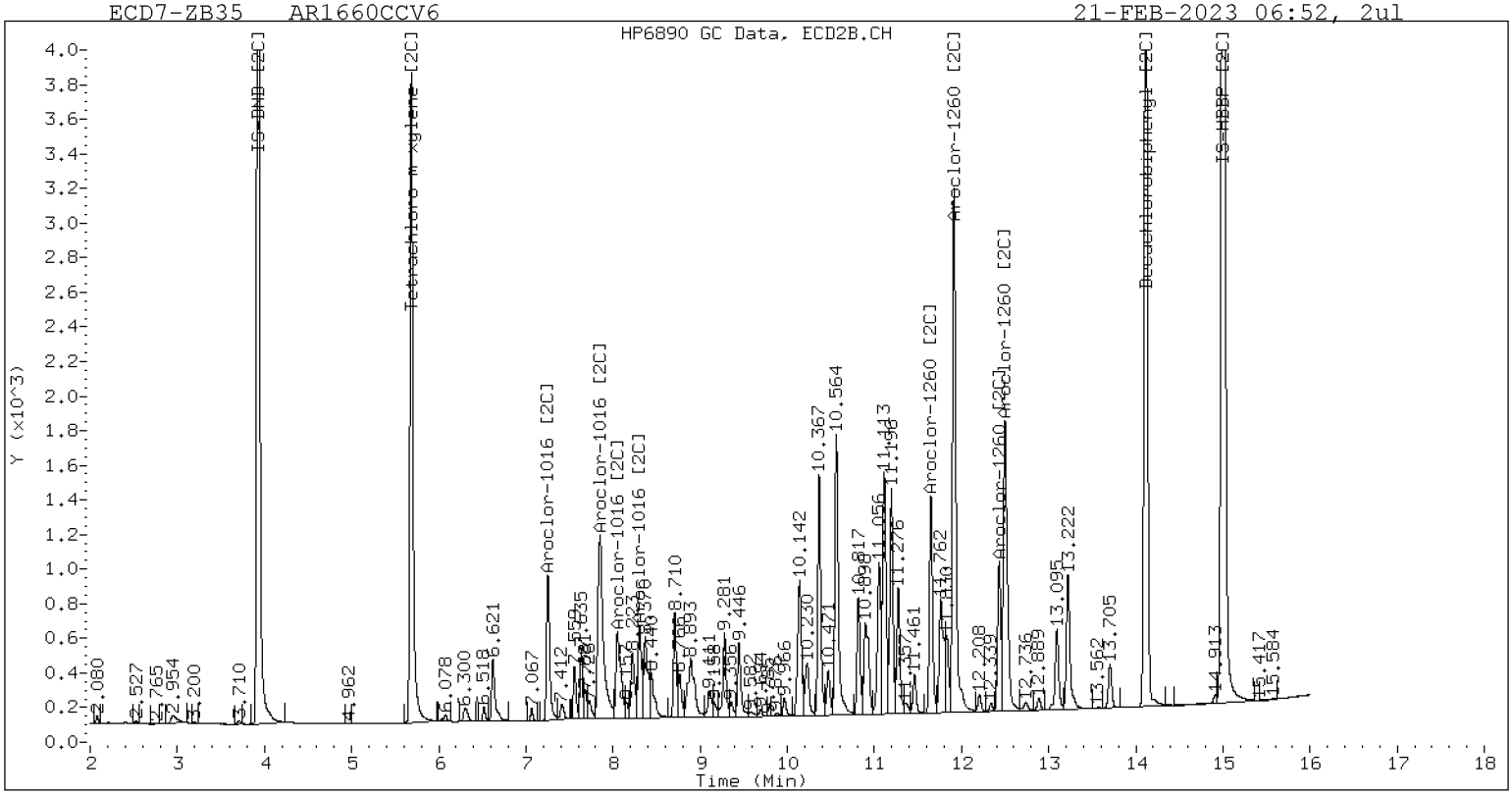
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV6 21-FEB-2023 06:52, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV6 21-FEB-2023 06:52, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202378ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCV7	Injection Time:	13:12
Sequence Name:	AR1248CCV7		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	209	0.0499033	0.0418170		-16.5	+/-20
Aroclor-1248 (1)	A	250.00	224		0.0345239			
Aroclor-1248 (2)	A	250.00	222		0.0432405			
Aroclor-1248 (3)	A	250.00	214		0.0589548			
Aroclor-1248 (4)	A	250.00	175		0.0305489			
Aroclor 1248 [2C]	A	250.00	234	0.0427878	0.0401137		-6.4	+/-20
Aroclor-1248 (1) [2C]	A	250.00	236		0.0340199			
Aroclor-1248 (2) [2C]	A	250.00	225		0.0342251			
Aroclor-1248 (3) [2C]	A	250.00	240		0.0421778			
Aroclor-1248 (4) [2C]	A	250.00	235		0.0500322			
Decachlorobiphenyl	A	40.000	36.4	0.7045925	0.6413519		-9.0	+/-20
Tetrachlorometaxylene	A	40.000	35.9	1.1350860	1.0179330		-10.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.7	1.0765520	1.0683960		-0.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.0	1.0668100	1.0676060		0.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202378ECD7.D
Data file 2: /230220.b/230220.b/02202378ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV7
Client ID:
Injection Date: 21-FEB-2023 13:12
Report Date: 02/21/2023 13:47
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	411165	5.684	0.000	180639	35.9	40.0	11.0	Tetrachloro-m-xylene
13.891	-0.000	318800	14.115	0.000	215606	36.4	39.7	8.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	807843	87.8
Hexabromobiphenyl	975457	994150	1.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	338400	-7.7
Hexabromobiphenyl	646884	403607	-37.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount	
Aroclor-1248	1	8.401	-0.002	87156	223.7	1	8.302	0.000	35976	235.7	
Aroclor-1248	2	8.575	-0.003	109161	222.0	2	8.709	0.000	36193	225.3	
Aroclor-1248	3	8.995	-0.001	148832	214.2	3	9.155	0.000	44603	240.3	
Aroclor-1248	4	9.291	-0.001	77121	175.5	4	9.578	0.000	52909	235.0	
Total Col1Ave (4 peaks):					208.8	Total Col2Ave (4 peaks):				234.1	RPD = 11
Corrected Ave (3 peaks):					203.9	Corrected Ave (3 peaks):				232.0	RPD = 13
CalAmt %D:					-16.5	CalAmt %D:				-6.4	

Total PCB Area Col1 (5.908 - 13.791) = 1649174 Col1 Total PCB = 0.2 ppm*

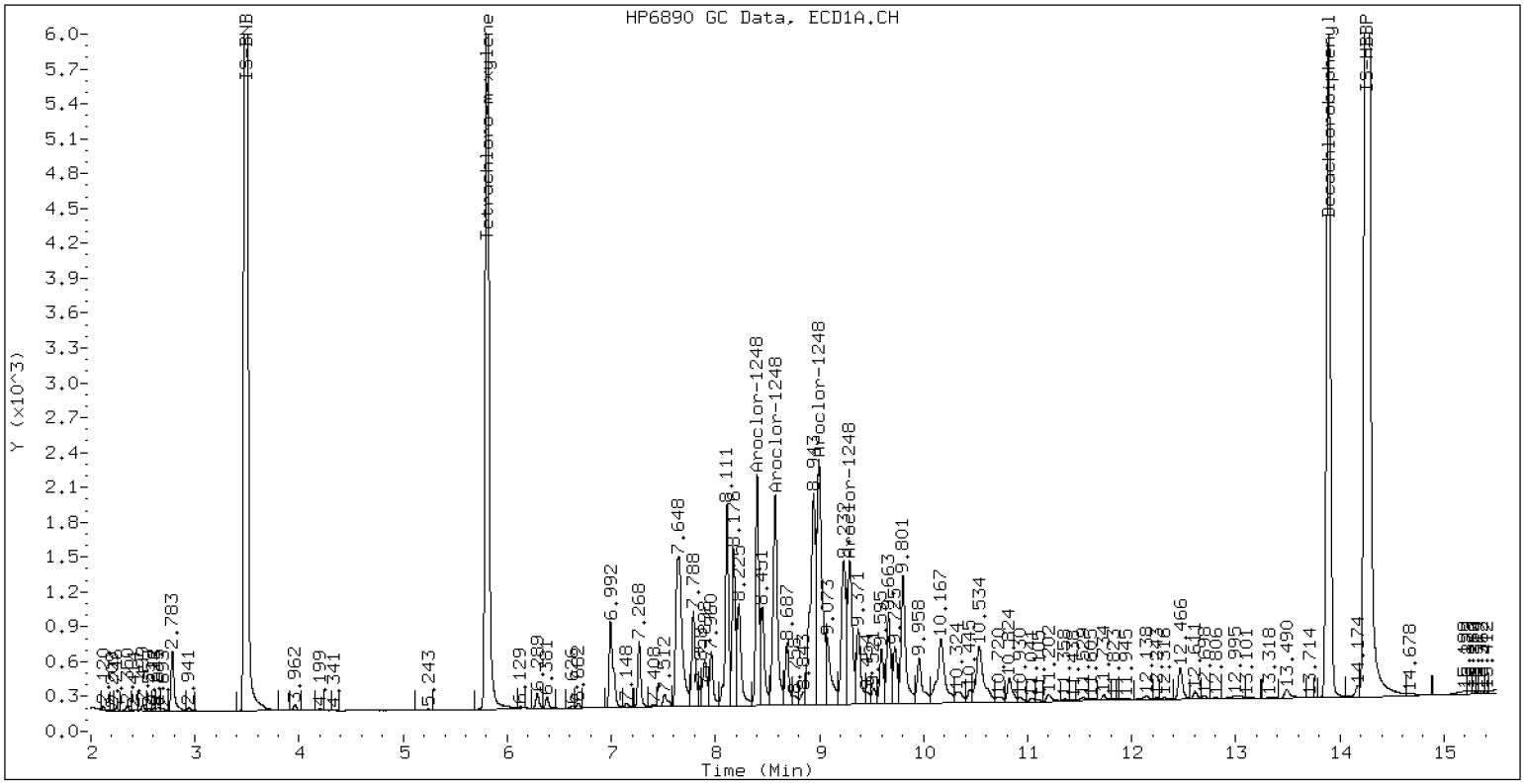
Total PCB Area Col2 (5.784 - 14.015) = 715058 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

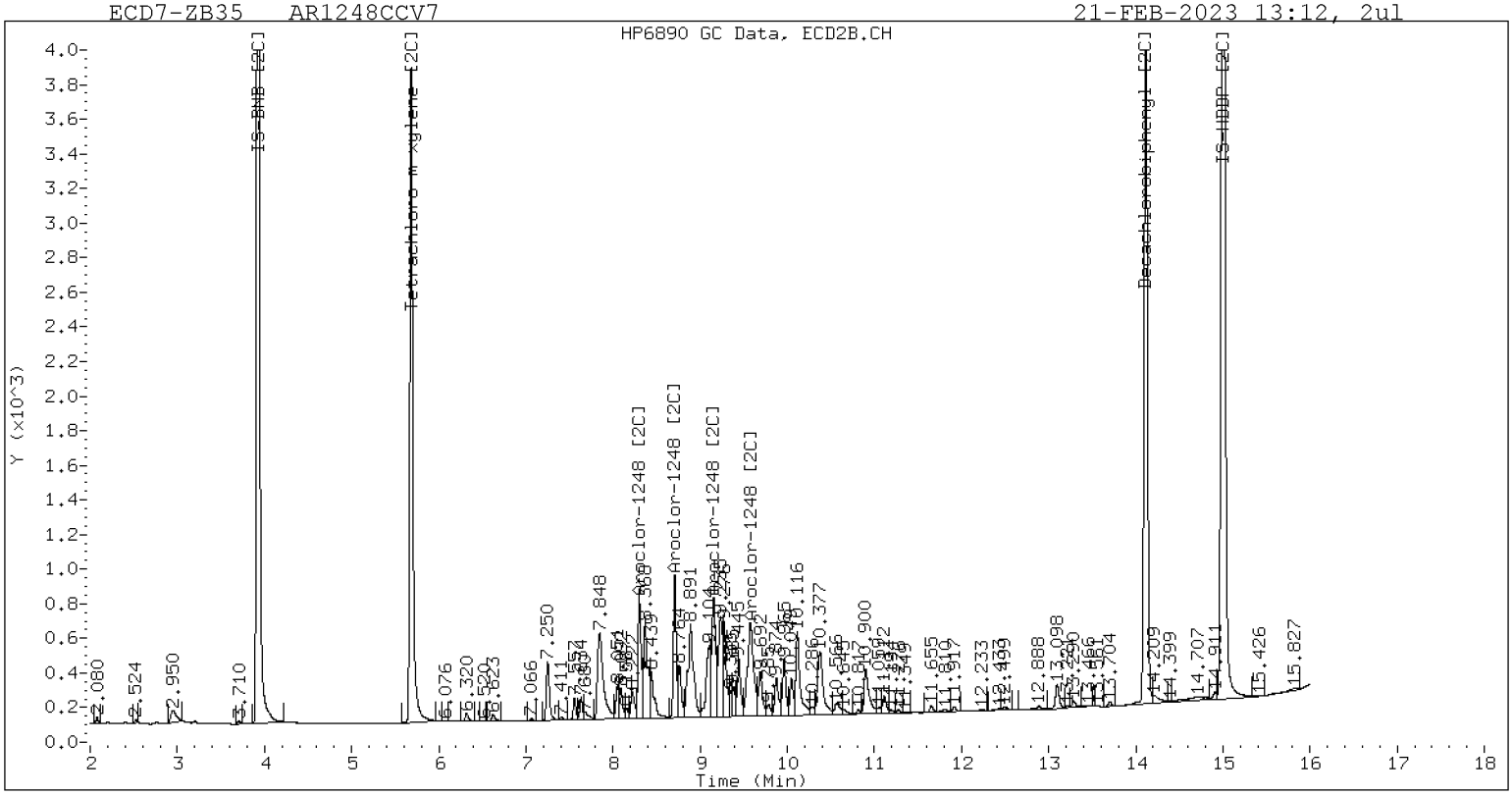
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV7 21-FEB-2023 13:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248CCV7 21-FEB-2023 13:12, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202379ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCV8	Injection Time:	13:33
Sequence Name:	AR1660CCV8		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	240	0.0483914	0.0464627		-4.1	+/-20
Aroclor-1016 (1)	A	250.00	244	0.0291332	0.0284422		-2.4	
Aroclor-1016 (2)	A	250.00	242	0.0932933	0.0904618		-3.2	
Aroclor-1016 (3)	A	250.00	230	0.0429036	0.0394626		-8.0	
Aroclor-1016 (4)	A	250.00	243	0.0282354	0.0274842		-2.8	
Aroclor 1016 [2C]	A	250.00	247	0.0510062	0.0505890		-1.3	+/-20
Aroclor-1016 (1) [2C]	A	250.00	246	0.0435251	0.0427641		-1.6	
Aroclor-1016 (2) [2C]	A	250.00	250	0.0917441	0.0918324		0.0	
Aroclor-1016 (3) [2C]	A	250.00	253	0.0378128	0.0382536		1.2	
Aroclor-1016 (4) [2C]	A	250.00	238	0.0309428	0.0295060		-4.8	
Aroclor 1260	A	250.00	300	0.0369444	0.0442769		19.8	+/-20
Aroclor-1260 (1)	A	250.00	314	0.0275801	0.0346687		25.6	
Aroclor-1260 (2)	A	250.00	313	0.0282147	0.0353613		25.2	
Aroclor-1260 (3)	A	250.00	296	0.0747199	0.0886461		18.4	
Aroclor-1260 (4)	A	250.00	292	0.0379377	0.0442879		16.8	
Aroclor-1260 (5)	A	250.00	283	0.0162699	0.0184207		13.2	
Aroclor 1260 [2C]	A	250.00	279	0.0609398	0.0692157		11.7	+/-20
Aroclor-1260 (1) [2C]	A	250.00	272	0.0414523	0.0452760		8.8	
Aroclor-1260 (2) [2C]	A	250.00	292	0.1040347	0.1217678		16.8	
Aroclor-1260 (3) [2C]	A	250.00	273	0.0282007	0.0308958		9.2	
Aroclor-1260 (4) [2C]	A	250.00	280	0.0700714	0.0789231		12.0	
Decachlorobiphenyl	A	40.000	38.1	0.7045925	0.6715886		-4.8	+/-20
Tetrachlorometaxylene	A	40.000	38.2	1.1350860	1.0828090		-4.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	41.7	1.0765520	1.1218470		4.3	+/-20
Tetrachlorometaxylene [2C]	A	40.000	40.9	1.0668100	1.0915930		2.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202379ECD7.D
Data file 2: /230220.b/230220.b/02202379ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV8
Client ID:
Injection Date: 21-FEB-2023 13:33
Report Date: 02/21/2023 13:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	464411	5.683	-0.000	193070	38.2	40.9	7.0	Tetrachloro-m-xylene
13.891	-0.000	452598	14.115	0.000	268141	38.1	41.7	8.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	857789	99.5
Hexabromobiphenyl	975457	1347843	38.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	353740	-3.5
Hexabromobiphenyl	646884	478035	-26.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.268	-0.001	76242	244.1	1	7.252	-0.001	47273	245.6
Aroclor-1016	2	7.649	-0.001	242491	242.4	2	7.850	-0.002	101515	250.2
Aroclor-1016	3	7.788	0.000	105783	229.9	3	8.049	-0.002	42287	252.9
Aroclor-1016	4	8.402	-0.000	73674	243.3	4	8.302	-0.002	32617	238.4
Total Col1Ave (4 peaks):					239.9	Total Col2Ave (4 peaks):				246.8 RPD = 3
Corrected Ave (3 peaks):					238.6	Corrected Ave (3 peaks):				244.8 RPD = 3
CalAmt %D:					-4.0	CalAmt %D:				-1.3
Aroclor-1260	1	11.042	0.001	146025	314.3	1	11.649	0.000	67636	272.3
Aroclor-1260	2	11.358	0.001	148942	313.3	2	11.913	-0.001	181904	291.9
Aroclor-1260	3	11.732	0.001	373378	296.6	3	12.432	-0.001	46154	272.7
Aroclor-1260	4	12.135	0.001	186541	291.8	4	12.498	-0.001	117900	280.2
Aroclor-1260	5	12.241	0.000	77588	283.0	NS	---			----
Total Col1Ave (5 peaks):					299.8	Total Col2Ave (4 peaks):				279.3 RPD = 7
Corrected Ave (4 peaks):					296.2	Corrected Ave (3 peaks):				275.0 RPD = 7
CalAmt %D:					19.9	CalAmt %D:				11.7

Total PCB Area Col1 (5.908 - 13.791) = 4266282 Col1 Total PCB = 0.4 ppm*

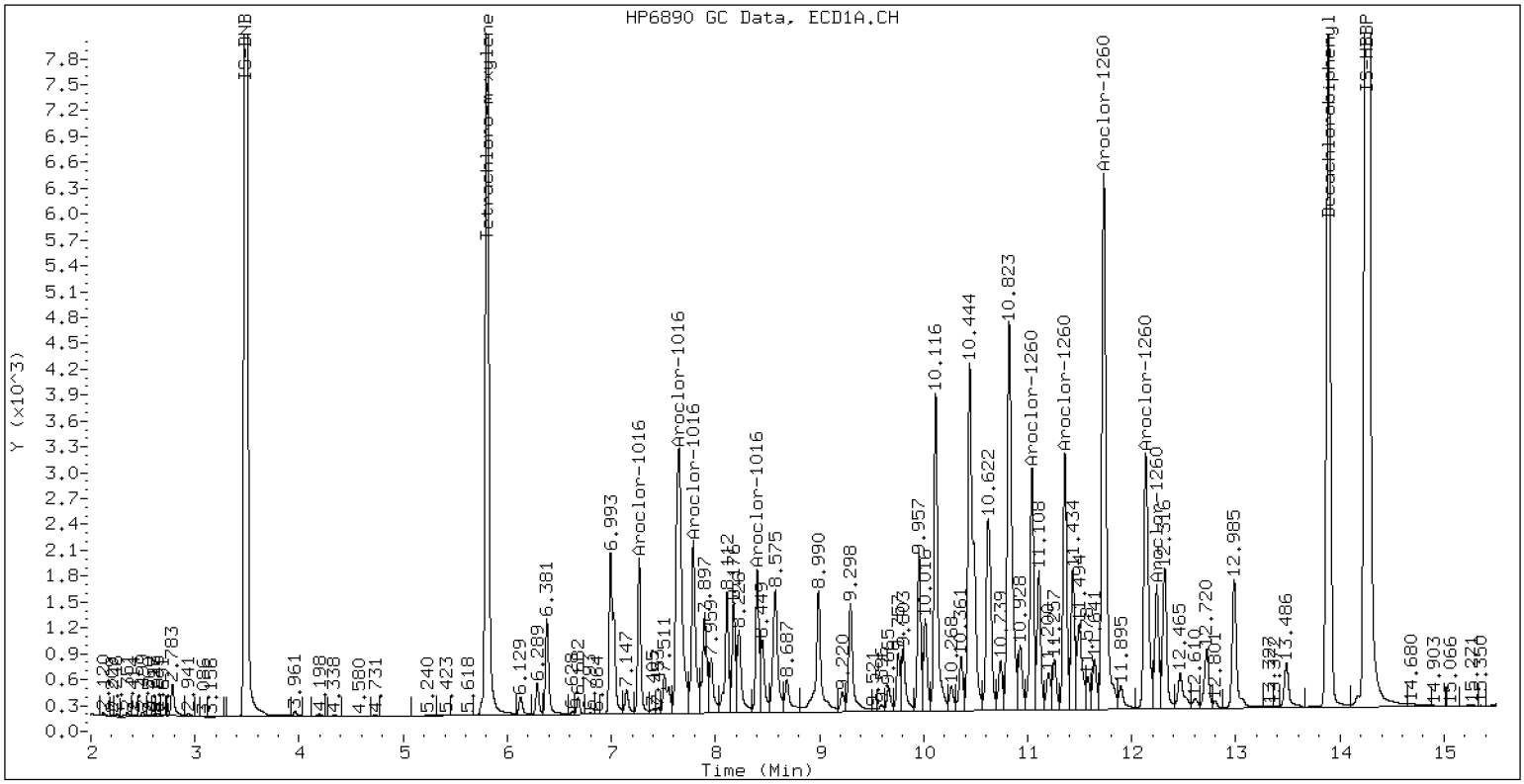
Total PCB Area Col2 (5.784 - 14.015) = 1750358 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

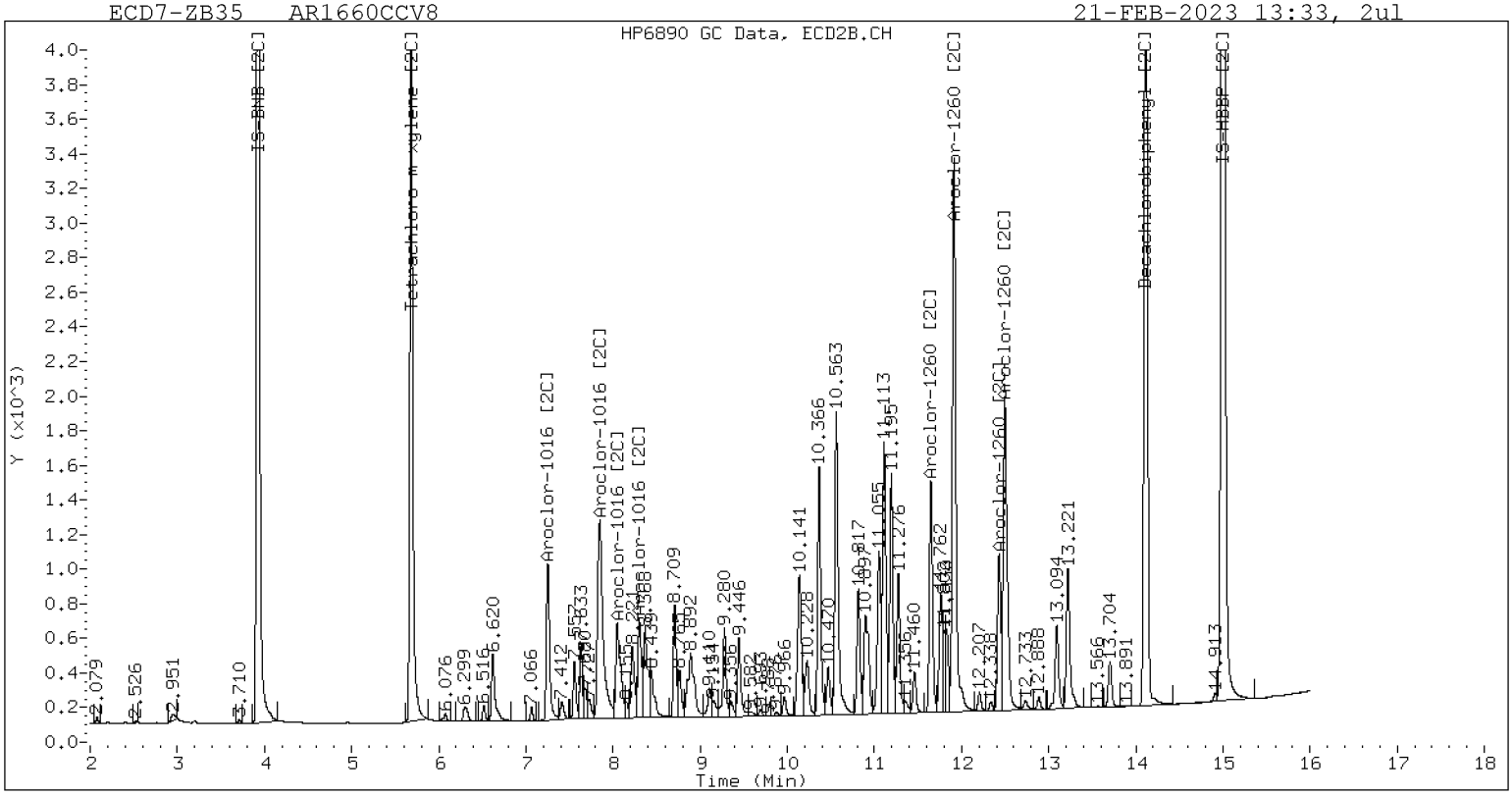
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV8 21-FEB-2023 13:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV8 21-FEB-2023 13:33, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202389ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCV9	Injection Time:	17:04
Sequence Name:	AR1242CCV9		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	230	0.0389249	0.0359832		-8.1	+/-20
Aroclor-1242 (1)	A	250.00	235		0.0223667			
Aroclor-1242 (2)	A	250.00	234		0.0705969			
Aroclor-1242 (3)	A	250.00	224		0.0204658			
Aroclor-1242 (4)	A	250.00	226		0.0305033			
Aroclor 1242 [2C]	A	250.00	239	0.0405023	0.0389595		-4.5	+/-20
Aroclor-1242 (1) [2C]	A	250.00	249		0.0344898			
Aroclor-1242 (2) [2C]	A	250.00	242		0.0726678			
Aroclor-1242 (3) [2C]	A	250.00	234		0.0221891			
Aroclor-1242 (4) [2C]	A	250.00	230		0.0264914			
Decachlorobiphenyl	A	40.000	36.4	0.7045925	0.6419386		-9.0	+/-20
Tetrachlorometaxylene	A	40.000	43.7	1.1350860	1.2405600		9.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	39.4	1.0765520	1.0602240		-1.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	48.3	1.0668100	1.2871310		20.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202389ECD7.D
Data file 2: /230220.b/230220.b/02202389ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242CCV9
Client ID:
Injection Date: 21-FEB-2023 17:04
Report Date: 02/22/2023 08:42
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	492436	5.684	0.000	208223	43.7	48.3	9.9	Tetrachloro-m-xylene
13.891	0.000	295597	14.115	-0.000	203176	36.4	39.4	7.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	793893	84.6
Hexabromobiphenyl	975457	920951	-5.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	323546	-11.8
Hexabromobiphenyl	646884	383270	-40.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.267	-0.002	55490	234.6	1	7.251	-0.001	34872	249.2
Aroclor-1242	2	7.650	-0.002	175145	234.0	2	7.850	-0.003	73473	242.3
Aroclor-1242	3	8.401	-0.002	50774	224.5	3	9.156	-0.004	22435	234.1
Aroclor-1242	4	8.574	-0.003	75676	226.5	4	9.584	-0.003	26785	230.5
Total Col1Ave (4 peaks):					229.9	Total Col2Ave (4 peaks):				239.0 RPD = 4
Corrected Ave (3 peaks):					228.4	Corrected Ave (3 peaks):				235.6 RPD = 3
CalAmt %D:					-8.0	CalAmt %D:				-4.4

Total PCB Area Col1 (5.908 - 13.791) = 1289257 Col1 Total PCB = 0.1 ppm*

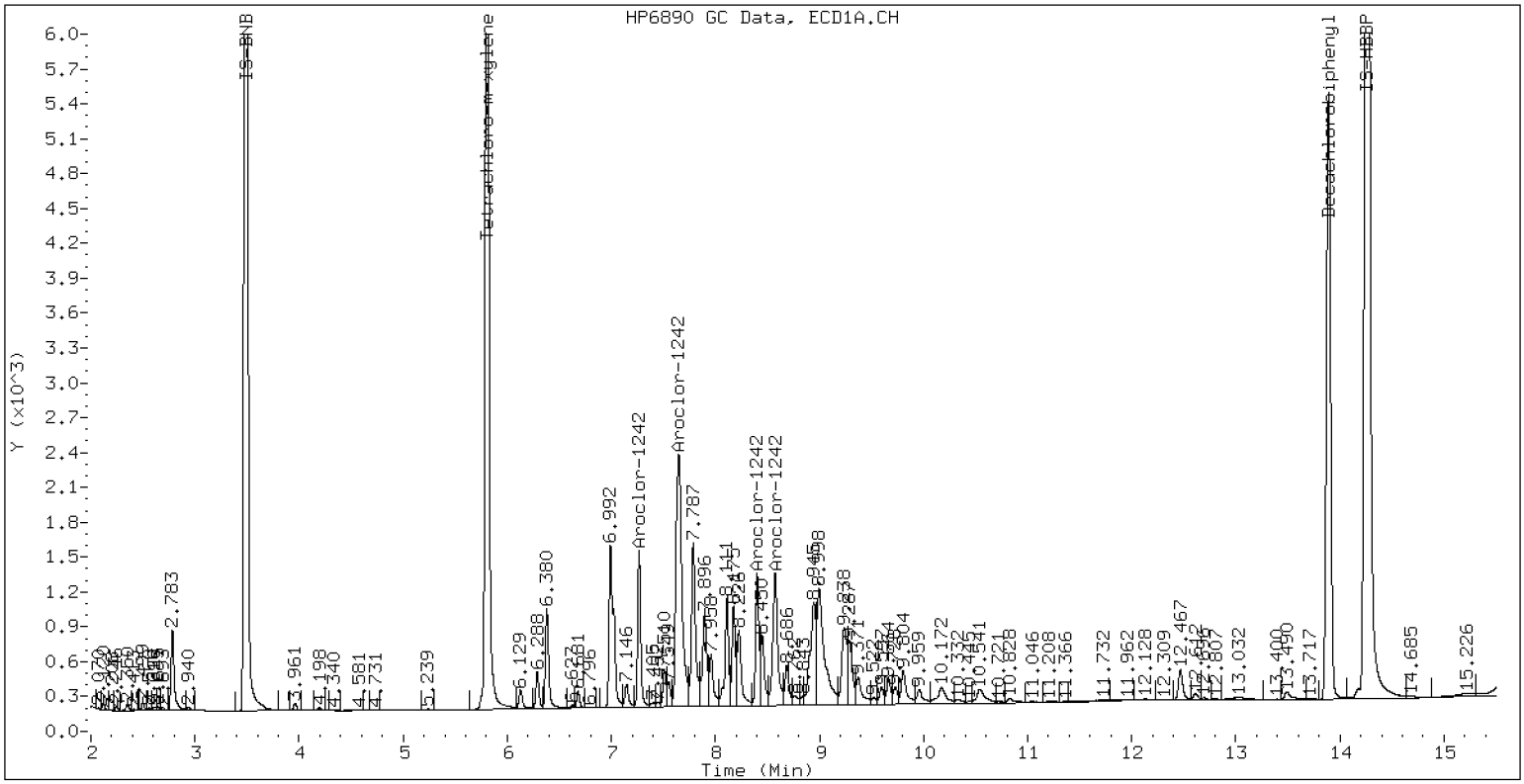
Total PCB Area Col2 (5.784 - 14.015) = 514835 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

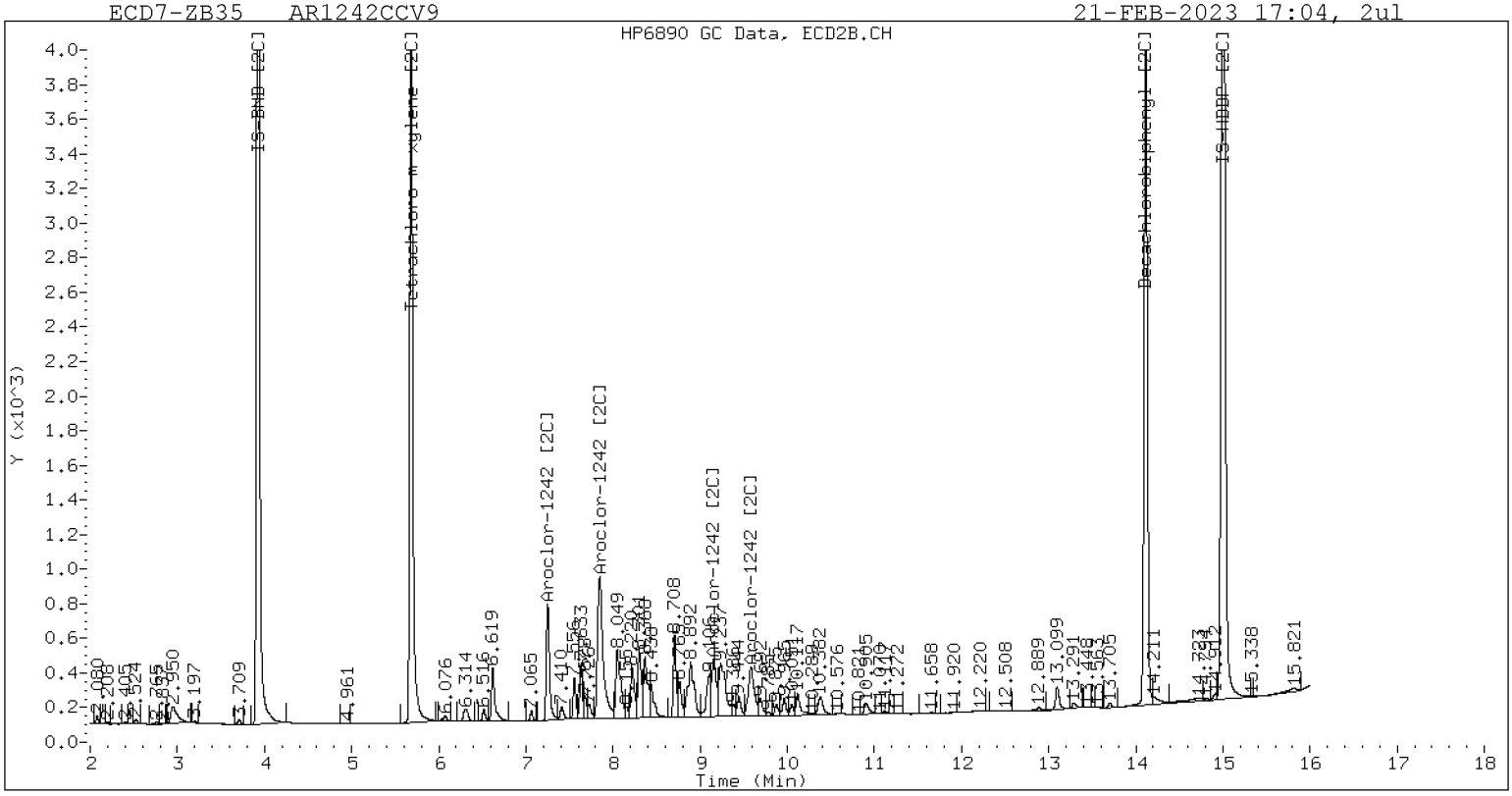
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242CCV9 21-FEB-2023 17:04, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242CCV9 21-FEB-2023 17:04, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00045
Lab File ID:	02202390ECD7.D	Calibration Date:	02/16/2023
Sequence:	SLB0274	Injection Date:	02/21/23
Lab Sample ID:	SLB0274-CCVA	Injection Time:	17:25
Sequence Name:	AR1660CCVA		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	244	0.0483914	0.0472925		-2.4	+/-20	
Aroclor-1016 (1)	A	250.00	250	0.0291332	0.0291408		0.0		
Aroclor-1016 (2)	A	250.00	247	0.0932933	0.0922881		-1.2		
Aroclor-1016 (3)	A	250.00	233	0.0429036	0.0400097		-6.8		
Aroclor-1016 (4)	A	250.00	246	0.0282354	0.0277315		-1.6		
Aroclor 1016 [2C]	A	250.00	251	0.0510062	0.0513016		0.3	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	250	0.0435251	0.0435350		0.0		
Aroclor-1016 (2) [2C]	A	250.00	252	0.0917441	0.0926866		0.8		
Aroclor-1016 (3) [2C]	A	250.00	257	0.0378128	0.0388288		2.8		
Aroclor-1016 (4) [2C]	A	250.00	244	0.0309428	0.0301560		-2.4		
Aroclor 1260	A	250.00	331	0.0369444	0.0487949		32.4	+/-20	*
Aroclor-1260 (1)	A	250.00	348	0.0275801	0.0383594		39.2		
Aroclor-1260 (2)	A	250.00	346	0.0282147	0.0390344		38.4		
Aroclor-1260 (3)	A	250.00	325	0.0747199	0.0971181		30.0		
Aroclor-1260 (4)	A	250.00	324	0.0379377	0.0491301		29.6		
Aroclor-1260 (5)	A	250.00	312	0.0162699	0.0203322		24.8		
Aroclor 1260 [2C]	A	250.00	285	0.0609398	0.0705489		13.8	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	276	0.0414523	0.0458185		10.4		
Aroclor-1260 (2) [2C]	A	250.00	298	0.1040347	0.1244317		19.2		
Aroclor-1260 (3) [2C]	A	250.00	279	0.0282007	0.0315964		11.6		
Aroclor-1260 (4) [2C]	A	250.00	285	0.0700714	0.0803490		14.0		
Decachlorobiphenyl	A	40.000	39.8	0.7045925	0.7005870		-0.5	+/-20	
Tetrachlorometaxylene	A	40.000	38.8	1.1350860	1.1014990		-3.0	+/-20	
Decachlorobiphenyl [2C]	A	40.000	42.1	1.0765520	1.1343780		5.3	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	42.1	1.0668100	1.1221160		5.3	+/-20	

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230220.b/02202390ECD7.D
Data file 2: /230220.b/230220.b/02202390ECD7.D
Method: \\target\share\chem4\ecd7.i\230220.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCVA
Client ID:
Injection Date: 21-FEB-2023 17:25
Report Date: 02/22/2023 08:42
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	413306	5.683	-0.001	172132	38.8	42.1	8.1	Tetrachloro-m-xylene
13.891	0.000	373966	14.116	0.001	230670	39.8	42.1	5.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	430055	750443	74.5
Hexabromobiphenyl	975457	1067579	9.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	366754	306799	-16.3
Hexabromobiphenyl	646884	406690	-37.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 16-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.267	-0.002	68339	250.1	1	7.251	-0.002	41739	250.1
Aroclor-1016	2	7.650	-0.000	216428	247.3	2	7.849	-0.003	88863	252.6
Aroclor-1016	3	7.787	-0.000	93828	233.1	3	8.049	-0.002	37227	256.7
Aroclor-1016	4	8.401	-0.001	65034	245.5	4	8.302	-0.002	28912	243.6
Total Col1Ave (4 peaks):					244.0	Total Col2Ave (4 peaks):				250.7 RPD = 3
Corrected Ave (3 peaks):					242.0	Corrected Ave (3 peaks):				248.8 RPD = 3
CalAmt %D:					-2.4	CalAmt %D:				0.3
Aroclor-1260	1	11.041	0.001	127974	347.7	1	11.648	-0.001	58231	275.5
Aroclor-1260	2	11.357	0.000	130226	345.9	2	11.912	-0.002	158141	298.3
Aroclor-1260	3	11.731	0.000	324004	324.9	3	12.431	-0.002	40156	278.8
Aroclor-1260	4	12.135	0.000	163907	323.8	4	12.496	-0.002	102116	285.3
Aroclor-1260	5	12.242	0.002	67832	312.4	NS	---			----
Total Col1Ave (5 peaks):					330.9	Total Col2Ave (4 peaks):				284.5 RPD = 15
Corrected Ave (4 peaks):					326.7	Corrected Ave (3 peaks):				279.9 RPD = 15
CalAmt %D:					32.4	CalAmt %D:				13.8

Total PCB Area Col1 (5.908 - 13.791) = 3745869 Col1 Total PCB = 0.4 ppm*

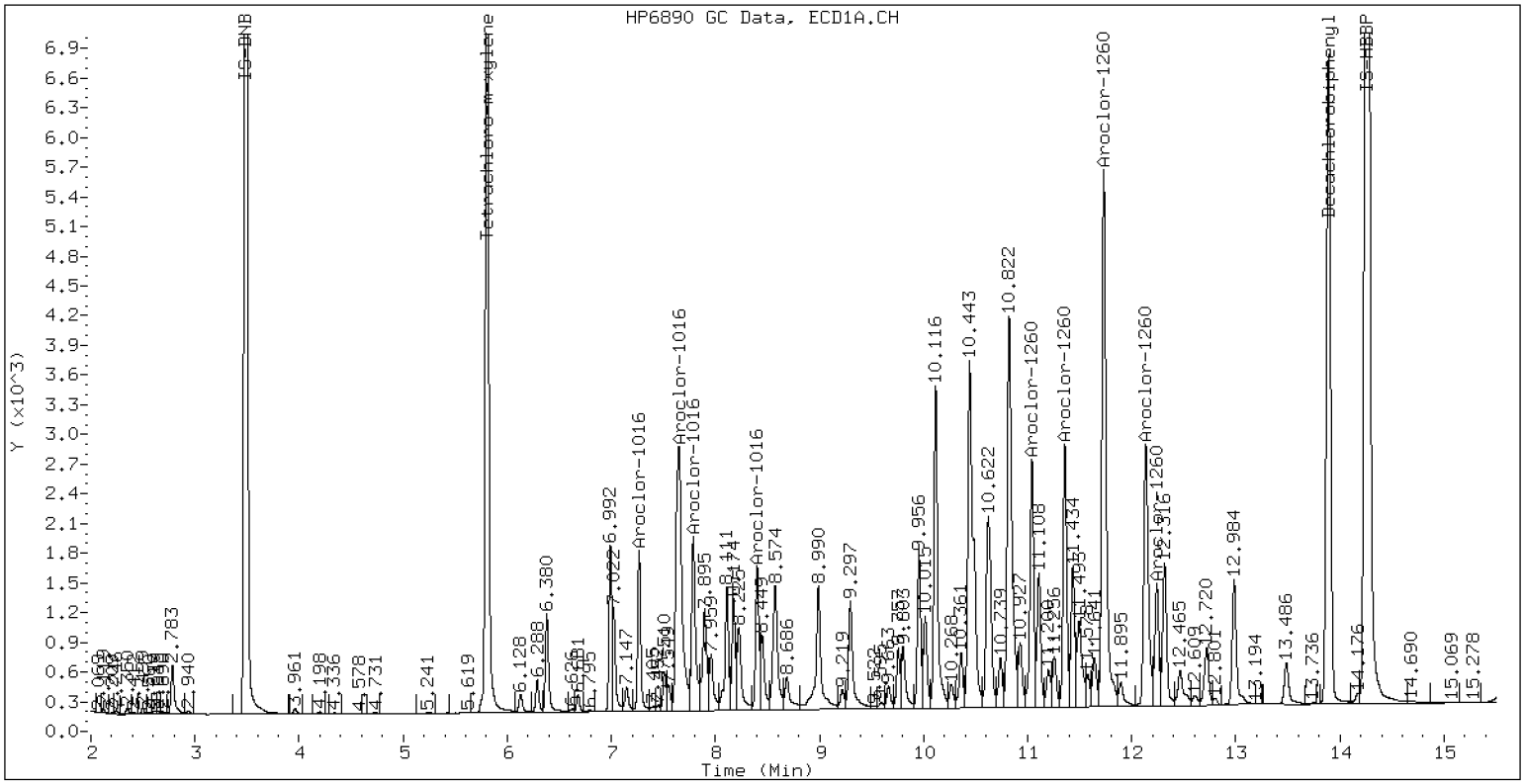
Total PCB Area Col2 (5.784 - 14.015) = 1523110 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

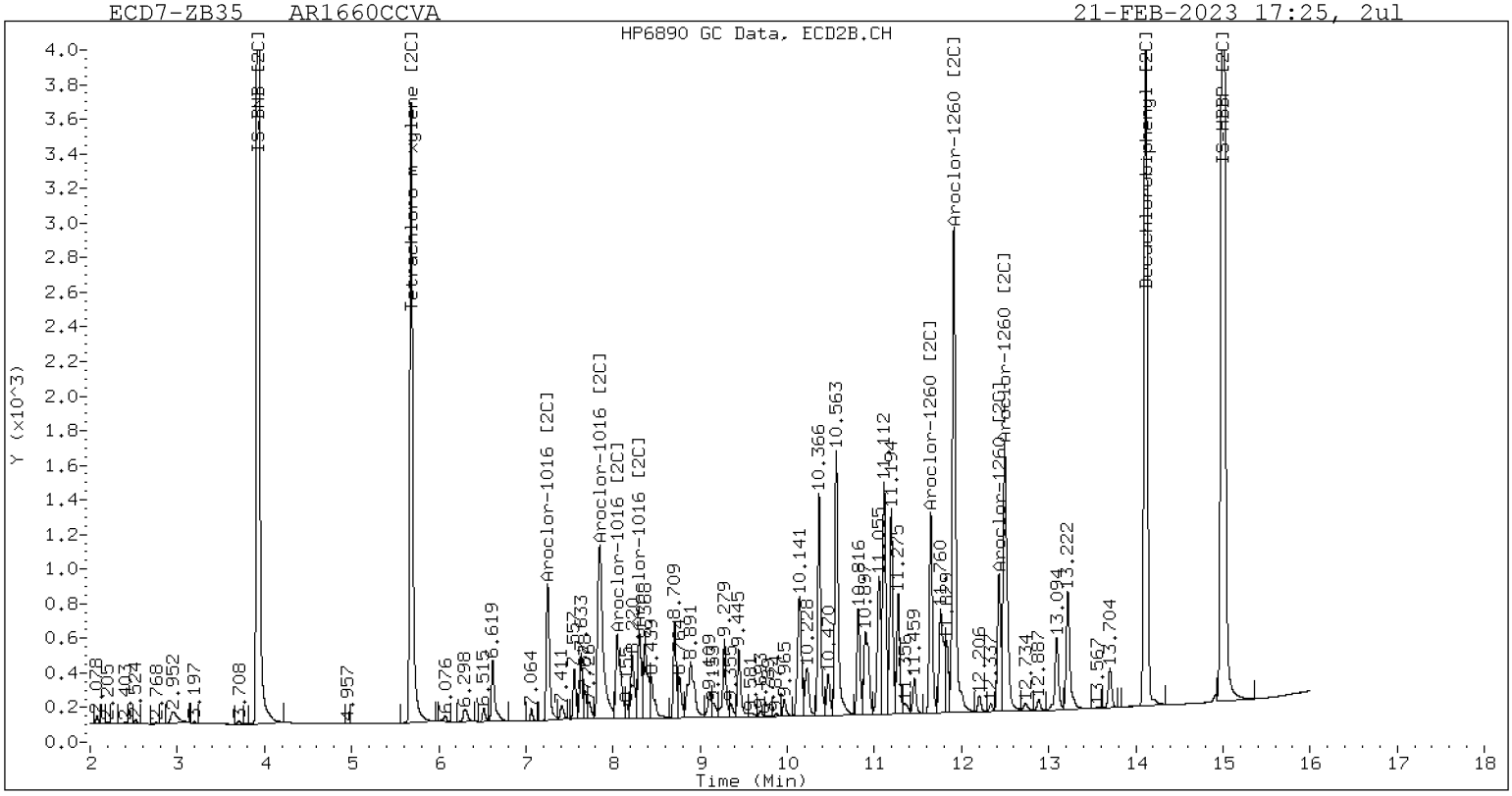
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCVA 21-FEB-2023 17:25, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCVA 21-FEB-2023 17:25, 2ul



ZB-35 Manual Integration: NO

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0222
Instrument: ECD7
Calibration: GB00045

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Cal Standard	SLB0222-CAL1	02162302ECD7.D	02162302ECD7.D	NA	02/16/23 11:23
Cal Standard	SLB0222-CAL2	02162303ECD7.D	02162303ECD7.D	NA	02/16/23 11:44
Cal Standard	SLB0222-CAL3	02162304ECD7.D	02162304ECD7.D	NA	02/16/23 12:05
Cal Standard	SLB0222-CAL4	02162305ECD7.D	02162305ECD7.D	NA	02/16/23 12:27
Cal Standard	SLB0222-CAL5	02162306ECD7.D	02162306ECD7.D	NA	02/16/23 12:48
Cal Standard	SLB0222-CAL6	02162307ECD7.D	02162307ECD7.D	NA	02/16/23 13:09
Cal Standard	SLB0222-CAL7	02162308ECD7.D	02162308ECD7.D	NA	02/16/23 13:30
Cal Standard	SLB0222-CAL8	02162309ECD7.D	02162309ECD7.D	NA	02/16/23 13:51
Cal Standard	SLB0222-CAL9	02162310ECD7.D	02162310ECD7.D	NA	02/16/23 14:12
Cal Standard	SLB0222-CALA	02162311ECD7.D	02162311ECD7.D	NA	02/16/23 14:33
Cal Standard	SLB0222-CALB	02162312ECD7.D	02162312ECD7.D	NA	02/16/23 14:54
Secondary Cal Check	SLB0222-SCV1	02162313ECD7.D	02162313ECD7.D	NA	02/16/23 15:15
Secondary Cal Check	SLB0222-SCV2	02162314ECD7.D	02162314ECD7.D	NA	02/16/23 15:36
Secondary Cal Check	SLB0222-SCV3	02162315ECD7.D	02162315ECD7.D	NA	02/16/23 15:57
Secondary Cal Check	SLB0222-SCV4	02162316ECD7.D	02162316ECD7.D	NA	02/16/23 16:18
Secondary Cal Check	SLB0222-SCV5	02162317ECD7.D	02162317ECD7.D	NA	02/16/23 16:39
Secondary Cal Check	SLB0222-SCV6	02162318ECD7.D	02162318ECD7.D	NA	02/16/23 17:00

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0274	Instrument:	ECD7
		Calibration:	GB00045

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Blank	BLB0206-BLK1	02132369ECD7.D	02132369ECD7.D	Solid	02/14/23 09:44
Initial Cal Check	SLB0274-ICV1	02202311ECD7.D	02202311ECD7.D	NA	02/20/23 13:41
Initial Cal Check	SLB0274-ICV2	02202312ECD7.D	02202312ECD7.D	NA	02/20/23 14:02
Calibration Check	SLB0274-CCV1	02202329ECD7.D	02202329ECD7.D	NA	02/20/23 20:00
Calibration Check	SLB0274-CCV2	02202330ECD7.D	02202330ECD7.D	NA	02/20/23 20:21
LCS	BLB0206-BS1	02202332ECD7.D	02202332ECD7.D	Solid	02/20/23 21:03
LCS Dup	BLB0206-BSD1	02202333ECD7.D	02202333ECD7.D	Solid	02/20/23 21:24
Reference	BLB0206-SRM1	02202334ECD7.D	02202334ECD7.D	Solid	02/20/23 21:45
LY-28_0-10	23A0626-01	02202335ECD7.D	02202335ECD7.D	Solid	02/20/23 22:06
LY-28_0-10	BLB0206-MS1	02202336ECD7.D	02202336ECD7.D	Solid	02/20/23 22:27
LY-28_0-10	BLB0206-MSD1	02202337ECD7.D	02202337ECD7.D	Solid	02/20/23 22:48
LY-28_1-2	23A0626-03	02202338ECD7.D	02202338ECD7.D	Solid	02/20/23 23:09
LY-29_0-10	23A0626-05	02202339ECD7.D	02202339ECD7.D	Solid	02/20/23 23:30
LY-29_1-2	23A0626-07	02202340ECD7.D	02202340ECD7.D	Solid	02/20/23 23:51
LY-30_0-10	23A0626-10	02202341ECD7.D	02202341ECD7.D	Solid	02/21/23 00:12
LY-DUP_0-10	23A0626-29	02202342ECD7.D	02202342ECD7.D	Solid	02/21/23 00:33
Calibration Check	SLB0274-CCV3	02202343ECD7.D	02202343ECD7.D	NA	02/21/23 00:54
Calibration Check	SLB0274-CCV4	02202344ECD7.D	02202344ECD7.D	NA	02/21/23 01:15
Calibration Check	SLB0274-CCV5	02202359ECD7.D	02202359ECD7.D	NA	02/21/23 06:31
Calibration Check	SLB0274-CCV6	02202360ECD7.D	02202360ECD7.D	NA	02/21/23 06:52
Calibration Check	SLB0274-CCV7	02202378ECD7.D	02202378ECD7.D	NA	02/21/23 13:12
Calibration Check	SLB0274-CCV8	02202379ECD7.D	02202379ECD7.D	NA	02/21/23 13:33
Calibration Check	SLB0274-CCV9	02202389ECD7.D	02202389ECD7.D	NA	02/21/23 17:04
Calibration Check	SLB0274-CCVA	02202390ECD7.D	02202390ECD7.D	NA	02/21/23 17:25

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0274

Instrument: ECD7
Calibration ID: GB00045

Printed: 2/22/2023 9:49:34AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0274-ICV1	QC		1		L000862	L000844		
SLB0274-ICV2	QC		2		L000856	L000844		
BLA0686-BLK1	QC		3			L000844		
BLA0686-BS1	QC		4			L000844		
BLA0686-BSD1	QC		5			L000844		
BLA0686-SRM1	QC		6			L000844		
23A0313-01	8082A PCB Solid 4	A 03	7			L000844	Anchor QEA, LLC	
23A0313-02	8082A PCB Solid 4	A 03	8			L000844	Anchor QEA, LLC	
23A0313-03	8082A PCB Solid 4	A 03	9			L000844	Anchor QEA, LLC	
23A0313-04	8082A PCB Solid 4	A 03	10			L000844	Anchor QEA, LLC	
23A0313-05	8082A PCB Solid 4	A 03	11			L000844	Anchor QEA, LLC	
23A0313-06	8082A PCB Solid 4	A 03	12			L000844	Anchor QEA, LLC	
23A0313-07	8082A PCB Solid 4	A 03	13			L000844	Anchor QEA, LLC	
BLA0686-MS1	QC		14			L000844		
BLA0686-MSD1	QC		15			L000844		
23A0313-08	8082A PCB Solid 4	A 03	16			L000844	Anchor QEA, LLC	
23A0313-09	8082A PCB Solid 4	A 03	17			L000844	Anchor QEA, LLC	
23A0313-10	8082A PCB Solid 4	A 03	18			L000844	Anchor QEA, LLC	
SLB0274-CCV1	QC		19		L000861	L000844		
SLB0274-CCV2	QC		20		L000856	L000844		
BLB0206-BLK1	QC		21			L000844		

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

SLB0274

Instrument: ECD7
Calibration ID: GB00045

Printed: 2/22/2023 9:49:34AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
BLB0206-BS1	QC		22			L000844		
BLB0206-BSD1	QC		23			L000844		
BLB0206-SRM1	QC		24			L000844		
23A0626-01	8082A PCB Solid 4	A 02	25			L000844	GeoEngineers	
BLB0206-MS1	QC		26			L000844		
BLB0206-MSD1	QC		27			L000844		
23A0626-03	8082A PCB Solid 4	A 02	28			L000844	GeoEngineers	
23A0626-05	8082A PCB Solid 4	A 02	29			L000844	GeoEngineers	
23A0626-07	8082A PCB Solid 4	A 02	30			L000844	GeoEngineers	
23A0626-10	8082A PCB Solid 4	A 02	31			L000844	GeoEngineers	
23A0626-29	8082A PCB Solid 4	A 02	32			L000844	GeoEngineers	
SLB0274-CCV3	QC		33		L000860	L000844		
SLB0274-CCV4	QC		34		L000856	L000844		
BLB0021-BLK1	QC		35			L000844		
BLB0021-BS1	QC		36			L000844		
BLB0021-BSD1	QC		37			L000844		
BLB0021-SRM1	QC		38			L000844		
23A0417-01	8082A PCB Solid 4	A 01	39			L000844	Anchor QEA, LLC	
23A0417-02	8082A PCB Solid 4	A 01	40			L000844	Anchor QEA, LLC	
23A0417-03	8082A PCB Solid 4	A 01	41			L000844	Anchor QEA, LLC	
23A0417-04	8082A PCB Solid 4	A 01	42			L000844	Anchor QEA, LLC	

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

SLB0274

Instrument: ECD7
Calibration ID: GB00045

Printed: 2/22/2023 9:49:34AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
23A0417-05	8082A PCB Solid 4	A 01	43			L000844	Anchor QEA, LLC	
23A0417-06	8082A PCB Solid 4	A 01	44			L000844	Anchor QEA, LLC	
23A0417-07	8082A PCB Solid 4	A 01	45			L000844	Anchor QEA, LLC	
23A0417-08	8082A PCB Solid 4	A 01	46			L000844	Anchor QEA, LLC	
23A0417-09	8082A PCB Solid 4	A 01	47			L000844	Anchor QEA, LLC	
23A0417-10	8082A PCB Solid 4	A 01	48			L000844	Anchor QEA, LLC	
SLB0274-CCV5	QC		49		L000862	L000844		
SLB0274-CCV6	QC		50		L000856	L000844		
23A0417-11	8082A PCB Solid 4	A 01	51			L000844	Anchor QEA, LLC	
23A0417-12	8082A PCB Solid 4	A 01	52			L000844	Anchor QEA, LLC	
23A0417-13	8082A PCB Solid 4	A 01	53			L000844	Anchor QEA, LLC	
23A0417-14	8082A PCB Solid 4	A 01	54			L000844	Anchor QEA, LLC	
23A0417-15	8082A PCB Solid 4	A 01	55			L000844	Anchor QEA, LLC	
BLB0021-MS1	QC		56			L000844		
BLB0021-MSD1	QC		57			L000844		
BLB0017-BLK1	QC		58			L000844		
BLB0017-BS1	QC		59			L000844		
BLB0017-BSD1	QC		60			L000844		
BLB0017-SRM1	QC		61			L000844		
23A0087-13	8082A PCB Solid 4	A 05	62			L000844	Anchor QEA, LLC	
23A0328-01	8082A PCB Solid 4	A 01	63			L000844	Anchor QEA, LLC	

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

SLB0274

Instrument: ECD7
Calibration ID: GB00045

Printed: 2/22/2023 9:49:34AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
23A0328-02	8082A PCB Solid 4	A 01	64			L000844	Anchor QEA, LLC	
BLB0017-MS1	QC		65			L000844		
BLB0017-MSD1	QC		66			L000844		
23A0328-03	8082A PCB Solid 4	A 01	67			L000844	Anchor QEA, LLC	
SLB0274-CCV7	QC		68		L000861	L000844		
SLB0274-CCV8	QC		69		L000856	L000844		
23A0328-04	8082A PCB Solid 4	A 01	70			L000844	Anchor QEA, LLC	
23A0328-05	8082A PCB Solid 4	A 01	71			L000844	Anchor QEA, LLC	
23A0328-06	8082A PCB Solid 4	A 01	72			L000844	Anchor QEA, LLC	
23A0328-07	8082A PCB Solid 4	A 01	73			L000844	Anchor QEA, LLC	
23A0328-08	8082A PCB Solid 4	A 01	74			L000844	Anchor QEA, LLC	
23A0328-09	8082A PCB Solid 4	A 01	75			L000844	Anchor QEA, LLC	
23A0328-11	8082A PCB Solid 4	A 01	76			L000844	Anchor QEA, LLC	
23A0328-12	8082A PCB Solid 4	A 01	77			L000844	Anchor QEA, LLC	
SLB0274-CCV9	QC		78		L000860	L000844		
SLB0274-CCVA	QC		79		L000856	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	20-FEB-2023 09:20	02202301ECD7.D	1	AR1660RINSE	
2	20-FEB-2023 09:41	02202302ECD7.D	1	AR1660RINSE	
3	20-FEB-2023 10:02	02202303ECD7.D	1	AR1660RINSE	
4	20-FEB-2023 10:23	02202304ECD7.D	1	AR1660RINSE	
5	20-FEB-2023 10:44	02202305ECD7.D	1	AR1660RINSE	
6	20-FEB-2023 11:56	02202306ECD7.D	1	AR1660 RINSE	
7	20-FEB-2023 12:17	02202307ECD7.D	1	DDTS	
8	20-FEB-2023 12:38	02202308ECD7.D	1	AR1254ICV1	
9	20-FEB-2023 12:59	02202309ECD7.D	1	AR1660ICV2	
10	20-FEB-2023 13:20	02202310ECD7.D	1	DDTS	
11	20-FEB-2023 13:41	02202311ECD7.D	1	AR1254ICV1	
12	20-FEB-2023 14:02	02202312ECD7.D	1	AR1660ICV2	
13	20-FEB-2023 14:23	02202313ECD7.D	1	BLA0686-BLK1	
14	20-FEB-2023 14:44	02202314ECD7.D	1	BLA0686-BS1	
15	20-FEB-2023 15:05	02202315ECD7.D	1	BLA0686-BSD1	
16	20-FEB-2023 15:26	02202316ECD7.D	1	BLA0686-SRM1	
17	20-FEB-2023 15:47	02202317ECD7.D	1	23A0313-01	
18	20-FEB-2023 16:08	02202318ECD7.D	1	23A0313-02	
19	20-FEB-2023 16:29	02202319ECD7.D	50	23A0313-03RE2	
20	20-FEB-2023 16:50	02202320ECD7.D	10	23A0313-04RE2	
21	20-FEB-2023 17:12	02202321ECD7.D	1	23A0313-05	
22	20-FEB-2023 17:33	02202322ECD7.D	1	23A0313-06	
23	20-FEB-2023 17:54	02202323ECD7.D	1	23A0313-07	
24	20-FEB-2023 18:15	02202324ECD7.D	1	BLA0686-MS1	
25	20-FEB-2023 18:36	02202325ECD7.D	1	BLA0686-MSD1	
26	20-FEB-2023 18:57	02202326ECD7.D	1	23A0313-08	
27	20-FEB-2023 19:18	02202327ECD7.D	1	23A0313-09	
28	20-FEB-2023 19:39	02202328ECD7.D	1	23A0313-10	
29	20-FEB-2023 20:00	02202329ECD7.D	1	AR1248CCV1	
30	20-FEB-2023 20:21	02202330ECD7.D	1	AR1660CCV2	
31	20-FEB-2023 20:42	02202331ECD7.D	1	BLB0206-BLK1	
32	20-FEB-2023 21:03	02202332ECD7.D	1	BLB0206-BS1	
33	20-FEB-2023 21:24	02202333ECD7.D	1	BLB0206-BSD1	
34	20-FEB-2023 21:45	02202334ECD7.D	1	BLB0206-SRM1	
35	20-FEB-2023 22:06	02202335ECD7.D	1	23A0626-01	
36	20-FEB-2023 22:27	02202336ECD7.D	1	BLB0206-MS1	
37	20-FEB-2023 22:48	02202337ECD7.D	1	BLB0206-MSD1	
38	20-FEB-2023 23:09	02202338ECD7.D	5	23A0626-03RE1	
39	20-FEB-2023 23:30	02202339ECD7.D	1	23A0626-05	
40	20-FEB-2023 23:51	02202340ECD7.D	1	23A0626-07	
41	21-FEB-2023 00:12	02202341ECD7.D	1	23A0626-10	
42	21-FEB-2023 00:33	02202342ECD7.D	1	23A0626-29	
43	21-FEB-2023 00:54	02202343ECD7.D	1	AR1242CCV3	
44	21-FEB-2023 01:15	02202344ECD7.D	1	AR1660CCV4	
45	21-FEB-2023 01:36	02202345ECD7.D	1	BLB0021-BLK1	
46	21-FEB-2023 01:57	02202346ECD7.D	1	BLB0021-BS1	
47	21-FEB-2023 02:18	02202347ECD7.D	1	BLB0021-BSD1	
48	21-FEB-2023 02:39	02202348ECD7.D	1	BLB0021-SRM1	
49	21-FEB-2023 03:00	02202349ECD7.D	5	23A0417-01RE1	
50	21-FEB-2023 03:22	02202350ECD7.D	1	23A0417-02	

	Inject Date/Time	Filename	DF	LabID	ClientID
51	21-FEB-2023 03:43	02202351ECD7.D	1	23A0417-03	
52	21-FEB-2023 04:04	02202352ECD7.D	1	23A0417-04	
53	21-FEB-2023 04:25	02202353ECD7.D	1	23A0417-05	
54	21-FEB-2023 04:46	02202354ECD7.D	1	23A0417-06	
55	21-FEB-2023 05:07	02202355ECD7.D	1	23A0417-07	
56	21-FEB-2023 05:28	02202356ECD7.D	1	23A0417-08	
57	21-FEB-2023 05:49	02202357ECD7.D	1	23A0417-09	
58	21-FEB-2023 06:10	02202358ECD7.D	5	23A0417-10RE1	
59	21-FEB-2023 06:31	02202359ECD7.D	1	AR1254CCV5	
60	21-FEB-2023 06:52	02202360ECD7.D	1	AR1660CCV6	
61	21-FEB-2023 07:13	02202361ECD7.D	1	23A0417-11	
62	21-FEB-2023 07:34	02202362ECD7.D	1	23A0417-12	
63	21-FEB-2023 07:55	02202363ECD7.D	5	23A0417-13RE1	
64	21-FEB-2023 08:16	02202364ECD7.D	5	23A0417-14RE1	
65	21-FEB-2023 08:38	02202365ECD7.D	1	23A0417-15	
66	21-FEB-2023 08:59	02202366ECD7.D	1	BLB0021-MS1	
67	21-FEB-2023 09:20	02202367ECD7.D	1	BLB0021-MSD1	
68	21-FEB-2023 09:41	02202368ECD7.D	1	BLB0017-BLK1	
69	21-FEB-2023 10:02	02202369ECD7.D	1	BLB0017-BS1	
70	21-FEB-2023 10:23	02202370ECD7.D	1	BLB0017-BSD1	
71	21-FEB-2023 10:44	02202371ECD7.D	1	BLB0017-SRM1	
72	21-FEB-2023 11:05	02202372ECD7.D	1	23A0087-13	
73	21-FEB-2023 11:26	02202373ECD7.D	1	23A0328-01	
74	21-FEB-2023 11:47	02202374ECD7.D	10	23A0328-02RE1	
75	21-FEB-2023 12:08	02202375ECD7.D	10	BLB0017-MS1RE	
76	21-FEB-2023 12:29	02202376ECD7.D	1	BLB0017-MSD1RE	
77	21-FEB-2023 12:50	02202377ECD7.D	1	23A0328-03	
78	21-FEB-2023 13:12	02202378ECD7.D	1	AR1248CCV7	
79	21-FEB-2023 13:33	02202379ECD7.D	1	AR1660CCV8	
80	21-FEB-2023 13:54	02202380ECD7.D	10	23A0328-04RE2	
81	21-FEB-2023 14:15	02202381ECD7.D	5	23A0328-05RE2	
82	21-FEB-2023 14:36	02202382ECD7.D	1	23A0328-06	
83	21-FEB-2023 14:57	02202383ECD7.D	1	23A0328-07	
84	21-FEB-2023 15:18	02202384ECD7.D	1	23A0328-08	
85	21-FEB-2023 15:39	02202385ECD7.D	1	23A0328-09	
86	21-FEB-2023 16:00	02202386ECD7.D	1	23A0328-10	
87	21-FEB-2023 16:21	02202387ECD7.D	1	23A0328-11	
88	21-FEB-2023 16:42	02202388ECD7.D	1	23A0328-12	
89	21-FEB-2023 17:04	02202389ECD7.D	1	AR1242CCV9	
90	21-FEB-2023 17:25	02202390ECD7.D	1	AR1660CCVA	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b

ARI Job No.: AR16 Method: PCB.m Instrument: ecd7.i Date: 20-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0920	02202301ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
0941	02202302ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1002	02202303ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1023	02202304ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1044	02202305ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1156	02202306ECD7.D	AR1660 RINSE		1	NO MANUAL INTEGRATION
1217	02202307ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1238	02202308ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1259	02202309ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1320	02202310ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1341	02202311ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1402	02202312ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1423	02202313ECD7.D	BLA0686-BLK1		1	NO MANUAL INTEGRATION
1444	02202314ECD7.D	BLA0686-BS1		1	NO MANUAL INTEGRATION
1505	02202315ECD7.D	BLA0686-BSD1		1	NO MANUAL INTEGRATION
1526	02202316ECD7.D	BLA0686-SRM1		1	NO MANUAL INTEGRATION
1547	02202317ECD7.D	23A0313-01		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1608	02202318ECD7.D	23A0313-02		1	NO MANUAL INTEGRATION
1629	02202319ECD7.D	23A0313-03RE2		50	Aroclor-1254,
1650	02202320ECD7.D	23A0313-04RE2		10	NO MANUAL INTEGRATION
1712	02202321ECD7.D	23A0313-05		1	NO MANUAL INTEGRATION
1733	02202322ECD7.D	23A0313-06		1	NO MANUAL INTEGRATION
1754	02202323ECD7.D	23A0313-07		1	NO MANUAL INTEGRATION
1815	02202324ECD7.D	BLA0686-MS1		1	NO MANUAL INTEGRATION
1836	02202325ECD7.D	BLA0686-MSD1		1	NO MANUAL INTEGRATION
1857	02202326ECD7.D	23A0313-08		1	NO MANUAL INTEGRATION
1918	02202327ECD7.D	23A0313-09		1	NO MANUAL INTEGRATION
1939	02202328ECD7.D	23A0313-10		1	NO MANUAL INTEGRATION
2000	02202329ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2021	02202330ECD7.D	AR1660CCV2		1	Aroclor-1016,
2042	02202331ECD7.D	BLB0206-BLK1		1	NO MANUAL INTEGRATION
2103	02202332ECD7.D	BLB0206-BS1		1	NO MANUAL INTEGRATION
2124	02202333ECD7.D	BLB0206-BSD1		1	NO MANUAL INTEGRATION
2145	02202334ECD7.D	BLB0206-SRM1		1	NO MANUAL INTEGRATION
2206	02202335ECD7.D	23A0626-01		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2227	02202336ECD7.D	BLB0206-MS1		1	NO MANUAL INTEGRATION
2248	02202337ECD7.D	BLB0206-MSD1		1	NO MANUAL INTEGRATION
2309	02202338ECD7.D	23A0626-03RE1		5	Aroclor-1254, Aroclor-1260, IS-HBBP, Decachlorobiphenyl,
2330	02202339ECD7.D	23A0626-05		1	NO MANUAL INTEGRATION
2351	02202340ECD7.D	23A0626-07		1	NO MANUAL INTEGRATION
0012	02202341ECD7.D	23A0626-10		1	NO MANUAL INTEGRATION
0033	02202342ECD7.D	23A0626-29		1	NO MANUAL INTEGRATION
0054	02202343ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
0115	02202344ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION
0136	02202345ECD7.D	BLB0021-BLK1		1	NO MANUAL INTEGRATION
0157	02202346ECD7.D	BLB0021-BS1		1	NO MANUAL INTEGRATION
0218	02202347ECD7.D	BLB0021-BSD1		1	NO MANUAL INTEGRATION
0239	02202348ECD7.D	BLB0021-SRM1		1	NO MANUAL INTEGRATION
0300	02202349ECD7.D	23A0417-01RE1		5	Aroclor-1254,
0322	02202350ECD7.D	23A0417-02		1	NO MANUAL INTEGRATION
0343	02202351ECD7.D	23A0417-03		1	NO MANUAL INTEGRATION
0404	02202352ECD7.D	23A0417-04		1	Aroclor-1254,
0425	02202353ECD7.D	23A0417-05		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0446	02202354ECD7.D	23A0417-06		1	Aroclor-1254,
0507	02202355ECD7.D	23A0417-07		1	Aroclor-1254,
0528	02202356ECD7.D	23A0417-08		1	Aroclor-1254,
0549	02202357ECD7.D	23A0417-09		1	NO MANUAL INTEGRATION
0610	02202358ECD7.D	23A0417-10RE1		5	Aroclor-1254,
0631	02202359ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
0652	02202360ECD7.D	AR1660CCV6		1	NO MANUAL INTEGRATION
0713	02202361ECD7.D	23A0417-11		1	NO MANUAL INTEGRATION
0734	02202362ECD7.D	23A0417-12		1	Aroclor-1254, Aroclor-1260,
0755	02202363ECD7.D	23A0417-13RE1		5	Aroclor-1254, Aroclor-1260, IS-HBBP, Decachlorobiphenyl,
0816	02202364ECD7.D	23A0417-14RE1		5	Aroclor-1254,
0838	02202365ECD7.D	23A0417-15		1	NO MANUAL INTEGRATION
0859	02202366ECD7.D	BLB0021-MS1		1	NO MANUAL INTEGRATION
0920	02202367ECD7.D	BLB0021-MSD1		1	NO MANUAL INTEGRATION
0941	02202368ECD7.D	BLB0017-BLK1		1	NO MANUAL INTEGRATION
1002	02202369ECD7.D	BLB0017-BS1		1	NO MANUAL INTEGRATION
1023	02202370ECD7.D	BLB0017-BSD1		1	NO MANUAL INTEGRATION
1044	02202371ECD7.D	BLB0017-SRM1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1105	02202372ECD7.D	23A0087-13		1	NO MANUAL INTEGRATION
1126	02202373ECD7.D	23A0328-01		1	NO MANUAL INTEGRATION
1147	02202374ECD7.D	23A0328-02RE1		10	NO MANUAL INTEGRATION
1208	02202375ECD7.D	BLB0017-MS1RE		10	NO MANUAL INTEGRATION
1229	02202376ECD7.D	BLB0017-MSD1RE		1	NO MANUAL INTEGRATION
1250	02202377ECD7.D	23A0328-03		1	Aroclor-1254,
1312	02202378ECD7.D	AR1248CCV7		1	NO MANUAL INTEGRATION
1333	02202379ECD7.D	AR1660CCV8		1	NO MANUAL INTEGRATION
1354	02202380ECD7.D	23A0328-04RE2		10	Aroclor-1254,
1415	02202381ECD7.D	23A0328-05RE2		5	Aroclor-1254,
1436	02202382ECD7.D	23A0328-06		1	Aroclor-1254,
1457	02202383ECD7.D	23A0328-07		1	Aroclor-1254,
1518	02202384ECD7.D	23A0328-08		1	Aroclor-1260,
1539	02202385ECD7.D	23A0328-09		1	Aroclor-1254,
1600	02202386ECD7.D	23A0328-10		1	Aroclor-1260,
1621	02202387ECD7.D	23A0328-11		1	Aroclor-1260,
1642	02202388ECD7.D	23A0328-12		1	Aroclor-1254,
1704	02202389ECD7.D	AR1242CCV9		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1725	02202390ECD7.D	AR1660CCVA		1	NO MANUAL INTEGRATION
0920	02202301ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
0941	02202302ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1002	02202303ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1023	02202304ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1044	02202305ECD7.D	AR1660RINSE		1	NO MANUAL INTEGRATION
1156	02202306ECD7.D	AR1660 RINSE		1	NO MANUAL INTEGRATION
1217	02202307ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1238	02202308ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1259	02202309ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1320	02202310ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1341	02202311ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1402	02202312ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1423	02202313ECD7.D	BLA0686-BLK1		1	NO MANUAL INTEGRATION
1444	02202314ECD7.D	BLA0686-BS1		1	NO MANUAL INTEGRATION
1505	02202315ECD7.D	BLA0686-BSD1		1	NO MANUAL INTEGRATION
1526	02202316ECD7.D	BLA0686-SRM1		1	NO MANUAL INTEGRATION
1547	02202317ECD7.D	23A0313-01		1	Aroclor-1248 [2C],

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1608	02202318ECD7.D	23A0313-02		1	Aroclor-1248 [2C],
1629	02202319ECD7.D	23A0313-03RE2		50	Aroclor-1248 [2C],
1650	02202320ECD7.D	23A0313-04RE2		10	Aroclor-1248 [2C],
1712	02202321ECD7.D	23A0313-05		1	Aroclor-1248 [2C],
1733	02202322ECD7.D	23A0313-06		1	Aroclor-1248 [2C],
1754	02202323ECD7.D	23A0313-07		1	Aroclor-1248 [2C],
1815	02202324ECD7.D	BLA0686-MS1		1	NO MANUAL INTEGRATION
1836	02202325ECD7.D	BLA0686-MSD1		1	NO MANUAL INTEGRATION
1857	02202326ECD7.D	23A0313-08		1	Aroclor-1248 [2C],
1918	02202327ECD7.D	23A0313-09		1	Aroclor-1248 [2C],
1939	02202328ECD7.D	23A0313-10		1	Aroclor-1248 [2C],
2000	02202329ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
2021	02202330ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
2042	02202331ECD7.D	BLB0206-BLK1		1	NO MANUAL INTEGRATION
2103	02202332ECD7.D	BLB0206-BS1		1	NO MANUAL INTEGRATION
2124	02202333ECD7.D	BLB0206-BSD1		1	NO MANUAL INTEGRATION
2145	02202334ECD7.D	BLB0206-SRM1		1	NO MANUAL INTEGRATION
2206	02202335ECD7.D	23A0626-01		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2227	02202336ECD7.D	BLB0206-MS1		1	NO MANUAL INTEGRATION
2248	02202337ECD7.D	BLB0206-MSD1		1	NO MANUAL INTEGRATION
2309	02202338ECD7.D	23A0626-03RE1		5	NO MANUAL INTEGRATION
2330	02202339ECD7.D	23A0626-05		1	NO MANUAL INTEGRATION
2351	02202340ECD7.D	23A0626-07		1	NO MANUAL INTEGRATION
0012	02202341ECD7.D	23A0626-10		1	NO MANUAL INTEGRATION
0033	02202342ECD7.D	23A0626-29		1	NO MANUAL INTEGRATION
0054	02202343ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
0115	02202344ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION
0136	02202345ECD7.D	BLB0021-BLK1		1	NO MANUAL INTEGRATION
0157	02202346ECD7.D	BLB0021-BS1		1	NO MANUAL INTEGRATION
0218	02202347ECD7.D	BLB0021-BSD1		1	NO MANUAL INTEGRATION
0239	02202348ECD7.D	BLB0021-SRM1		1	NO MANUAL INTEGRATION
0300	02202349ECD7.D	23A0417-01RE1		5	Aroclor-1248 [2C],
0322	02202350ECD7.D	23A0417-02		1	Aroclor-1248 [2C],
0343	02202351ECD7.D	23A0417-03		1	Aroclor-1248 [2C],
0404	02202352ECD7.D	23A0417-04		1	Aroclor-1248 [2C],
0425	02202353ECD7.D	23A0417-05		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0446	02202354ECD7.D	23A0417-06		1	NO MANUAL INTEGRATION
0507	02202355ECD7.D	23A0417-07		1	Aroclor-1248 [2C],
0528	02202356ECD7.D	23A0417-08		1	Aroclor-1248 [2C],
0549	02202357ECD7.D	23A0417-09		1	Aroclor-1248 [2C],
0610	02202358ECD7.D	23A0417-10RE1		5	Aroclor-1248 [2C],
0631	02202359ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
0652	02202360ECD7.D	AR1660CCV6		1	NO MANUAL INTEGRATION
0713	02202361ECD7.D	23A0417-11		1	Aroclor-1248 [2C],
0734	02202362ECD7.D	23A0417-12		1	Aroclor-1248 [2C],
0755	02202363ECD7.D	23A0417-13RE1		5	Aroclor-1248 [2C], Aroclor-1254 [2C], Aroclor-1260 [2C], IS-HBBP [2C], Decachlorobiphenyl [2C],
0816	02202364ECD7.D	23A0417-14RE1		5	Aroclor-1248 [2C],
0838	02202365ECD7.D	23A0417-15		1	Aroclor-1248 [2C],
0859	02202366ECD7.D	BLB0021-MS1		1	NO MANUAL INTEGRATION
0920	02202367ECD7.D	BLB0021-MSD1		1	NO MANUAL INTEGRATION
0941	02202368ECD7.D	BLB0017-BLK1		1	NO MANUAL INTEGRATION
1002	02202369ECD7.D	BLB0017-BS1		1	NO MANUAL INTEGRATION
1023	02202370ECD7.D	BLB0017-BSD1		1	NO MANUAL INTEGRATION
1044	02202371ECD7.D	BLB0017-SRM1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1105	02202372ECD7.D	23A0087-13		1	Aroclor-1248 [2C],
1126	02202373ECD7.D	23A0328-01		1	Aroclor-1248 [2C],
1147	02202374ECD7.D	23A0328-02RE1		10	Aroclor-1248 [2C],
1208	02202375ECD7.D	BLB0017-MS1RE		10	NO MANUAL INTEGRATION
1229	02202376ECD7.D	BLB0017-MSD1RE		1	NO MANUAL INTEGRATION
1250	02202377ECD7.D	23A0328-03		1	Aroclor-1248 [2C],
1312	02202378ECD7.D	AR1248CCV7		1	NO MANUAL INTEGRATION
1333	02202379ECD7.D	AR1660CCV8		1	NO MANUAL INTEGRATION
1354	02202380ECD7.D	23A0328-04RE2		10	Aroclor-1248 [2C],
1415	02202381ECD7.D	23A0328-05RE2		5	Aroclor-1248 [2C],
1436	02202382ECD7.D	23A0328-06		1	Aroclor-1248 [2C],
1457	02202383ECD7.D	23A0328-07		1	Aroclor-1248 [2C],
1518	02202384ECD7.D	23A0328-08		1	Aroclor-1248 [2C],
1539	02202385ECD7.D	23A0328-09		1	Aroclor-1248 [2C],
1600	02202386ECD7.D	23A0328-10		1	Aroclor-1248 [2C],
1621	02202387ECD7.D	23A0328-11		1	Aroclor-1248 [2C],
1642	02202388ECD7.D	23A0328-12		1	Aroclor-1248 [2C],
1704	02202389ECD7.D	AR1242CCV9		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230220.b\230220.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1725	02202390ECD7.D	AR1660CCVA		1	NO MANUAL INTEGRATION

Security Status Report

Date: 22-Feb-2023 09:48

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SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG/WO:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0222	Instrument:	ECD7
Calibration:	GB00045	Calibration Date:	02/16/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLB0222-SCV1 (Water)			Lab File ID: 02162313ECD7.D			Analyzed: 02/16/23 15:15		
Decachlorobiphenyl	40.000	101	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	93.3	80 - 120	5.807	5.808333	-0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	104	80 - 120	14.118	14.11733	0.0007	N/A	
Tetrachlorometaxylene [2C]	40.000	94.1	80 - 120	5.685	5.685667	-0.0007	N/A	
SLB0222-SCV2 (Water)			Lab File ID: 02162314ECD7.D			Analyzed: 02/16/23 15:36		
Decachlorobiphenyl	40.000	101	80 - 120	13.891	13.89117	-0.0002	N/A	
Tetrachlorometaxylene	40.000	91.9	80 - 120	5.807	5.808333	-0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	14.117	14.11733	-0.0003	N/A	
Tetrachlorometaxylene [2C]	40.000	93.0	80 - 120	5.685	5.685667	-0.0007	N/A	
SLB0222-SCV3 (Water)			Lab File ID: 02162315ECD7.D			Analyzed: 02/16/23 15:57		
Decachlorobiphenyl	40.000	103	80 - 120	13.891	13.89117	-0.0002	N/A	
Tetrachlorometaxylene	40.000	91.2	80 - 120	5.808	5.808333	-0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	104	80 - 120	14.118	14.11733	0.0007	N/A	
Tetrachlorometaxylene [2C]	40.000	92.2	80 - 120	5.686	5.685667	0.0003	N/A	
SLB0222-SCV4 (Water)			Lab File ID: 02162316ECD7.D			Analyzed: 02/16/23 16:18		
Decachlorobiphenyl	40.000	101	80 - 120	13.889	13.89117	-0.0022	N/A	
Tetrachlorometaxylene	40.000	91.7	80 - 120	5.807	5.808333	-0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	105	80 - 120	14.118	14.11733	0.0007	N/A	
Tetrachlorometaxylene [2C]	40.000	93.7	80 - 120	5.685	5.685667	-0.0007	N/A	
SLB0222-SCV5 (Water)			Lab File ID: 02162317ECD7.D			Analyzed: 02/16/23 16:39		
Decachlorobiphenyl	40.000	101	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	93.0	80 - 120	5.807	5.808333	-0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	105	80 - 120	14.118	14.11733	0.0007	N/A	
Tetrachlorometaxylene [2C]	40.000	94.2	80 - 120	5.685	5.685667	-0.0007	N/A	
SLB0222-SCV6 (Water)			Lab File ID: 02162318ECD7.D			Analyzed: 02/16/23 17:00		
Decachlorobiphenyl	40.000	145	80 - 120	13.891	13.89117	-0.0002	N/A	
Tetrachlorometaxylene	40.000	88.7	80 - 120	5.807	5.808333	-0.0013	N/A	
Decachlorobiphenyl [2C]	40.000	150	80 - 120	14.118	14.11733	0.0007	N/A	
Tetrachlorometaxylene [2C]	40.000	90.9	80 - 120	5.686	5.685667	0.0003	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG/WO:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0274	Instrument:	ECD7
Calibration:	GB00045	Calibration Date:	02/16/2023

Surrogate Compound	Spike Level ug/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BLB0206-BLK1 (Solid)			Lab File ID: 02132369ECD7.D			Analyzed: 02/14/23 09:44		
Decachlorobiphenyl	8.0000	81.9	40 - 126	13.889	13.89117	-0.0022	N/A	
Tetrachlorometaxylene	8.0000	79.2	44 - 120	5.807	5.808333	-0.0013	N/A	
Decachlorobiphenyl [2C]	8.0000	84.5	40 - 126	14.116	14.11733	-0.0013	N/A	
Tetrachlorometaxylene [2C]	8.0000	78.2	44 - 120	5.684	5.685667	-0.0017	N/A	
SLB0274-ICV1 (Solid)			Lab File ID: 02202311ECD7.D			Analyzed: 02/20/23 13:41		
Decachlorobiphenyl	40.000	94.0	80 - 120	13.892	13.89117	0.0008	N/A	
Tetrachlorometaxylene	40.000	88.0	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	14.116	14.11733	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	96.3	80 - 120	5.684	5.685667	-0.0017	N/A	
SLB0274-ICV2 (Solid)			Lab File ID: 02202312ECD7.D			Analyzed: 02/20/23 14:02		
Decachlorobiphenyl	40.000	94.5	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	85.0	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	14.117	14.11733	-0.0003	N/A	
Tetrachlorometaxylene [2C]	40.000	91.3	80 - 120	5.683	5.685667	-0.0027	N/A	
SLB0274-CCV1 (Solid)			Lab File ID: 02202329ECD7.D			Analyzed: 02/20/23 20:00		
Decachlorobiphenyl	40.000	95.8	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	89.3	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	105	80 - 120	14.116	14.11733	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	100	80 - 120	5.683	5.685667	-0.0027	N/A	
SLB0274-CCV2 (Solid)			Lab File ID: 02202330ECD7.D			Analyzed: 02/20/23 20:21		
Decachlorobiphenyl	40.000	98.3	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	94.0	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	105	80 - 120	14.115	14.11733	-0.0023	N/A	
Tetrachlorometaxylene [2C]	40.000	103	80 - 120	5.684	5.685667	-0.0017	N/A	
BLB0206-BS1 (Solid)			Lab File ID: 02202332ECD7.D			Analyzed: 02/20/23 21:03		
Decachlorobiphenyl	8.0000	95.8	40 - 126	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	8.0000	79.9	44 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	8.0000	104	40 - 126	14.115	14.11733	-0.0023	N/A	
Tetrachlorometaxylene [2C]	8.0000	83.4	44 - 120	5.683	5.685667	-0.0027	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0274
Instrument: ECD7
Calibration: GB00045
Calibration Date: 02/16/2023

Surrogate Compound	Spike Level ug/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BLB0206-BSD1 (Solid)			Lab File ID: 02202333ECD7.D			Analyzed: 02/20/23 21:24		
Decachlorobiphenyl	8.0000	97.8	40 - 126	13.889	13.89117	-0.0022	N/A	
Tetrachlorometaxylene	8.0000	82.4	44 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	8.0000	104	40 - 126	14.115	14.11733	-0.0023	N/A	
Tetrachlorometaxylene [2C]	8.0000	85.8	44 - 120	5.683	5.685667	-0.0027	N/A	
BLB0206-SRM1 (Solid)			Lab File ID: 02202334ECD7.D			Analyzed: 02/20/23 21:45		
Decachlorobiphenyl	40.000	92.5	40 - 126	13.887	13.89117	-0.0042	N/A	
Tetrachlorometaxylene	40.000	76.6	44 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	40.000	93.9	40 - 126	14.112	14.11733	-0.0053	N/A	
Tetrachlorometaxylene [2C]	40.000	84.3	44 - 120	5.681	5.685667	-0.0047	N/A	
23A0626-01 (Solid)			Lab File ID: 02202335ECD7.D			Analyzed: 02/20/23 22:06		
Decachlorobiphenyl	7.9860	95.1	40 - 126	13.889	13.89117	-0.0022	N/A	
Tetrachlorometaxylene	7.9860	77.9	44 - 120	5.807	5.808333	-0.0013	N/A	
Decachlorobiphenyl [2C]	7.9860	100	40 - 126	14.113	14.11733	-0.0043	N/A	
Tetrachlorometaxylene [2C]	7.9860	93.0	44 - 120	5.683	5.685667	-0.0027	N/A	
BLB0206-MS1 (Solid)			Lab File ID: 02202336ECD7.D			Analyzed: 02/20/23 22:27		
Decachlorobiphenyl	8.0017	94.8	40 - 126	13.887	13.89117	-0.0042	N/A	
Tetrachlorometaxylene	8.0017	81.2	44 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	8.0017	94.2	40 - 126	14.113	14.11733	-0.0043	N/A	
Tetrachlorometaxylene [2C]	8.0017	93.8	44 - 120	5.681	5.685667	-0.0047	N/A	
BLB0206-MSD1 (Solid)			Lab File ID: 02202337ECD7.D			Analyzed: 02/20/23 22:48		
Decachlorobiphenyl	9.9613	93.1	40 - 126	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	9.9613	80.5	44 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	9.9613	93.1	40 - 126	14.113	14.11733	-0.0043	N/A	
Tetrachlorometaxylene [2C]	9.9613	95.1	44 - 120	5.682	5.685667	-0.0037	N/A	
23A0626-03 (Solid)			Lab File ID: 02202338ECD7.D			Analyzed: 02/20/23 23:09		
Decachlorobiphenyl	7.9831	94.4	40 - 126	13.885	13.89117	-0.0062	N/A	
Tetrachlorometaxylene	7.9831	119	44 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	7.9831	86.8	40 - 126	14.112	14.11733	-0.0053	N/A	
Tetrachlorometaxylene [2C]	7.9831	103	44 - 120	5.683	5.685667	-0.0027	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0274
Instrument: ECD7
Calibration: GB00045
Calibration Date: 02/16/2023

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
23A0626-05 (Solid)			Lab File ID: 02202339ECD7.D			Analyzed: 02/20/23 23:30		
Decachlorobiphenyl	7.9788	92.8	40 - 126	13.886	13.89117	-0.0052	N/A	
Tetrachlorometaxylene	7.9788	77.1	44 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	7.9788	83.9	40 - 126	14.112	14.11733	-0.0053	N/A	
Tetrachlorometaxylene [2C]	7.9788	93.9	44 - 120	5.681	5.685667	-0.0047	N/A	
23A0626-07 (Solid)			Lab File ID: 02202340ECD7.D			Analyzed: 02/20/23 23:51		
Decachlorobiphenyl	7.9859	92.8	40 - 126	13.889	13.89117	-0.0022	N/A	
Tetrachlorometaxylene	7.9859	73.8	44 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	7.9859	96.3	40 - 126	14.114	14.11733	-0.0033	N/A	
Tetrachlorometaxylene [2C]	7.9859	80.4	44 - 120	5.681	5.685667	-0.0047	N/A	
23A0626-10 (Solid)			Lab File ID: 02202341ECD7.D			Analyzed: 02/21/23 00:12		
Decachlorobiphenyl	7.9815	91.6	40 - 126	13.889	13.89117	-0.0022	N/A	
Tetrachlorometaxylene	7.9815	76.2	44 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	7.9815	97.9	40 - 126	14.113	14.11733	-0.0043	N/A	
Tetrachlorometaxylene [2C]	7.9815	90.2	44 - 120	5.682	5.685667	-0.0037	N/A	
23A0626-29 (Solid)			Lab File ID: 02202342ECD7.D			Analyzed: 02/21/23 00:33		
Decachlorobiphenyl	7.9860	88.9	40 - 126	13.888	13.89117	-0.0032	N/A	
Tetrachlorometaxylene	7.9860	74.8	44 - 120	5.804	5.808333	-0.0043	N/A	
Decachlorobiphenyl [2C]	7.9860	95.1	40 - 126	14.114	14.11733	-0.0033	N/A	
Tetrachlorometaxylene [2C]	7.9860	88.4	44 - 120	5.681	5.685667	-0.0047	N/A	
SLB0274-CCV3 (Solid)			Lab File ID: 02202343ECD7.D			Analyzed: 02/21/23 00:54		
Decachlorobiphenyl	40.000	78.5	80 - 120	13.892	13.89117	0.0008	N/A	*
Tetrachlorometaxylene	40.000	110	80 - 120	5.808	5.808333	-0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	97.5	80 - 120	14.116	14.11733	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	118	80 - 120	5.683	5.685667	-0.0027	N/A	
SLB0274-CCV4 (Solid)			Lab File ID: 02202344ECD7.D			Analyzed: 02/21/23 01:15		
Decachlorobiphenyl	40.000	83.3	80 - 120	13.891	13.89117	-0.0002	N/A	
Tetrachlorometaxylene	40.000	93.3	80 - 120	5.805	5.808333	-0.0033	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	14.116	14.11733	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	102	80 - 120	5.683	5.685667	-0.0027	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0274
Instrument: ECD7
Calibration: GB00045
Calibration Date: 02/16/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLB0274-CCV5 (Solid)			Lab File ID: 02202359ECD7.D			Analyzed: 02/21/23 06:31		
Decachlorobiphenyl	40.000	94.8	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	90.8	80 - 120	5.808	5.808333	-0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	14.116	14.11733	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	98.3	80 - 120	5.684	5.685667	-0.0017	N/A	
SLB0274-CCV6 (Solid)			Lab File ID: 02202360ECD7.D			Analyzed: 02/21/23 06:52		
Decachlorobiphenyl	40.000	98.5	80 - 120	13.891	13.89117	-0.0002	N/A	
Tetrachlorometaxylene	40.000	96.5	80 - 120	5.808	5.808333	-0.0003	N/A	
Decachlorobiphenyl [2C]	40.000	104	80 - 120	14.116	14.11733	-0.0013	N/A	
Tetrachlorometaxylene [2C]	40.000	104	80 - 120	5.685	5.685667	-0.0007	N/A	
SLB0274-CCV7 (Solid)			Lab File ID: 02202378ECD7.D			Analyzed: 02/21/23 13:12		
Decachlorobiphenyl	40.000	91.0	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	89.8	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	99.3	80 - 120	14.114	14.11733	-0.0033	N/A	
Tetrachlorometaxylene [2C]	40.000	100	80 - 120	5.683	5.685667	-0.0027	N/A	
SLB0274-CCV8 (Solid)			Lab File ID: 02202379ECD7.D			Analyzed: 02/21/23 13:33		
Decachlorobiphenyl	40.000	95.3	80 - 120	13.89	13.89117	-0.0012	N/A	
Tetrachlorometaxylene	40.000	95.5	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	104	80 - 120	14.115	14.11733	-0.0023	N/A	
Tetrachlorometaxylene [2C]	40.000	102	80 - 120	5.683	5.685667	-0.0027	N/A	
SLB0274-CCV9 (Solid)			Lab File ID: 02202389ECD7.D			Analyzed: 02/21/23 17:04		
Decachlorobiphenyl	40.000	91.0	80 - 120	13.891	13.89117	-0.0002	N/A	
Tetrachlorometaxylene	40.000	109	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	98.5	80 - 120	14.114	14.11733	-0.0033	N/A	
Tetrachlorometaxylene [2C]	40.000	121	80 - 120	5.683	5.685667	-0.0027	N/A	
SLB0274-CCVA (Solid)			Lab File ID: 02202390ECD7.D			Analyzed: 02/21/23 17:25		
Decachlorobiphenyl	40.000	99.5	80 - 120	13.891	13.89117	-0.0002	N/A	
Tetrachlorometaxylene	40.000	97.0	80 - 120	5.806	5.808333	-0.0023	N/A	
Decachlorobiphenyl [2C]	40.000	105	80 - 120	14.115	14.11733	-0.0023	N/A	
Tetrachlorometaxylene [2C]	40.000	105	80 - 120	5.682	5.685667	-0.0037	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0222	Instrument:	ECD7
		Calibration:	GB00045

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SLB0222-SCV1)		(Water)	Lab File ID: 02162313ECD7.D				Analyzed: 02/16/23 15:15		
1-Bromo-2-Nitrobenzene	458820	3.491	430055	3.492	107	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	1052678	14.262	975457	14.263	108	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	384524	3.928	366754	3.928	105	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	695386	15.005	646884	15.005	107	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SLB0222-SCV2)		(Water)	Lab File ID: 02162314ECD7.D				Analyzed: 02/16/23 15:36		
1-Bromo-2-Nitrobenzene	460847	3.491	430055	3.492	107	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	1048824	14.262	975457	14.263	108	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	386112	3.928	366754	3.928	105	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	690141	15.004	646884	15.005	107	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0222-SCV3)		(Water)	Lab File ID: 02162315ECD7.D				Analyzed: 02/16/23 15:57		
1-Bromo-2-Nitrobenzene	454293	3.491	430055	3.492	106	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	1020262	14.263	975457	14.263	105	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	380923	3.929	366754	3.928	104	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	669927	15.005	646884	15.005	104	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SLB0222-SCV4)		(Water)	Lab File ID: 02162316ECD7.D				Analyzed: 02/16/23 16:18		
1-Bromo-2-Nitrobenzene	465227	3.491	430055	3.492	108	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	1063495	14.262	975457	14.263	109	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	387434	3.928	366754	3.928	106	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	700154	15.004	646884	15.005	108	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0222-SCV5)		(Water)	Lab File ID: 02162317ECD7.D				Analyzed: 02/16/23 16:39		
1-Bromo-2-Nitrobenzene	464367	3.491	430055	3.492	108	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	1054321	14.262	975457	14.263	108	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	381247	3.928	366754	3.928	104	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	695925	15.006	646884	15.005	108	50 - 200	0.001	+/-0.50	
Secondary Cal Check (SLB0222-SCV6)		(Water)	Lab File ID: 02162318ECD7.D				Analyzed: 02/16/23 17:00		
1-Bromo-2-Nitrobenzene	462340	3.49	430055	3.492	108	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl	1046529	14.263	975457	14.263	107	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	380640	3.928	366754	3.928	104	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	694272	15.005	646884	15.005	107	50 - 200	0.000	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0274
Instrument: ECD7
Calibration: GB00045

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (BLB0206-BLK1)		(Solid)	Lab File ID: 02132369ECD7.D				Analyzed: 02/14/23 09:44		
1-Bromo-2-Nitrobenzene	422680	3.49	752414	3.491	56	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	557237	14.258	1583248	14.265	35	50 - 200	-0.007	+/-0.50	*
1-Bromo-2-Nitrobenzene [2C]	359819	3.927	319676	3.926	113	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	418804	15.003	505388	15.005	83	50 - 200	-0.002	+/-0.50	
Initial Cal Check (SLB0274-ICV1)		(Solid)	Lab File ID: 02202311ECD7.D				Analyzed: 02/20/23 13:41		
1-Bromo-2-Nitrobenzene	752414	3.491	752414	3.491	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	1583248	14.265	1583248	14.265	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	319676	3.926	319676	3.926	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	505388	15.005	505388	15.005	100	50 - 200	0.000	+/-0.50	
Initial Cal Check (SLB0274-ICV2)		(Solid)	Lab File ID: 02202312ECD7.D				Analyzed: 02/20/23 14:02		
1-Bromo-2-Nitrobenzene	593006	3.488	752414	3.491	79	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl	1183260	14.265	1583248	14.265	75	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	271274	3.924	319676	3.926	85	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	413127	15.004	505388	15.005	82	50 - 200	-0.001	+/-0.50	
LCS (BLB0206-BS1)		(Solid)	Lab File ID: 02202332ECD7.D				Analyzed: 02/20/23 21:03		
1-Bromo-2-Nitrobenzene	697851	3.491	593006	3.488	118	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	1298290	14.263	1183260	14.265	110	50 - 200	-0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	290011	3.925	271274	3.924	107	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	424305	15.004	413127	15.004	103	50 - 200	0.000	+/-0.50	
LCS Dup (BLB0206-BSD1)		(Solid)	Lab File ID: 02202333ECD7.D				Analyzed: 02/20/23 21:24		
1-Bromo-2-Nitrobenzene	685206	3.491	593006	3.488	116	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	1339238	14.262	1183260	14.265	113	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	283347	3.925	271274	3.924	104	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	434957	15.003	413127	15.004	105	50 - 200	-0.001	+/-0.50	
Reference (BLB0206-SRM1)		(Solid)	Lab File ID: 02202334ECD7.D				Analyzed: 02/20/23 21:45		
1-Bromo-2-Nitrobenzene	747433	3.49	752414	3.491	99	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	1110698	14.255	1583248	14.265	70	50 - 200	-0.010	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	294458	3.924	319676	3.926	92	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	410579	14.998	505388	15.005	81	50 - 200	-0.007	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0274
Instrument: ECD7
Calibration: GB00045

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LY-28_0-10 (23A0626-01)		(Solid)	Lab File ID: 02202335ECD7.D				Analyzed: 02/20/23 22:06		
1-Bromo-2-Nitrobenzene	767531	3.492	593006	3.488	129	50 - 200	0.004	+/-0.50	
Hexabromobiphenyl	1300909	14.258	1183260	14.265	110	50 - 200	-0.007	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	297237	3.926	271274	3.924	110	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	444467	15.001	413127	15.004	108	50 - 200	-0.003	+/-0.50	
Matrix Spike (BLB0206-MS1)		(Solid)	Lab File ID: 02202336ECD7.D				Analyzed: 02/20/23 22:27		
1-Bromo-2-Nitrobenzene	741327	3.491	752414	3.491	99	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	1273018	14.257	1583248	14.265	80	50 - 200	-0.008	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	289502	3.925	319676	3.926	91	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	445866	14.998	505388	15.005	88	50 - 200	-0.007	+/-0.50	
Matrix Spike Dup (BLB0206-MSD1)		(Solid)	Lab File ID: 02202337ECD7.D				Analyzed: 02/20/23 22:48		
1-Bromo-2-Nitrobenzene	753041	3.491	593006	3.488	127	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	1279614	14.257	1183260	14.265	108	50 - 200	-0.008	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	289610	3.925	271274	3.924	107	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	439545	15	413127	15.004	106	50 - 200	-0.004	+/-0.50	
LY-28_1-2 (23A0626-03)		(Solid)	Lab File ID: 02202338ECD7.D				Analyzed: 02/20/23 23:09		
1-Bromo-2-Nitrobenzene	758977	3.491	593006	3.488	128	50 - 200	0.003	+/-0.50	
Hexabromobiphenyl	1196298	14.255	1183260	14.265	101	50 - 200	-0.010	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	307244	3.926	271274	3.924	113	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl [2C]	464095	14.998	413127	15.004	112	50 - 200	-0.006	+/-0.50	
LY-29_0-10 (23A0626-05)		(Solid)	Lab File ID: 02202339ECD7.D				Analyzed: 02/20/23 23:30		
1-Bromo-2-Nitrobenzene	751271	3.49	593006	3.488	127	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl	1096422	14.256	1183260	14.265	93	50 - 200	-0.009	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	292896	3.925	271274	3.924	108	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	438745	14.998	413127	15.004	106	50 - 200	-0.006	+/-0.50	
LY-29_1-2 (23A0626-07)		(Solid)	Lab File ID: 02202340ECD7.D				Analyzed: 02/20/23 23:51		
1-Bromo-2-Nitrobenzene	765981	3.489	593006	3.488	129	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	1370107	14.259	1183260	14.265	116	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	297971	3.924	271274	3.924	110	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	449143	15.001	413127	15.004	109	50 - 200	-0.003	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23A0626
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLB0274	Instrument:	ECD7
		Calibration:	GB00045

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LY-30_0-10 (23A0626-10)		(Solid)		Lab File ID: 02202341ECD7.D				Analyzed: 02/21/23 00:12	
1-Bromo-2-Nitrobenzene	781335	3.49	593006	3.488	132	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl	1462553	14.259	1183260	14.265	124	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	302801	3.925	271274	3.924	112	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	475340	15	413127	15.004	115	50 - 200	-0.004	+/-0.50	
LY-DUP_0-10 (23A0626-29)		(Solid)		Lab File ID: 02202342ECD7.D				Analyzed: 02/21/23 00:33	
1-Bromo-2-Nitrobenzene	758367	3.49	593006	3.488	128	50 - 200	0.002	+/-0.50	
Hexabromobiphenyl	1425882	14.259	1183260	14.265	121	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	294369	3.924	271274	3.924	109	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	463837	15	413127	15.004	112	50 - 200	-0.004	+/-0.50	

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers			Project:	Anacortes Log Yard
Matrix:	Sediment	Laboratory ID:	23A0626-03	File ID:	02202338ECD7.D
Sampled:	01/27/23 10:45	Prepared:	02/09/23 11:32	Analyzed:	02/20/23 23:09
Solids:	57.54	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BLB0206	Sequence:	SLB0274		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	1	9.287	9.294	0.007	5852.6	9.1	38.2
	* 2	9.438	9.446	0.008	4511.8	13.4	
Aroclor 1260	1	11.035	11.0415	0.0065	4368.4	8.5	25.6
	* 2	11.642	11.6505	0.0085	3324	11.0	

* Column used for quantitation

Analytical Resources, LLC
Analytical Chemists and Consultants

DUAL COLUMN CONFIRMATION SUMMARY

Laboratory:	Analytical Resources, LLC			SDG:	23A0626
Client:	GeoEngineers			Project:	Anacortes Log Yard
Matrix:	Sediment	Laboratory ID:	23A0626-05	File ID:	02202339ECD7.D
Sampled:	01/26/23 11:25	Prepared:	02/09/23 11:32	Analyzed:	02/20/23 23:30
Solids:	75.41	Preparation:	EPA 3546 (Microwave)	Instrument:	ECD7
Batch:	BLB0206	Sequence:	SLB0274		
GC Column(1):	ZB5			GC Column(2):	ZB35

COMPOUND	COL	RT	EXP RT	RT DIFF	AREA	CONC	RPD
Aroclor 1254	1	9.285	9.294	0.009	18479	6.3	29.7
	* 2	9.437	9.446	0.009	10648.8	8.5	

* Column used for quantitation

HOLDING TIME SUMMARY

Analysis: EPA 8082A

Laboratory: Analytical Resources, LLC SDG: 23A0626

Client: GeoEngineers Project: Anacortes Log Yard

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LY-28_0-10 23A0626-01	01/26/23 13:00	01/30/23 13:24	02/09/23 11:32	13	14	02/20/23 22:06	11	40	
LY-28_1-2 23A0626-03	01/27/23 10:45	01/30/23 13:24	02/09/23 11:32	13	14	02/20/23 23:09	11	40	
LY-29_0-10 23A0626-05	01/26/23 11:25	01/30/23 13:24	02/09/23 11:32	14	14	02/20/23 23:30	11	40	
LY-29_1-2 23A0626-07	01/27/23 11:10	01/30/23 13:24	02/09/23 11:32	13	14	02/20/23 23:51	12	40	
LY-30_0-10 23A0626-10	01/26/23 11:30	01/30/23 13:24	02/09/23 11:32	14	14	02/21/23 00:12	12	40	
LY-DUP_0-10 23A0626-29	01/26/23 12:00	01/30/23 13:24	02/09/23 11:32	13	14	02/21/23 00:33	12	40	
Matrix Spike BLB0206-MS1	01/26/23 13:00	01/30/23 13:24	02/09/23 11:32	13	14	02/20/23 22:27	11	40	
Matrix Spike Dup BLB0206-MSD1	01/26/23 13:00	01/30/23 13:24	02/09/23 11:32	13	14	02/20/23 22:48	11	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23A0626
Client: GeoEngineers
Project: Anacortes Log Yard
Matrix: Solid
Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	1.6	4.0	ug/kg
Aroclor 1016 [2C]	1.6	4.0	ug/kg
Aroclor 1221	1.6	4.0	ug/kg
Aroclor 1221 [2C]	1.6	4.0	ug/kg
Aroclor 1232	1.6	4.0	ug/kg
Aroclor 1232 [2C]	1.6	4.0	ug/kg
Aroclor 1242	1.6	4.0	ug/kg
Aroclor 1242 [2C]	1.6	4.0	ug/kg
Aroclor 1248	1.6	4.0	ug/kg
Aroclor 1248 [2C]	1.6	4.0	ug/kg
Aroclor 1254	1.6	4.0	ug/kg
Aroclor 1254 [2C]	1.6	4.0	ug/kg
Aroclor 1260	0.6	4.0	ug/kg
Aroclor 1260 [2C]	0.6	4.0	ug/kg
Aroclor 1262	0.6	4.0	ug/kg
Aroclor 1262 [2C]	0.6	4.0	ug/kg
Aroclor 1268	0.6	4.0	ug/kg
Aroclor 1268 [2C]	0.6	4.0	ug/kg

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: S-279N
Description: Tetrachloro-m-xylene
Lot: 0052481B-1
Solvent: N/A
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Jul 28, 2005
Expiration: Jul 28, 2015
Sample Size: 100 mg
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

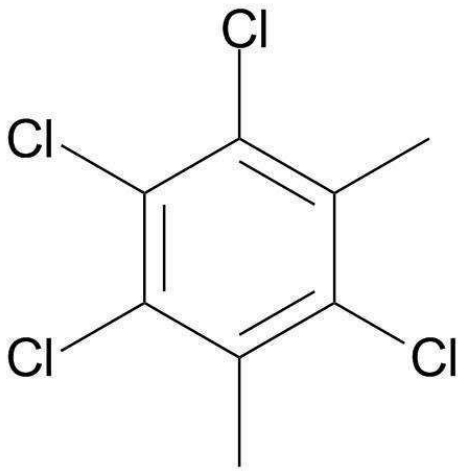
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/FID)	Prepared Concentration	Certified Analyte Concentration[1]
Tetrachloro-meta-xylene	877-09-8	96.0	N/A	N/A

Identification:

Molecular formula: C8H6Cl4
Molecular weight: 243.94



C000147
tetrachlormetaxylene
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[1] The Uncertainty calculated for this product is ±2.4%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Metrological traceability is established through in-house validated methods.

Purity, if stated, is equal to 100% minus found impurity components. Impurity components have not been identified.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

EXPIRED AccuStandard

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: C-209N
EXPIRATION: Jul 28, 2015
DESCRIPTION: 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
LOT #: 990521LB-AC
SOLVENT: N/A

This product is guaranteed accurate to ±0.5% of the Certified Analyte concentration through the Expiration Date on the Label.

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[1]	Certified Analyte Concentration[2]
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	100	N/A	N/A

C000148
decachlorbiphenyl
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

* I1768A

Certified by: R. Cooper

1. All weights are traceable through National Institute of Standards & Technology, Test No. 822/254480
2. Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty calculated for this product is ±4% which is the Combined Uncertainty uc(y). It represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The Expanded Uncertainty is U which is Uc(y) *K where K is the coverage factor at the 95% confidence level (K=2).
3. A product with a suffix (-1A, -2B, etc.) on its lot# has had its expiration date extended and is identical to the same lot# without the suffix.

Please note: AccuStandard follows the U.S. conventions in reporting numerical values, on both certificates and labels.

A comma (,) is used to separate units of one-thousand or greater.
A period (.) is used as a decimal place marker.

This product was manufactured in accordance to quality system requirements of ISO 9001:2000 and ISO 17025

* Recertified 2 4-6-09 JS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: C000148 **Printed: 4/23/2015 11:54:44AM**

Description:	decachlorbiphenyl	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	na/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:03 by JGR
Vendor:	Accustandard	Lot #:	990521lb-ac
Vendor Catalog #:			

Comments

see i1768a
SOM calibrations added 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Decachlorobiphenyl [2C]	2051-24-3	1000000	ug/mL
Decachlorobiphenyl	2051-24-3	1000000	ug/mL
DCB 1660 [2C]	2051-24-3	1000000	ug/mL
DCB 1660	2051-24-3	1000000	ug/mL
DCB [2C]	2051-24-3	1000000	ug/mL
DCB (A) [2C]	2051-24-3	1000000	ug/mL
DCB (A)	2051-24-3	1000000	ug/mL
DCB	2051-24-3	1000000	ug/mL

Reviewed By Date

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel: 310-212-0555 ▪ Fax: 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101461
Description: Aroclor 1254
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL13053
Certification Date: November 29, 2018
Expiration Date: November 30, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1254	11097-69-1	1000	± 0.246%

I09808
Recd. JP
02/24/20

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova Certified Reference Materials
Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL11110613_us

Certificate of Analysis

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6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101462
Description: Aroclor 1260
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL16516
Certification Date: March 4, 2021
Expiration Date: February 28, 2029

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1260	11096-82-5	1000	± 0.553%

J 00 6465

ACCREDITED
Reference Material Producer
Certicate No. 2427.02

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Phenova is an accredited ISO/IEC 17034 Reference Material Producer and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ACCREDITED
Chemical Testing Laboratory
Certicate No. 2427.03

IL6491018_us

Certificate of Analysis

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Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101468
Description: Aroclor 1221
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14017
Certification Date: August 20, 2019
Expiration Date: August 31, 2027

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1221	11104-28-2	1000	± 0.553%

J004466
Rec'd
06/18/21

ACCREDITED
Reference Material Producer
Certicate No. 2427.02

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Phenova is an accredited ISO/IEC 17034 Reference Material Producer and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ACCREDITED
Chemical Testing Laboratory
Certicate No. 2427.03

IL64691018 us

Certificate of Analysis

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6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at www.phenova.com/documents.

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101469
Description: Aroclor 1232
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14914
Certification Date: January 31, 2020
Expiration Date: January 31, 2028

Andrea L Gill
Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1232	11141-16-5	1000	± 0.738%

J006467 JR
read
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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommendad temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101470
Description: Aroclor 1242
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14018
Certification Date: August 20, 2019
Expiration Date: August 31, 2027

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1242	53469-21-9	1000	± 0.553%

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommanded temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101471
Description: Aroclor 1248
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL15384
Certification Date: June 19, 2020
Expiration Date: June 30, 2028

Andrea L Gill
Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1248	12672-29-6	1000	± 0.520%

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Reed, JR
06/18/21

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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101474	**Lot Number:**	CL11330
Description:	Aroclor 1262	**Certification Date:**	May 15, 2015
Storage:	4 °C	**Expiration Date:**	April 30, 2023
Provided As:	1 mL in 2 mL Ampoule in Isooctane	**Revision Date:**	April 2, 2018

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1262	37324-23-5	1000	± 0.516%

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101475	**Lot Number:**	CL11331
Description:	Aroclor 1268	**Certification Date:**	May 15, 2015
Storage:	4 °C	**Expiration Date:**	April 30, 2023
Provided As:	1 mL in 2 mL Ampoule in Isooctane	**Revision Date:**	April 2, 2018

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1268	11100-14-4	1000	± 0.516%

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101467
Description: Aroclor 1016
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL16555
Certification Date: June 22, 2021
Expiration Date: February 28, 2029

Andrea L Gill
Andrea Gill, Certified Reference Materials Manager

J012591
AROCLOR 1016
Expires 2/28/2029
Prepared By Joshua Rains 11/26/2021

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1016	12674-11-2	1000	± 0.310%

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2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

Certificate of Analysis

Agilent

Aroclor 1016 Solution

Product Number: PP-282 **Page:** 1 of 1

Lot Number: CR-0761 **Lot Issue Date:** 28-Feb-2017 **Expiration Date:** 31-Mar-2025

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1016	012674-11-2	NT01016	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1254 Reed JR 02/05/22

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

Agilent

Certificate of Analysis

Product Name: Aroclor 1260 Standard

Product Number: PP-362-1 **Lot Issue Date:** 20-Jan-2021

Lot Number: 0006582048 **Expiration Date:** 28-Feb-2025

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1260	011096-82-5	NT01023	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K 1255

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert
No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026
Page: 1 of 1
www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert
No. AT-1937

Agilent

Certificate of Analysis
ISO Guide 34

Aroclor 1242 Solution

Product Number: PP-312 **Page:** 1 of 1

Lot Number: CS-6293 **Lot Issue Date:** 04-Jan-2019 **Expiration Date:** 31-Jan-2023

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1242	053469-21-9	NT01020	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1256

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

ISO 17034

Agilent
Trusted Answers

Reference Material Certificate

Product Name: Aroclor 1248 Standard
Product Number: PP-342-1
Storage Conditions: Store at Room Temperature (15° to 30°C).

Lot Number: 0006626997
Lot Issue Date: 17-Aug-2021
Expiration Date: 30-Sep-2025

Component Name	CERTIFIED VALUES Concentration	Expanded Uncertainty	CAS#	Analyte Lot
Aroclor 1248	100.3 ±	0.5 µg/mL	012672-29-6	NT01582

Matrix: isooctane (2,2,4-trimethylpentane)

K1257

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

Certificate of Analysis

Agilent

Aroclor 1254 Solution

Product Number: PP-352 **Page:** 1 of 1

Lot Number: CS-2321 **Lot Issue Date:** 04-May-2018 **Expiration Date:** 31-May-2026

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1254	011097-69-1	RM00922	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1258

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

Agilent

Certificate of Analysis

Product Name: Aroclor 1221 Standard

Product Number: PP-292-1 **Lot Issue Date:** 28-Apr-2020

Lot Number: 0006535333 **Expiration Date:** 31-May-2024

Description:

This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system, and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1221	011104-28-2	RM04278	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1259

Traceability:

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:

This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:

This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:

Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:

The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

MBourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 17025 Cert No. AT-1937

Agilent

Certificate of Analysis
ISO 17034

Aroclor 1262 Standard

Product Number: PP-372-1 **Page:** 1 of 1

Lot Number: 0006499800 **Lot Issue Date:** 04-Nov-2019 **Expiration Date:** 30-Nov-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent Technologies ISO 9001 registered quality system. A review of the gravimetric preparation data by our ISO 17025 accredited laboratory serves to verify the concentration of each analyte. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1262	037324-23-5	RM14263	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1260

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert No. AT-1937

Agilent

Certificate of Analysis
ISO 17034

Aroclor 1232 Standard

Product Number: PP-302-1 **Page:** 1 of 1

Lot Number: CF-2197A **Lot Issue Date:** 05-Jul-2016 **Expiration Date:** 31-Aug-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1232	011141-16-5	NT01717	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1261

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

Agilent

Certificate of Analysis

Product Name: Aroclor 1268 Standard

Product Number: PP-382-1 **Lot Issue Date:** 09-Feb-2021

Lot Number: 0006587800 **Expiration Date:** 31-Mar-2029

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1268	011100-14-4	RM00937	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1262

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert No. AT-1937

250 Smith Street North Kingstown, Rhode Island 02852 www.agilent.com/quality

Certificate of Analysis

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411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel: 310-212-0555 ▪ Fax: 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101467
Description: Aroclor 1016
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL12975
Certification Date: November 19, 2018
Expiration Date: October 31, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1016	12674-11-2	1000	± 0.553%

K 5829

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL11110613_us

Certificate of Analysis

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411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel: 310-212-0555 ▪ Fax: 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty raported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitorad during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL111106I3_US

Certificate of Analysis

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6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101462
Description: Aroclor 1260
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL18021
Certification Date: February 14, 2022
Expiration Date: February 28, 2030

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1260	11096-82-5	1000	± 0.553%

K005830

Certificate of Analysis

Produced by Phenova
6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLB0016
Date:	2/1/2023 11:56
Analyst:	YL
Drying Oven:	15
Analytical Balance:	B146462614

Batch drying time					
Record times as mm/dd/yy hh:mm			Oven Temp, C	TS (%) calculated as:	Oven Temps, °C
Date/time in oven:	2/4/2023 11:30		104	Final dry wt (g) = (Dry Wt - Tare Wt)	Start Temp: 104
Date/time out:	2/6/2023 9:25		105	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)	End Temp: 105
Elapsed hrs:	45.9	> 24 hr			

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23A0626-01	0.8000	11.7700	9.7900	8.99	**81.95%**	Yes
23A0626-03	0.8100	12.5400	7.5600	6.75	**57.54%**	Yes
23A0626-05	0.7900	11.7300	9.0400	8.25	**75.41%**	Yes
23A0626-07	0.8000	12.0200	9.8700	9.07	**80.84%**	No
23A0626-10	0.8200	12.1100	9.8700	9.05	**80.16%**	No
23A0626-12	0.8300	11.8300	9.7700	8.94	**81.27%**	Yes
23A0626-29	0.8400	12.3500	10.1200	9.28	**80.63%**	Yes
23A0633-01	0.8000	4.2500	1.7600	0.96	**27.83%**	Yes
23A0633-02	0.8000	4.9000	2.2900	1.49	**36.34%**	Yes
23A0633-03	0.7900	6.5200	4.0500	3.26	**56.89%**	Yes
23A0633-04	0.8100	4.2800	1.8700	1.06	**30.55%**	Yes
23A0633-05	0.8200	5.1000	2.6000	1.78	**41.59%**	Yes
23A0633-06	0.8400	4.1600	1.2700	0.43	**12.95%**	No
23A0633-07	0.7900	6.8400	3.6300	2.84	**46.94%**	Yes
23A0633-08	0.7800	5.0900	1.2300	0.45	**10.44%**	Yes
23A0633-09	0.8000	6.4200	2.8000	2.00	**35.59%**	Yes
23A0633-10	0.7900	6.0200	1.6700	0.88	**16.83%**	Yes
23A0633-11	0.7900	5.2300	1.1500	0.36	**8.11%**	Yes
23A0633-12	0.8400	6.1300	1.8500	1.01	**19.09%**	Yes

HT. 2/9

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Batch:	BLB0016
Date:	2/1/2023 11:56
Analyst:	JL
Drying Oven:	Φ15
Analytical Balance:	B1464626 14

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

		Oven Temp, C
Date/time in oven:	02/04/23 11:34	104
Date/time out:	2/6/23 9:25	105
Elapsed hrs:	0.0	

TS (%) calculated as:

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

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

Oven Temps, °C	
Start Temp:	104
End Temp:	105

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23A0626-01	Φ.86	11.77	9.79			~~No~~ yes
23A0626-03	Φ.81	12.54	7.56			~~No~~ yes
23A0626-05	Φ.79	11.73	9.04			~~No~~ yes.
23A0626-07	Φ.84	12.Φ2	9.87			No
23A0626-10	Φ.82	12.11	9.87			No
23A0626-12	Φ.83	11.83	9.77			~~No~~ yes
23A0626-29	Φ.84	12.35	10.12			~~No~~ yes
23A0633-01	Φ.80	4.25	1.76			~~No~~ yes
23A0633-02	Φ.8Φ	4.9Φ	2.29			No yes
23A0633-03	Φ.79	6.52	4.05			~~No~~ yes
23A0633-04	Φ.81	4.28	1.87			~~No~~ yes
23A0633-05	Φ.82	5.1Φ	2.60			No yes
23A0633-06	Φ.84	4.16	1.27			No.
23A0633-07	Φ.79	6.84	3.63			~~No~~ yes
23A0633-08	Φ.78	5.Φ9	1.23			~~No~~ yes
23A0633-09	Φ.8Φ	6.42	2.80			~~No~~ yes
23A0633-10	Φ.79	6.Φ2	1.67			~~No~~ yes
23A0633-11	Φ.79	5.23	1.15			~~No~~ yes
23A0633-12	Φ.84	6.13	1.85			~~No~~ yes

Limited

Limited

T/S + Screens
1 copy

Analytical Resources, LLC
Analytical Chemists and Consultants

17 March 2023

Robert Trahan
GeoEngineers
2101 4th Avenue, Suite 950
Seattle, WA 98121

RE: Anacortes Log Yard

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

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

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

Associated Work Order(s)	Associated SDG ID(s)
23C0064	N/A

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

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

Analytical Resources, LLC

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

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

23C0064

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 23A0626	Turn-around Requested: Standard	Date: 1/30/23	
ARI Client Company: GeoEngineers	Phone: 206-728-2674	Page: 1 of 3	
Client Contact: Robert Trahan		No. of Coolers:	Cooler Temps:
Client Project Name: Anacortes Port Log Yard - Additional Data Gap Sediment Investigating			
Client Project #: 05147-016-11	Samplers: Nathan Solomon		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	cPAHs (EPA 8270-SIM)	PCBs (EPA 8082)	Hold for Fallow-on Anaylsis									Notes/Comments
LY-28_0-10	1/26/2023	1300	Sediment	1	x	x										
LY-28_0-1	1/27/2023	1040	Sediment	1			x									
LY-28_1-2	1/27/2023	1045	Sediment	1	x	x										
LY-28_2-3	1/27/2023	1050	Sediment	1	X	X	x									
LY-28_0-10	1/26/2023	1125	Sediment	1		x										
LY-29_0-1	1/27/2023	1105	Sediment	1			x									
LY-29_1-2	1/27/2023	1110	Sediment	1		x										
LY-29_2-3	1/27/2023	1115	Sediment	1			x									
LY-29_3-4	1/27/2023	1120	Sediment	1			x									
LY-30_0-10	1/26/2023	1130	Sediment	1	x	x										

Comments/Special Instructions

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	Nathan Solomon	Jacob Shelton		
Company:	GeoEngineers Inc.	AES, LLC		
Date & Time:	1/30/2023 13:24	01/30/23 1324		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

23C0064

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 23A0626	Turn-around Requested: ***SEE NOTES***	Date: **1/30/23**	
ARI Client Company: **GeoEngineers**	Phone: **206-728-2674**	Page: 2 of 3	
Client Contact: **Robert Trahan**		No. of coolers: 1	Cooler Temps: 1.7
Client Project Name: **Anacortes Port Log Yard - Additional Data Gap Sediment Investigating**			
Client Project #: **05147-016-11**	Samplers: **Nathan Solomon**		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	cPAHs (EPA 8270-SIM)	PCBs (EPA 8082)	Hold for Fallow-on Anaylsis								Notes/Comments
					Analysis Requested										
LY-30_0-1	1/27/2023	1125	Sediment	1											
LY-30_1-2	1/27/2023	1130	Sediment	1	x										
LY-30_2-3	1/27/2023	1135	Sediment	1			x								
LY-31_0-10	1/26/2023	1125	Sediment	1	X	X	x								
LY-31_0-1	1/27/2023	1135	Sediment	1			x								
LY-31_1-2	1/27/2023	1140	Sediment	1	X	X	x								
LY-31_2-3	1/27/2023	1145	Sediment	1			x								
LY-31_3-4	1/27/2023	1150	Sediment	1			x								
LY-32_0-10	1/26/2023	940	Sediment	1		X	x								
LY-32_0-1	1/27/2023	1205	Sediment	1			x								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Nathan Solomon	Printed Name: Jacob Slaten	Printed Name:	Printed Name:
	Company: GeoEngineers Inc.	Company: AR, LLC	Company:	Company:
	Date & Time: 1/30/2023 13:24	Date & Time: 01/30/23 1324	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

23C0064

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 23A0626	Turn-around Requested: **SEE NOTES**	Date: **1/30/23**	
ARI Client Company: **GeoEngineers**	Phone: **206-728-2674**	Page: 3 of 3	
Client Contact: **Robert Trahan**		No. of Coolers: 1	Cooler Temps: 1.3
Client Project Name: **Anacortes Port Log Yard - Additional Data Gap Sediment Investigating**			
Client Project #: **05147-016-11**	Samplers: **Nathan Solomon**		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs (EPA 8270-SIM)	PCBs (EPA 8082)	Hold for Fallow-on Anaylsis	Notes/Comments
LY-32_1-2	1/27/2023	1210	Sediment	1			x	
LY-32_2-3	1/27/2023	1215	Sediment	1			x	
LY-32_3-4	1/27/2023	1220	Sediment	1			x	
LY-32_4-5	1/27/2023	1225	Sediment	1			x	
LY-33_0-10	1/26/2023	1050	Sediment	1			x	
LY-33_0-1	1/27/2023	1230	Sediment	1			x	
LY-33_1-2	1/27/2023	1235	Sediment	1			x	
LY-33_2-3	1/27/2023	1240	Sediment	1			x	
LY-DUP_0-10	1/26/2023	1200	Sediment	1	x	x		
LY-DUP_1-2	1/27/2023	1200	Sediment	1			x	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Nathan Solomon	Printed Name: Jacob Haight	Printed Name:	Printed Name:
	Company: GeoEngineers Inc.	Company: ARI, LLC	Company:	Company:
	Date & Time: 1/30/2023 1324	Date & Time: 01/30/23 13:24	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

GeoEngineers	Project: Anacortes Log Yard	
2101 4th Avenue, Suite 950	Project Number: 05147-016-11	**Reported:**
Seattle, WA 98121	Project Manager: Robert Trahan	03/17/2023 13:42

ANALYTICAL REPORT FOR SAMPLES

Laboratory ID	Sample ID	Matrix	Date Sampled	Date Received
23C0064-01	LY-28_2-3	Solid	01/27/23 10:50	01/30/23 13:24
23C0064-02	LY-31_0-10	Solid	01/26/23 11:25	01/30/23 13:24
23C0064-03	LY-31_1-2	Solid	01/27/23 11:40	01/30/23 13:24
23C0064-04	LY-32_0-10	Solid	01/26/23 09:40	01/30/23 13:24

GeoEngineers	Project: Anacortes Log Yard	
2101 4th Avenue, Suite 950	Project Number: 05147-016-11	**Reported:**
Seattle WA, 98121	Project Manager: Robert Trahan	17-Mar-2023 13:42

Case Narrative

Client: GeoEngineers
Project: Anacortes Log Yard
Project Number: 05147-016-11
Work Order: 23C0064

Sample receipt

Sample(s) as listed on the preceding page were received 30-Jan-2023 13:24 under ARI work order 23C0064. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except Aroclor 1260 which was out of control high in both the initial and continuing calibration verifications on column zb-5. Data has been reported from the passing column zb-35.

Internal standard areas were within limits except Hexabromobiphenyl which was out of control low in the initial and continuing calibration verifications, the method blank and sample 23C0064-01 on column zb-5. The data has been reported from passing column zb-35.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The reference material (SRM) percent recoveries were within control limits.

QUALIFIERS AND NOTES

Qualifier	Definition
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
J	Estimated concentration value detected below the reporting limit.
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

LY-28_2-3

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23C0064-01 A	SDG:	23C0064
Sampled:	01/27/23 10:50	Prepared:	03/08/23 12:03	File ID:	N823031306.D
% Solids:	79.65	Preparation:	EPA 3546 (Microwave)	Analyzed:	03/13/23 15:26
Batch:	BLC0106	Sequence:	SLC0150	Initial/Final:	12.6 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	Silica Gel				

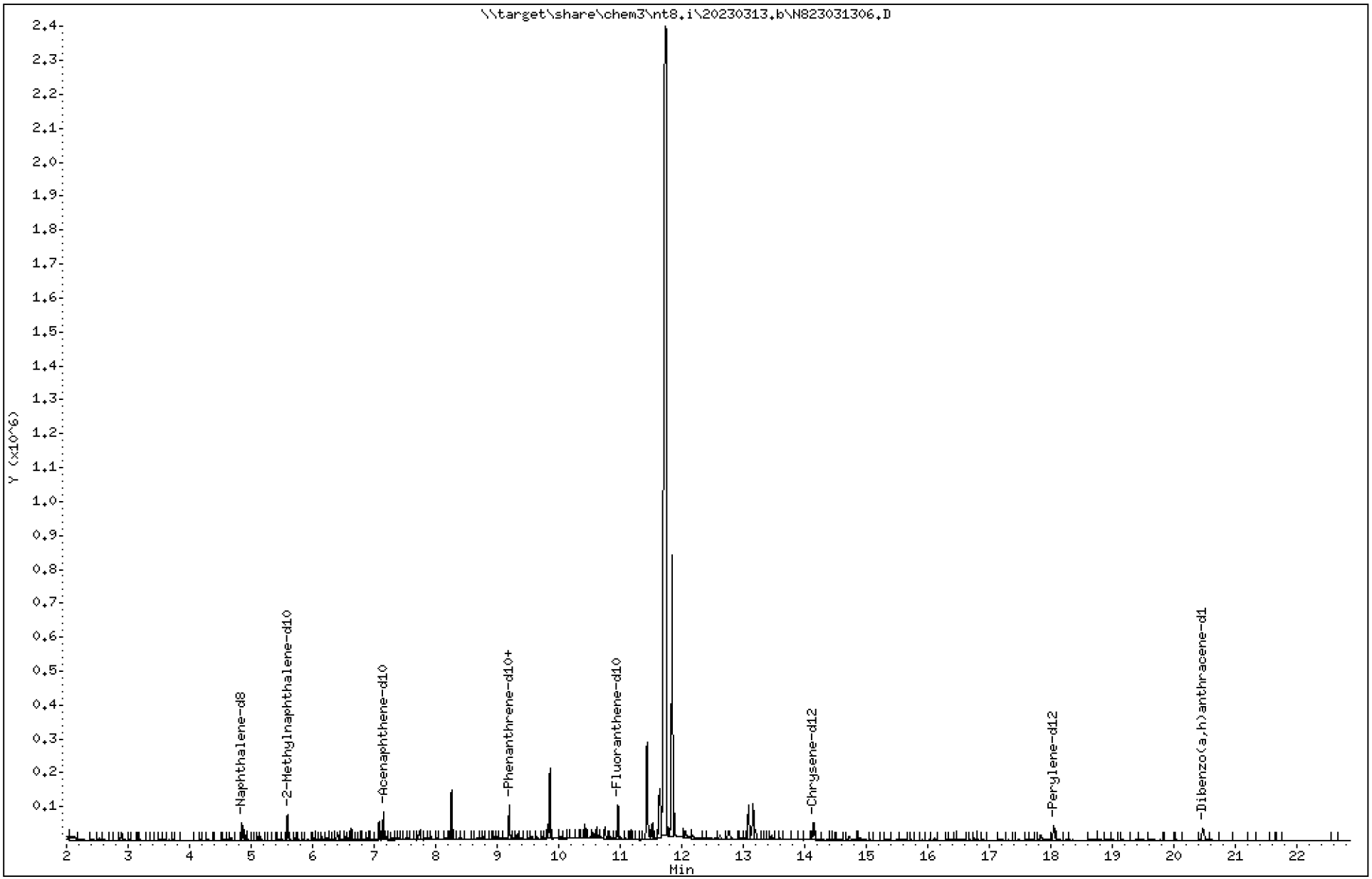
CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	3.80	J	0.82	4.98
218-01-9	Chrysene	1	6.13		1.05	4.98
205-99-2	Benzo(b)fluoranthene	1	9.83		1.37	4.98
207-08-9	Benzo(k)fluoranthene	1	4.60	J	0.76	4.98
50-32-8	Benzo(a)pyrene	1	7.37		0.61	4.98
193-39-5	Indeno(1,2,3-cd)pyrene	1	2.43	J	1.05	4.98
53-70-3	Dibenzo(a,h)anthracene	1	4.98	U	0.89	4.98
191-24-2	Benzo(g,h,i)perylene	1	3.11	J	1.06	4.98

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	149.46	120	80.4	32 - 120	
Dibenzo[a,h]anthracene-d14	149.46	157	105	21 - 133	
Fluoranthene-d10	149.46	146	97.6	36 - 134	

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D
Date : 13-MAR-2023 15:26
Client ID:
Sample Info: 23C0064-01

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23C0064 03/17/2023 Page 9 of 833

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D

Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

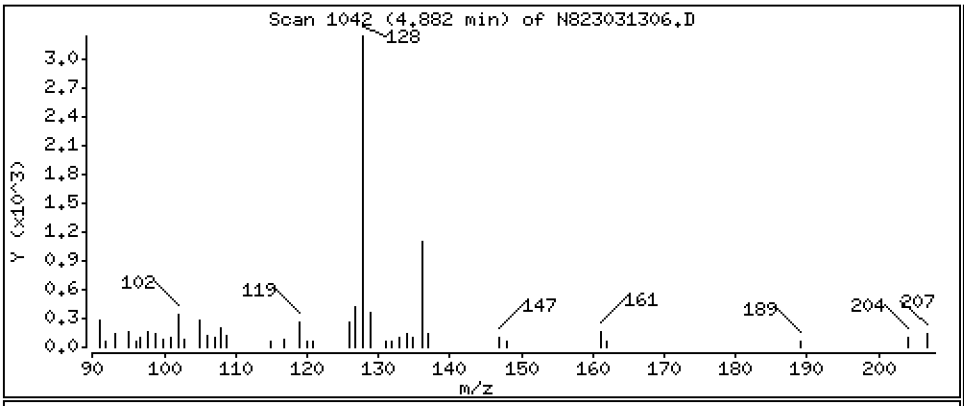
Operator: JZ

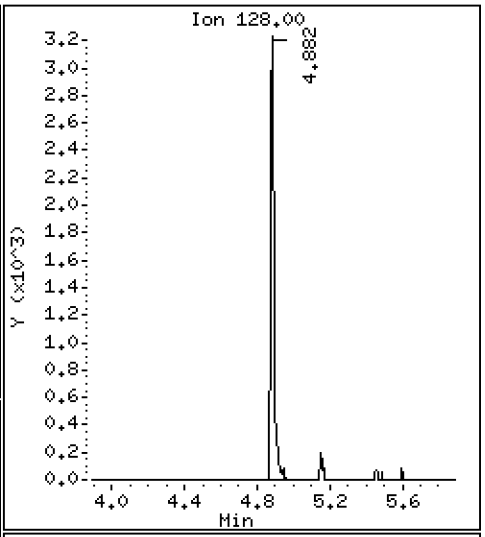
Column phase: Rxi-17sil

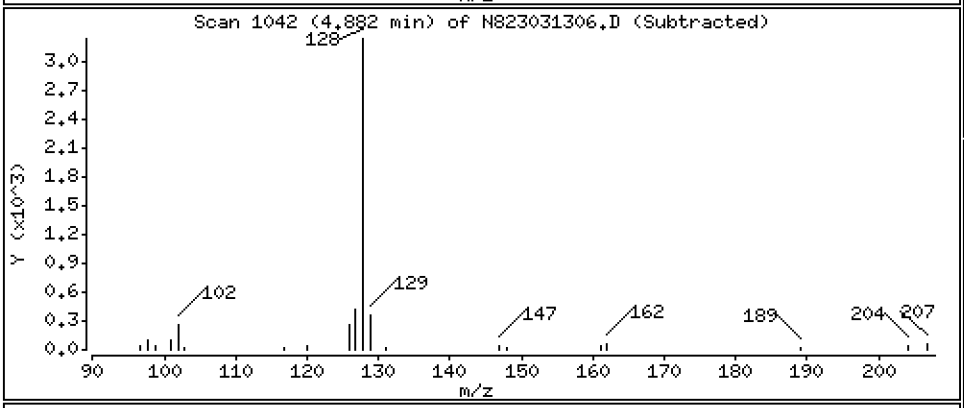
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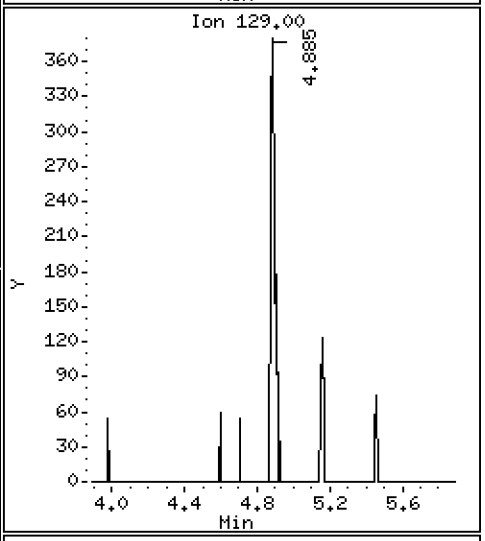
2 Naphthalene

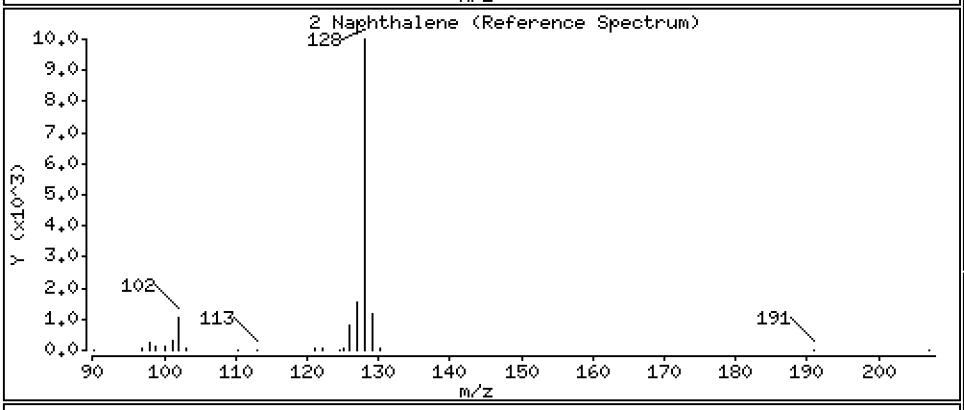
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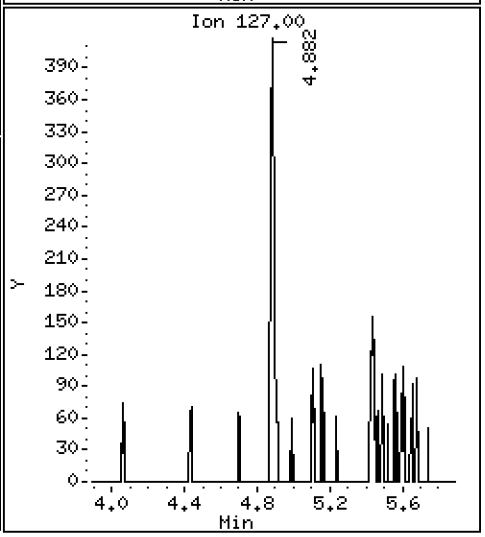


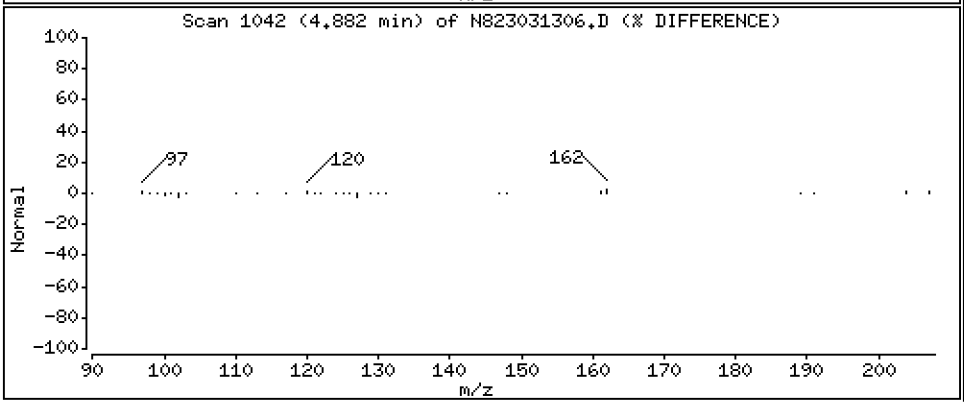












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D

Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

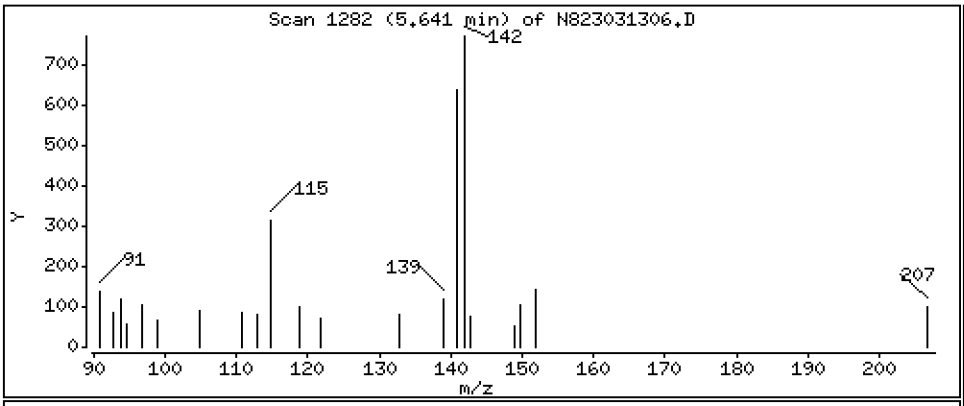
Operator: JZ

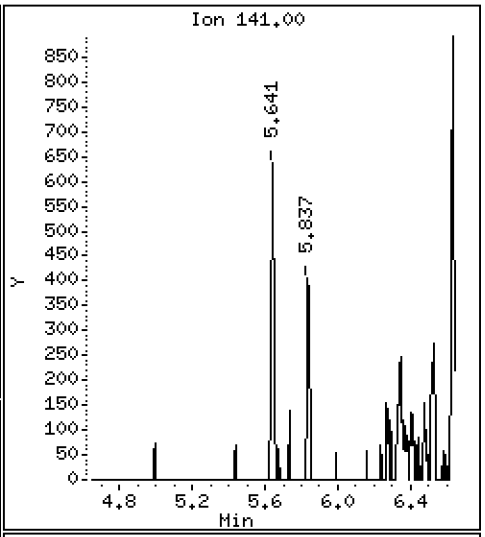
Column phase: Rxi-17sil

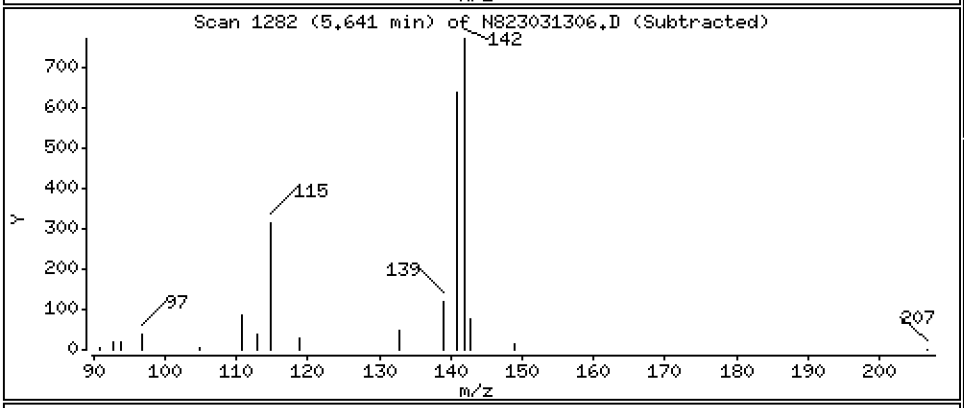
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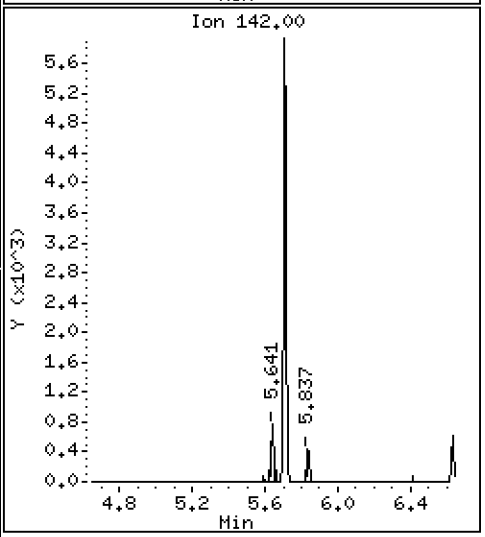
4 2-Methylnaphthalene

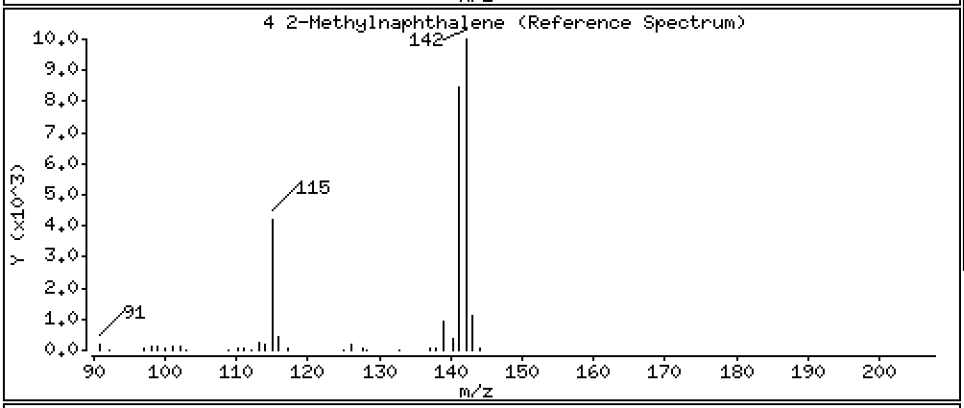
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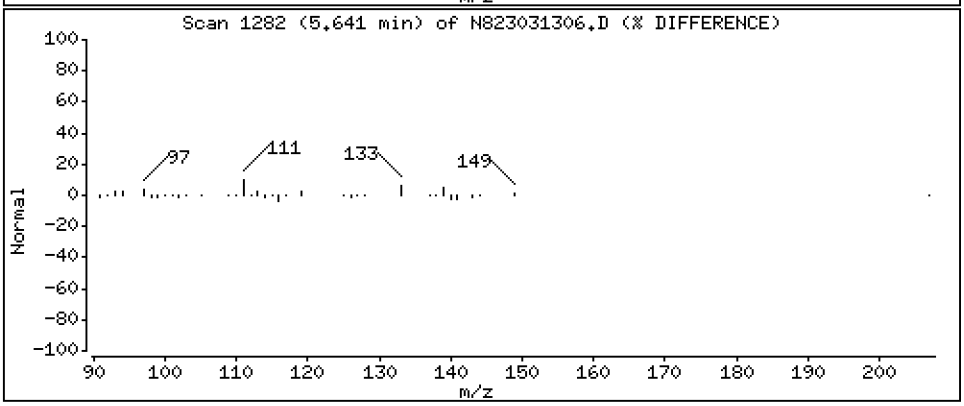












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Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

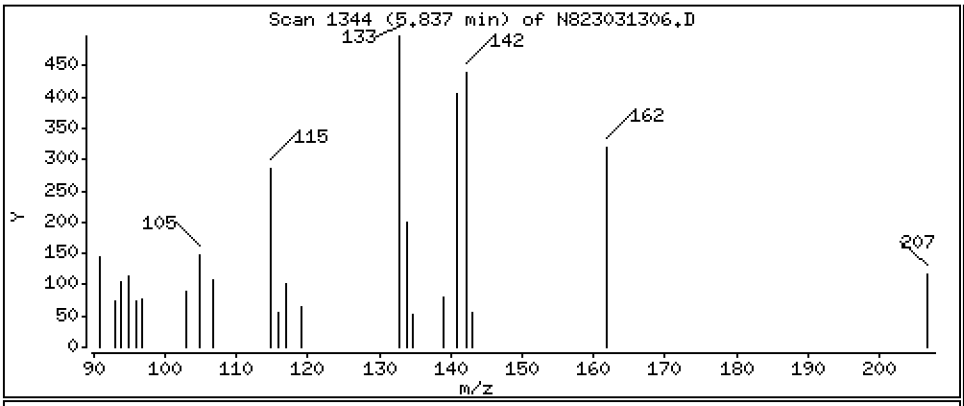
Operator: JZ

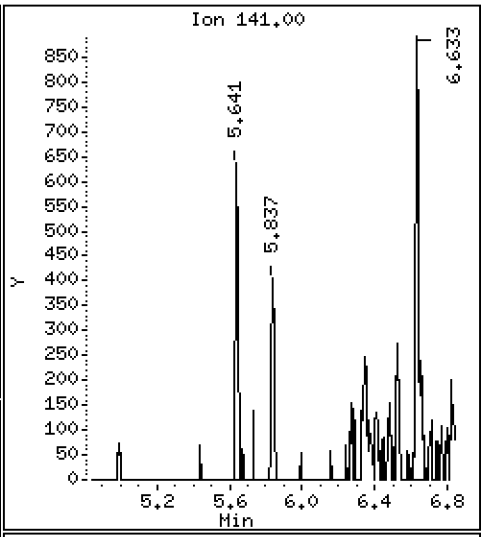
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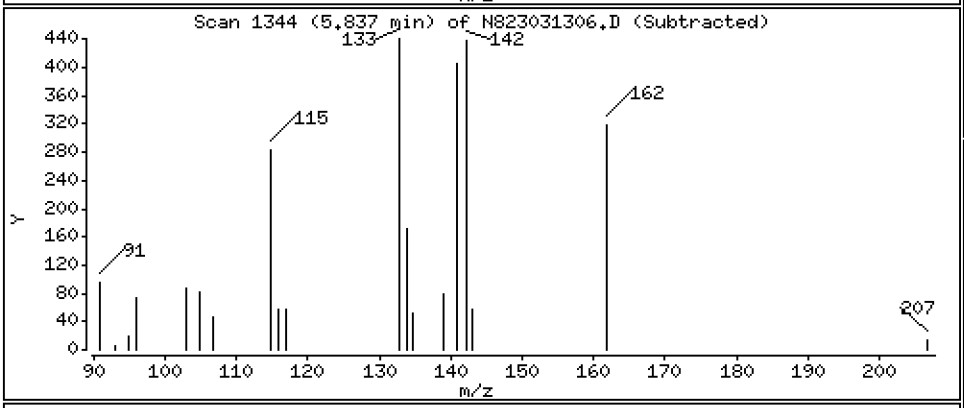
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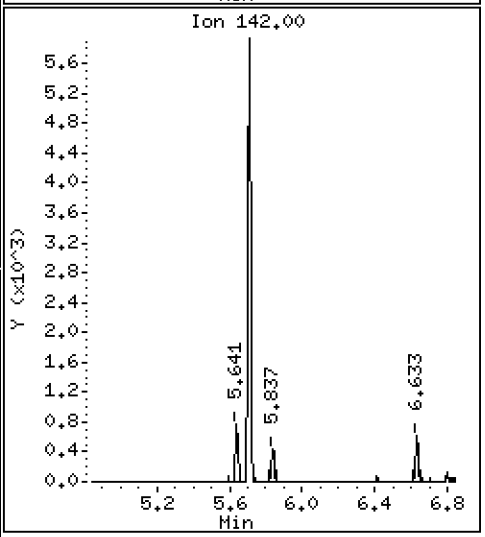
5 1-methylnaphthalene

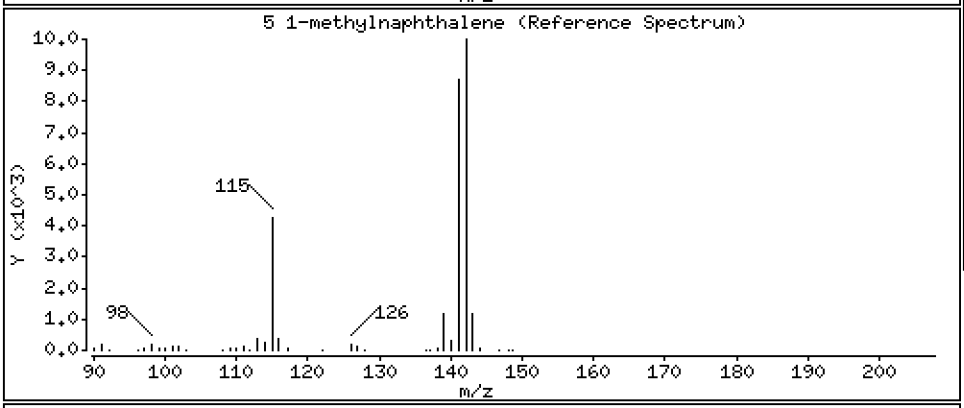
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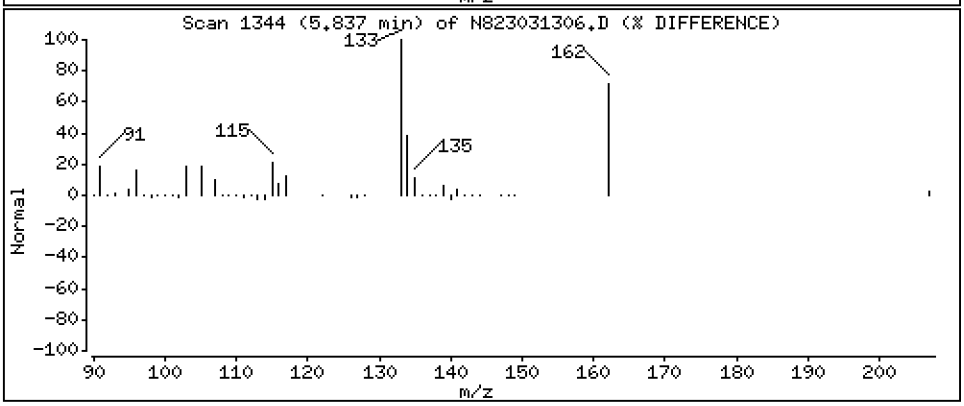












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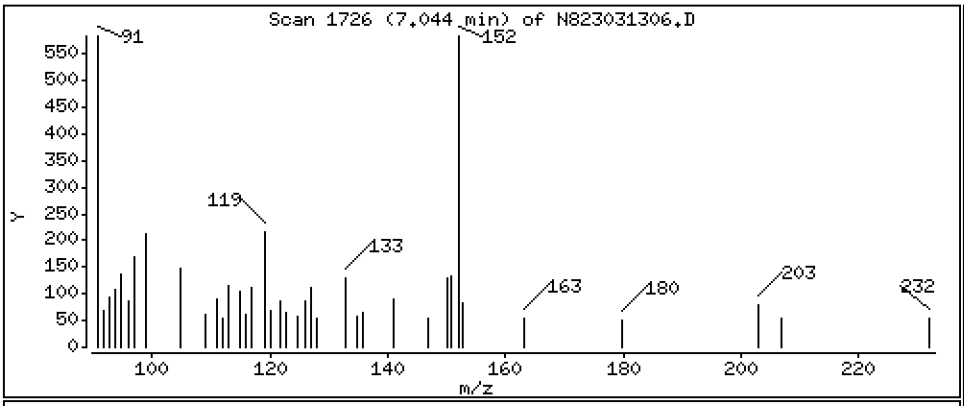
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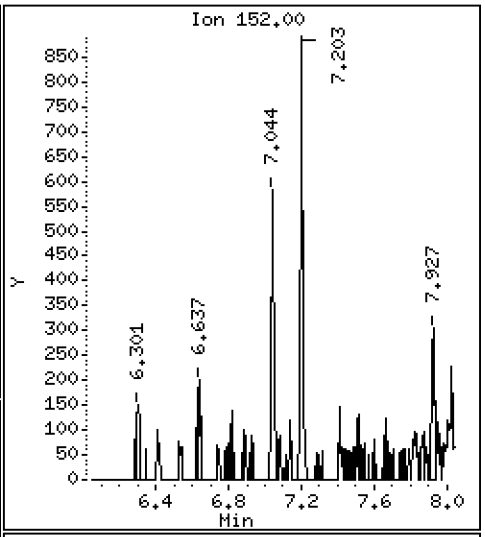
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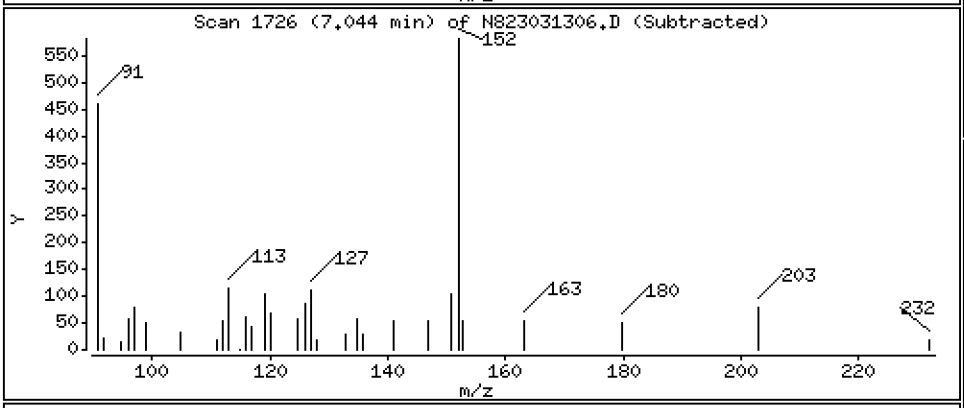
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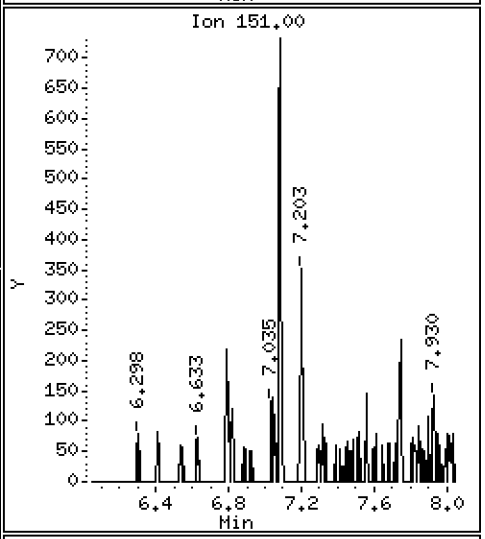
9 Acenaphthylene

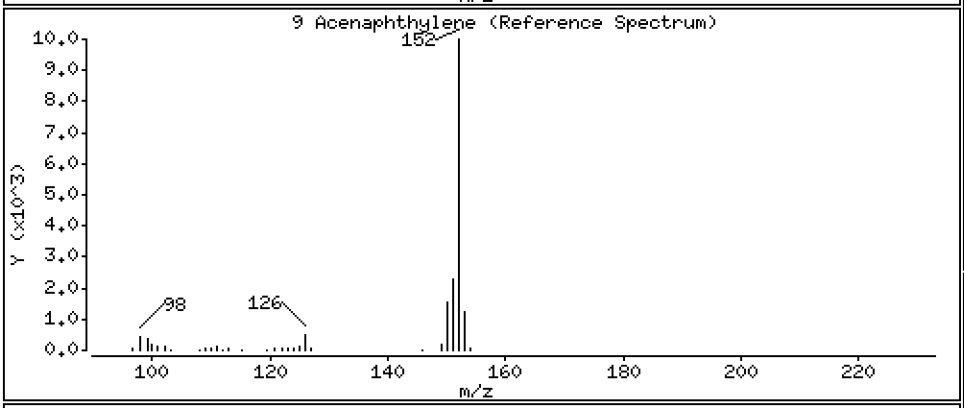
Concentration: 0.03544 ug/mL

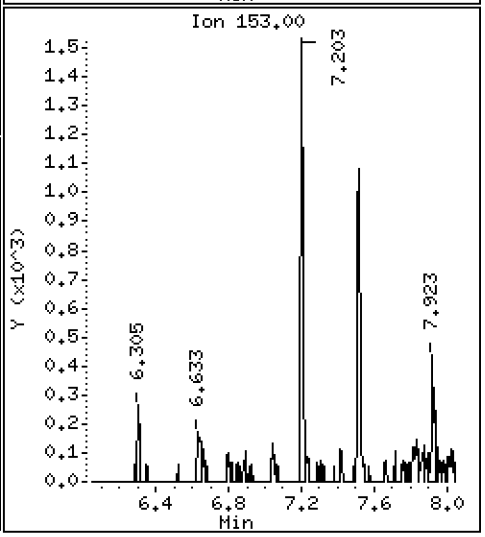


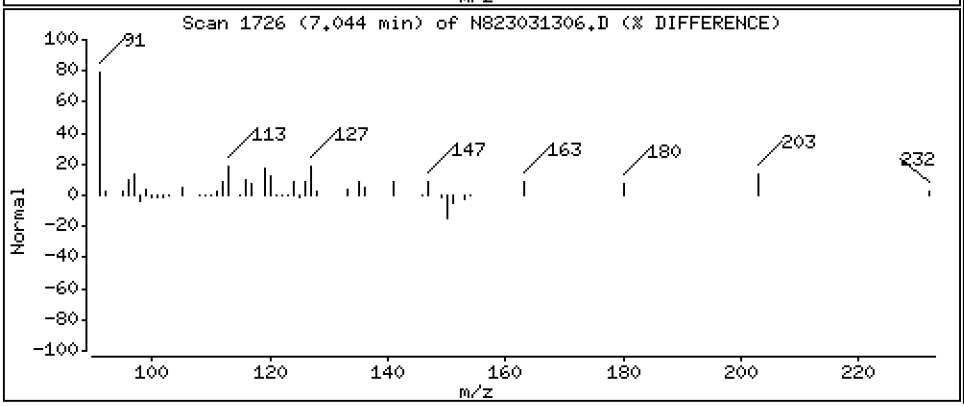












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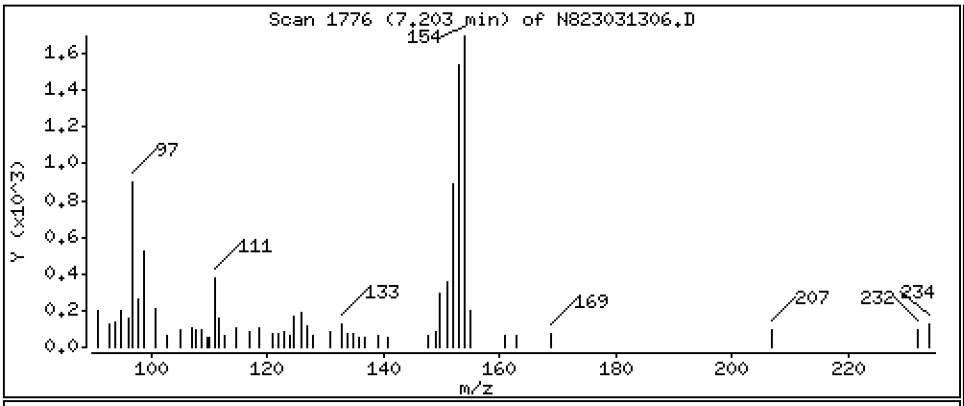
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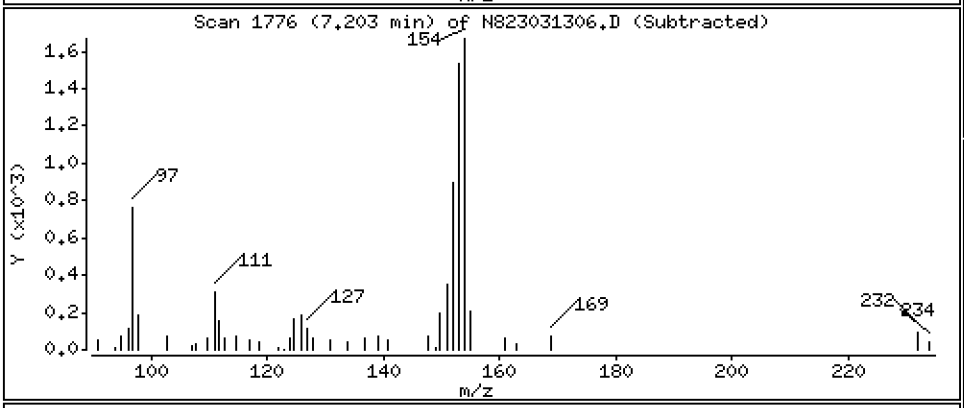
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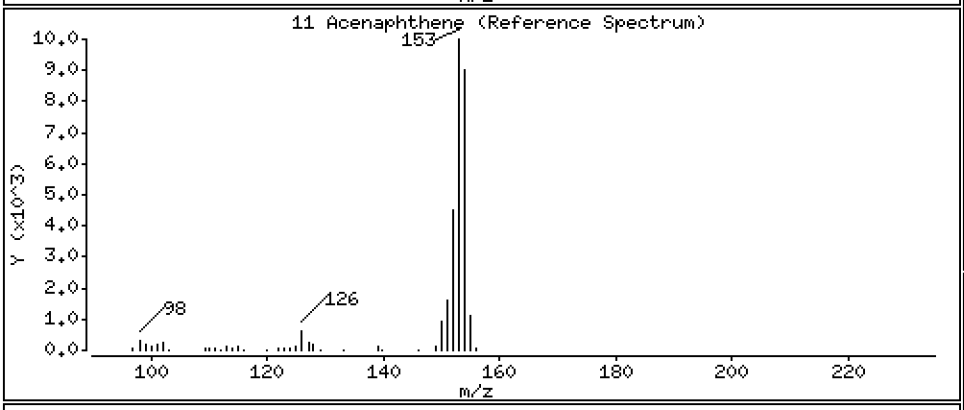
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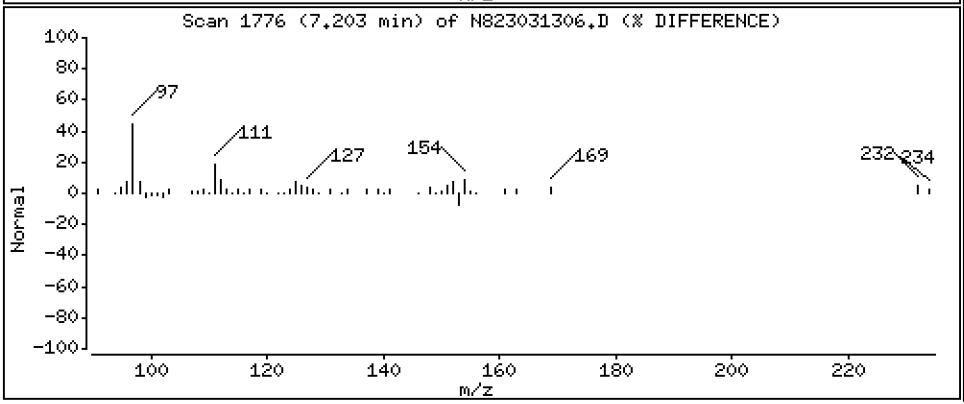
11 Acenaphthene

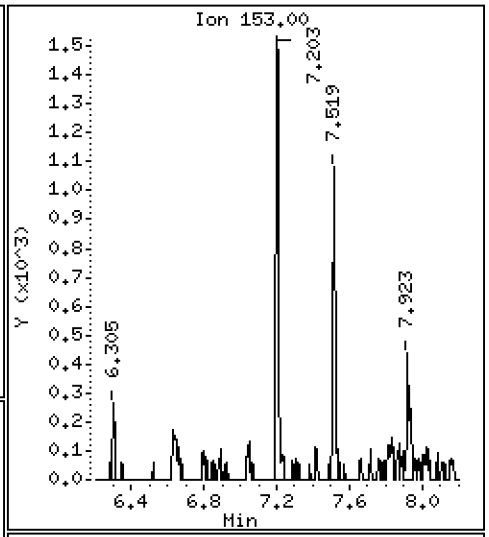
Concentration: 0.1402 ug/mL

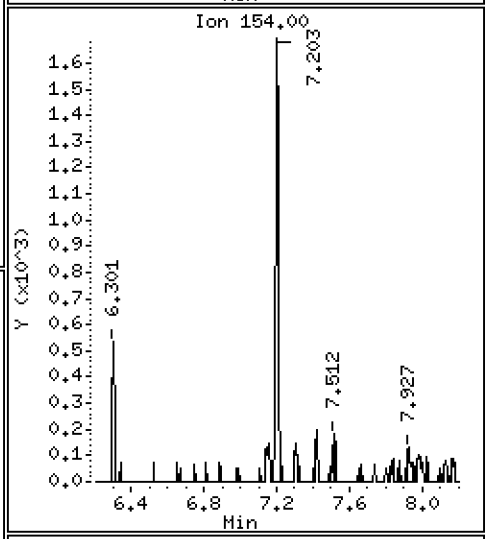


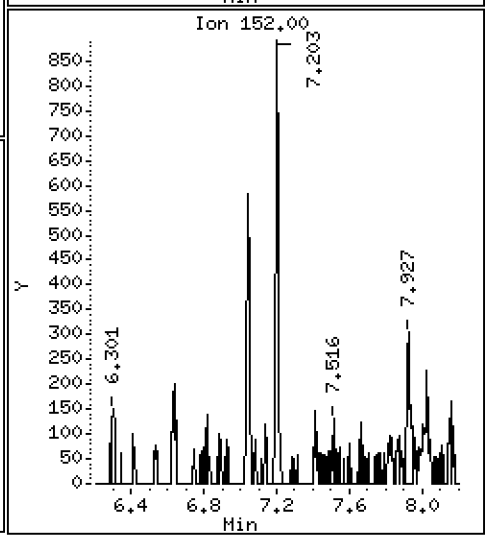












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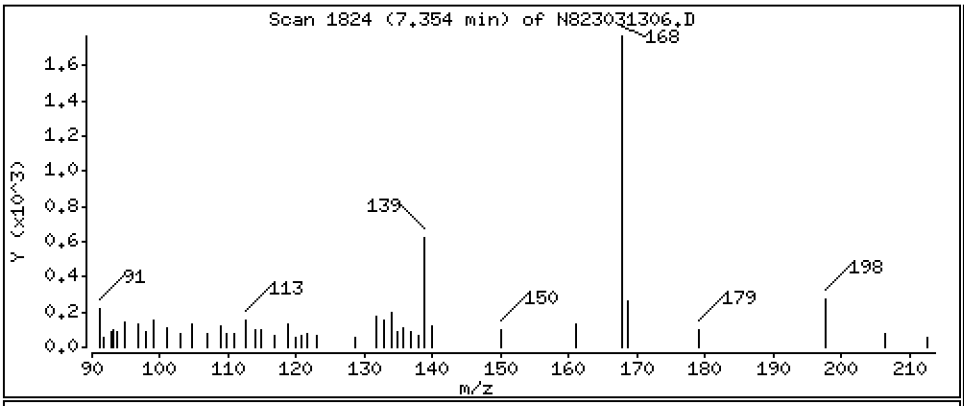
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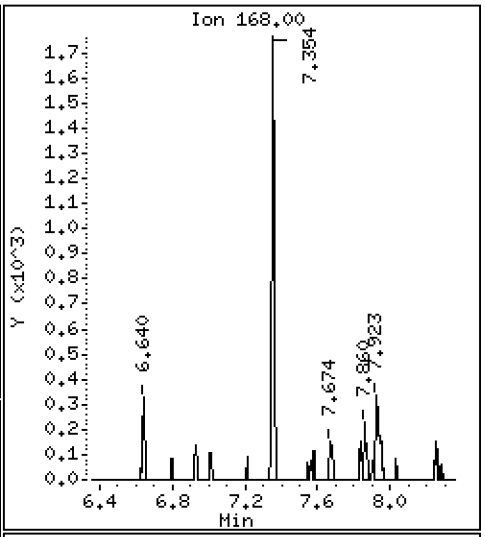
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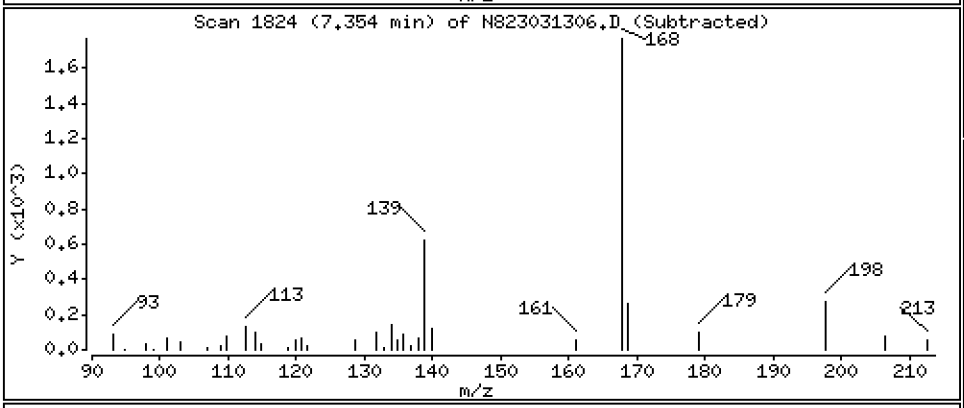
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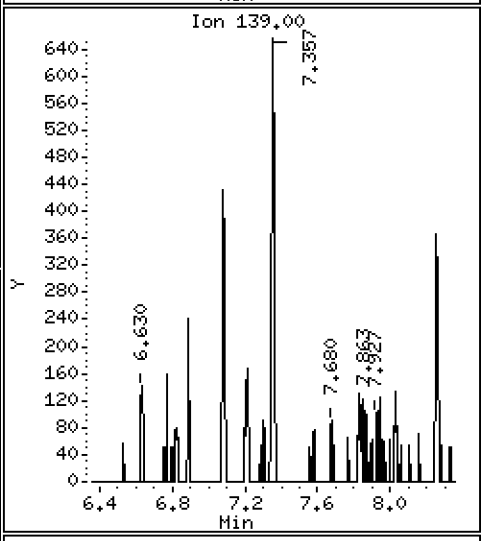
12 Dibenzofuran

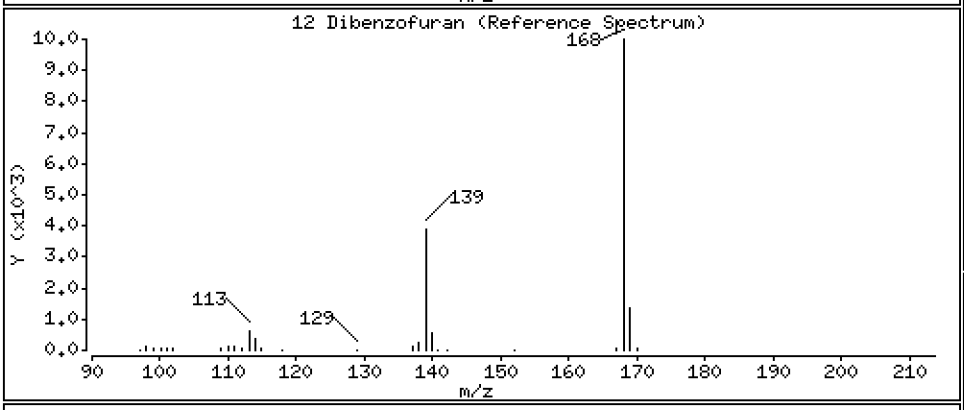
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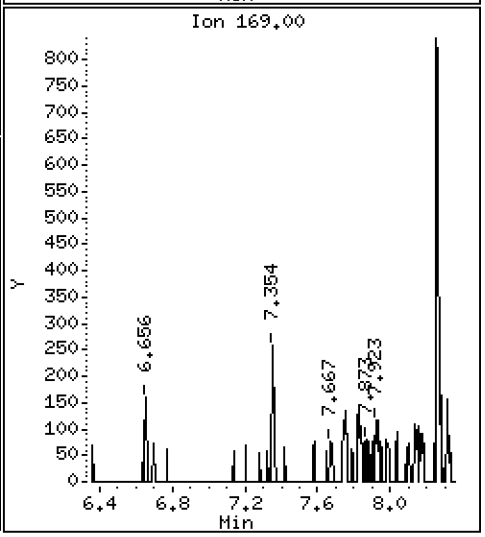


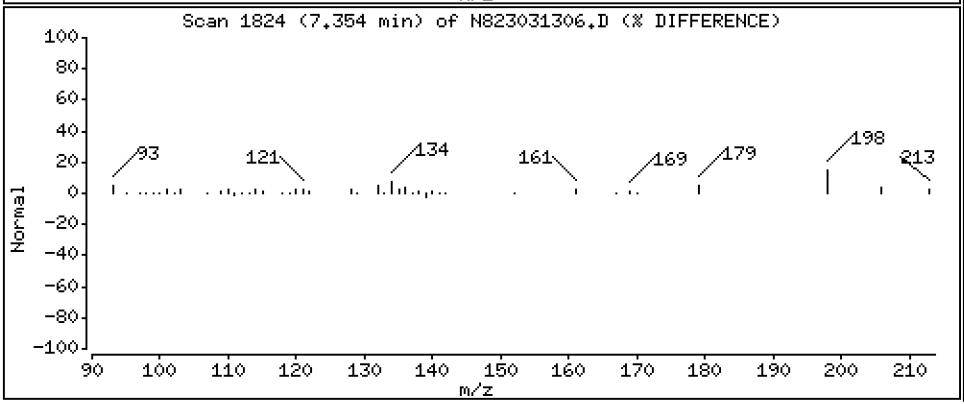












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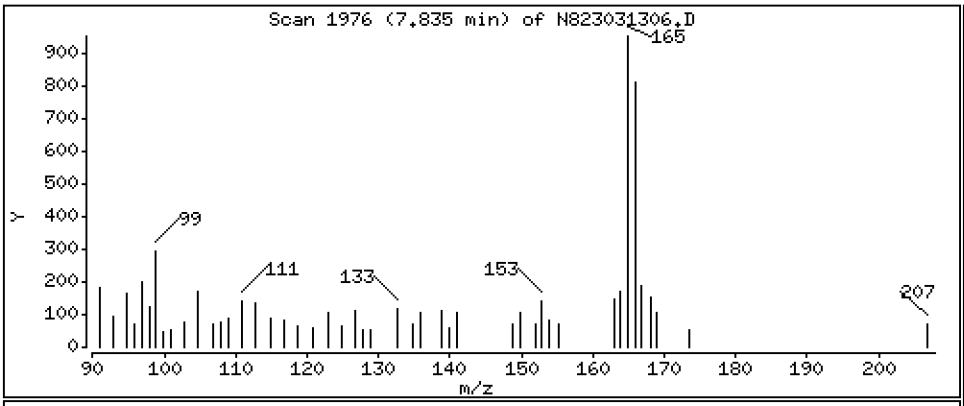
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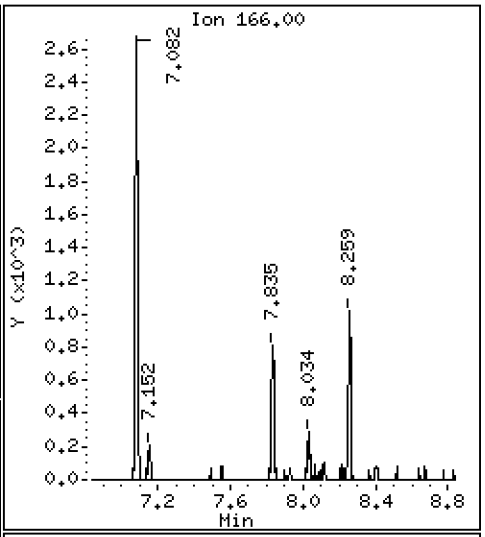
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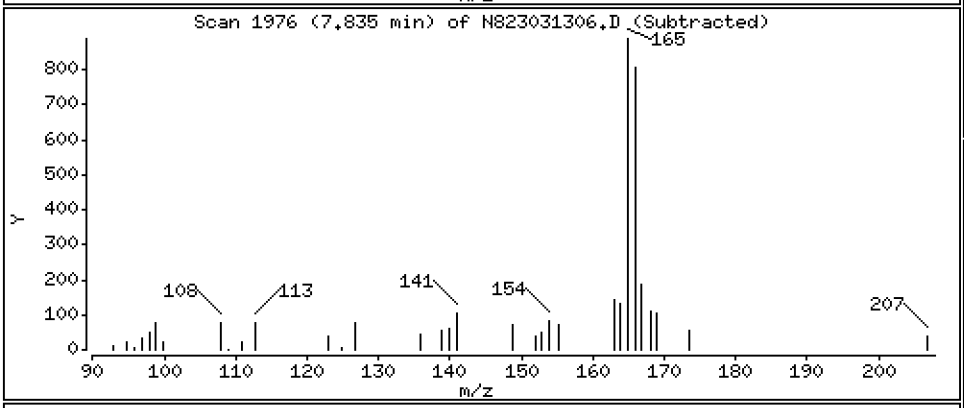
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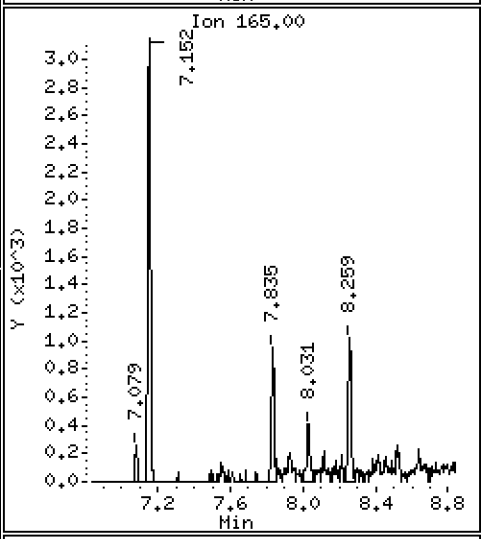
14 Fluorene

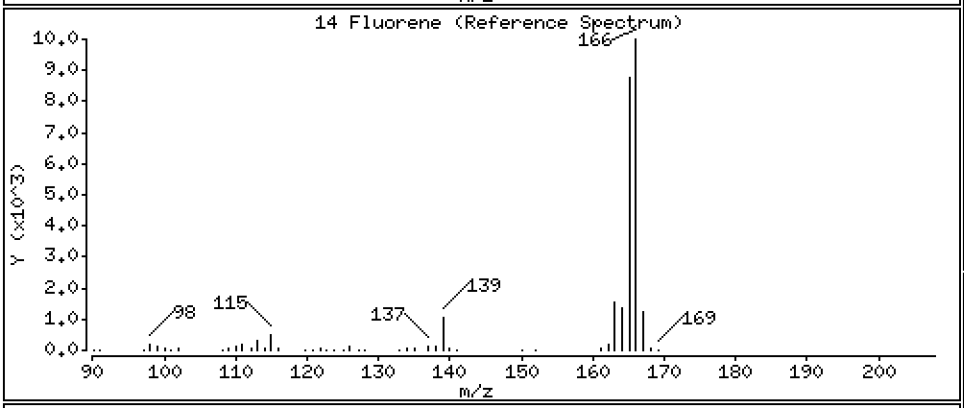
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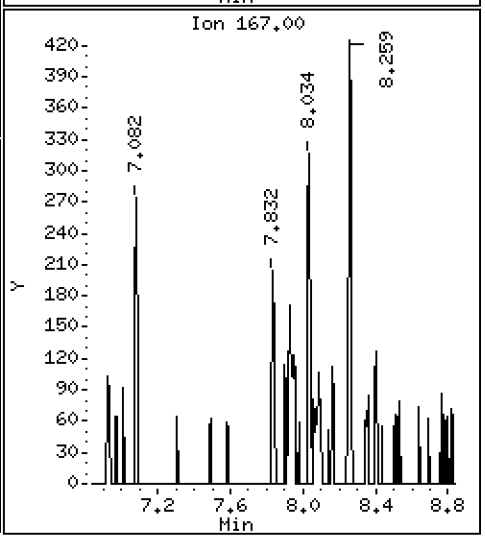


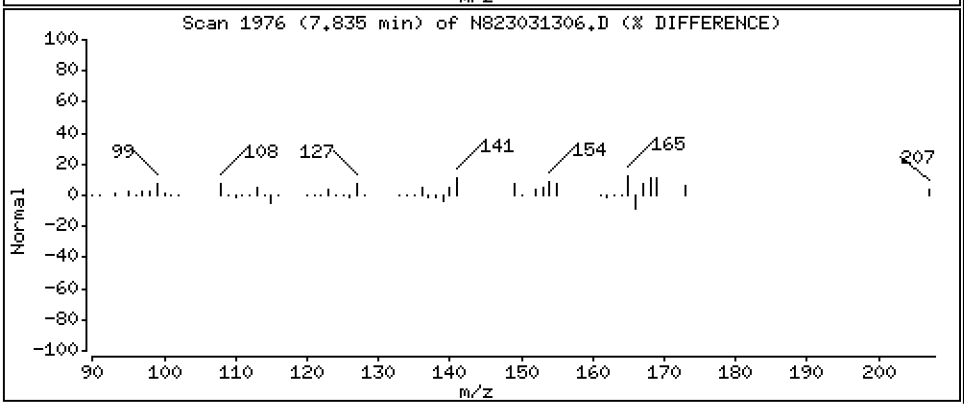












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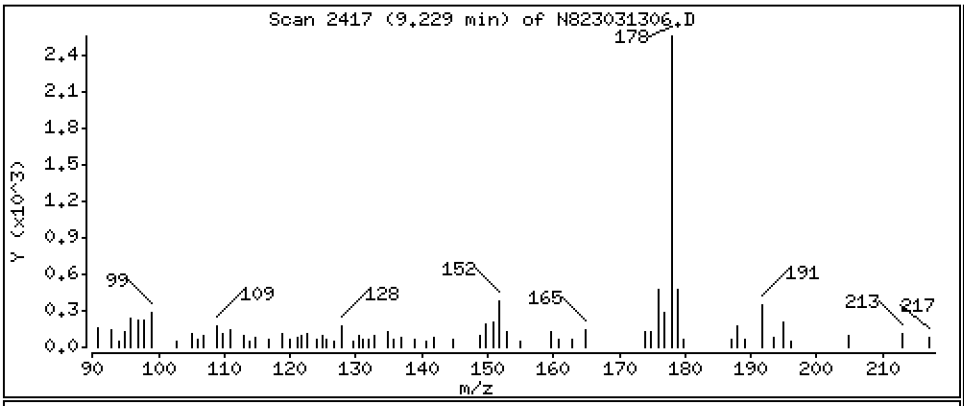
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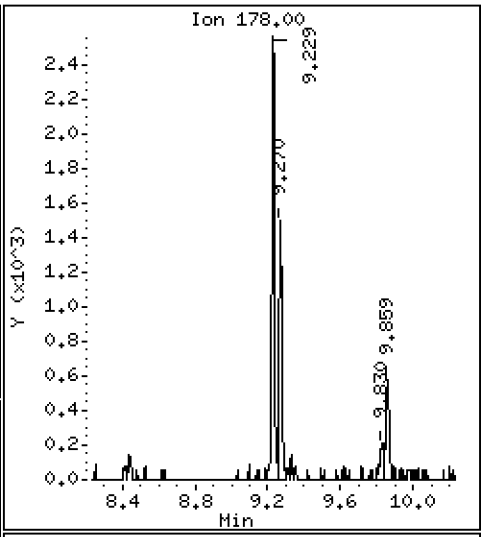
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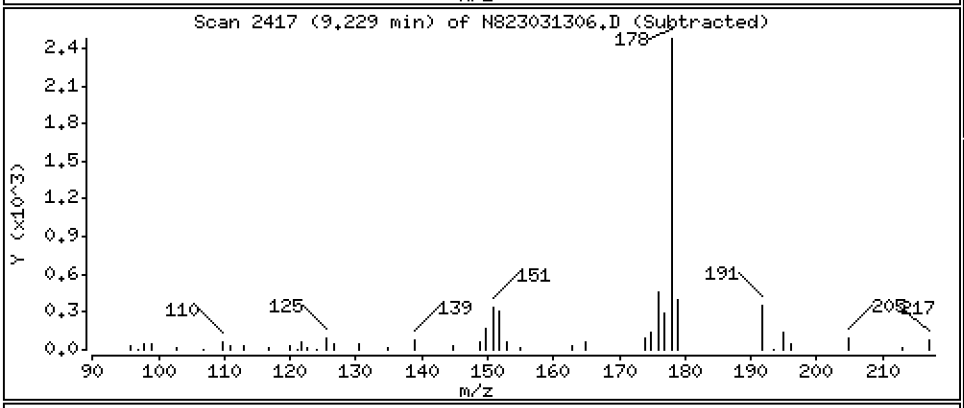
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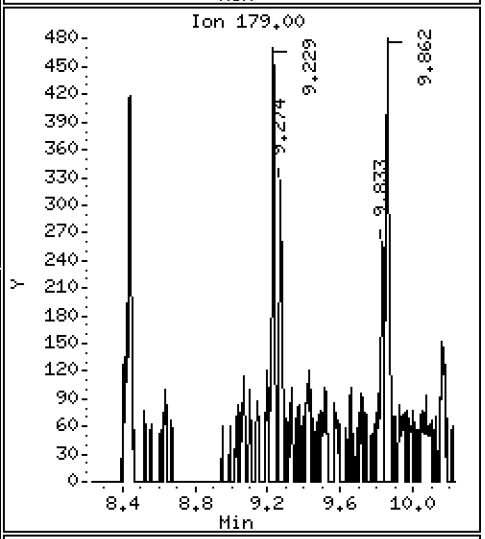
16 Phenanthrene

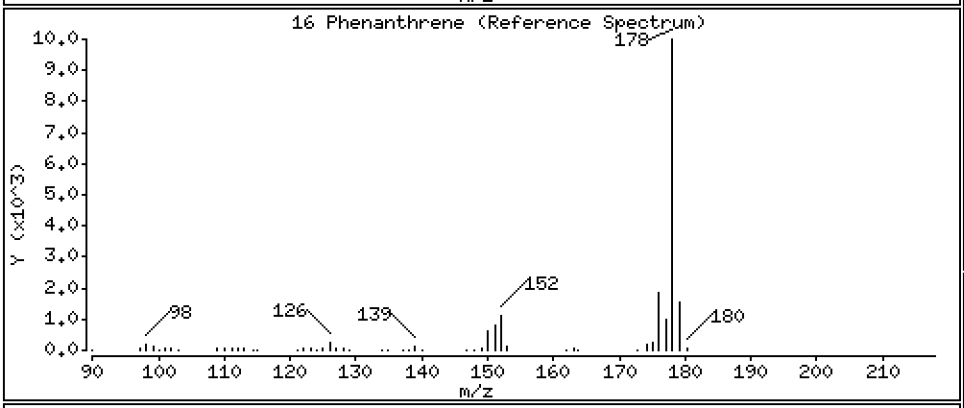
Concentration: 0.1187 ug/mL

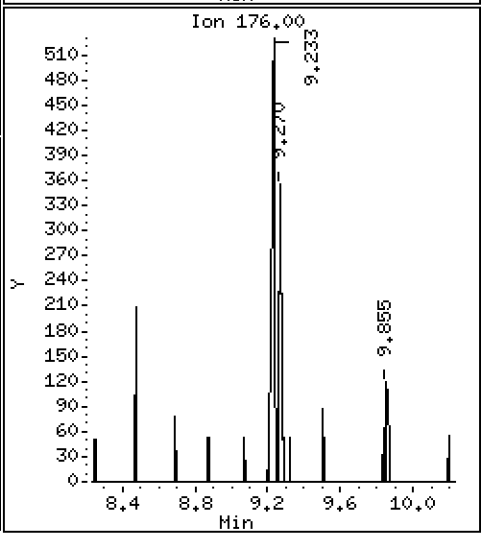


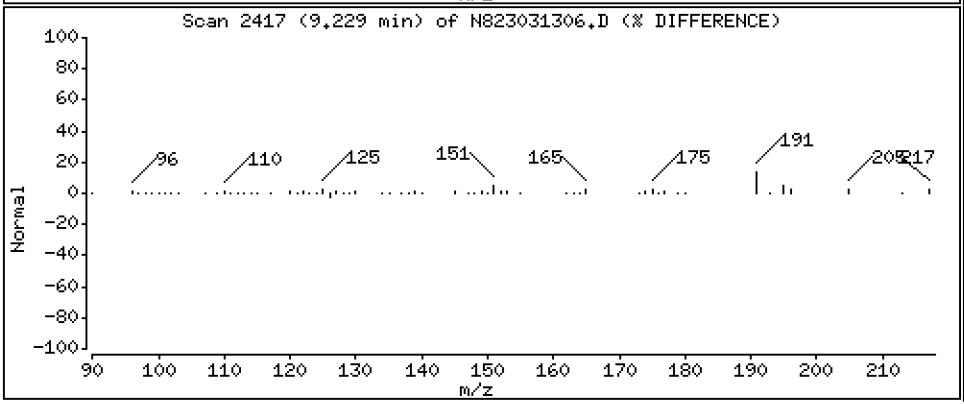












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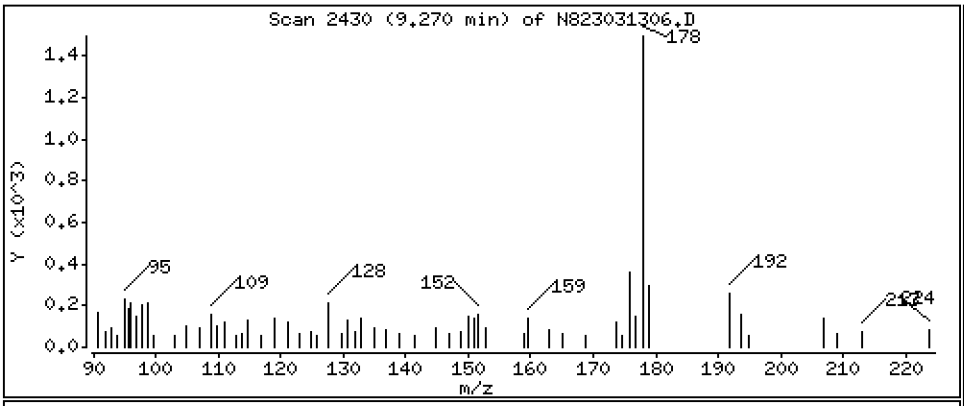
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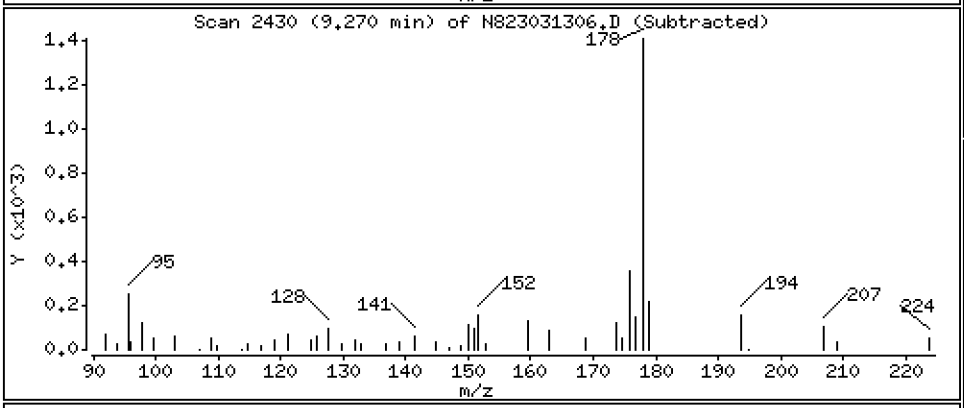
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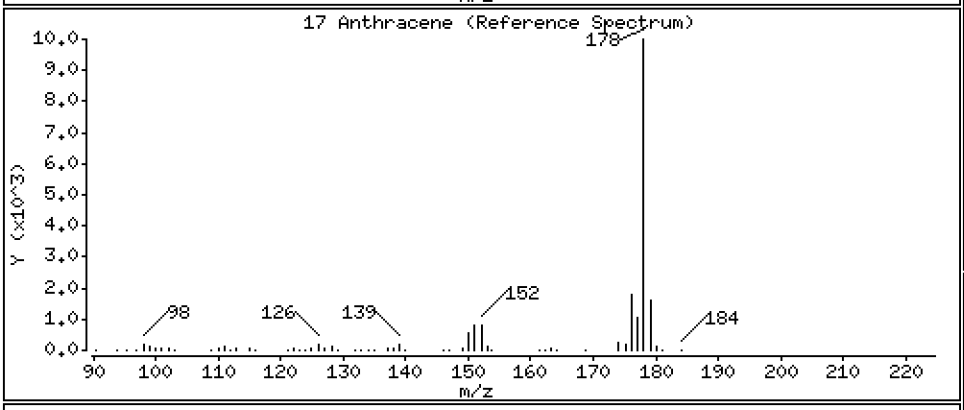
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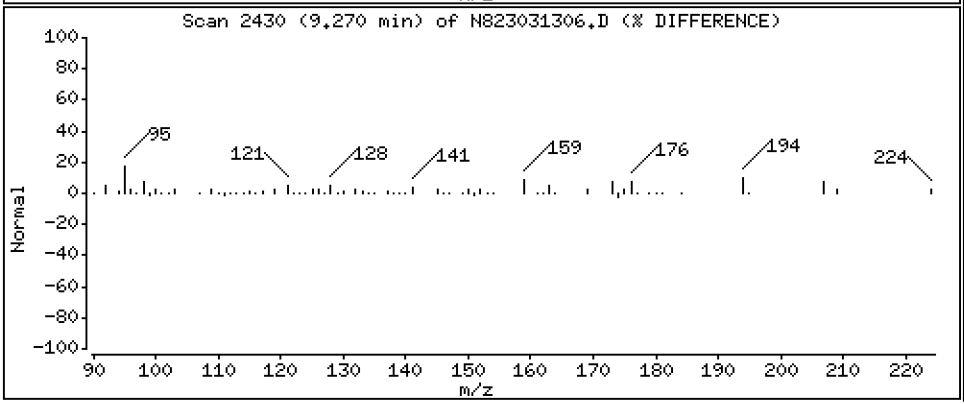
17 Anthracene

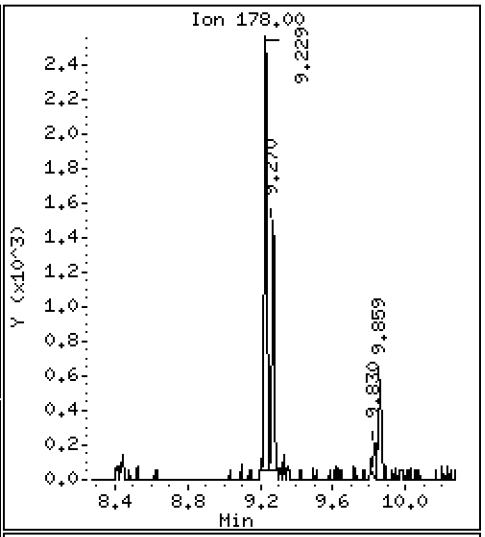
Concentration: 0.07096 ug/mL

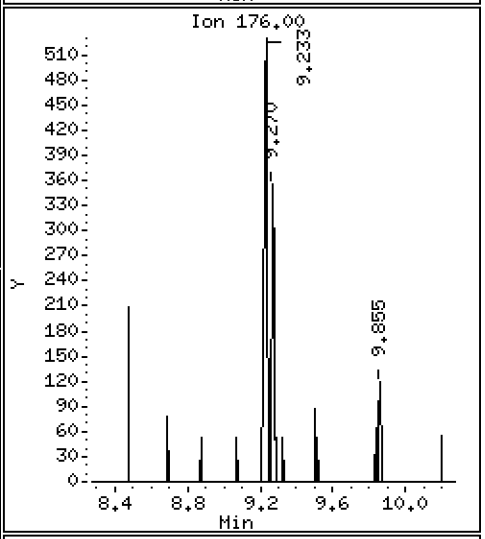


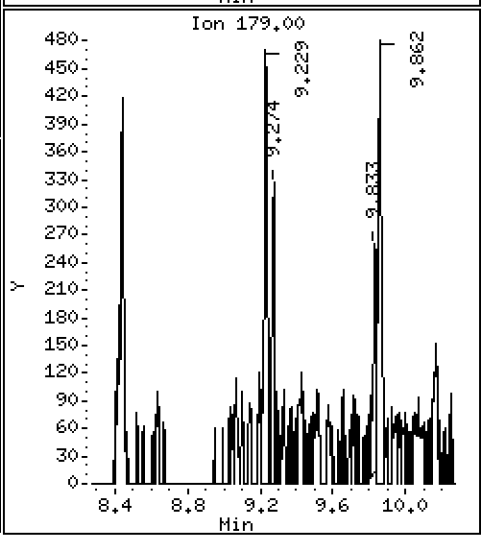












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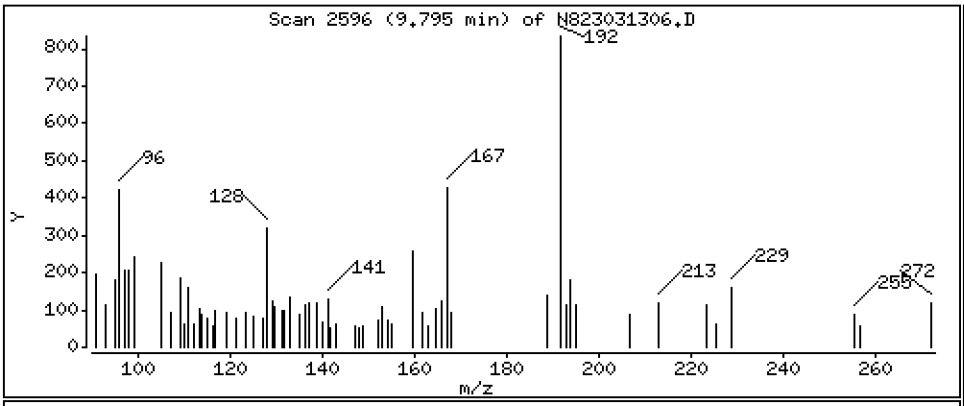
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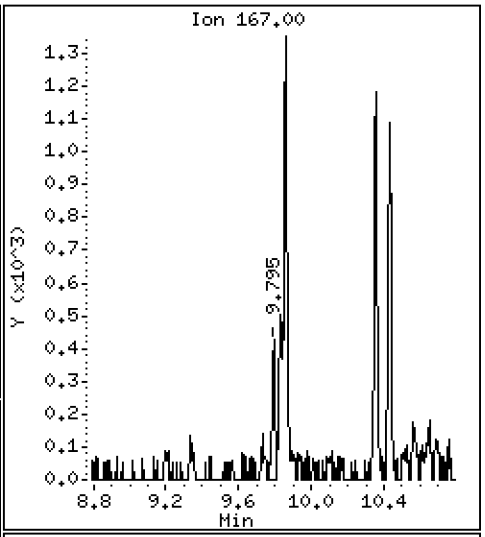
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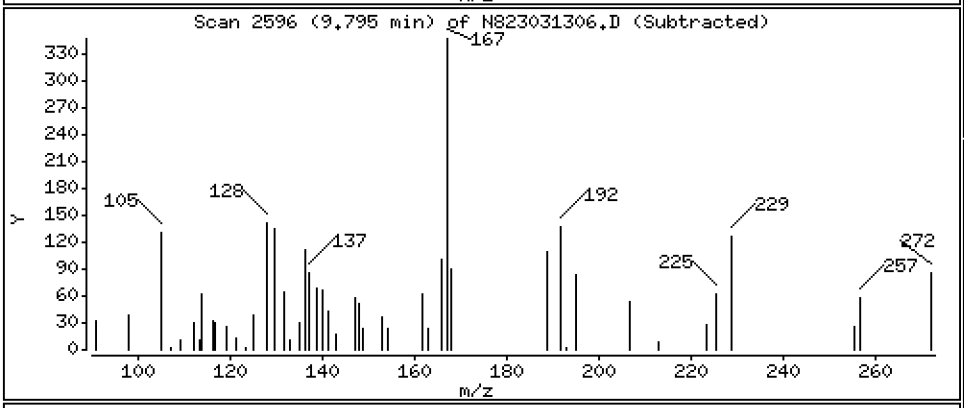
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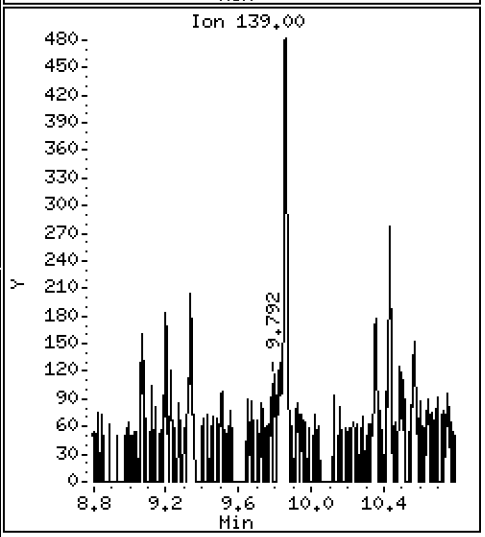
19 Carbazole

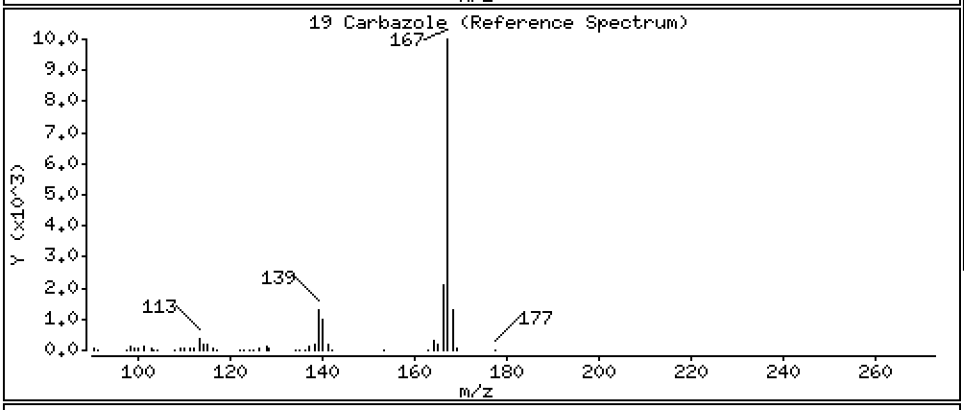
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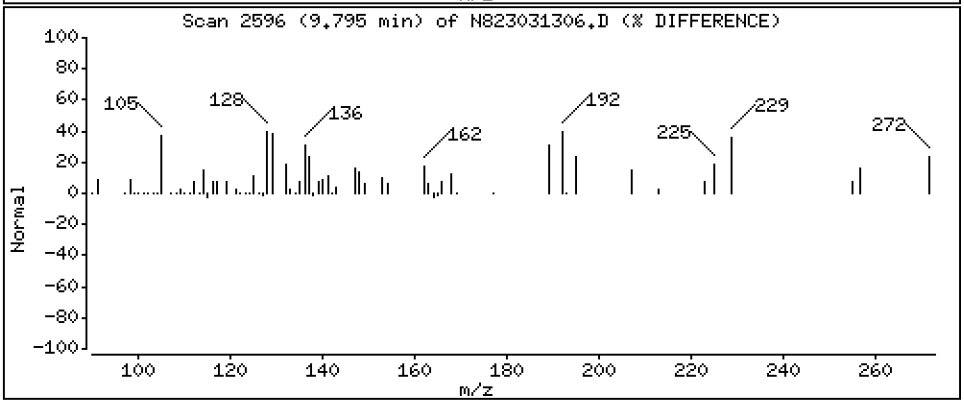












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Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

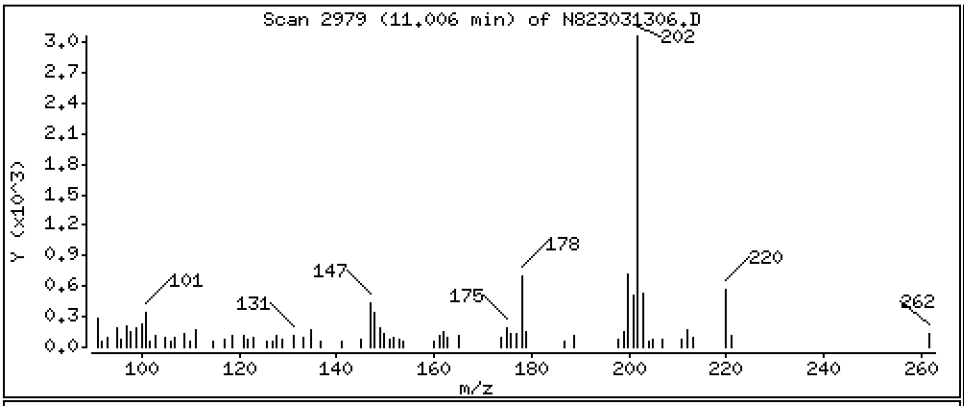
Operator: JZ

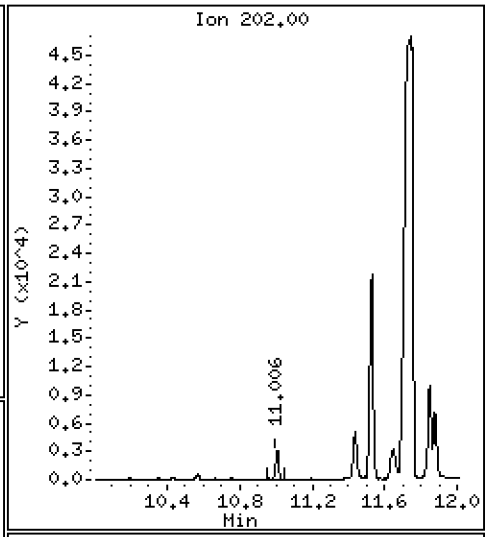
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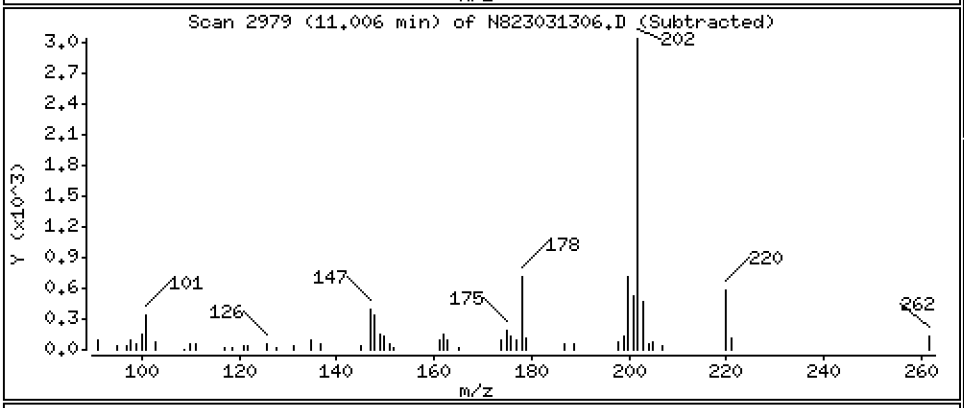
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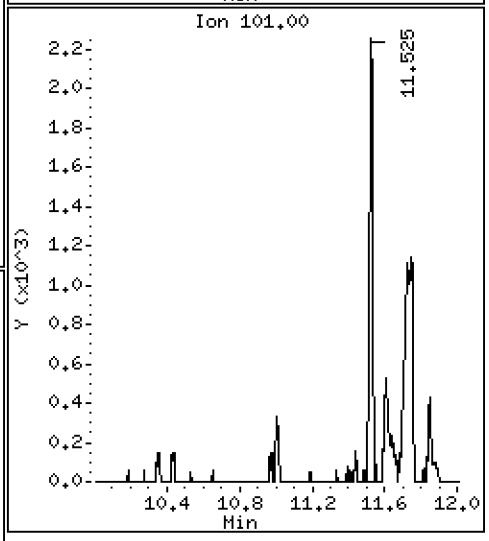
22 Fluoranthene

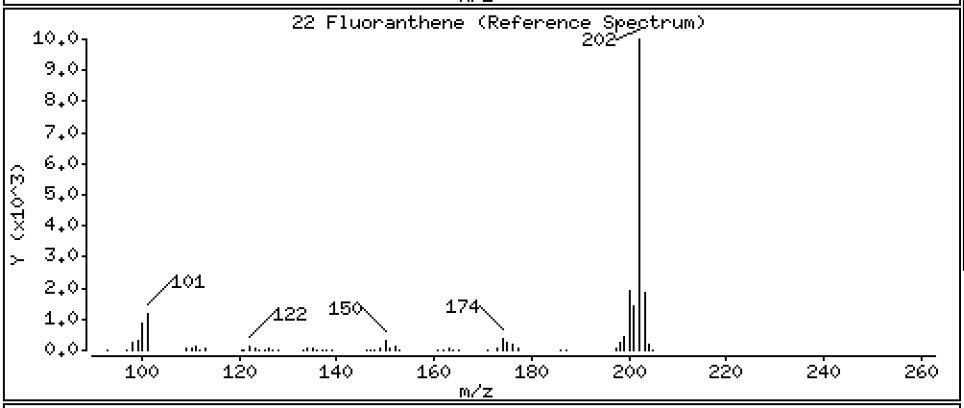
Concentration: 0.1666 ug/mL

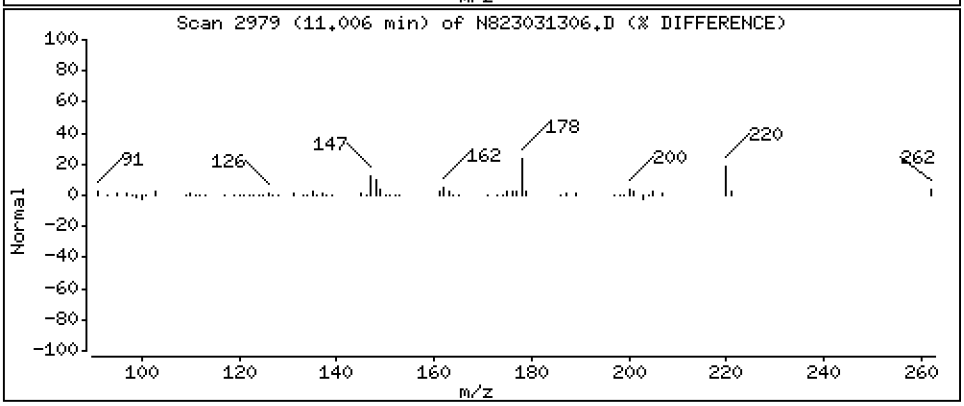












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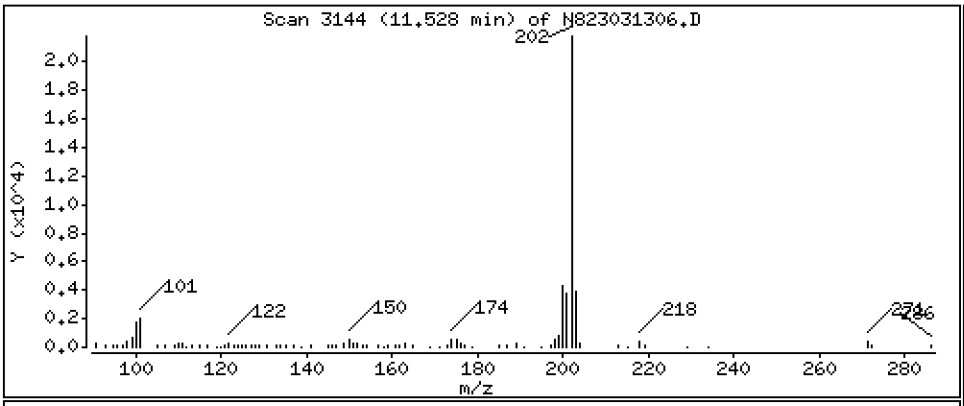
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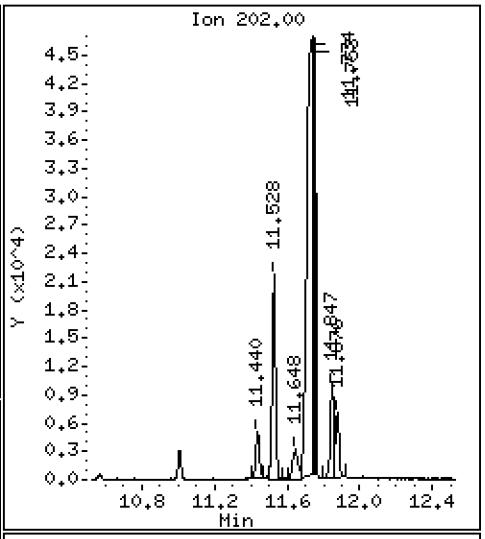
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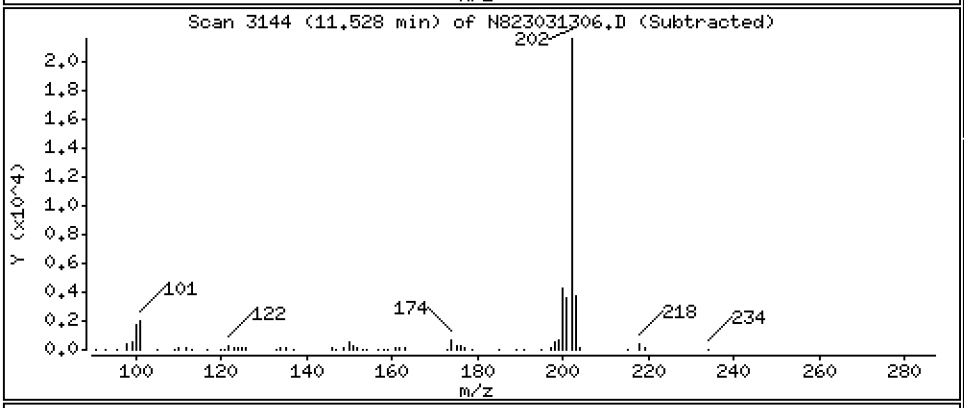
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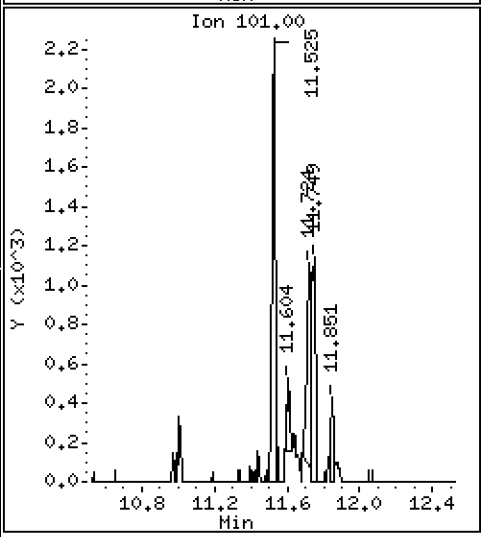
23 Pyrene

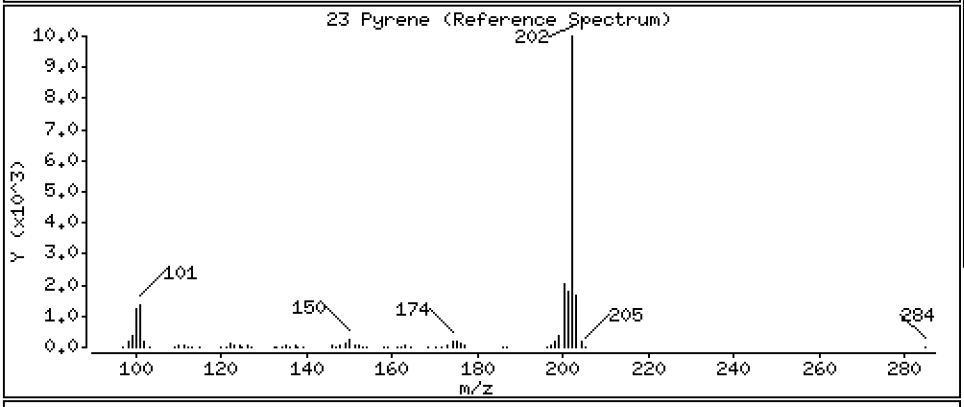
Concentration: 1.356 ug/mL

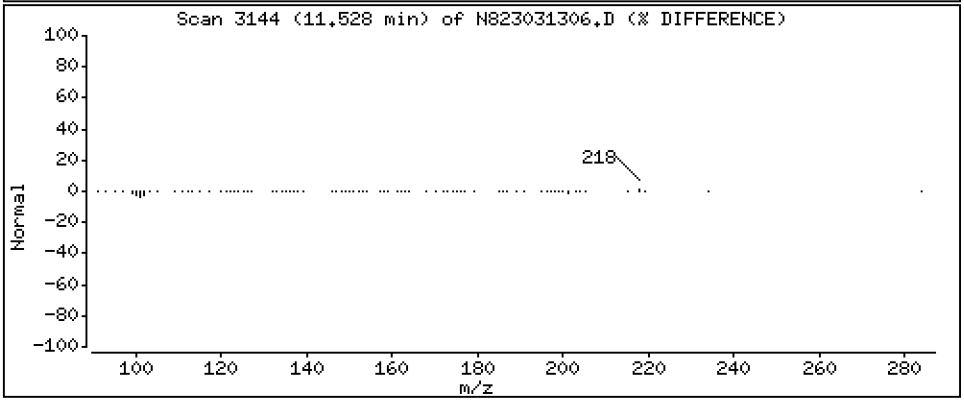












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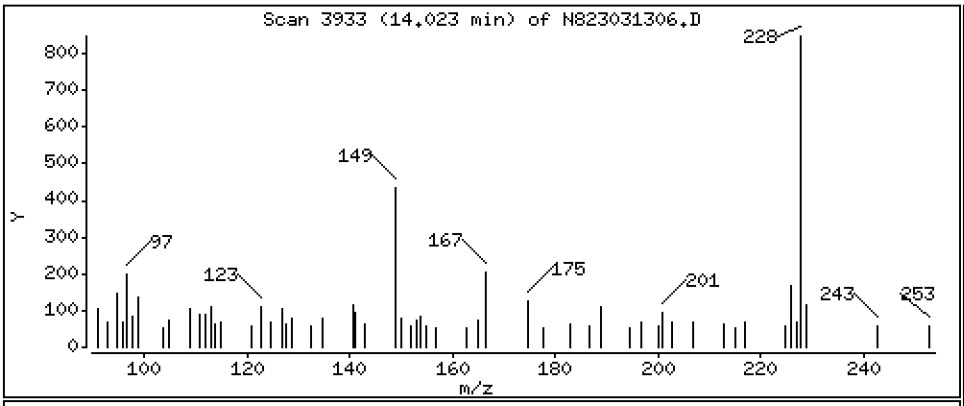
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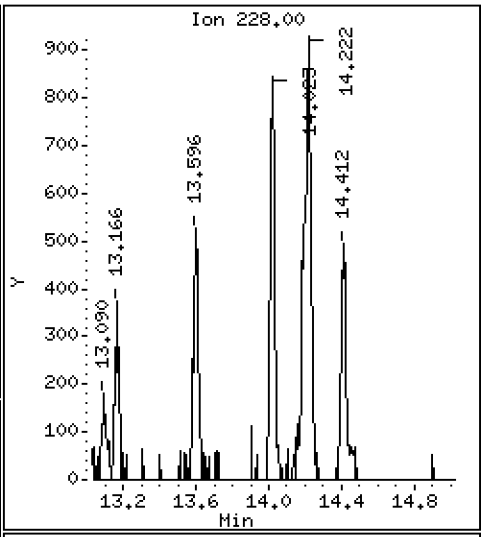
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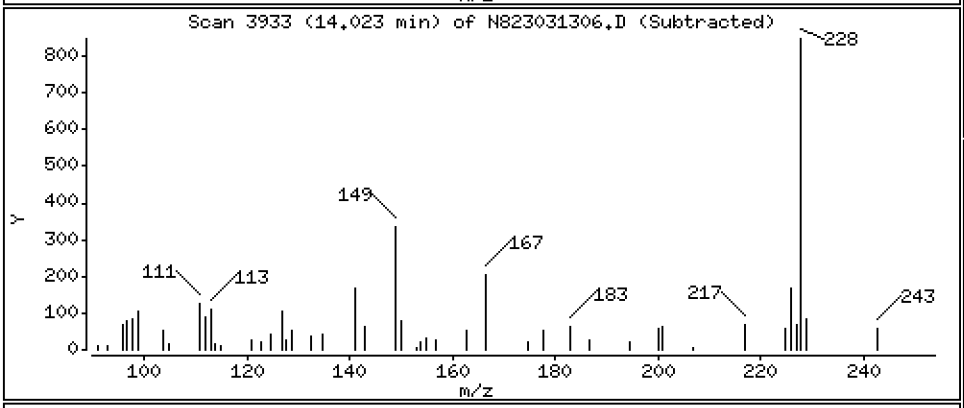
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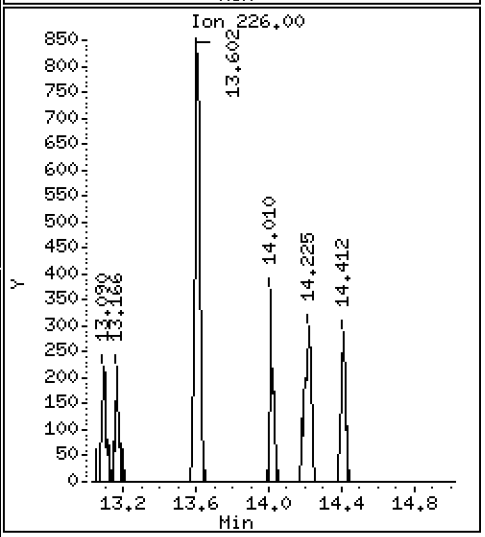
24 Benzo(a)anthracene

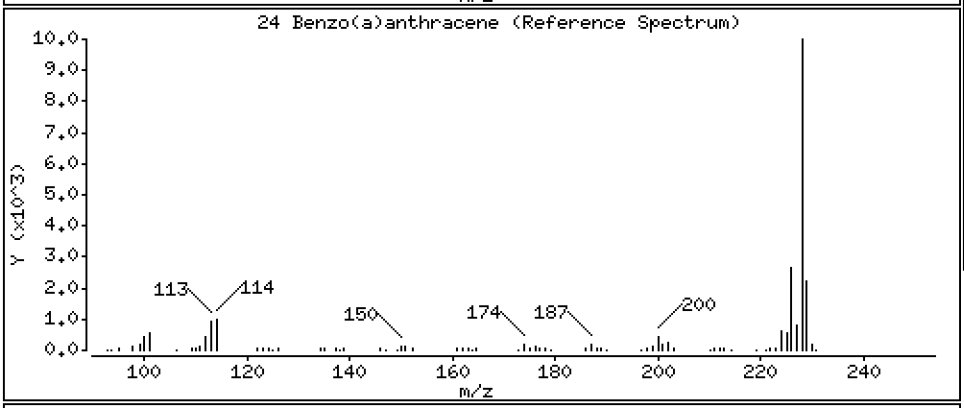
Concentration: 0.07619 ug/mL

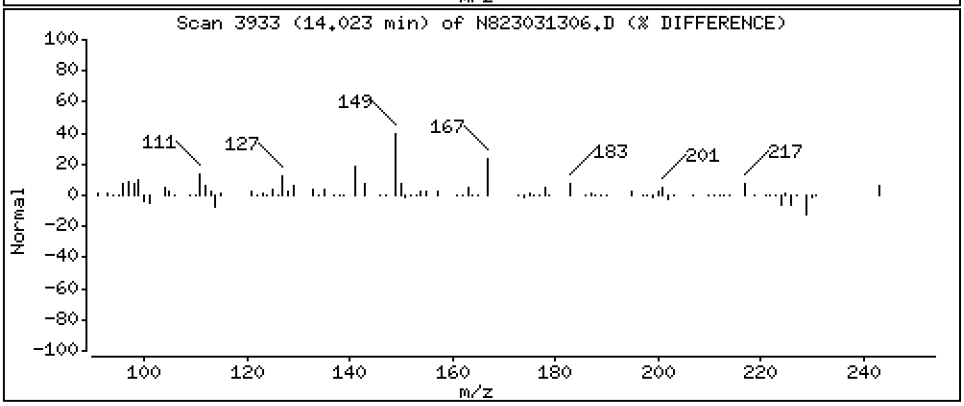












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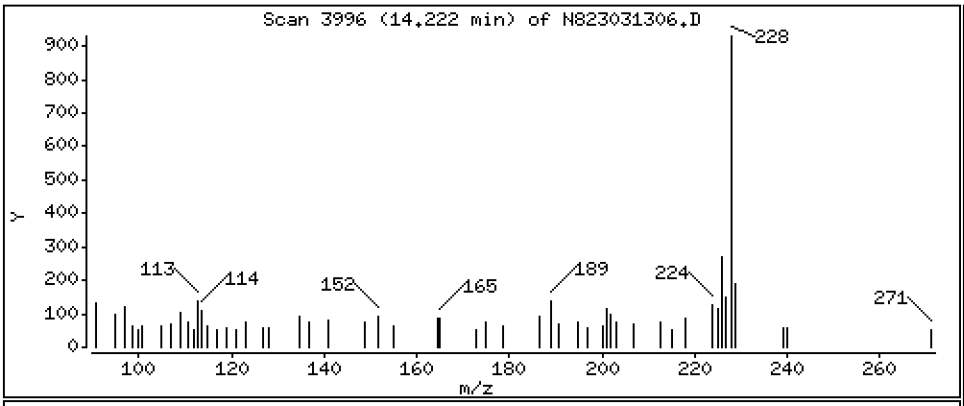
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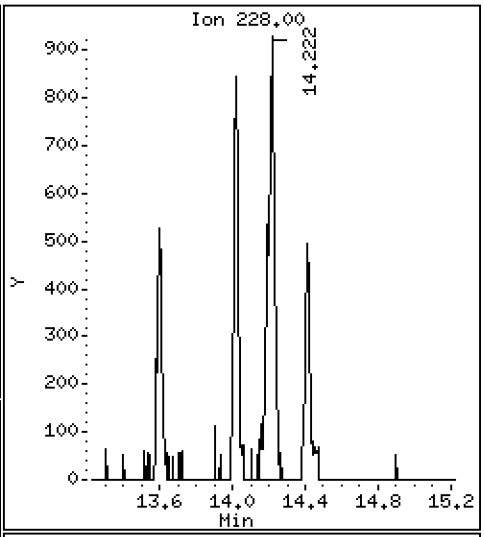
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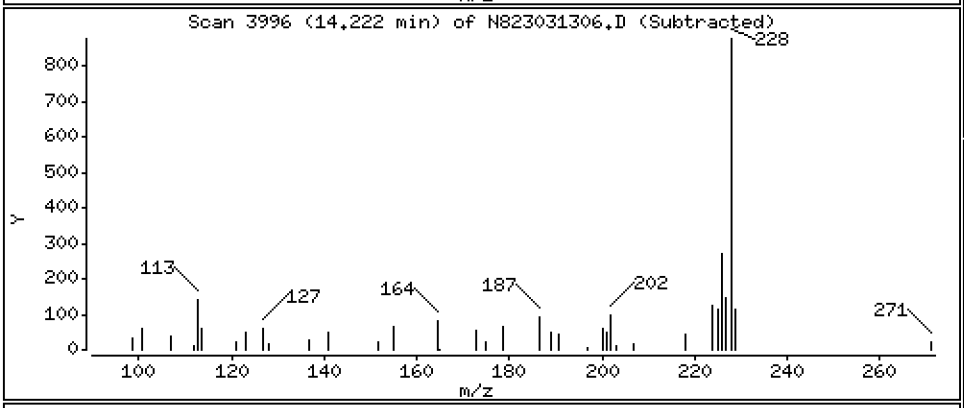
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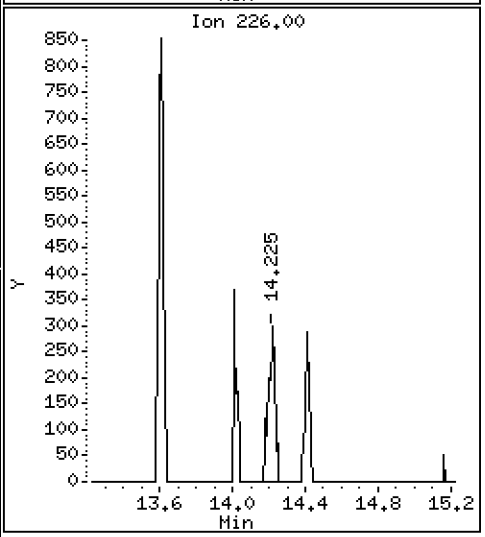
27 Chrysene

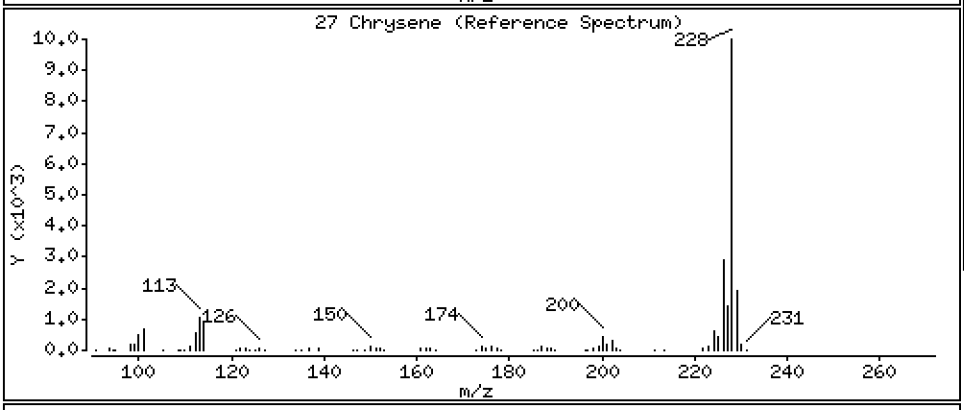
Concentration: 0.1230 ug/mL

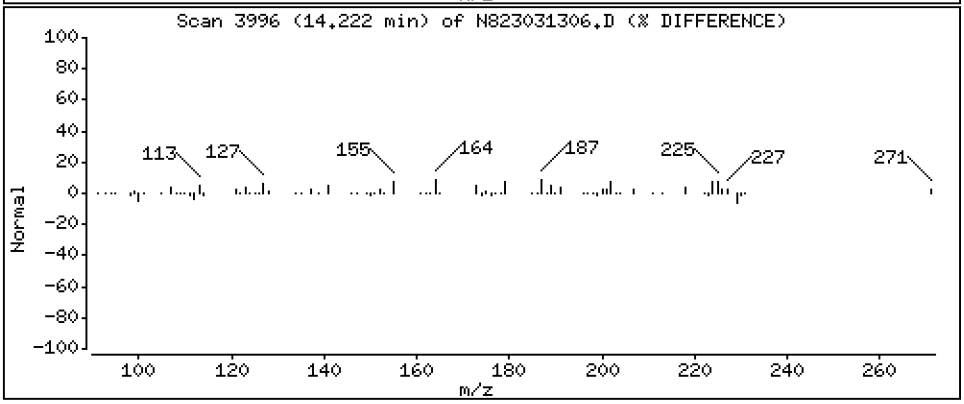












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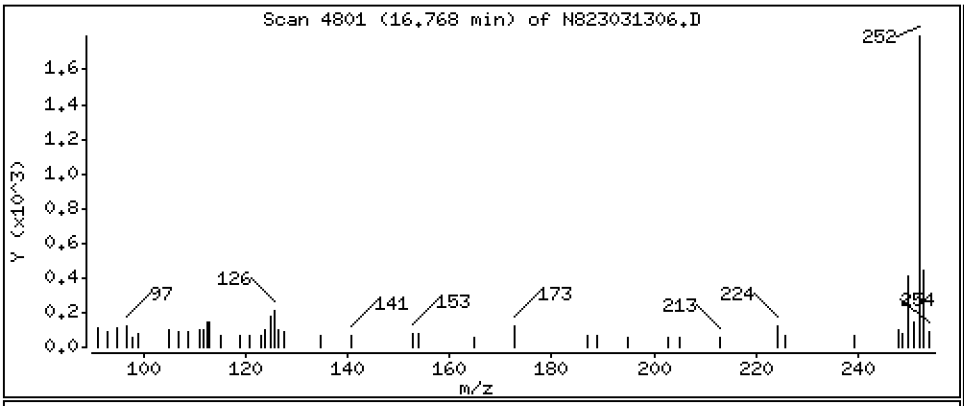
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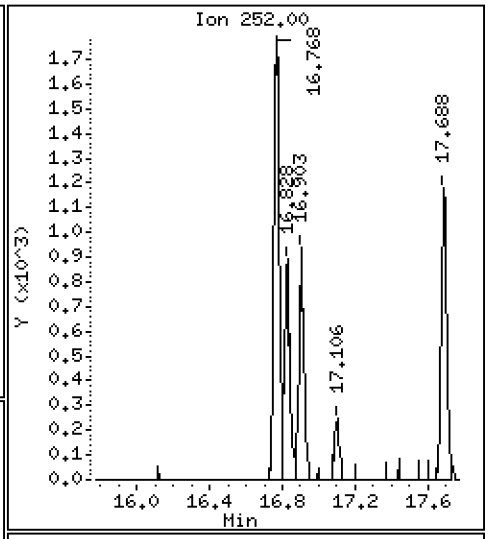
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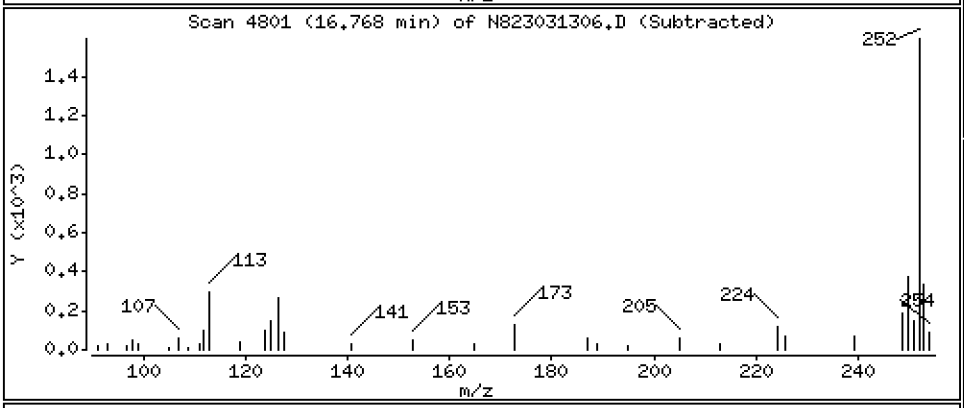
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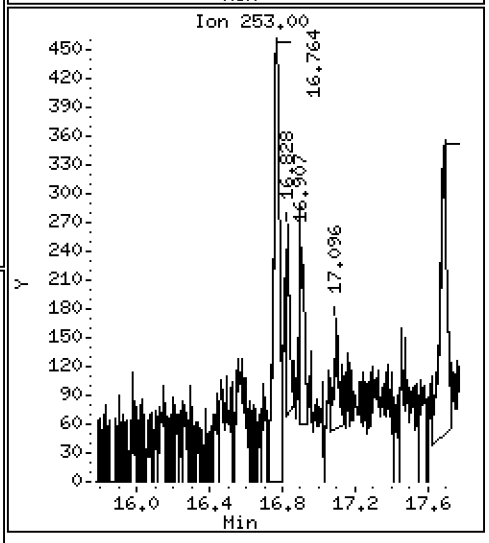
28 Benzo(b)fluoranthene

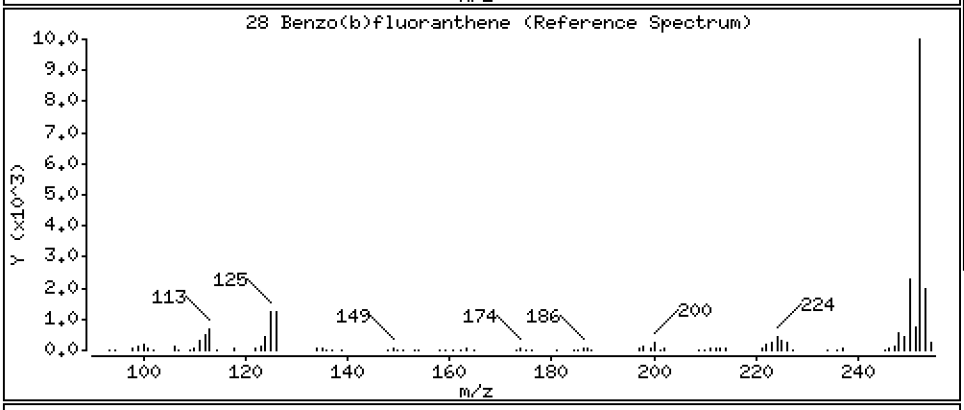
Concentration: 0.1972 ug/mL

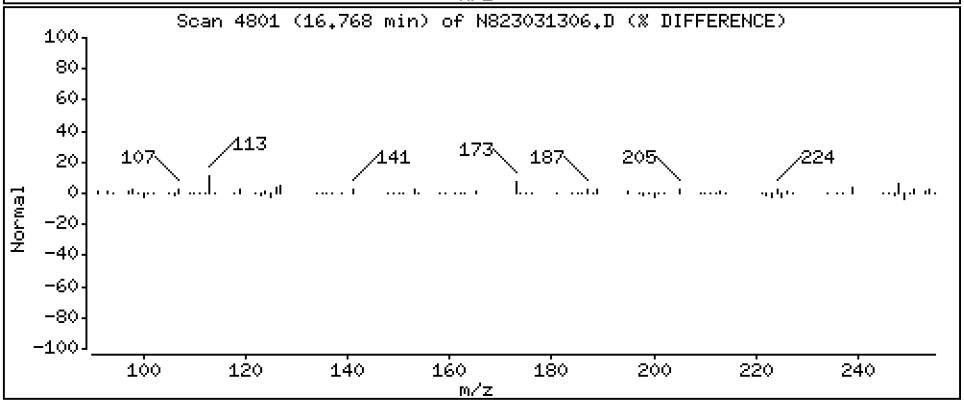












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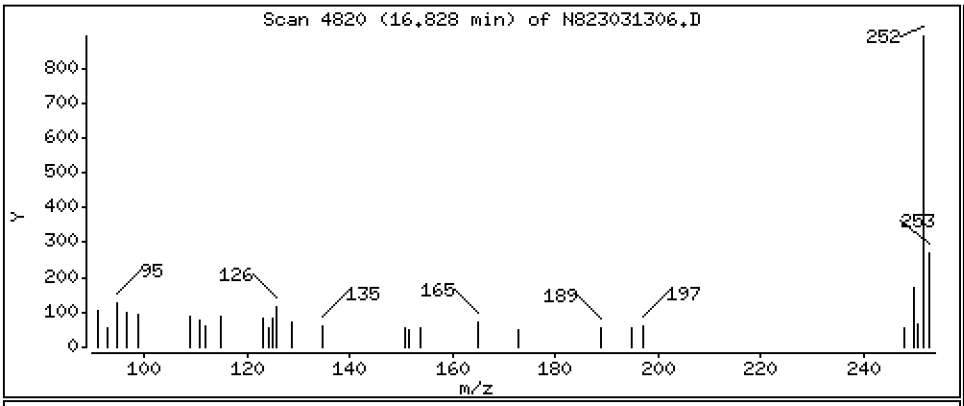
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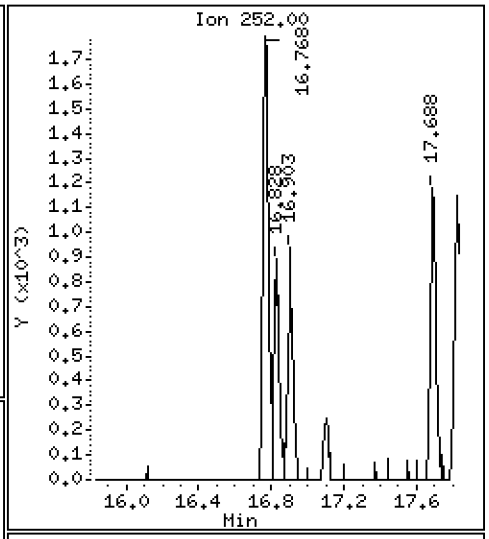
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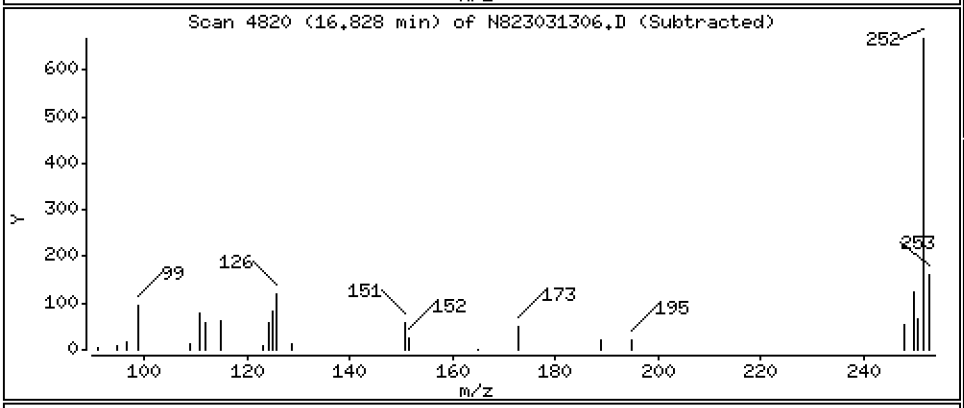
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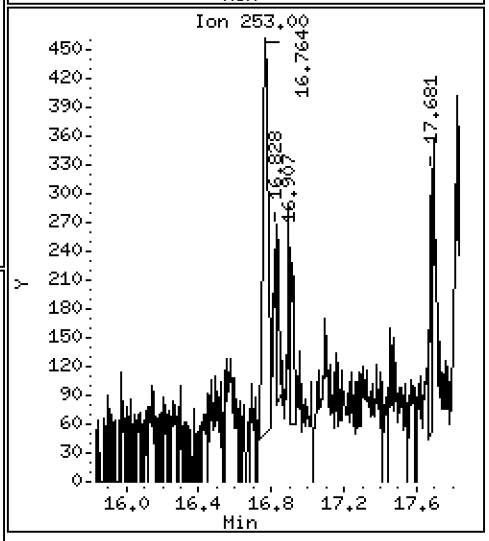
29 Benzo(k)fluoranthene

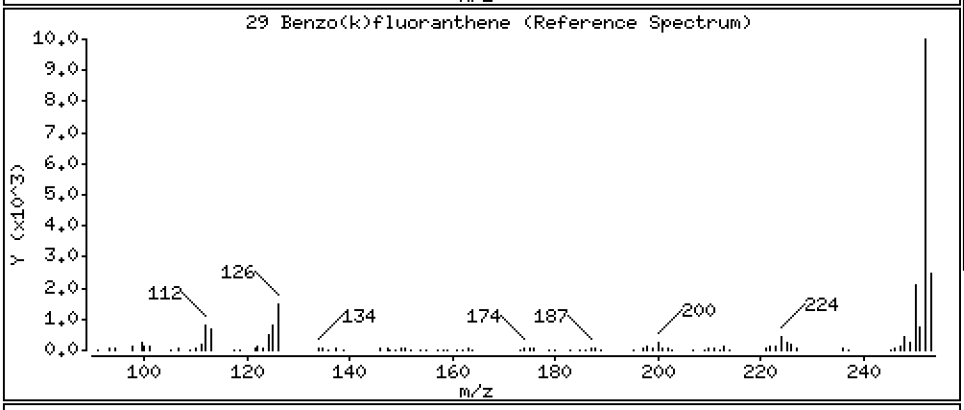
Concentration: 0.09225 ug/mL

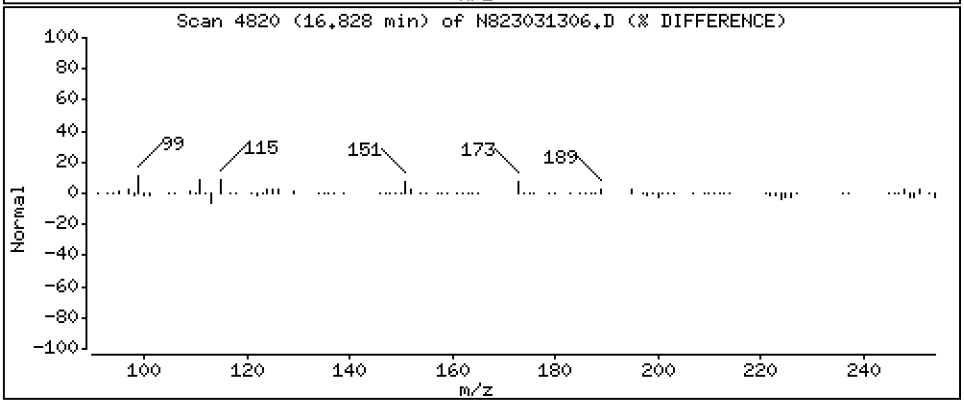












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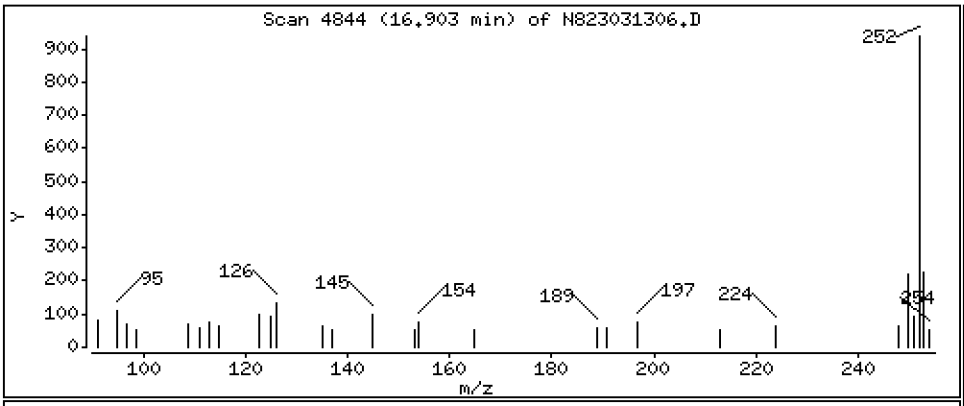
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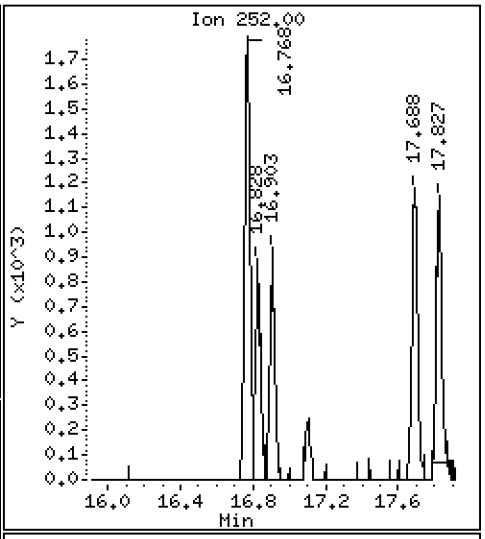
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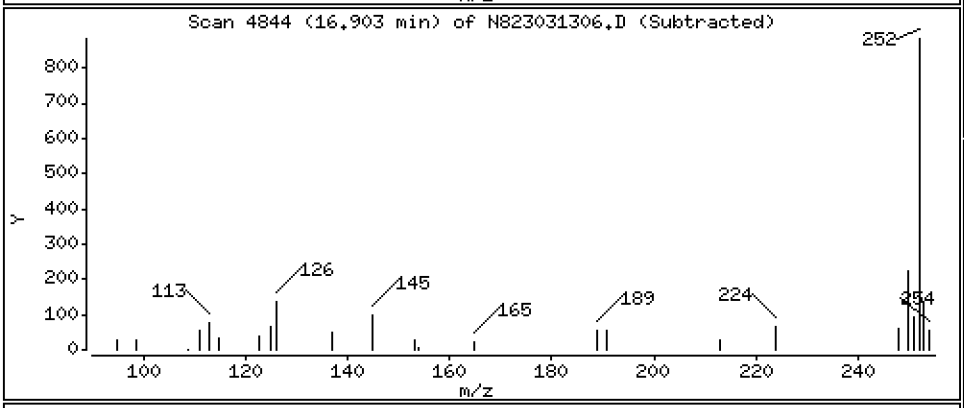
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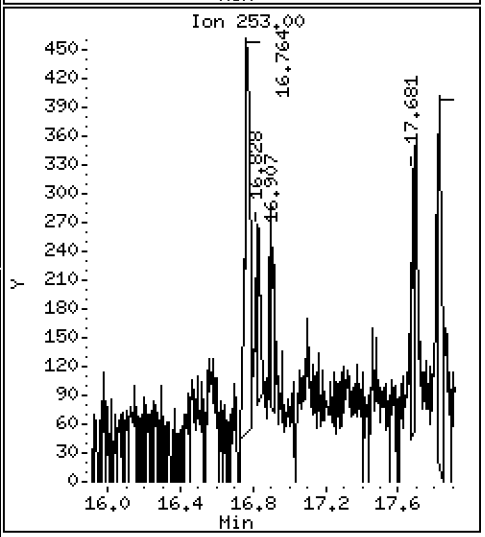
30 Benzo(j)fluoranthene

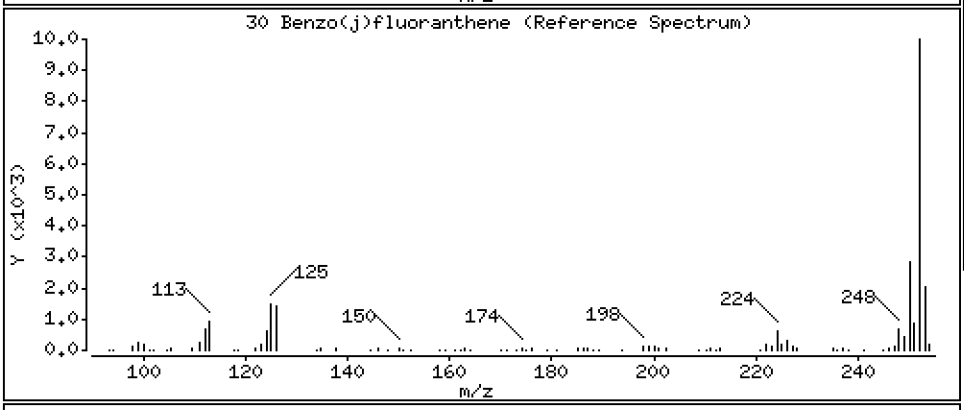
Concentration: 0.09830 ug/mL

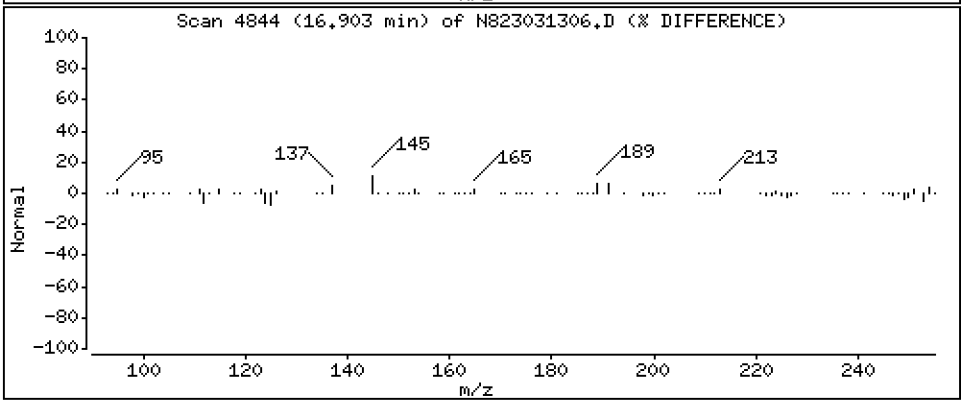












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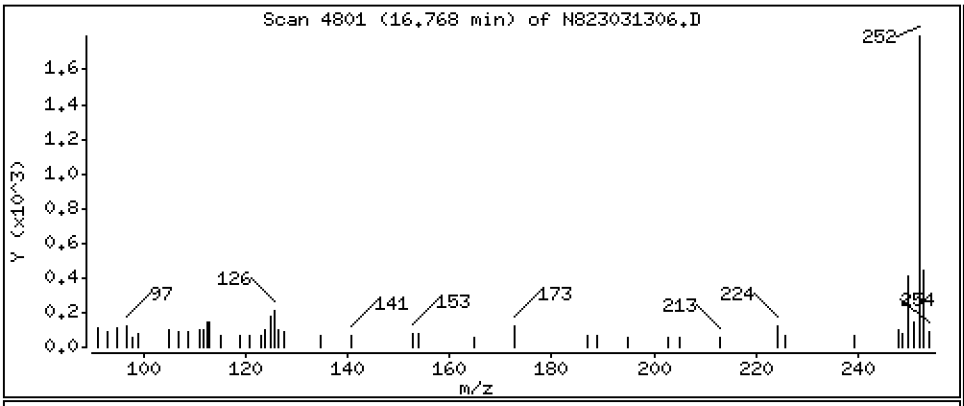
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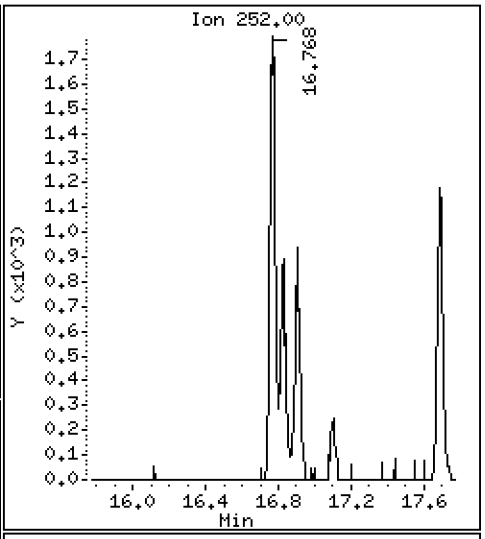
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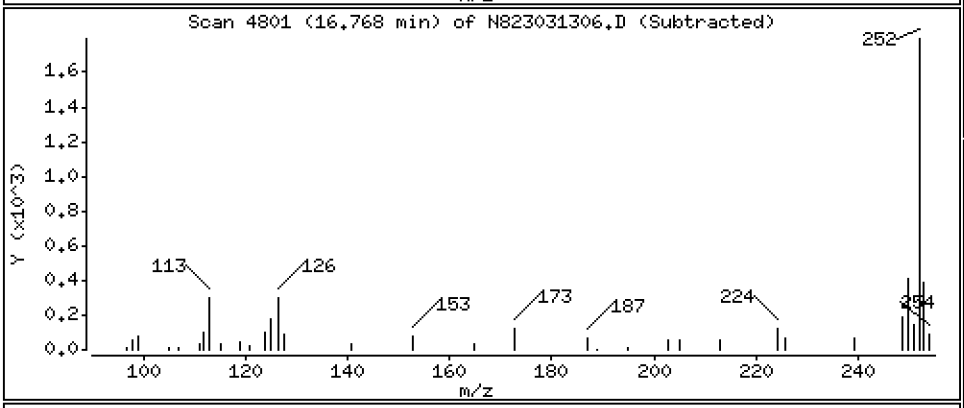
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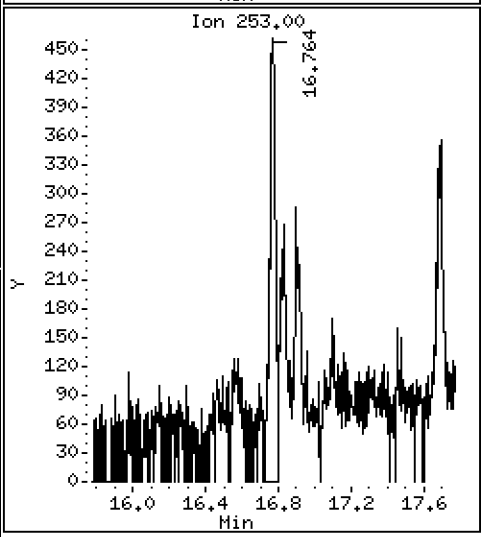
31 Total Benzofluoranthenes

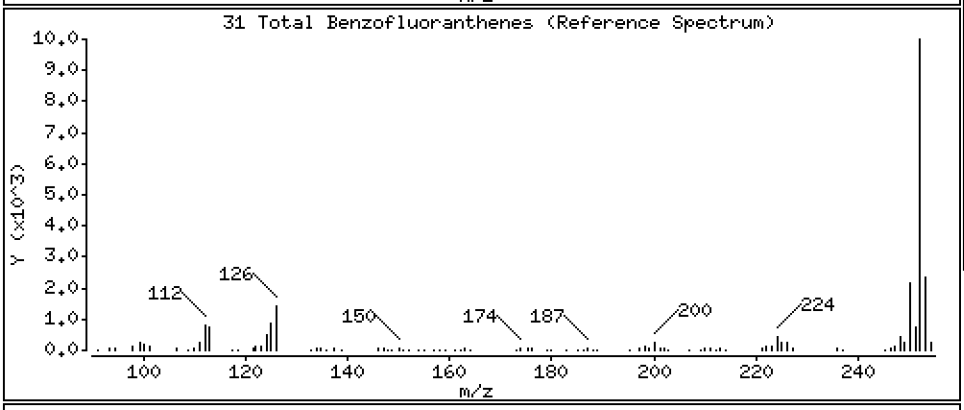
Concentration: 0.3913 ug/mL

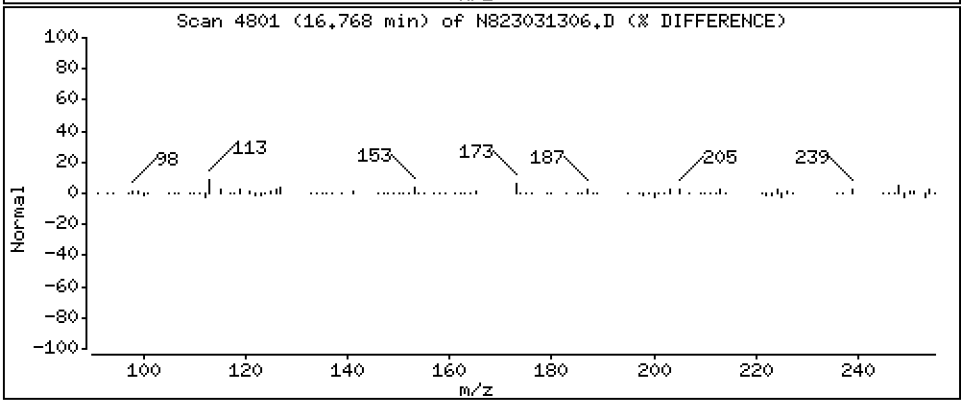












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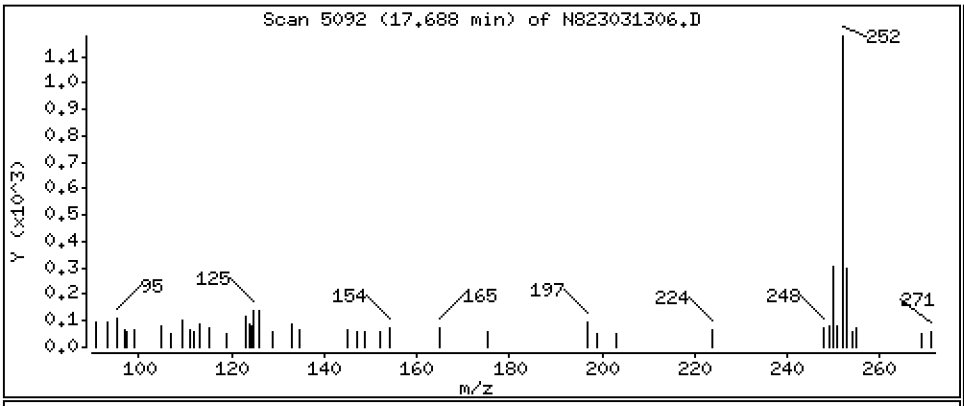
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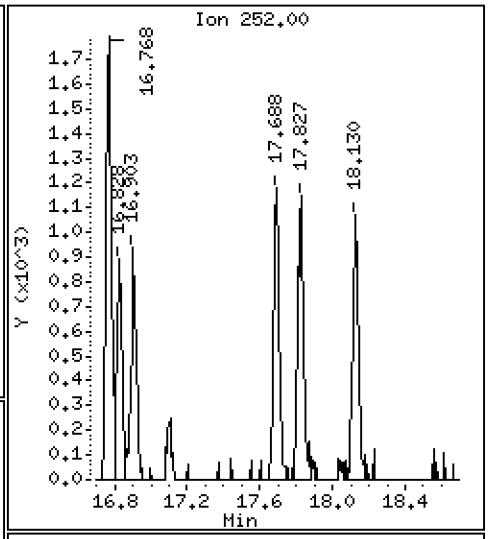
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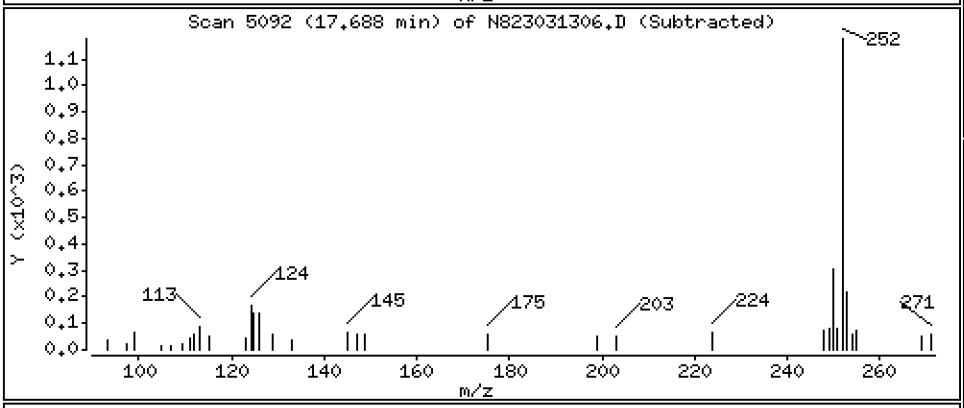
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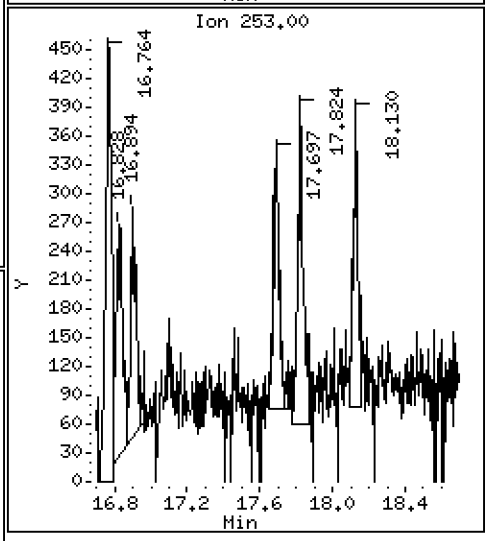
34 Benzo(e)pyrene

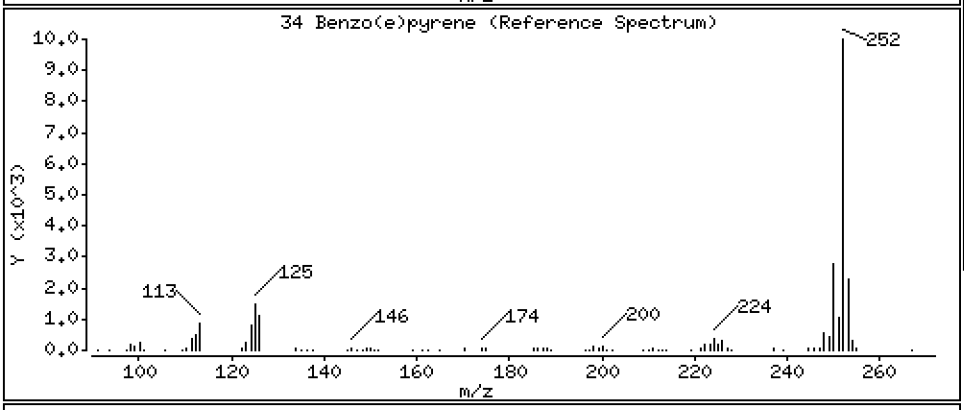
Concentration: 0.1289 ug/mL

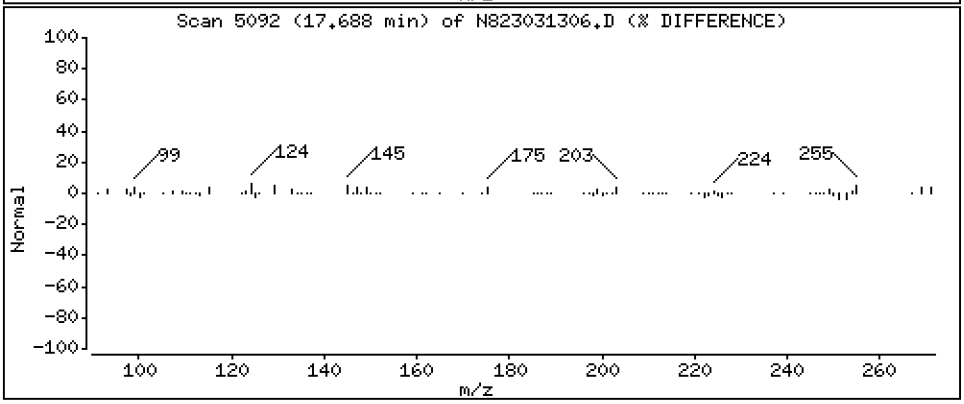












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D

Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

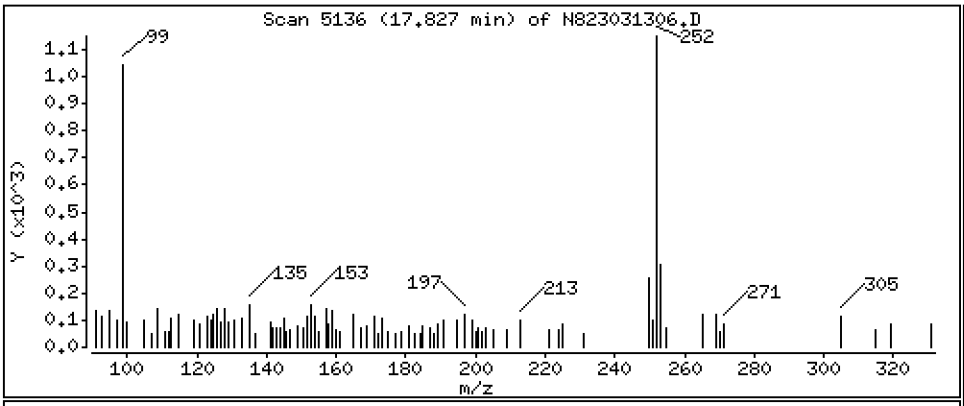
Operator: JZ

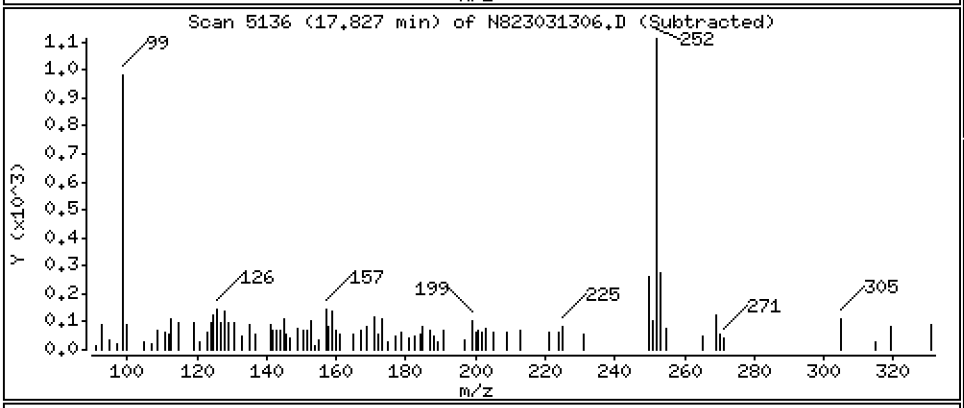
Column phase: Rxi-17sil

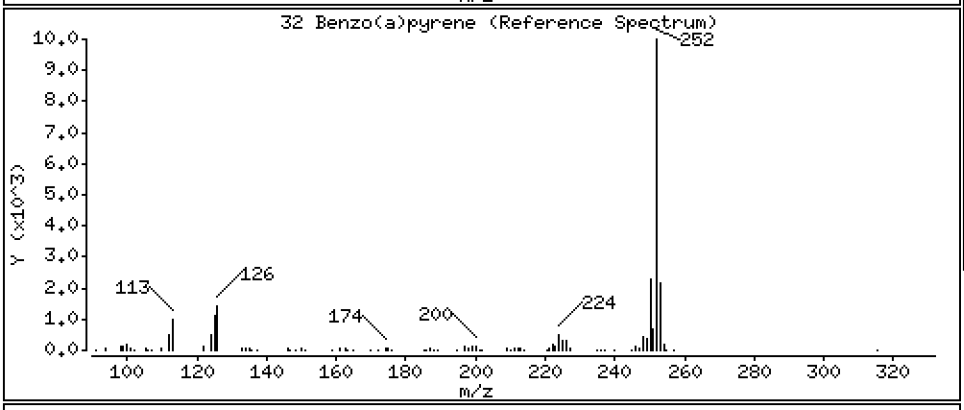
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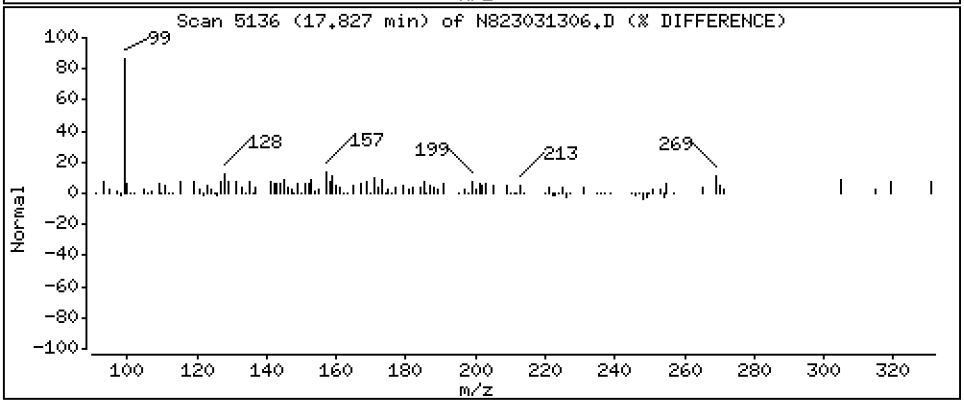
32 Benzo(a)pyrene

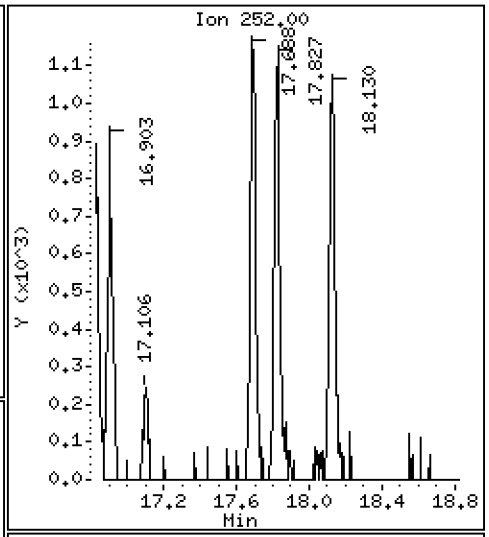
Concentration: 0.1480 ug/mL

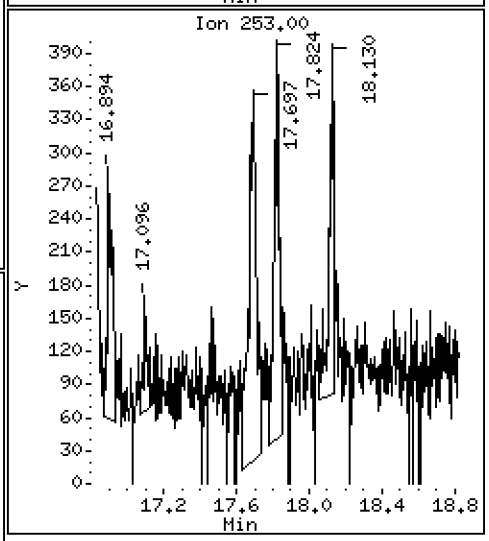












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D

Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

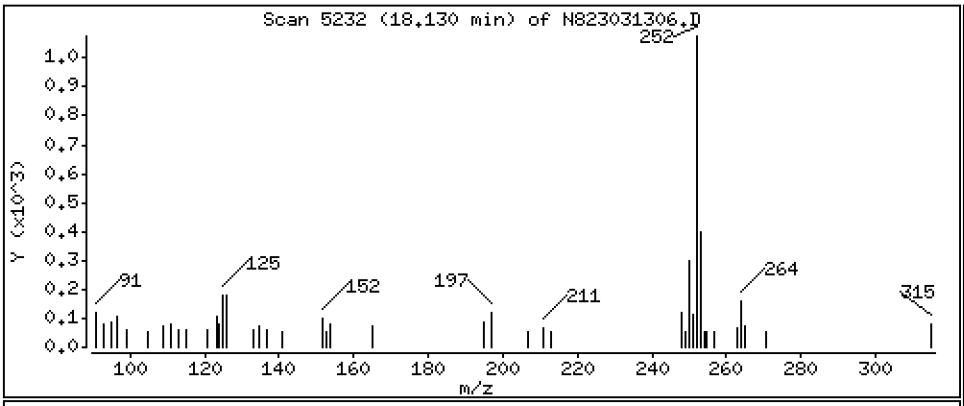
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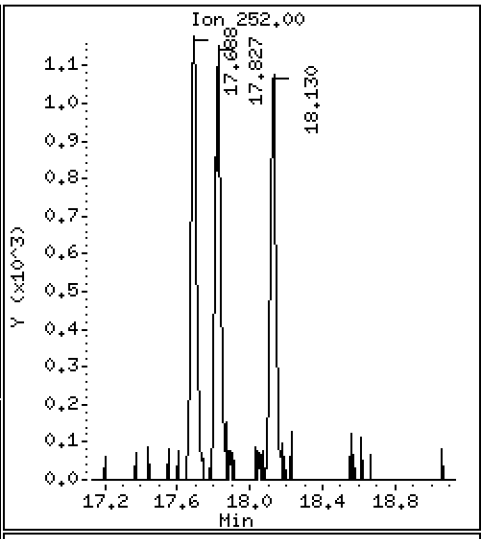
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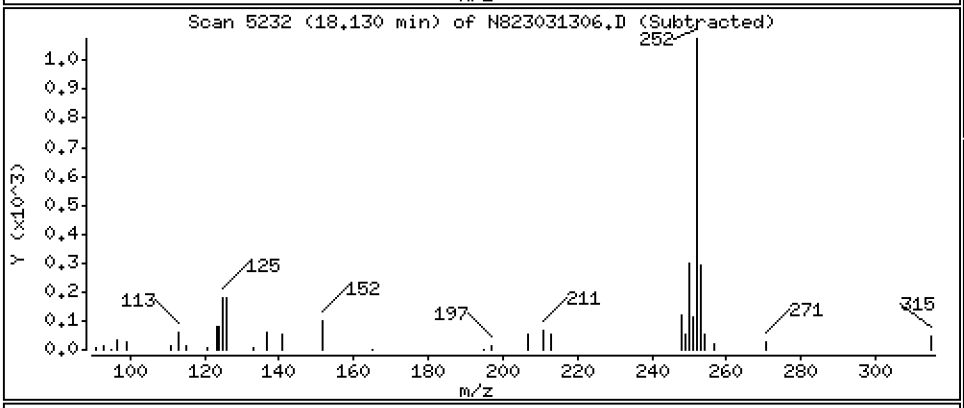
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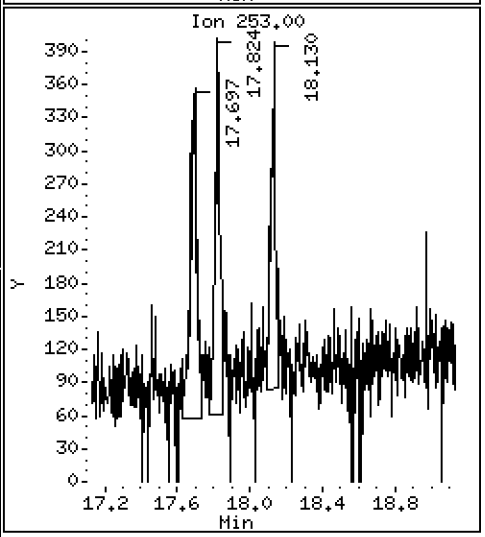
35 Perylene

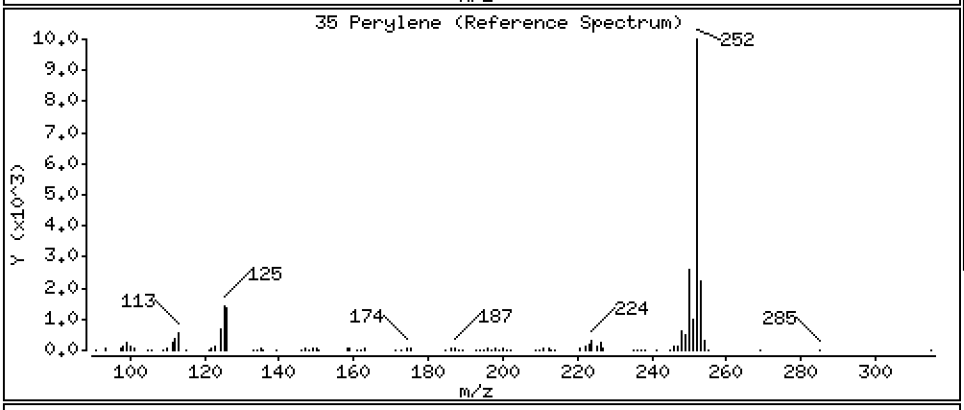
Concentration: 0.1289 ug/mL

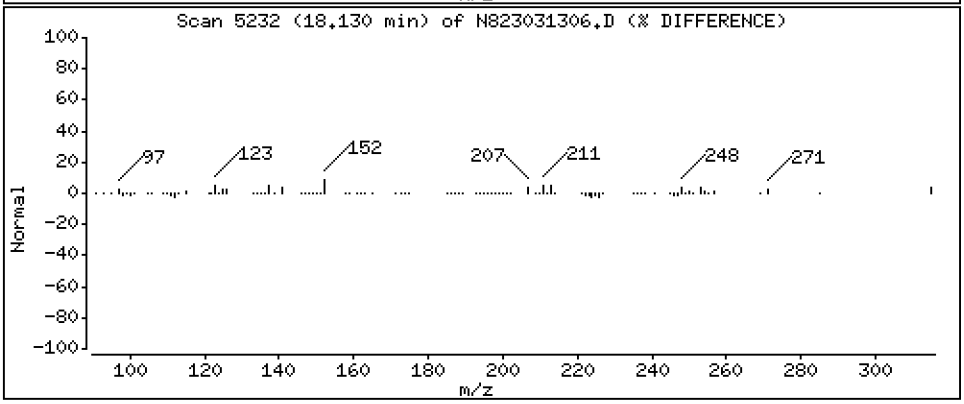












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D

Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

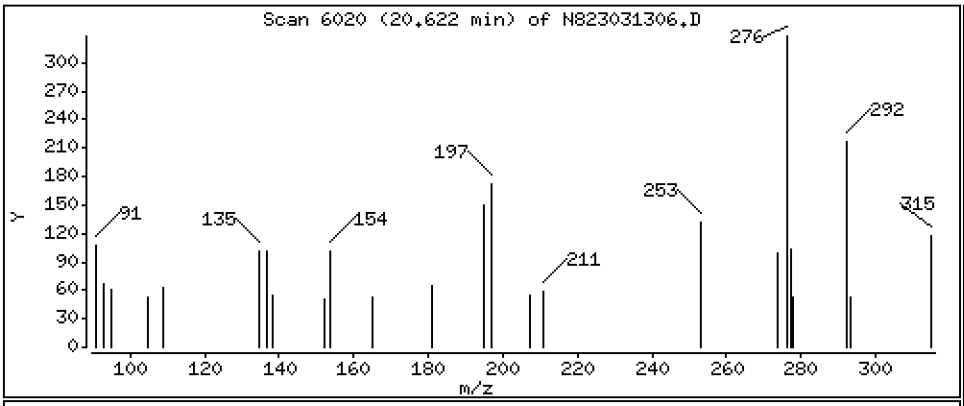
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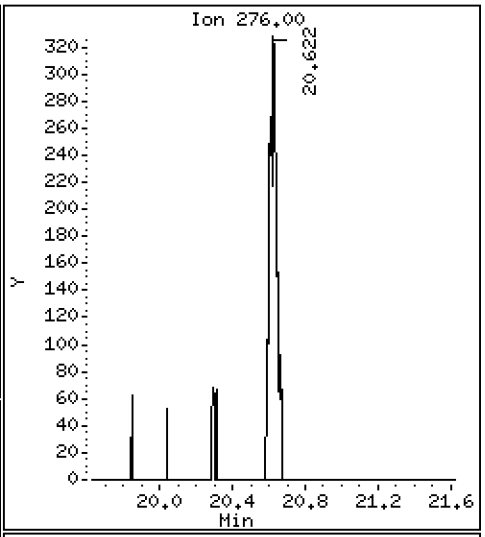
Column phase: Rxi-17sil

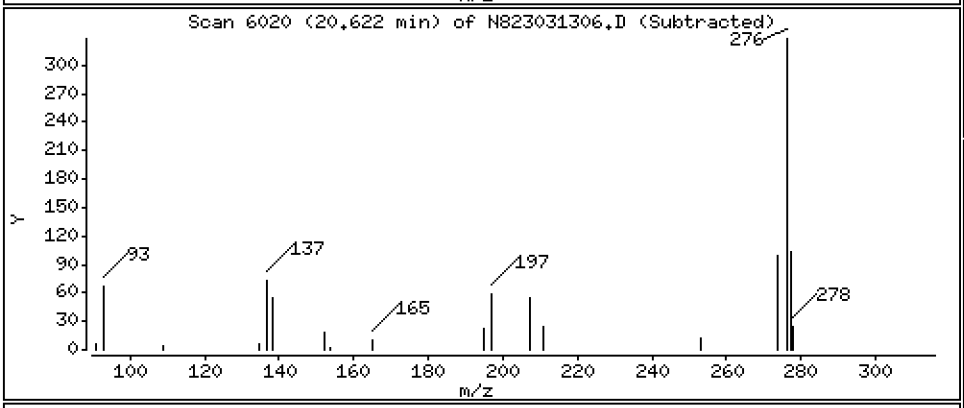
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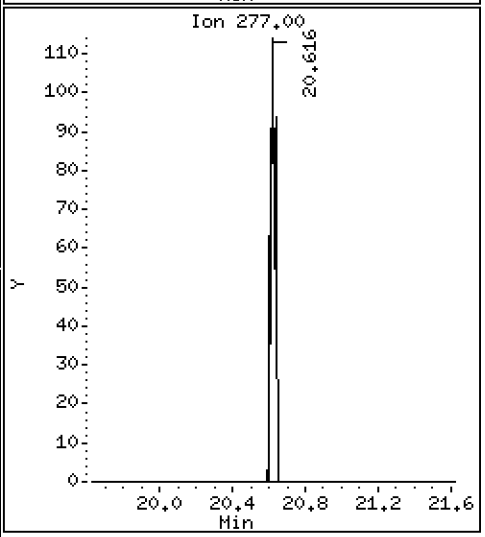
37 Indeno(1,2,3-cd)pyrene

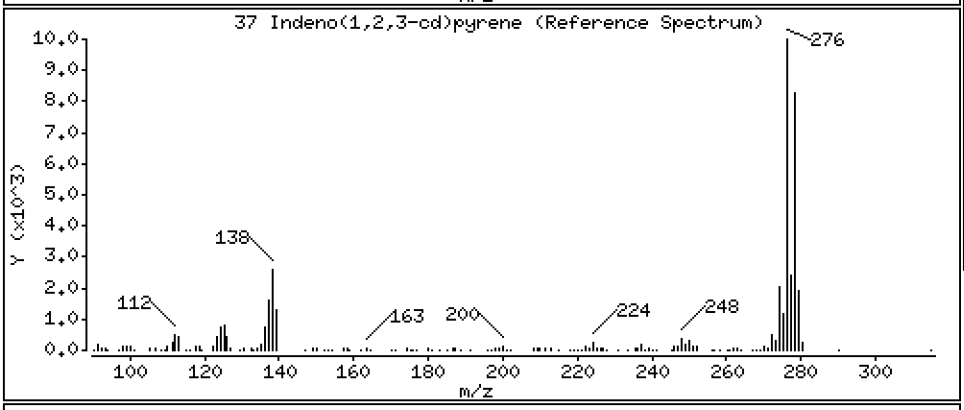
Concentration: 0.04886 ug/mL

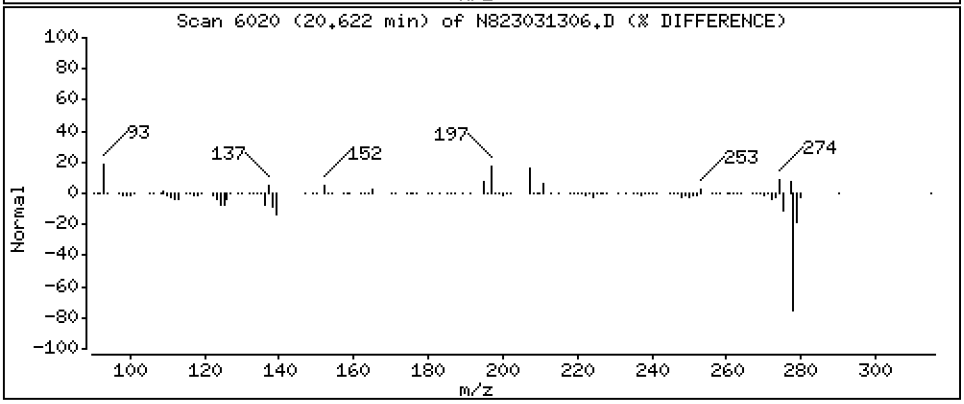












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D

Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

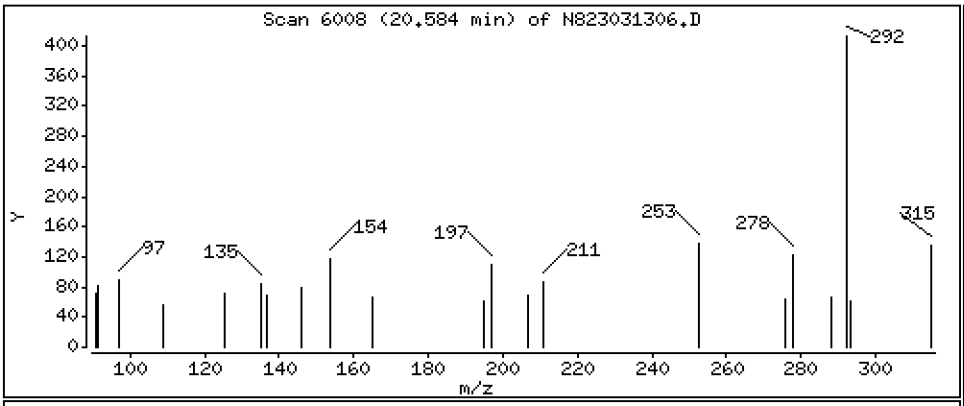
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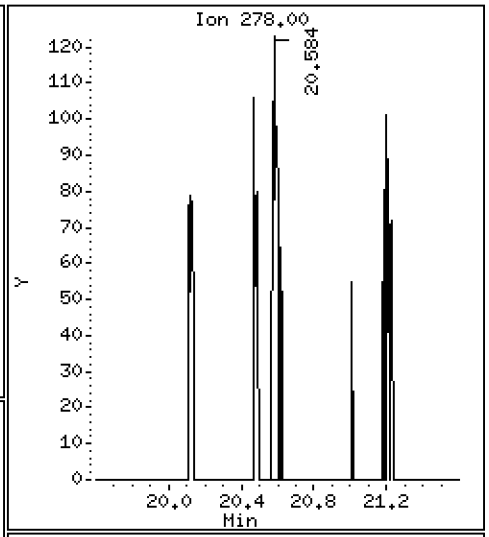
Column phase: Rxi-17sil

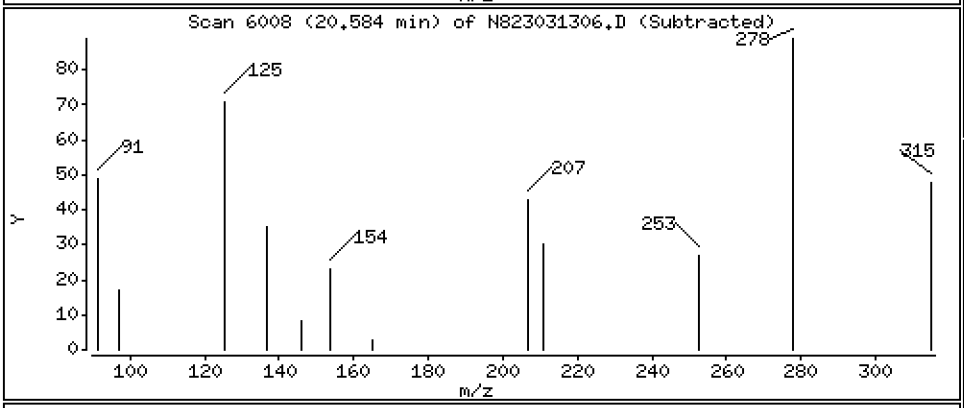
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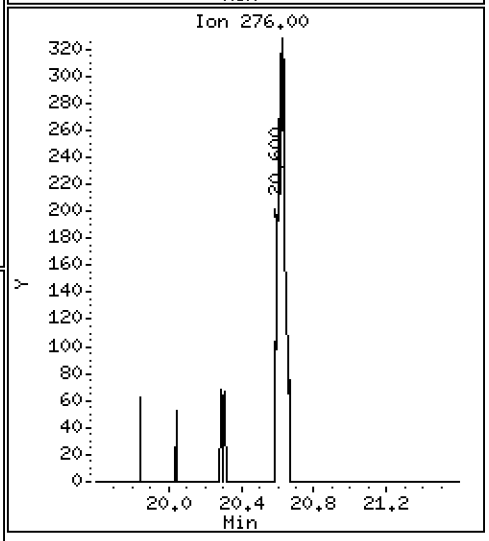
38 Dibenzo(a,h)anthracene

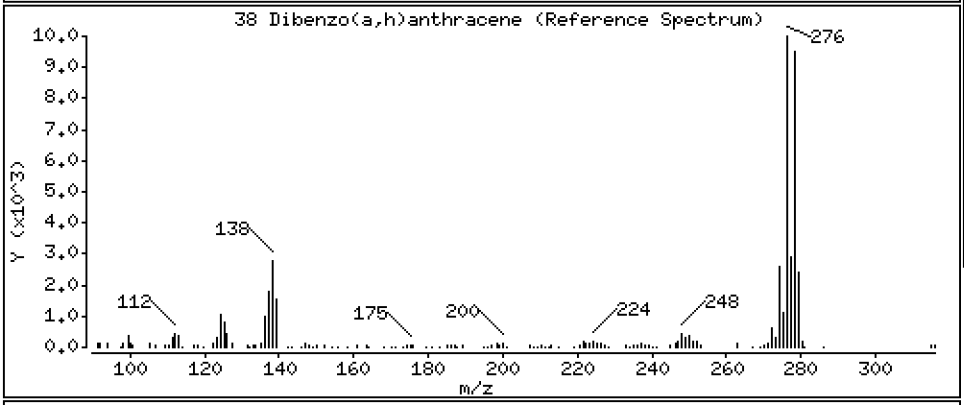
Concentration: 0.01125 ug/mL

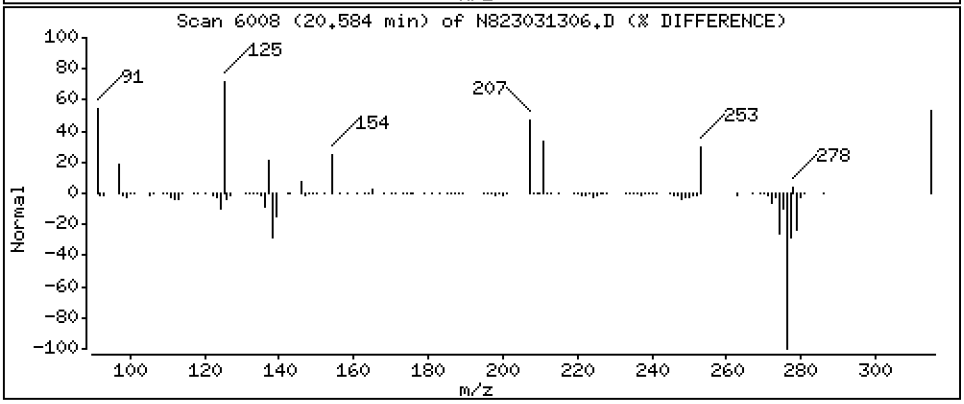












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031306.D

Date : 13-MAR-2023 15:26

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-01

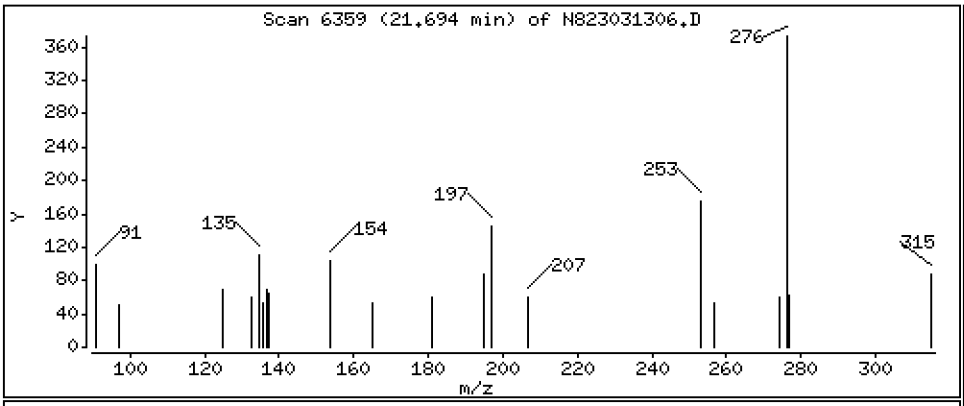
Operator: JZ

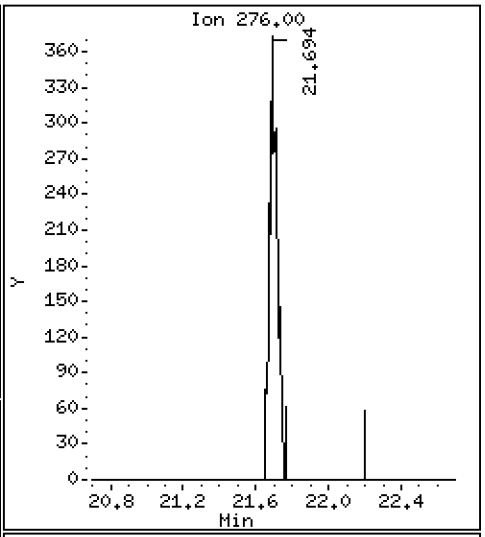
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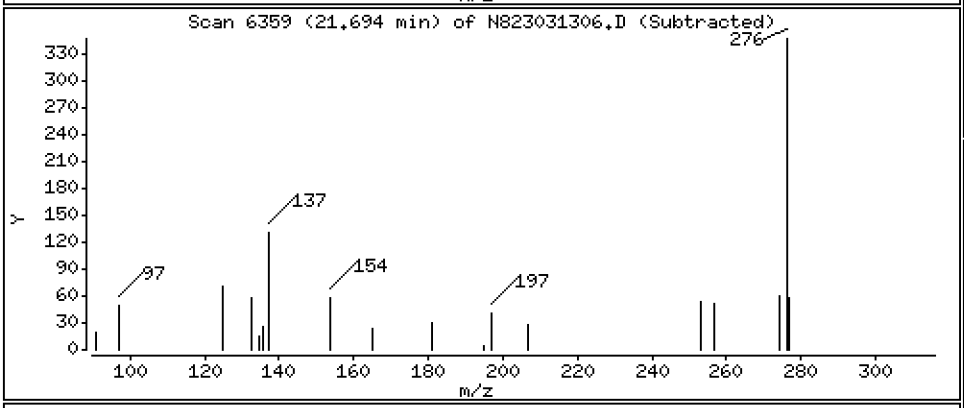
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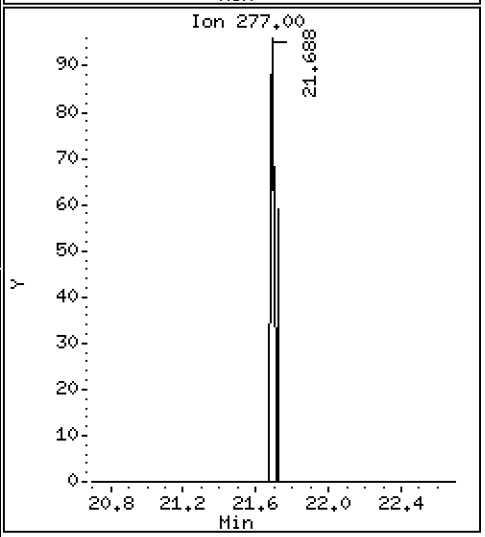
39 Benzo(g,h,i)perylene

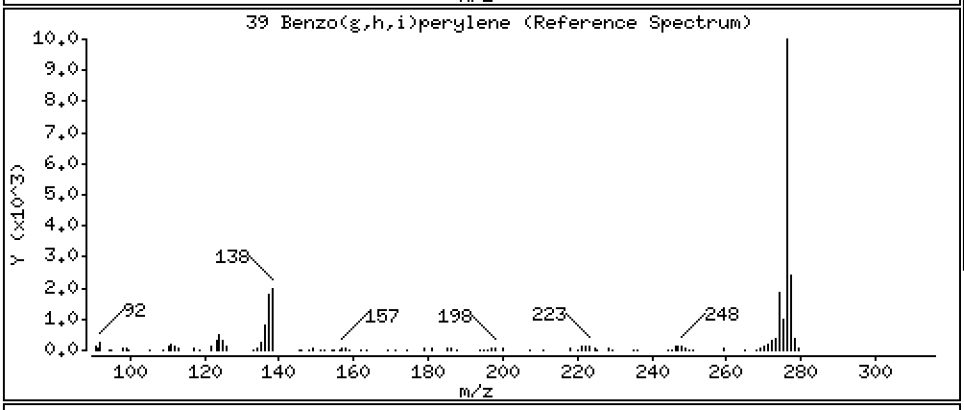
Concentration: 0.06248 ug/mL

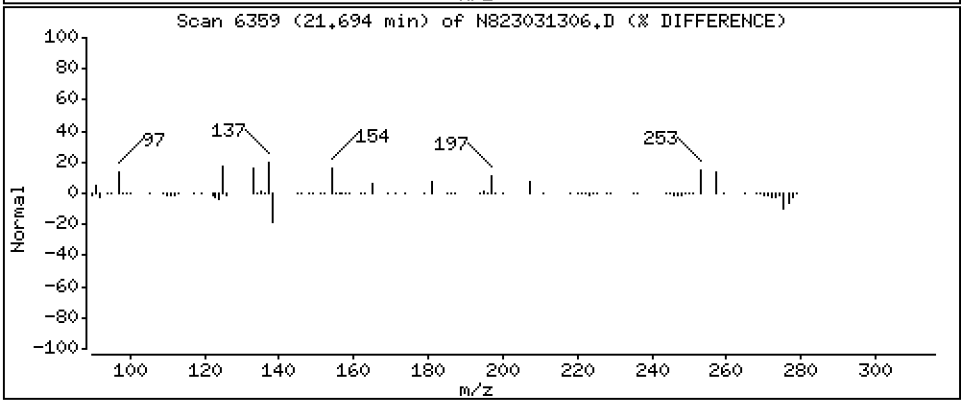












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031306.D
Lab Smp Id: 23C0064-01
Inj Date : 13-MAR-2023 15:26
Operator : JZ Inst ID: nt8.i
Smp Info : 23C0064-01
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

								CONCENTRATIONS	
		QUANT SIG						ON-COLUMN	FINAL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE		(ug/mL)	(ug/mL)
*	1 Naphthalene-d8	136	4.853	4.862	(1.000)	38063		2.00000	
	2 Naphthalene	128	4.881	4.891	(1.006)	3944		0.22285	0.2229
$	3 2-Methylnaphthalene-d10	152	5.593	5.599	(1.152)	25027		2.41091	2.411
	4 2-Methylnaphthalene	141	5.640	5.646	(1.162)	623		0.06400	0.06400
	5 1-methylnaphthalene	141	5.836	5.842	(1.203)	451		0.04565	0.04565
	9 Acenaphthylene	152	7.044	7.047	(0.985)	628		0.03544	0.03544
*	10 Acenaphthene-d10	164	7.151	7.155	(1.000)	23468		2.00000	
	11 Acenaphthene	153	7.202	7.205	(1.007)	1665		0.14022	0.1402
	12 Dibenzofuran	168	7.354	7.357	(1.028)	1718		0.09526	0.09526
	14 Fluorene	166	7.834	7.838	(1.095)	845		0.06033	0.06033
*	15 Phenanthrene-d10	188	9.194	9.197	(1.000)	44176		2.00000	
	16 Phenanthrene	178	9.229	9.232	(1.004)	2561		0.11868	0.1187
	17 Anthracene	178	9.270	9.273	(1.008)	1391		0.07096	0.07096
	19 Carbazole	167	9.795	9.792	(1.065)	502		0.02793	0.02793(M)
	22 Fluoranthene	202	11.006	11.009	(1.197)	3914		0.16663	0.1666(M)
$	21 Fluoranthene-d10	212	10.968	10.971	(1.193)	57066		2.92792	2.928
	23 Pyrene	202	11.528	11.524	(0.815)	28732		1.35617	1.356
	24 Benzo(a)anthracene	228	14.022	14.025	(0.991)	1463		0.07619	0.07619
*	25 Chrysene-d12	240	14.146	14.152	(1.000)	34172		2.00000	
	27 Chrysene	228	14.222	14.225	(1.005)	2514		0.12298	0.1230(M)
	28 Benzo(b)fluoranthene	252	16.767	16.773	(0.929)	3861		0.19721	0.1972
	29 Benzo(k)fluoranthene	252	16.827	16.833	(0.932)	1769		0.09225	0.09225
	30 Benzo(j)fluoranthene	252	16.903	16.912	(0.936)	1697		0.09830	0.09830
	31 Total Benzofluoranthenes	252	16.767	16.773	(0.929)	7255		0.39128	0.3913(M)
	34 Benzo(e)pyrene	252	17.687	17.697	(0.980)	2516		0.12887	0.1289
	32 Benzo(a)pyrene	252	17.826	17.826	(0.988)	2549		0.14795	0.1480
*	33 Perylene-d12	264	18.051	18.060	(1.000)	33616		2.00000	
	35 Perylene	252	18.130	18.130	(1.004)	2383		0.12889	0.1289
$	36 Dibenzo(a,h)anthracene-d14	292	20.482	20.482	(1.135)	41405		3.14354	3.144
	37 Indeno(1,2,3-cd)pyrene	276	20.621	20.625	(1.142)	959		0.04886	0.04886
	38 Dibenzo(a,h)anthracene	278	20.584	20.599	(1.140)	190		0.01125	0.01125(M)
	39 Benzo(g,h,i)perylene	276	21.693	21.696	(1.202)	1111		0.06248	0.06248

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031306.D
Lab Smp Id: 23C0064-01
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	38063	-5.67
10 Acenaphthene-d10	24212	12106	48424	23468	-3.07
15 Phenanthrene-d10	46031	23016	92062	44176	-4.03
25 Chrysene-d12	38604	19302	77208	34172	-11.48
33 Perylene-d12	35963	17982	71926	33616	-6.53

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.85	-0.19
10 Acenaphthene-d10	7.16	6.66	7.66	7.15	-0.04
15 Phenanthrene-d10	9.20	8.70	9.70	9.19	-0.03
25 Chrysene-d12	14.15	13.65	14.65	14.15	-0.04
33 Perylene-d12	18.06	17.56	18.56	18.05	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031306.D

Lab ID: 23C0064-01
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 15:26

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

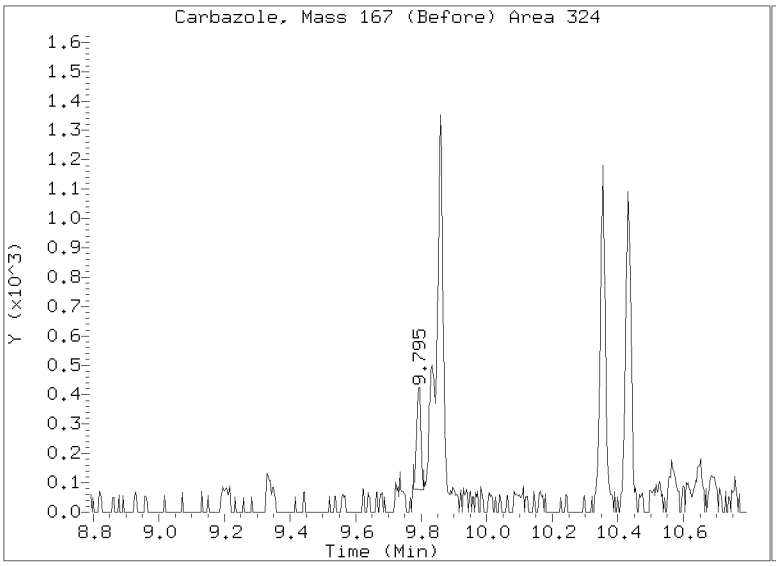
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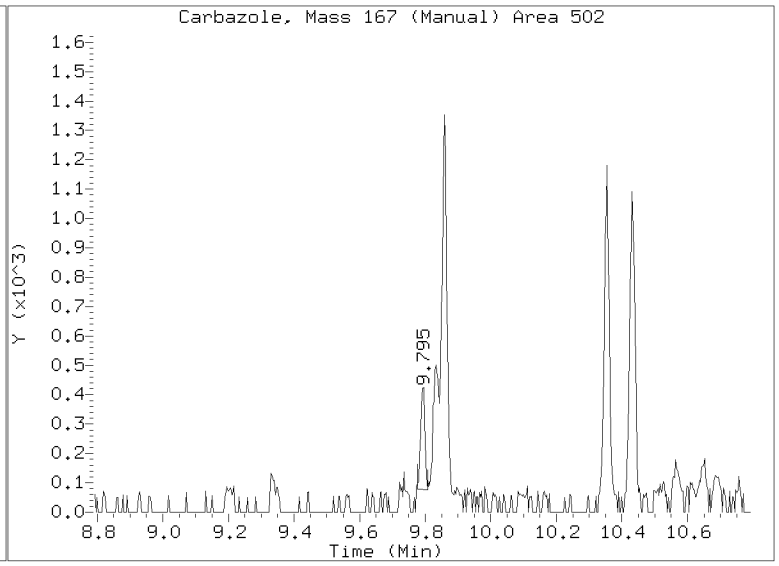
Exception: Benzo(e)pyrene 0.0800

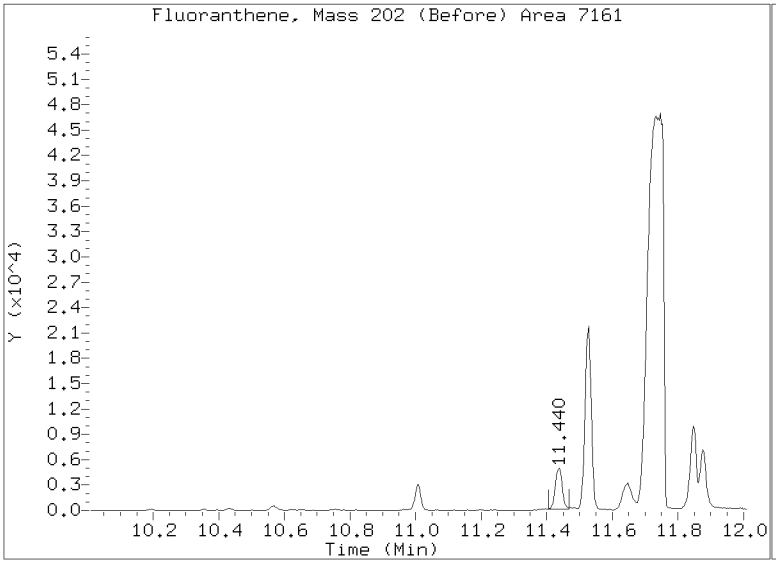
* Only compounds listed in the work order have been verified by the analyst *

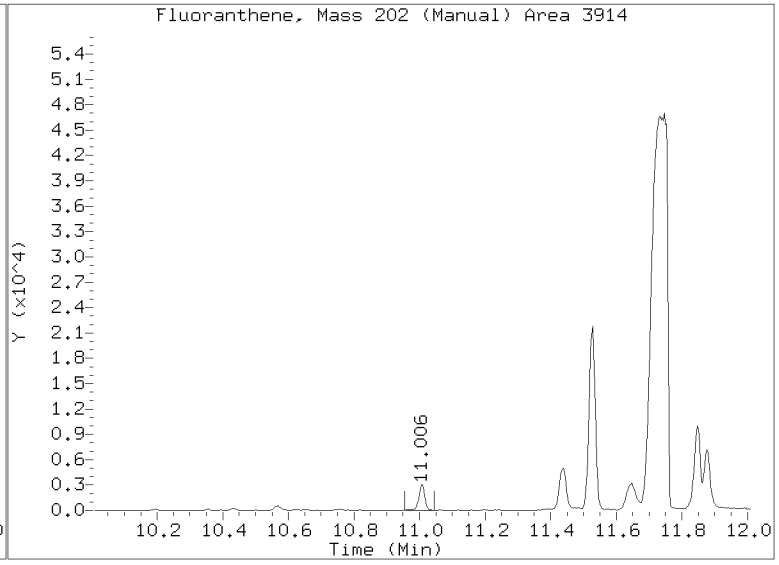
Quant Ion Manual Peak Adjustment Report

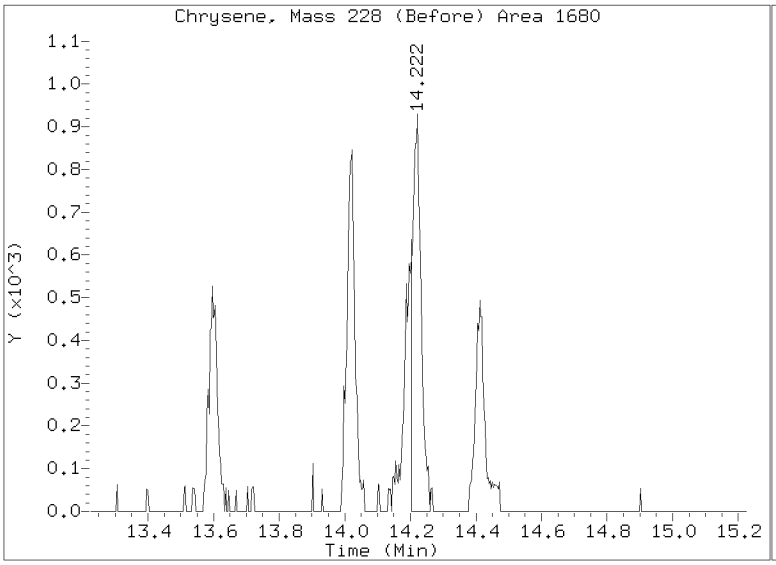
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Injection Date: 13-MAR-2023 15:26
Lab ID:23C0064-01 Client ID:
Report Date: 03/13/2023 21:09

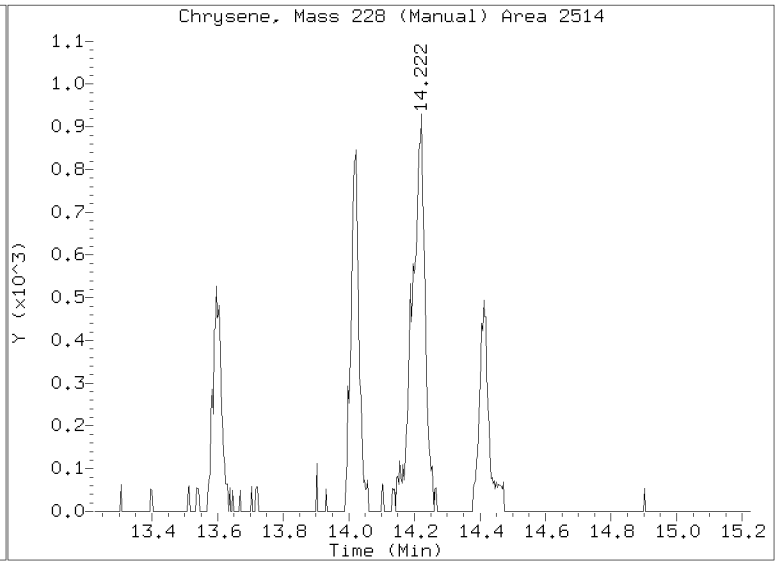






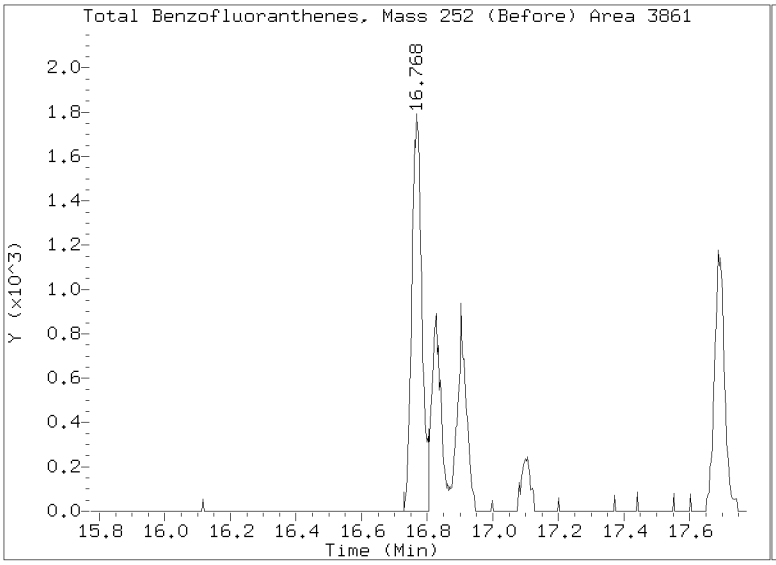


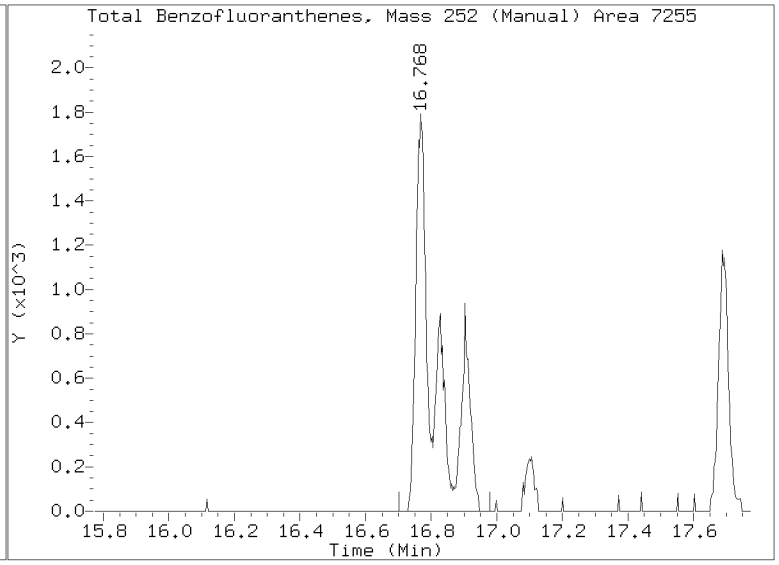


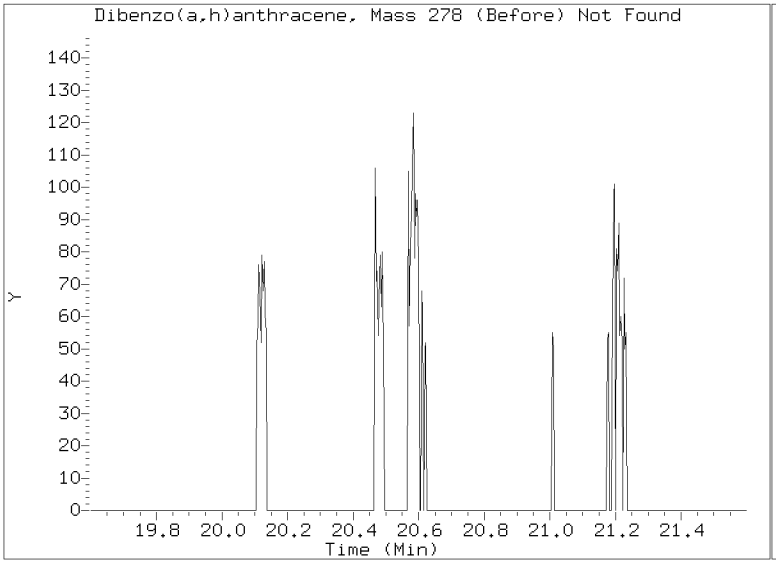


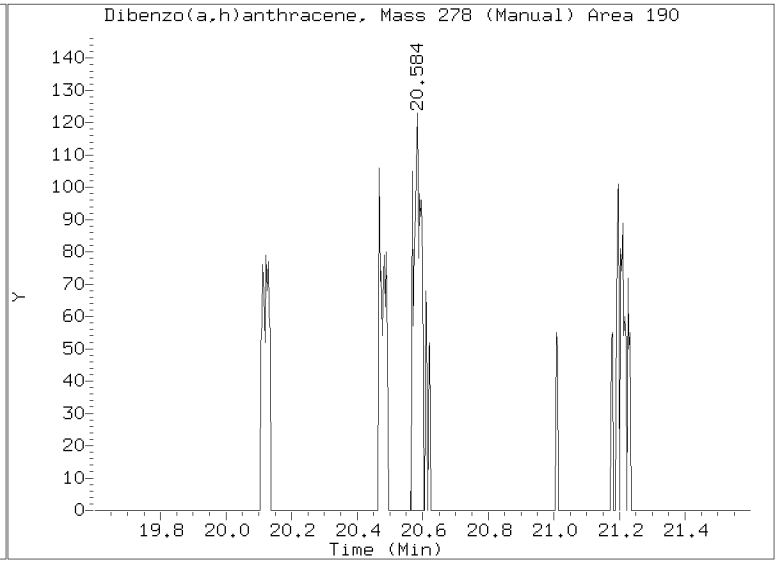
Quant Ion Manual Peak Adjustment Report

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Injection Date: 13-MAR-2023 15:26
Lab ID:23C0064-01 Client ID:
Report Date: 03/13/2023 21:09









Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23C0064-02 A	SDG:	23C0064
Sampled:	01/26/23 11:25	Prepared:	03/08/23 12:03	File ID:	N823031309.D
% Solids:	76.46	Preparation:	EPA 3546 (Microwave)	Analyzed:	03/13/23 16:47
Batch:	BLC0106	Sequence:	SLC0150	Initial/Final:	13.15 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	Silica Gel				

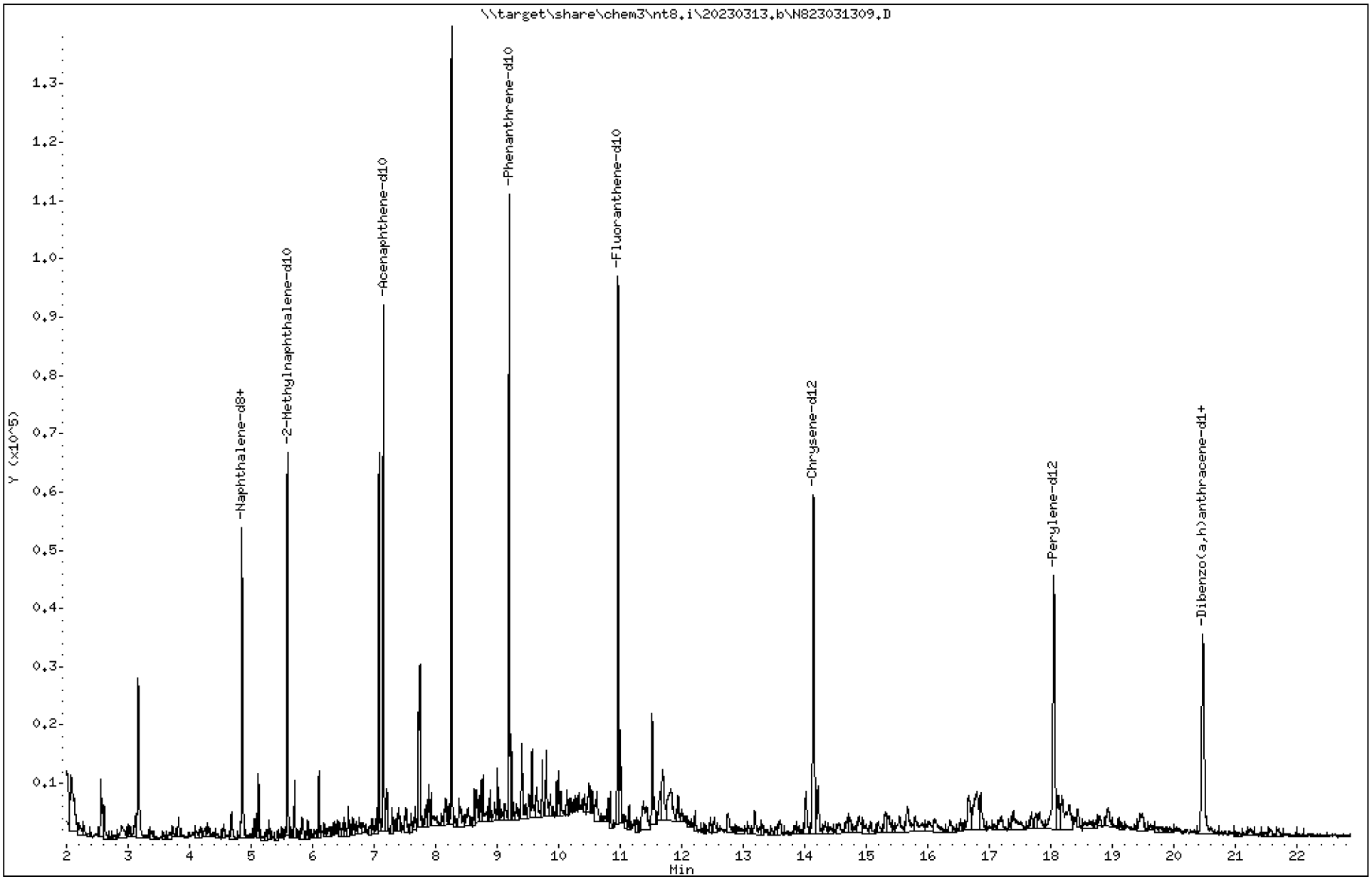
CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	9.01		0.82	4.97
218-01-9	Chrysene	1	11.4		1.05	4.97
205-99-2	Benzo(b)fluoranthene	1	5.30		1.36	4.97
207-08-9	Benzo(k)fluoranthene	1	2.90	J	0.76	4.97
50-32-8	Benzo(a)pyrene	1	6.83		0.61	4.97
193-39-5	Indeno(1,2,3-cd)pyrene	1	2.98	J	1.04	4.97
53-70-3	Dibenzo(a,h)anthracene	1	1.09	J	0.89	4.97
191-24-2	Benzo(g,h,i)perylene	1	4.04	J	1.06	4.97

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	149.19	102	68.2	32 - 120	
Dibenzo[a,h]anthracene-d14	149.19	155	104	21 - 133	
Fluoranthene-d10	149.19	129	86.6	36 - 134	

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Client ID:
Sample Info: 23C0064-02

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23C0064 03/17/2023 Page 41 of 833

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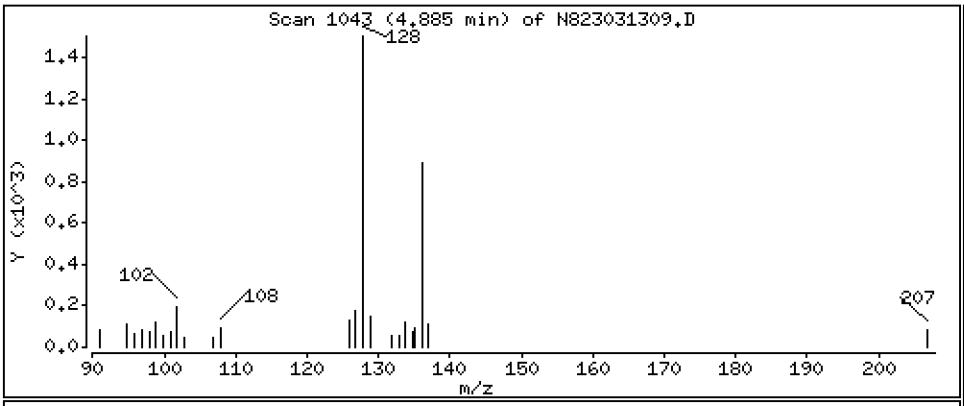
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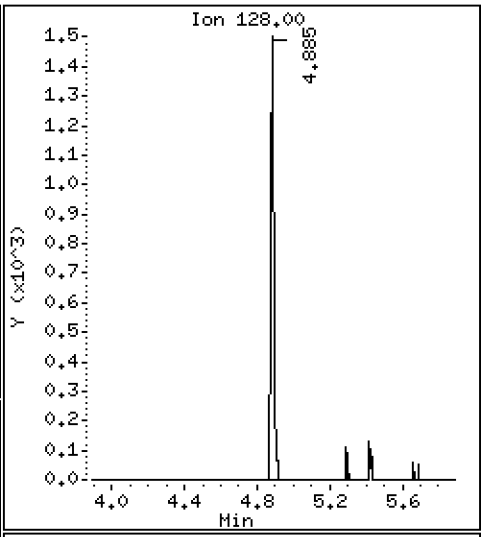
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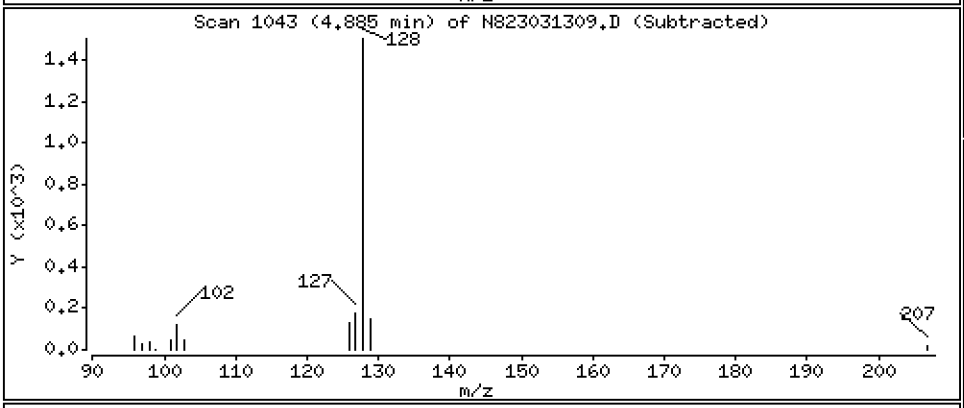
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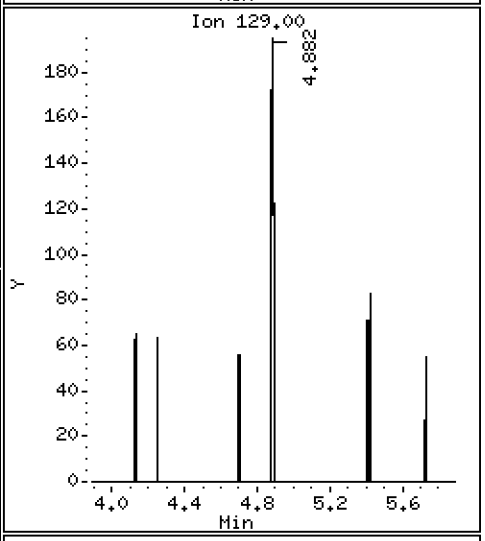
2 Naphthalene

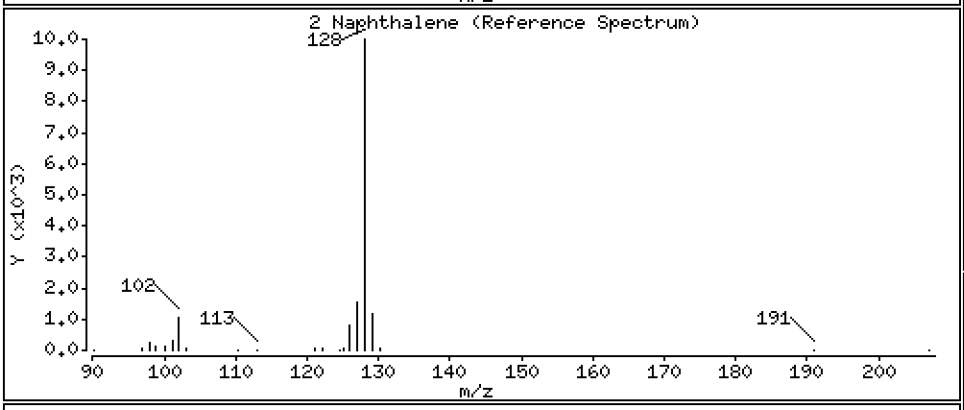
Concentration: 0.08826 ug/mL

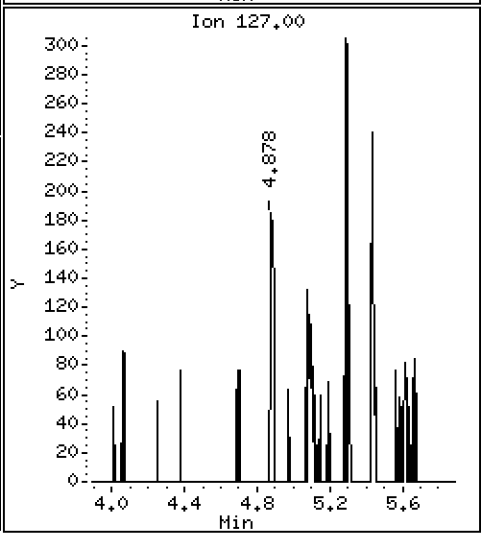


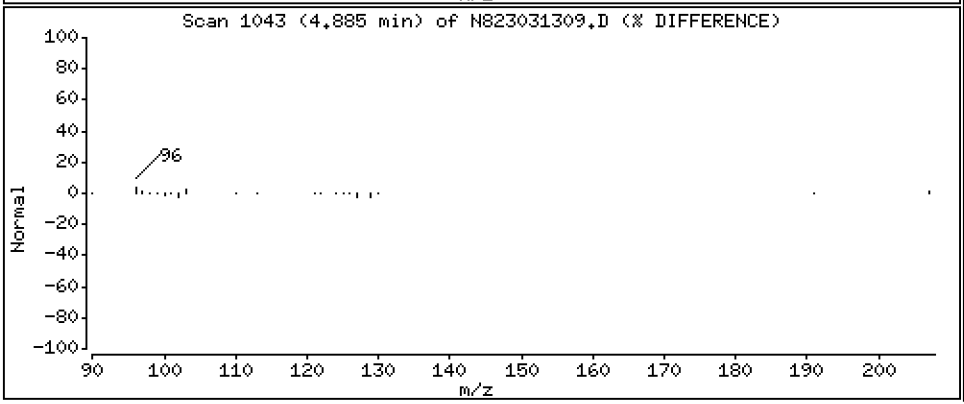












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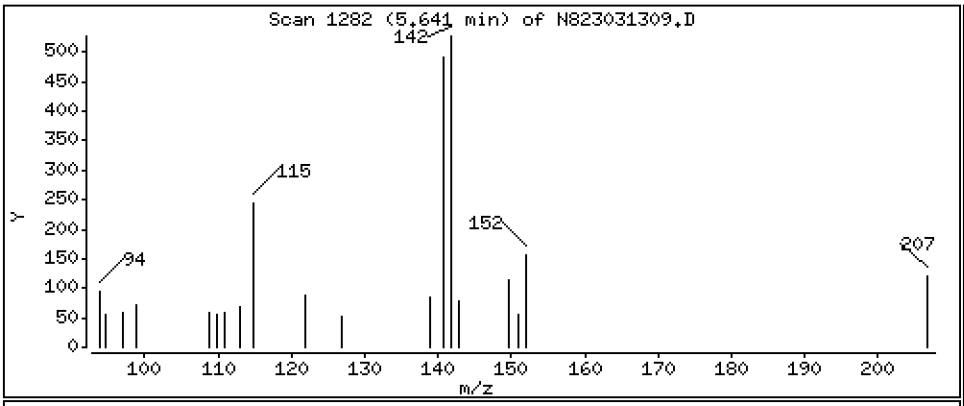
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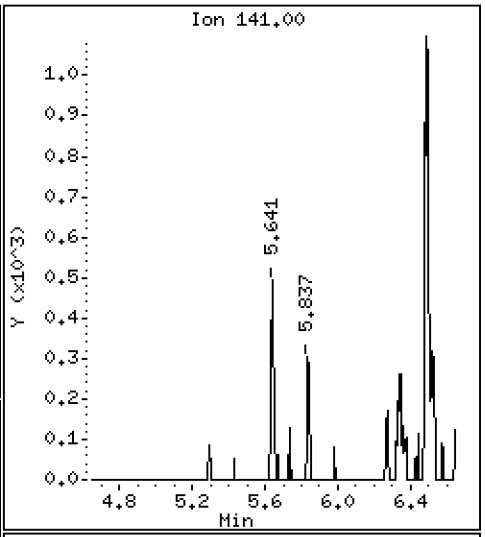
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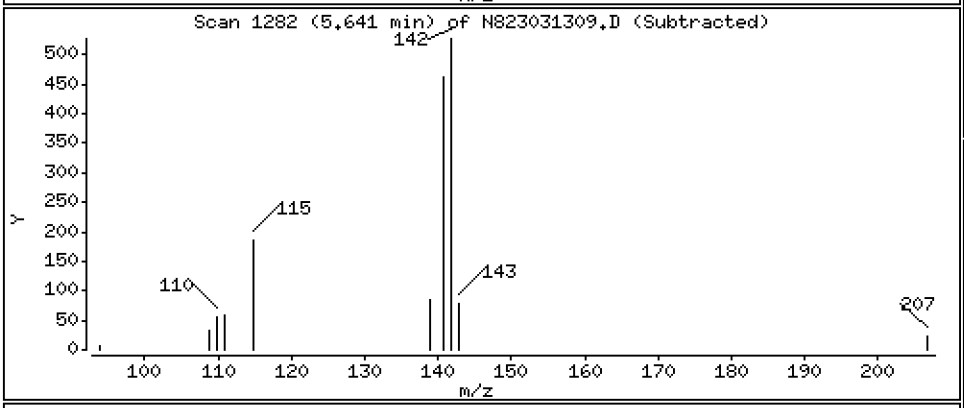
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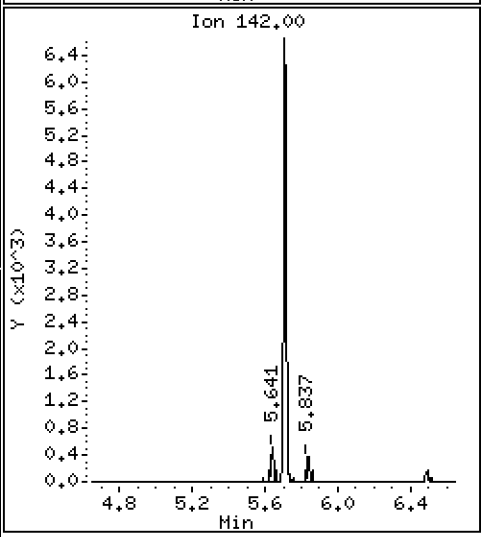
4 2-Methylnaphthalene

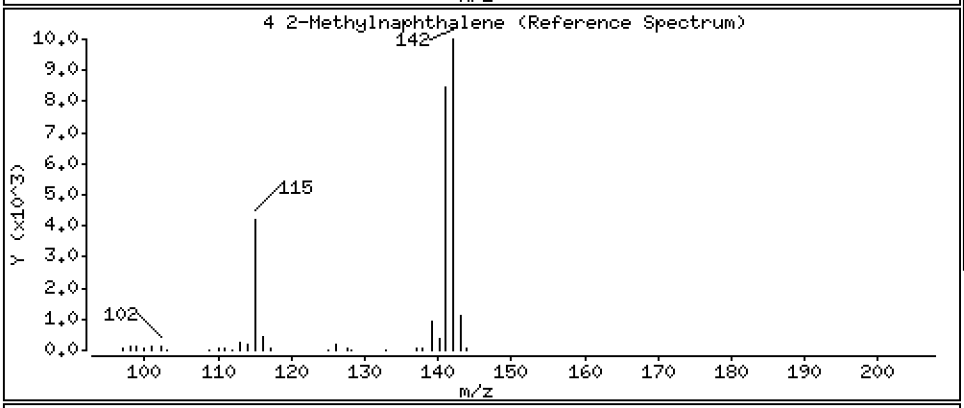
Concentration: 0.04585 ug/mL

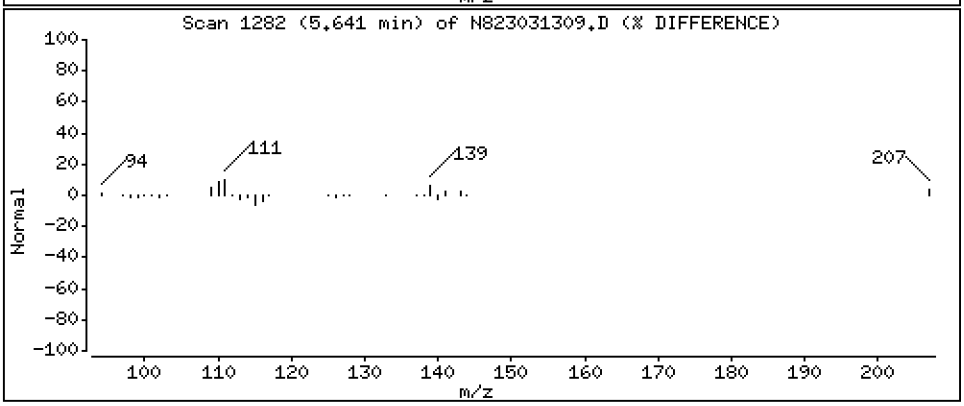












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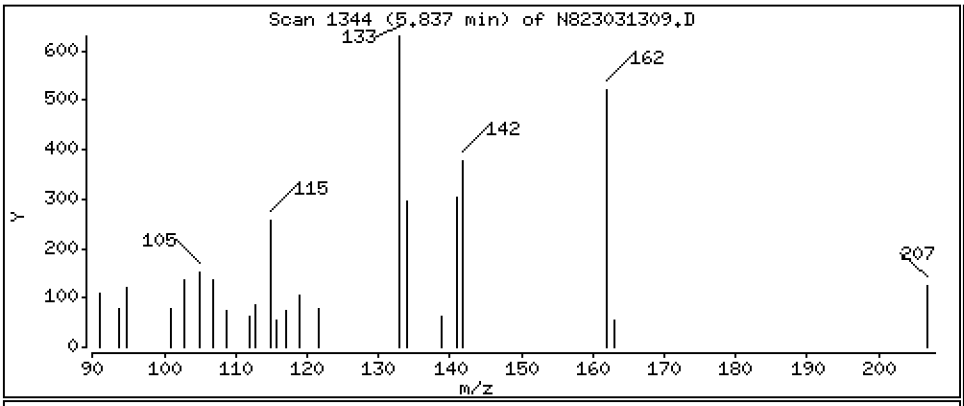
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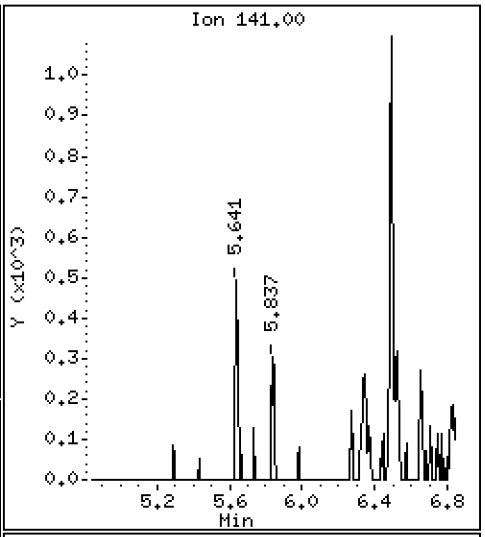
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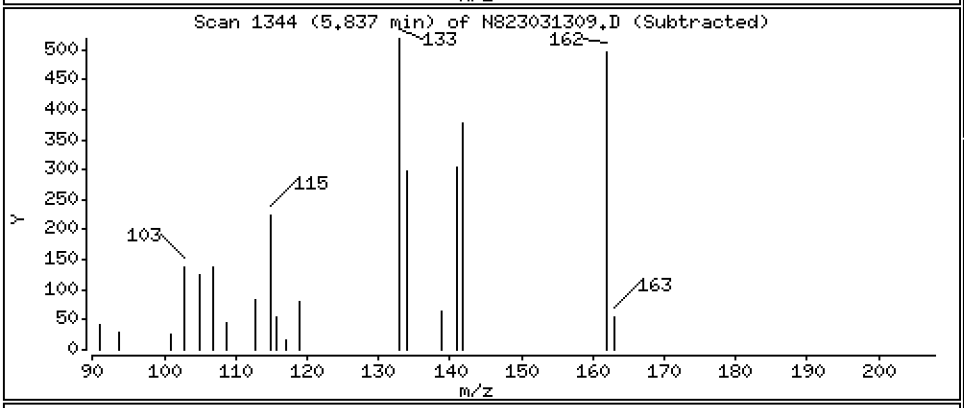
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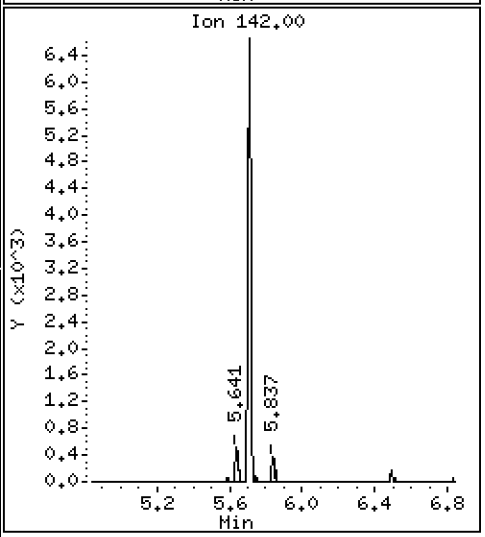
5 1-methylnaphthalene

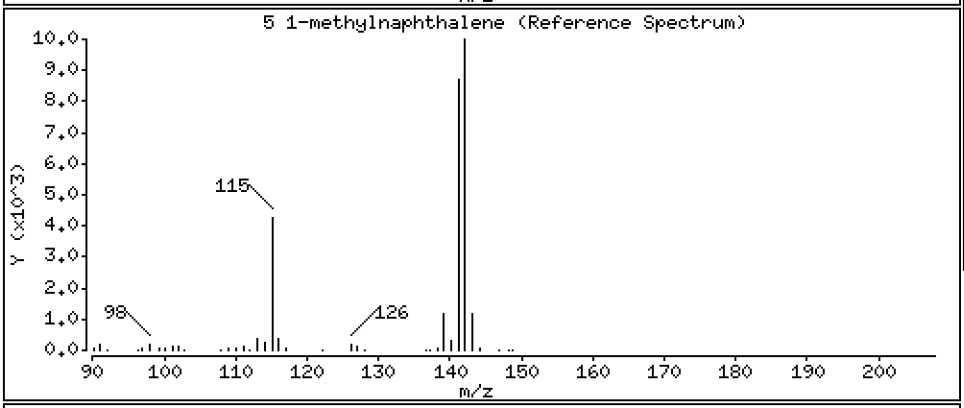
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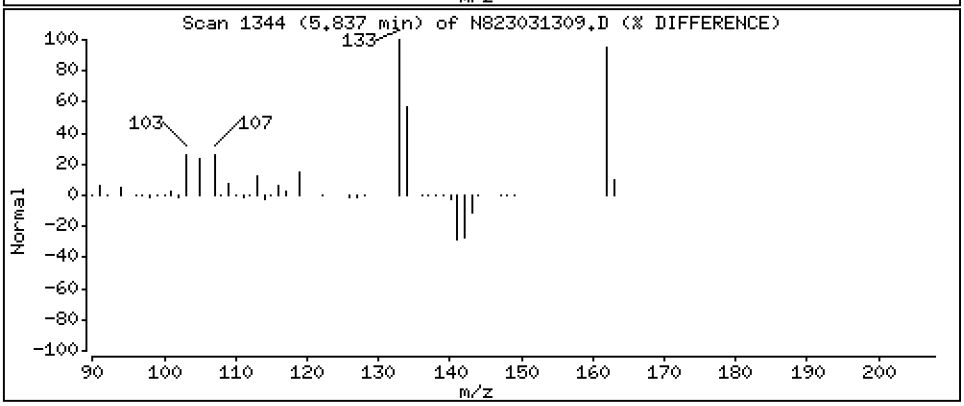












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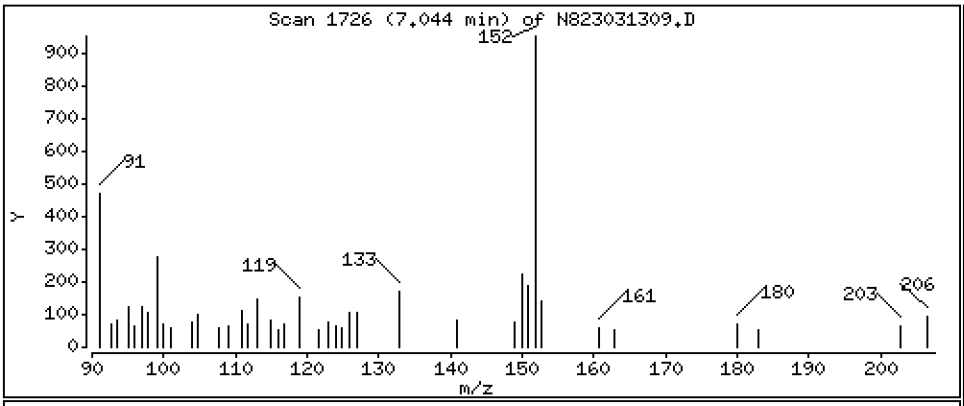
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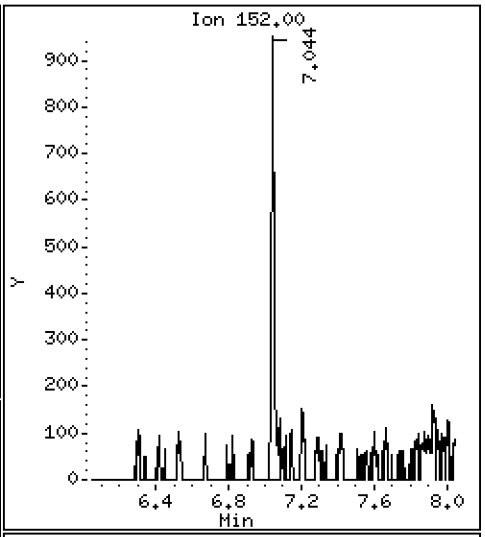
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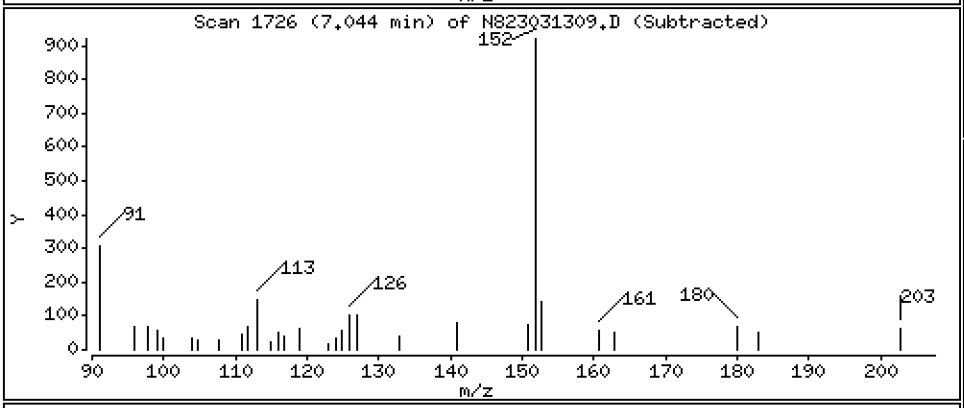
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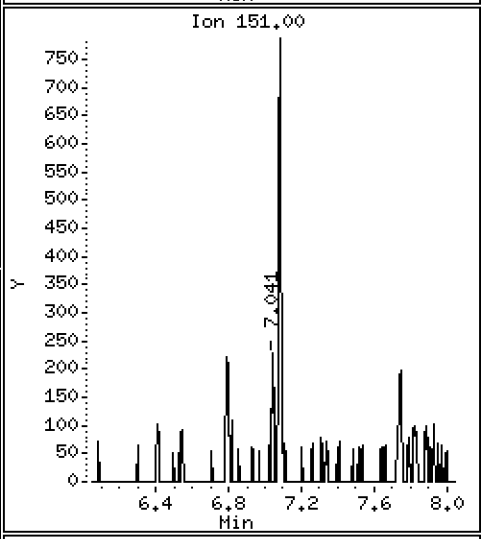
9 Acenaphthylene

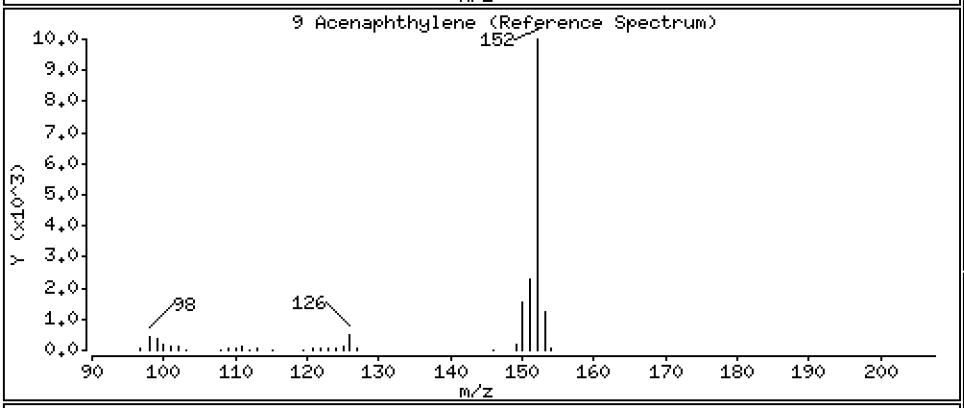
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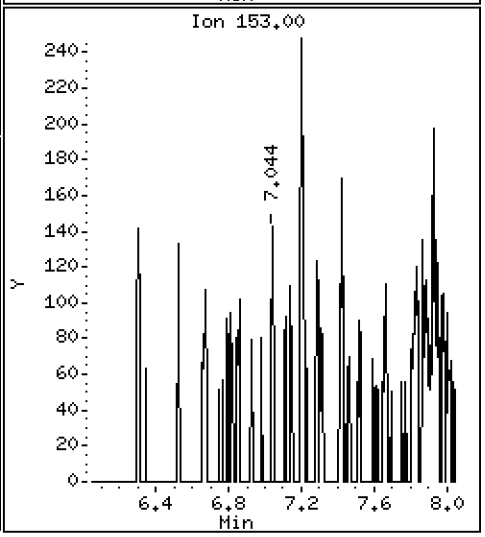


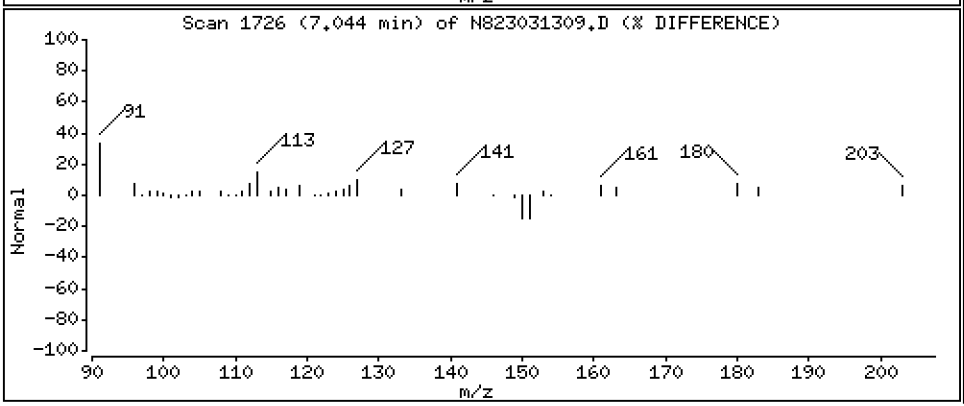












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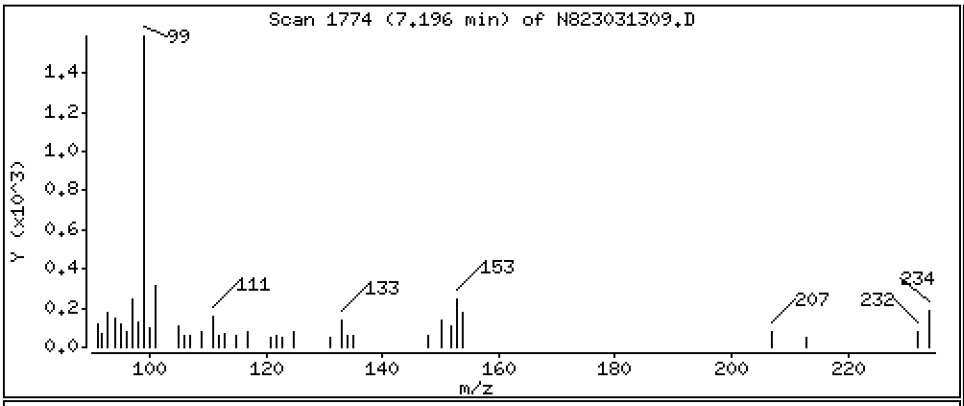
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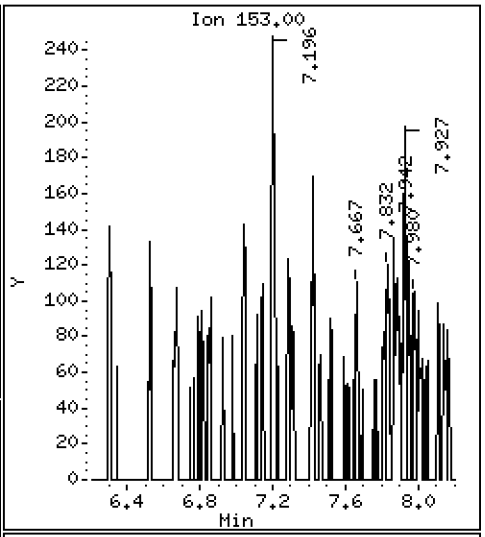
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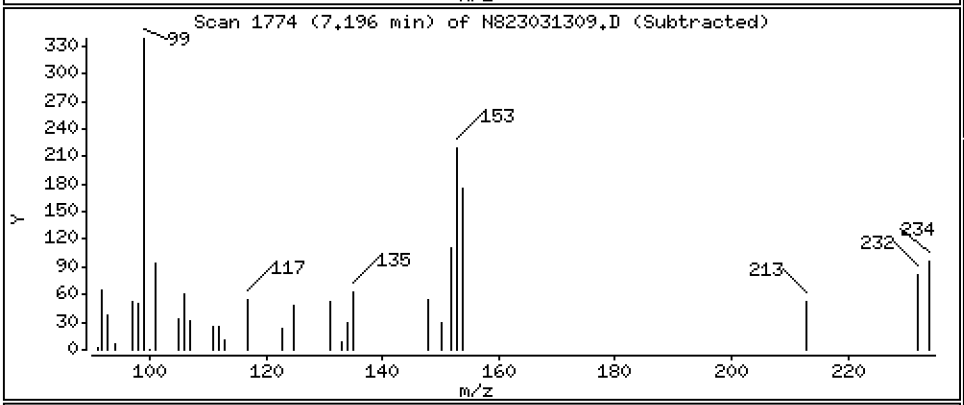
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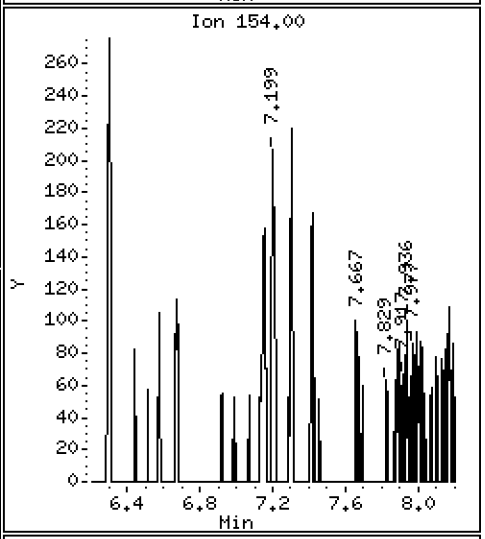
11 Acenaphthene

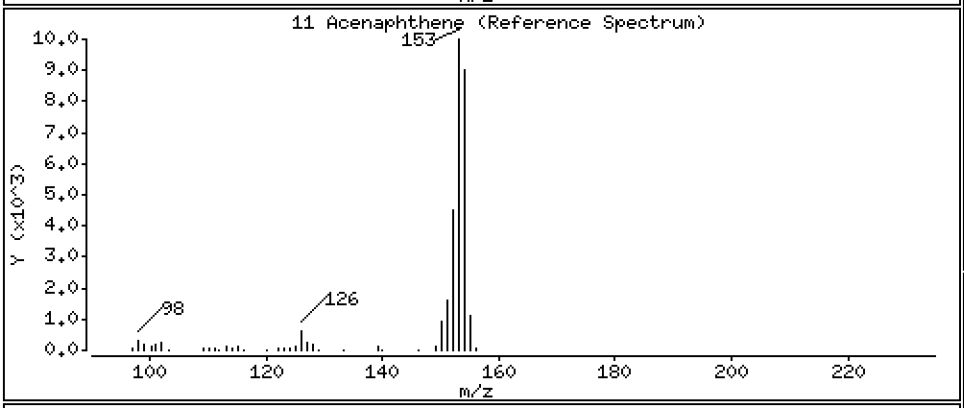
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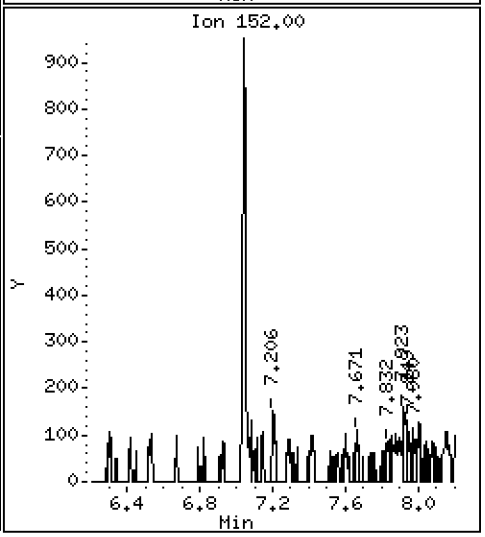


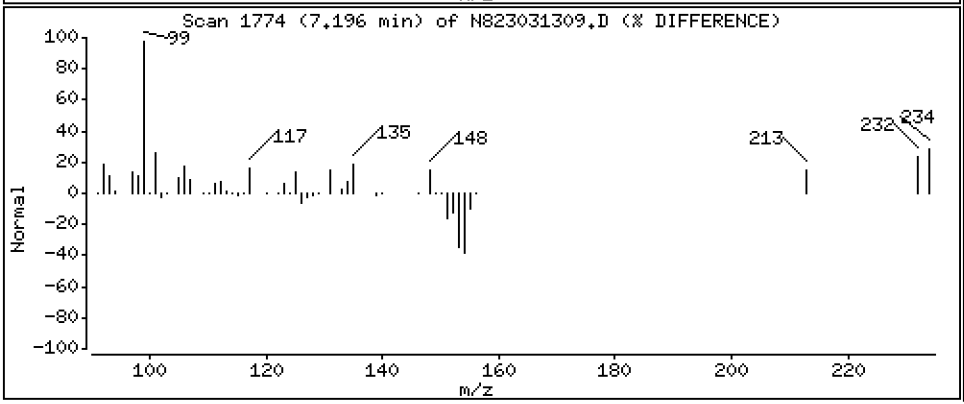












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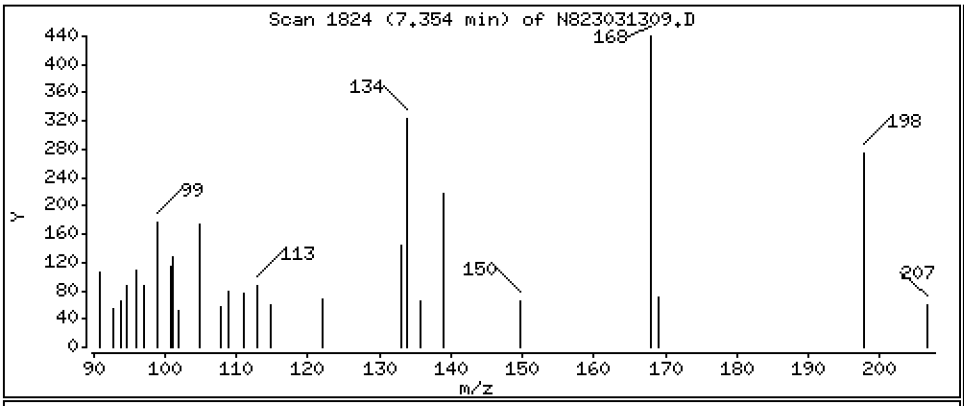
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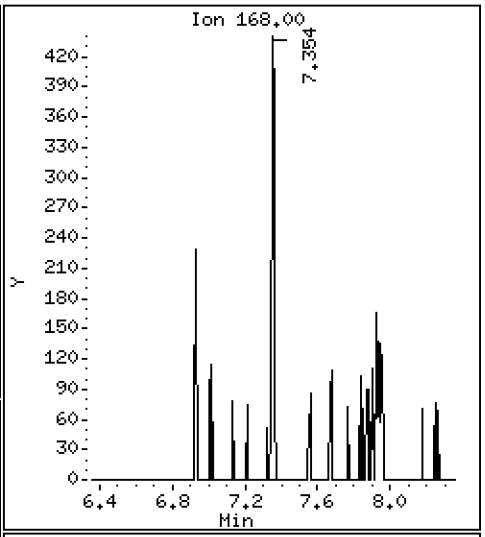
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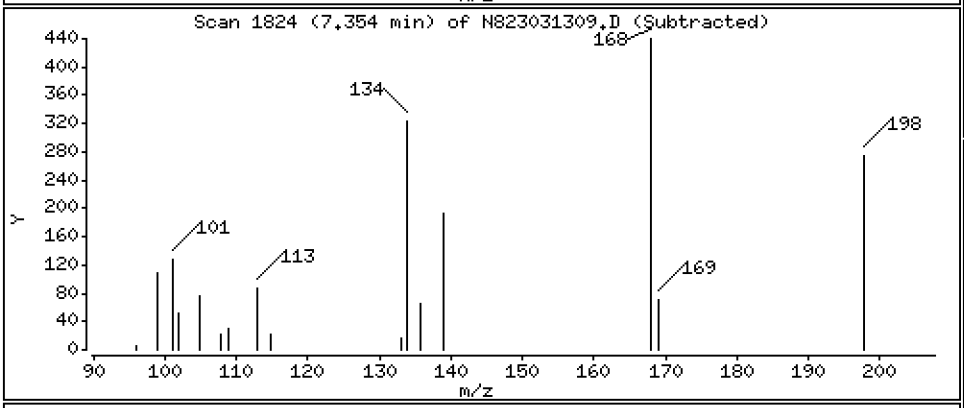
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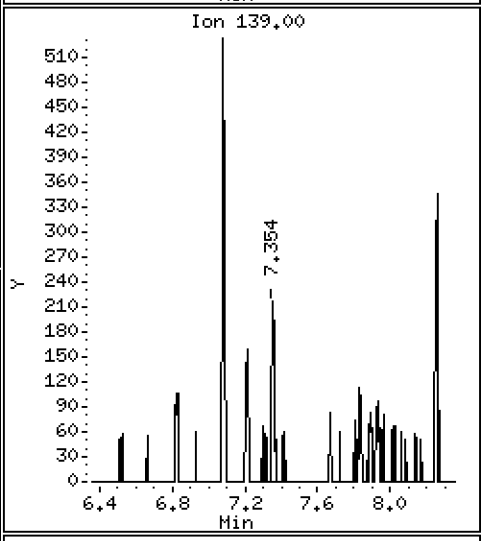
12 Dibenzofuran

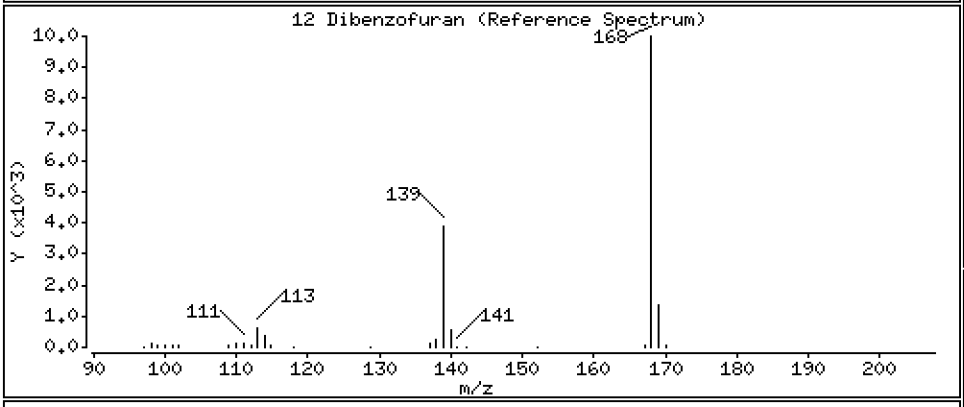
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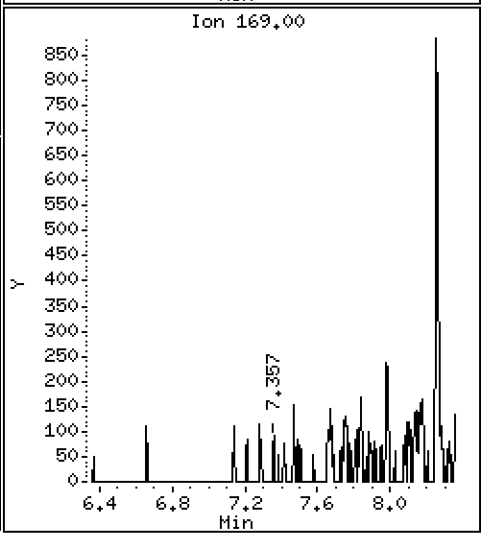


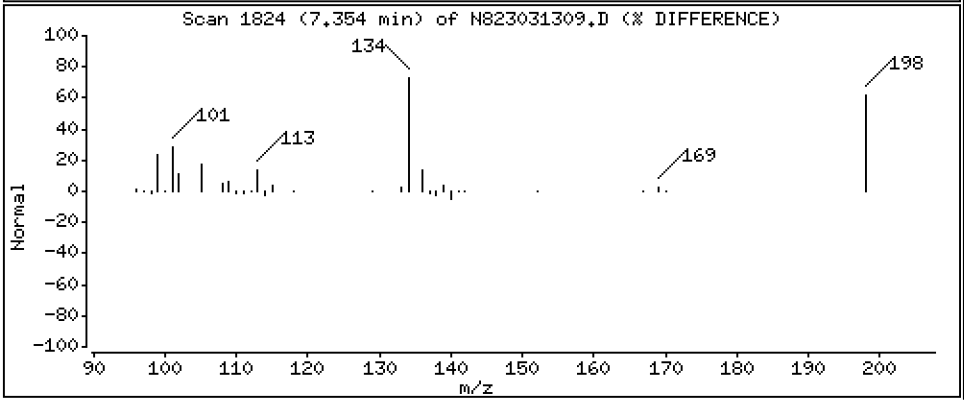












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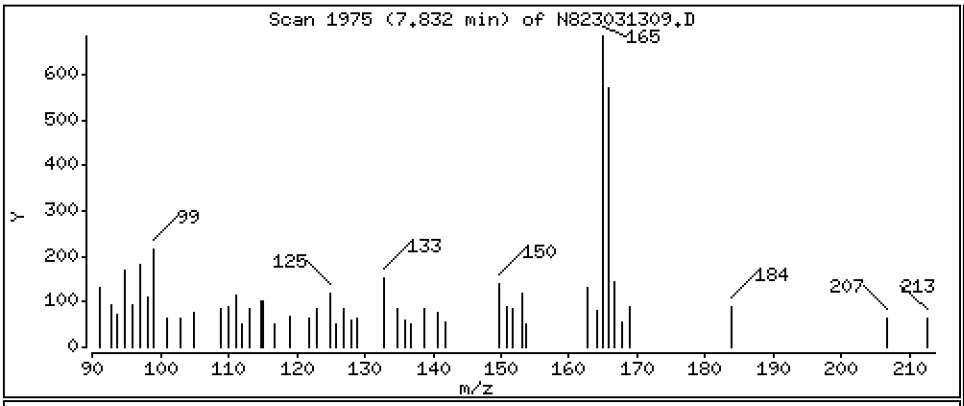
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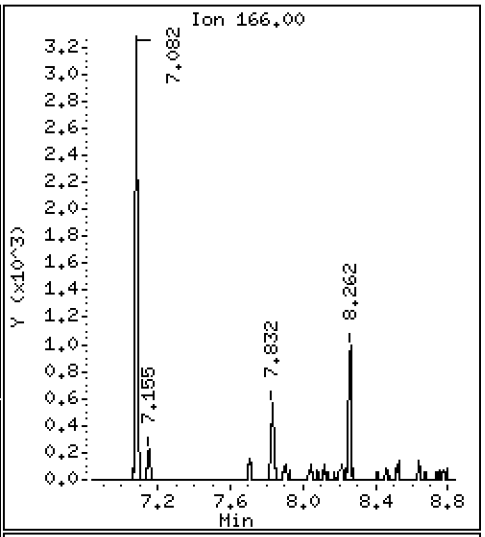
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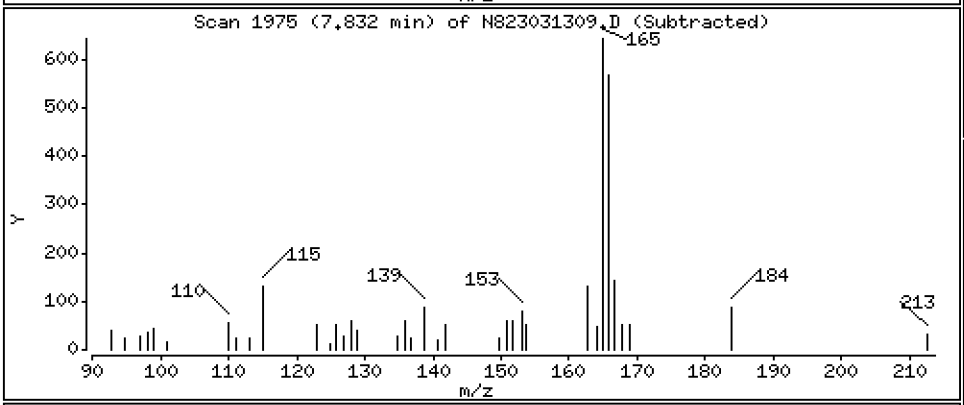
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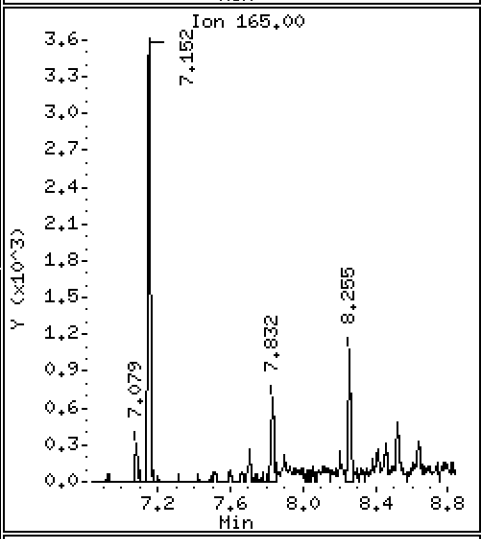
14 Fluorene

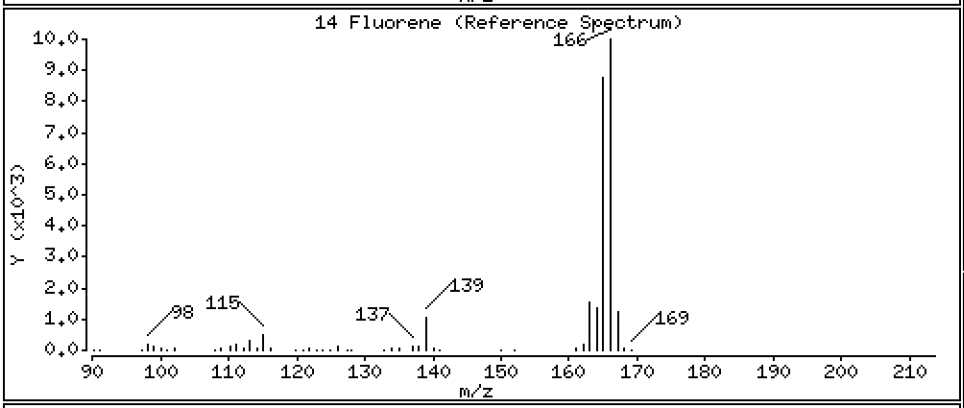
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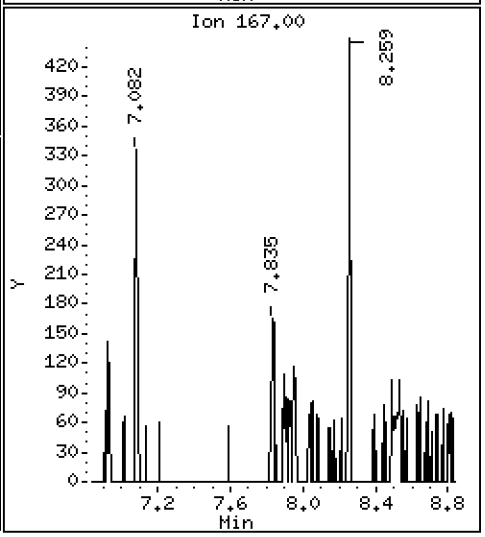


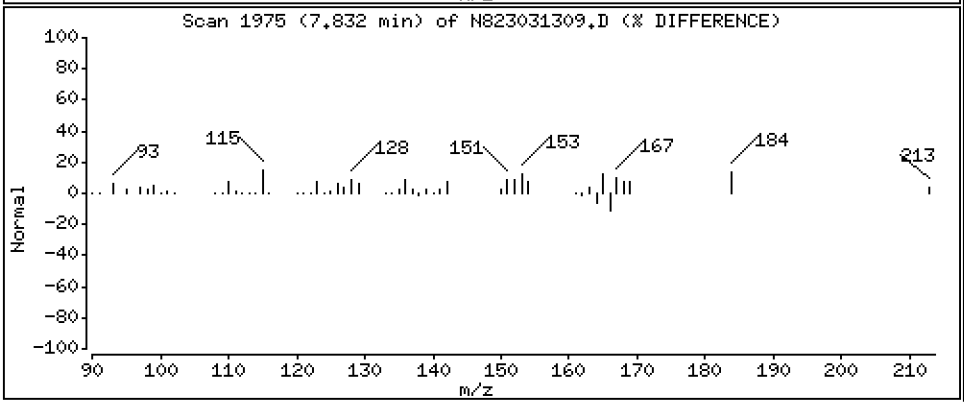












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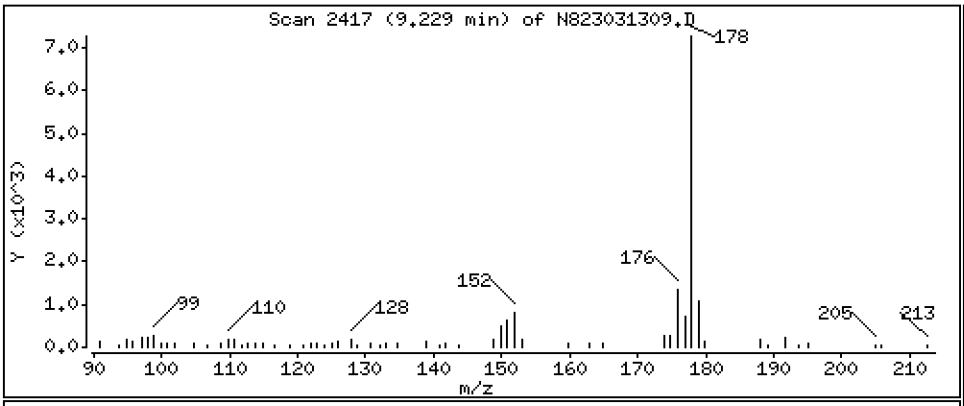
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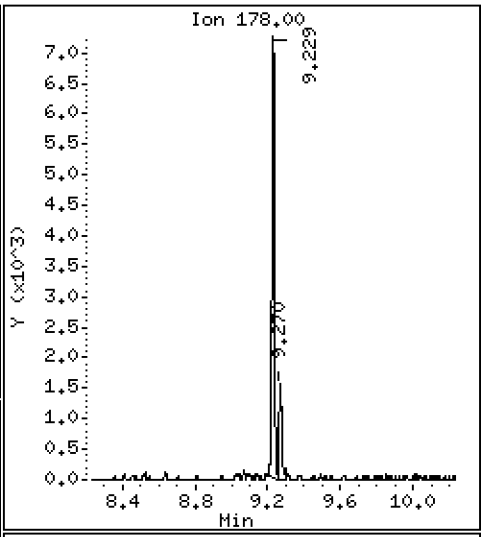
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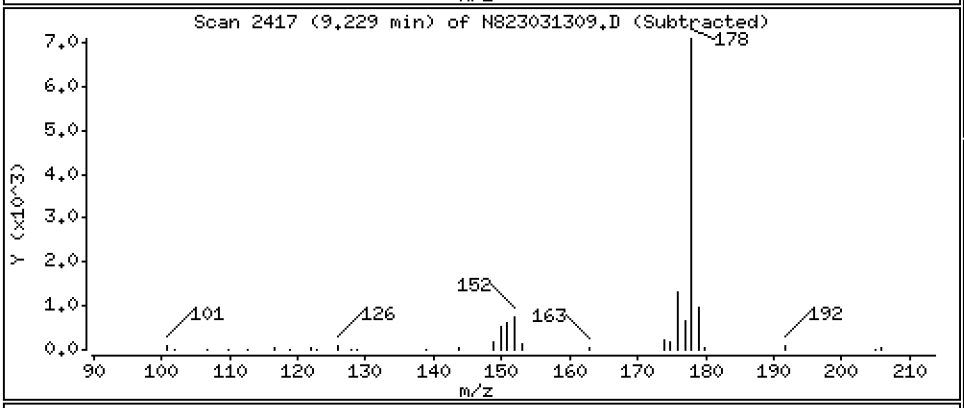
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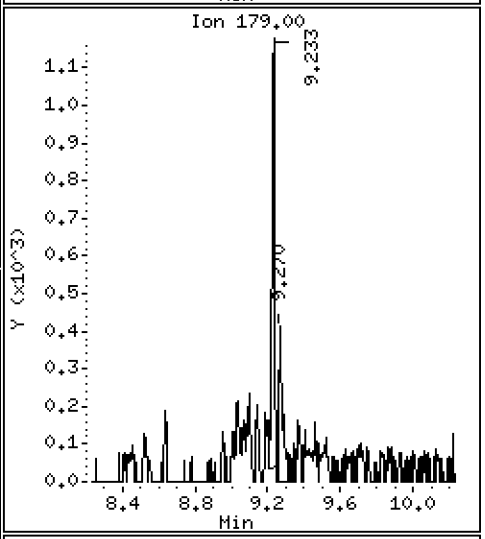
16 Phenanthrene

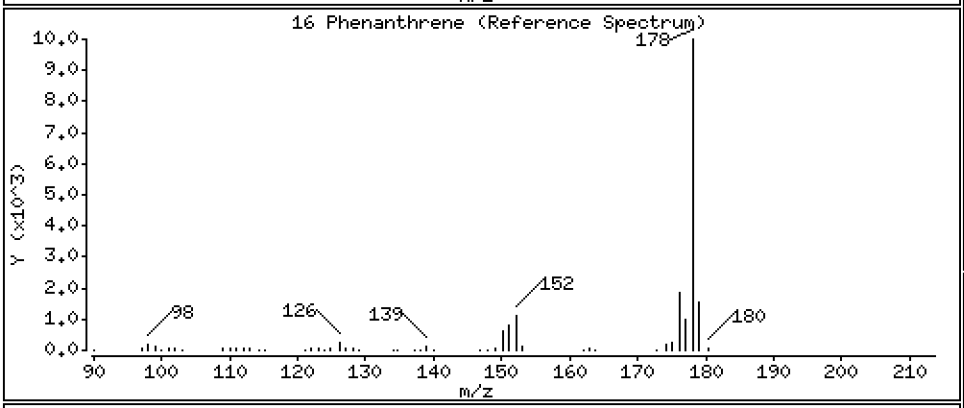
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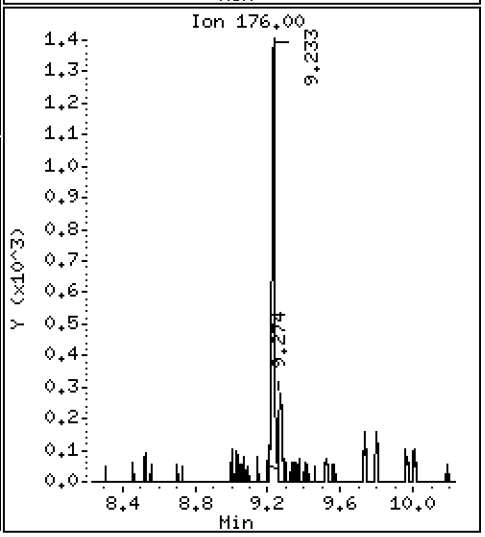


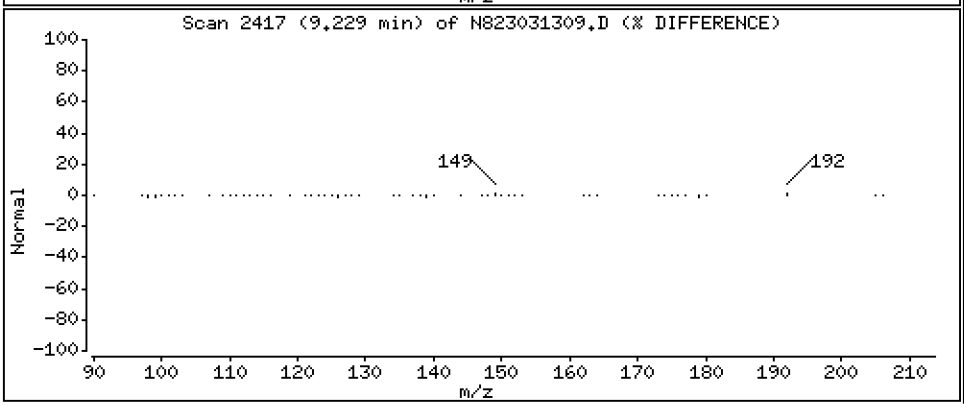












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Instrument: nt8.i

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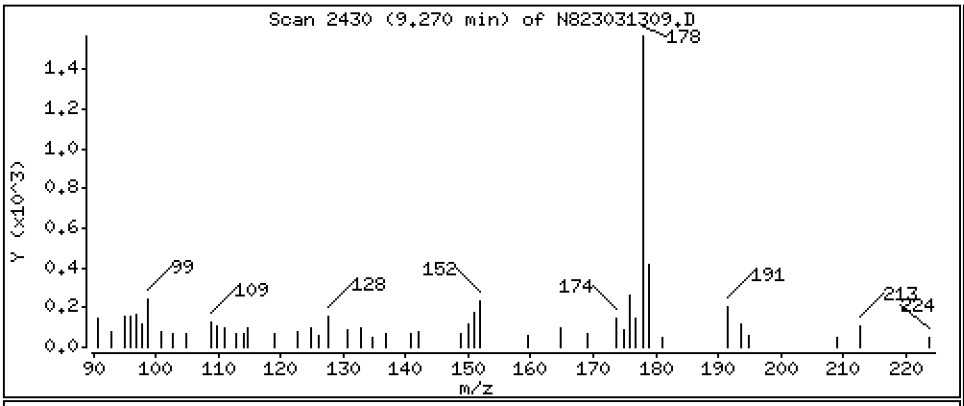
Operator: JZ

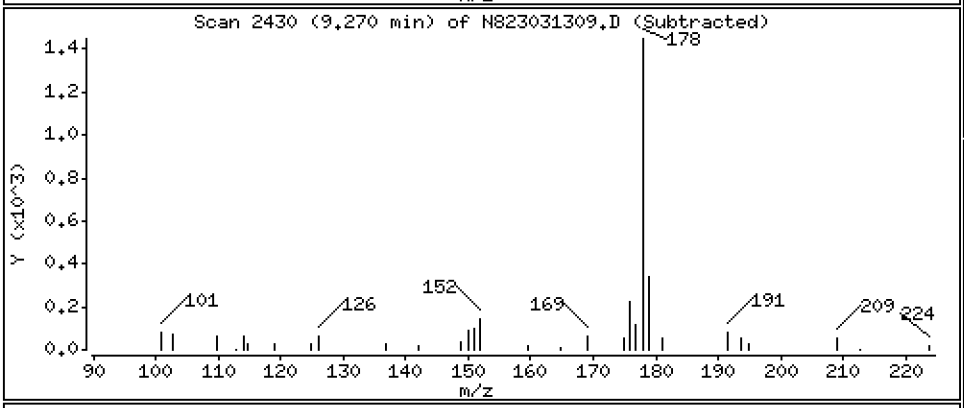
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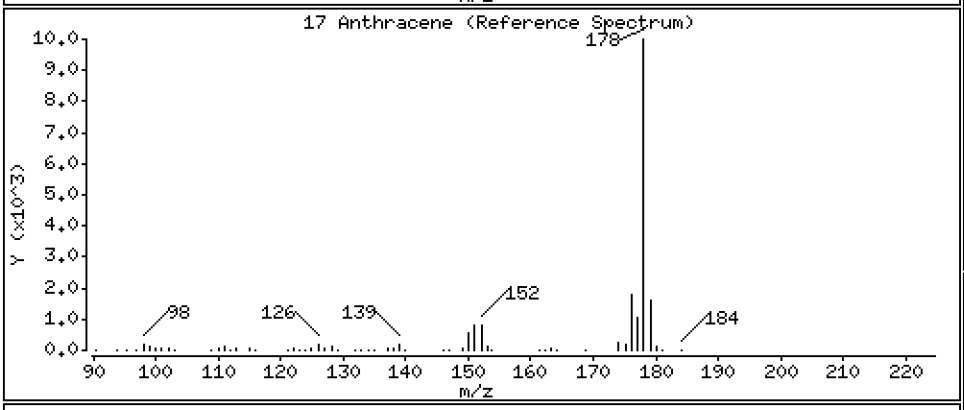
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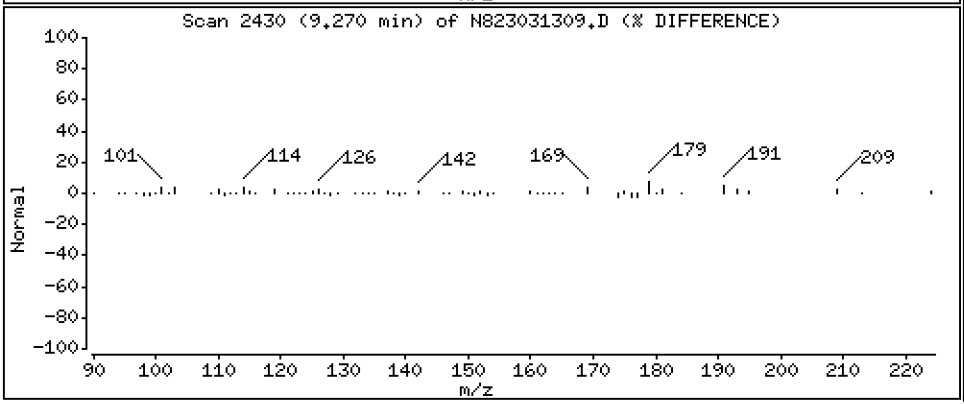
17 Anthracene

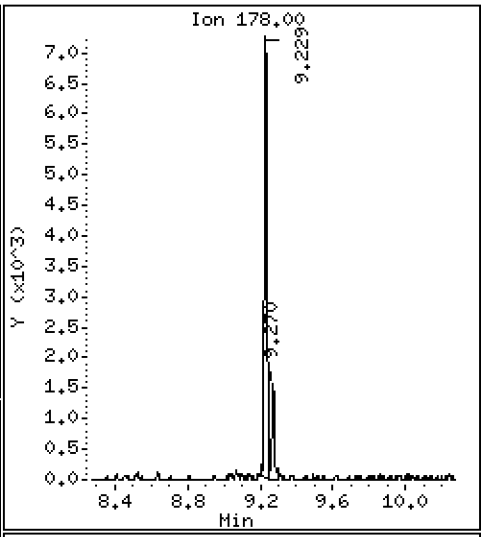
Concentration: 0.07977 ug/mL

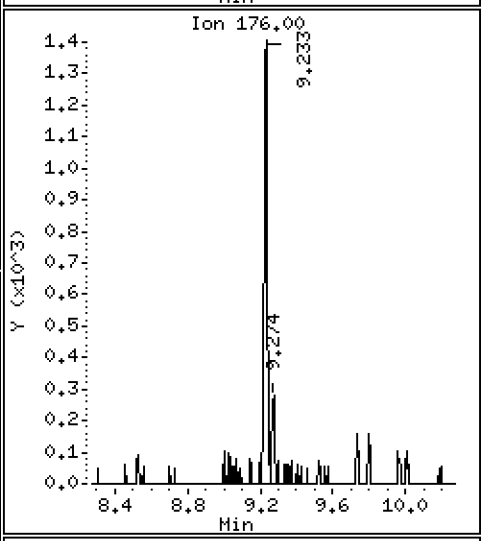


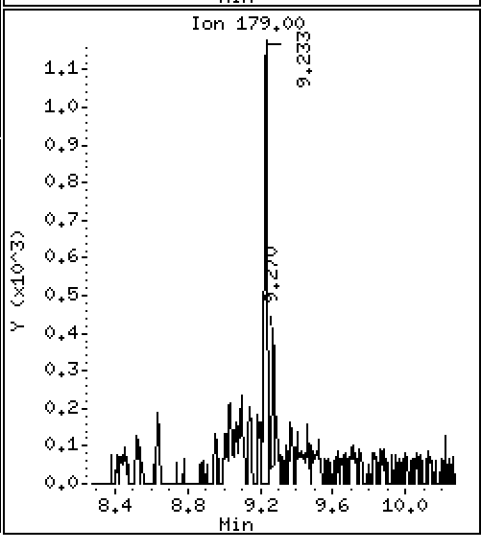












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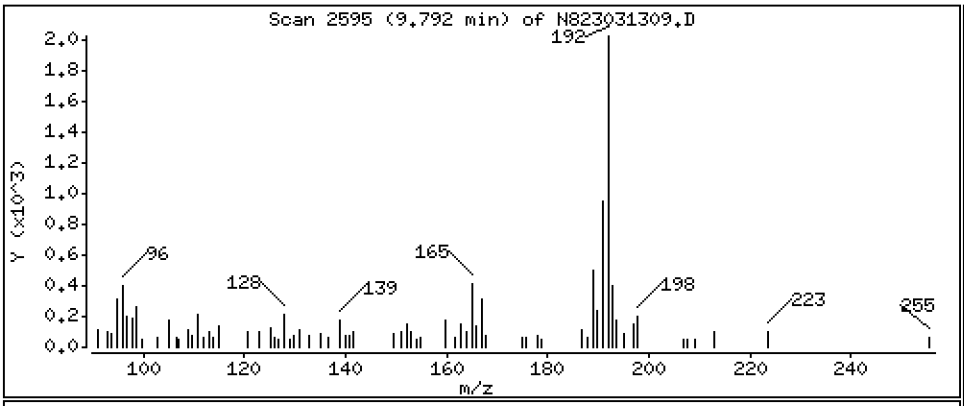
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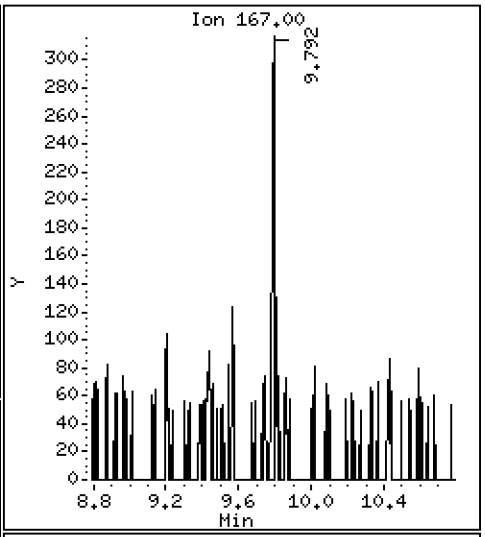
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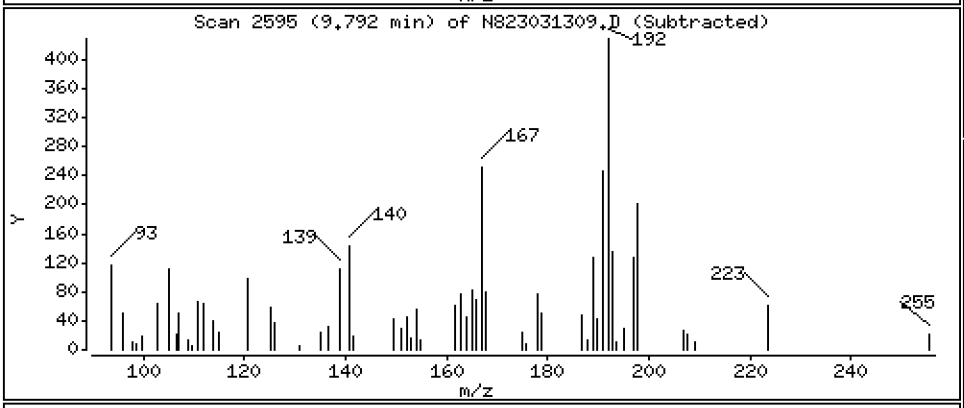
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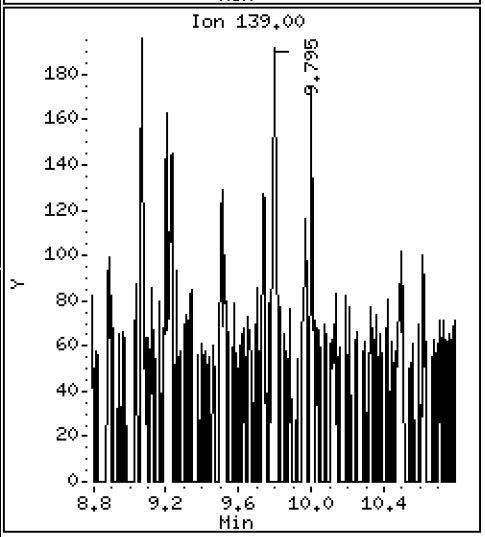
19 Carbazole

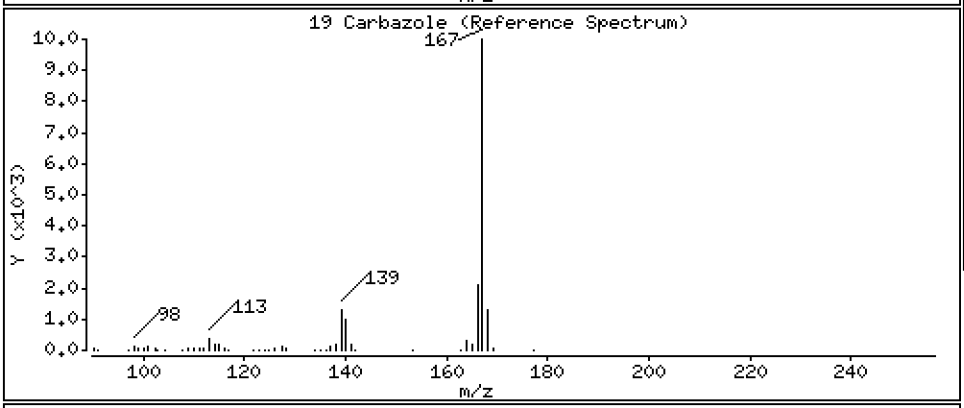
Concentration: 0.01678 ug/mL

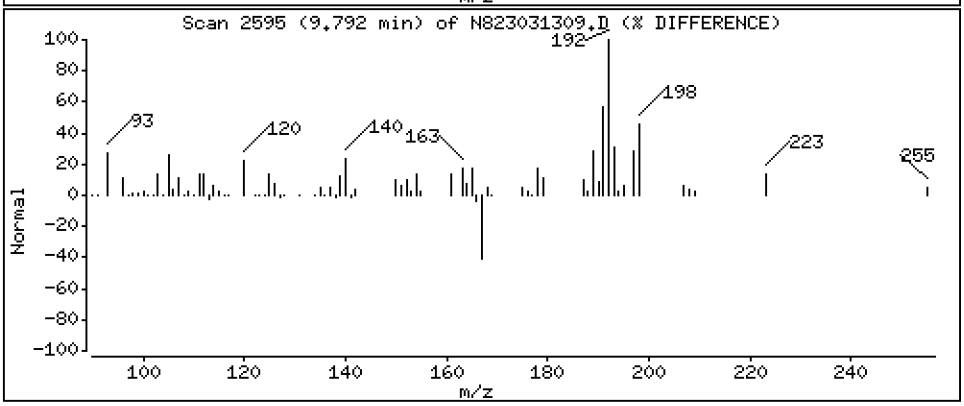












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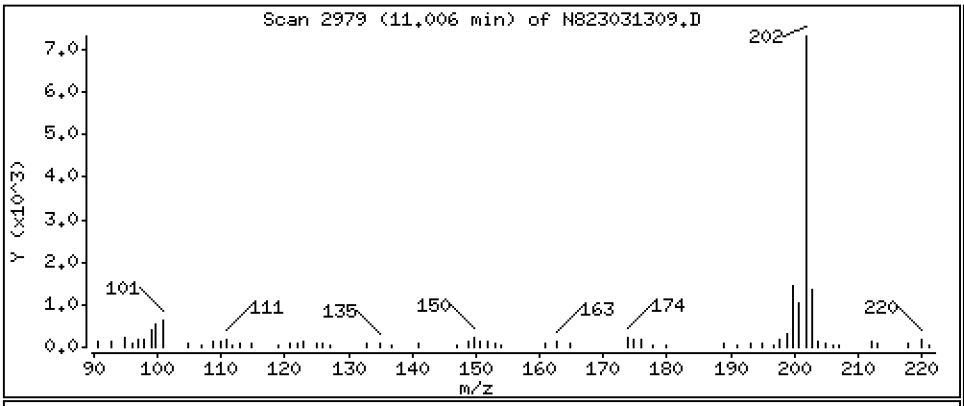
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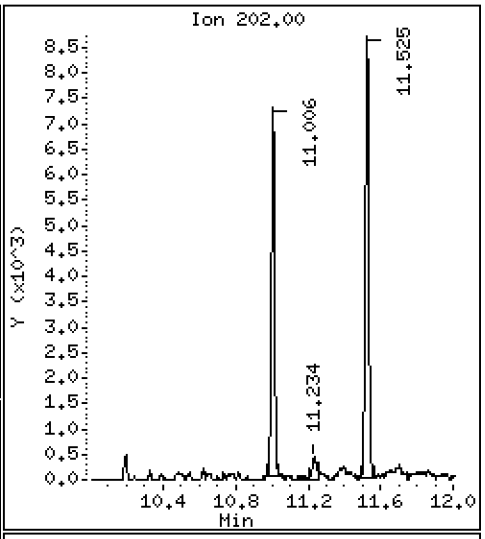
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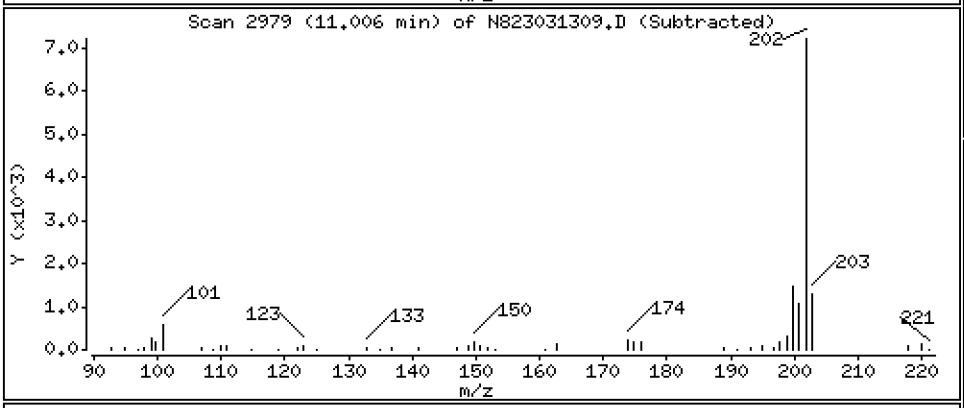
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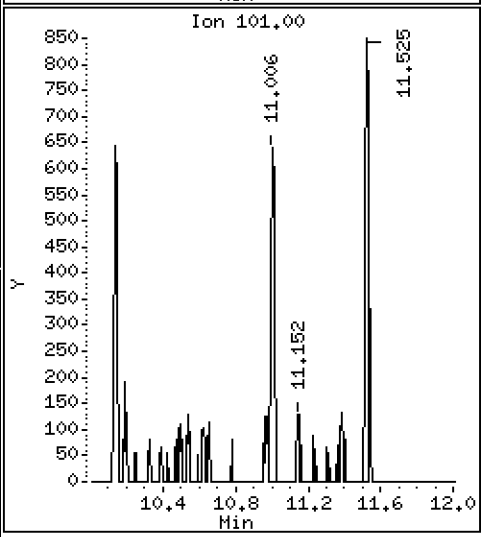
22 Fluoranthene

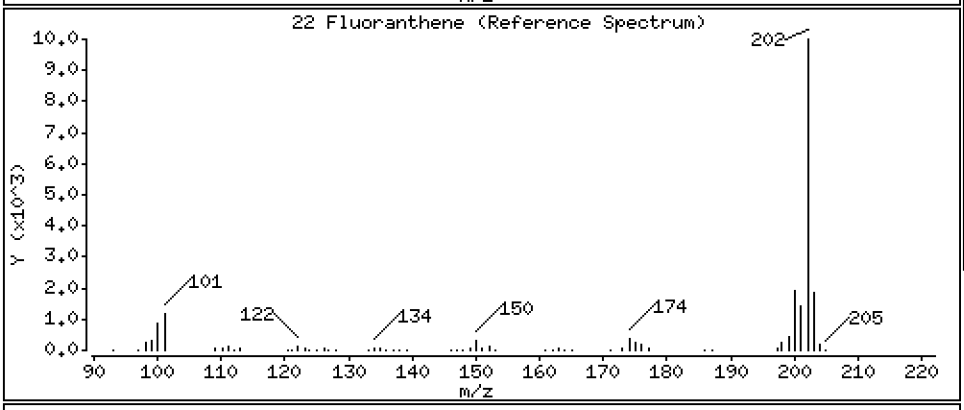
Concentration: 0.3433 ug/mL

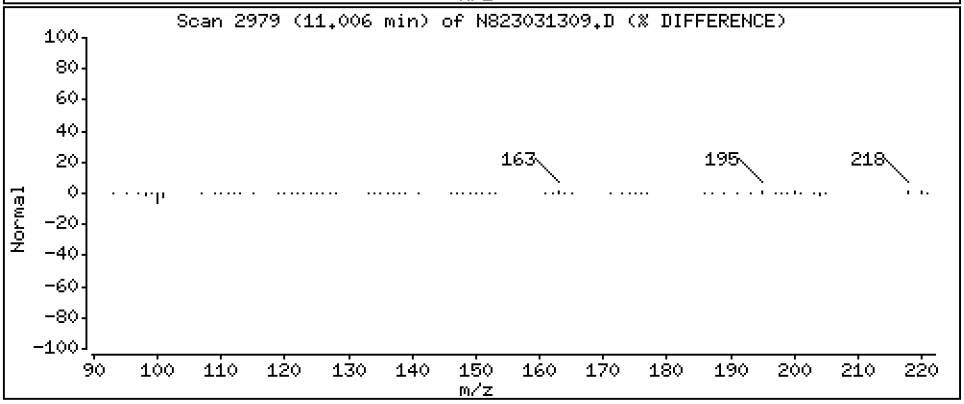












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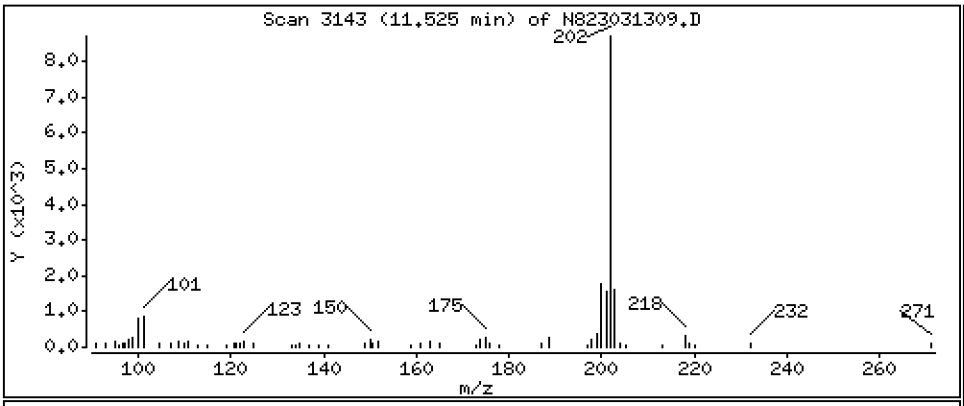
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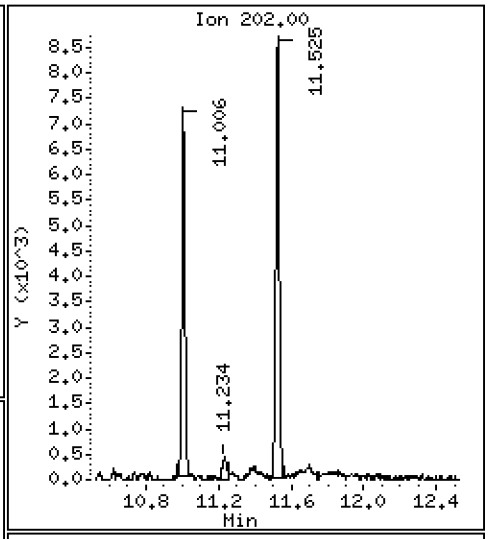
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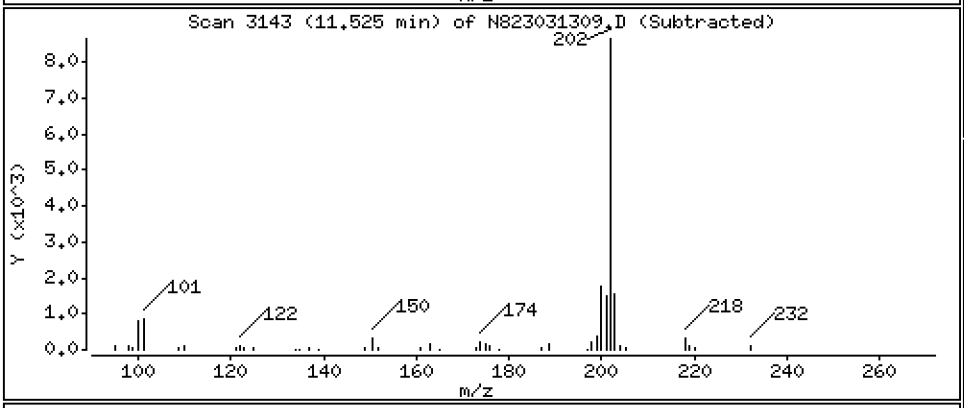
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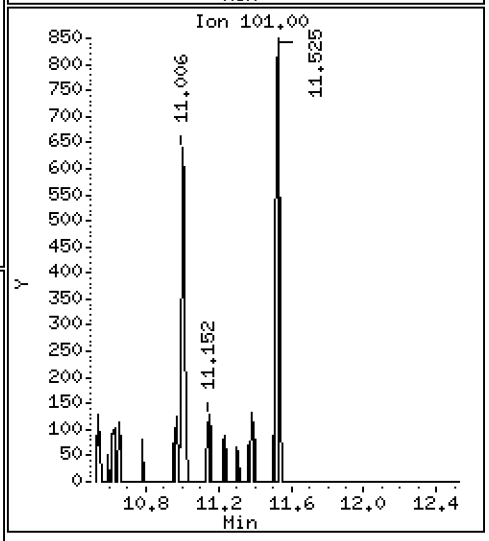
23 Pyrene

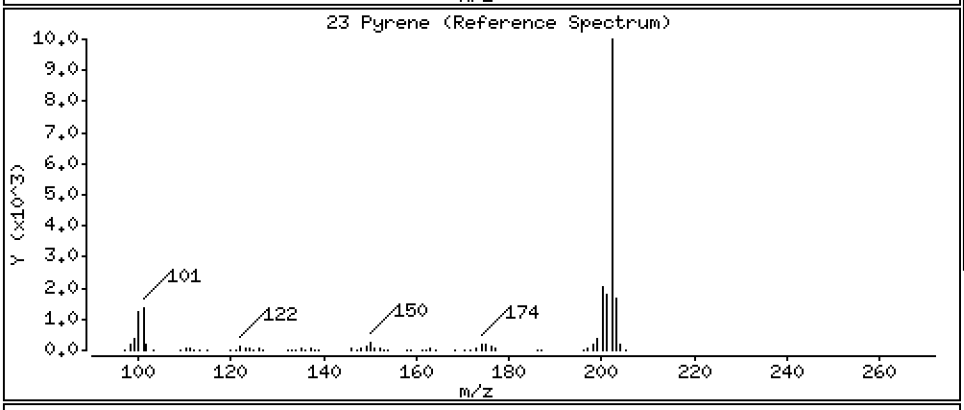
Concentration: 0.4821 ug/mL

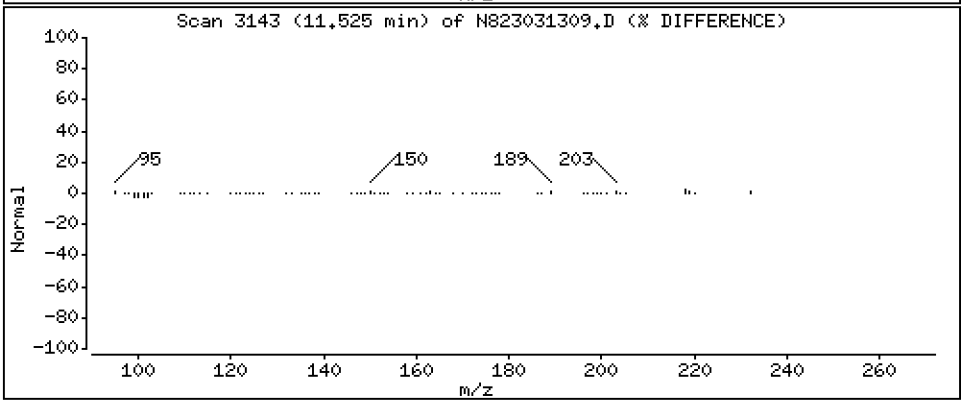












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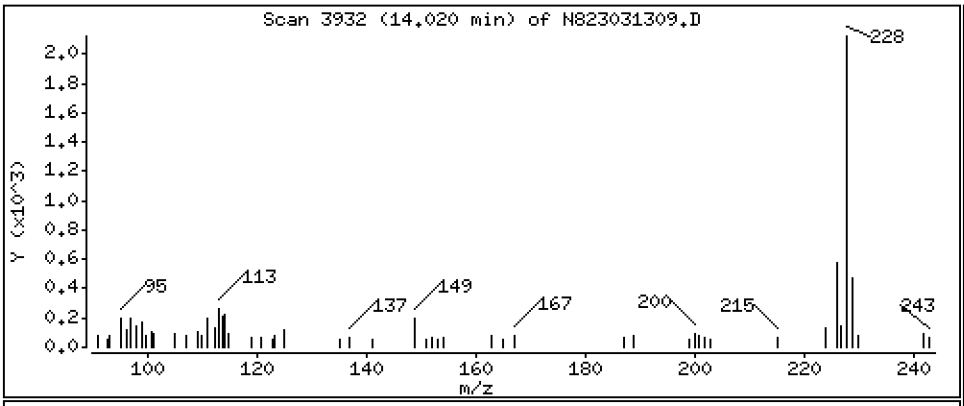
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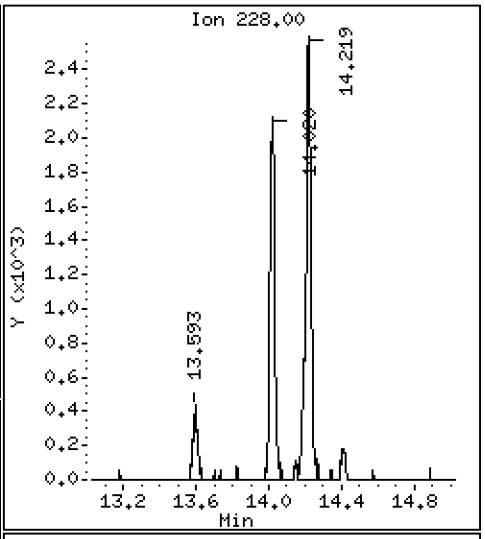
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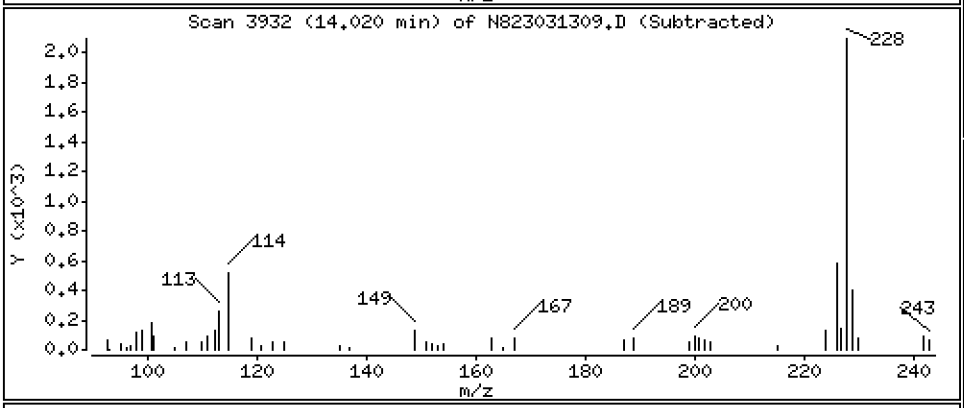
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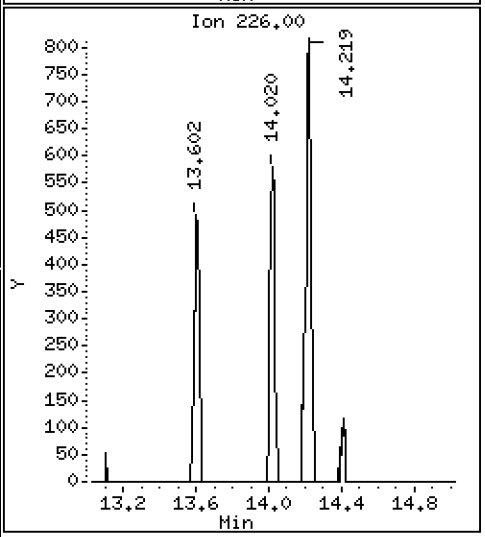
24 Benzo(a)anthracene

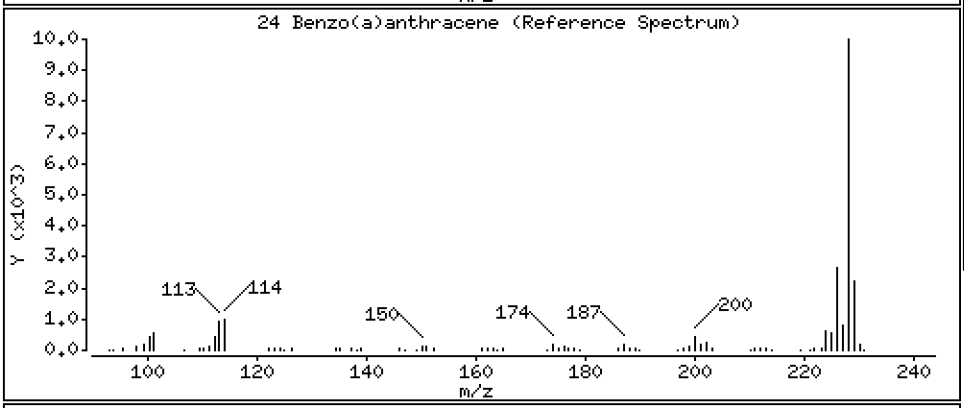
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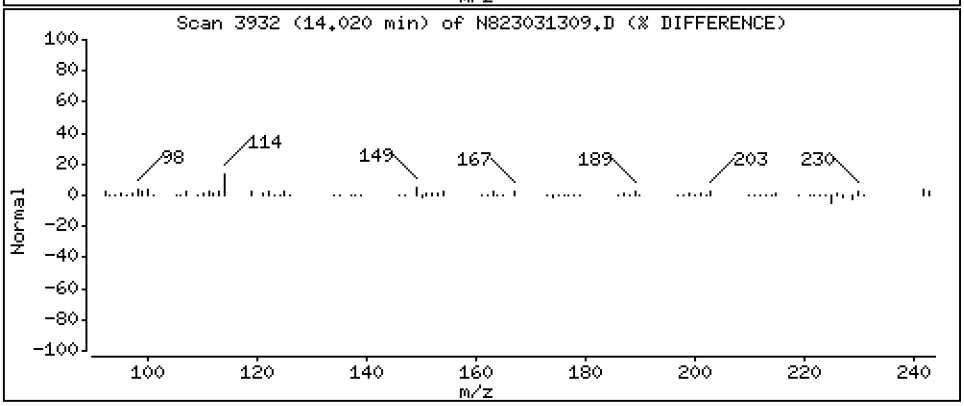












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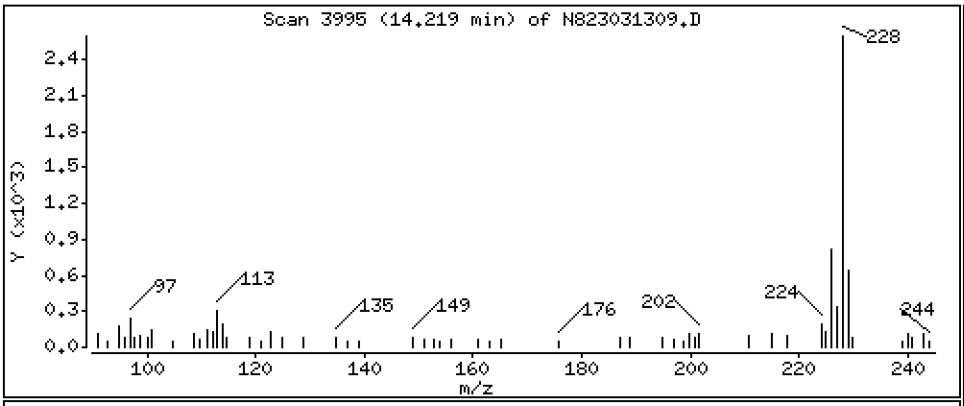
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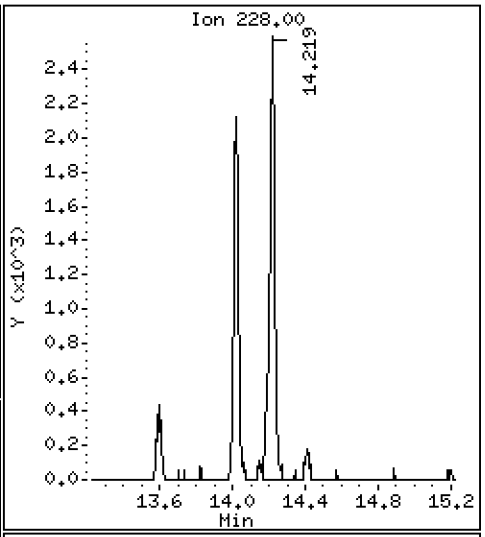
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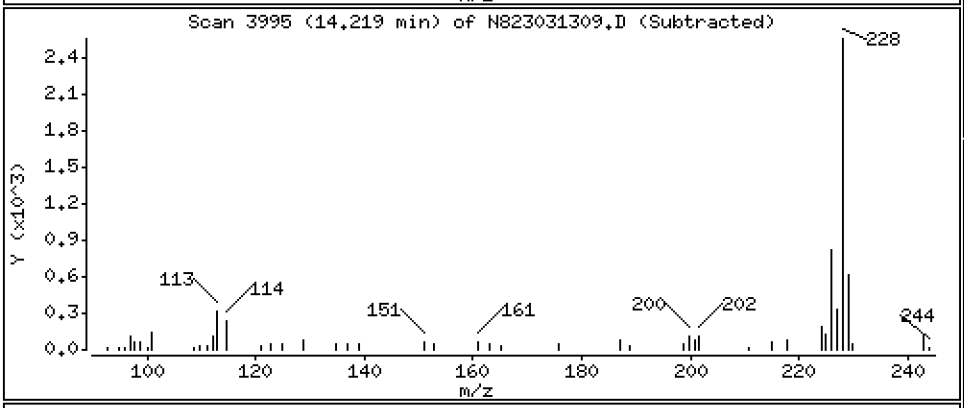
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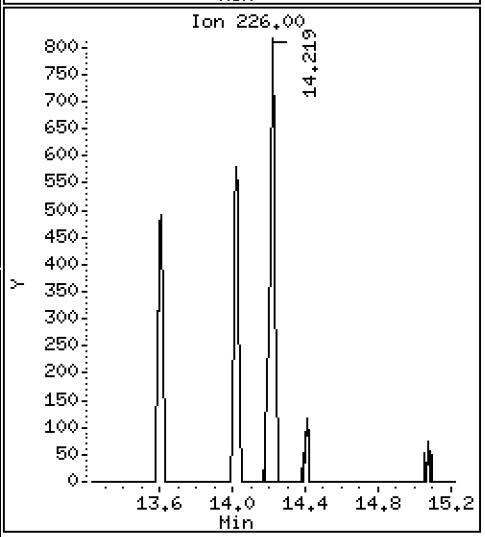
27 Chrysene

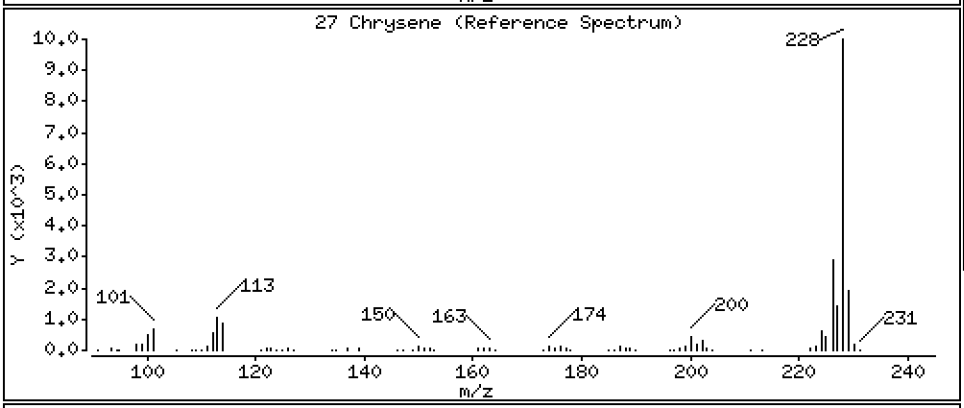
Concentration: 0.2286 ug/mL

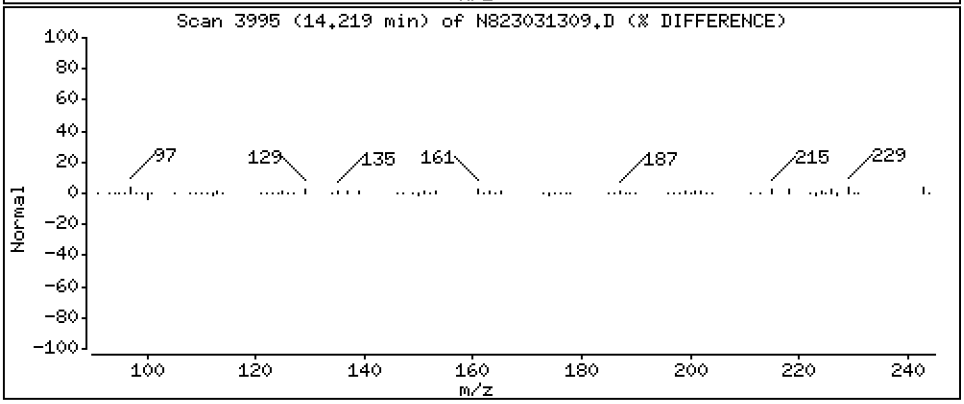












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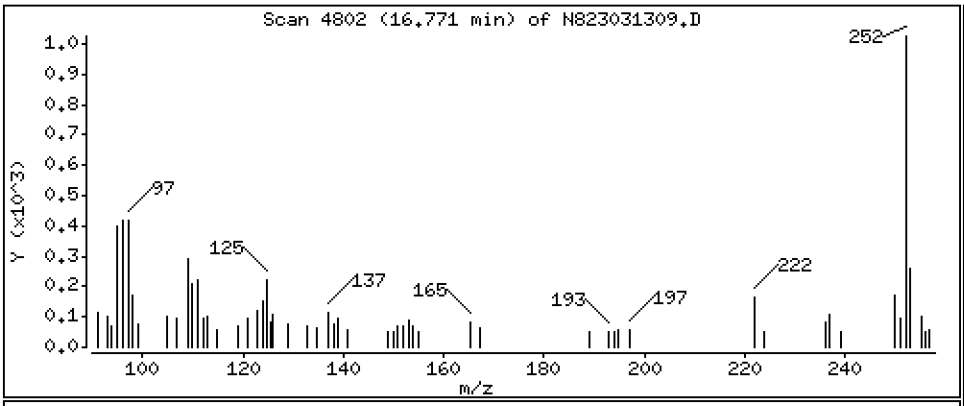
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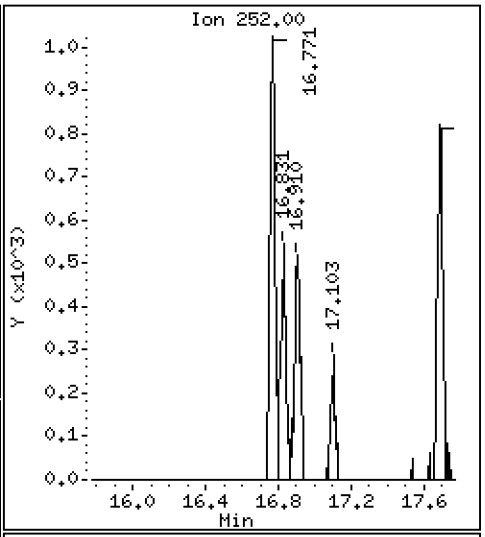
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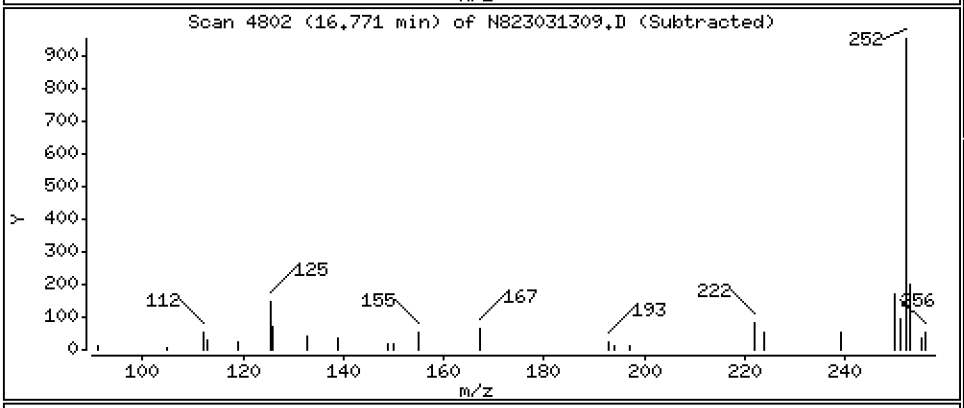
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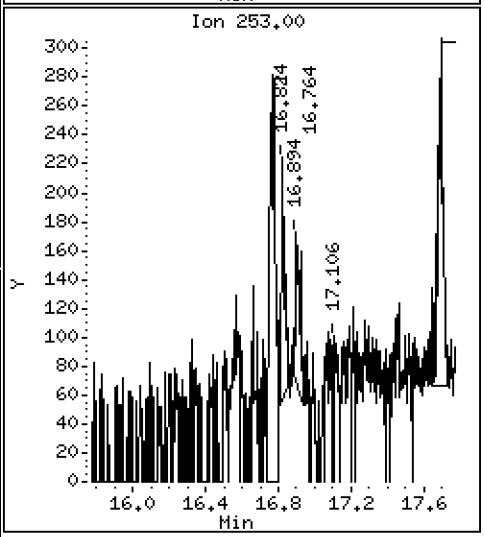
28 Benzo(b)fluoranthene

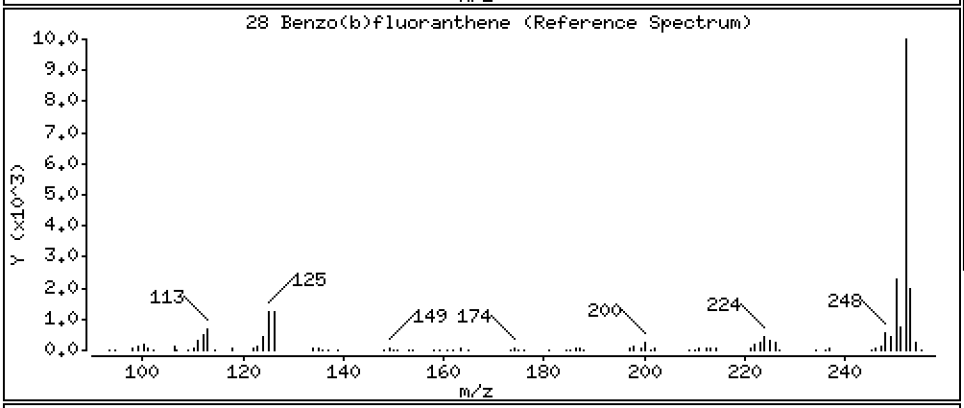
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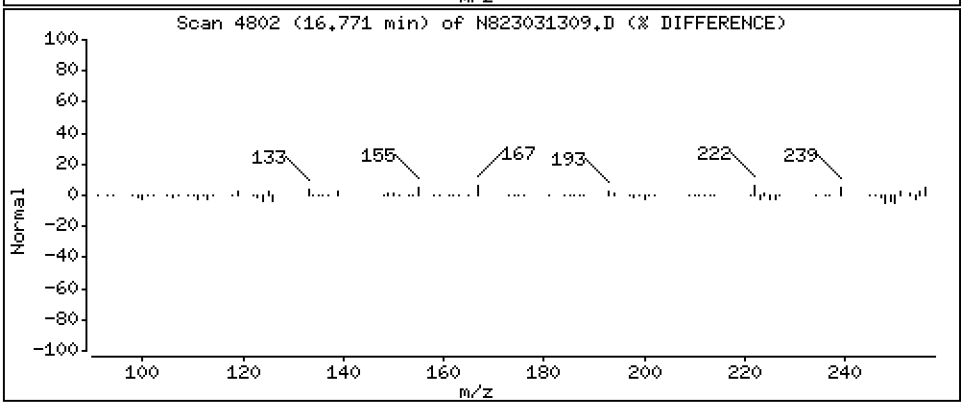












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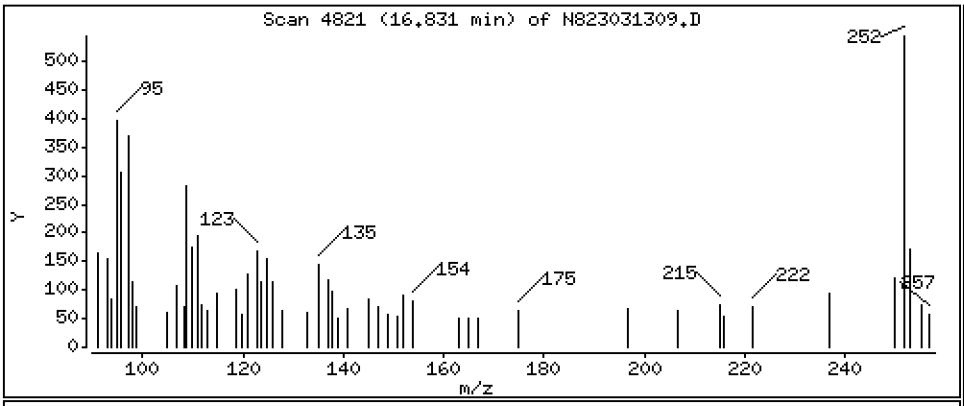
Operator: JZ

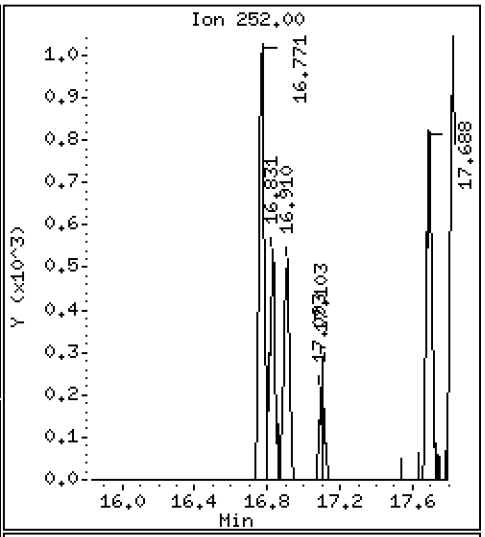
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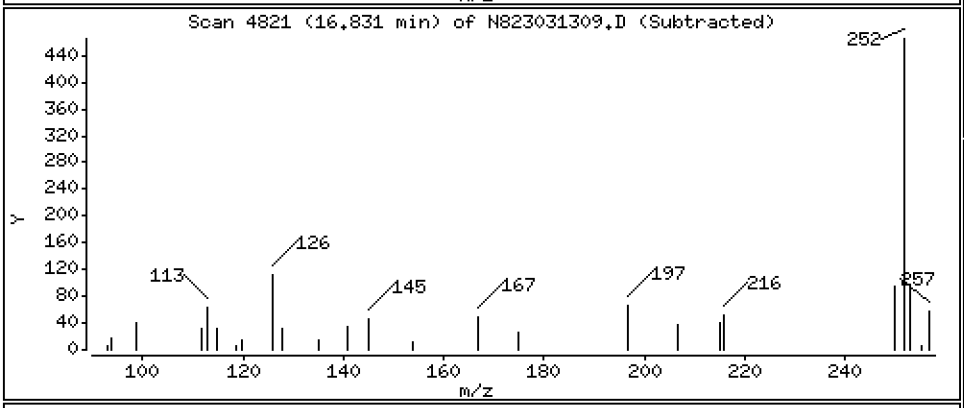
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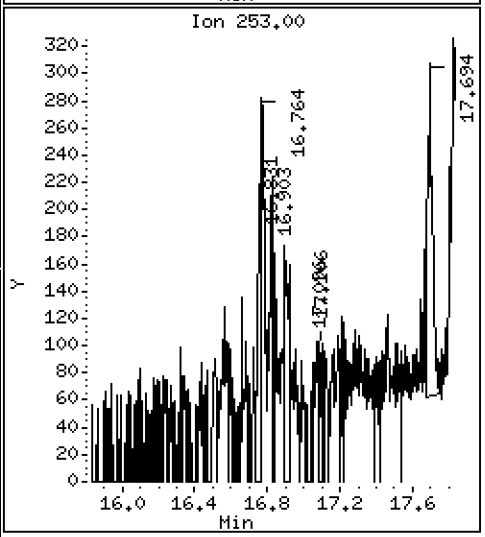
29 Benzo(k)fluoranthene

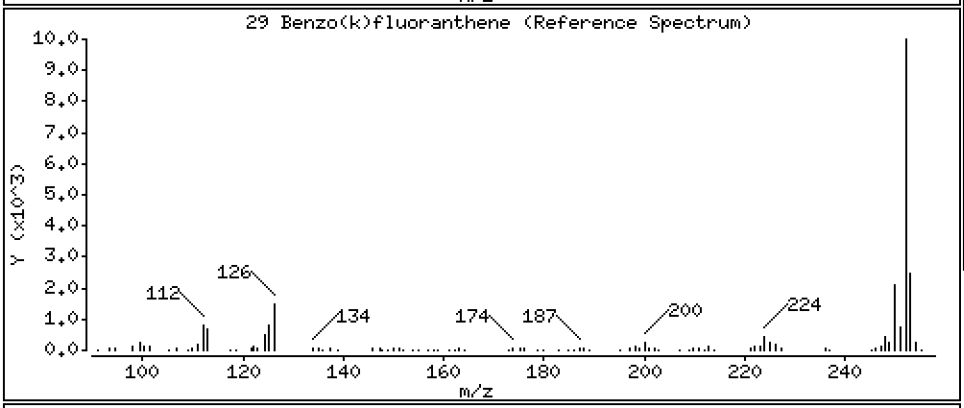
Concentration: 0.05827 ug/mL

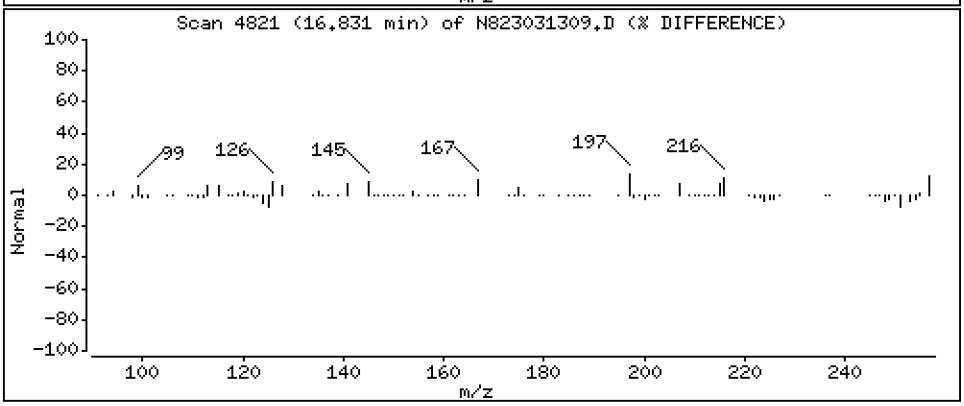












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Date : 13-MAR-2023 16:47

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-02

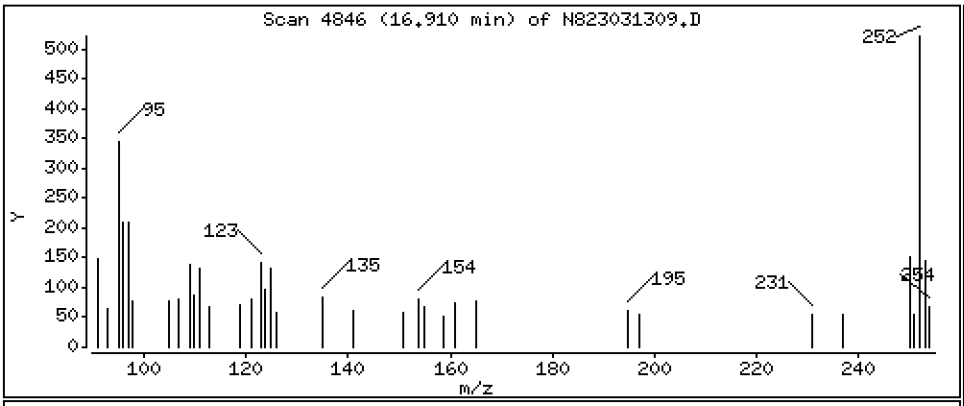
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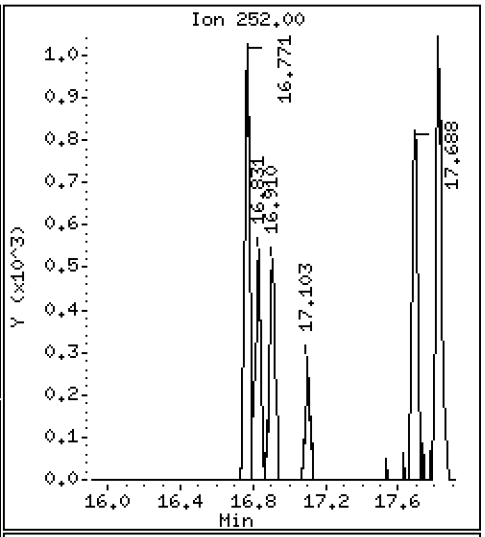
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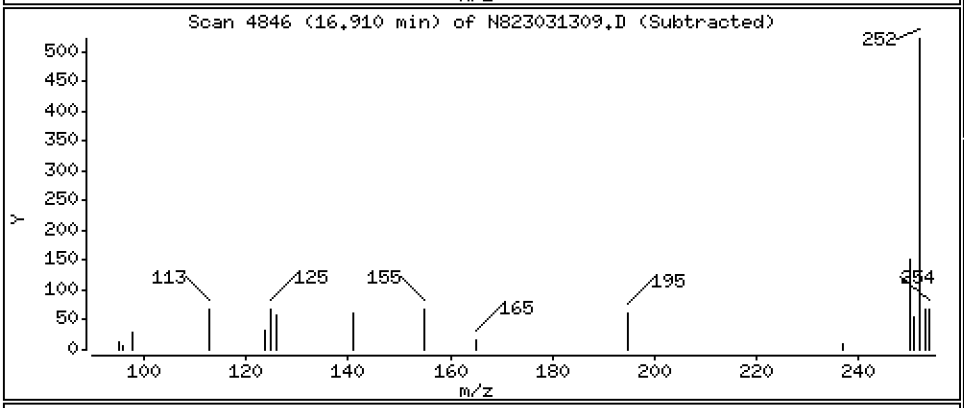
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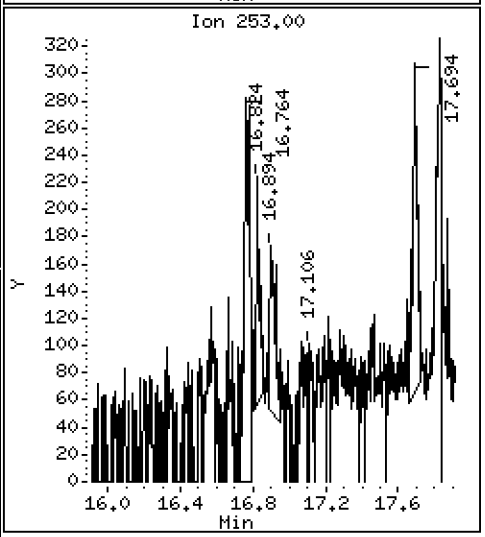
30 Benzo(j)fluoranthene

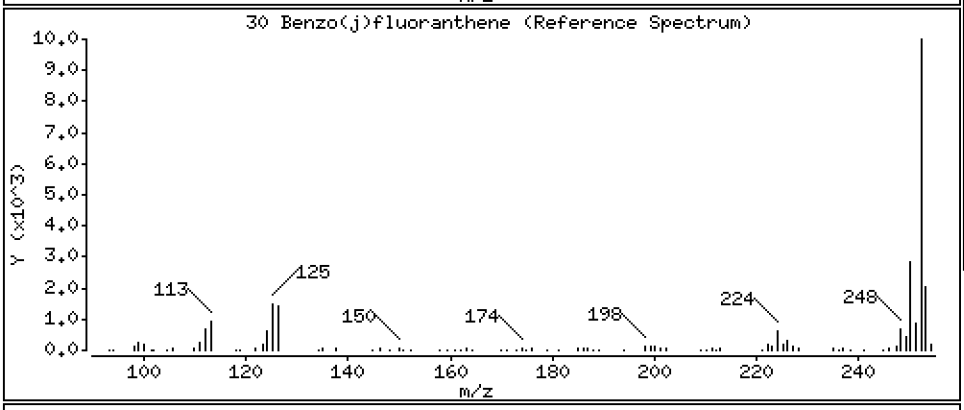
Concentration: 0.06729 ug/mL

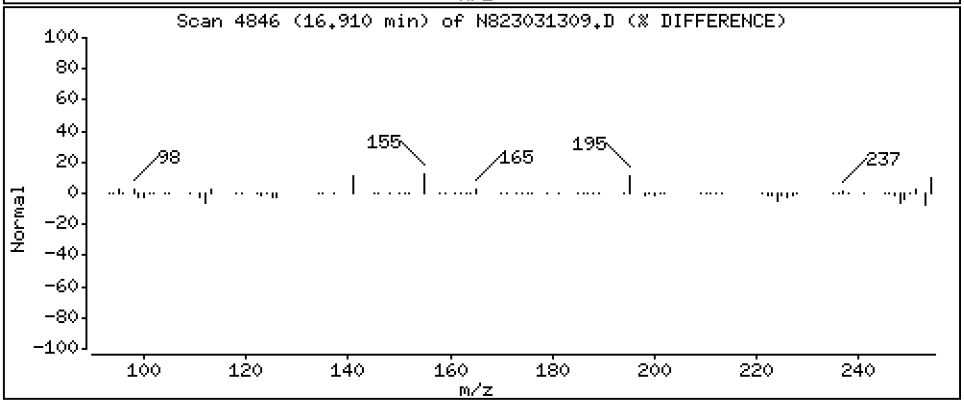












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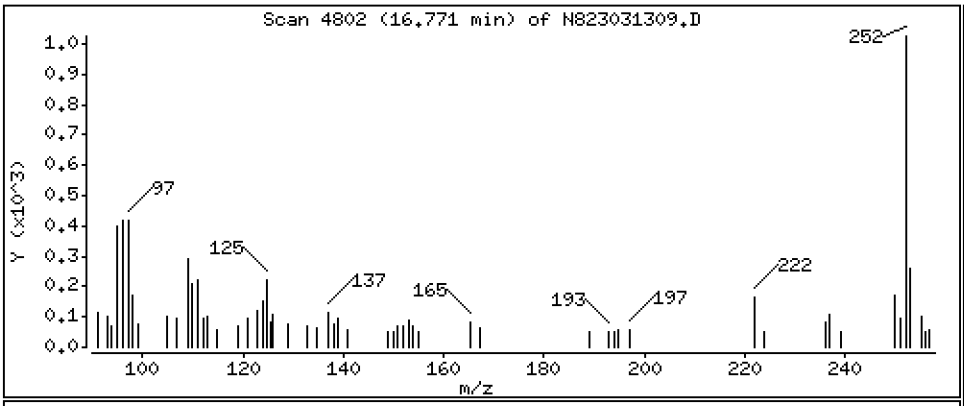
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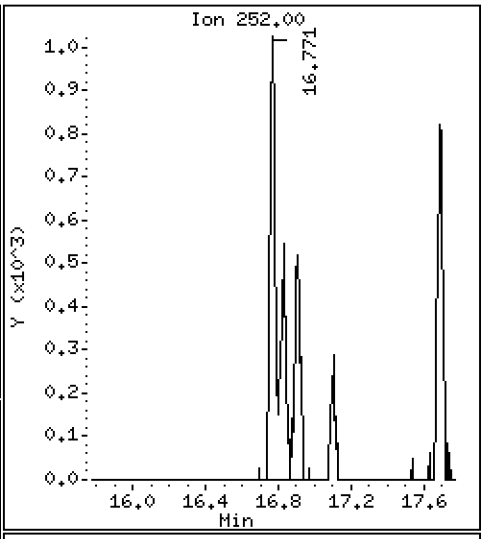
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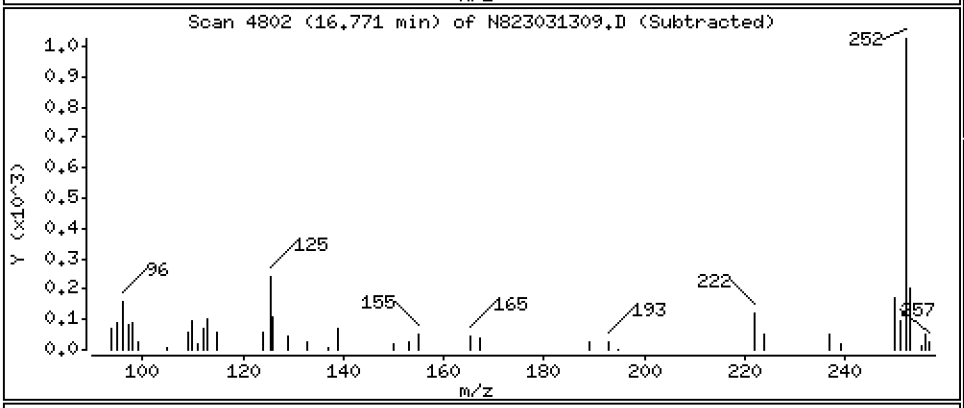
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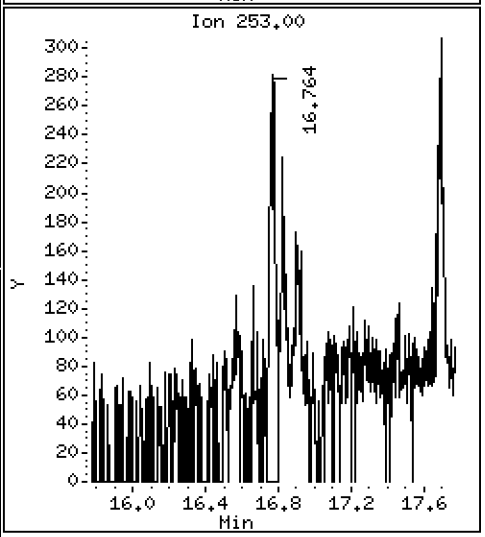
31 Total Benzofluoranthenes

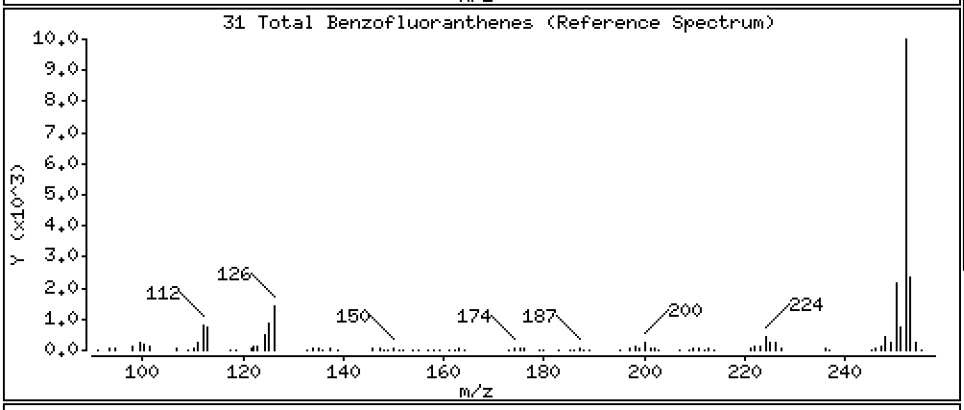
Concentration: 0.2355 ug/mL

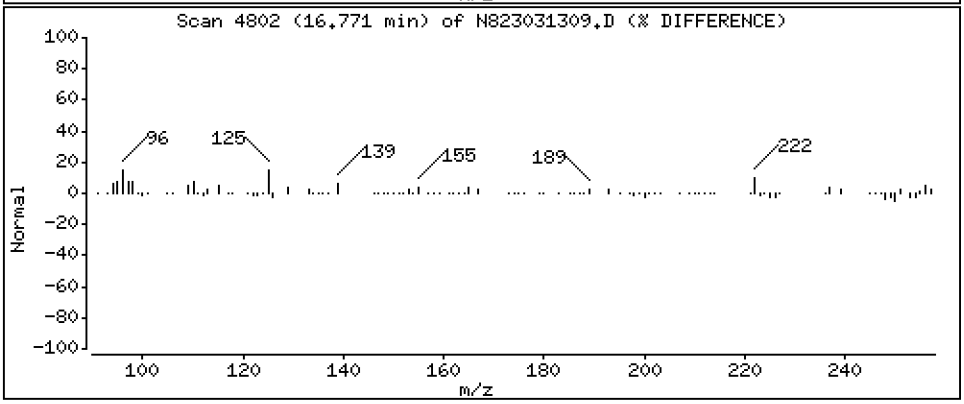












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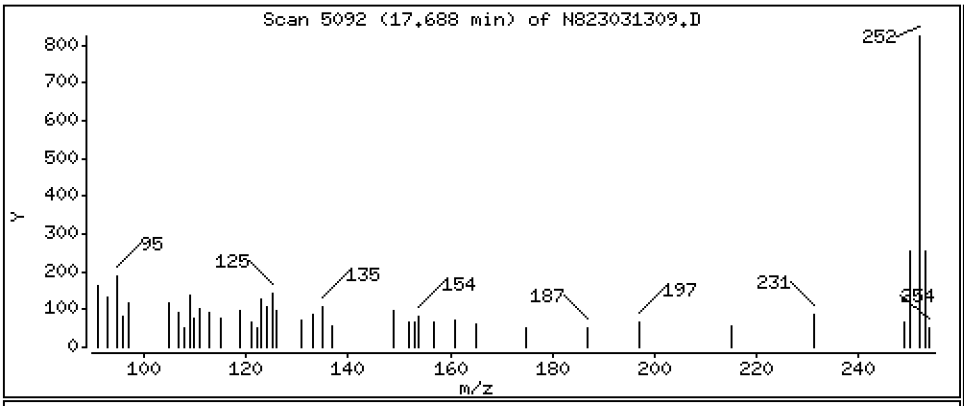
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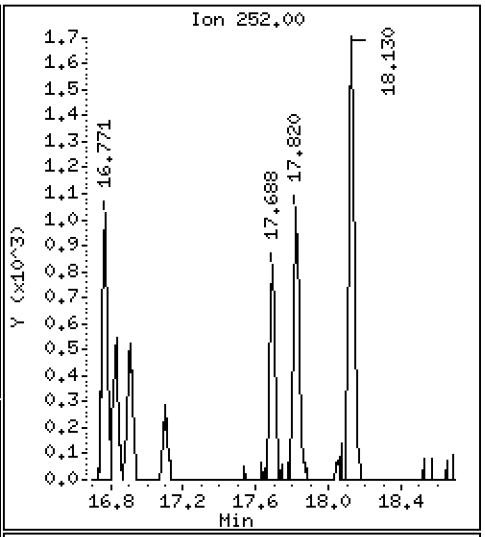
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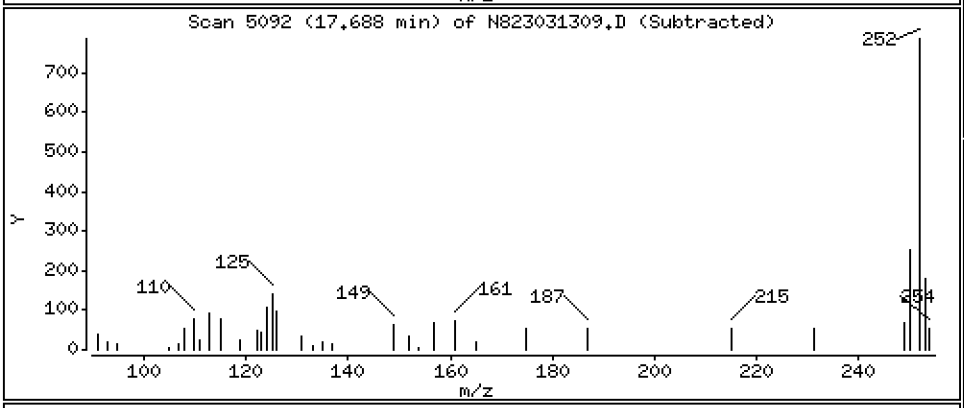
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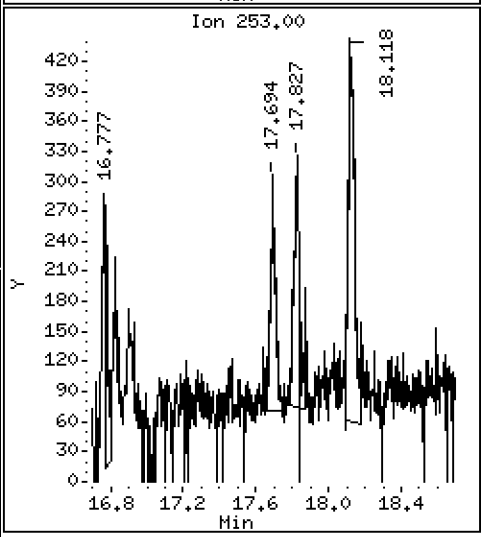
34 Benzo(e)pyrene

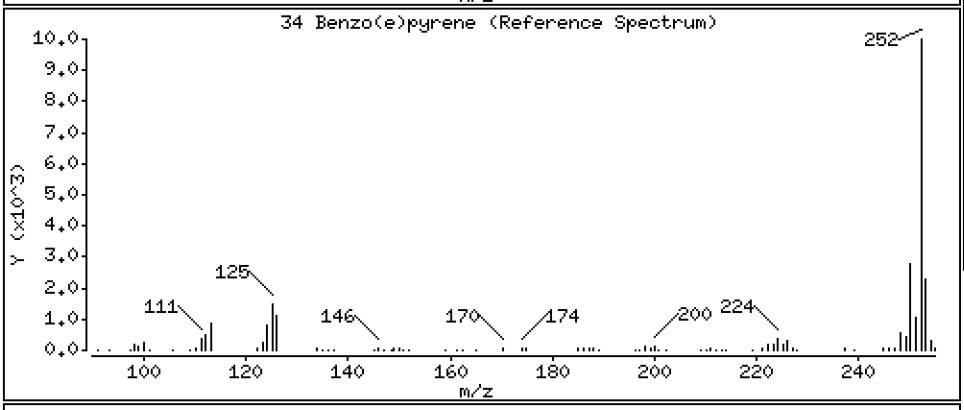
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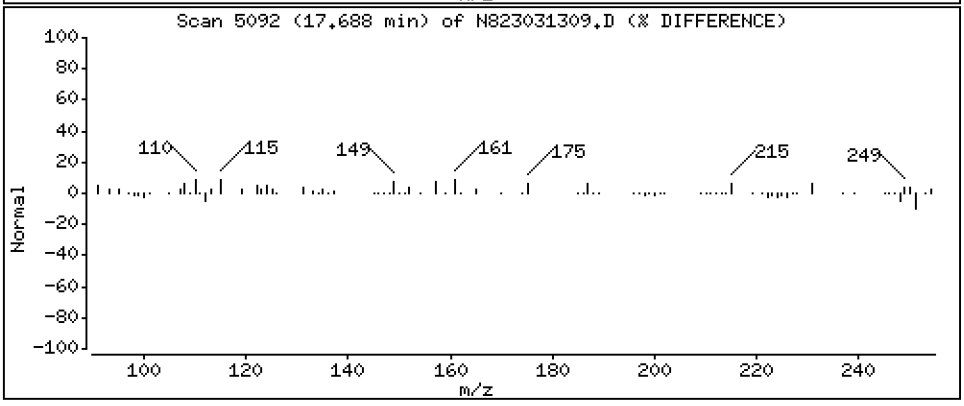












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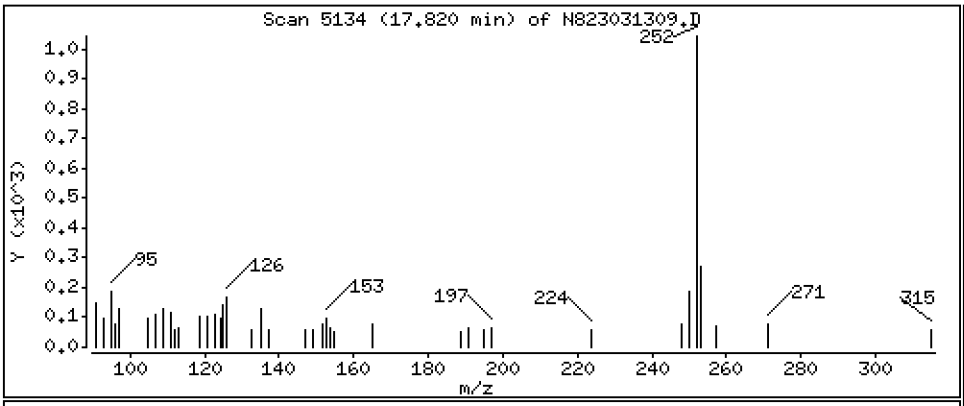
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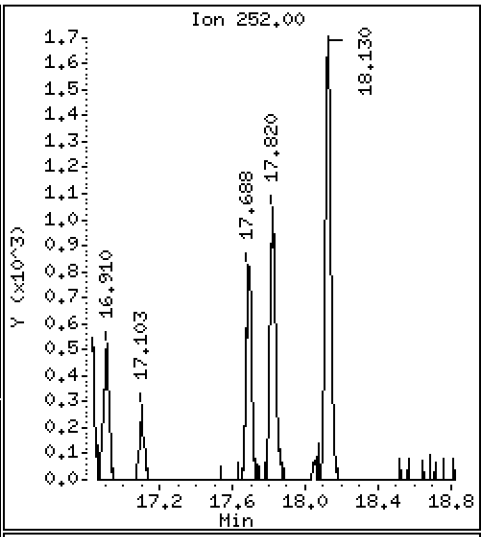
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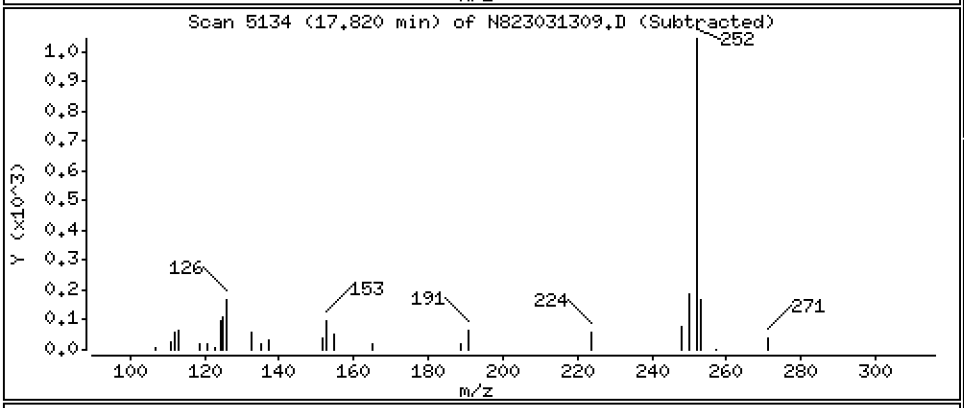
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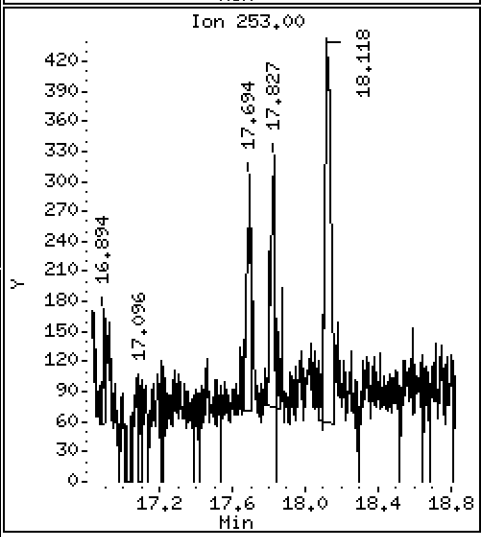
32 Benzo(a)pyrene

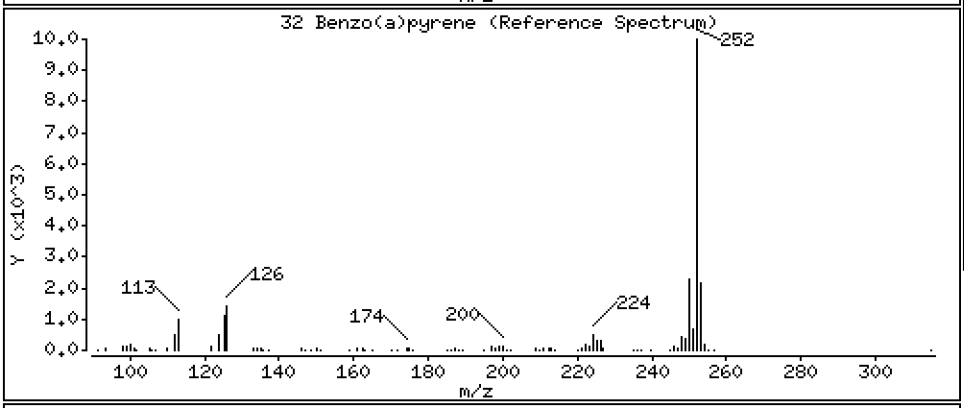
Concentration: 0.1374 ug/mL

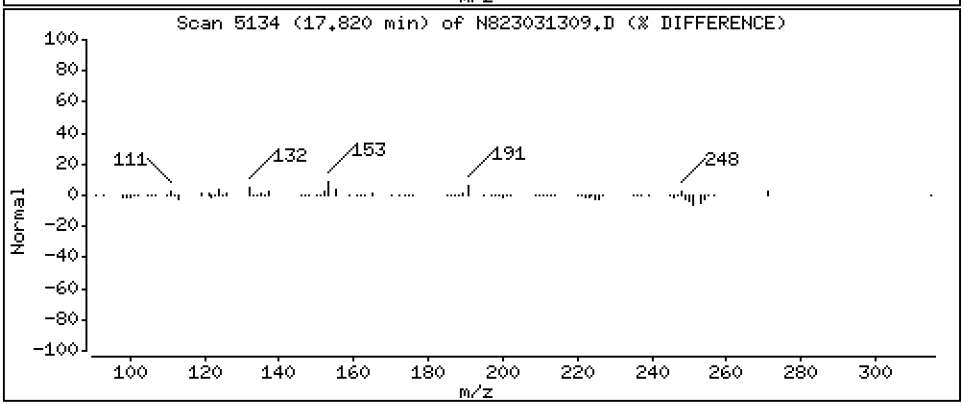












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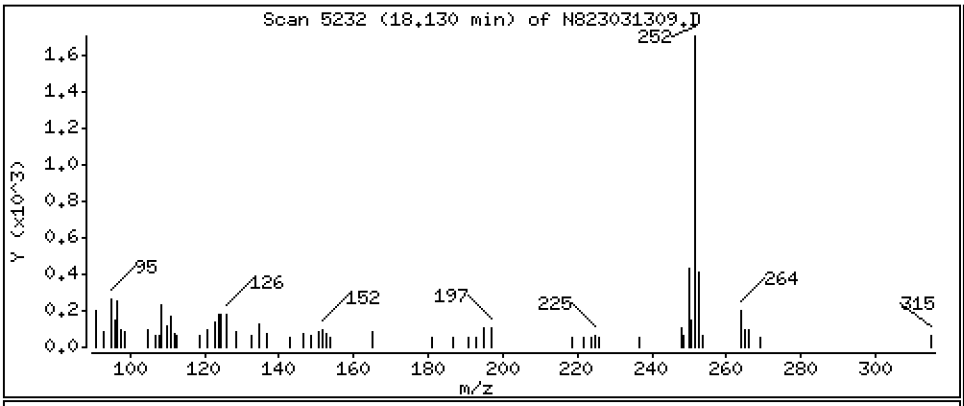
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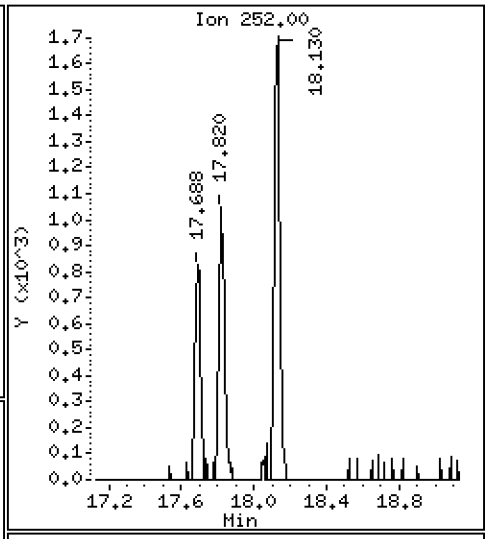
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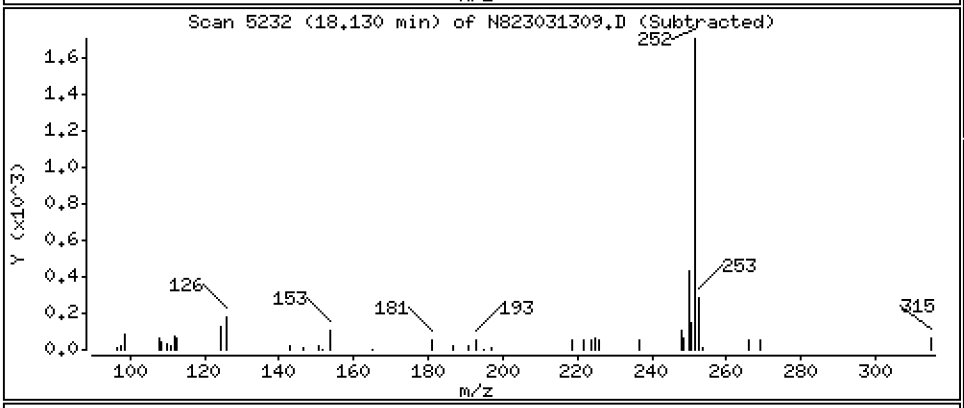
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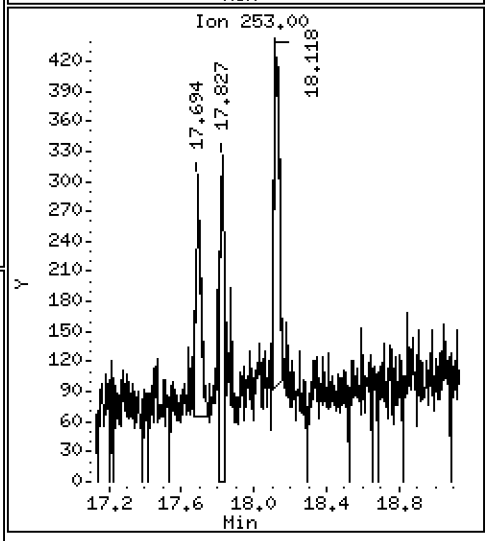
35 Perylene

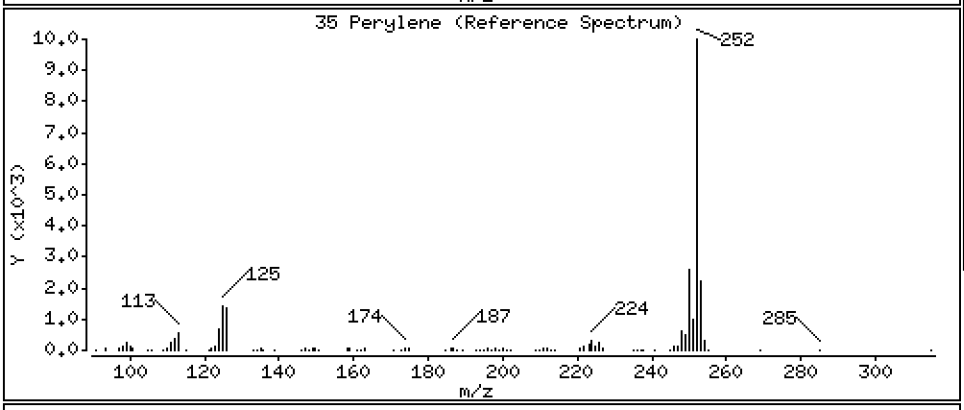
Concentration: 0.1989 ug/mL

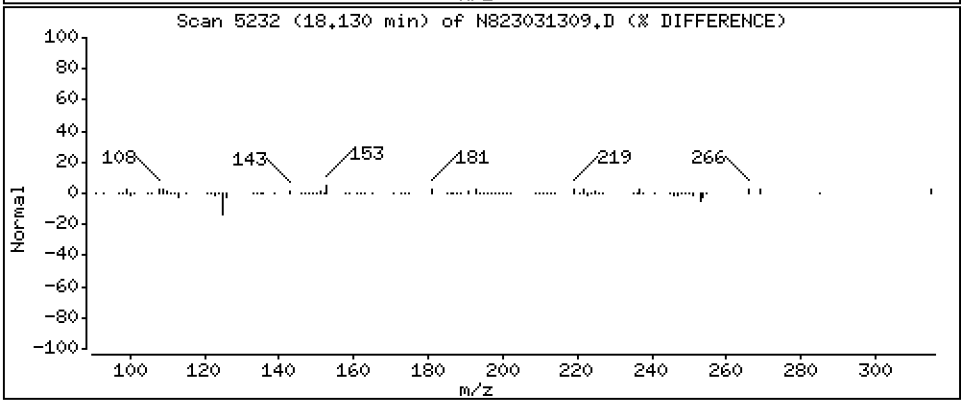












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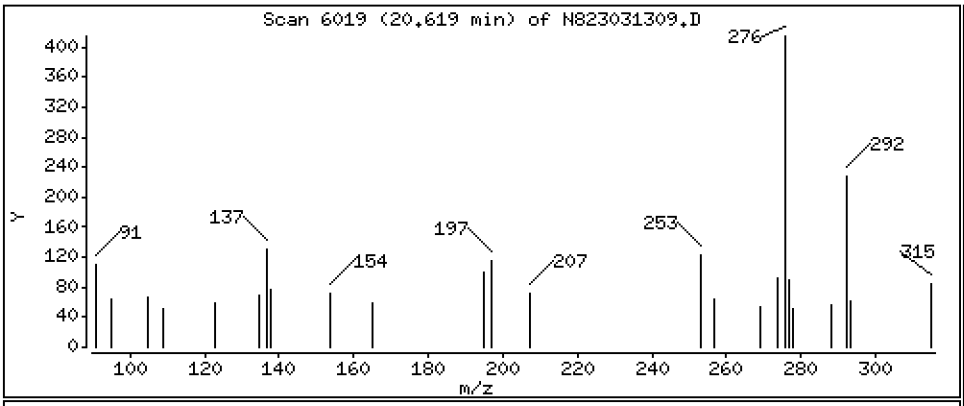
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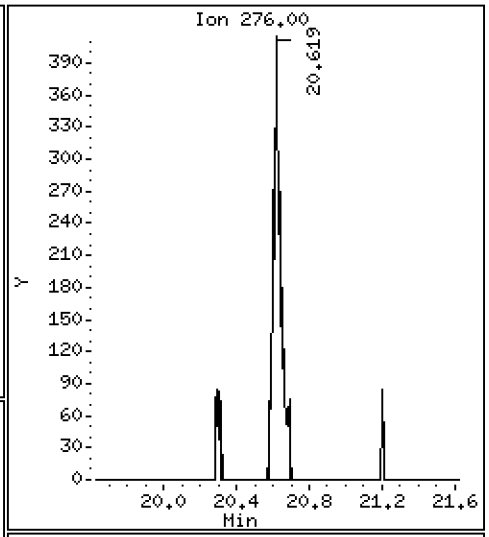
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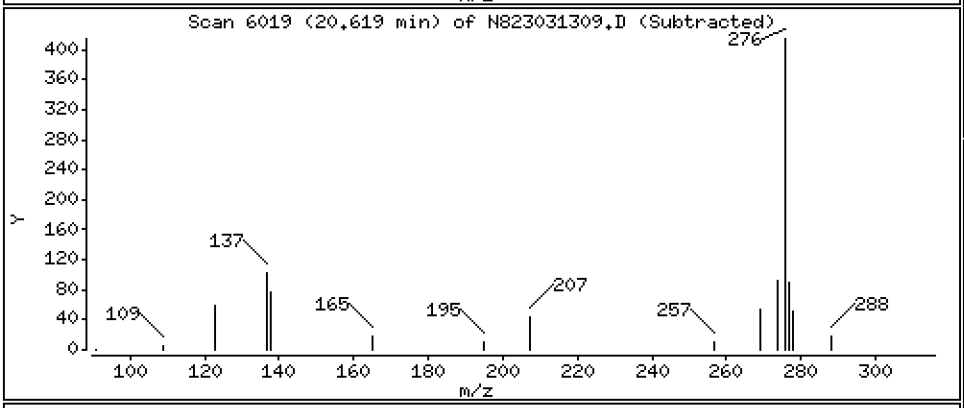
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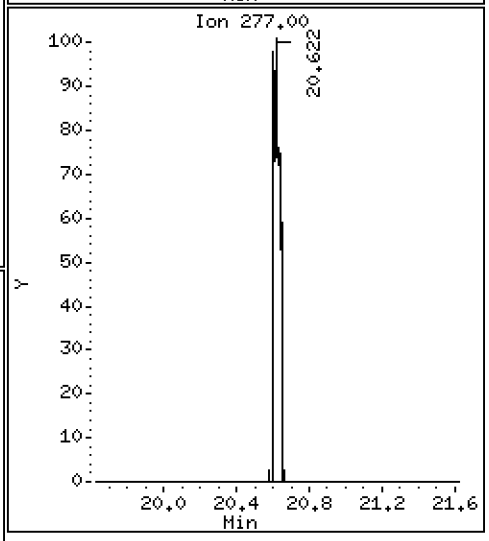
37 Indeno(1,2,3-cd)pyrene

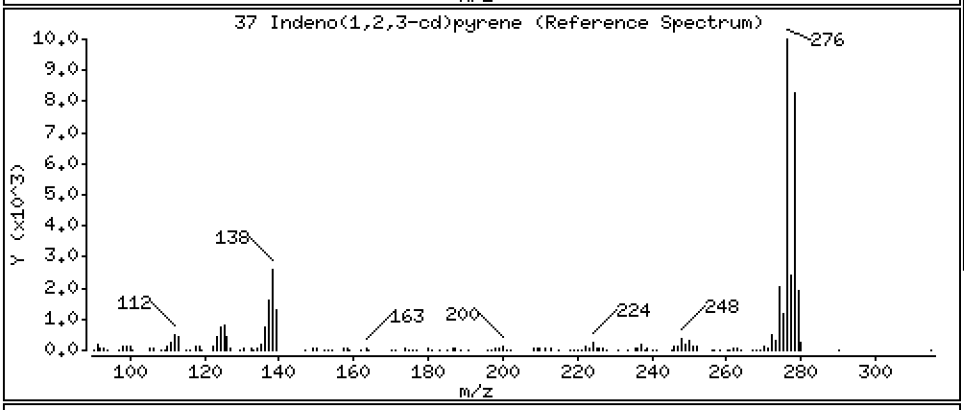
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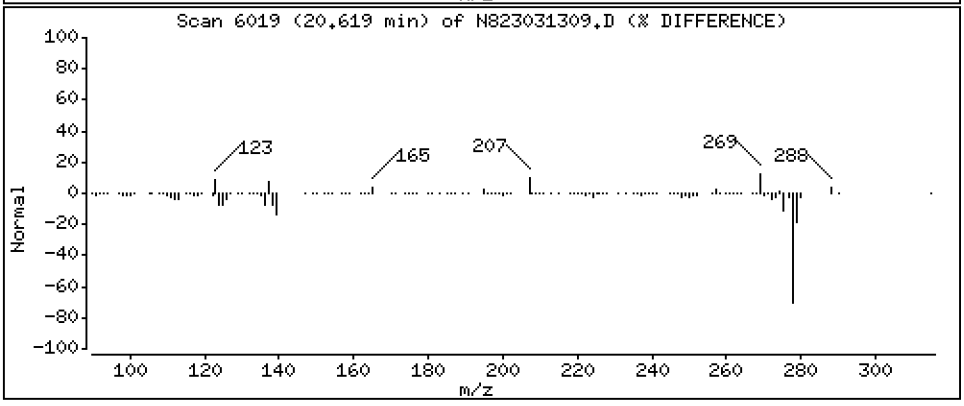












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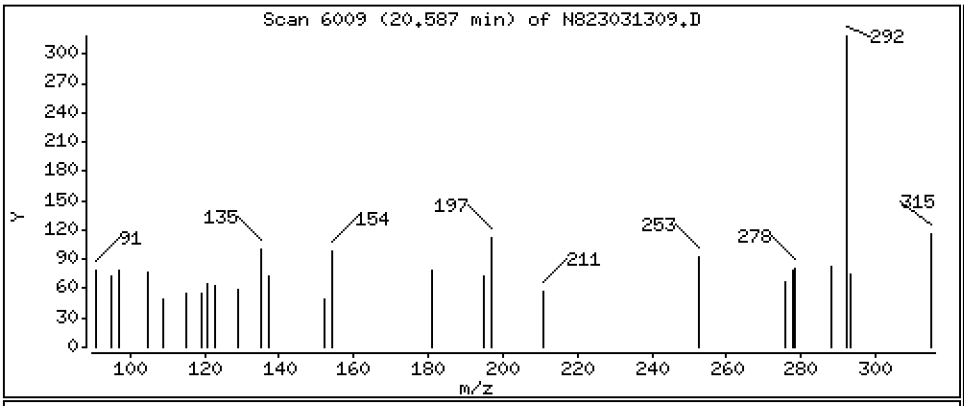
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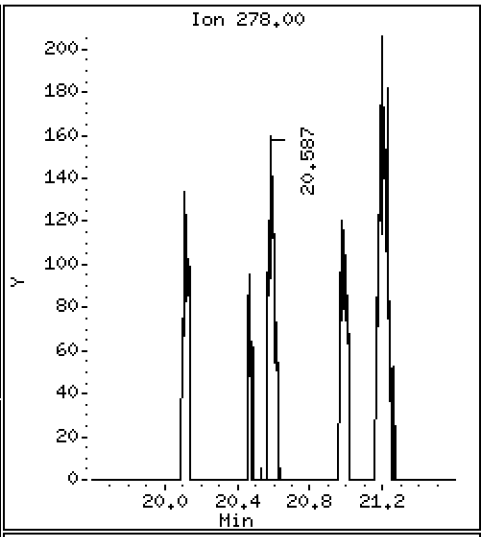
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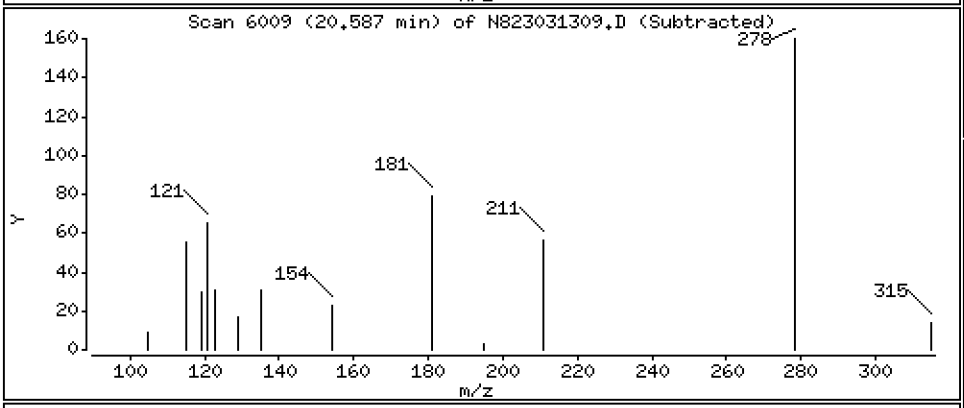
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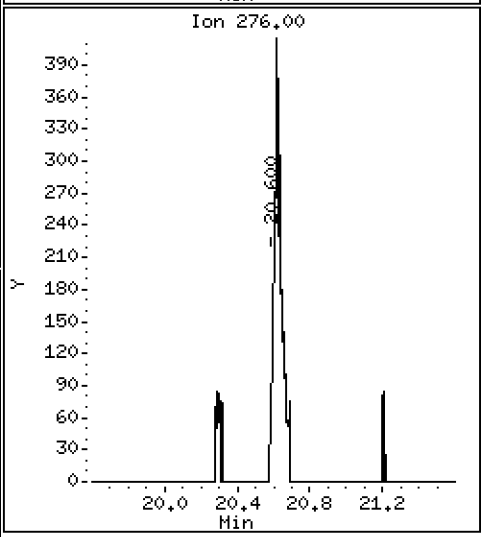
38 Dibenzo(a,h)anthracene

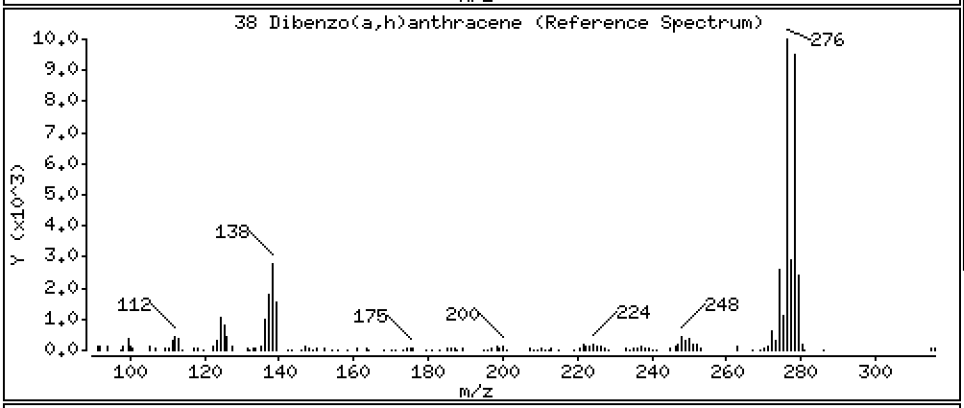
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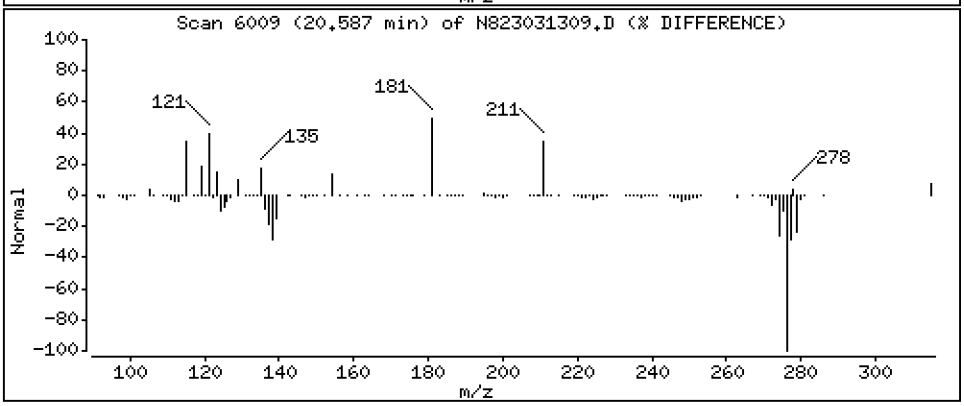












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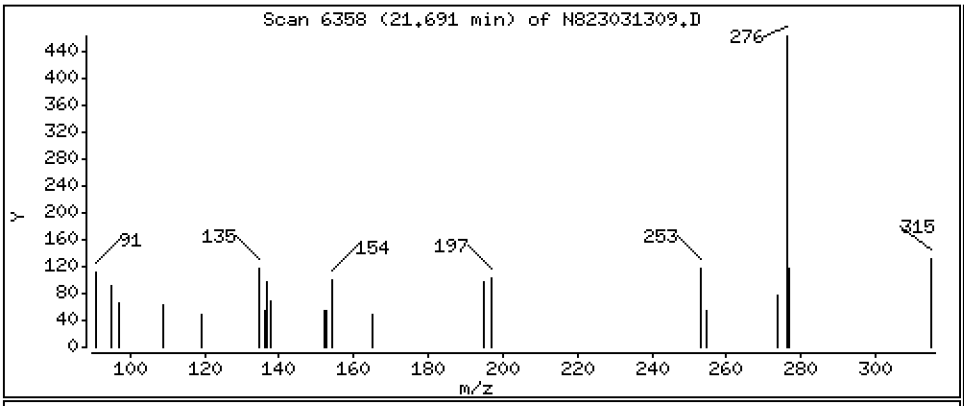
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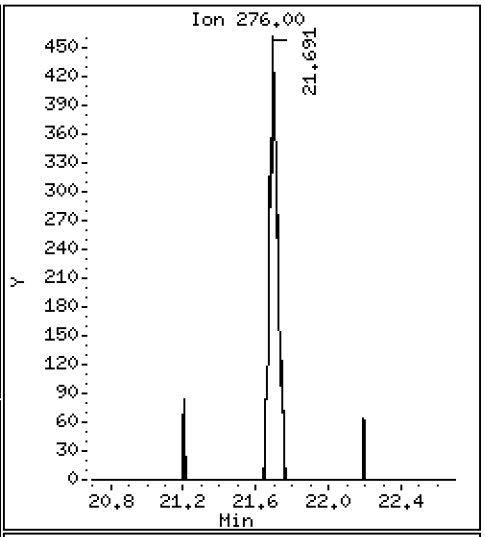
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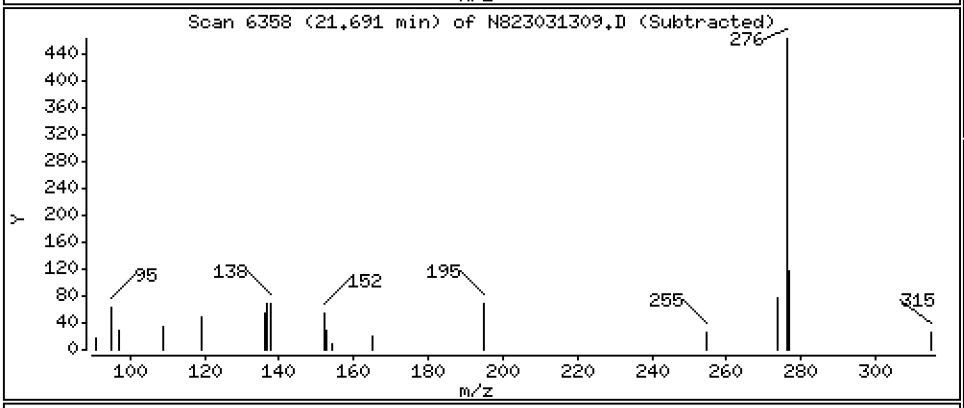
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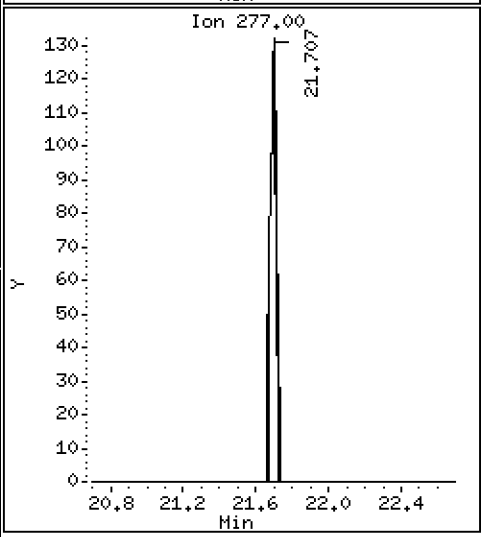
39 Benzo(g,h,i)perylene

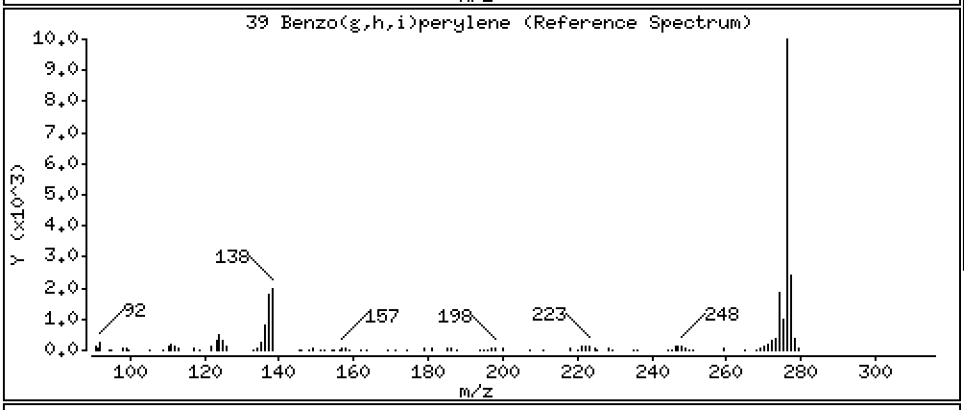
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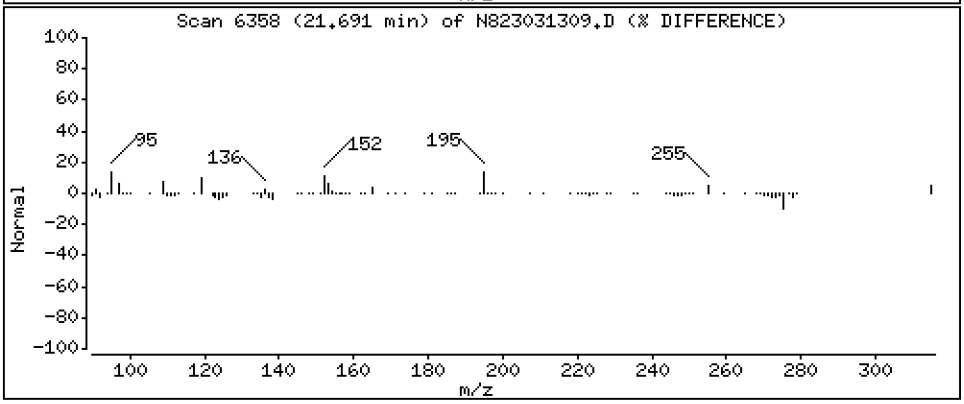












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

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Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

			QUANT SIG					CONCENTRATIONS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1	Naphthalene-d8	136	4.853	4.862	(1.000)	40595	2.00000	
	2	Naphthalene	128	4.884	4.891	(1.007)	1666	0.08826	0.08826
$	3	2-Methylnaphthalene-d10	152	5.593	5.599	(1.152)	22650	2.04584	2.046
	4	2-Methylnaphthalene	141	5.640	5.646	(1.162)	476	0.04585	0.04585
	5	1-methylnaphthalene	141	5.836	5.842	(1.203)	318	0.03018	0.03018
	9	Acenaphthylene	152	7.044	7.047	(0.985)	1154	0.05988	0.05988(M)
*	10	Acenaphthene-d10	164	7.151	7.155	(1.000)	25523	2.00000	
	11	Acenaphthene	153	7.196	7.205	(1.006)	288	0.02230	0.02230
	12	Dibenzofuran	168	7.354	7.357	(1.028)	449	0.02289	0.02289
	14	Fluorene	166	7.831	7.838	(1.095)	595	0.03906	0.03906
*	15	Phenanthrene-d10	188	9.194	9.197	(1.000)	47322	2.00000	
	16	Phenanthrene	178	9.229	9.232	(1.004)	6793	0.29387	0.2939
	17	Anthracene	178	9.270	9.273	(1.008)	1675	0.07977	0.07977
	19	Carbazole	167	9.792	9.792	(1.065)	323	0.01678	0.01678
	22	Fluoranthene	202	11.006	11.009	(1.197)	8638	0.34330	0.3433
$	21	Fluoranthene-d10	212	10.968	10.971	(1.193)	54250	2.59839	2.598
	23	Pyrene	202	11.524	11.524	(0.815)	11253	0.48213	0.4821
	24	Benzo(a)anthracene	228	14.019	14.025	(0.991)	3832	0.18114	0.1811
*	25	Chrysene-d12	240	14.146	14.152	(1.000)	37646	2.00000	
	27	Chrysene	228	14.218	14.225	(1.005)	5148	0.22859	0.2286(M)
	28	Benzo(b)fluoranthene	252	16.770	16.773	(0.929)	2028	0.10658	0.1066
	29	Benzo(k)fluoranthene	252	16.830	16.833	(0.932)	1086	0.05827	0.05827
	30	Benzo(j)fluoranthene	252	16.909	16.912	(0.937)	1129	0.06729	0.06729
	31	Total Benzofluoranthenes	252	16.770	16.773	(0.929)	4244	0.23551	0.2355(M)
	34	Benzo(e)pyrene	252	17.687	17.697	(0.980)	1715	0.09038	0.09038
	32	Benzo(a)pyrene	252	17.820	17.826	(0.987)	2301	0.13742	0.1374
*	33	Perylene-d12	264	18.054	18.060	(1.000)	32672	2.00000	
	35	Perylene	252	18.130	18.130	(1.004)	3574	0.19890	0.1989
$	36	Dibenzo(a,h)anthracene-d14	292	20.479	20.482	(1.134)	39839	3.11203	3.112
	37	Indeno(1,2,3-cd)pyrene	276	20.618	20.625	(1.142)	1142	0.05986	0.05986
	38	Dibenzo(a,h)anthracene	278	20.587	20.599	(1.140)	359	0.02187	0.02187(M)
	39	Benzo(g,h,i)perylene	276	21.690	21.696	(1.201)	1405	0.08129	0.08129

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031309.D
Lab Smp Id: 23C0064-02
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	40595	0.60
10 Acenaphthene-d10	24212	12106	48424	25523	5.41
15 Phenanthrene-d10	46031	23016	92062	47322	2.80
25 Chrysene-d12	38604	19302	77208	37646	-2.48
33 Perylene-d12	35963	17982	71926	32672	-9.15

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.85	-0.19
10 Acenaphthene-d10	7.16	6.66	7.66	7.15	-0.04
15 Phenanthrene-d10	9.20	8.70	9.70	9.19	-0.03
25 Chrysene-d12	14.15	13.65	14.65	14.15	-0.04
33 Perylene-d12	18.06	17.56	18.56	18.05	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031309.D

Lab ID: 23C0064-02
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 16:47

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

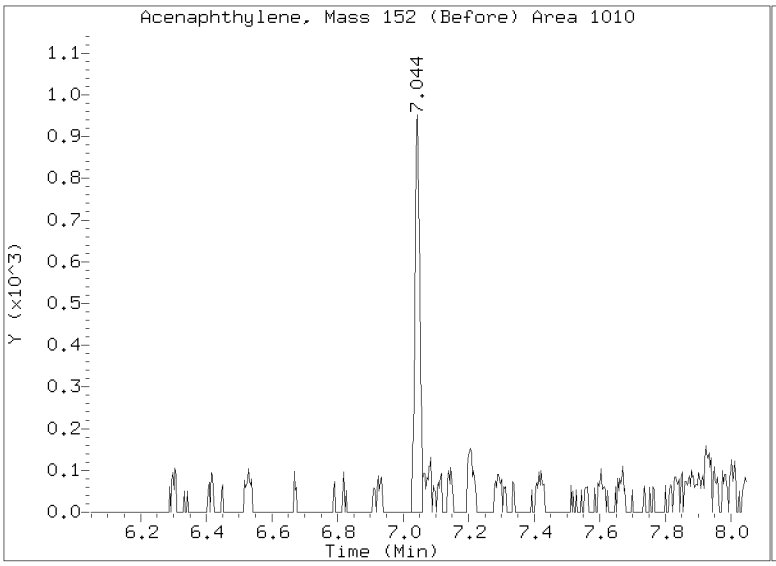
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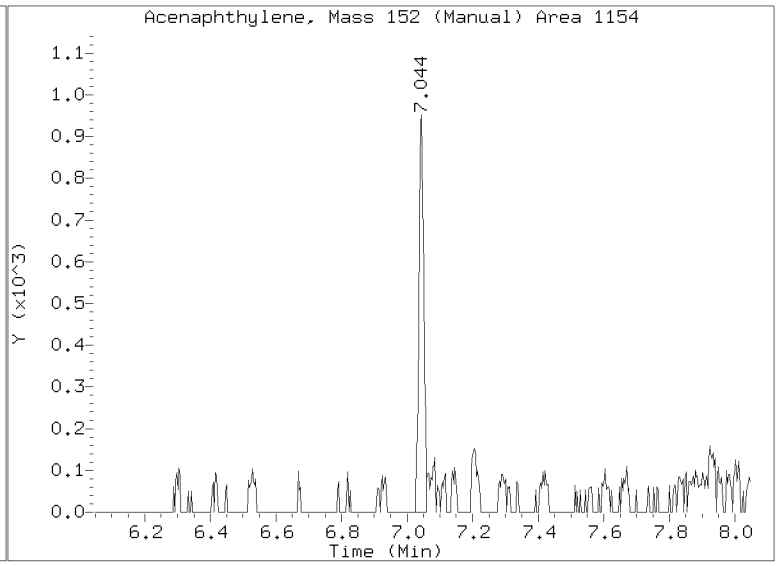
Exception: Benzo(e)pyrene 0.0800

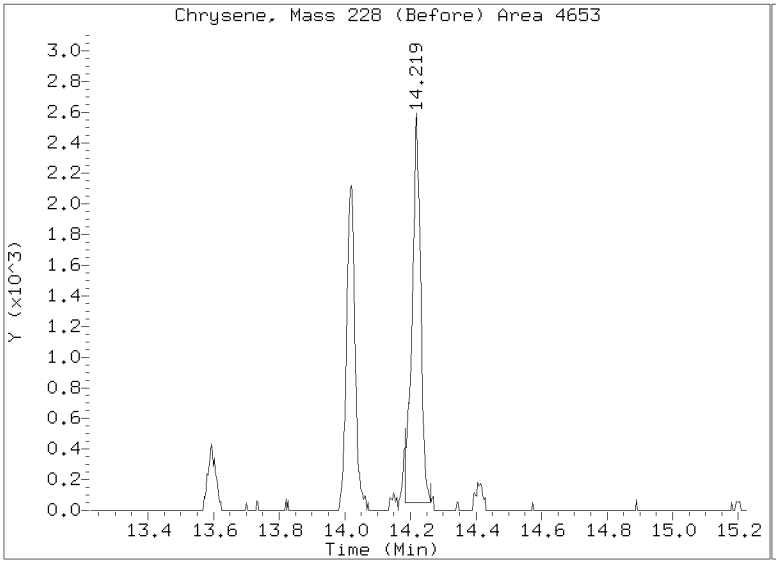
* Only compounds listed in the work order have been verified by the analyst *

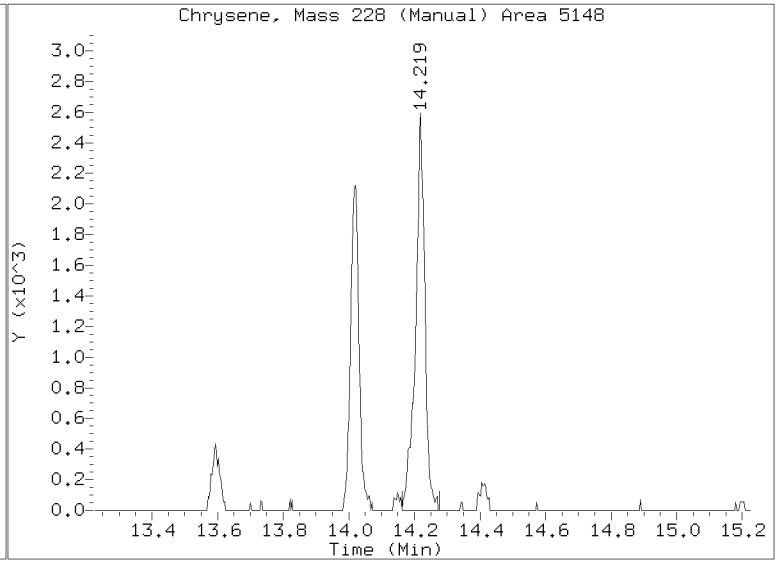
Quant Ion Manual Peak Adjustment Report

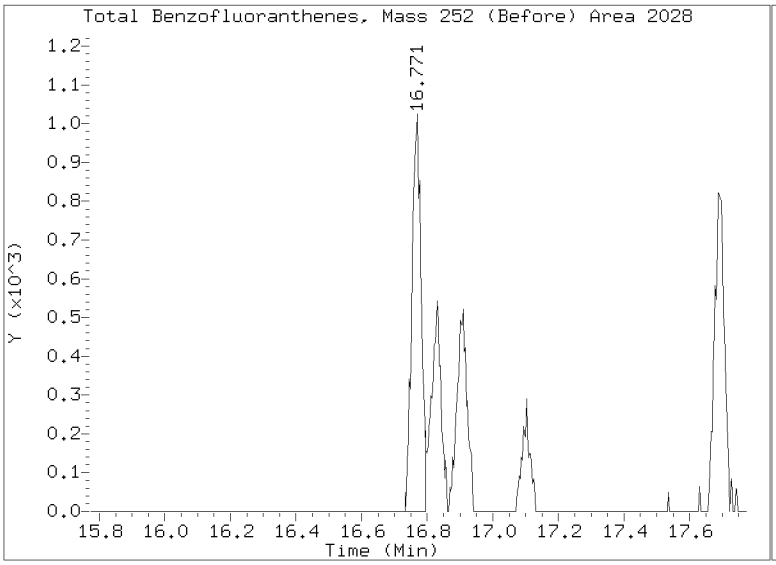
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Injection Date: 13-MAR-2023 16:47
Lab ID:23C0064-02 Client ID:
Report Date: 03/13/2023 21:09

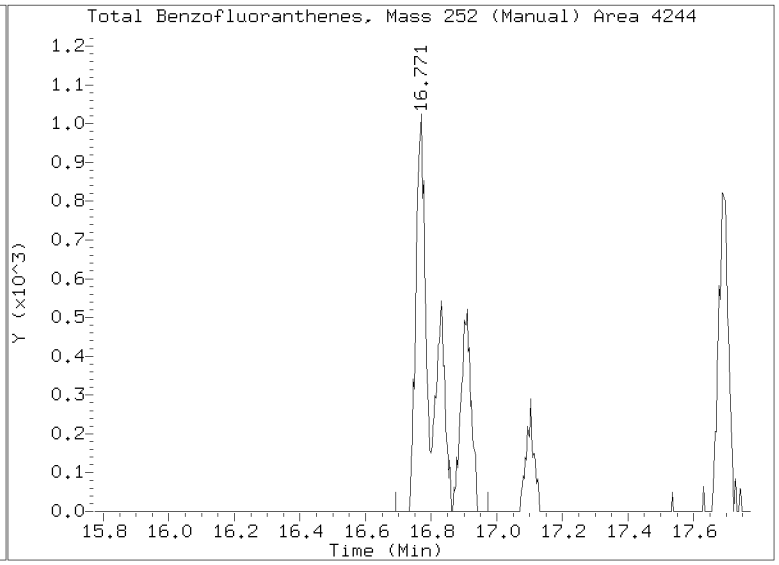






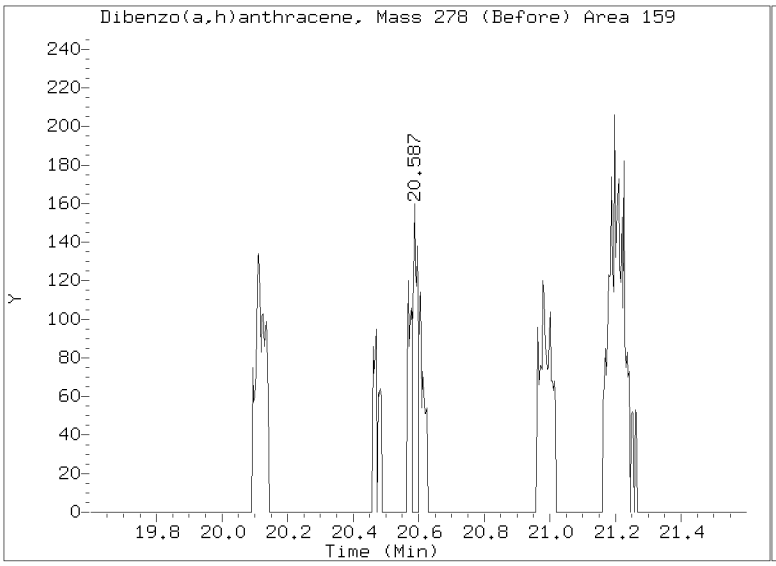


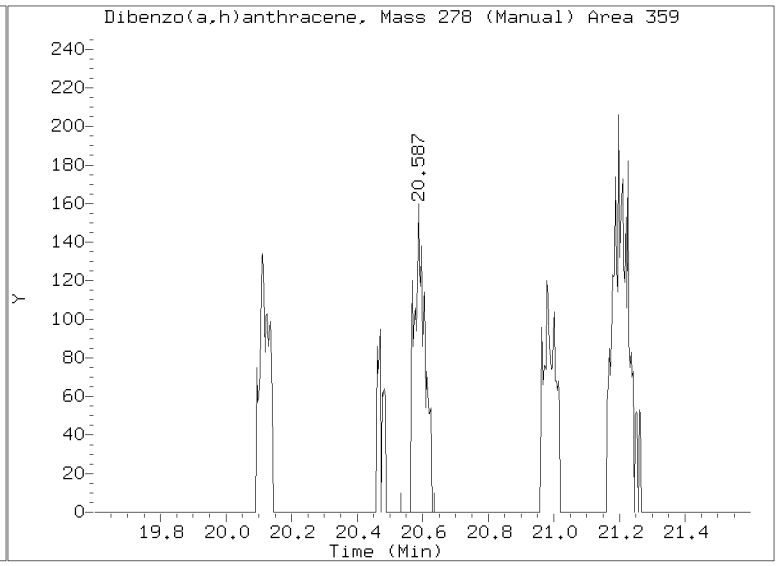




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031309.D
Injection Date: 13-MAR-2023 16:47
Lab ID:23C0064-02 Client ID:
Report Date: 03/13/2023 21:09





LY-31_1-2

Form I

ORGANIC ANALYSIS DATA SHEET

EPA 8270E-SIM

Polynuclear Aromatic Hydrocarbons

Laboratory:	Analytical Resources, LLC				
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Sediment	Laboratory ID:	23C0064-03 A	SDG:	23C0064
Sampled:	01/27/23 11:40	Prepared:	03/08/23 12:03	File ID:	N823031310.D
% Solids:	77.49	Preparation:	EPA 3546 (Microwave)	Analyzed:	03/13/23 17:14
Batch:	BLC0106	Sequence:	SLC0150	Initial/Final:	12.96 g Wet / 0.5 mL
Instrument:	NT8	Column:	RXI-17Sil ms	Calibration:	GA00050
Cleanups:	Silica Gel				

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg dry)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	4.98	U	0.82	4.98
218-01-9	Chrysene	1	4.98	U	1.05	4.98
205-99-2	Benzo(b)fluoranthene	1	4.98	U	1.37	4.98
207-08-9	Benzo(k)fluoranthene	1	4.98	U	0.76	4.98
50-32-8	Benzo(a)pyrene	1	4.98	U	0.61	4.98
193-39-5	Indeno(1,2,3-cd)pyrene	1	4.98	U	1.05	4.98
53-70-3	Dibenzo(a,h)anthracene	1	4.98	U	0.89	4.98
191-24-2	Benzo(g,h,i)perylene	1	4.98	U	1.06	4.98

SURROGATES	ADDED: (ug/kg dry)	FOUND: (ug/kg dry)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	149.36	113	75.4	32 - 120	
Dibenzo[a,h]anthracene-d14	149.36	145	97.1	21 - 133	
Fluoranthene-d10	149.36	135	90.6	36 - 134	

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Date : 13-MAR-2023 17:14

Client ID:

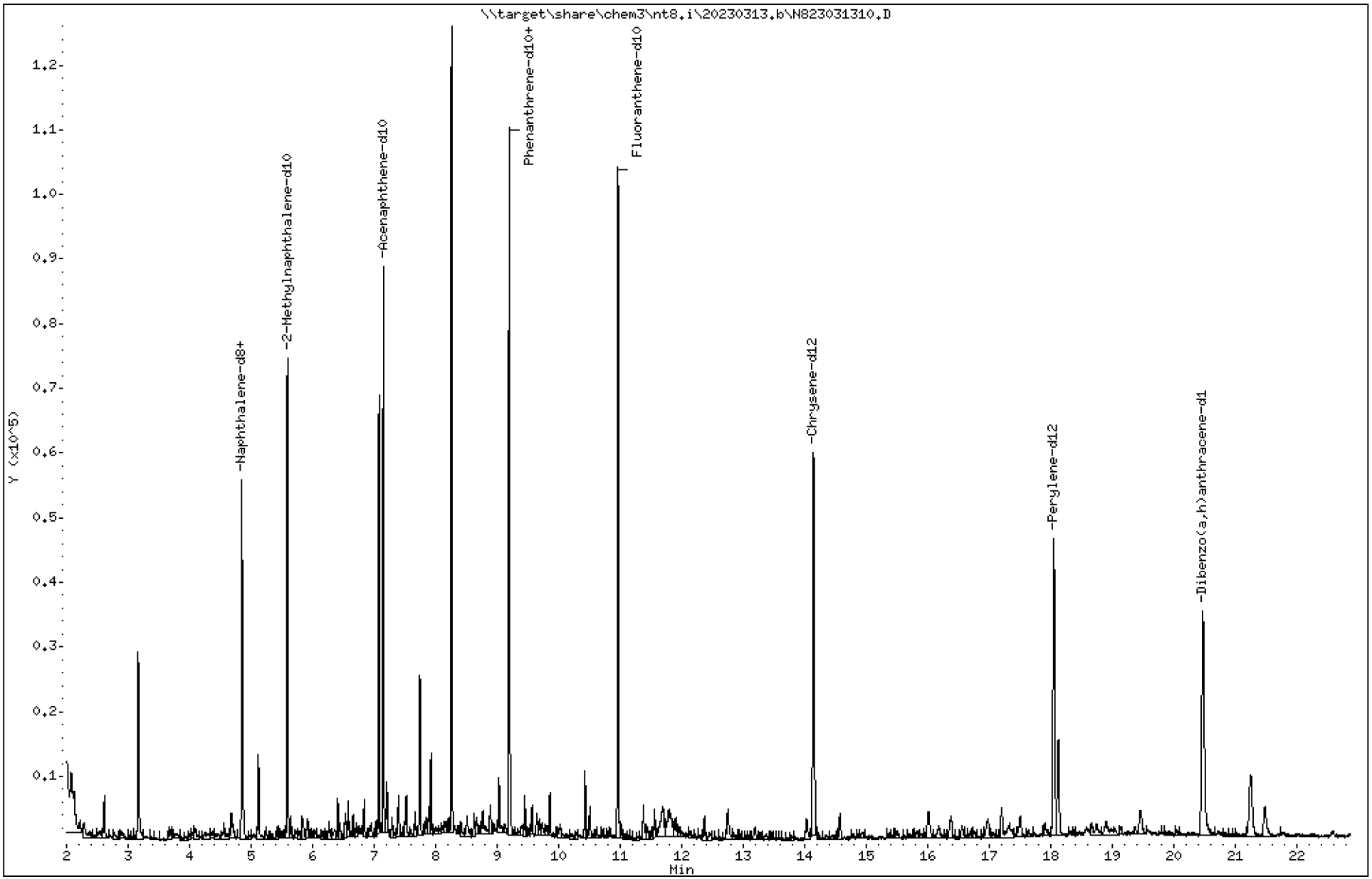
Instrument: nt8.i

Sample Info: 23C0064-03

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23C0064 03/17/2023 Page 73 of 833

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031310.D

Date : 13-MAR-2023 17:14

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

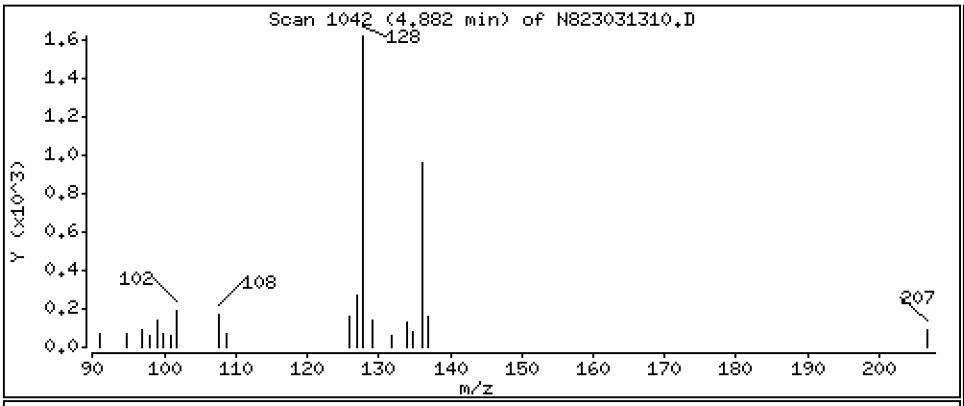
Operator: JZ

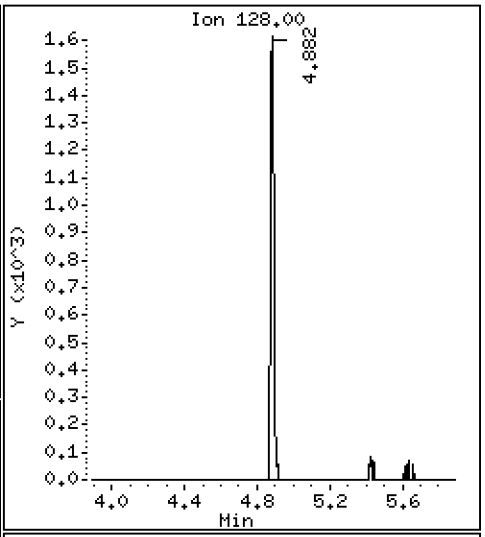
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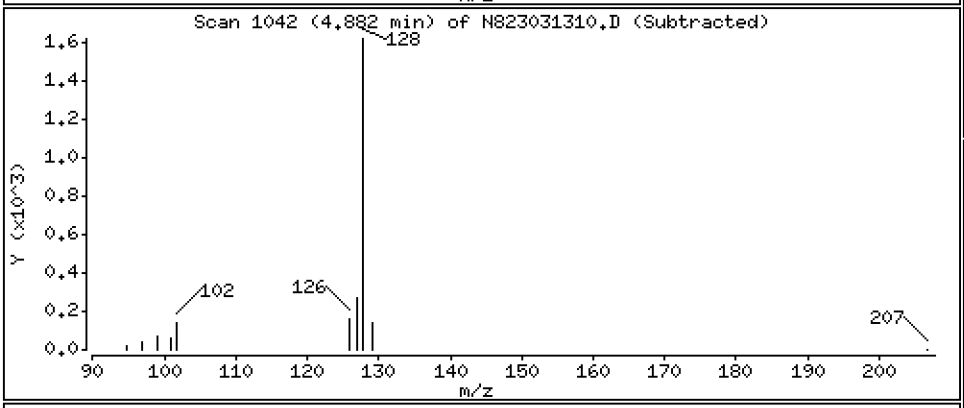
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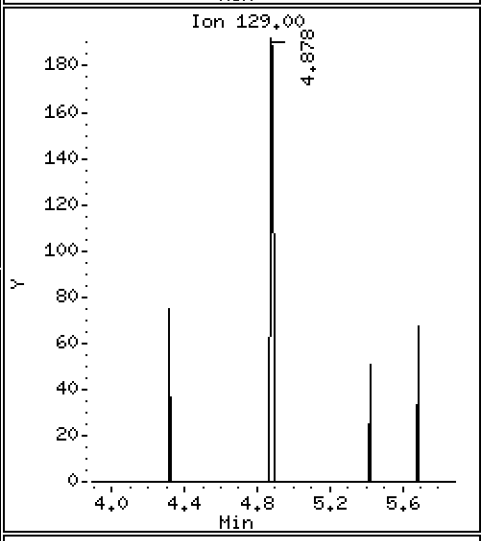
2 Naphthalene

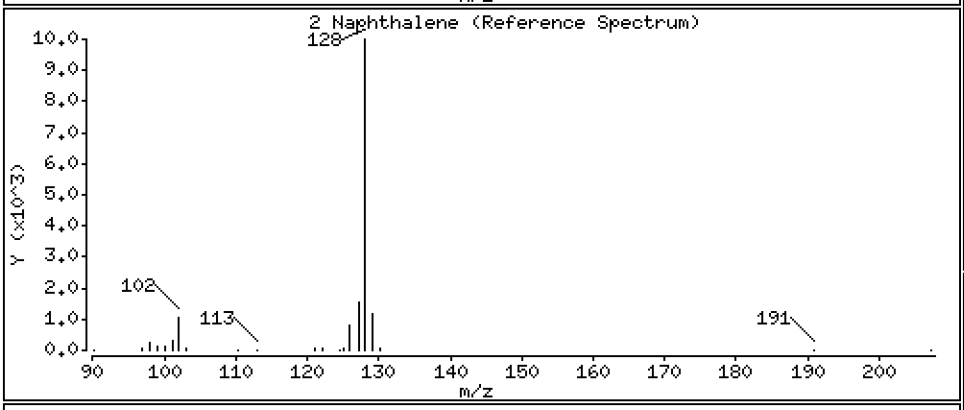
Concentration: 0.1018 ug/mL

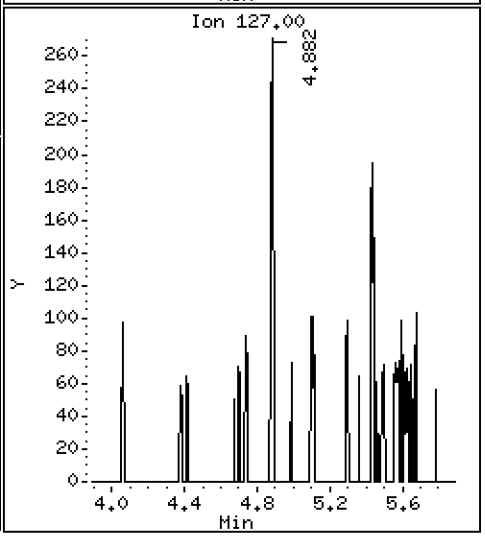


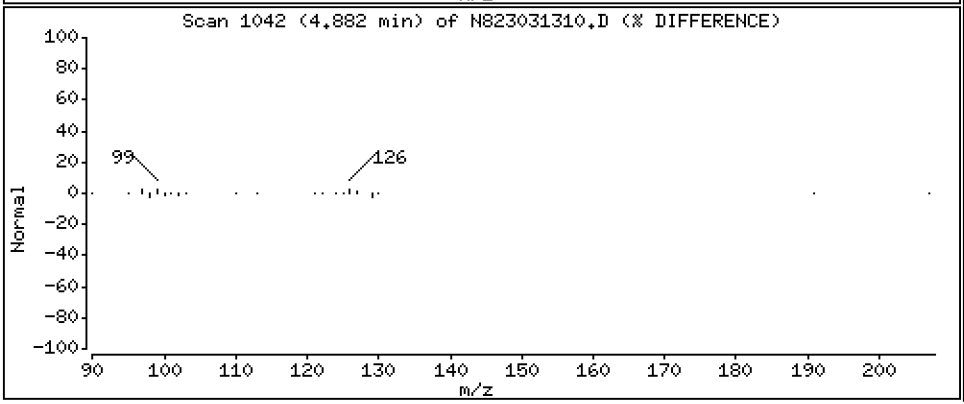












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Date : 13-MAR-2023 17:14

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

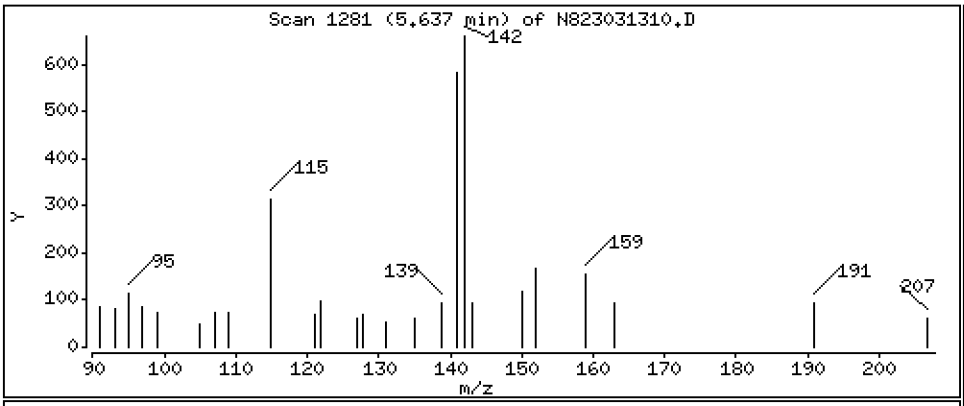
Operator: JZ

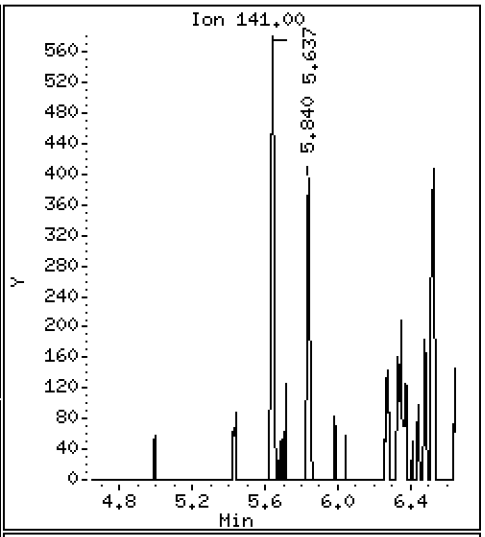
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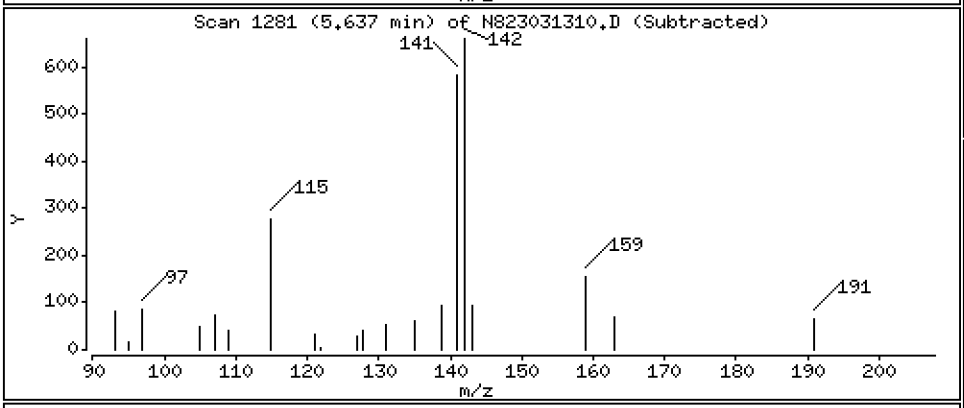
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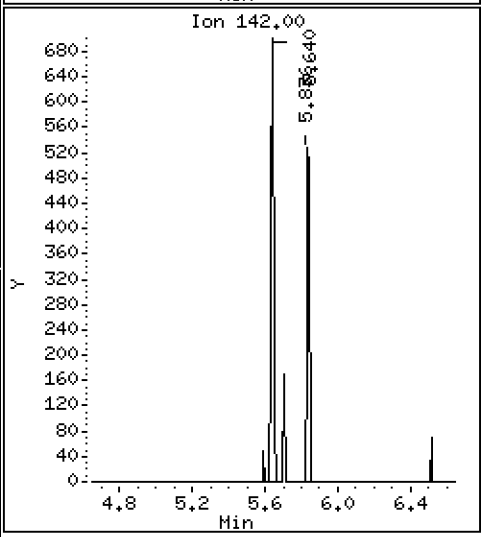
4 2-Methylnaphthalene

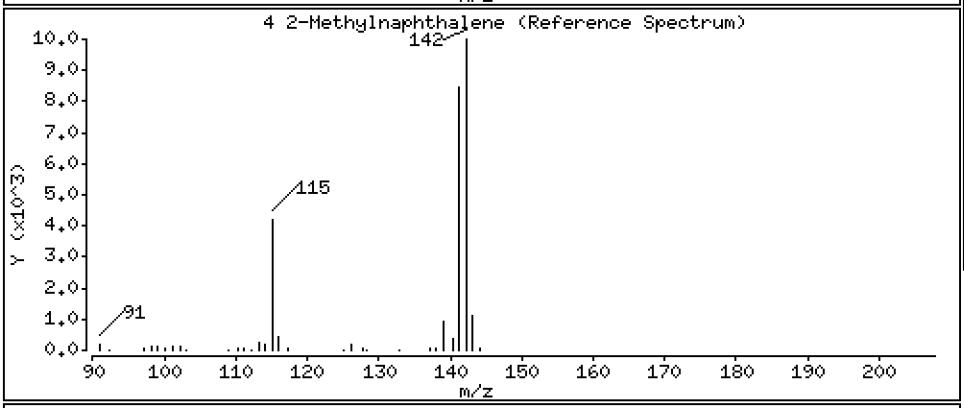
Concentration: 0.05828 ug/mL

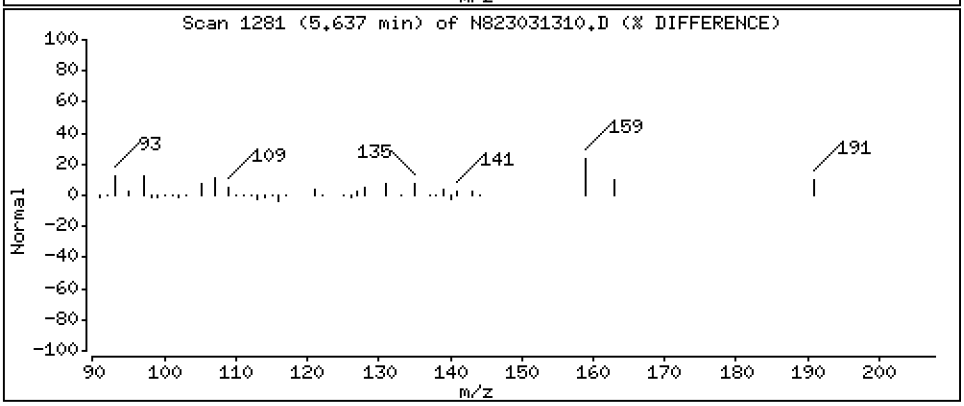












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Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

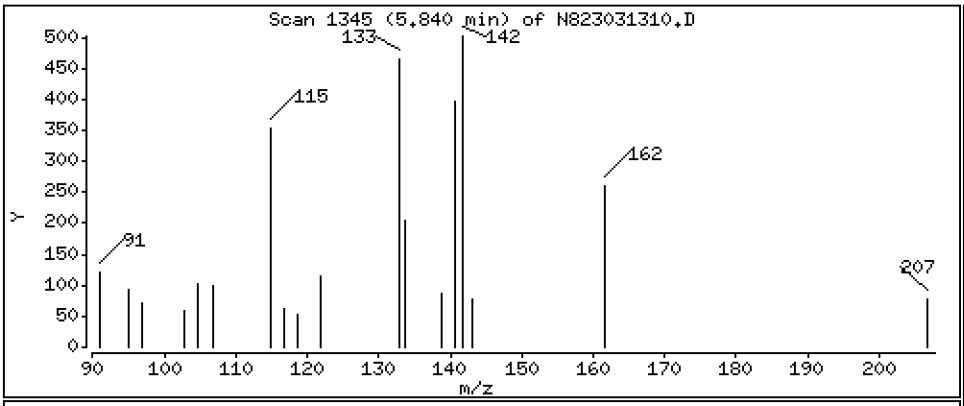
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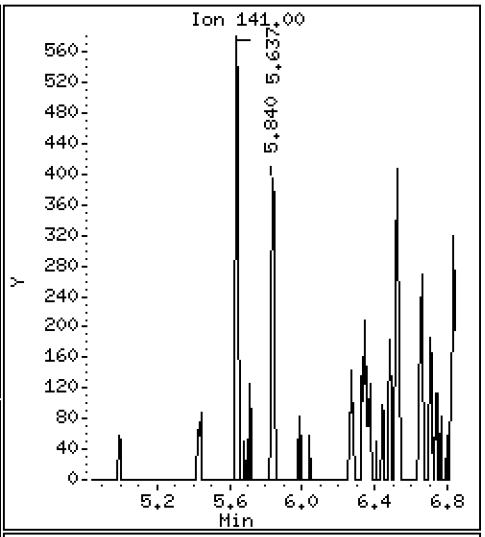
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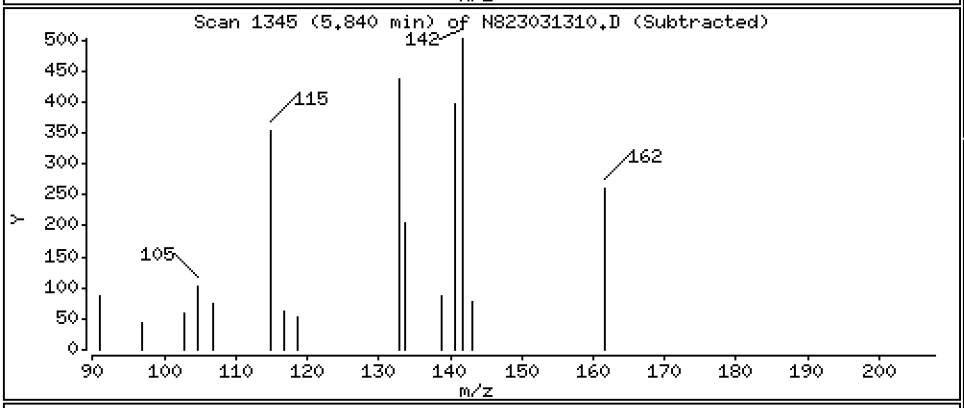
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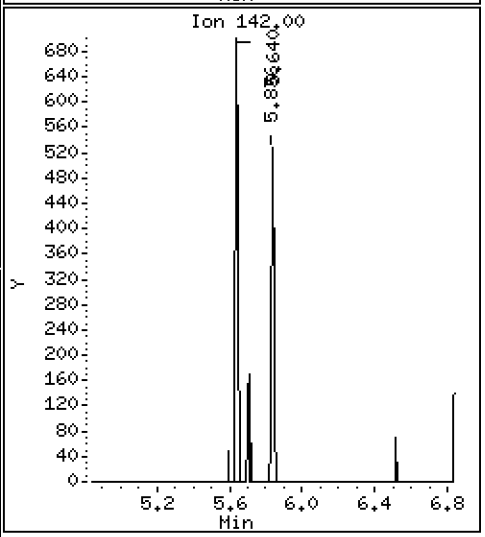
5 1-methylnaphthalene

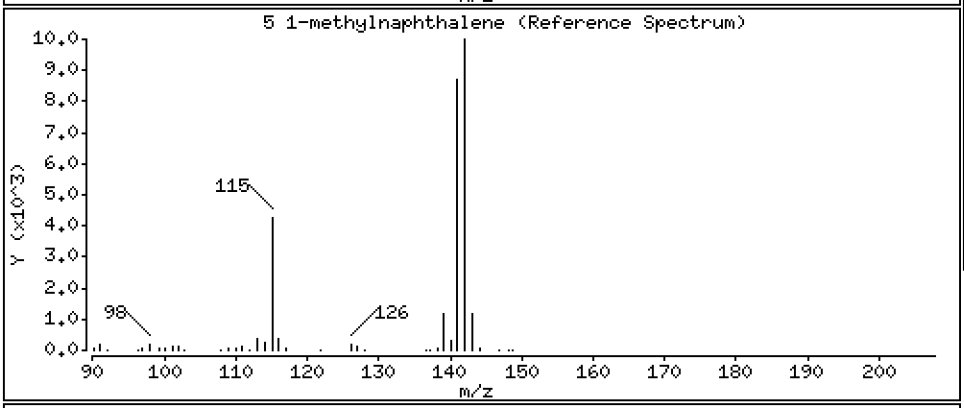
Concentration: 0.04354 ug/mL

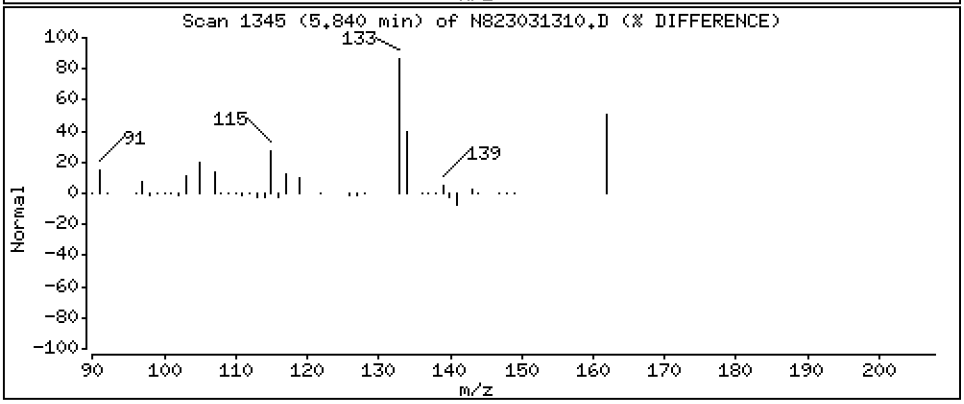












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Instrument: nt8.i

Sample Info: 23C0064-03

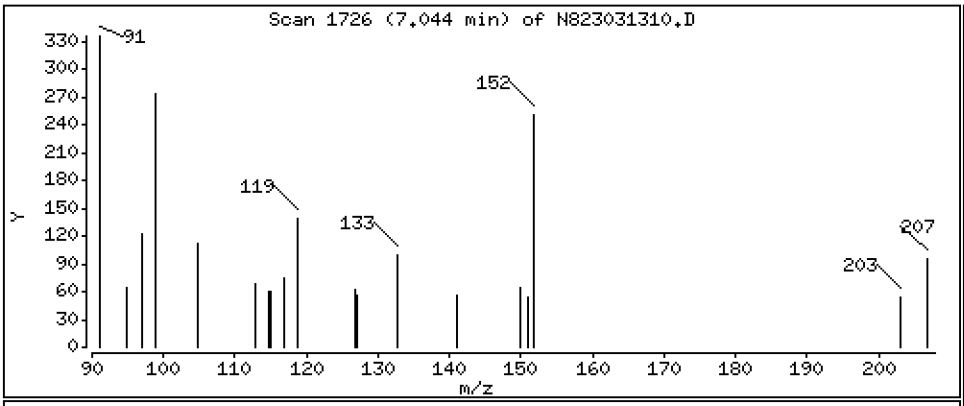
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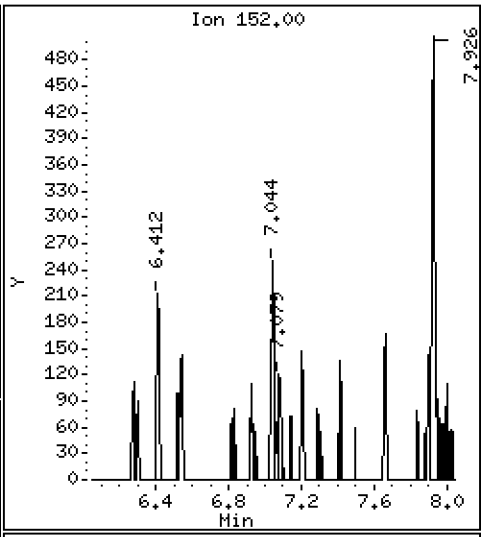
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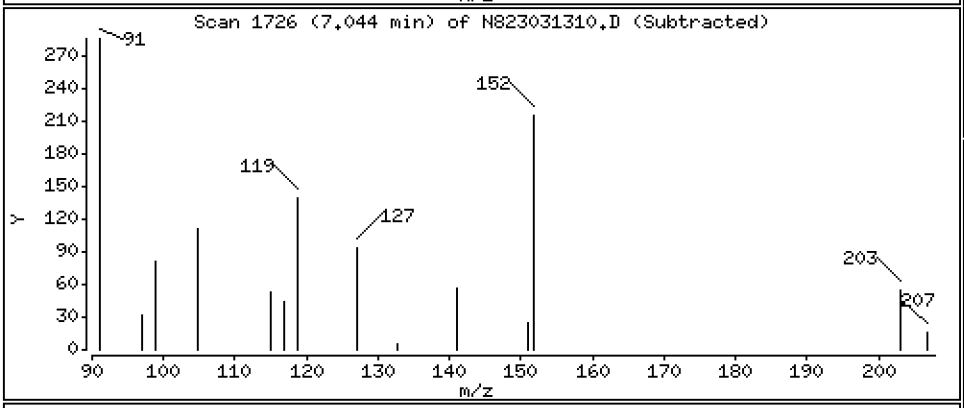
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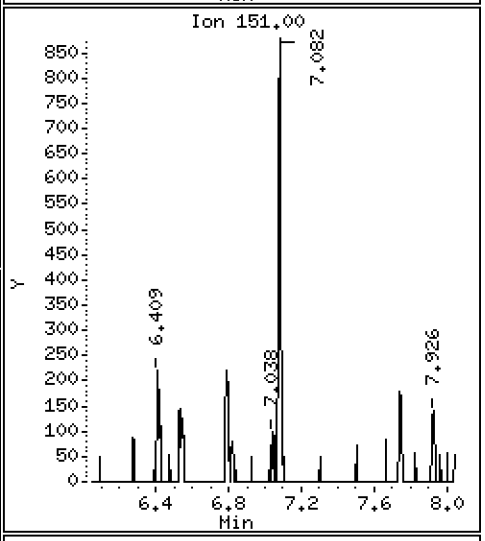
9 Acenaphthylene

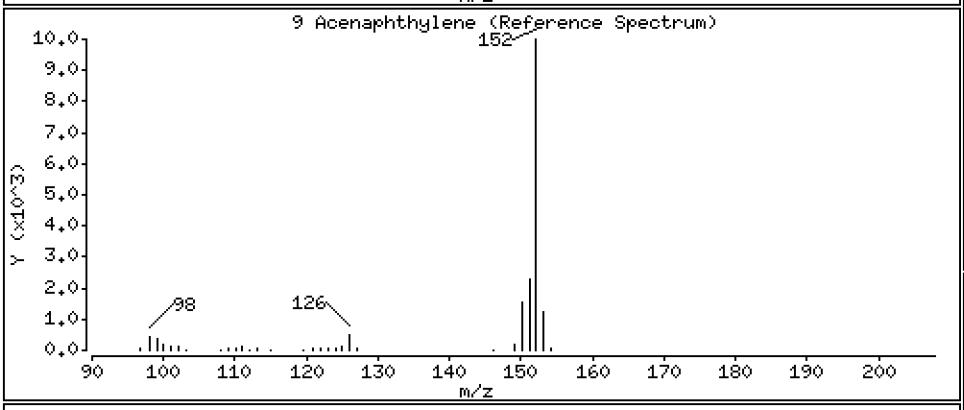
Concentration: 0.01306 ug/mL

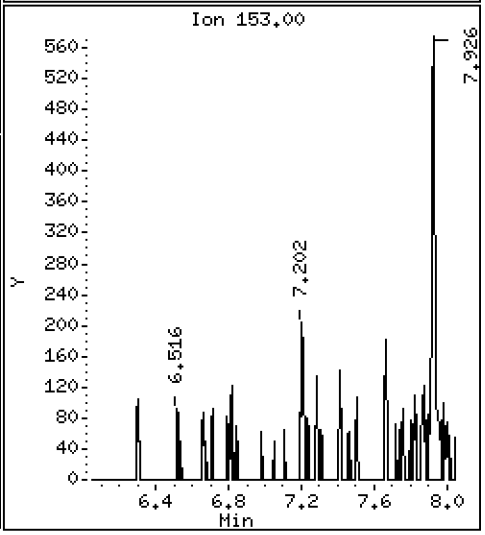


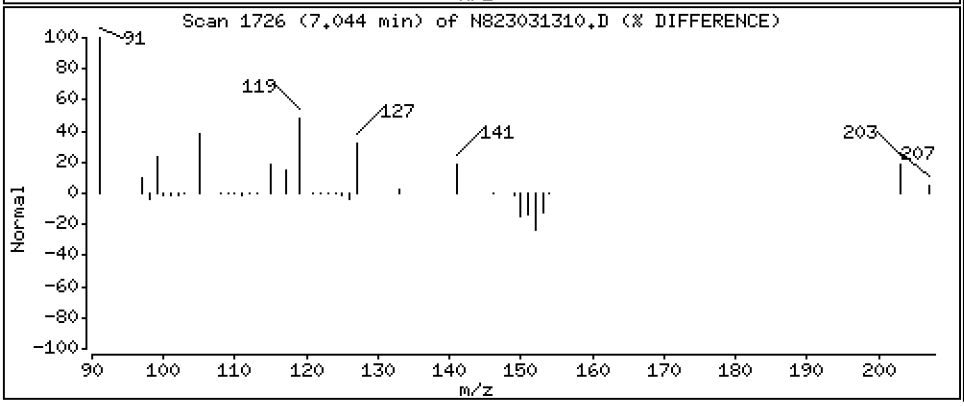












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Date : 13-MAR-2023 17:14

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Instrument: nt8.i

Sample Info: 23C0064-03

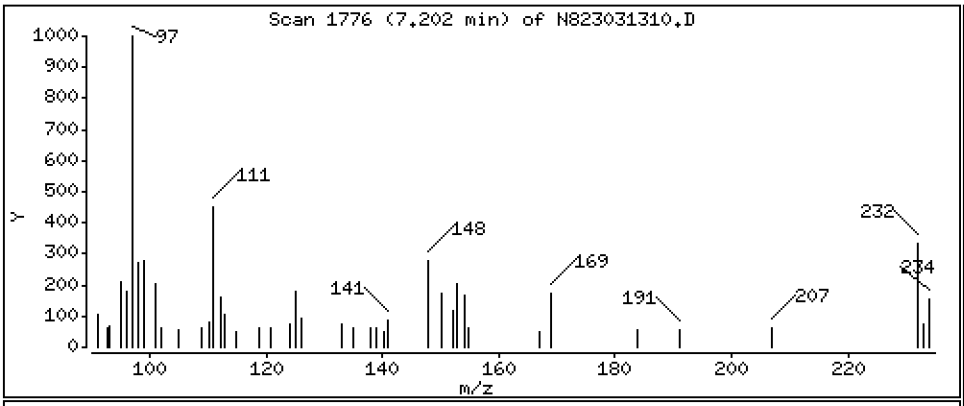
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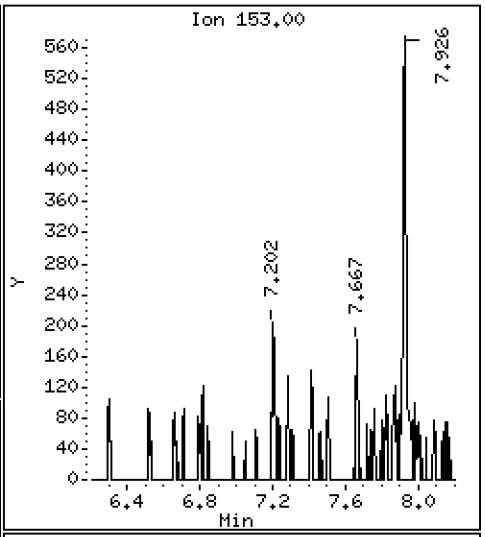
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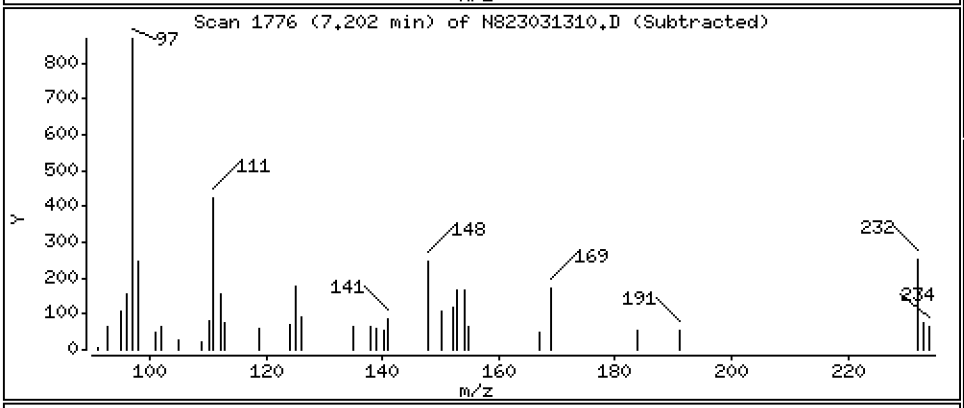
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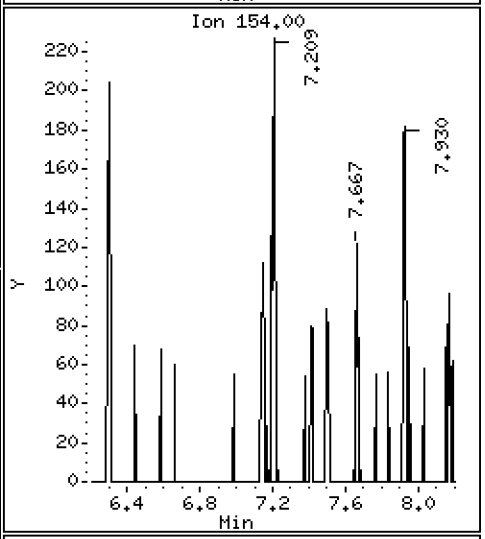
11 Acenaphthene

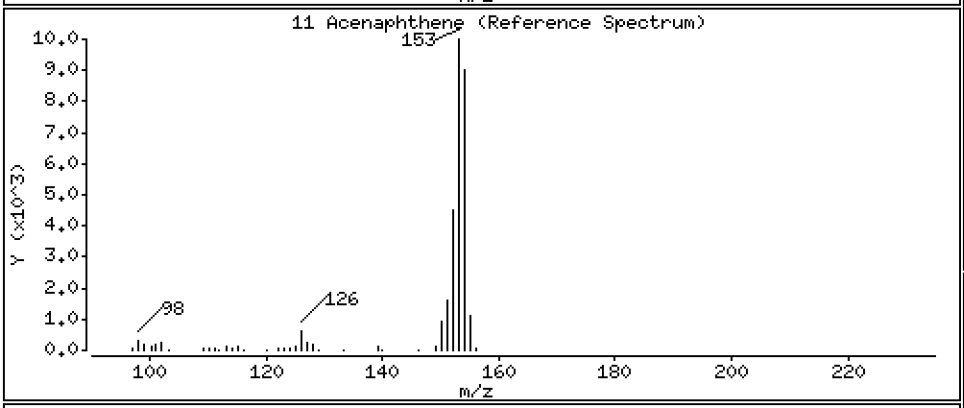
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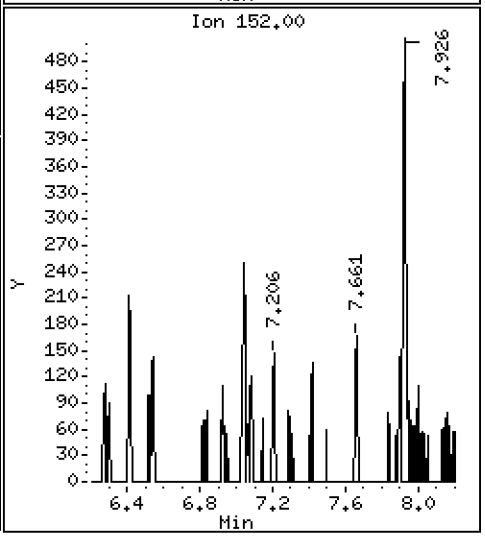


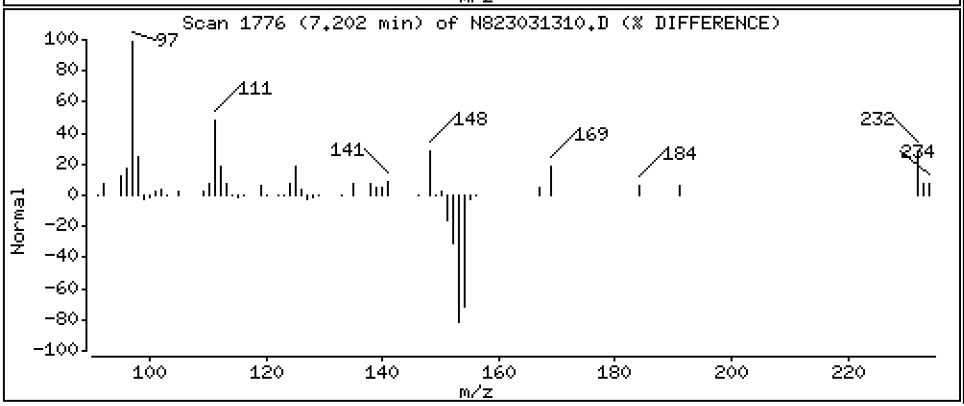












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Date : 13-MAR-2023 17:14

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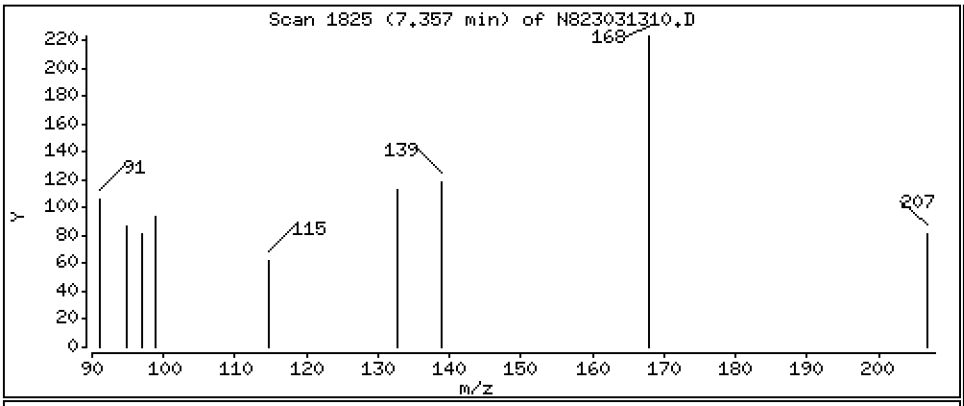
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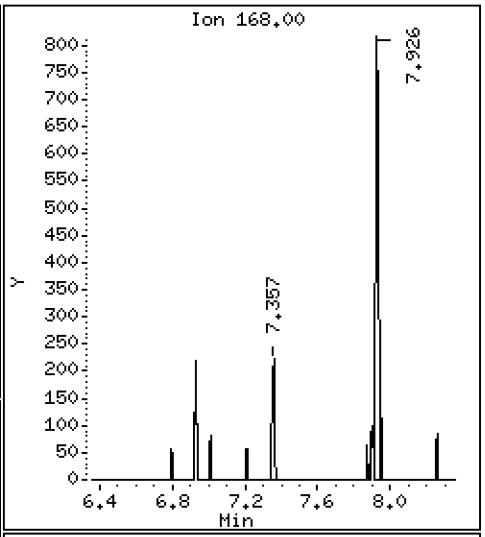
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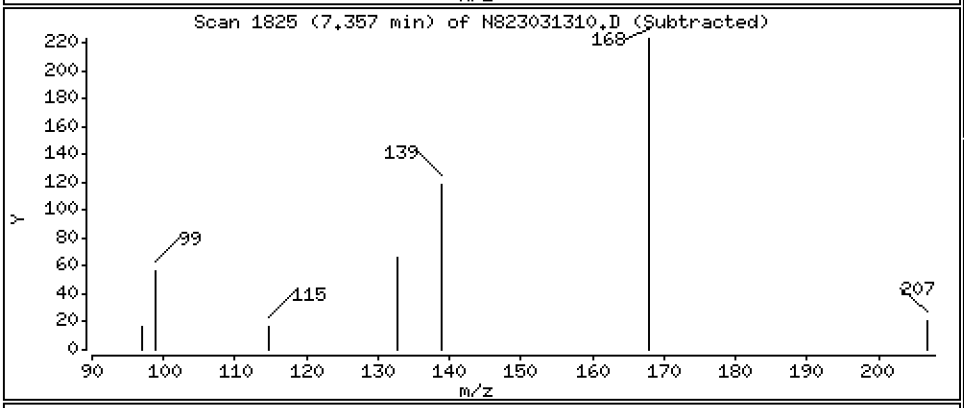
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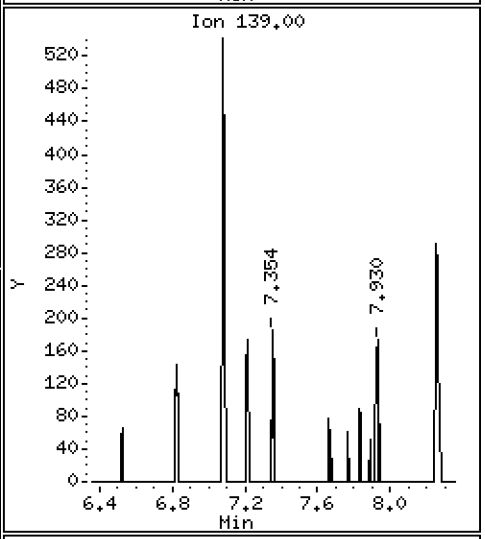
12 Dibenzofuran

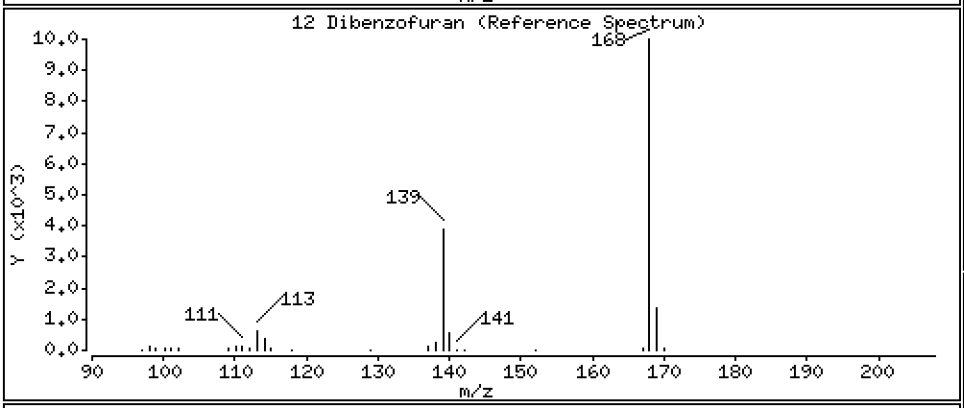
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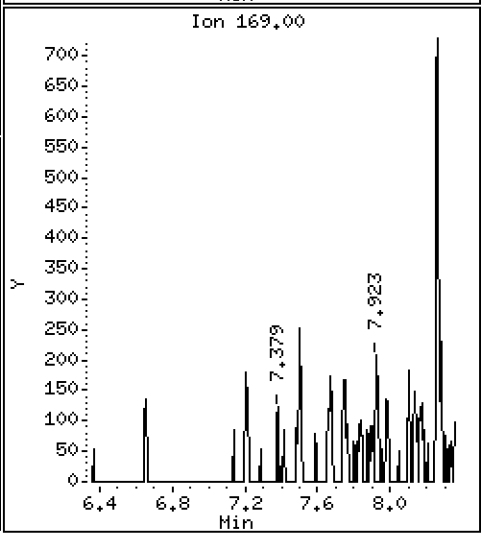


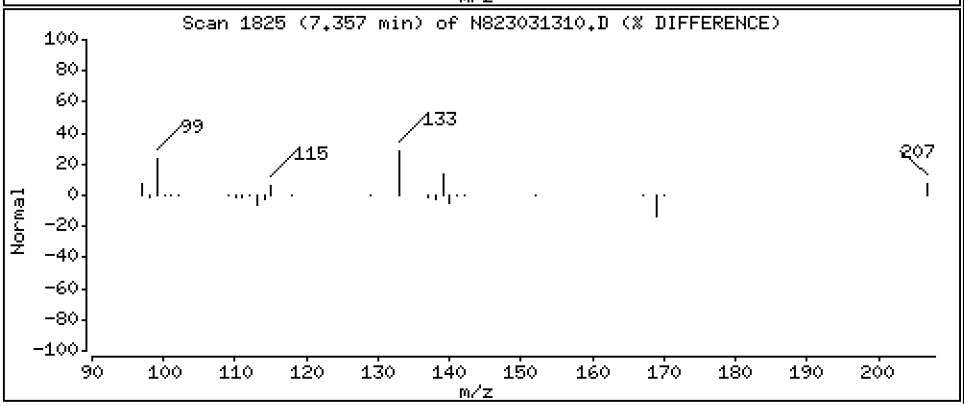












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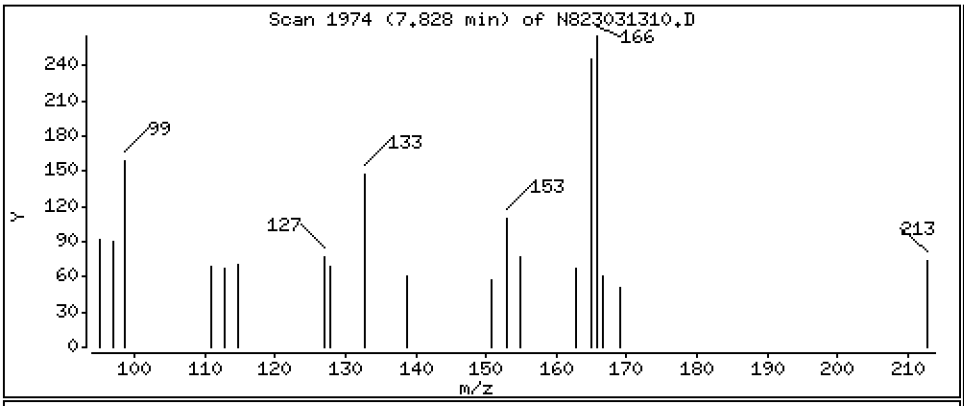
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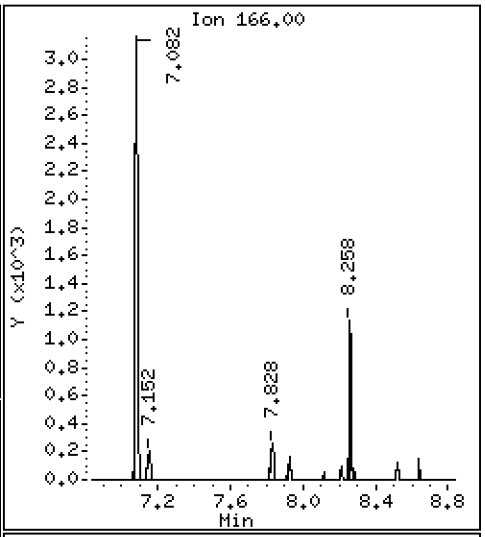
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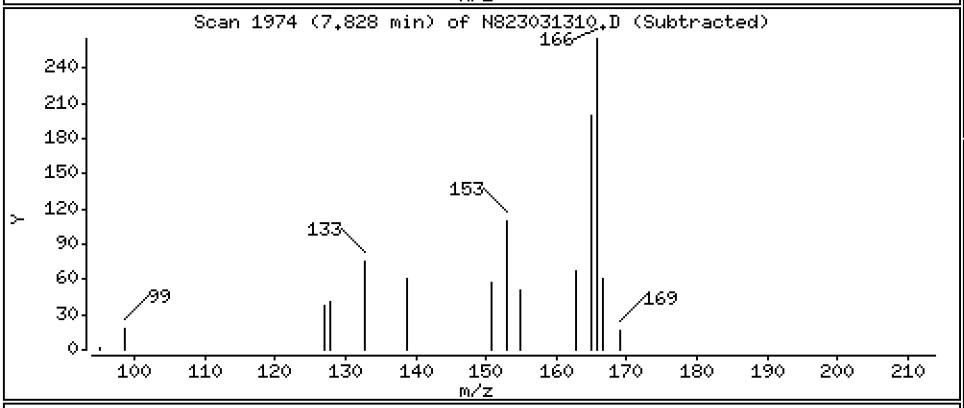
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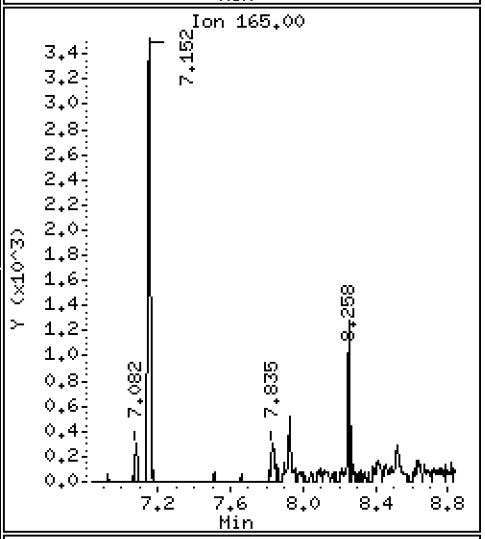
14 Fluorene

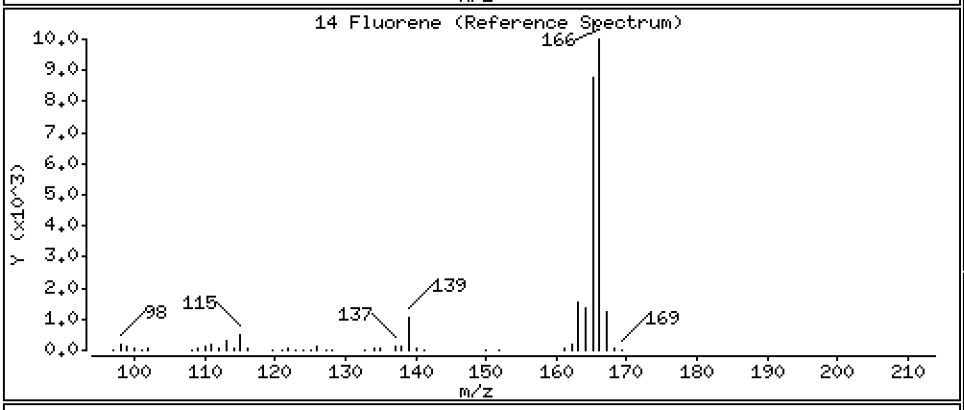
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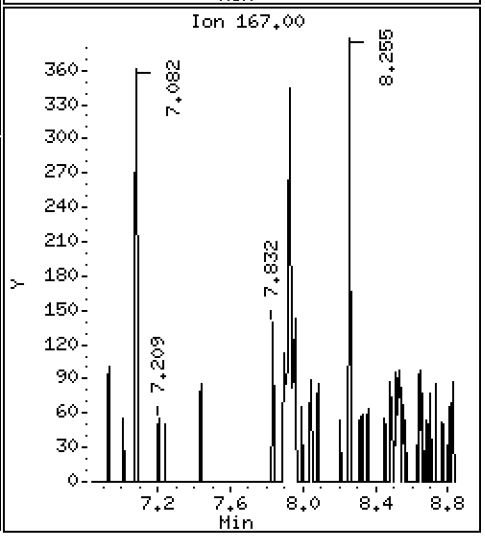


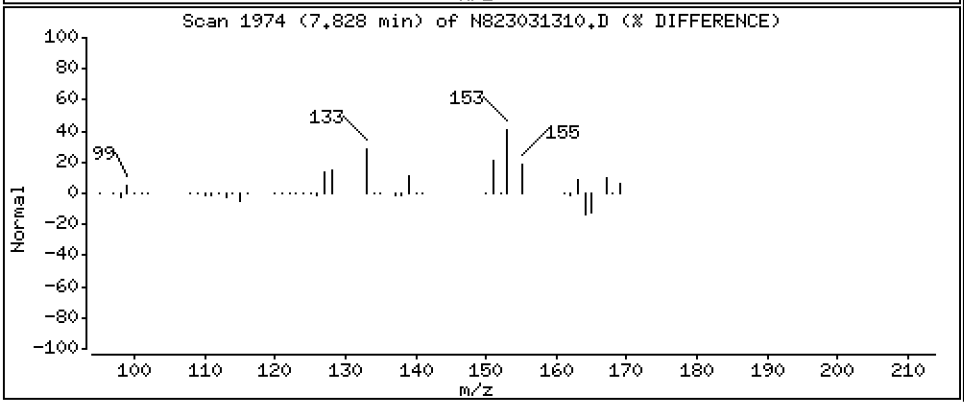












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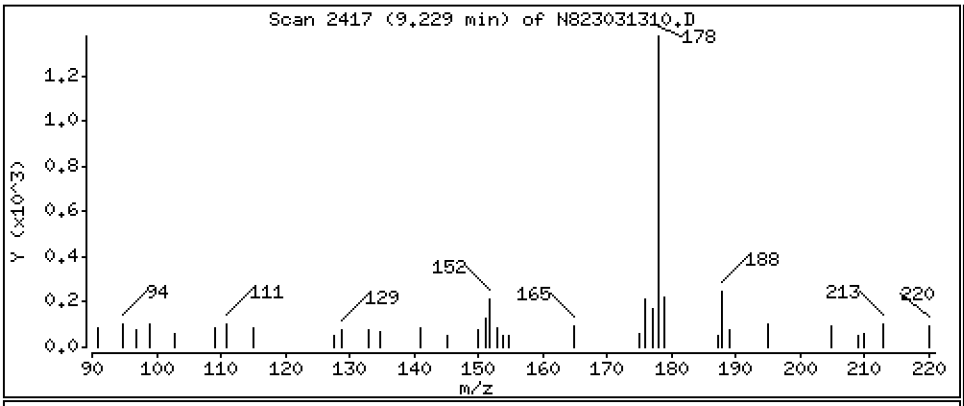
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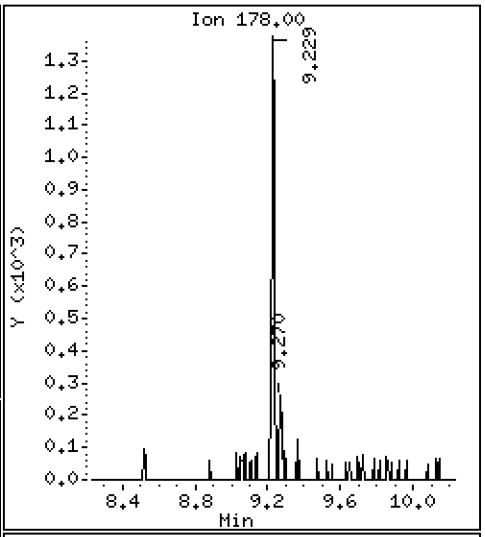
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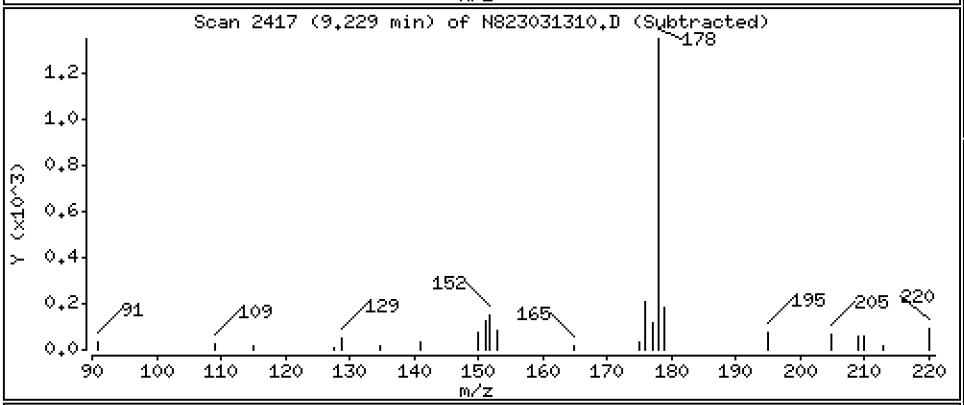
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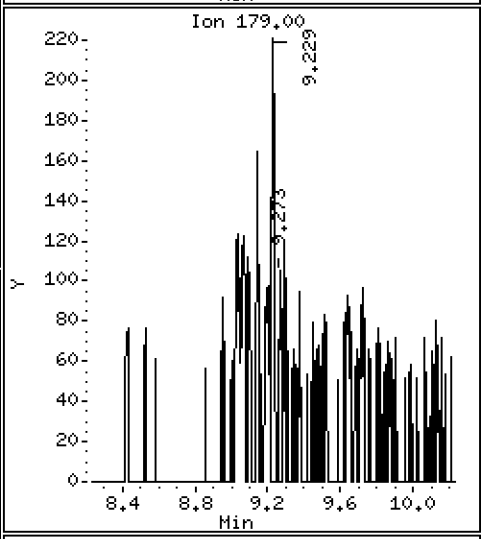
16 Phenanthrene

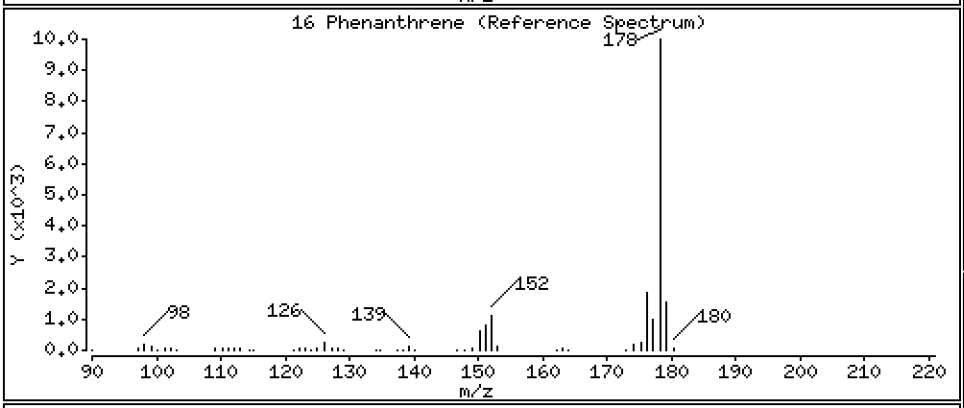
Concentration: 0.05753 ug/mL

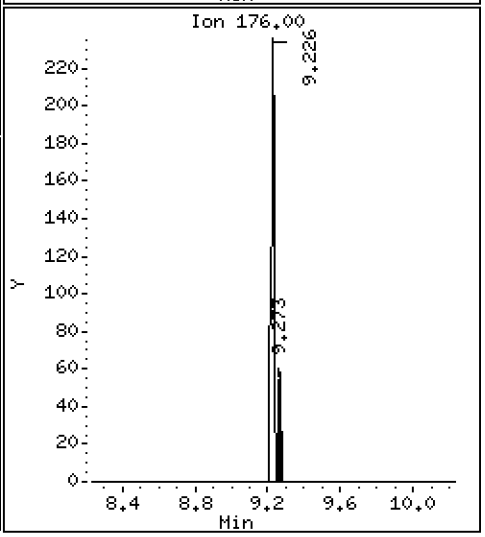


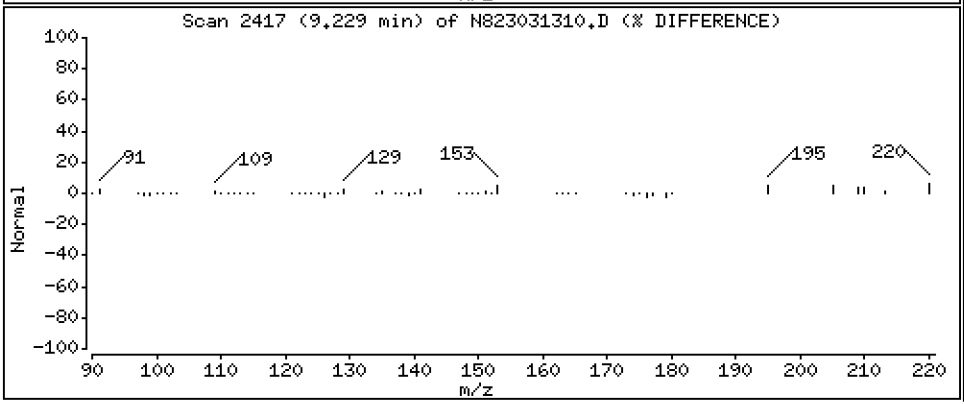












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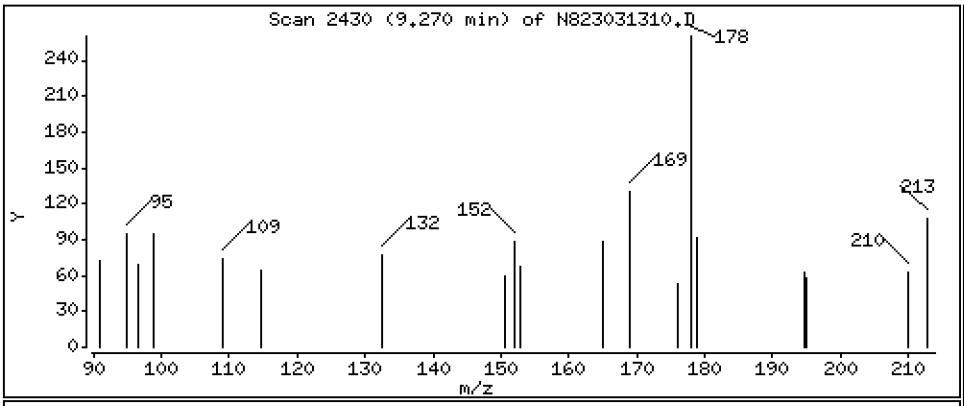
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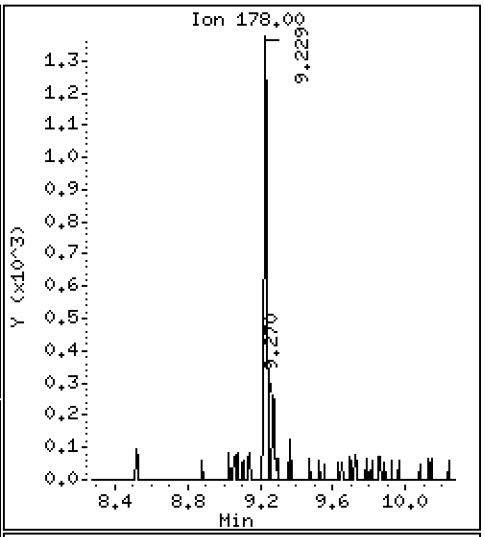
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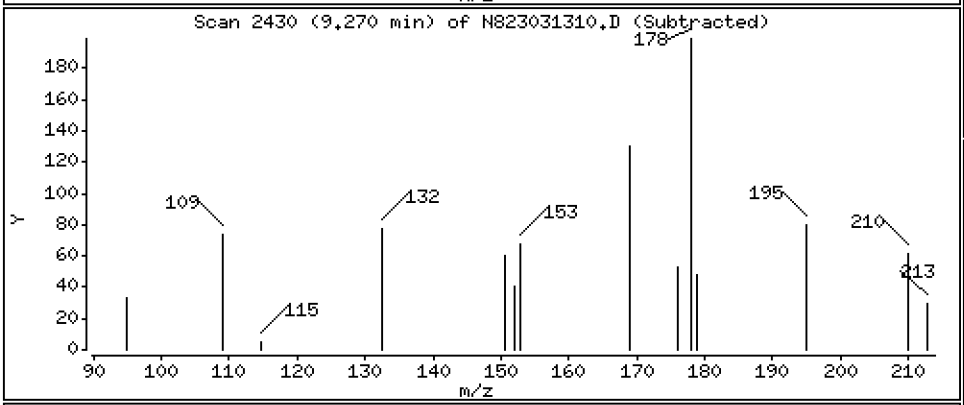
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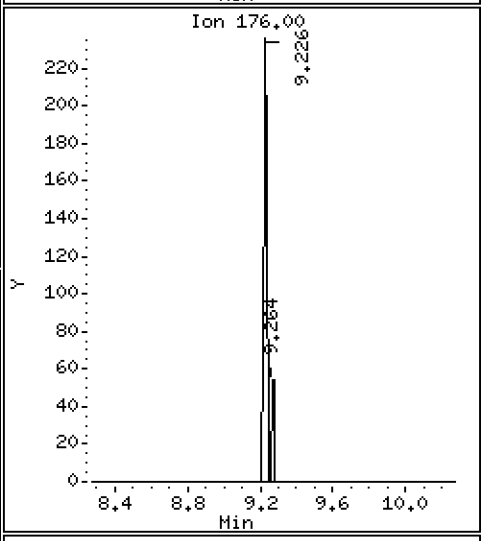
17 Anthracene

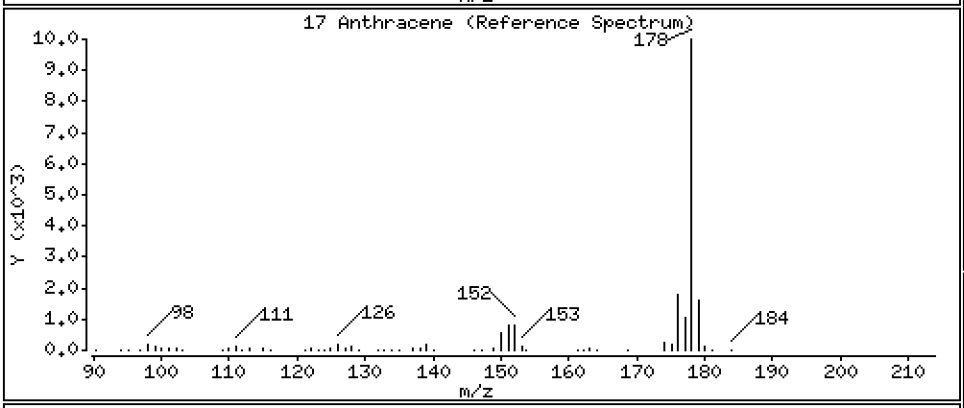
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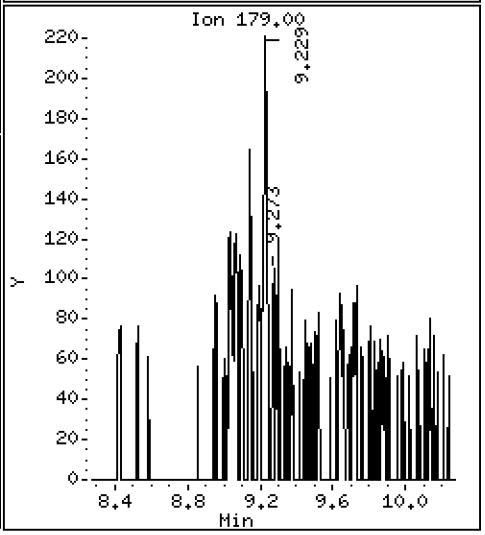


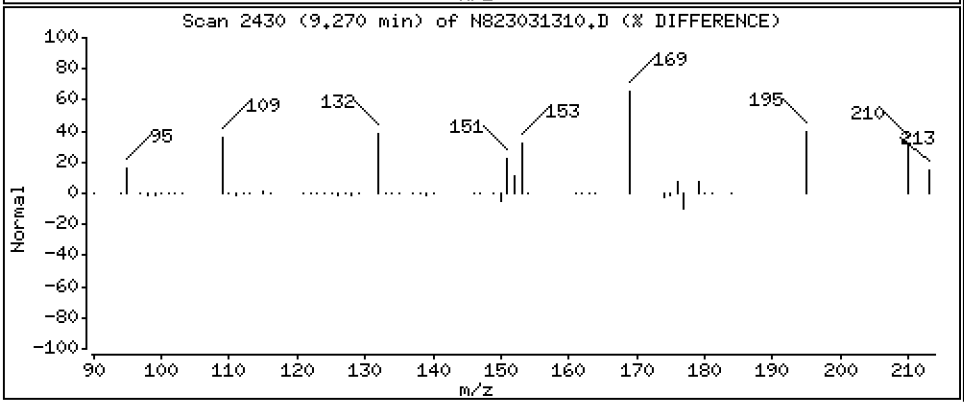












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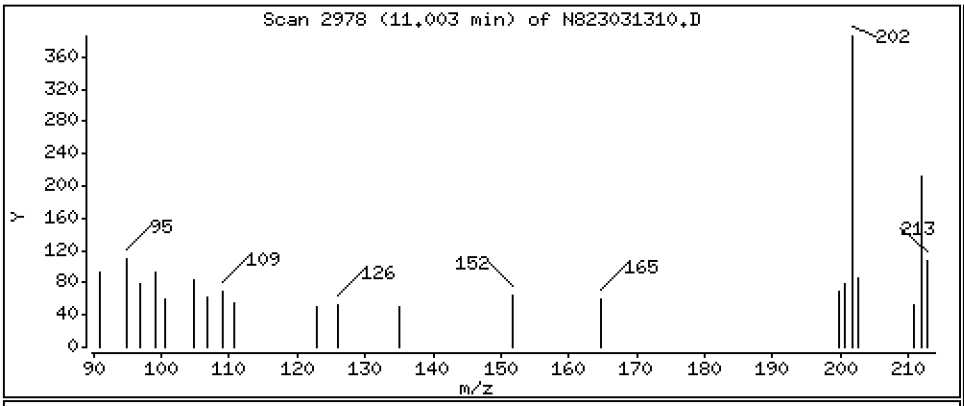
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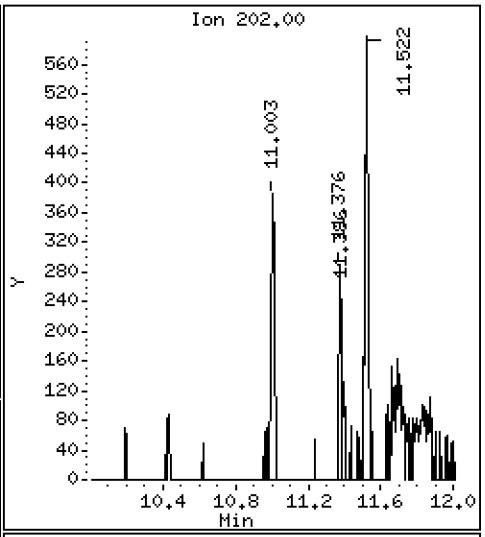
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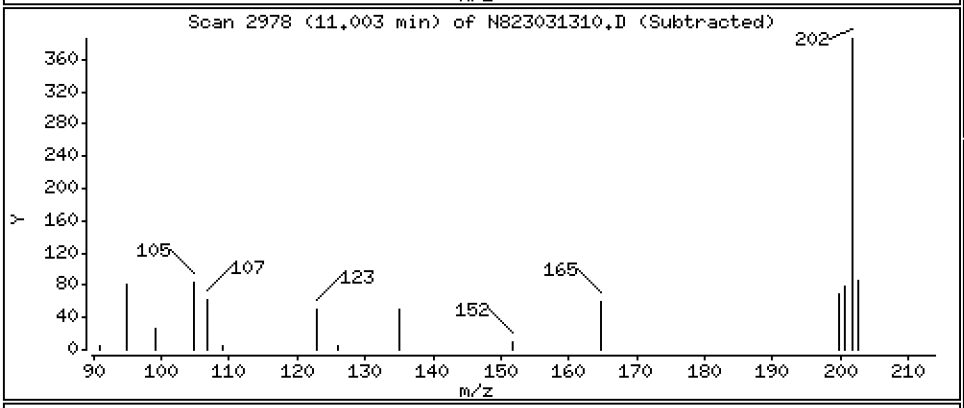
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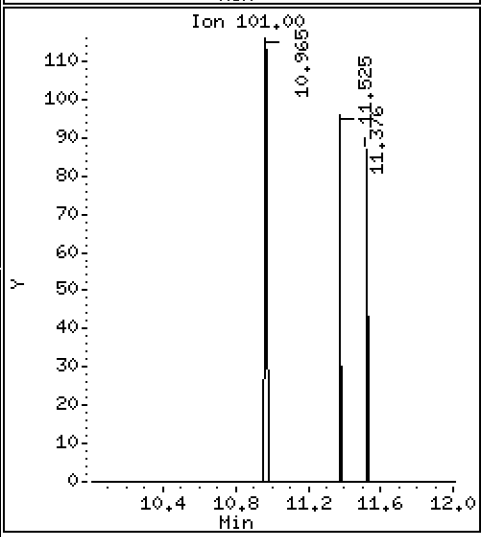
22 Fluoranthene

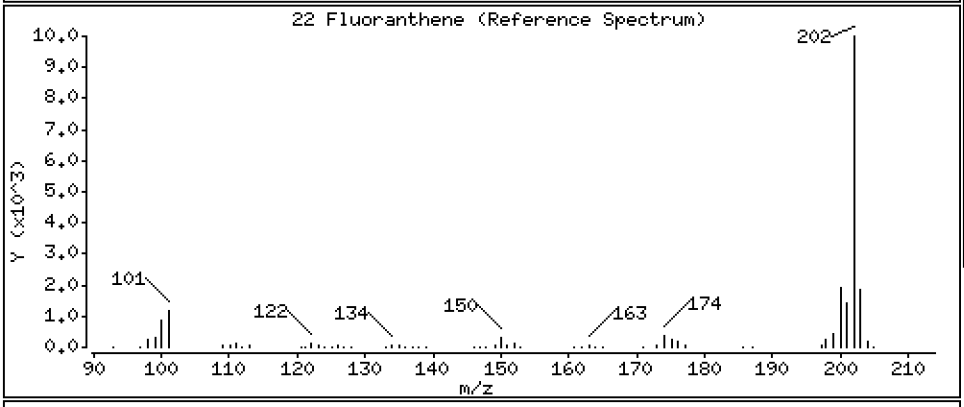
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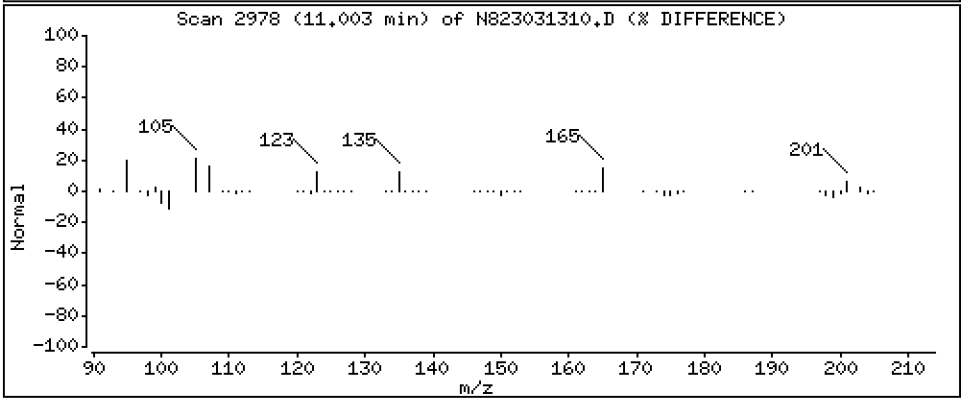












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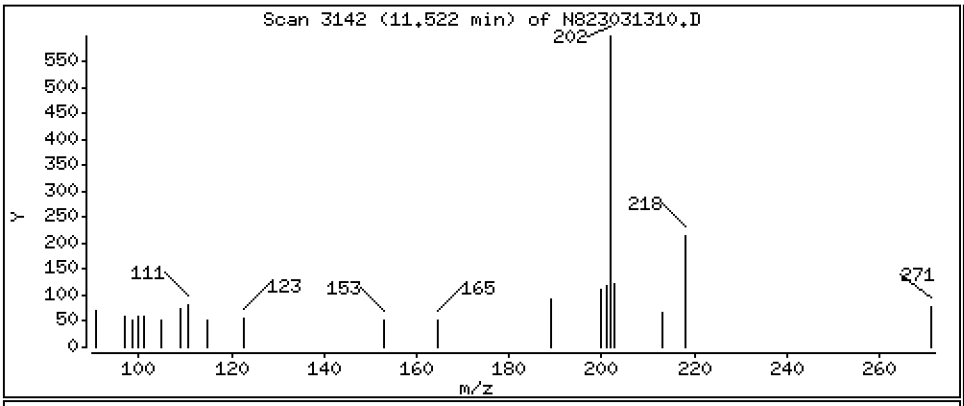
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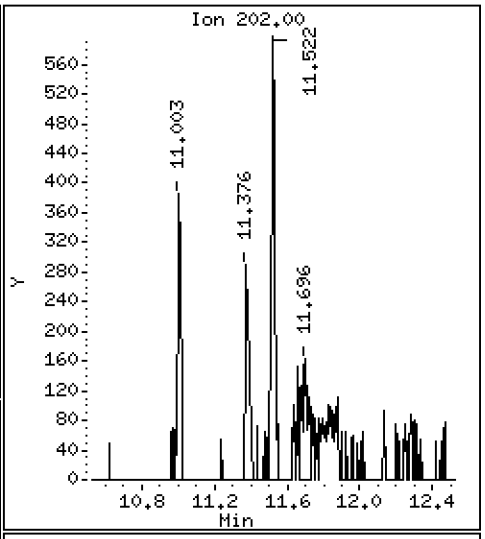
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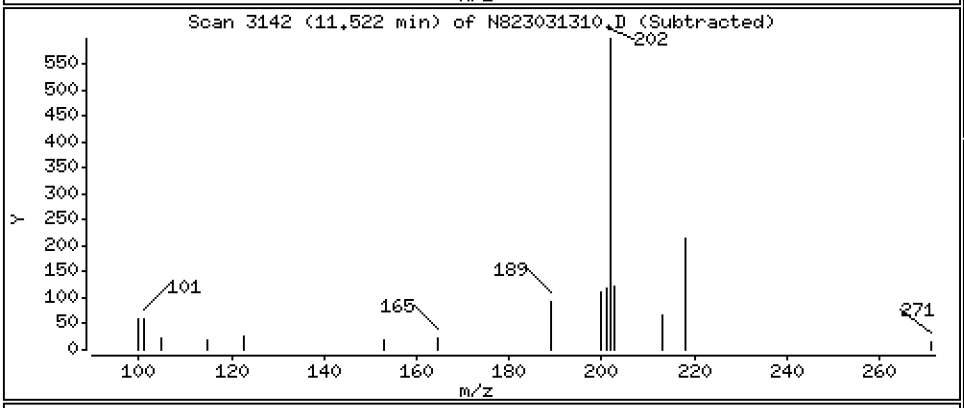
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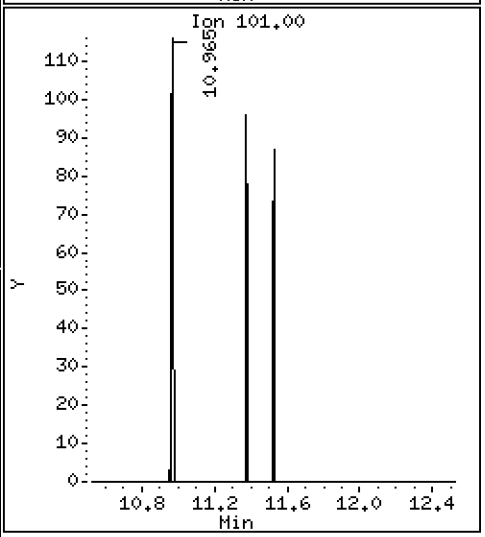
23 Pyrene

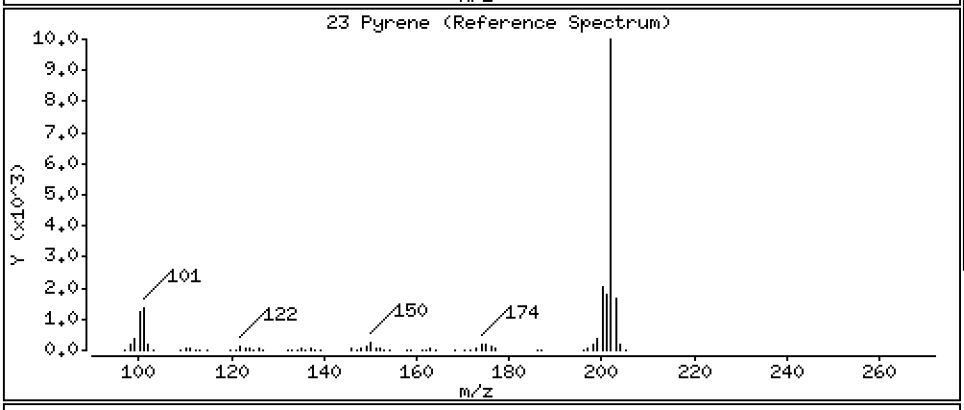
Concentration: 0.03044 ug/mL

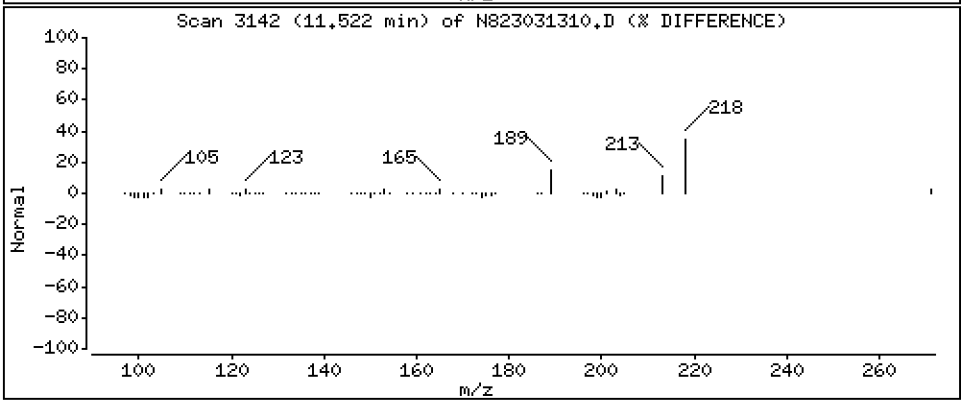












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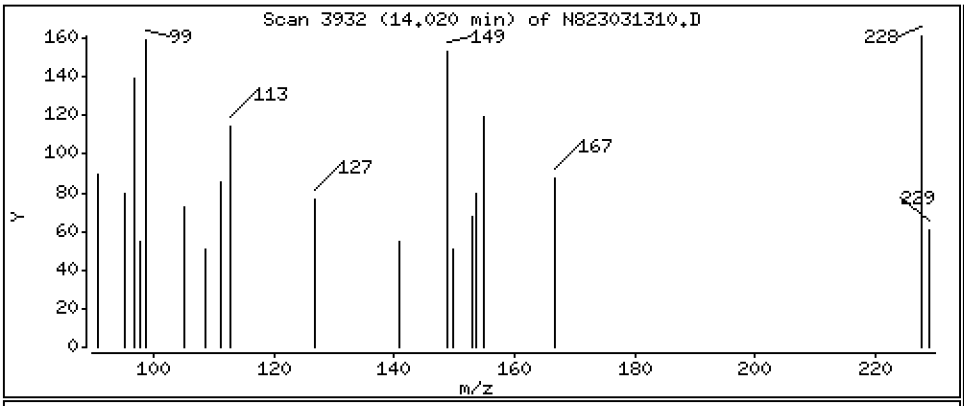
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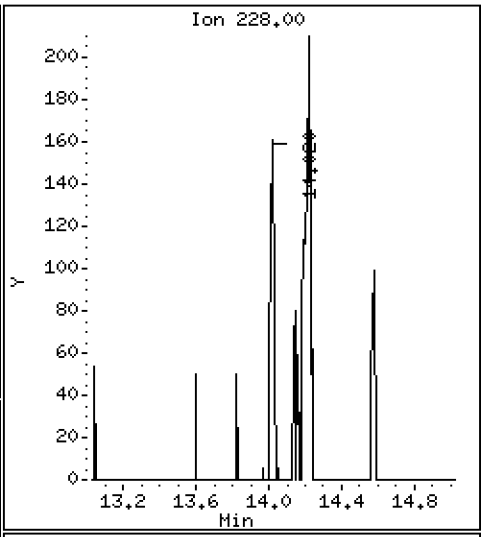
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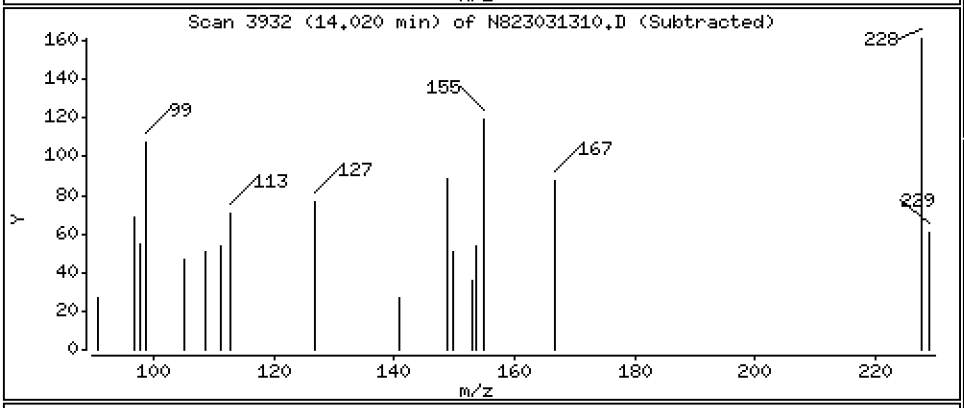
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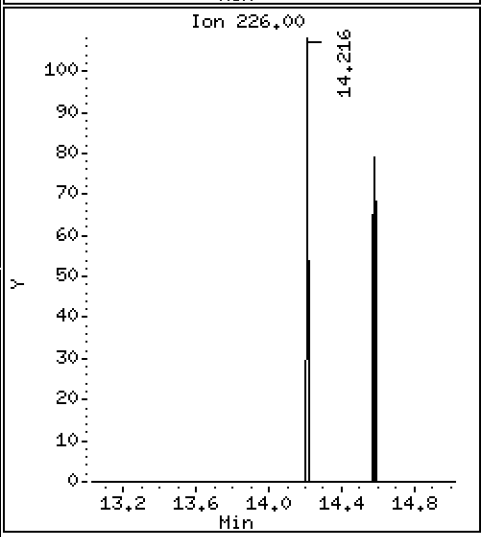
24 Benzo(a)anthracene

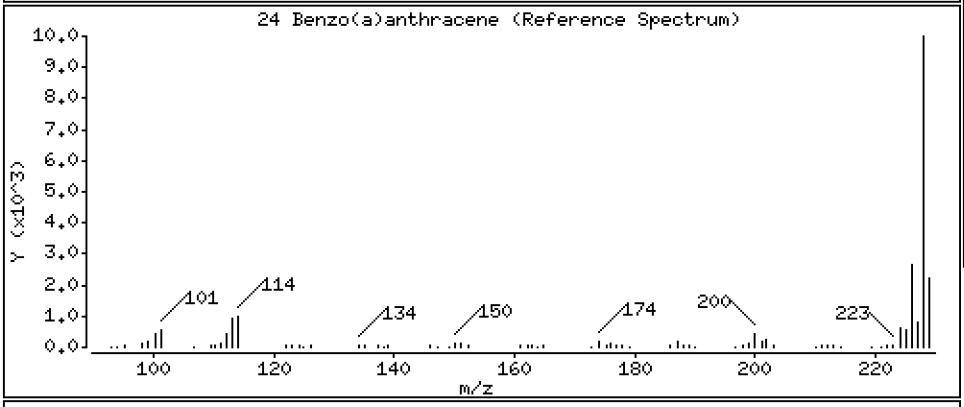
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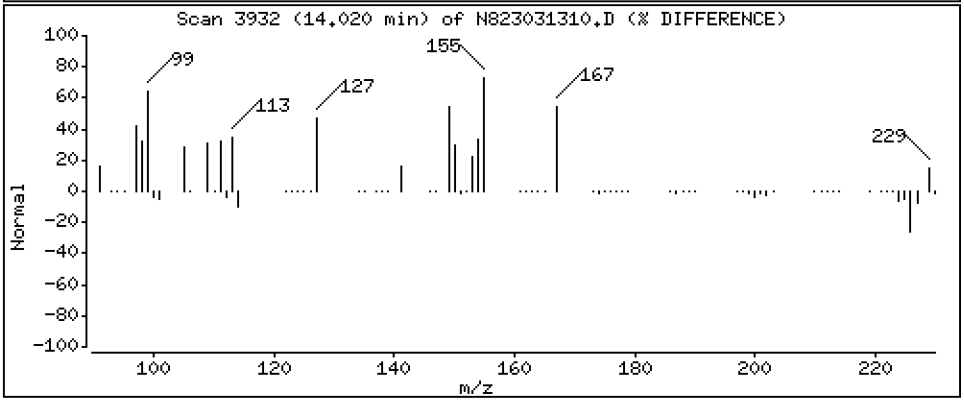












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Instrument: nt8.i

Sample Info: 23C0064-03

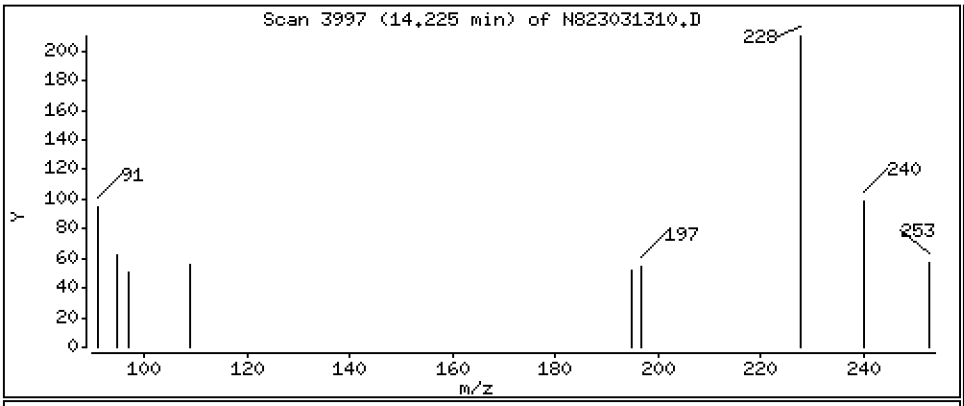
Operator: JZ

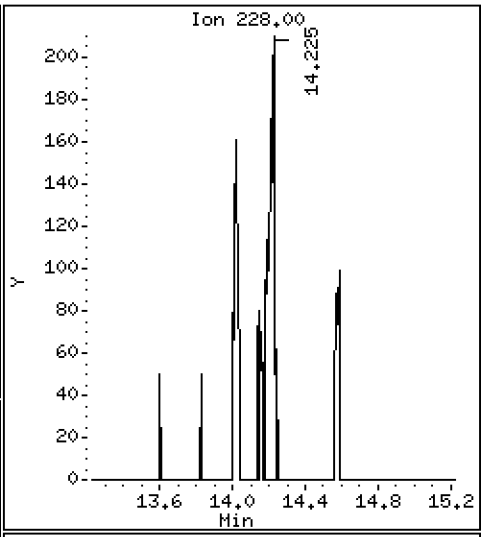
Column phase: Rxi-17sil

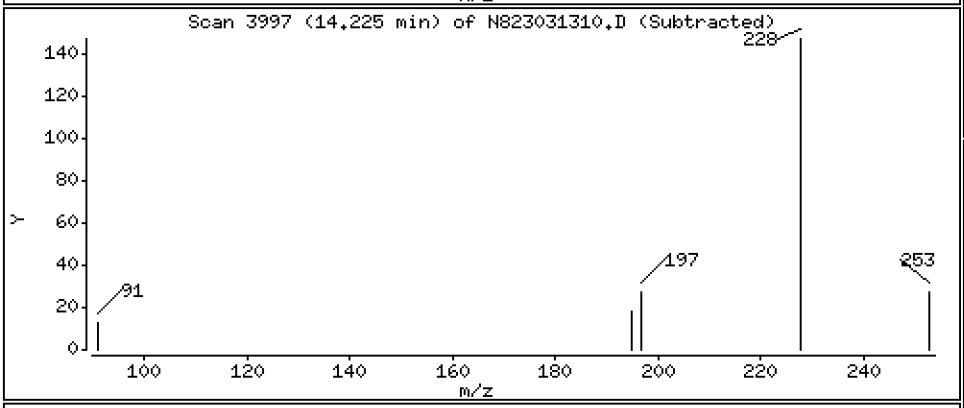
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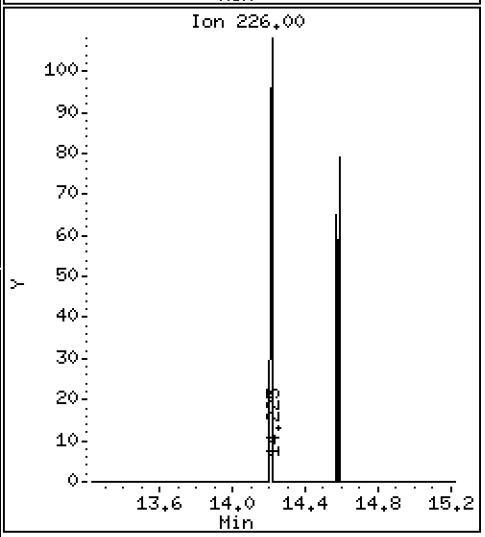
27 Chrysene

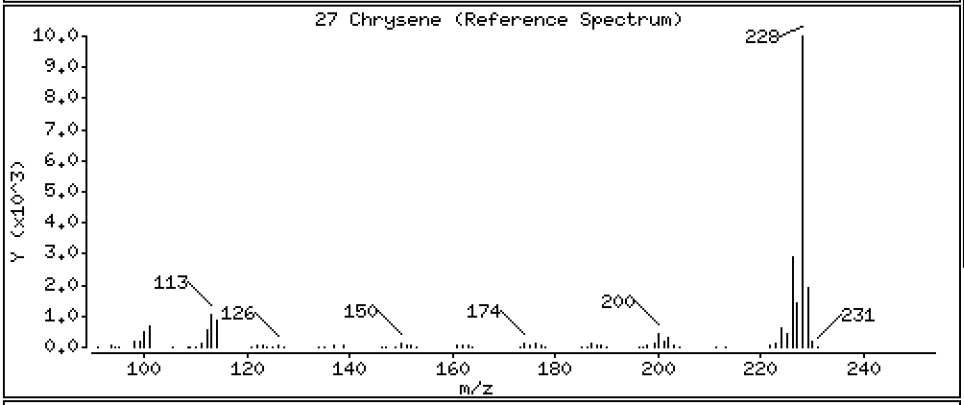
Concentration: 0.01868 ug/mL

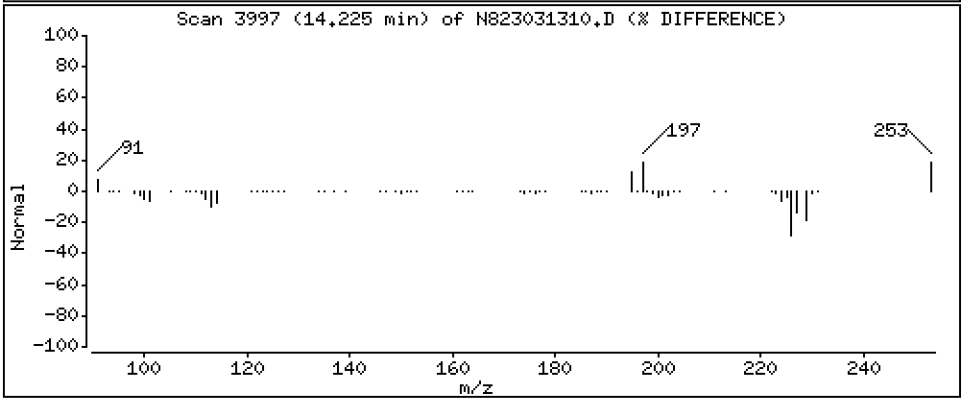












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031310.D

Date : 13-MAR-2023 17:14

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

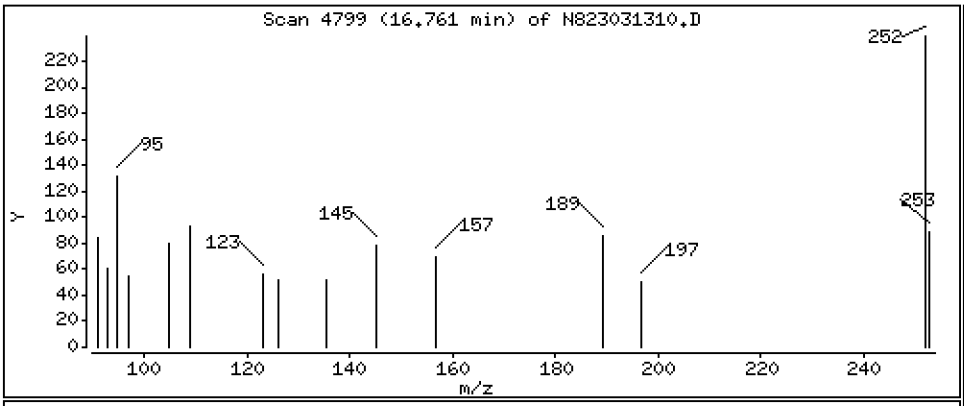
Operator: JZ

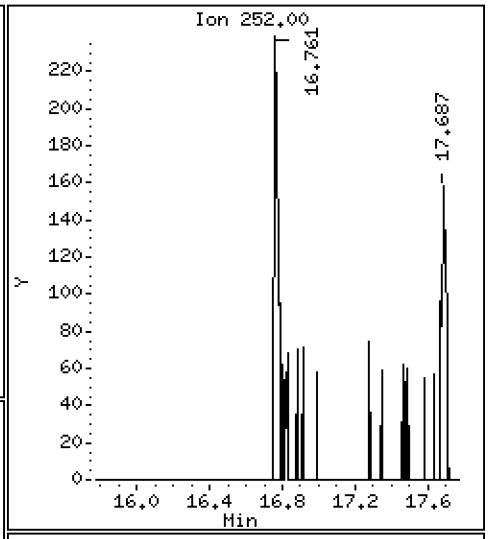
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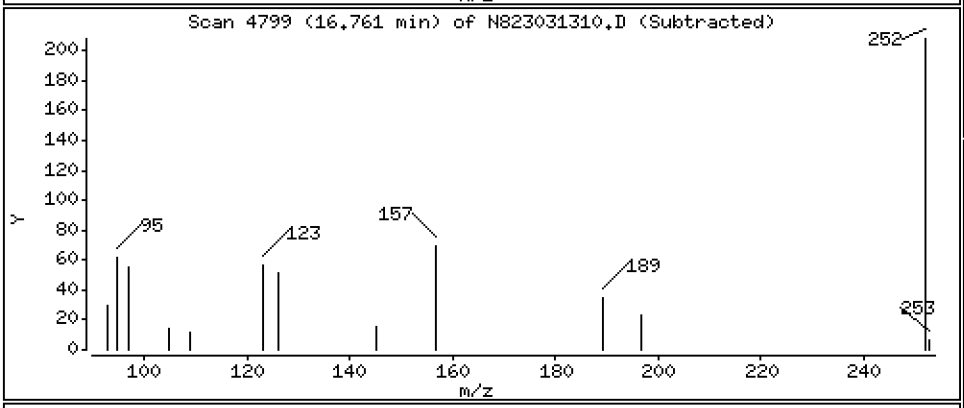
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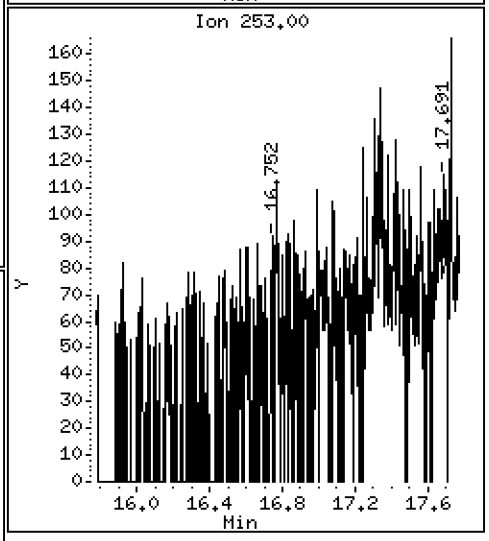
28 Benzo(b)fluoranthene

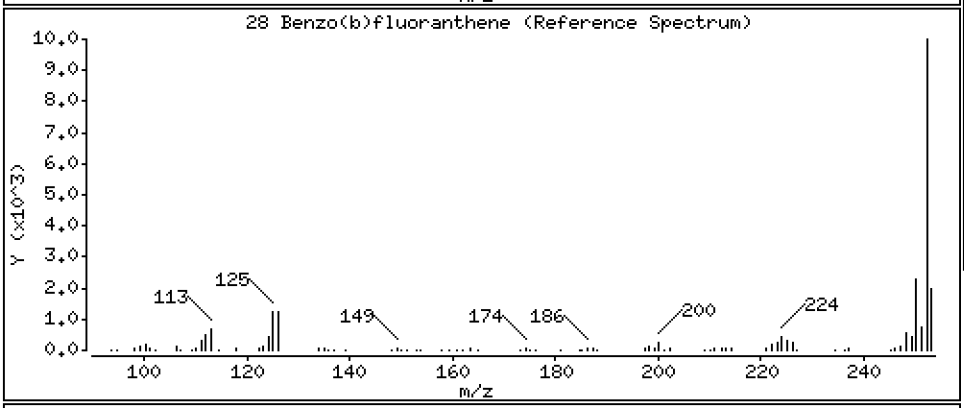
Concentration: 0.01692 ug/mL

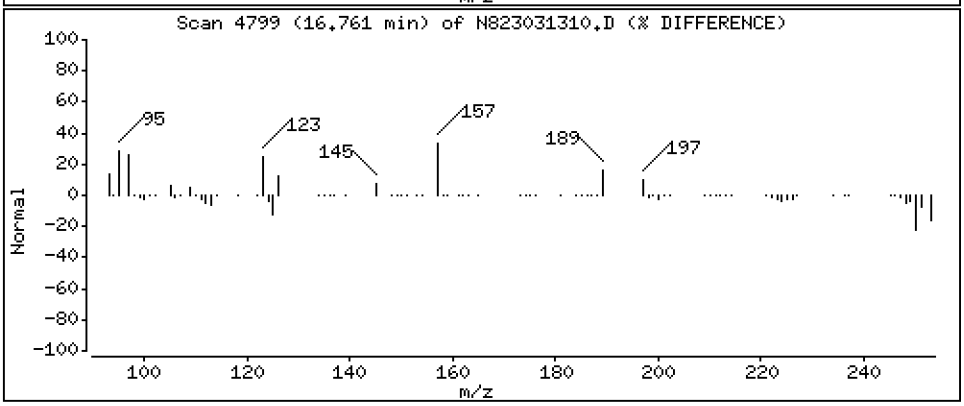












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031310.D

Date : 13-MAR-2023 17:14

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

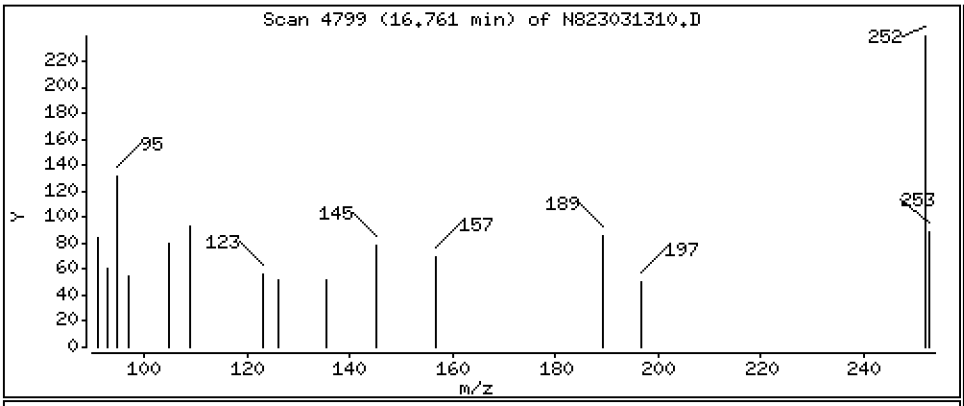
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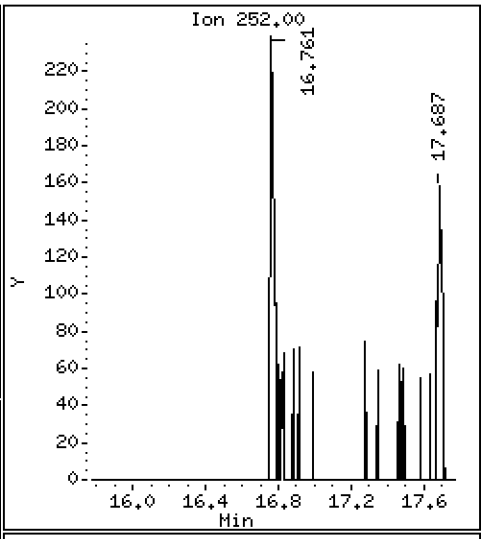
Column phase: Rxi-17sil

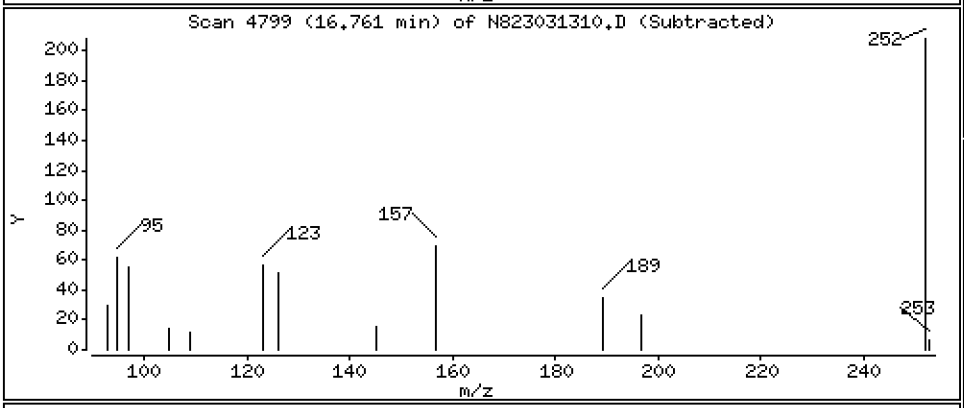
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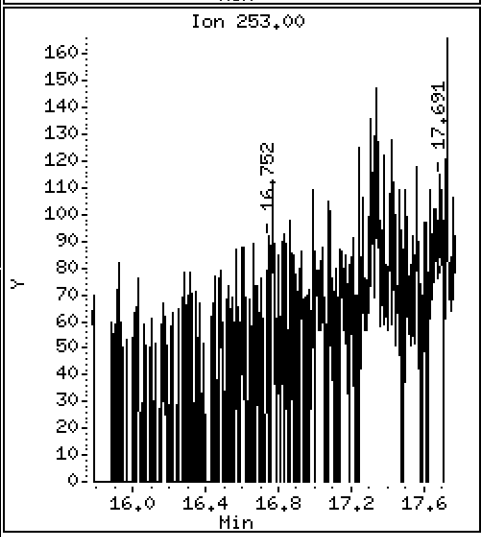
31 Total Benzofluoranthenes

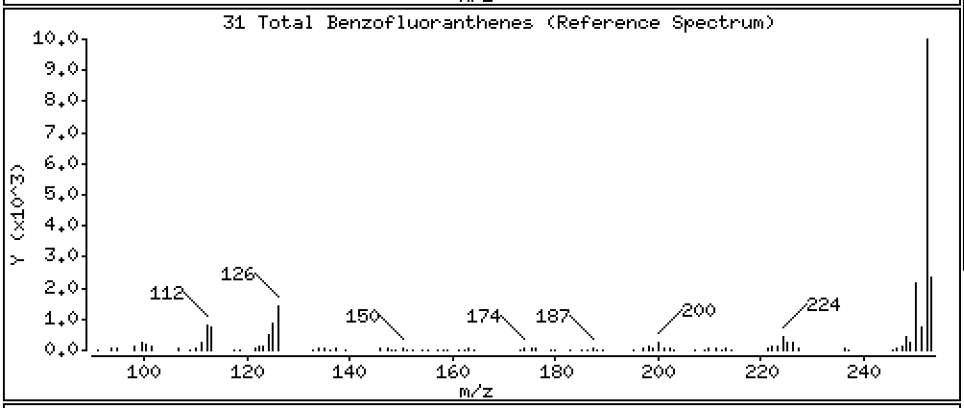
Concentration: 0.01786 ug/mL

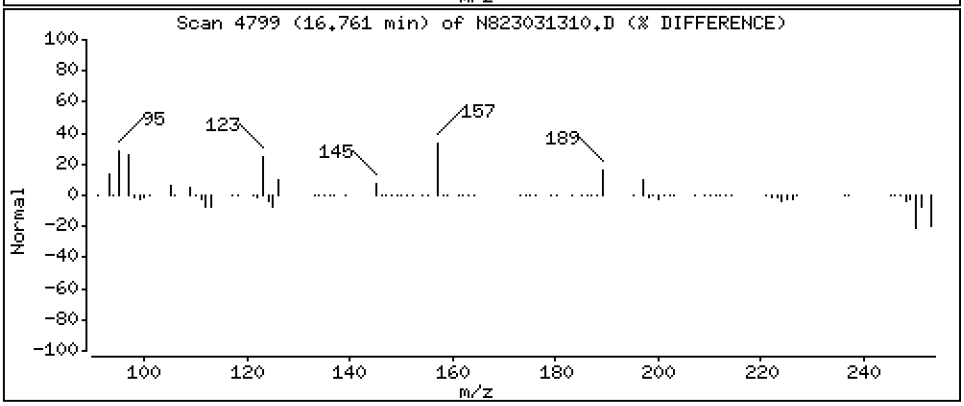












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031310.D

Date : 13-MAR-2023 17:14

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

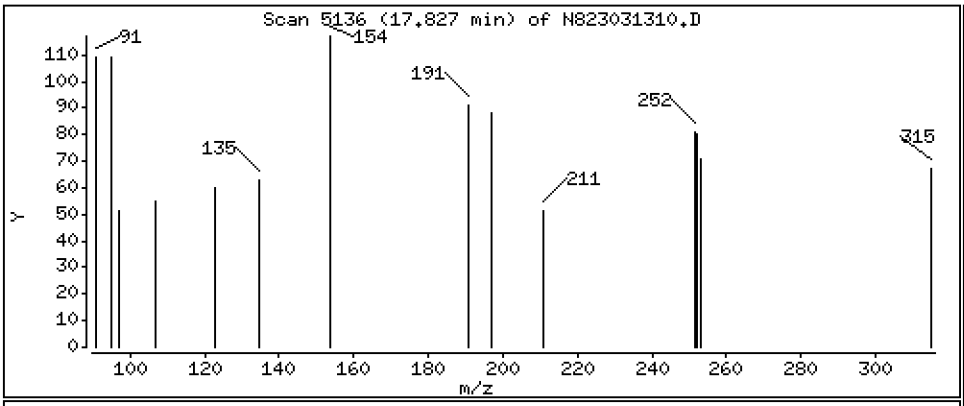
Operator: JZ

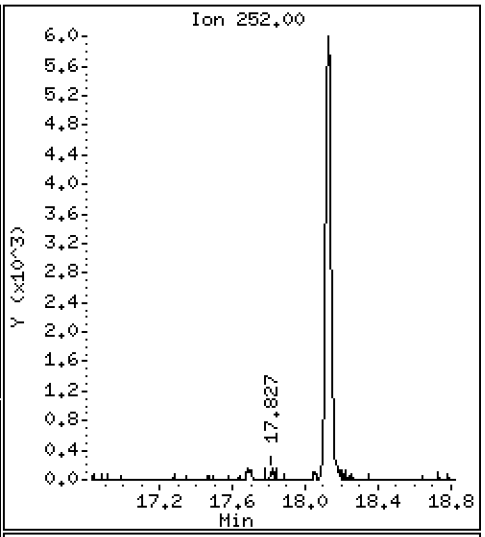
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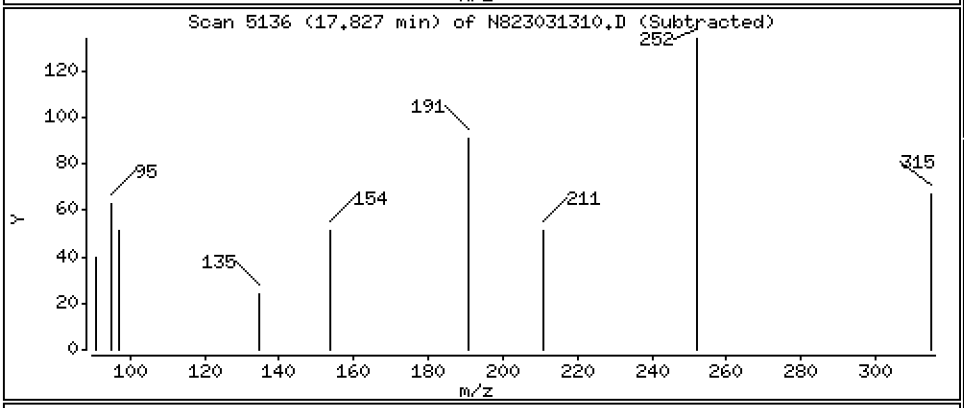
Column diameter: 0.25

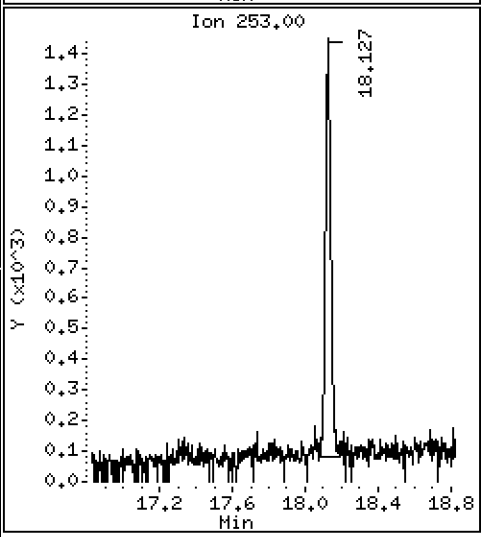
32 Benzo(a)pyrene

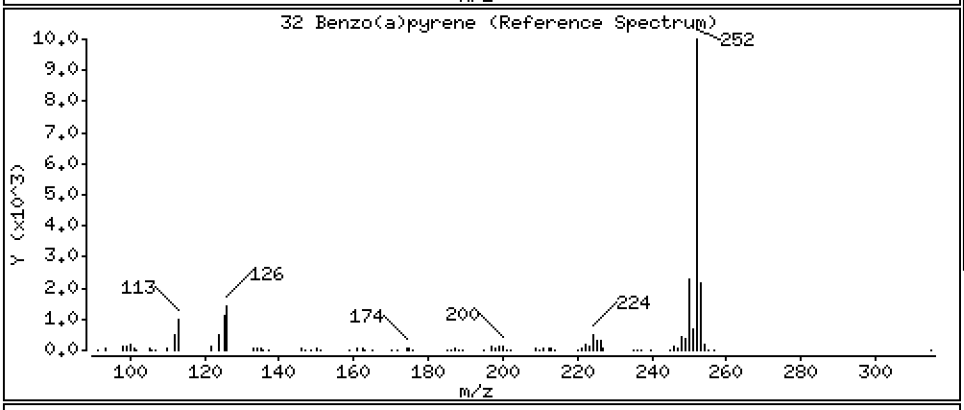
Concentration: 0.008397 ug/mL

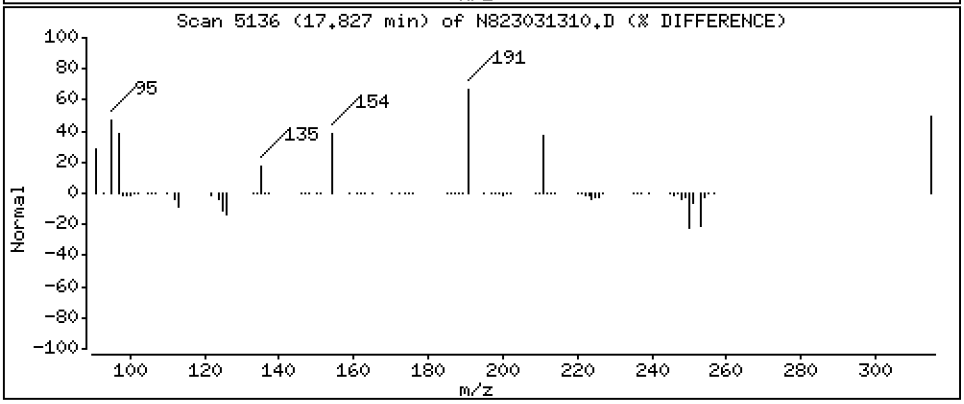












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031310.D

Date : 13-MAR-2023 17:14

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

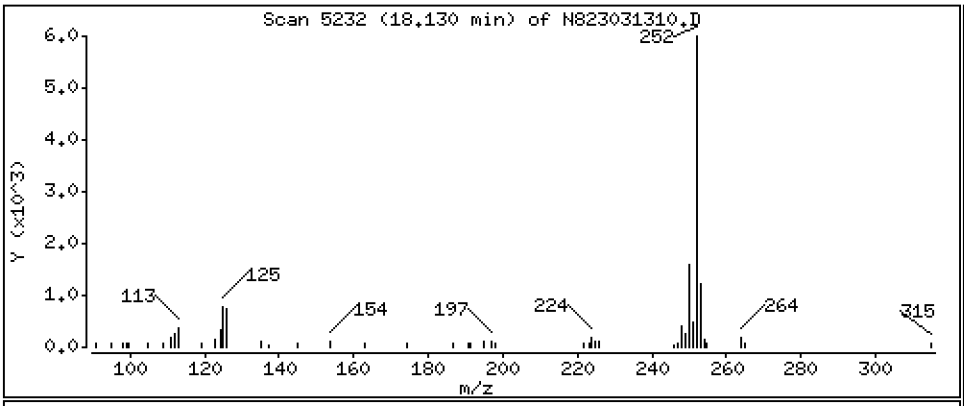
Operator: JZ

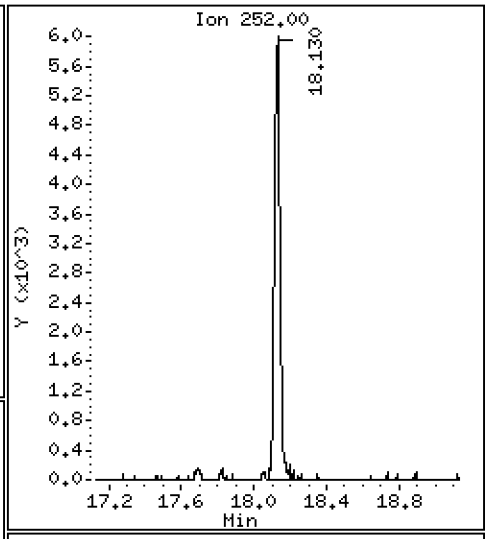
Column phase: Rxi-17sil

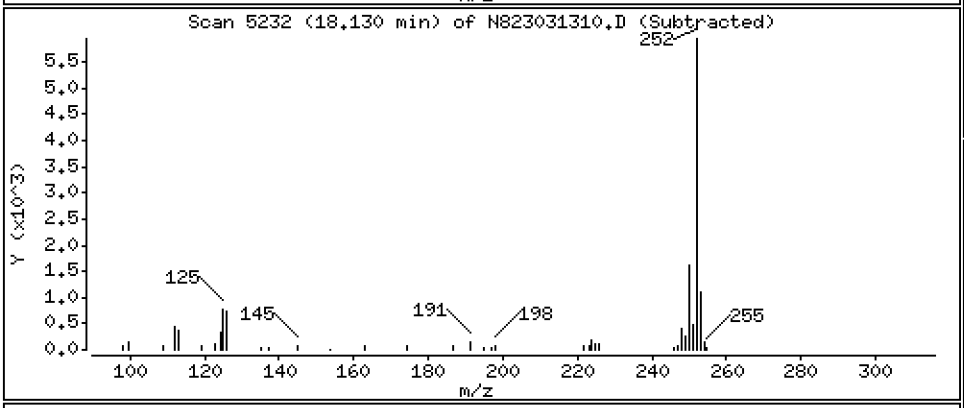
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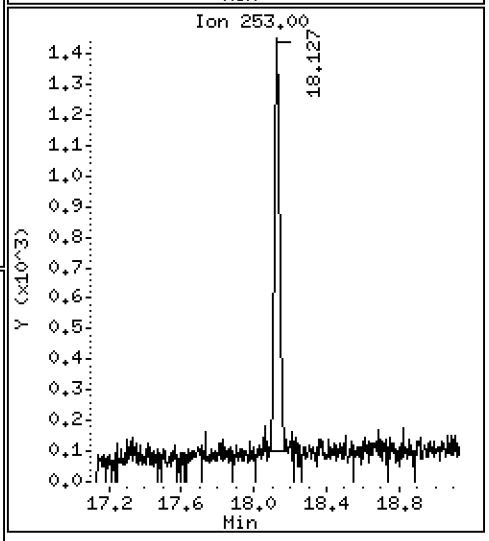
35 Perylene

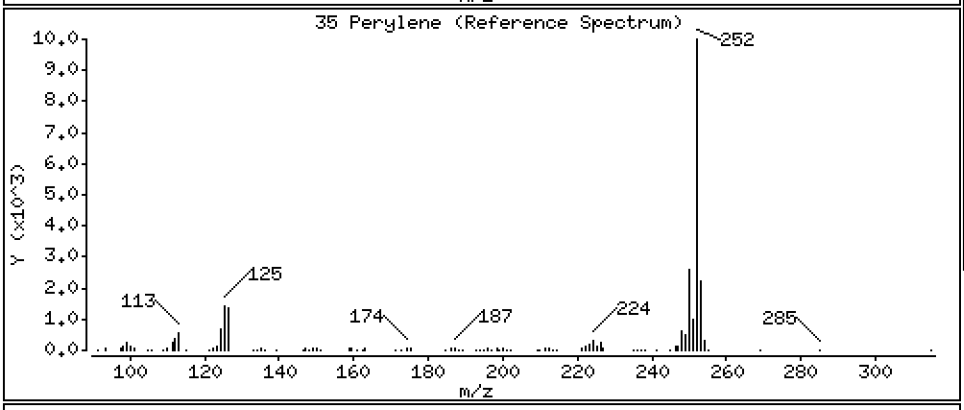
Concentration: 0.6346 ug/mL

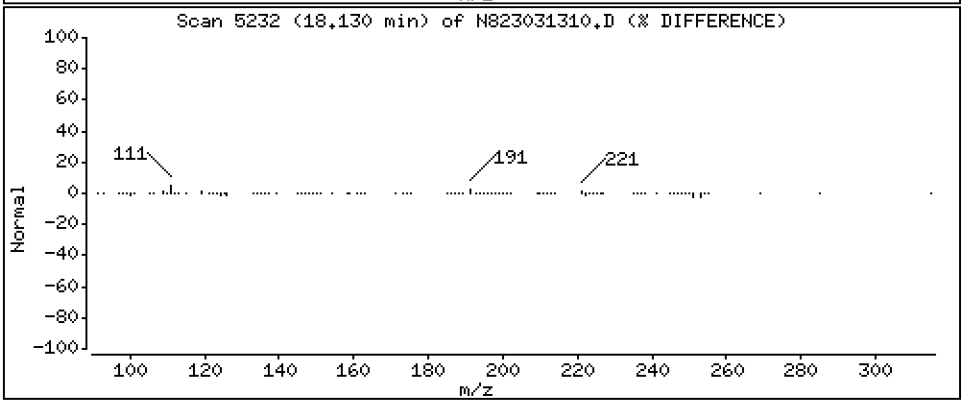












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031310.D

Date : 13-MAR-2023 17:14

Client ID:

Instrument: nt8.i

Sample Info: 23C0064-03

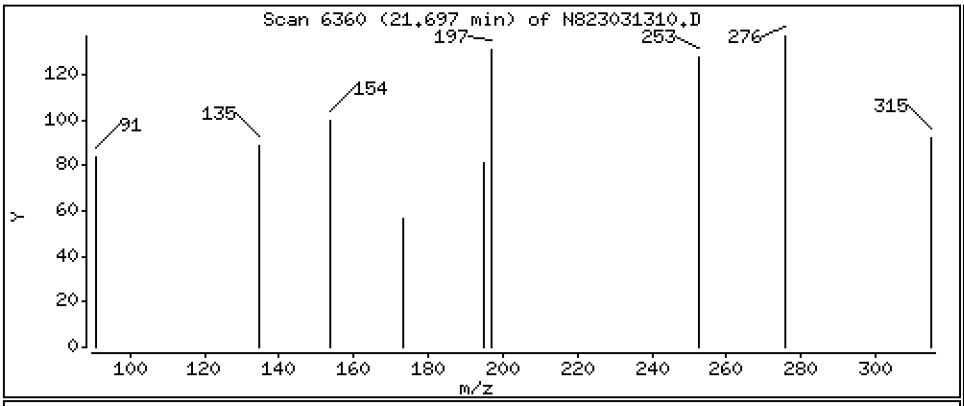
Operator: JZ

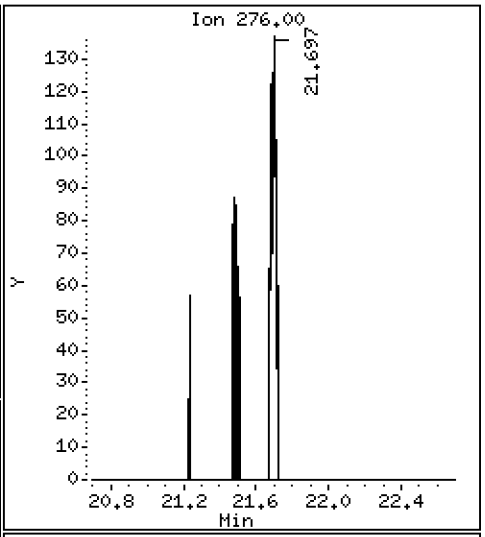
Column phase: Rxi-17sil

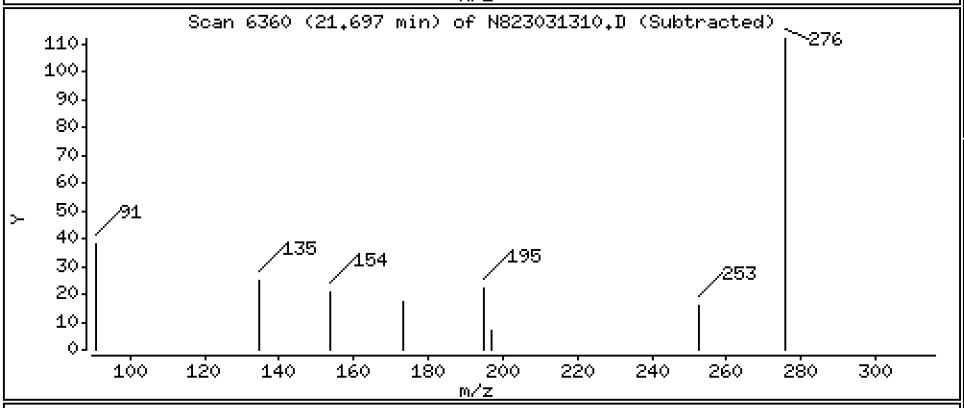
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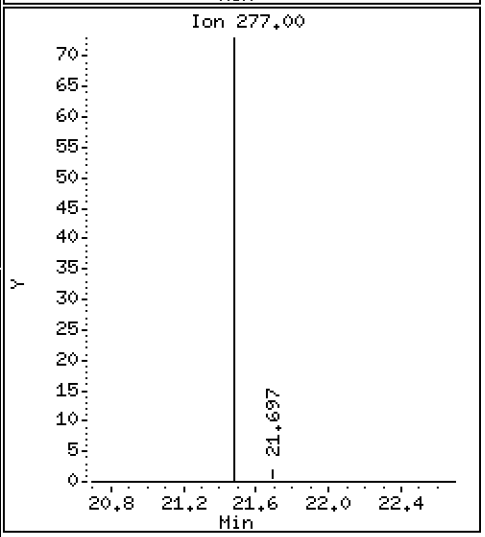
39 Benzo(g,h,i)perylene

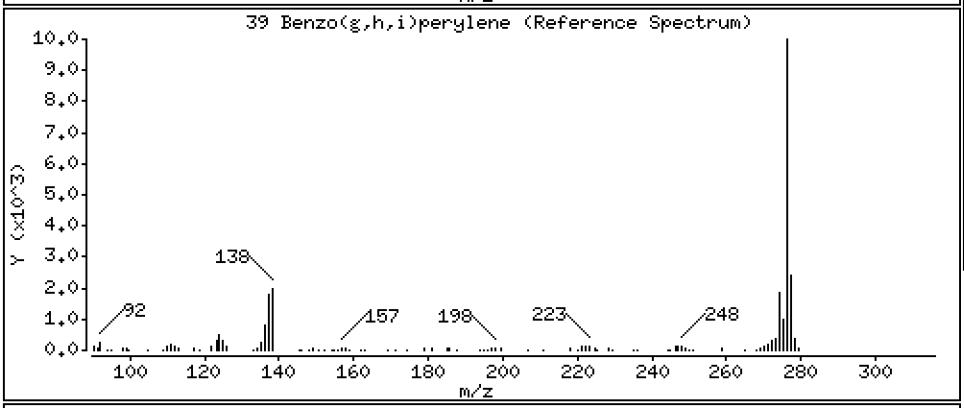
Concentration: 0.01259 ug/mL

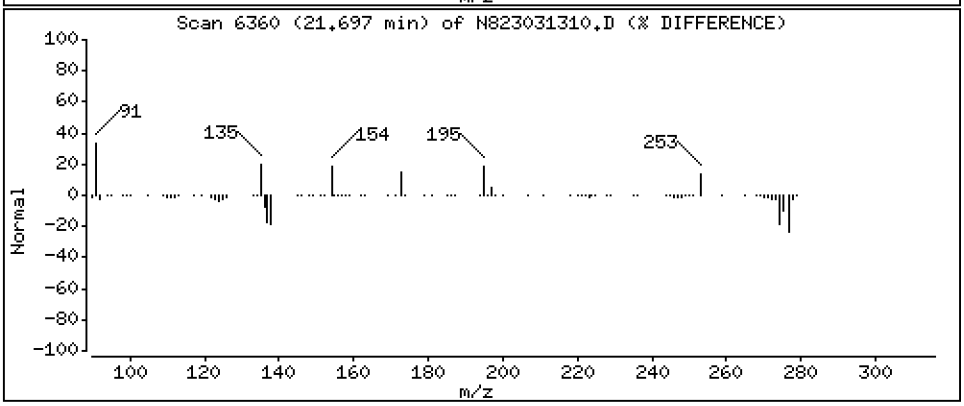












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031310.D
Lab Smp Id: 23C0064-03
Inj Date : 13-MAR-2023 17:14
Operator : JZ Inst ID: nt8.i
Smp Info : 23C0064-03
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

								CONCENTRATIONS	
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE		ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.853	4.862	(1.000)	40524		2.00000	
	2 Naphthalene	128	4.881	4.891	(1.006)	1918		0.10179	0.1018
$	3 2-Methylnaphthalene-d10	152	5.592	5.599	(1.152)	24983		2.26051	2.261
	4 2-Methylnaphthalene	141	5.637	5.646	(1.162)	604		0.05828	0.05828
	5 1-methylnaphthalene	141	5.839	5.842	(1.203)	458		0.04354	0.04354
	9 Acenaphthylene	152	7.044	7.047	(0.985)	245		0.01306	0.01306
*	10 Acenaphthene-d10	164	7.151	7.155	(1.000)	24839		2.00000	
	11 Acenaphthene	153	7.202	7.205	(1.007)	222		0.01766	0.01766
	12 Dibenzofuran	168	7.357	7.357	(1.029)	204		0.01069	0.01069
	14 Fluorene	166	7.828	7.838	(1.095)	286		0.01929	0.01929
*	15 Phenanthrene-d10	188	9.194	9.197	(1.000)	47788		2.00000	
	16 Phenanthrene	178	9.229	9.232	(1.004)	1343		0.05753	0.05753
	17 Anthracene	178	9.270	9.273	(1.008)	278		0.01311	0.01311
	19 Carbazole	167	Compound Not Detected.						
	22 Fluoranthene	202	11.003	11.009	(1.197)	502		0.01976	0.01976
$	21 Fluoranthene-d10	212	10.968	10.971	(1.193)	57282		2.71686	2.717
	23 Pyrene	202	11.521	11.524	(0.814)	760		0.03044	0.03044
	24 Benzo(a)anthracene	228	14.019	14.025	(0.991)	257		0.01136	0.01136(M)
*	25 Chrysene-d12	240	14.146	14.152	(1.000)	40273		2.00000	
	27 Chrysene	228	14.225	14.225	(1.006)	450		0.01868	0.01868(M)
	28 Benzo(b)fluoranthene	252	16.761	16.773	(0.929)	364		0.01692	0.01692
	29 Benzo(k)fluoranthene	252	Compound Not Detected.						
	30 Benzo(j)fluoranthene	252	Compound Not Detected.						
	31 Total Benzofluoranthenes	252	16.761	16.773	(0.929)	364		0.01786	0.01786
	34 Benzo(e)pyrene	252	Compound Not Detected.						
	32 Benzo(a)pyrene	252	17.826	17.826	(0.988)	159		0.00840	0.008397(M)
*	33 Perylene-d12	264	18.051	18.060	(1.000)	36947		2.00000	
	35 Perylene	252	18.130	18.130	(1.004)	12895		0.63459	0.6346
$	36 Dibenzo(a,h)anthracene-d14	292	20.476	20.482	(1.134)	42160		2.91228	2.912
	37 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.						
	38 Dibenzo(a,h)anthracene	278	Compound Not Detected.						
	39 Benzo(g,h,i)perylene	276	21.696	21.696	(1.202)	246		0.01259	0.01259(M)

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031310.D
Lab Smp Id: 23C0064-03
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	40524	0.43
10 Acenaphthene-d10	24212	12106	48424	24839	2.59
15 Phenanthrene-d10	46031	23016	92062	47788	3.82
25 Chrysene-d12	38604	19302	77208	40273	4.32
33 Perylene-d12	35963	17982	71926	36947	2.74

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.85	-0.20
10 Acenaphthene-d10	7.16	6.66	7.66	7.15	-0.04
15 Phenanthrene-d10	9.20	8.70	9.70	9.19	-0.03
25 Chrysene-d12	14.15	13.65	14.65	14.15	-0.05
33 Perylene-d12	18.06	17.56	18.56	18.05	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031310.D

Lab ID: 23C0064-03
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 17:14

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

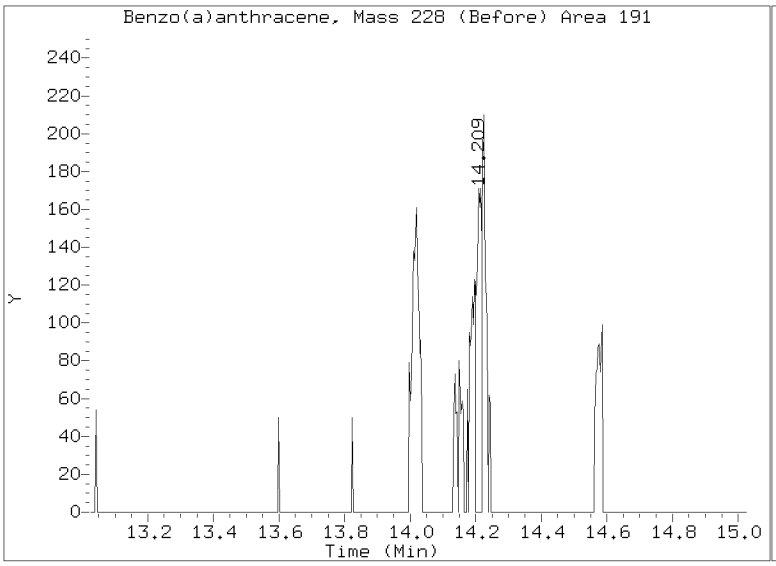
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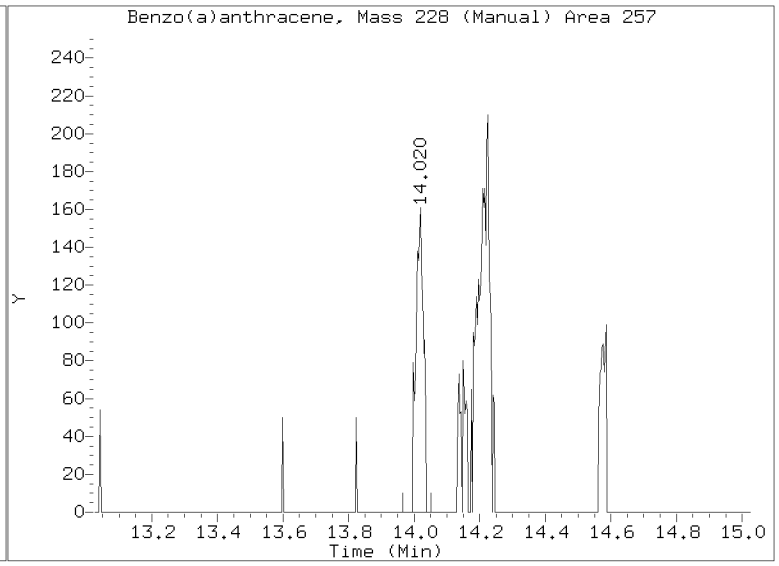
Exception: Benzo(e)pyrene 0.0800

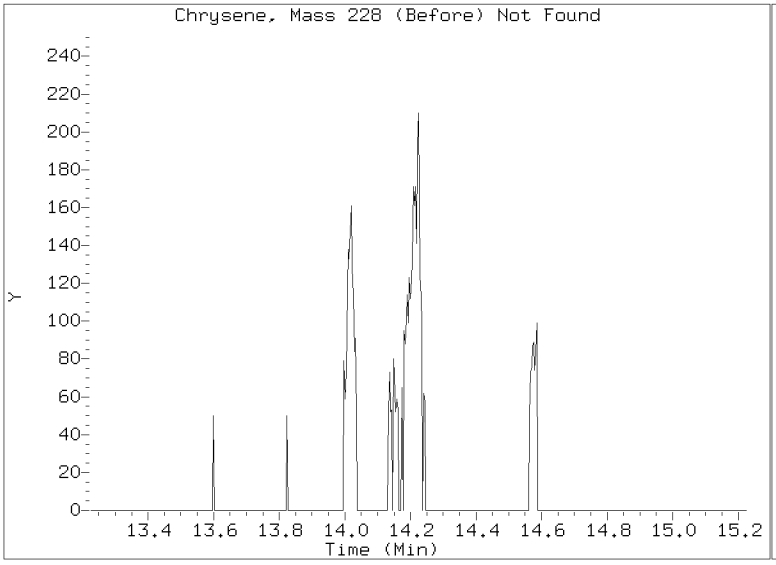
* Only compounds listed in the work order have been verified by the analyst *

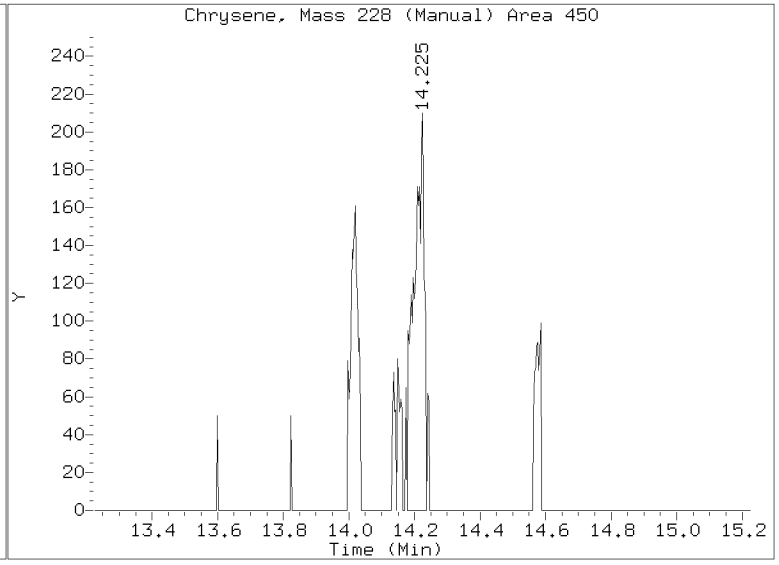
Quant Ion Manual Peak Adjustment Report

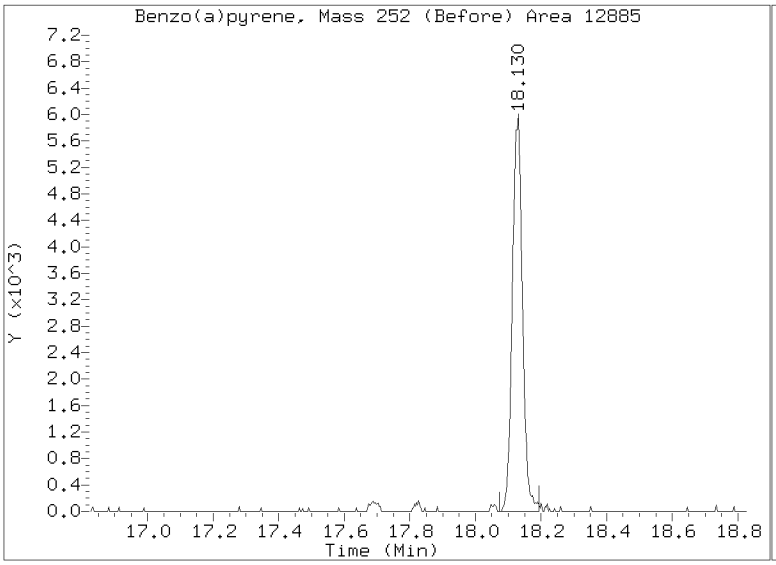
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Injection Date: 13-MAR-2023 17:14
Lab ID:23C0064-03 Client ID:
Report Date: 03/13/2023 21:09

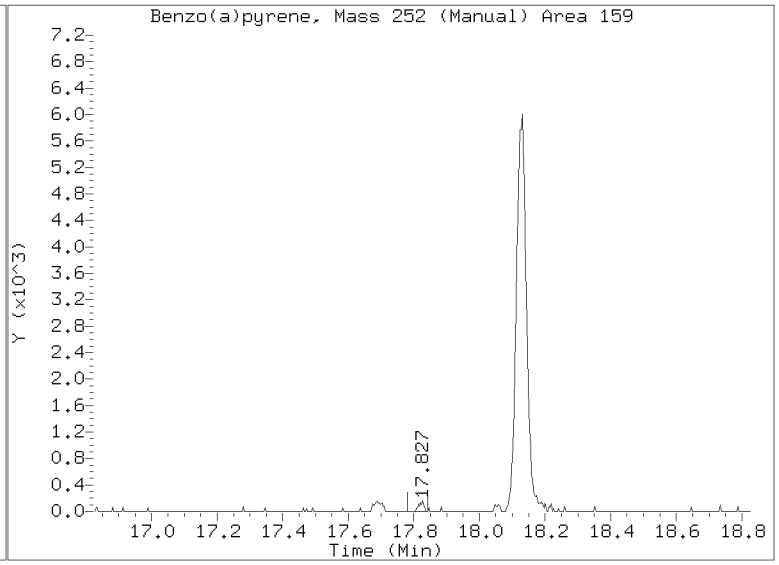






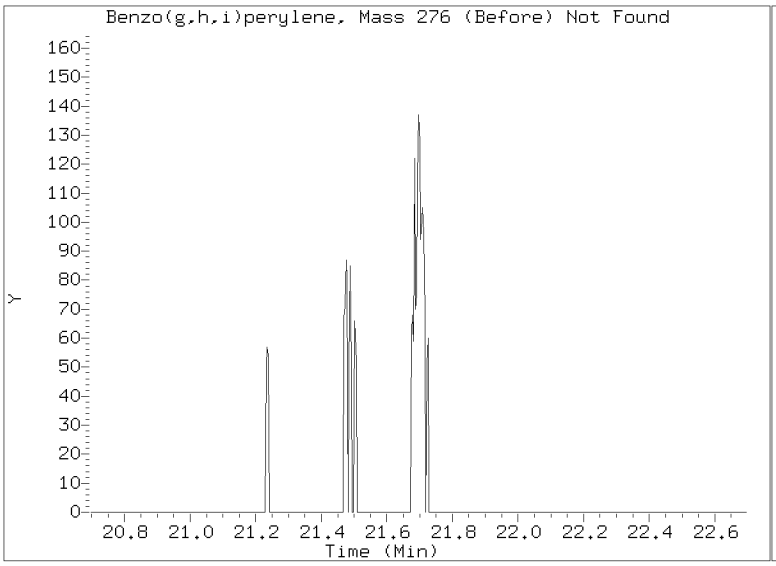


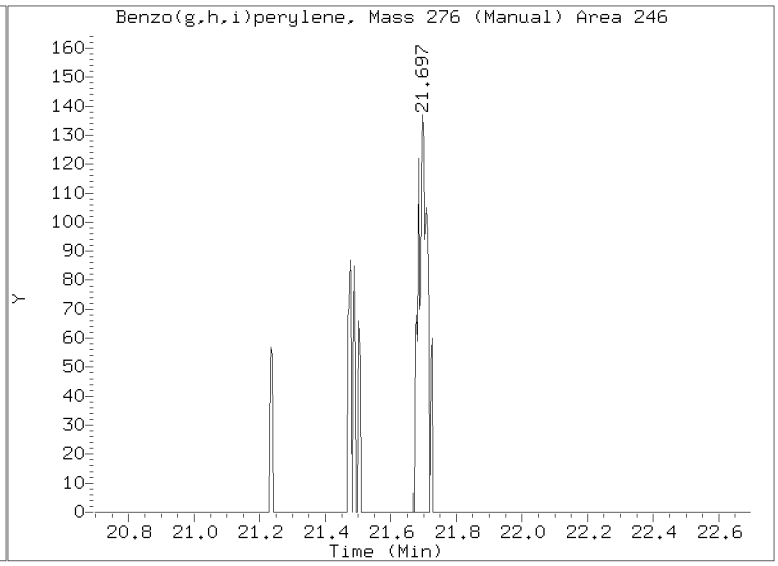




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031310.D
Injection Date: 13-MAR-2023 17:14
Lab ID:23C0064-03 Client ID:
Report Date: 03/13/2023 21:09





PREPARATION BATCH SUMMARY

EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Batch: BLC0106
Batch Matrix: Solid
Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-28_2-3	23C0064-01	N823031306.D	03/08/23 12:03	cPAH Version
LY-31_0-10	23C0064-02	N823031309.D	03/08/23 12:03	cPAH Version
LY-31_1-2	23C0064-03	N823031310.D	03/08/23 12:03	cPAH Version
Blank	BLC0106-BLK1	N823031304.D	03/08/23 12:03	
LCS	BLC0106-BS1	N823031305.D	03/08/23 12:03	
LY-28_2-3	BLC0106-MS1	N823031307.D	03/08/23 12:03	
LY-28_2-3	BLC0106-MSD1	N823031308.D	03/08/23 12:03	

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLC0106

Prepared using: EPA 3546 (Microwave)

8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:cPAHs)

Matrix: Solid **Date Prepared:** 03/08/23 **Balance ID:** B144626 14 **Set Up By:** CTO 3/6/23

WO Comments
23C0064: Copy/Relog from 23A0626. Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

The following standards may be missing from this batch!

Designator	Description
QLS 4	QLS 4

Analysis: 8270E-SIM PAH (0.1ug/L or 5ug/kg)

Lab Number & Container	% Solids	Initial (g) Target Dry: 10 (Wet)	Actual	(REQ/Opt) GPC C/U (1:1) 1 2 3	(REQ/Opt) Sulfur C/U (1:1) Y/N (Transfer Rinse)	(REQ/Opt) Silica Gel C/U (1:1) Y / N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
23C0064-01 A	79.7	(12.56)	12.6x5	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23C0064-02 A	76.5	(13.08)	13.15	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
23C0064-03 A	77.5	(12.91)	12.96	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	

Batch QC

Lab Number	% Solids	Initial (g) Target Dry: 10 (Wet)	Actual	(REQ/Opt) GPC C/U (1:1) 1 2 3	(REQ/Opt) Sulfur C/U (1:1) Y/N (Transfer Rinse)	(REQ/Opt) Silica Gel C/U (1:1) Y / N	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BLC0106-BLK1	100.0	(10.00)	10.00	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
BLC0106-BS1	100.0	(10.00)	10.00	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	
BLC0106-MS1	79.7	(12.56)	12.58	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	Use 23C0064-01
BLC0106-MSD1	79.7	(12.56)	12.58	(1:1) Y / N	(1:1) Y / N	(1:1) Y / N	0.5	0.5	Use 23C0064-01

03/08/23 — Client ID verified By — Date

TWC 3/13/23 — Preparation Reviewed By — Date

03/08/23 12:43 — Extraction Date and Time

Printed: 3/6/2023 9:48:53AM

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLC0106

Prepared using: EPA 3546 (Microwave)

8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:cPAHs)

WO Comments
23C0064: Copy/Relog from 23A0626. Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

Prep Steps	Reagents Used		
Microwave 0 1 2 3 CT 03/08/23 Analyst/Date	**Station/Reagent**		**Standard ID**
	Microwave **Analyst:** CT **Date:** 03/08/23		
	Anhydrous Sodium Sulfate		L0021114
	1:1 Methylene Chloride/Acetone		L0014116
	Methylene Chloride		IC04S941
	Pre-Deactivated Glass Wool		L001923
Pre-GPC KD 100°C **(No Exchange)** 0 1 2 3 4 5 6 LO 3-9 Analyst/Date	**Pre GPC KD** **Analyst:** LO **Date:** 3-9-23		
	Hexane		L0009089
	Methylene Chloride		M0005158
Pre GPC TurboVap 1 2 3 4 NKD 3/9/23 Analyst/Date	**GPC Filter Prep** **Analyst:** NKD **Date:** 3/9/23		
	Methylene Chloride		IC005158
	GPC Filter		L001799
GPC 1 2 3 CTO 3/10/23 Analyst/Date	**GPC** **Analyst:** CTO **Date:** 3/10/23		
	Methylene Chloride		K005158
	GPC Calibration File		CLC0092
Post-GPC KD 80°C **Hexane Exchange** **2 x 20 mL 100°C** 0 1 2 4 5 6 LO 3-13 Analyst/Date	**Post GPC KD** **Analyst:** LO **Date:** 3-13-23		
	Methylene Chloride		M005941
	Hexane		L0009089
Pre-Cleanup **TurboVap** 1 2 3 4 TWC 3/13/23 Analyst/Date	**Vialing** **Analyst:** TWC **Date:** 3/13/23		
	Methylene Chloride		K005941
	Silica Gel (SPE) darts		L0002256
	Sodium Sulfite		N/A
	Tetrabutylammonium hydrogensulfate (TBAS)		N/A
	Hexane		L0009089
Post-Cleanup **TurboVap** 1 2 3 4 TWC 3/13/23 Analyst/Date			
Vialing TWC 3/13/23 Analyst/Date			

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate 15/75µg/mL	**B** L002091 V Exp Date: 9/28/2023	100µL	CT	Y
Spike 15/75µg/mL	**15** K009081 V Exp Date: 8/4/2023	200µL	CT	Y

MANUALLY ENTER EXPIRATION DATES!

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLC0106

Prepared using: EPA 3546 (Microwave)

8270E-SIM PAH (0.1ug/L or 5ug/kg) in Solid (Version:cPAHs)

WO Comments

23C0064: Copy/Relog from 23A0626. Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh into beakers-lightly dry with Sodium Sulfate. 2. Transfer to microwave vessel. 3. Add DCM ONLY to the vessels (until solvent is 3 inches above soil layer after homogenization). 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-re-homogenize while hot then let cool 10-15 min in Refridgerator 05. Re-homogenize while cool. 7. Decant DCM into Erlenmeyer flask with a funnel containing pre-deactivated glasswool. 8. Rinse with DCM 9. Microwave a 2nd time using 1:1 DCM/ACE. 10. Let cool and decant the solvent then empty the soil into the funnel and rinse with DCM. 11. If GPC is Req add 10mL Hexane and KD to 5mL at 100°C (NO EXCHANGE) 12. If GPC is NOT Req = KD to 5mL at 100°C. Exchange to Hexane (2X with 10mL) to 5mL at 100°C. 13. TurboVap. 14. If no GPC then Sulfur clean is REQUIRED. 15. Sulfur clean = Hexane transfer rinse. 16. Silica Clean-up Any Color=REQ (All or none). 17. TurboVap 18. Vial in DCM. A. Need Total Solids Y / N B. Archive/Freeze Y / N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: SVM PAH Extraction Batch BLC0106

Total Solids Batch: BLC0084 Work Order(s): 23C0064

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= #1, #3	MJ #3/#3/23
☒ Standing Water Decanted (Not shared)= #1, #3, #4.	MJ #3/#3/23
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☐ Previously Frozen =	
☒ Other (Details)= Soil pieces 70.1% =#2, 40.4% =#4.	MJ #3/#3/23
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples Y / N	MJ #3/#3/23
☒ Multiple Jars Y / N	MJ #3/#3/23
☐ Sample Pre-Screens indicate analyte activity=	MJ
☐ Sample weights/volumes reduced based on Pre-Screen=	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLC0103	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 8270E-SIM

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
Matrix Spike Dup	BLC0106-MSD1	N823031308.D	03/13/2023	
Matrix Spike	BLC0106-MS1	N823031307.D	03/13/2023	
Blank	BLC0106-BLK1	N823031304.D	03/13/2023	
LY-28_2-3	23C0064-01	N823031306.D	03/13/2023	
LY-31_1-2	23C0064-03	N823031310.D	03/13/2023	
LY-31_0-10	23C0064-02	N823031309.D	03/13/2023	
LCS	BLC0106-BS1	N823031305.D	03/13/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0103

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 3/13/2023 1:59:46PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23C0064-01	A	LY-28_2-3	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	3/13/2023	TWC	
23C0064-02	A	LY-31_0-10	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	3/13/2023	TWC	
23C0064-03	A	LY-31_1-2	A 01	0.5	0.5	8270E-SIM PAH (0.1ug/L or 5ug/kg)	3/13/2023	TWC	
BLC0106-BLK1	-	Blank	-	0.5	0.5	-	3/13/2023	TWC	
BLC0106-BS1	-	LCS	-	0.5	0.5	-	3/13/2023	TWC	
BLC0106-MS1	-	Matrix Spike	-	0.5	0.5	-	3/13/2023	TWC	
BLC0106-MSD1	-	Matrix Spike Dup	-	0.5	0.5	-	3/13/2023	TWC	

Form I

METHOD BLANK DATA SHEET

EPA 8270E-SIM

Blank

Laboratory:	Analytical Resources, LLC			SDG:	23C0064
Client:	GeoEngineers			Project:	Anacortes Log Yard
Matrix:	Solid	Laboratory ID:	BLC0106-BLK1	File ID:	N823031304.D
Sampled:	N/A	Prepared:	03/08/23 12:03	Analyzed:	03/13/23 14:30
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	10 g / 0.5 mL
Batch:	BLC0106	Sequence:	SLC0150	Calibration:	GA00050
Instrument:	NT8	Column:	RXI-17Sil ms	Cleanups:	Silica Gel

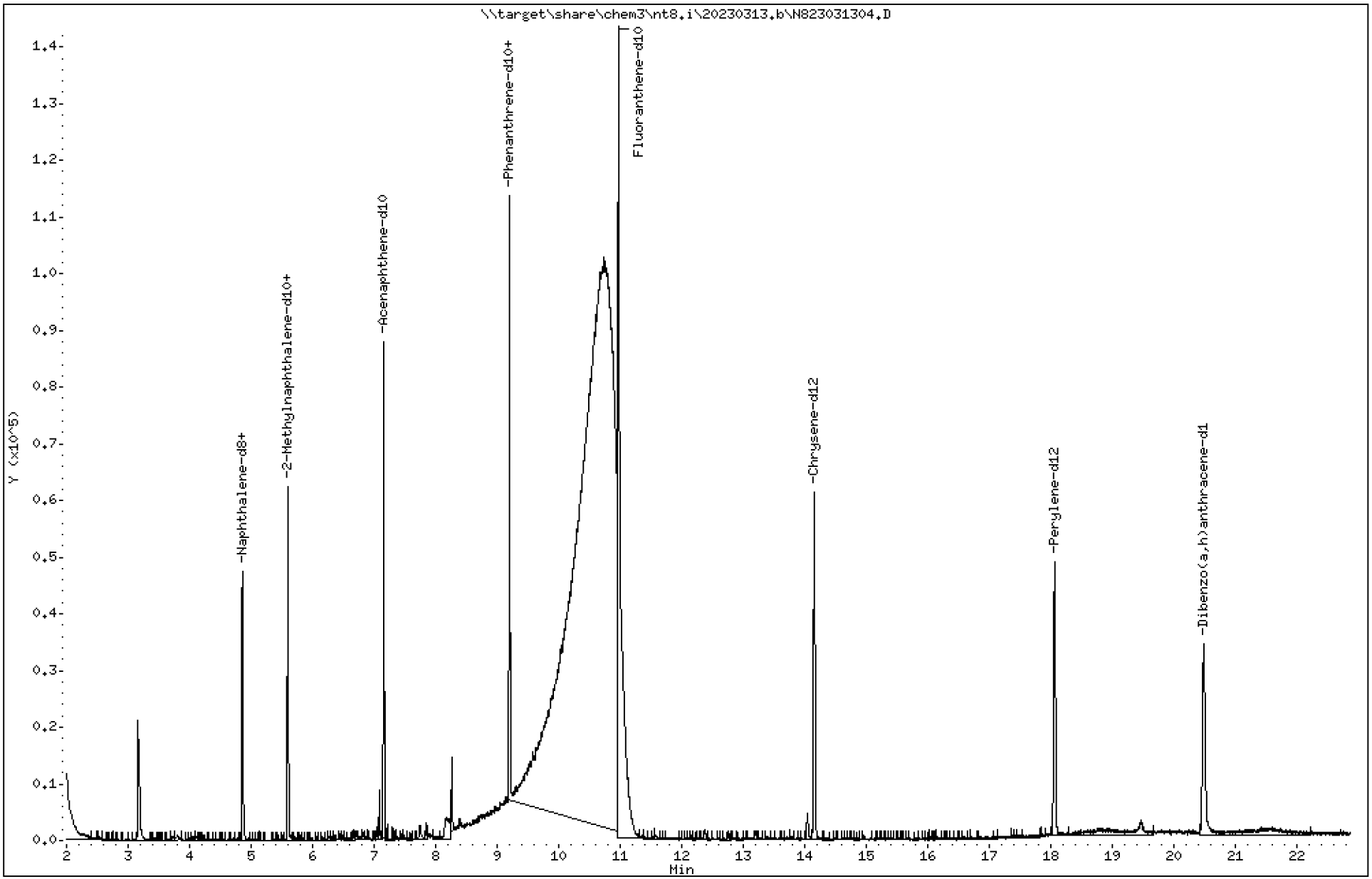
CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
56-55-3	Benzo(a)anthracene	1	5.00	U	0.82	5.00
218-01-9	Chrysene	1	5.00	U	1.05	5.00
205-99-2	Benzo(b)fluoranthene	1	5.00	U	1.37	5.00
207-08-9	Benzo(k)fluoranthene	1	5.00	U	0.76	5.00
50-32-8	Benzo(a)pyrene	1	5.00	U	0.61	5.00
193-39-5	Indeno(1,2,3-cd)pyrene	1	5.00	U	1.05	5.00
53-70-3	Dibenzo(a,h)anthracene	1	5.00	U	0.89	5.00
191-24-2	Benzo(g,h,i)perylene	1	5.00	U	1.07	5.00

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
2-Methylnaphthalene-d10	150.00	102	67.9	32 - 120	
Dibenzo[a,h]anthracene-d14	150.00	133	88.7	21 - 133	
Fluoranthene-d10	150.00	123	81.7	36 - 134	

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Date : 13-MAR-2023 14:30
Client ID:
Sample Info: BLC0106-BLK1,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23C0064 03/17/2023 Page 106 of 833

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Date : 13-MAR-2023 14:30

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

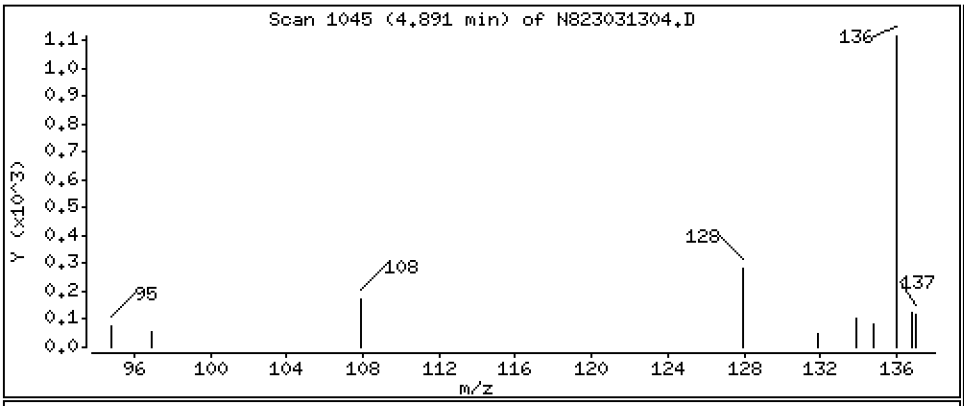
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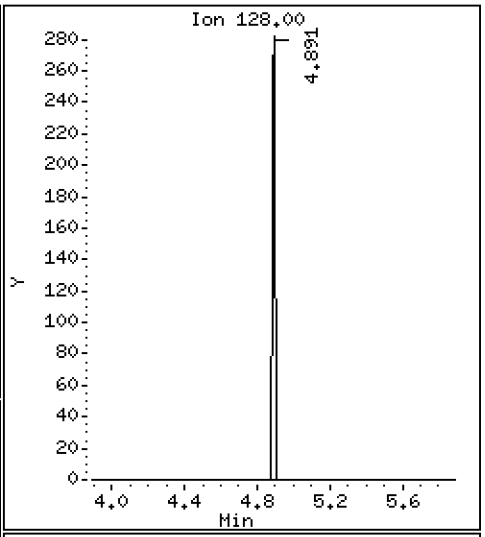
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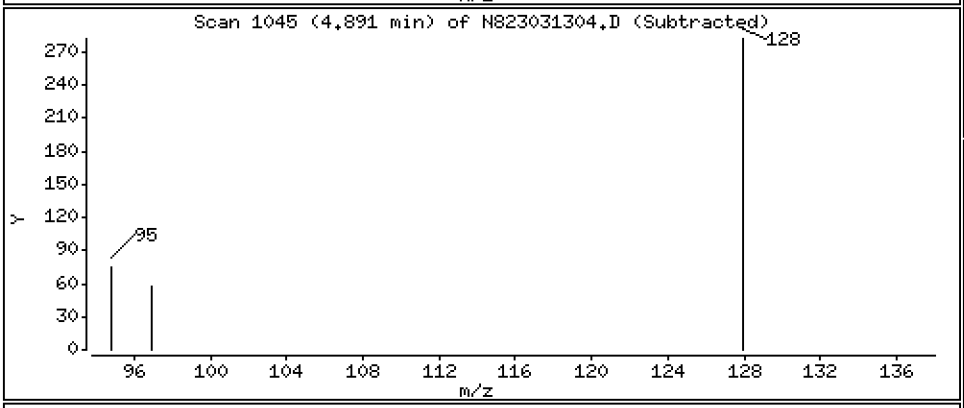
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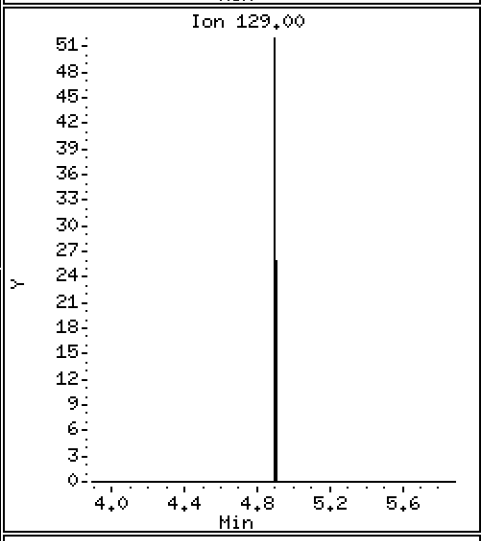
2 Naphthalene

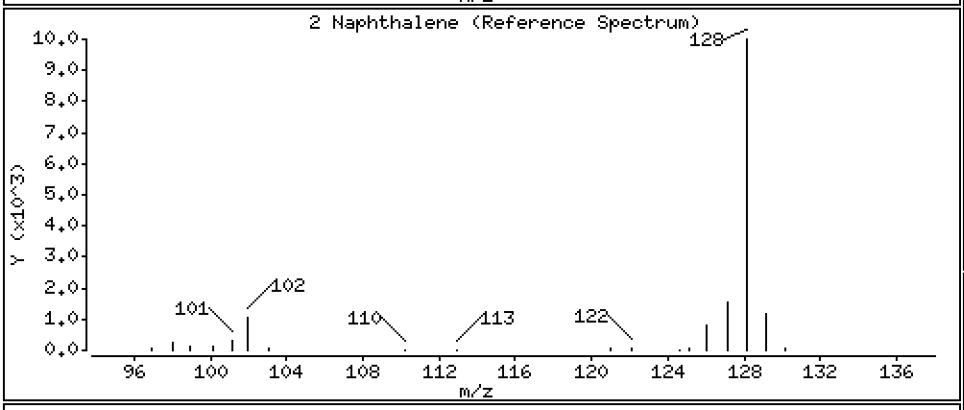
Concentration: 0.01511 ug/mL

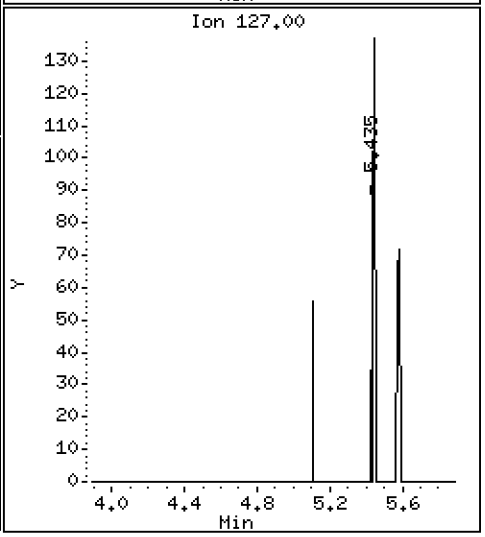


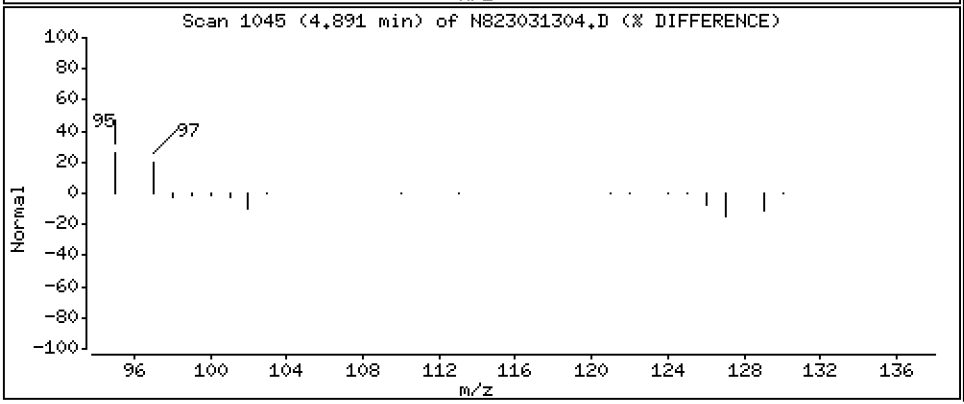












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Client ID:

Instrument: nt8.i

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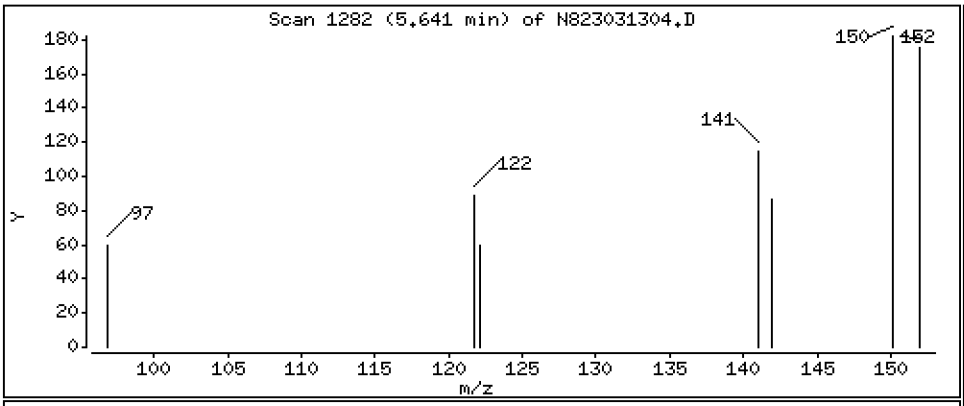
Operator: JZ

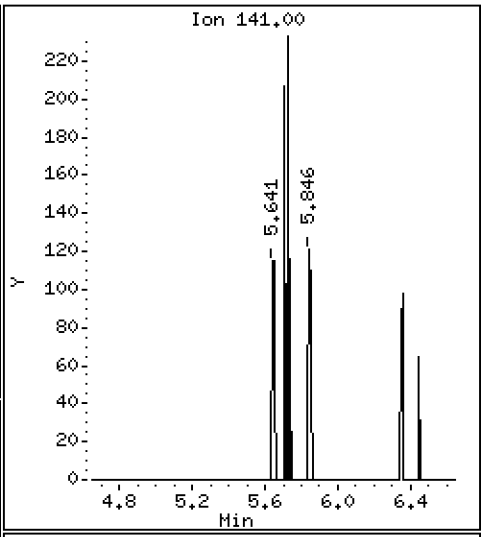
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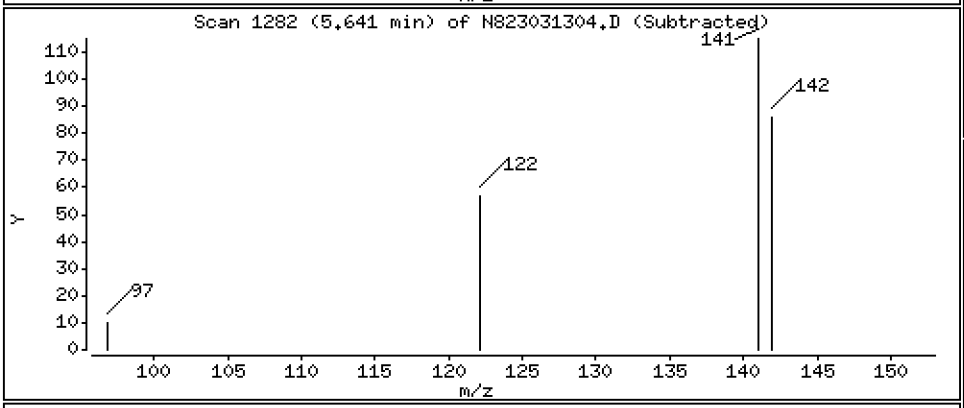
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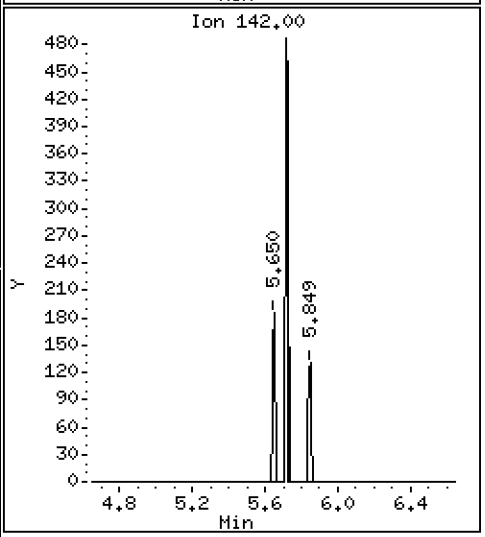
4 2-Methylnaphthalene

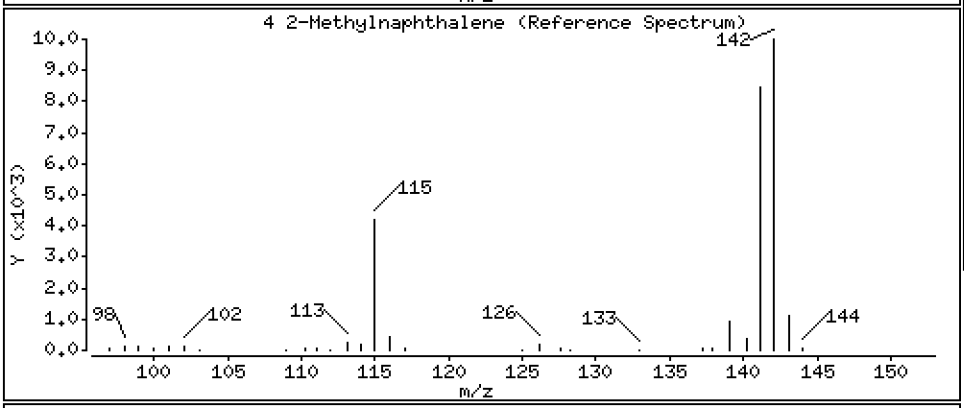
Concentration: 0.01194 ug/mL

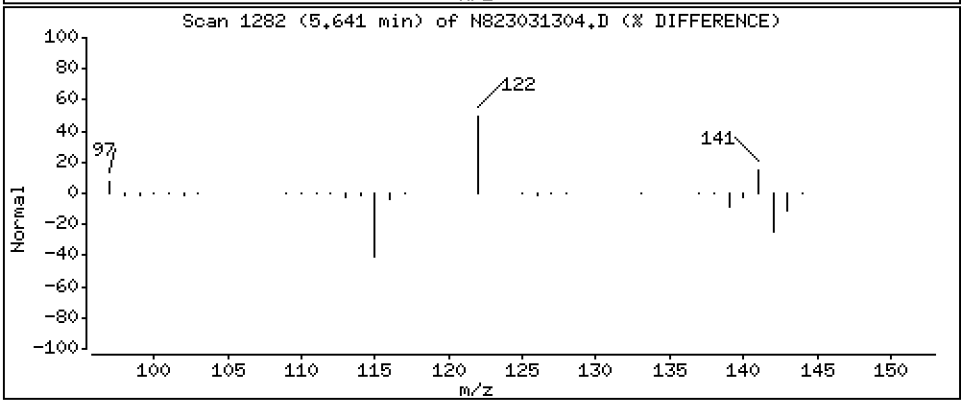












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Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

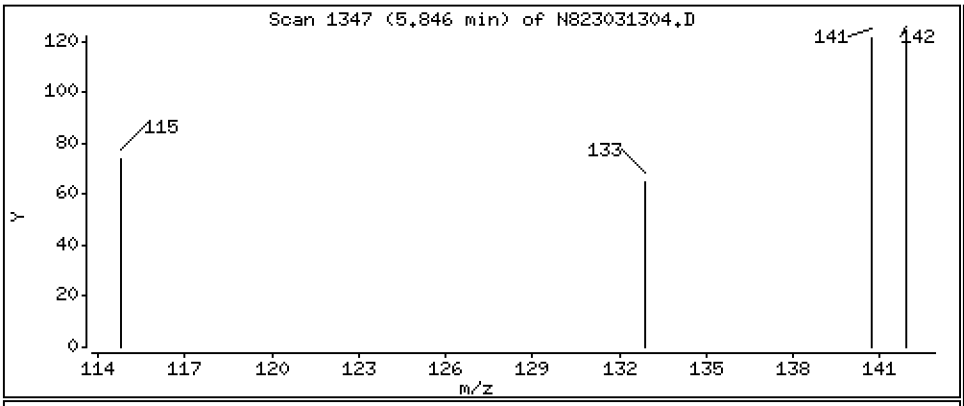
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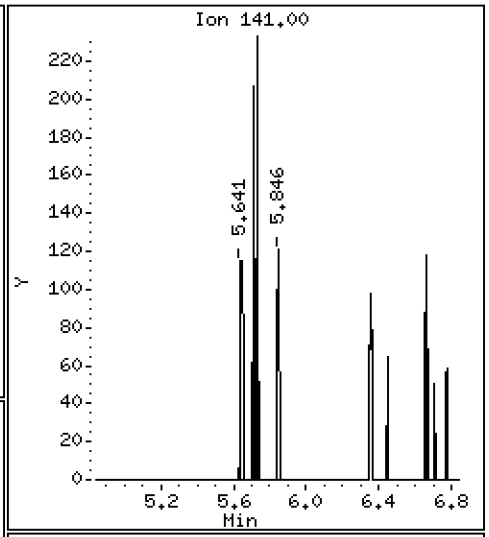
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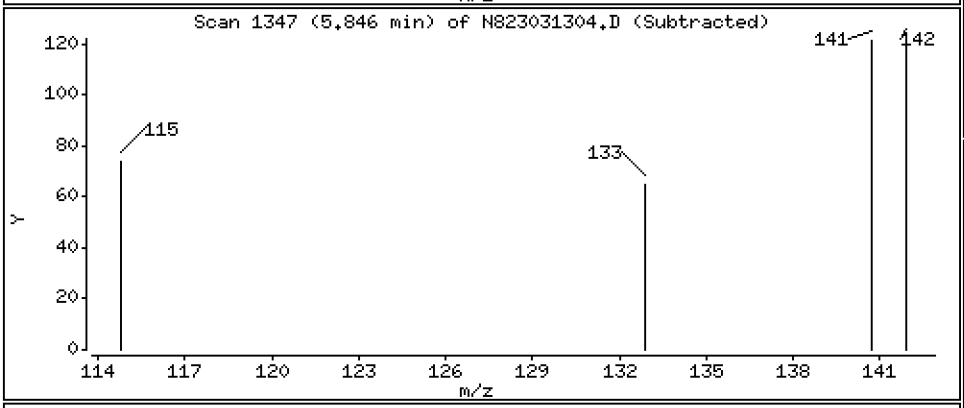
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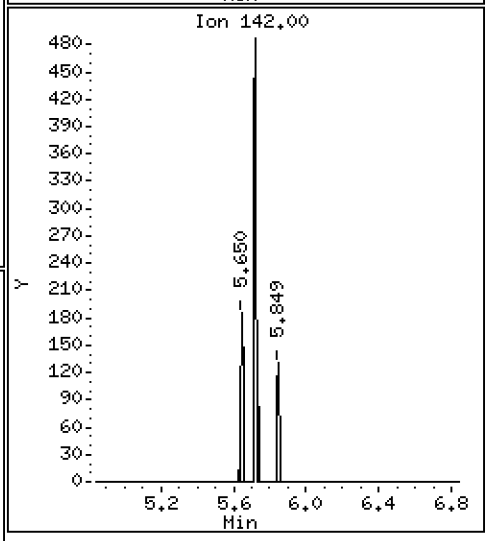
5 1-methylnaphthalene

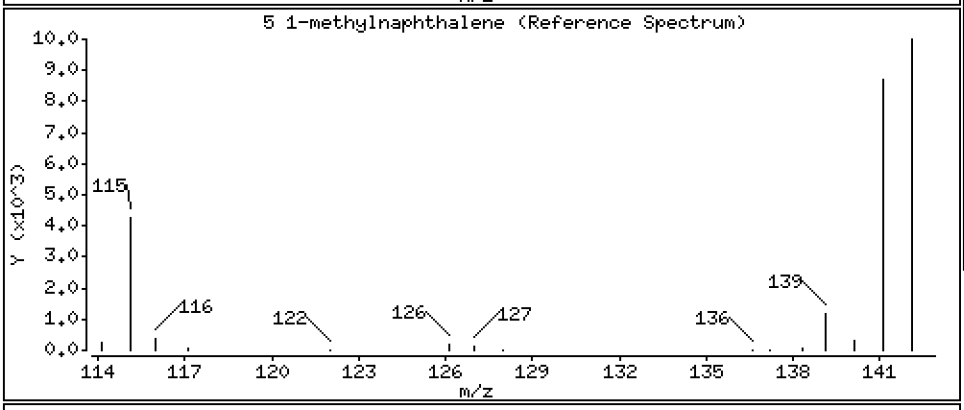
Concentration: 0.01062 ug/mL

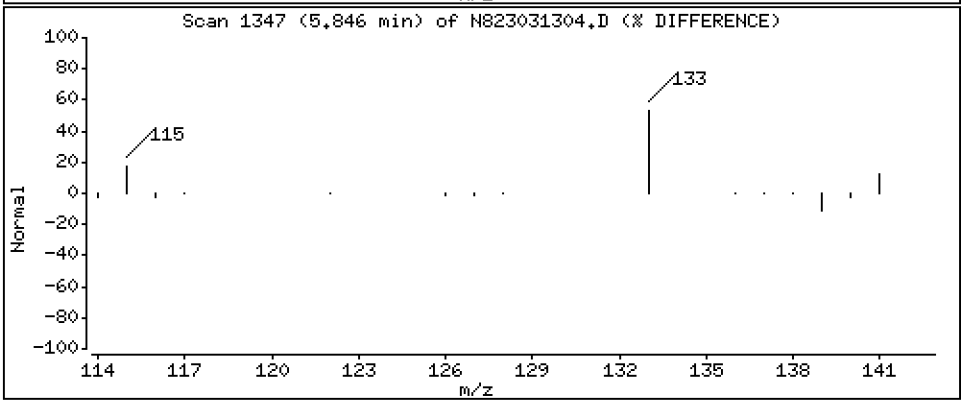












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031304.D

Date : 13-MAR-2023 14:30

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

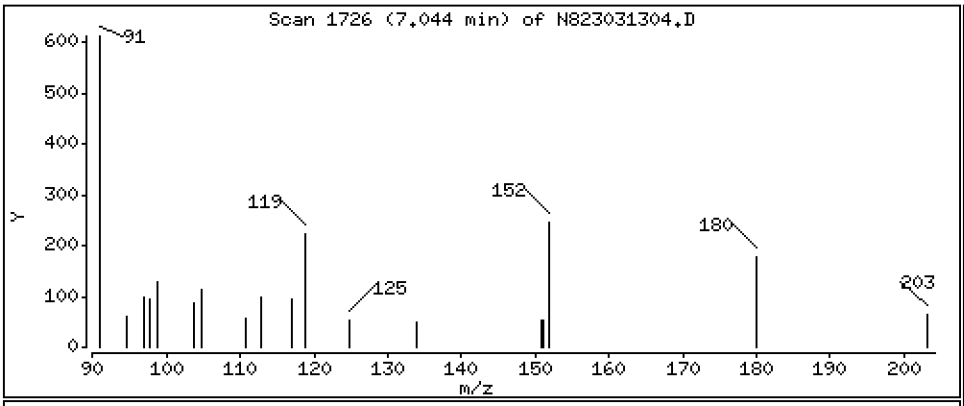
Operator: JZ

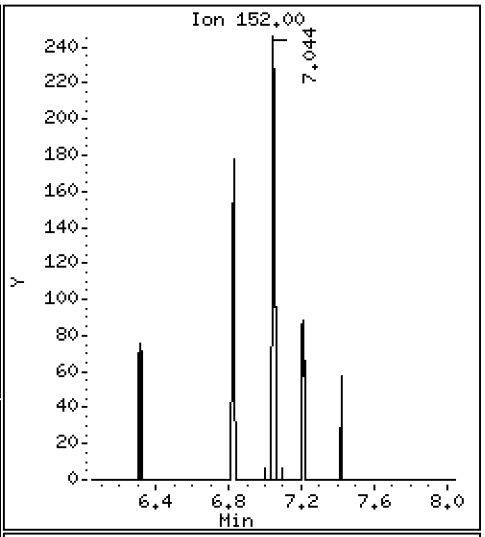
Column phase: Rxi-17sil

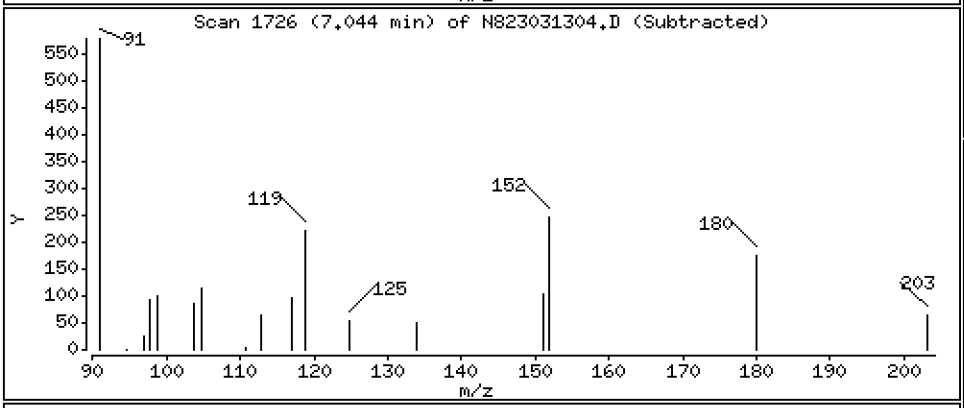
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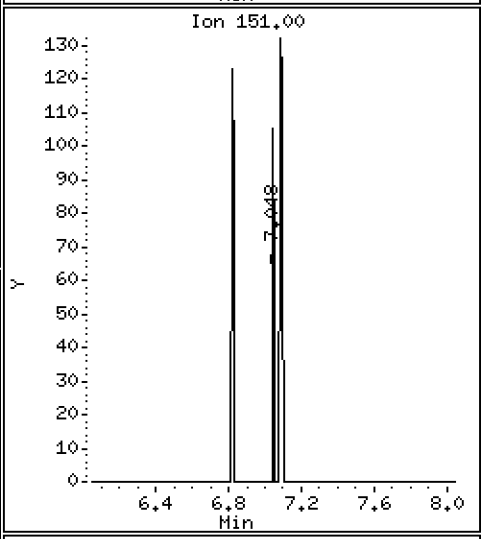
9 Acenaphthylene

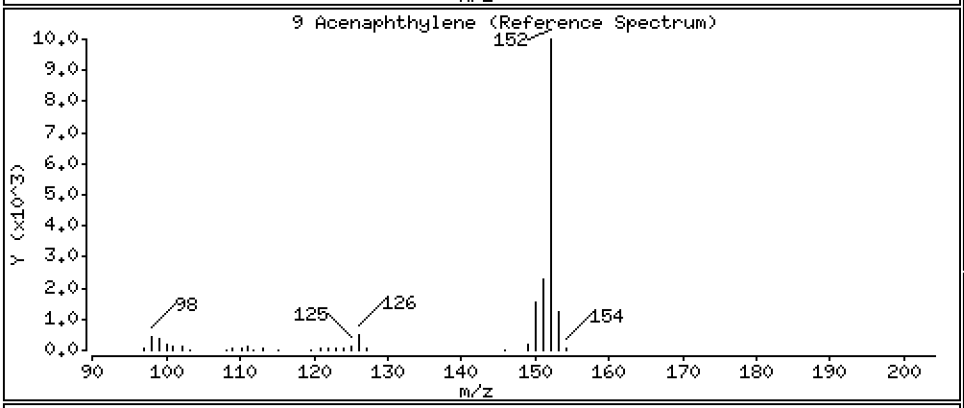
Concentration: 0.01336 ug/mL

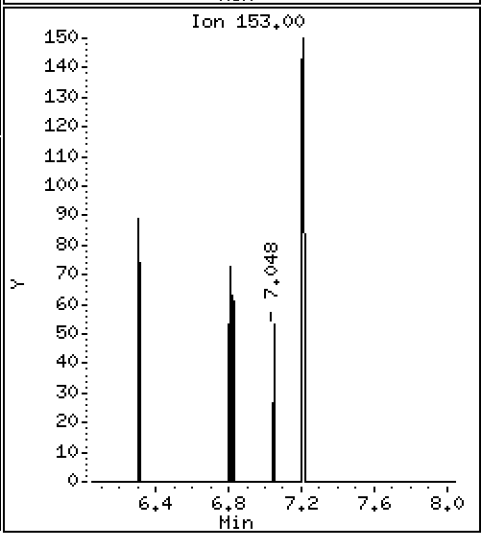


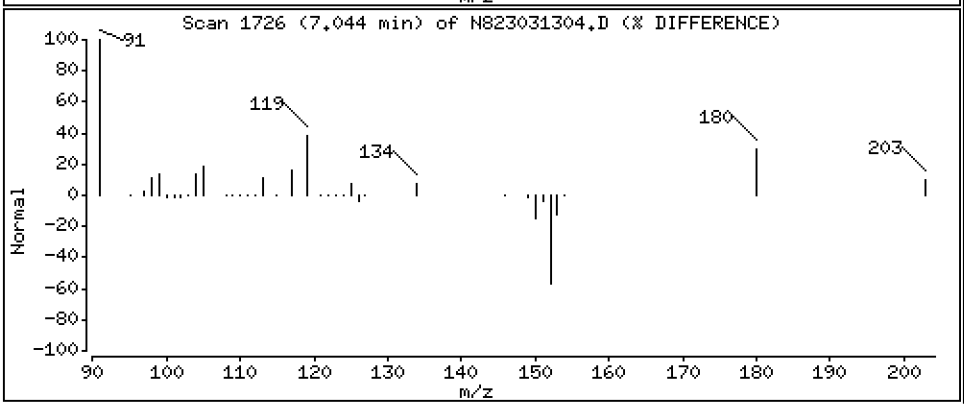












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031304.D

Date : 13-MAR-2023 14:30

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

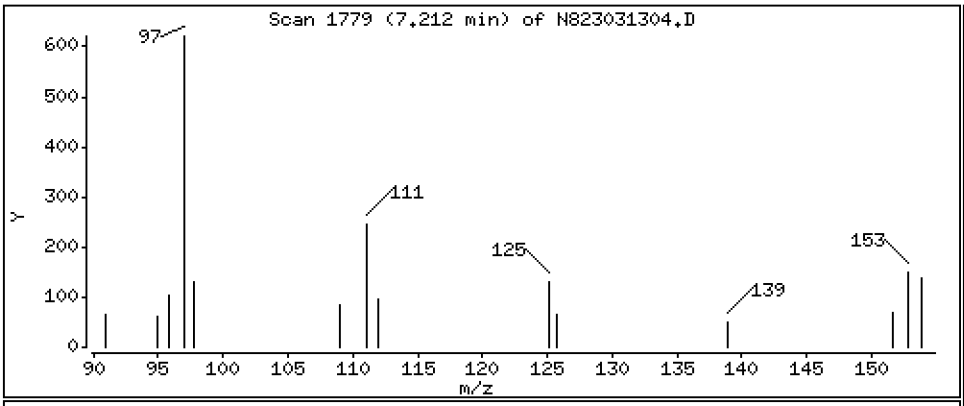
Operator: JZ

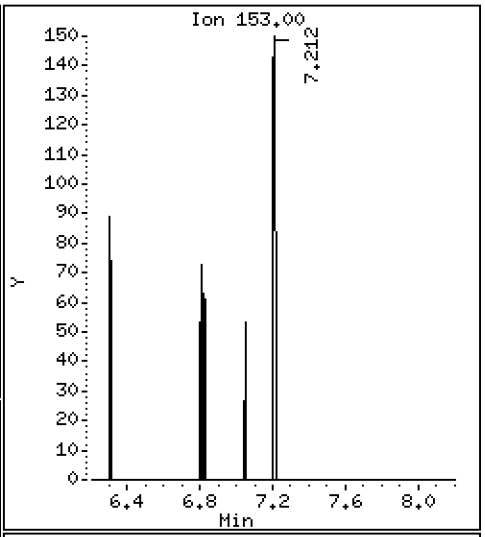
Column phase: Rxi-17sil

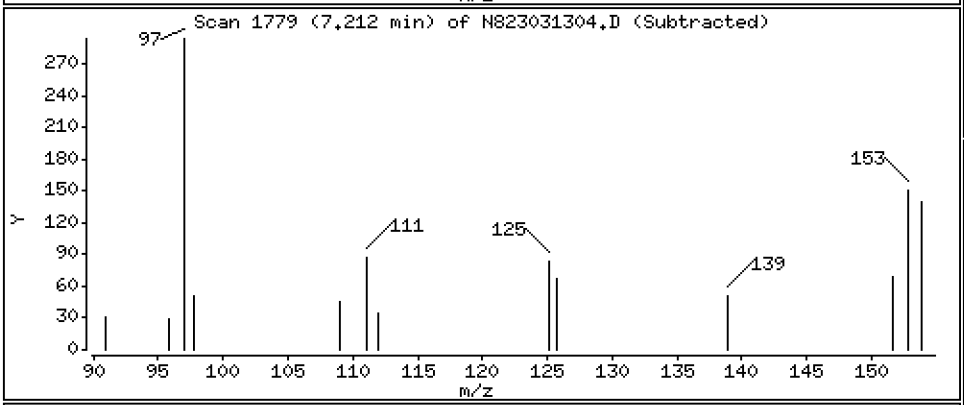
Column diameter: 0.25

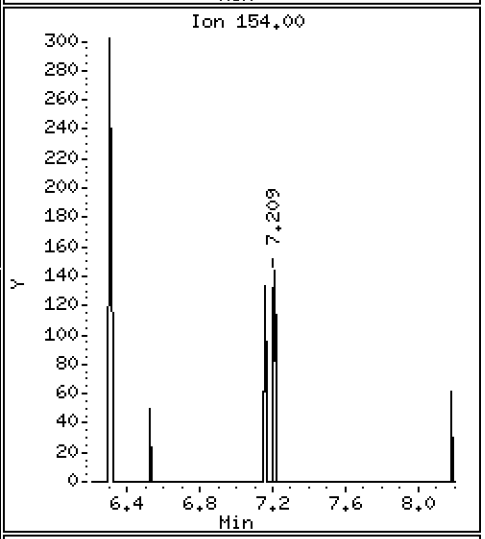
11 Acenaphthene

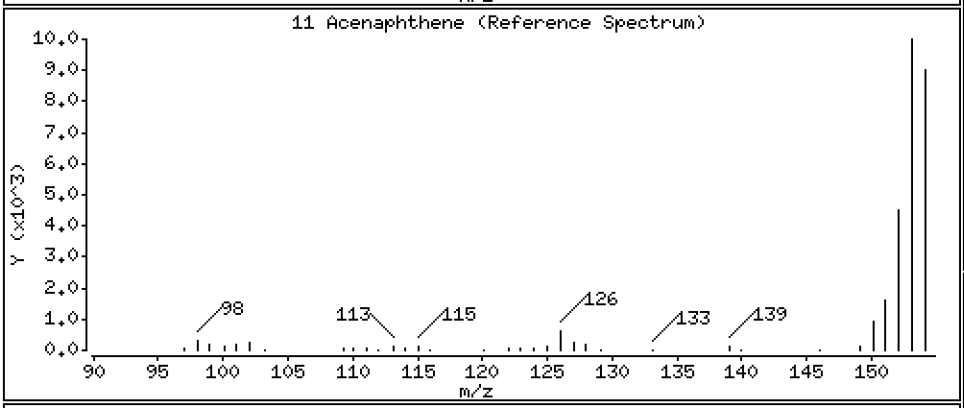
Concentration: 0.01168 ug/mL

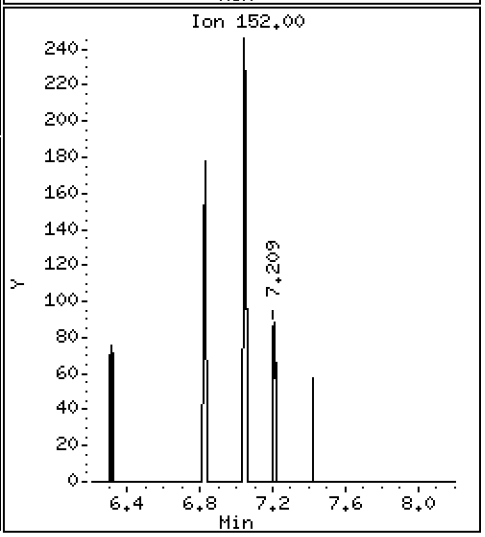


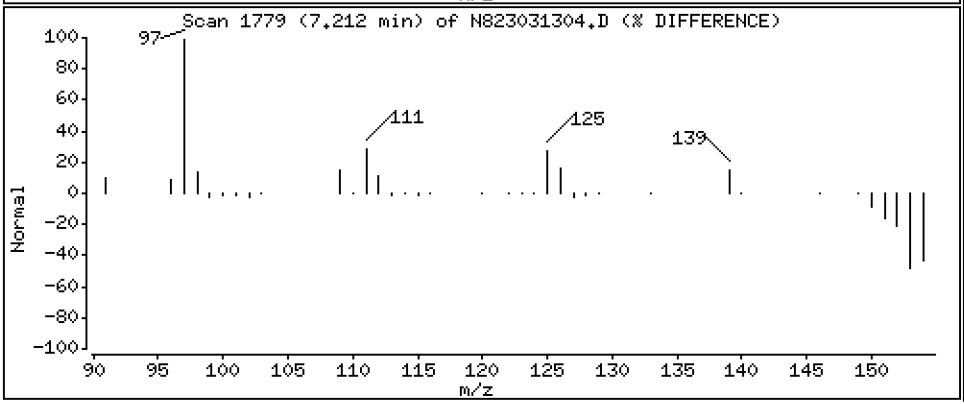












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031304.D

Date : 13-MAR-2023 14:30

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

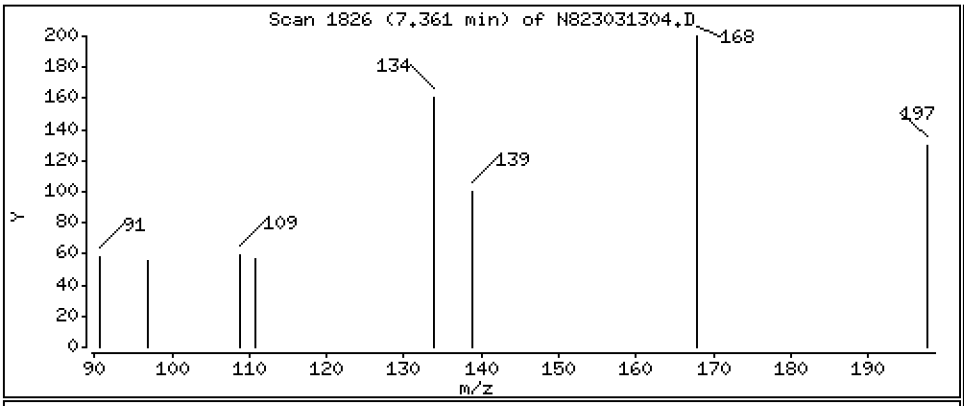
Operator: JZ

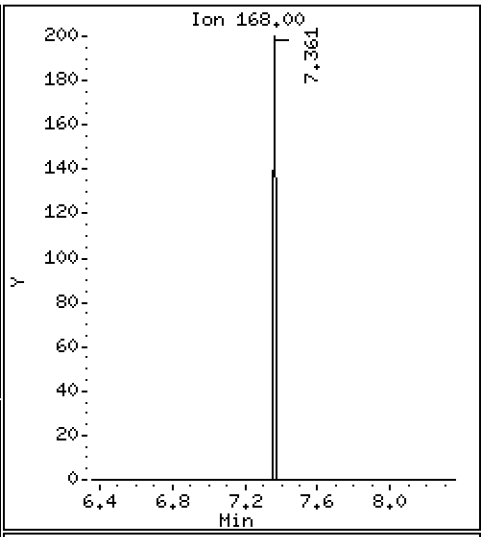
Column phase: Rxi-17sil

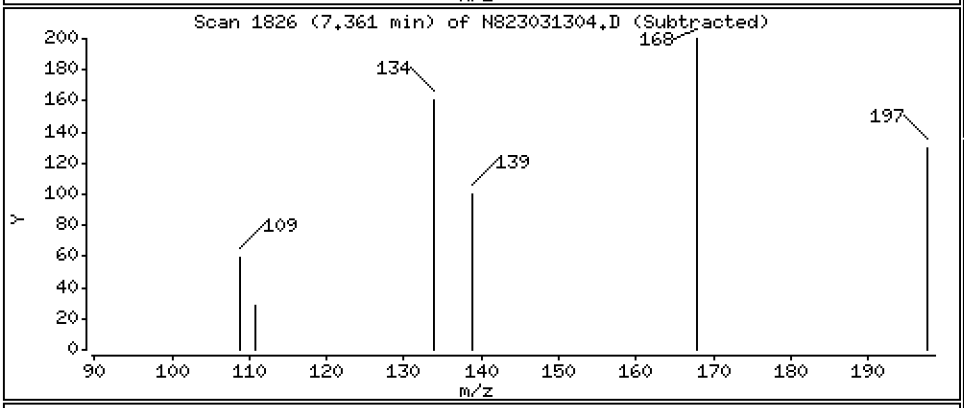
Column diameter: 0.25

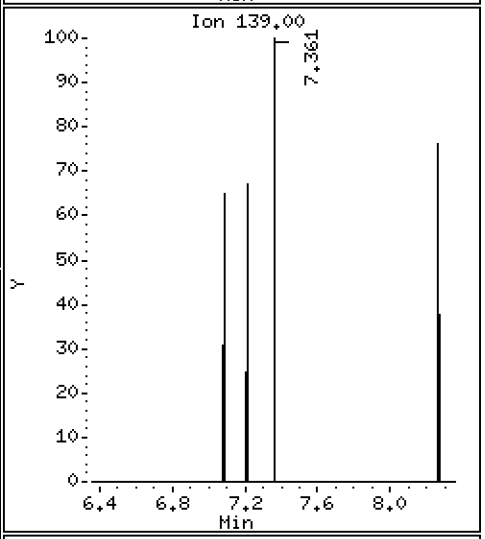
12 Dibenzofuran

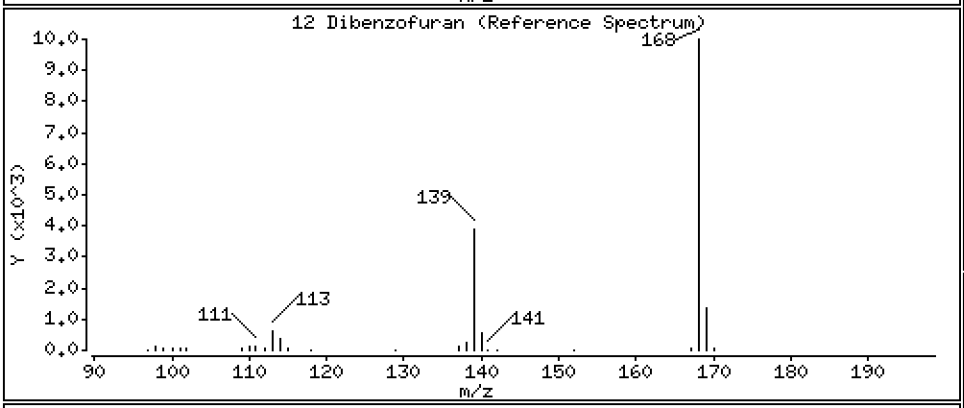
Concentration: 0.01000 ug/mL

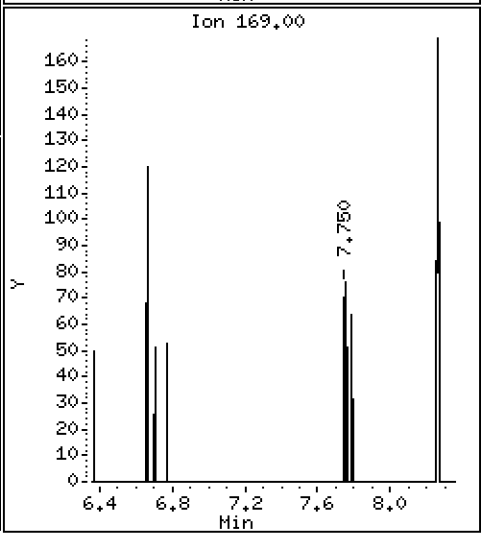


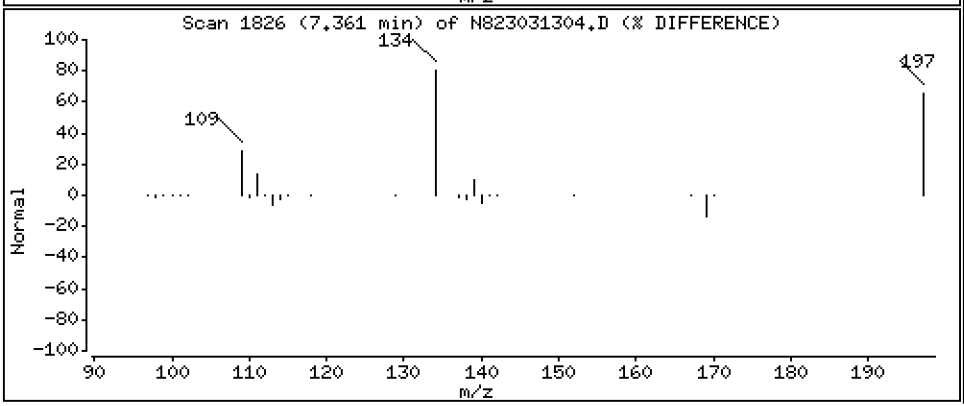












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031304.D

Date : 13-MAR-2023 14:30

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

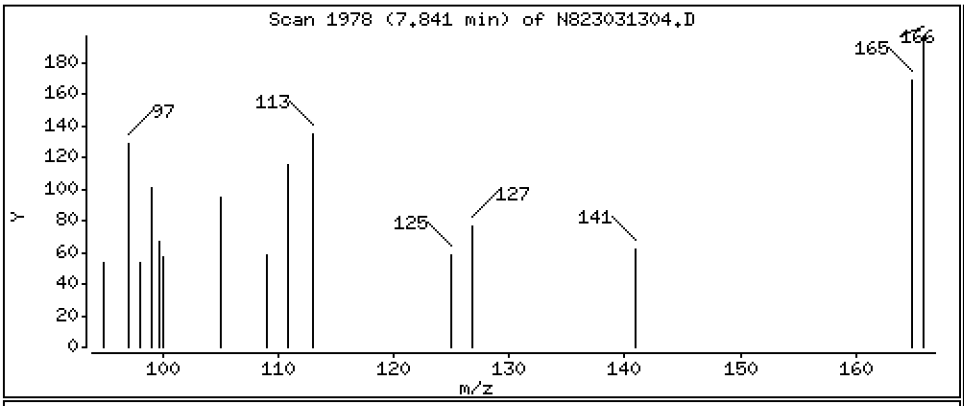
Operator: JZ

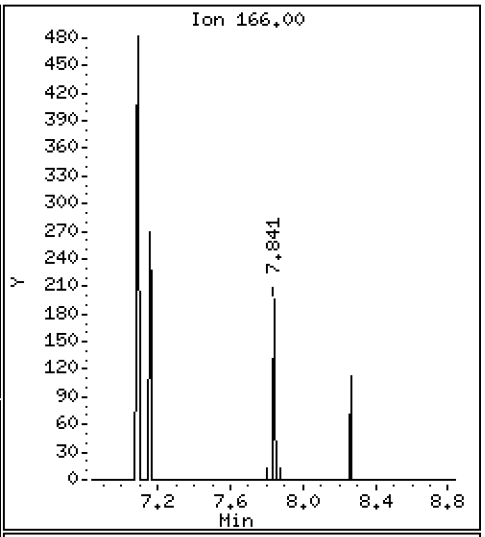
Column phase: Rxi-17sil

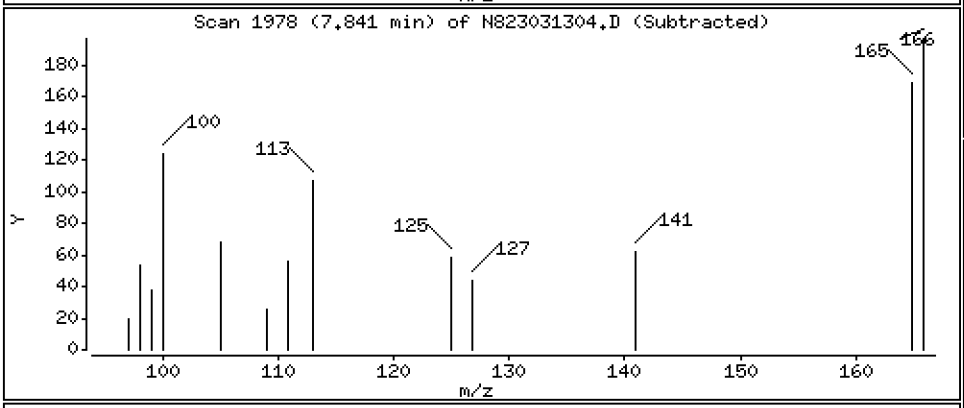
Column diameter: 0.25

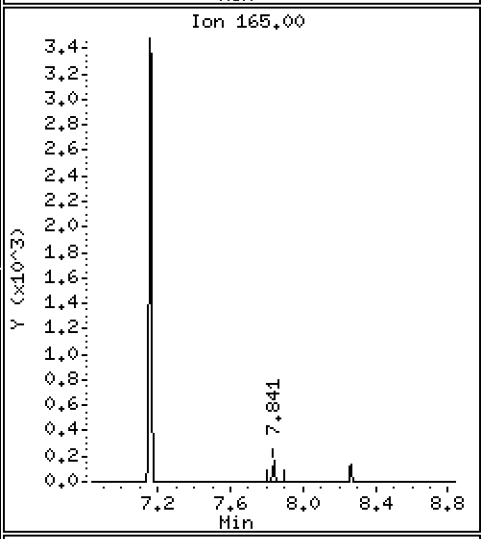
14 Fluorene

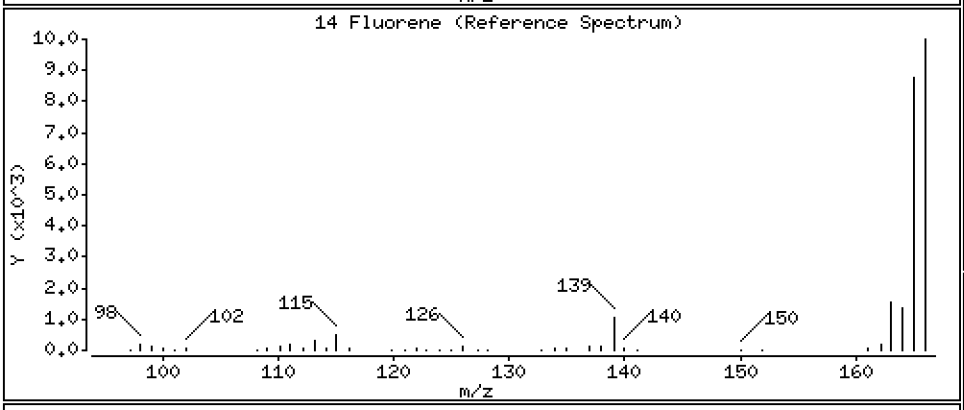
Concentration: 0.009442 ug/mL

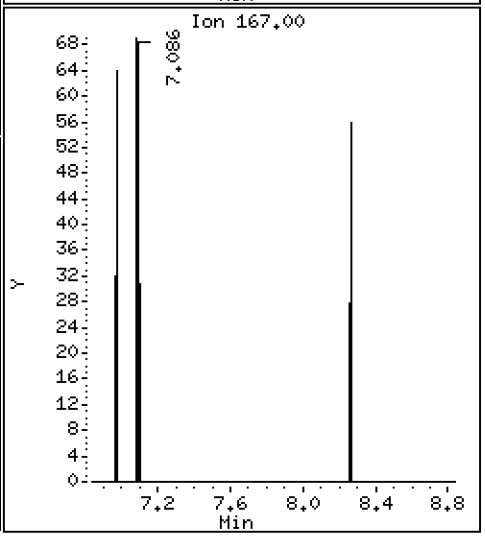


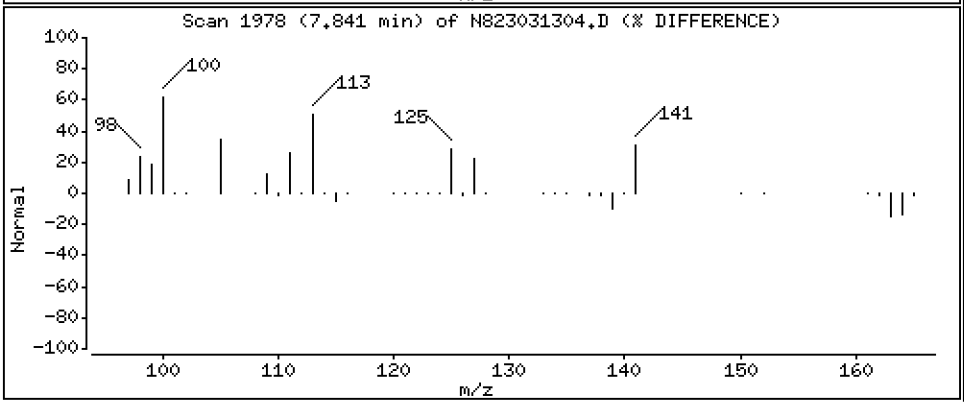












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031304.D

Date : 13-MAR-2023 14:30

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

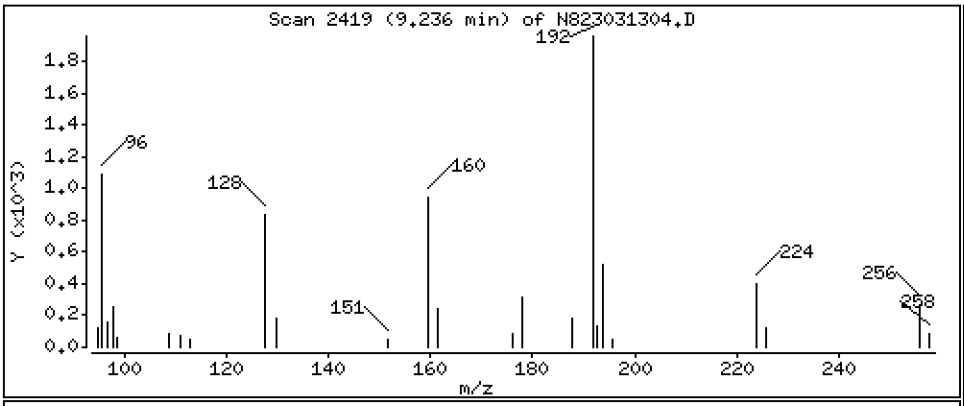
Operator: JZ

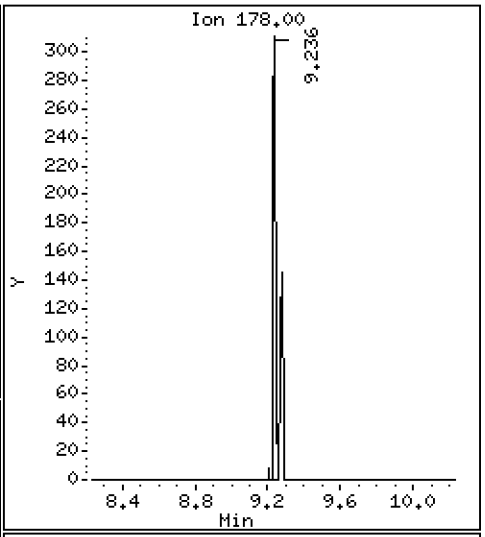
Column phase: Rxi-17sil

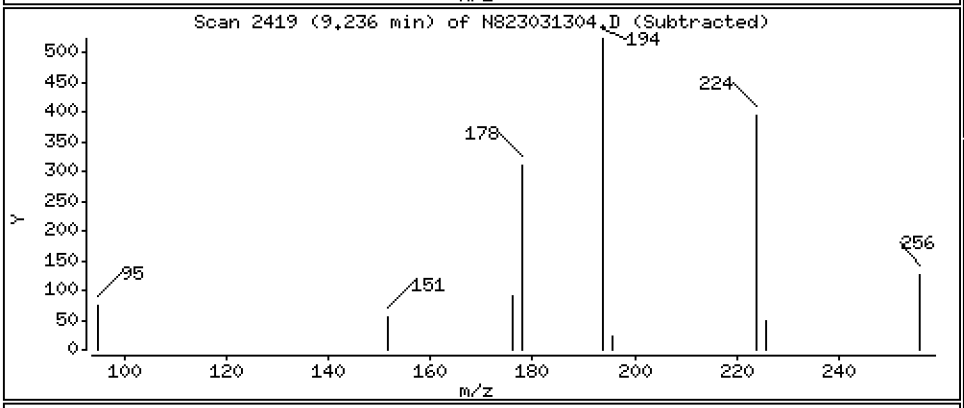
Column diameter: 0.25

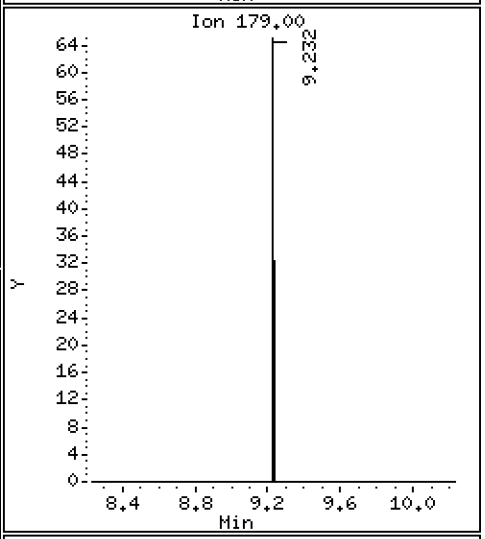
16 Phenanthrene

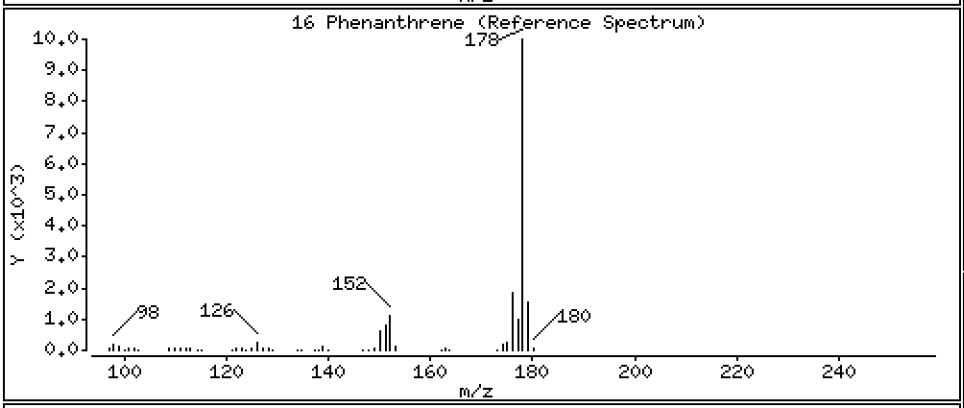
Concentration: 0.01274 ug/mL

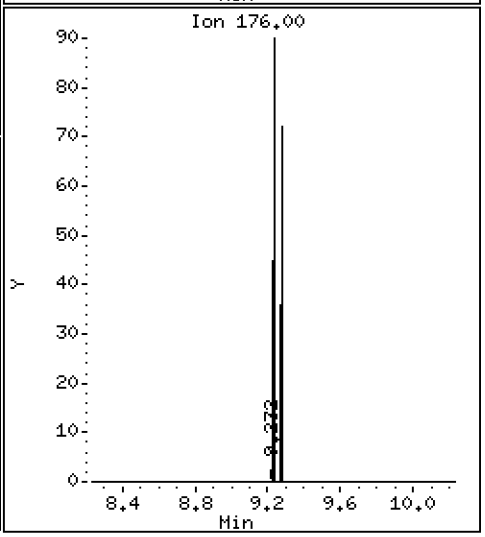


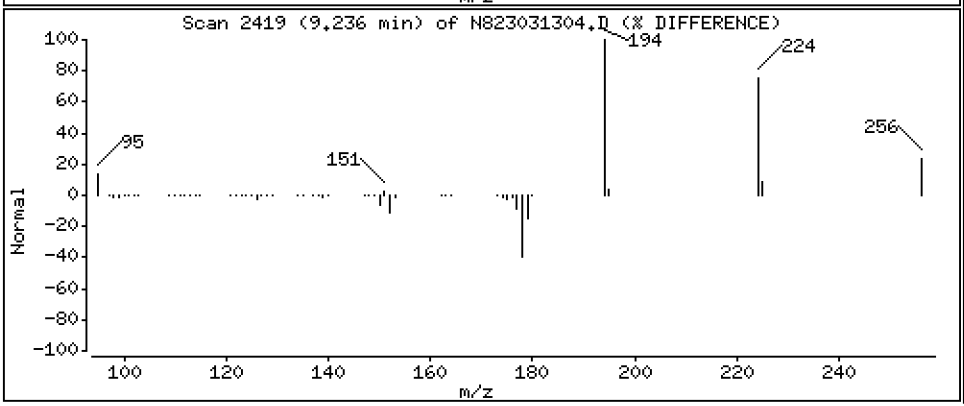












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031304.D

Date : 13-MAR-2023 14:30

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BLK1,

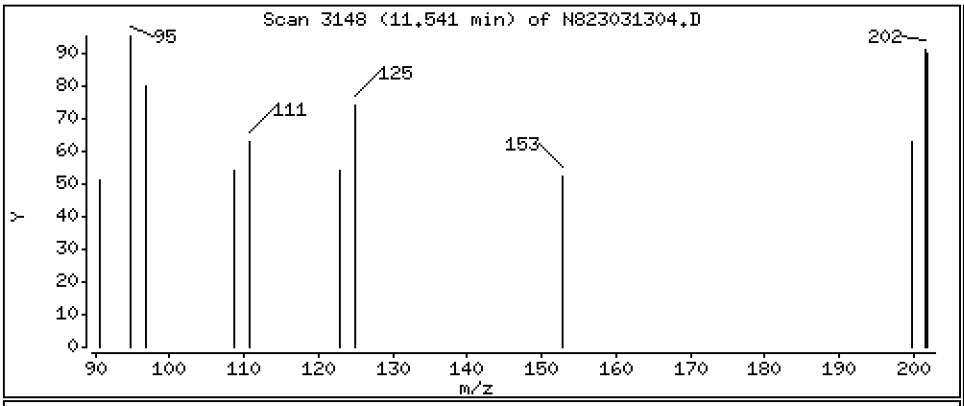
Operator: JZ

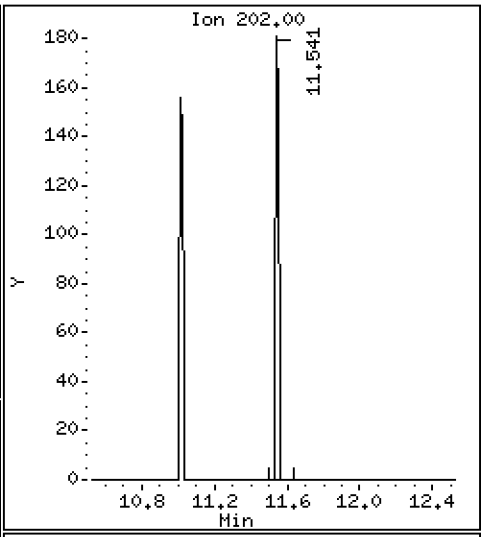
Column phase: Rxi-17sil

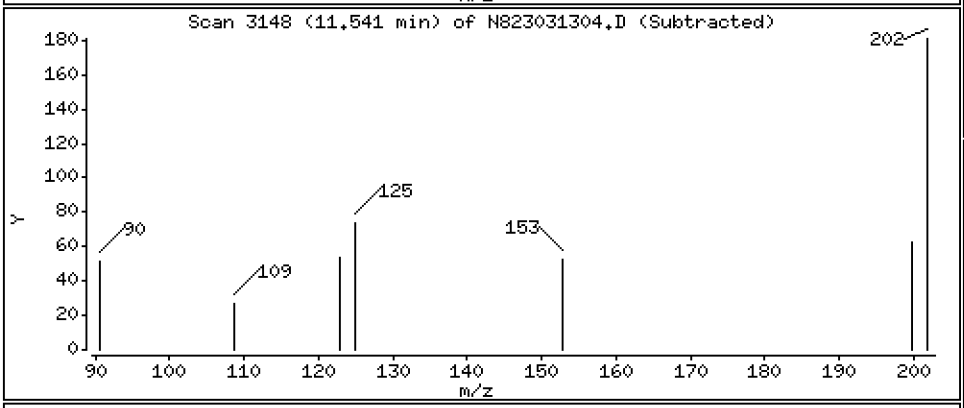
Column diameter: 0.25

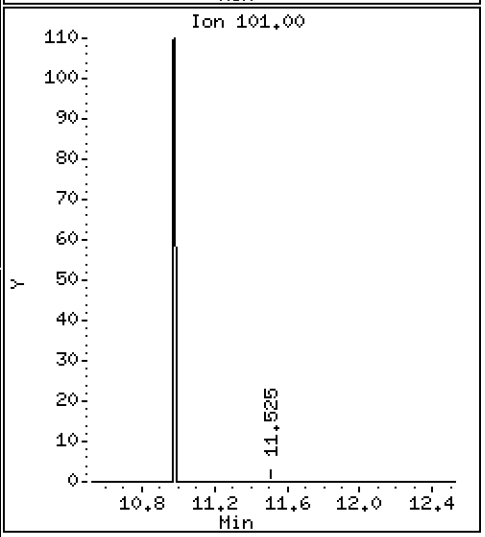
23 Pyrene

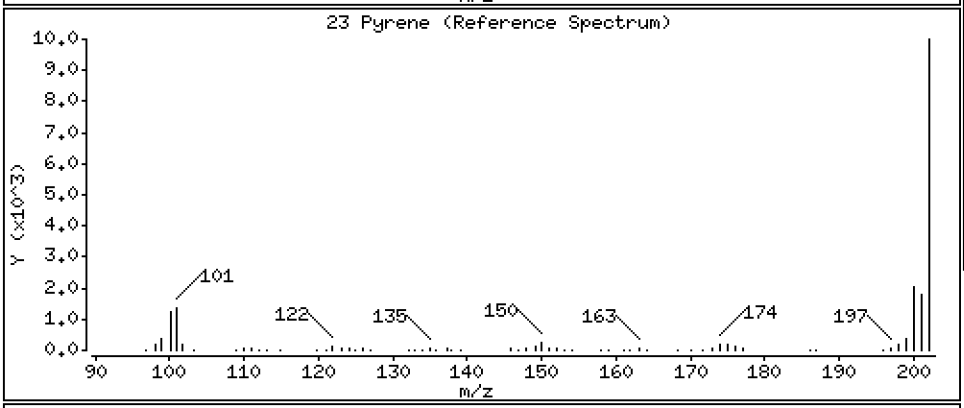
Concentration: 0.01019 ug/mL

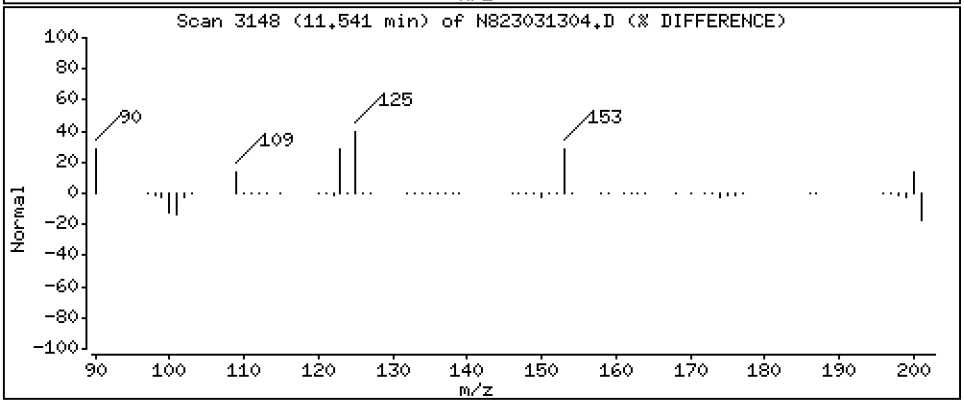












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031304.D
Lab Smp Id: BLC0106-BLK1
Inj Date : 13-MAR-2023 14:30
Operator : JZ Inst ID: nt8.i
Smp Info : BLC0106-BLK1,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.859	4.862	(1.000)	40285	2.00000	
	2 Naphthalene	128	4.891	4.891	(1.007)	283	0.01511	0.01511
$	3 2-Methylnaphthalene-d10	152	5.599	5.599	(1.152)	22388	2.03773	2.038
	4 2-Methylnaphthalene	141	5.640	5.646	(1.161)	123	0.01194	0.01194
	5 1-methylnaphthalene	141	5.846	5.842	(1.203)	111	0.01062	0.01062
	9 Acenaphthylene	152	7.044	7.047	(0.984)	256	0.01336	0.01336(M)
*	10 Acenaphthene-d10	164	7.158	7.155	(1.000)	25374	2.00000	
	11 Acenaphthene	153	7.212	7.205	(1.008)	150	0.01168	0.01168
	12 Dibenzofuran	168	7.360	7.357	(1.028)	195	0.01000	0.01000
	14 Fluorene	166	7.841	7.838	(1.095)	143	0.00944	0.009442(M)
*	15 Phenanthrene-d10	188	9.200	9.197	(1.000)	48366	2.00000	
	16 Phenanthrene	178	9.235	9.232	(1.004)	301	0.01274	0.01274(M)
	17 Anthracene	178	Compound Not Detected.					
	19 Carbazole	167	Compound Not Detected.					
	22 Fluoranthene	202	Compound Not Detected.					
$	21 Fluoranthene-d10	212	10.977	10.971	(1.193)	52311	2.45144	2.451
	23 Pyrene	202	11.540	11.524	(0.815)	251	0.01019	0.01019(M)
	24 Benzo(a)anthracene	228	Compound Not Detected.					
*	25 Chrysene-d12	240	14.158	14.152	(1.000)	39738	2.00000	
	27 Chrysene	228	Compound Not Detected.					
	28 Benzo(b)fluoranthene	252	Compound Not Detected.					
	29 Benzo(k)fluoranthene	252	Compound Not Detected.					
	30 Benzo(j)fluoranthene	252	Compound Not Detected.					
	31 Total Benzofluoranthenes	252	Compound Not Detected.					
	34 Benzo(e)pyrene	252	Compound Not Detected.					
	32 Benzo(a)pyrene	252	Compound Not Detected.					
*	33 Perylene-d12	264	18.063	18.060	(1.000)	39096	2.00000	
	35 Perylene	252	Compound Not Detected.					
$	36 Dibenzo(a,h)anthracene-d14	292	20.492	20.482	(1.134)	40769	2.66140	2.661
	37 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
	39 Benzo(g,h,i)perylene	276	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031304.D
Lab Smp Id: BLC0106-BLK1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	40285	-0.17
10 Acenaphthene-d10	24212	12106	48424	25374	4.80
15 Phenanthrene-d10	46031	23016	92062	48366	5.07
25 Chrysene-d12	38604	19302	77208	39738	2.94
33 Perylene-d12	35963	17982	71926	39096	8.71

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.86	-0.06
10 Acenaphthene-d10	7.16	6.66	7.66	7.16	0.04
15 Phenanthrene-d10	9.20	8.70	9.70	9.20	0.03
25 Chrysene-d12	14.15	13.65	14.65	14.16	0.05
33 Perylene-d12	18.06	17.56	18.56	18.06	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031304.D

Lab ID: BLC0106-BLK1
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 14:30

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

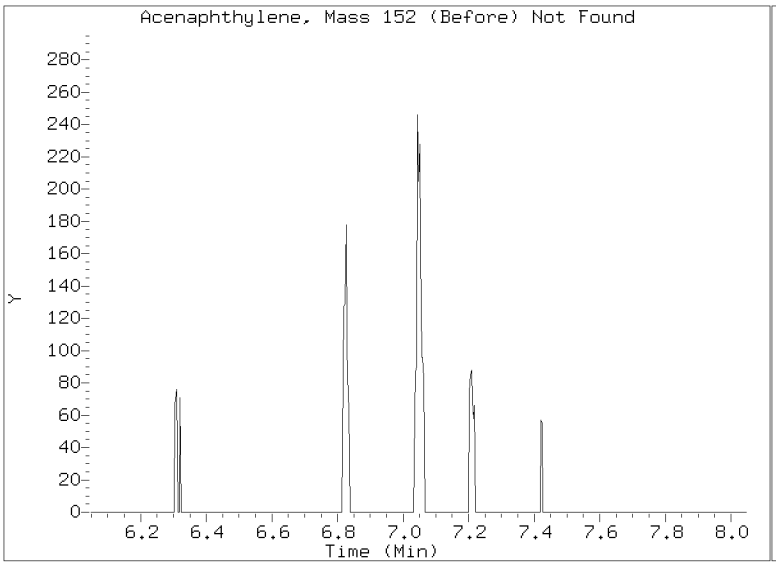
On Column LOD for nt8.i, 20230313.b\FSIMPNA230119.m, PNAXEMDL.sub = 0.0080

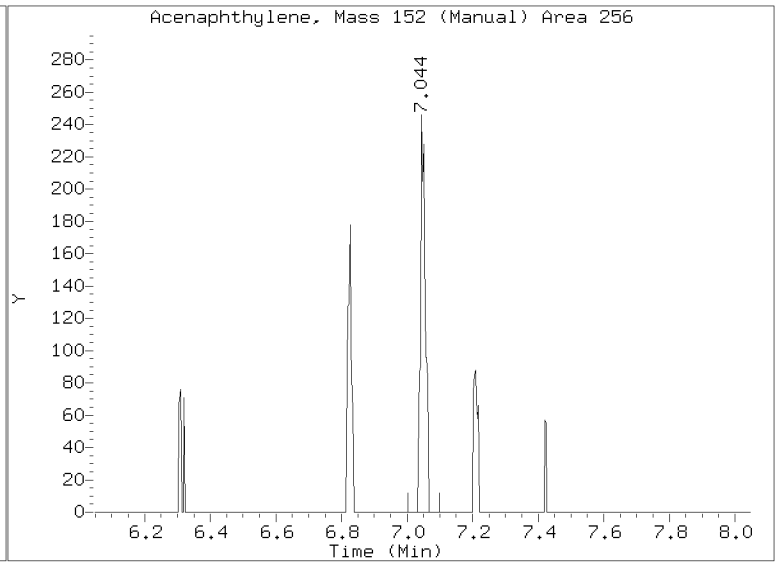
Exception: Benzo(e)pyrene 0.0800

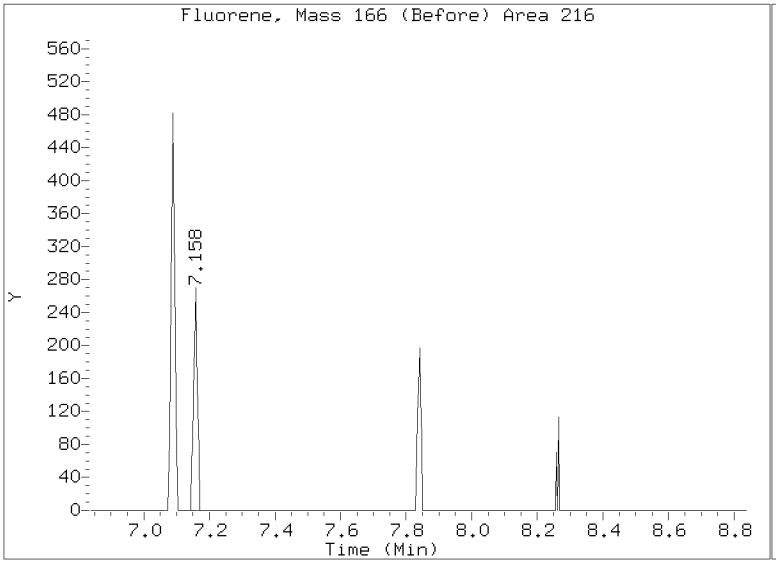
* Only compounds listed in the work order have been verified by the analyst *

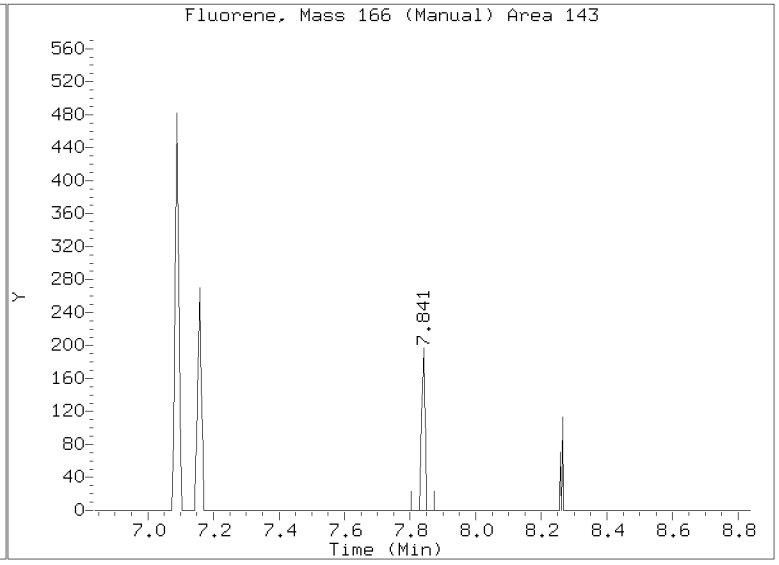
Quant Ion Manual Peak Adjustment Report

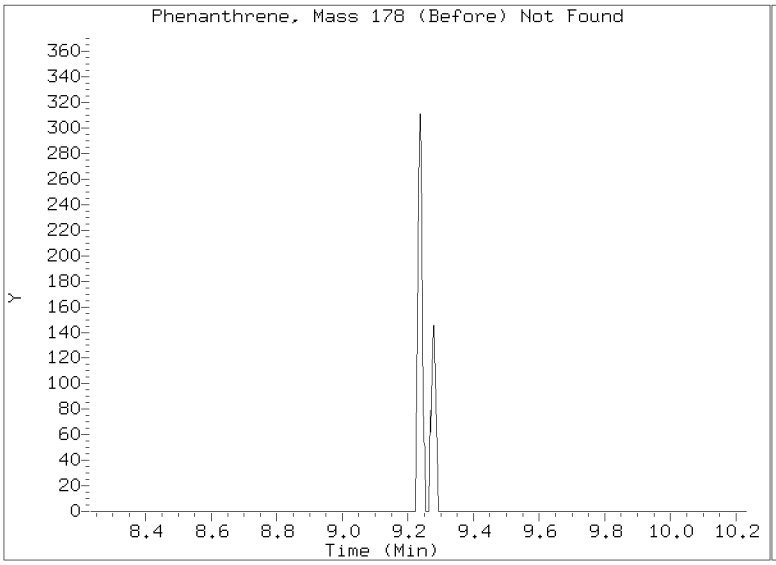
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Injection Date: 13-MAR-2023 14:30
Lab ID:BLC0106-BLK1 Client ID:
Report Date: 03/13/2023 21:09

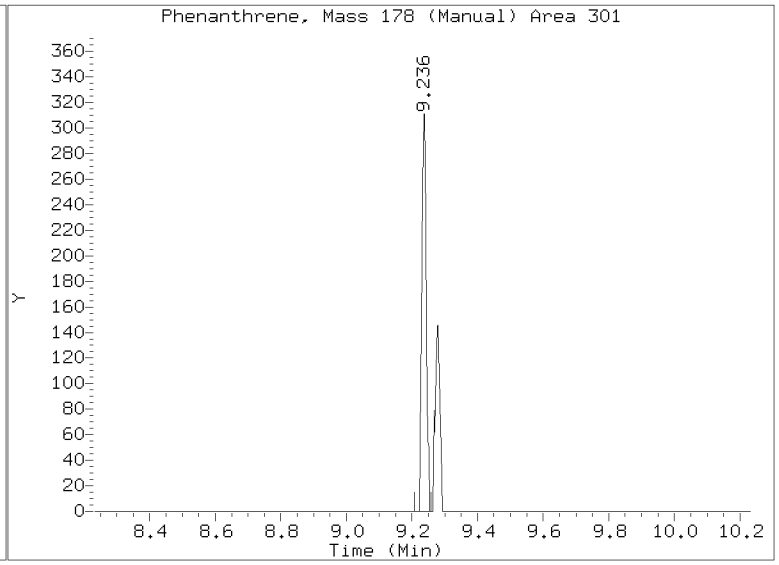






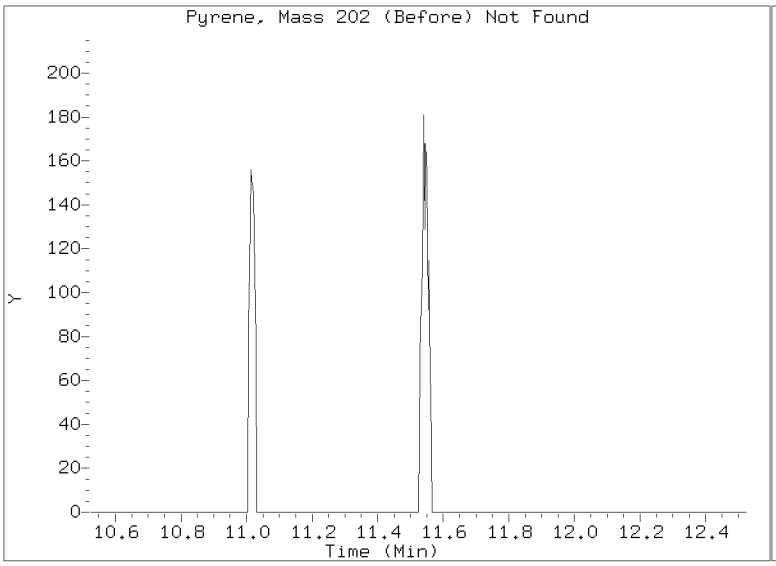


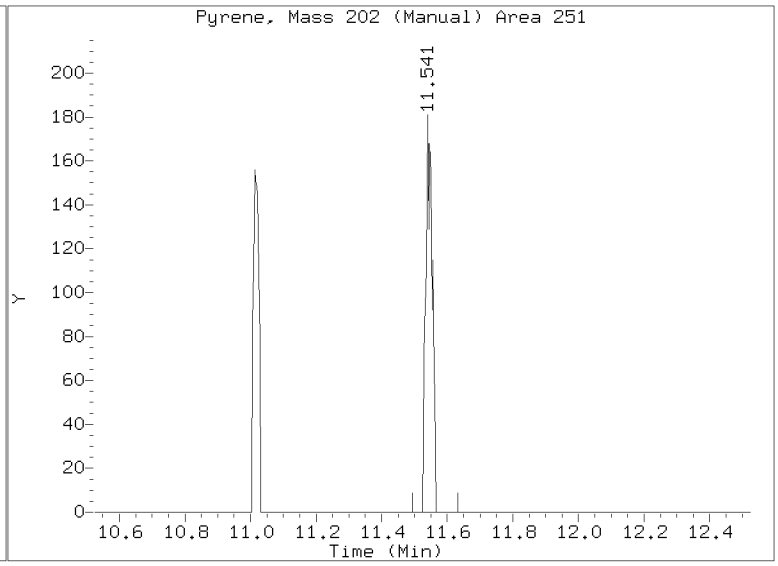




Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031304.D
Injection Date: 13-MAR-2023 14:30
Lab ID:BLC0106-BLK1 Client ID:
Report Date: 03/13/2023 21:09





LCS / LCS DUPLICATE RECOVERY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	03/13/23 14:59
Batch:	BLC0106	Laboratory ID:	BLC0106-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	10 g / 0.5 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Benzo(a)anthracene	300	260		86.7	42 - 120
Chrysene	300	241		80.3	48 - 120
Benzo(b)fluoranthene	300	281		93.8	52 - 137
Benzo(k)fluoranthene	300	274		91.4	37 - 129
Benzo(a)pyrene	300	235		78.4	36 - 120
Indeno(1,2,3-cd)pyrene	300	260		86.7	67 - 132
Dibenzo(a,h)anthracene	300	273		91.1	66 - 139
Benzo(g,h,i)perylene	300	278		92.6	51 - 153

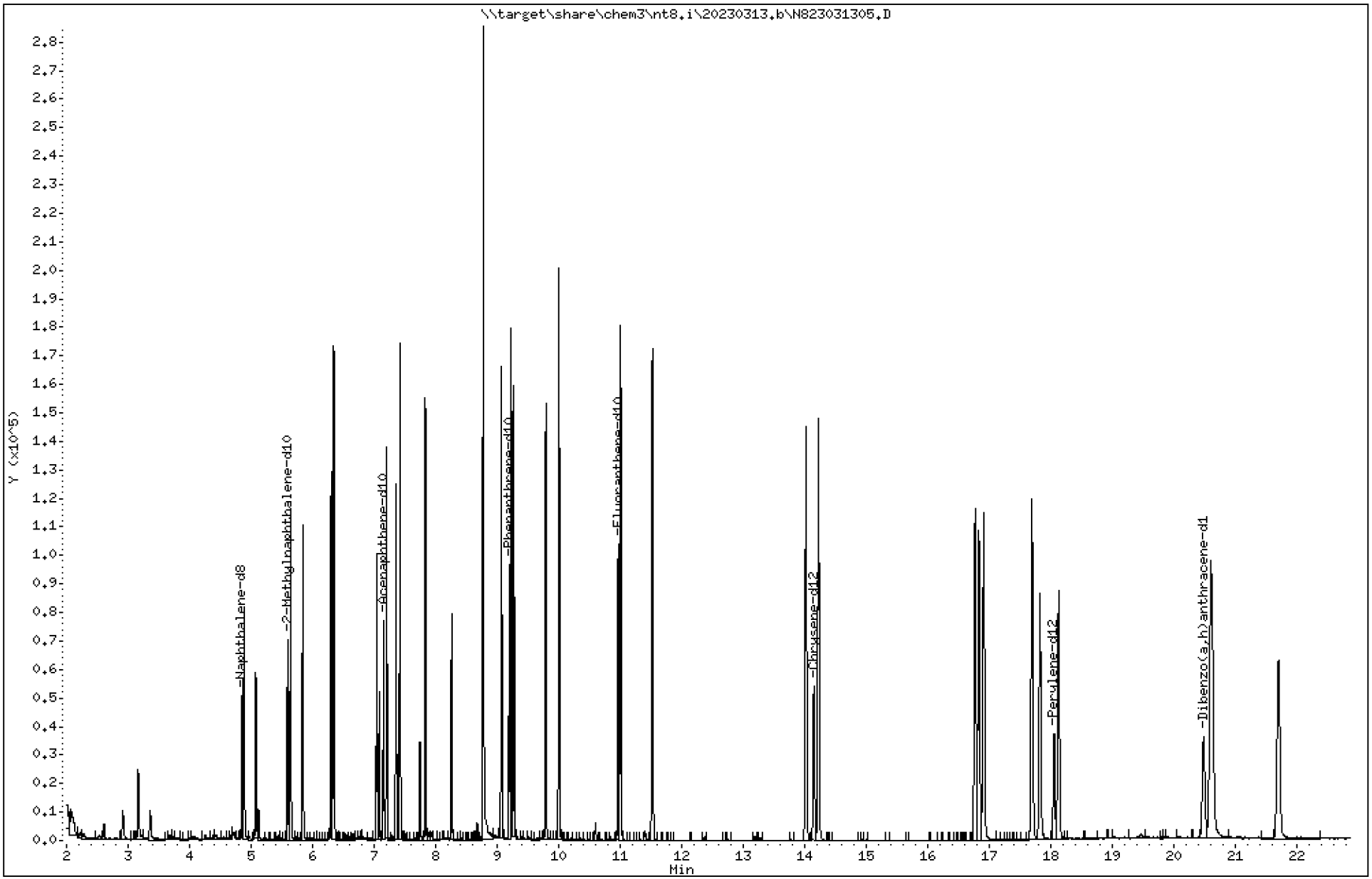
* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031305.D
Date : 13-MAR-2023 14:59
Client ID:
Sample Info: BLC0106-BS1,

Column phase: Rxi-17sil

Instrument: nt8.i

Operator: JZ
Column diameter: 0.25



Final Report 23C0064 03/17/2023 Page 123 of 833

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031305.D

Date : 13-MAR-2023 14:59

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Instrument: nt8.i

Sample Info: BLC0106-BS1,

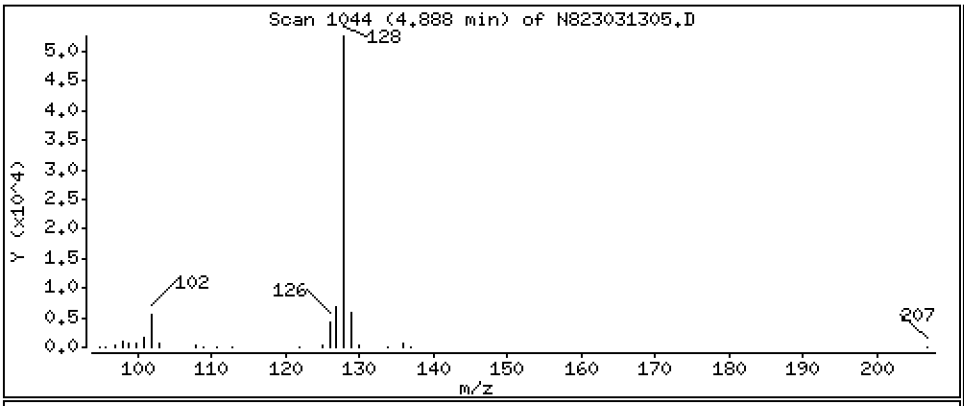
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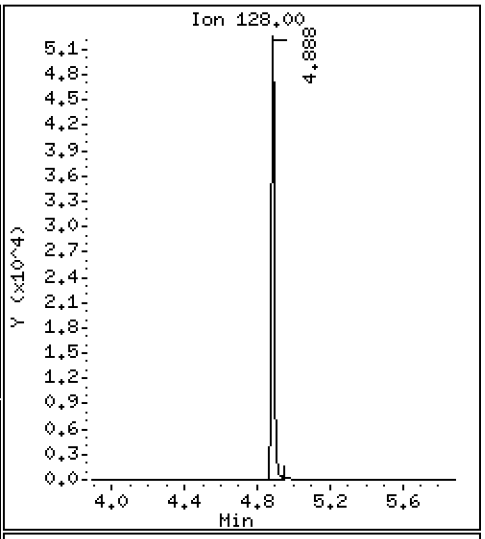
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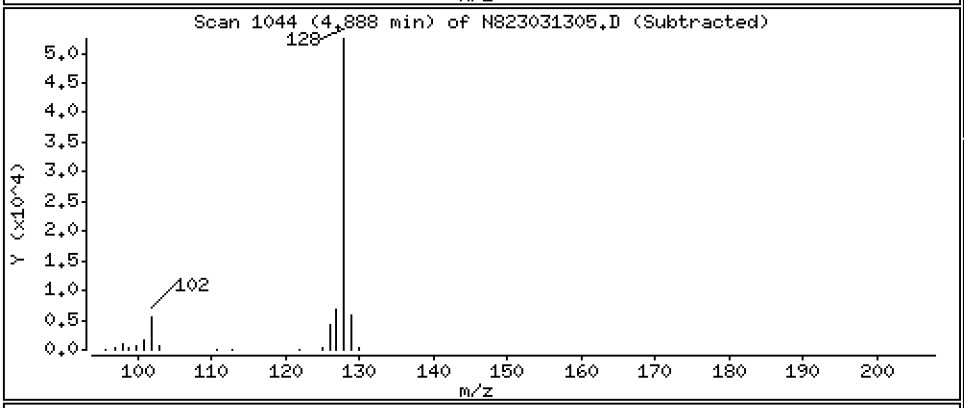
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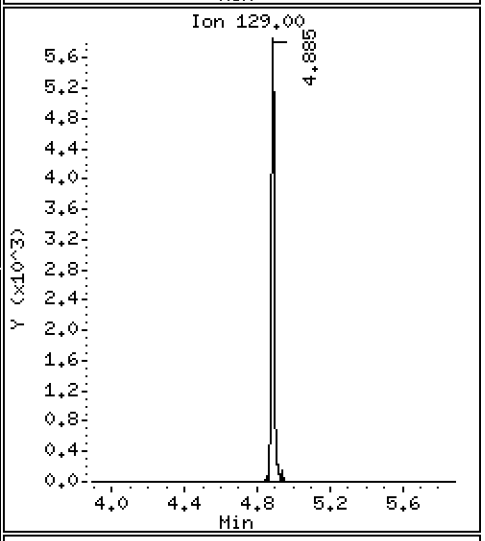
2 Naphthalene

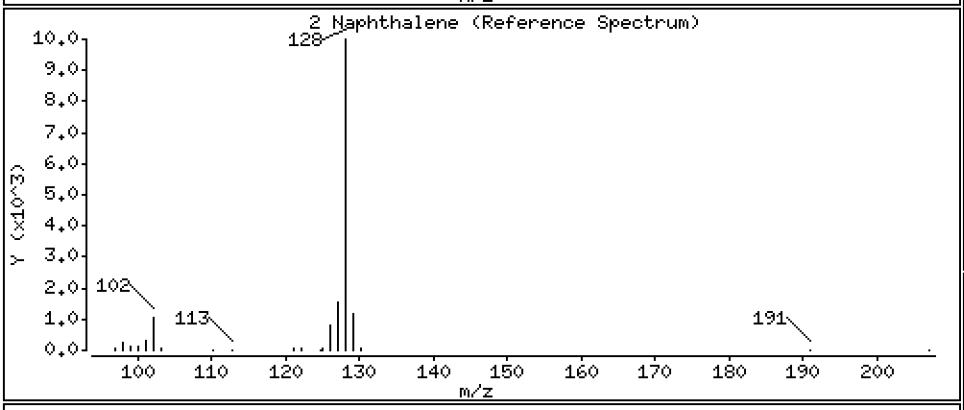
Concentration: 3.485 ug/mL

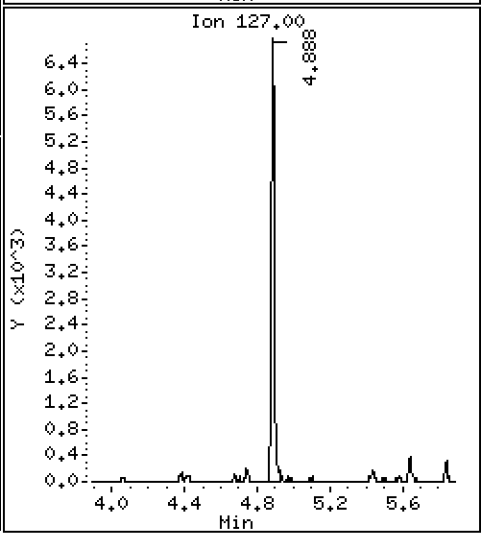


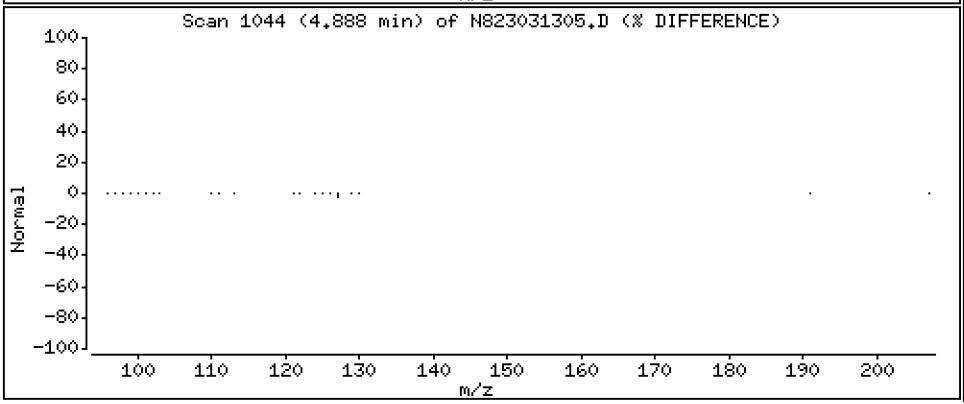












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Date : 13-MAR-2023 14:59

Client ID:

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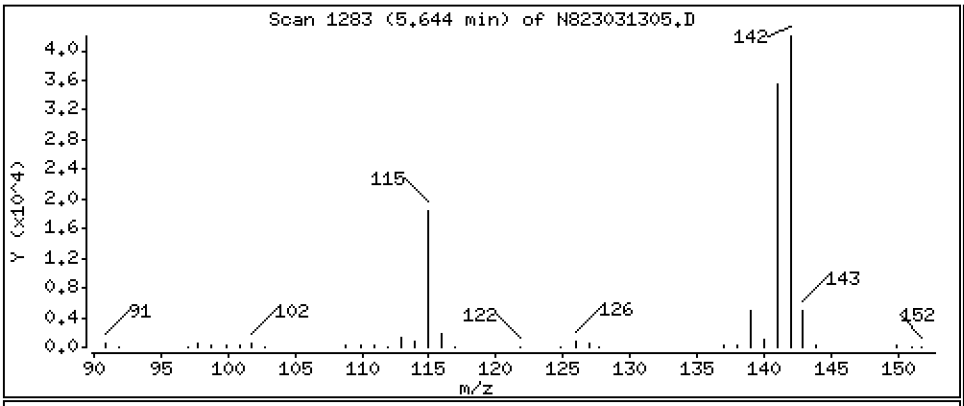
Operator: JZ

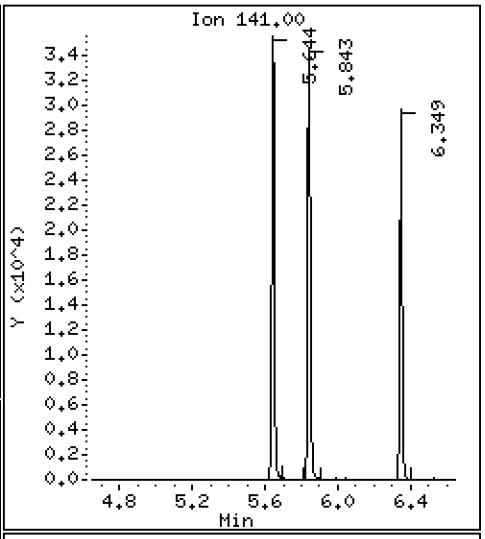
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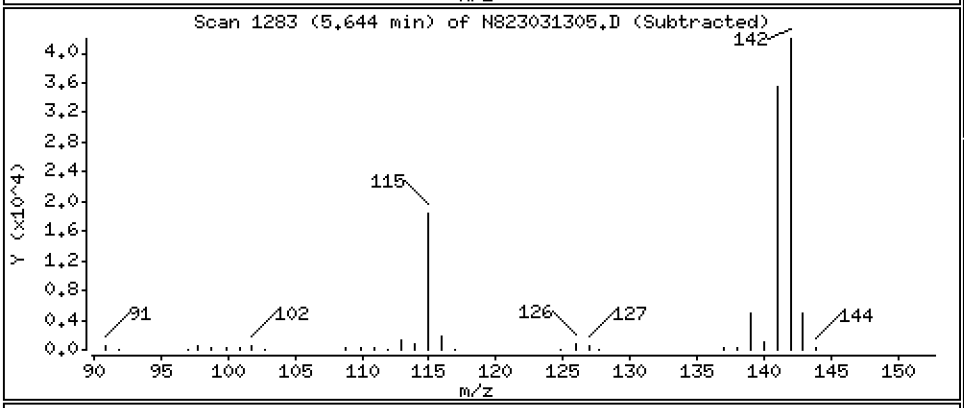
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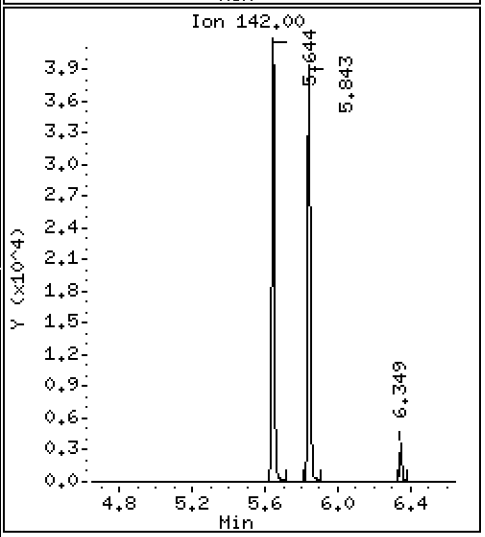
4 2-Methylnaphthalene

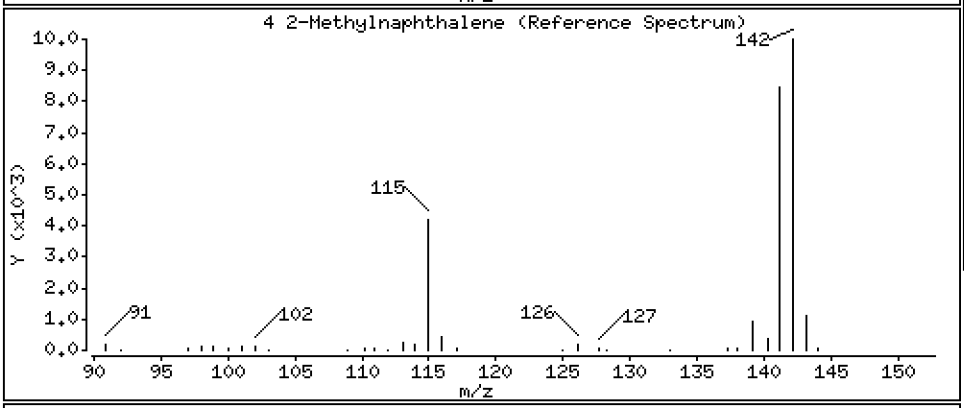
Concentration: 3.712 ug/mL

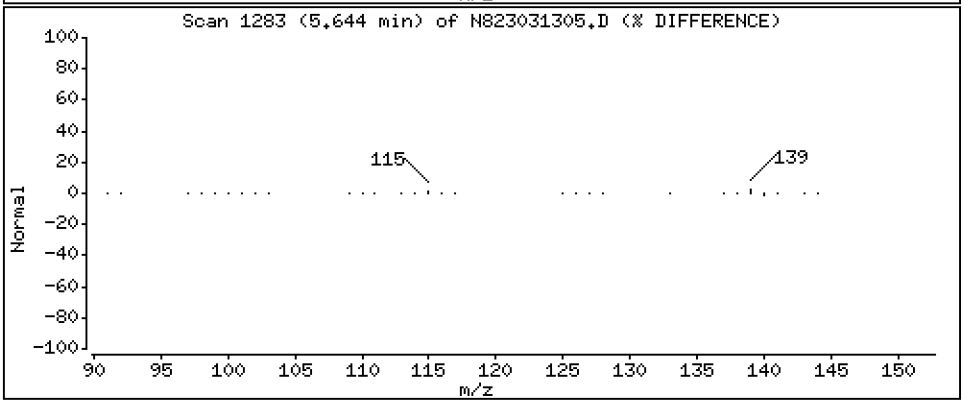












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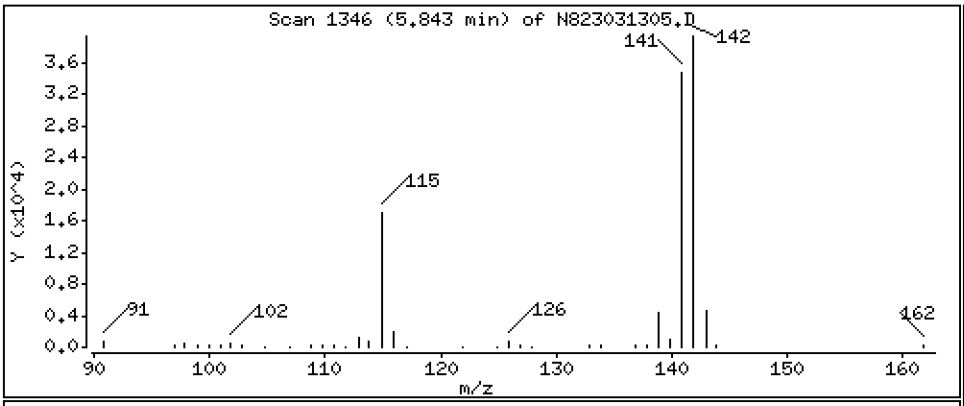
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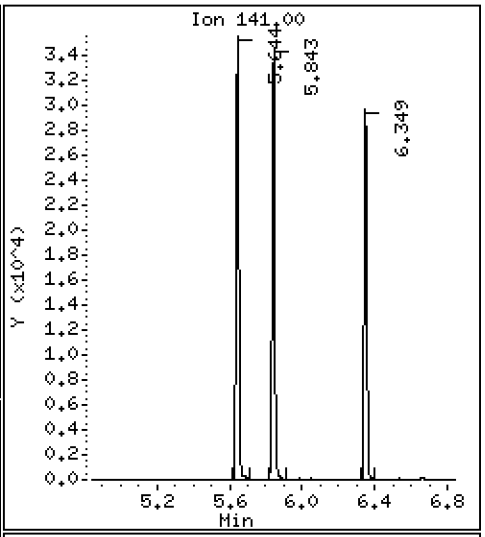
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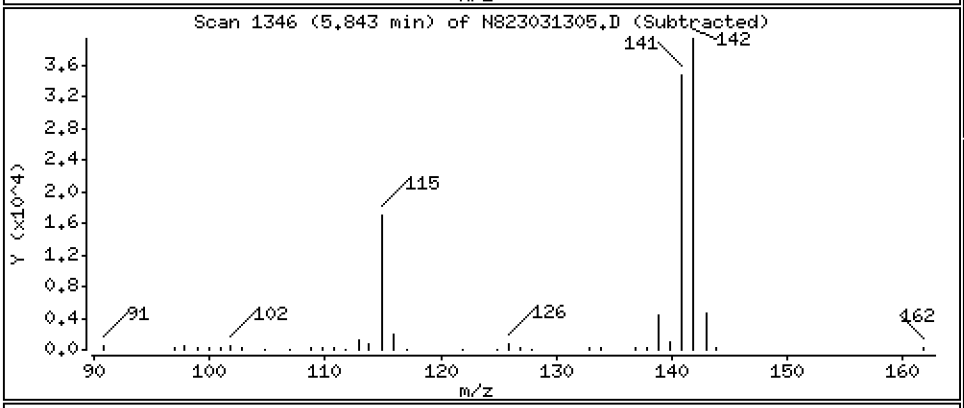
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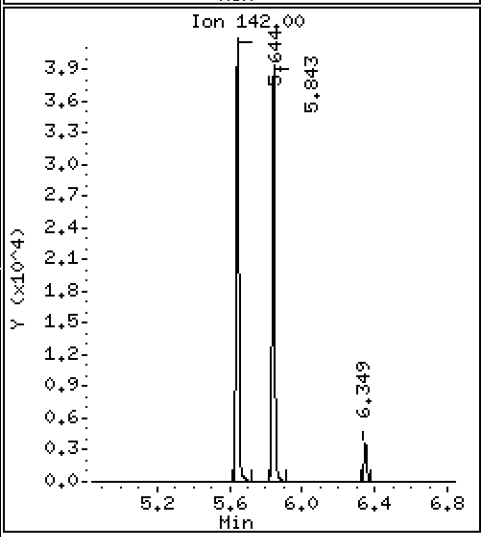
5 1-methylnaphthalene

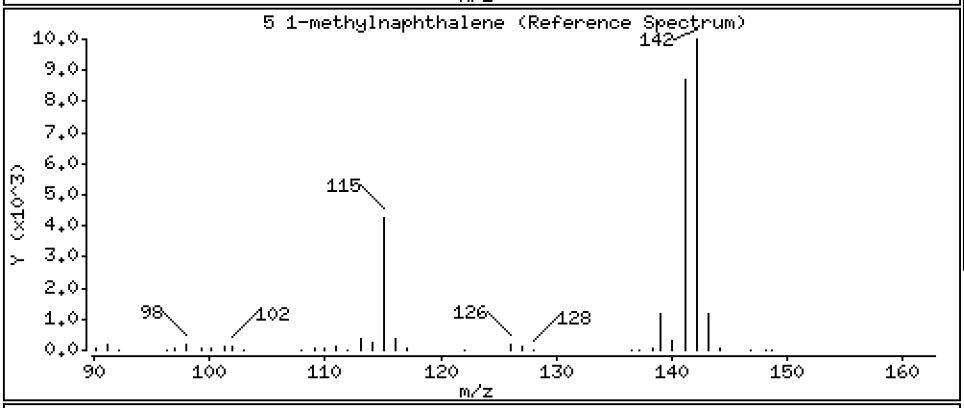
Concentration: 3.696 ug/mL

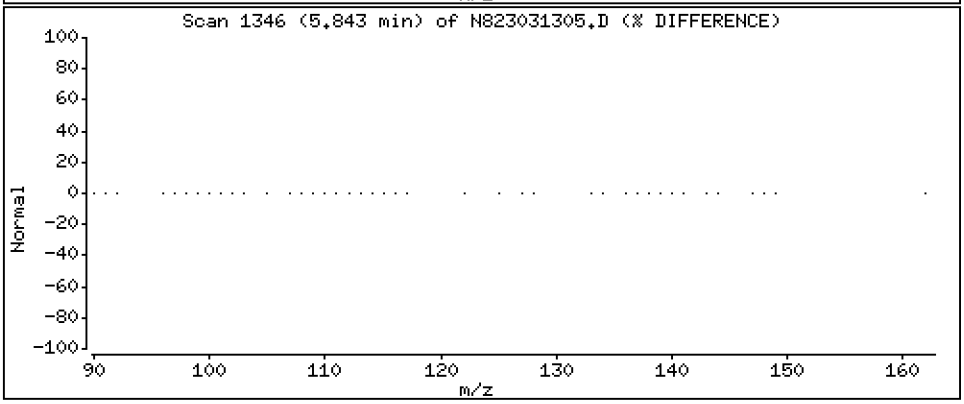












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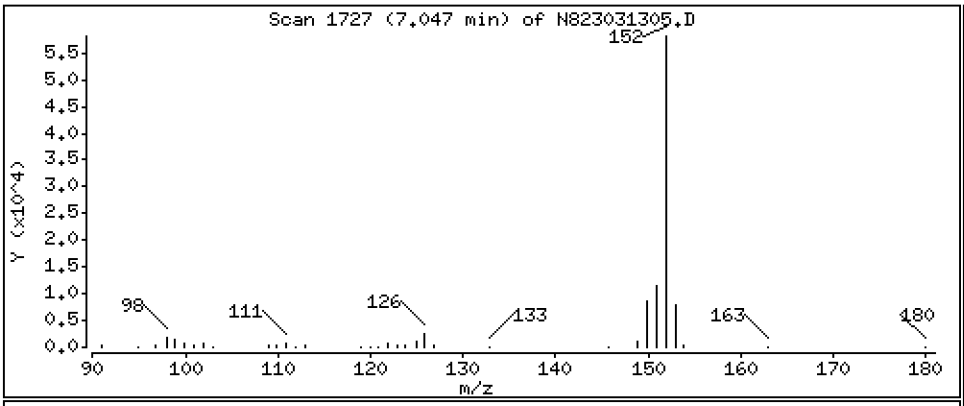
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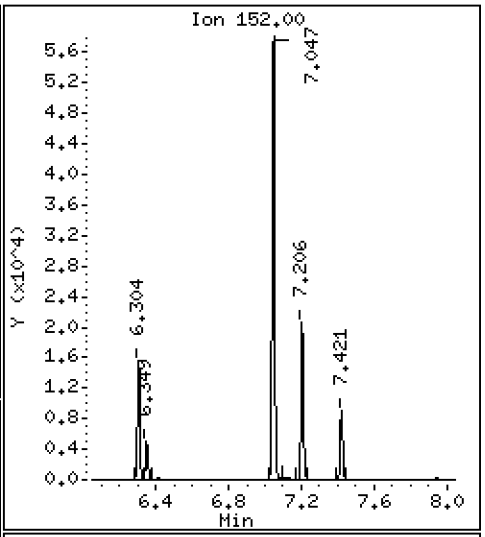
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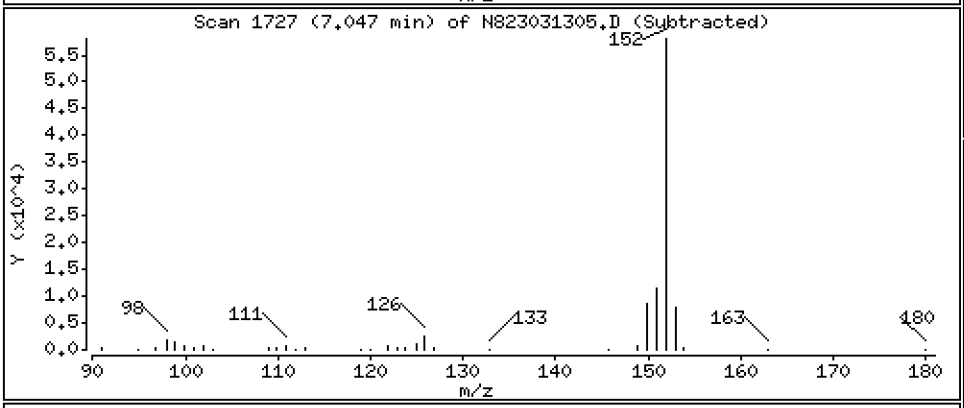
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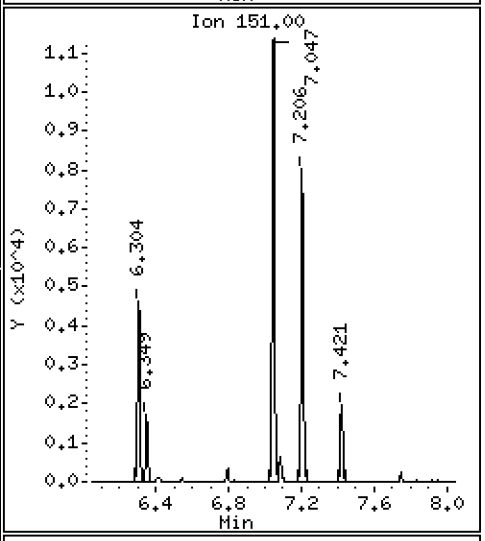
9 Acenaphthylene

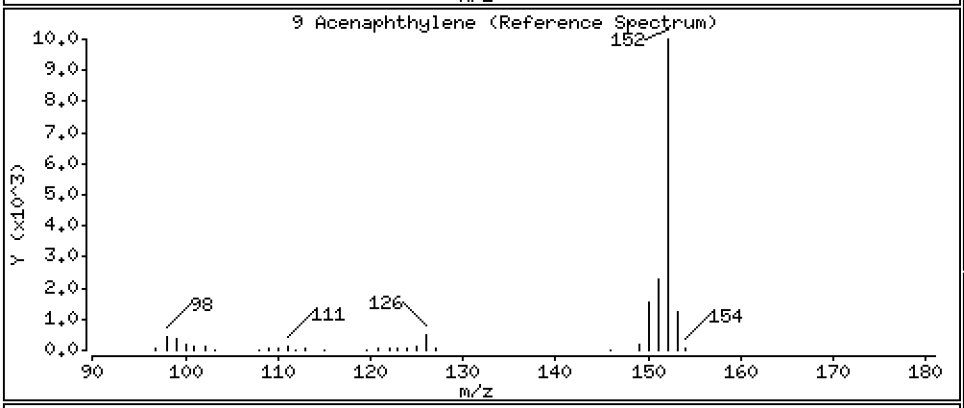
Concentration: 3.398 ug/mL

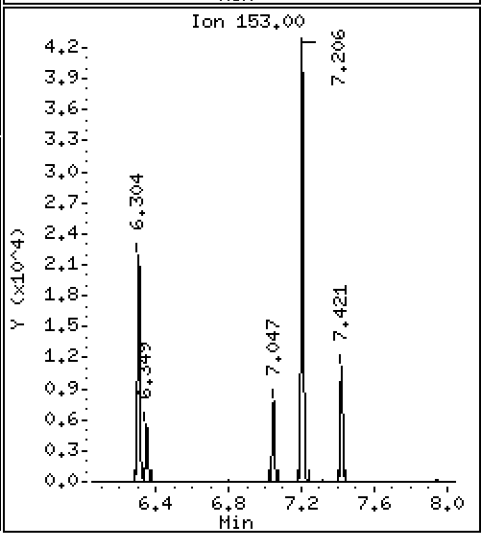


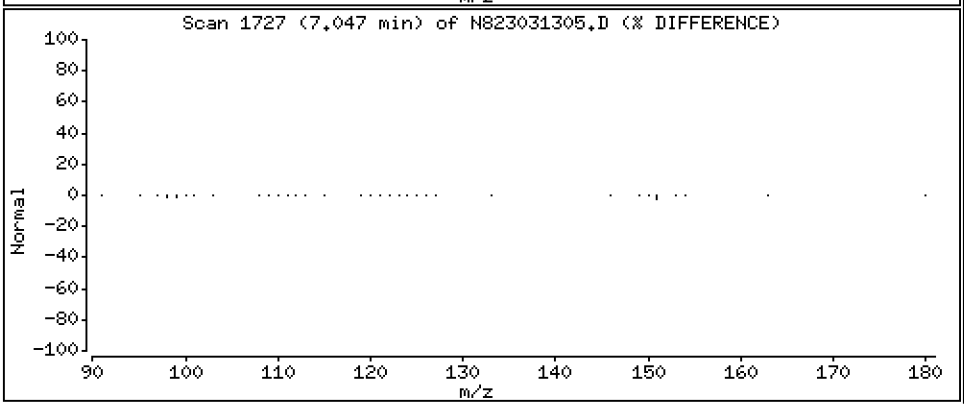












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

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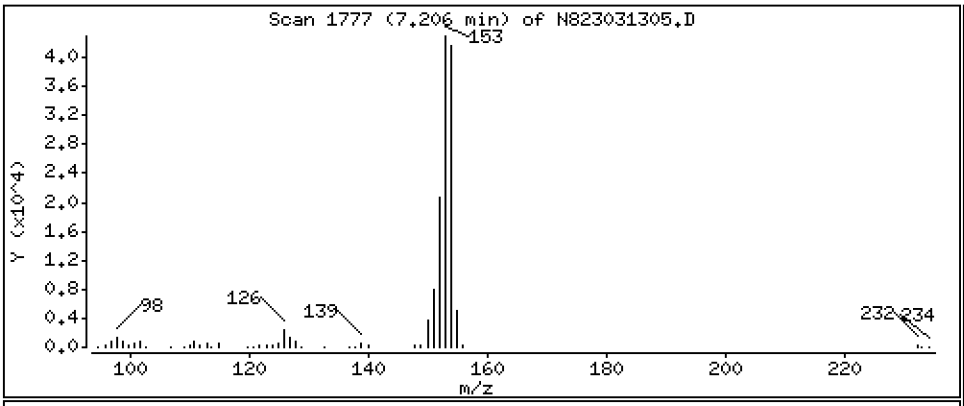
Operator: JZ

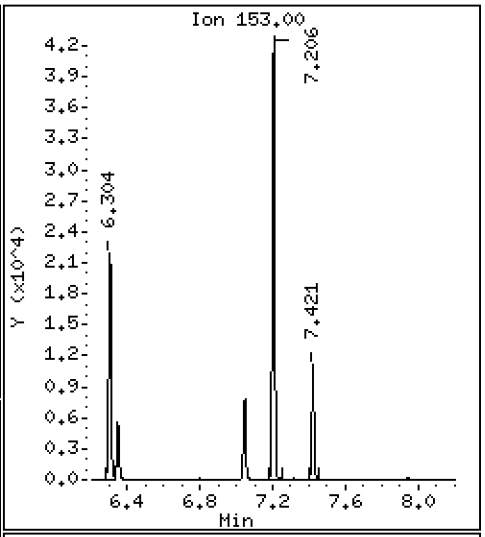
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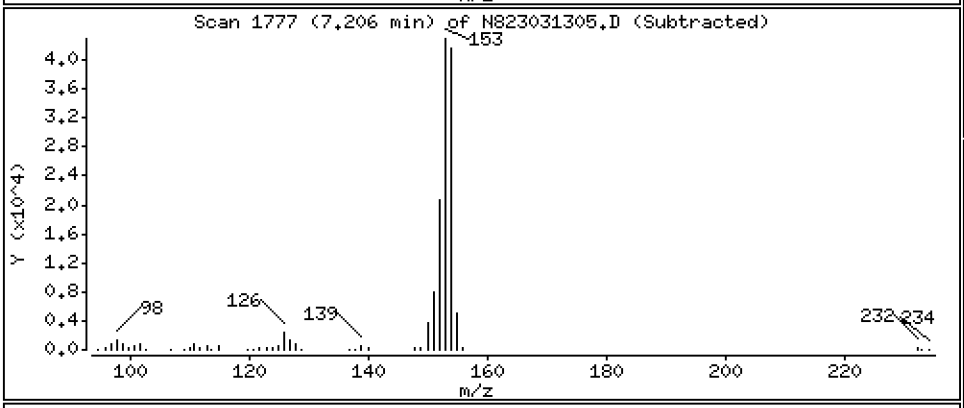
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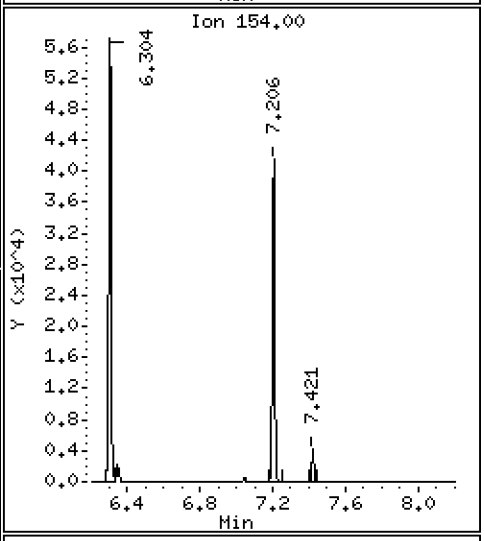
11 Acenaphthene

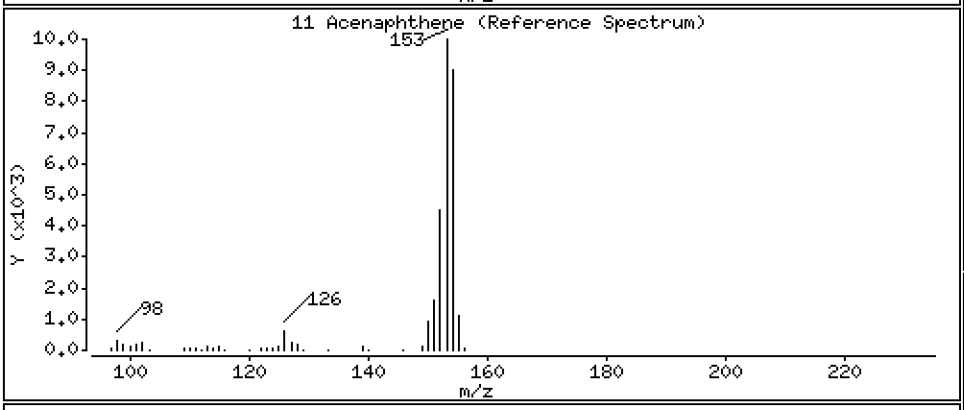
Concentration: 3.647 ug/mL

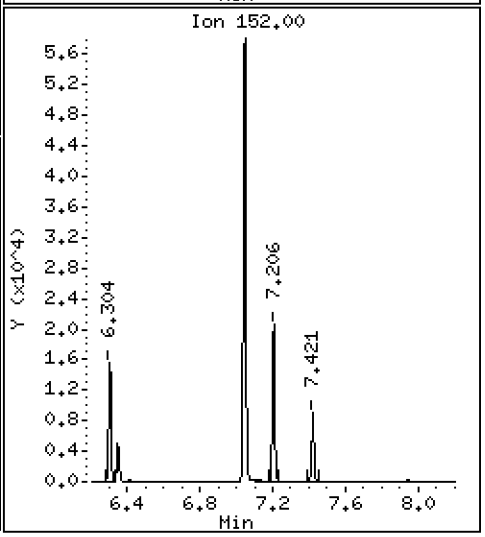


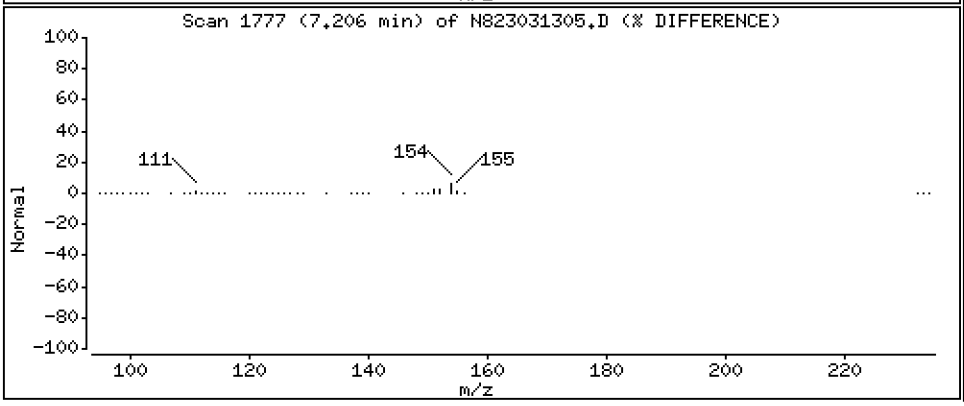












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

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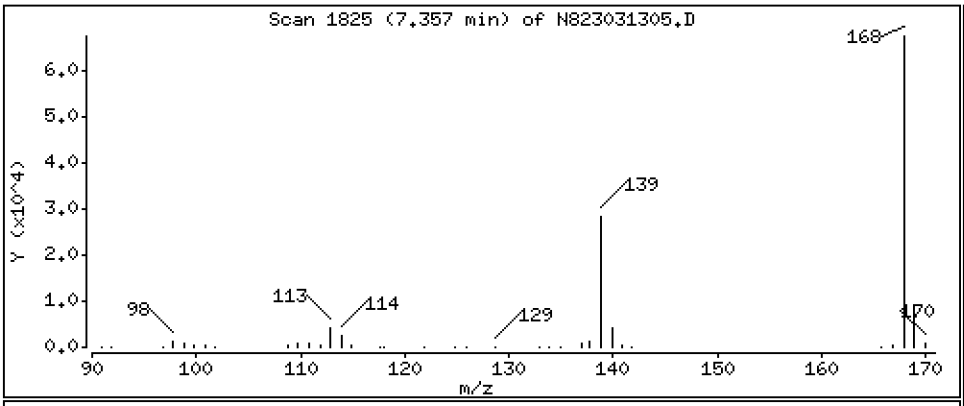
Operator: JZ

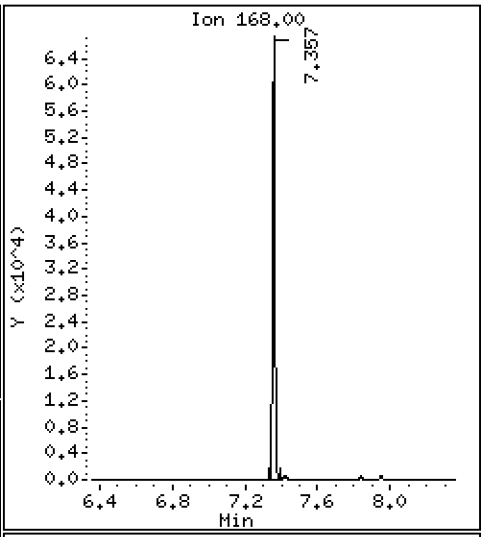
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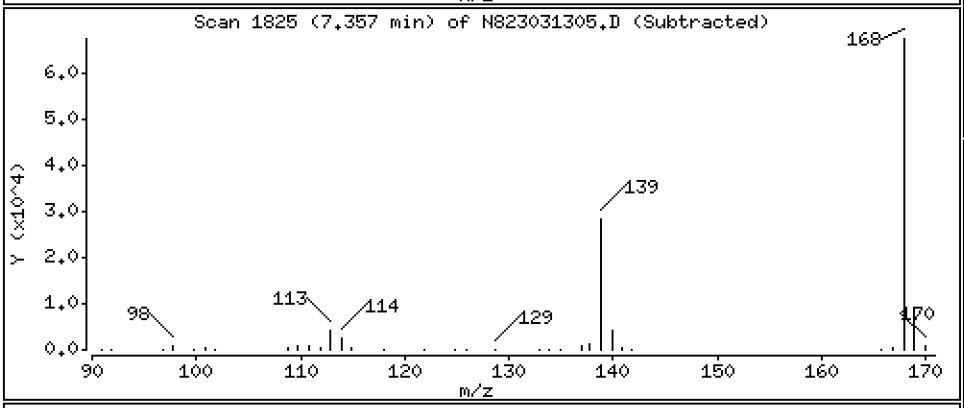
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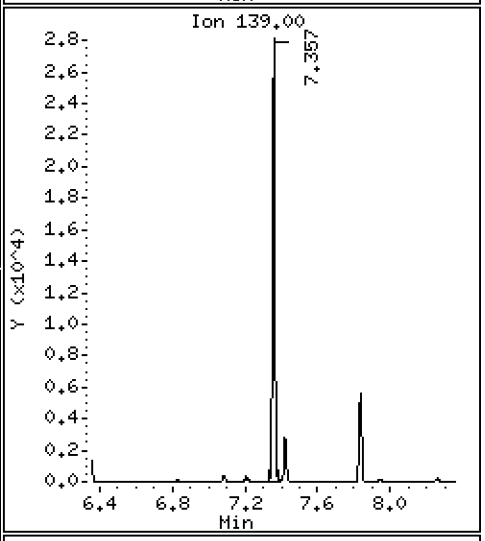
12 Dibenzofuran

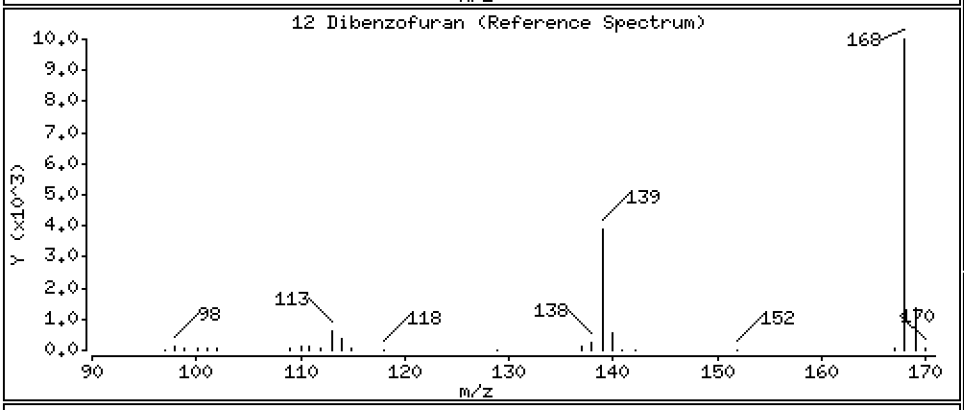
Concentration: 3.703 ug/mL

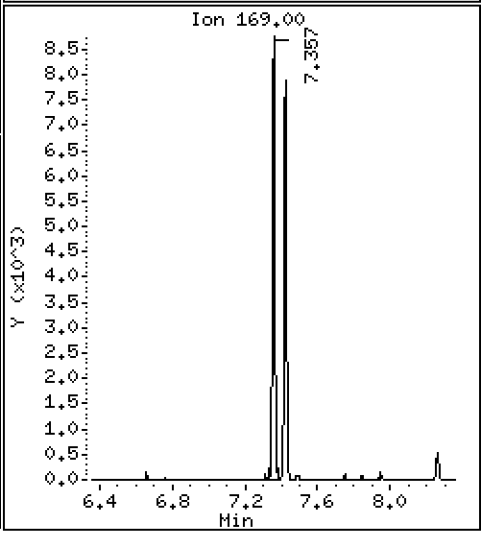


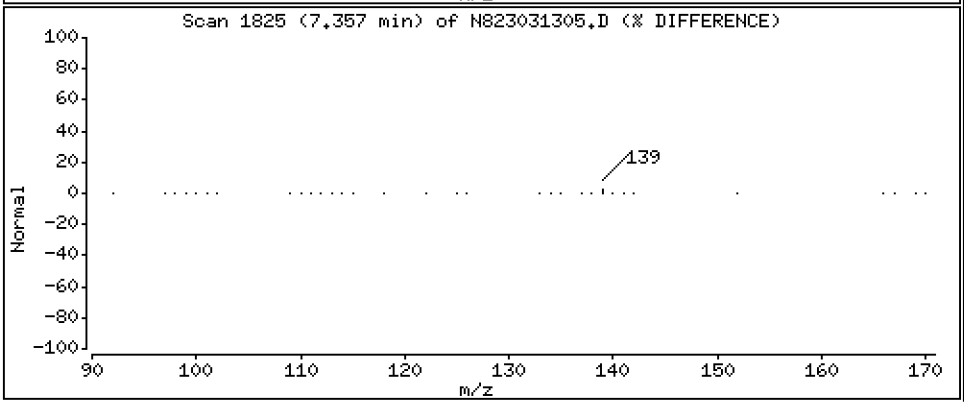












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BS1,

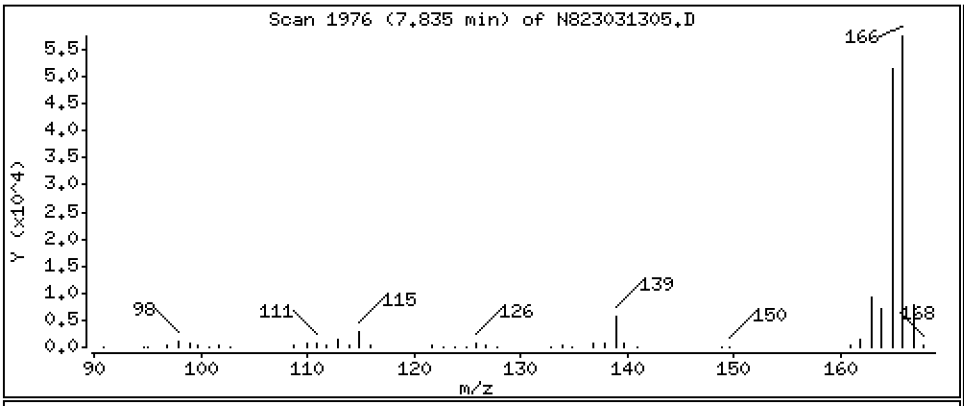
Operator: JZ

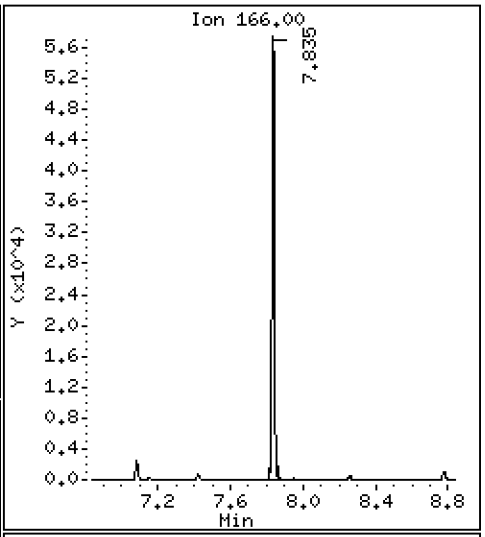
Column phase: Rxi-17sil

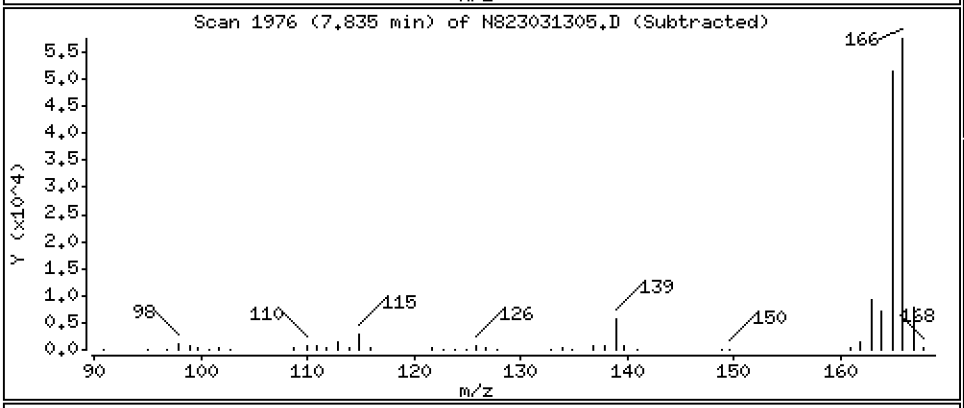
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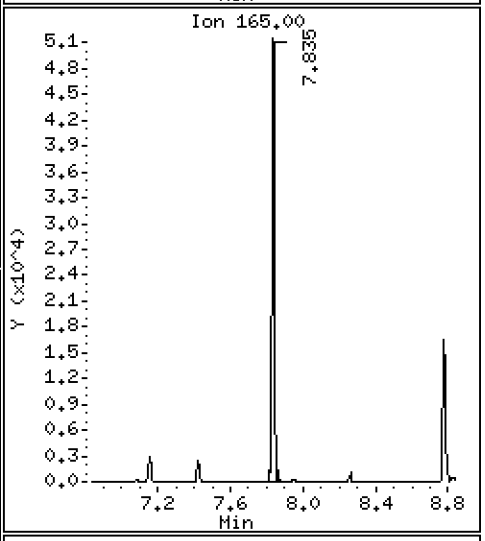
14 Fluorene

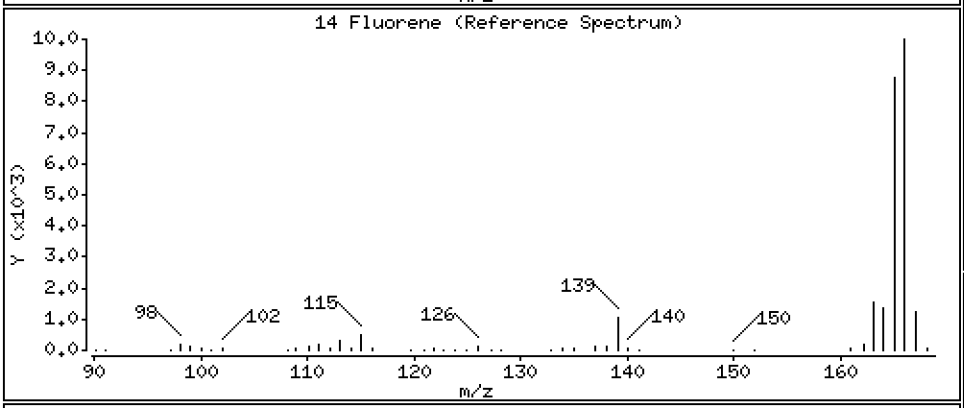
Concentration: 4.039 ug/mL

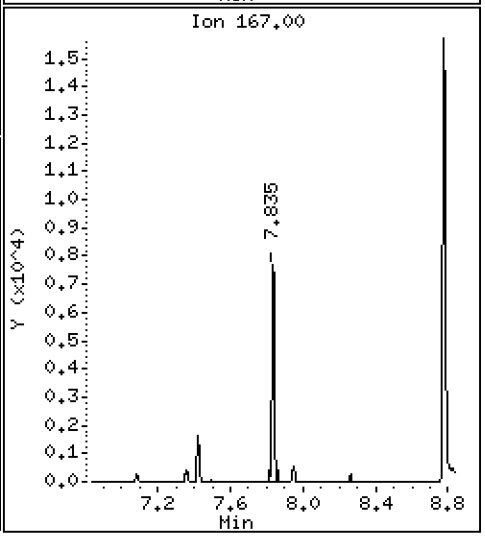


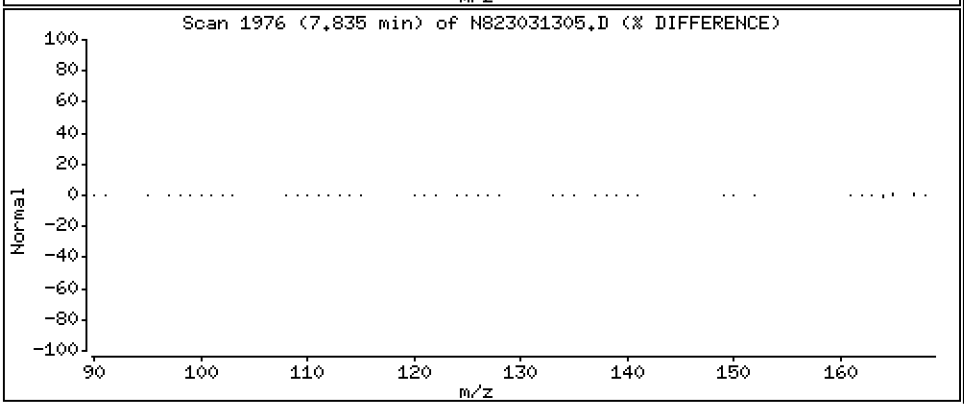












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BS1,

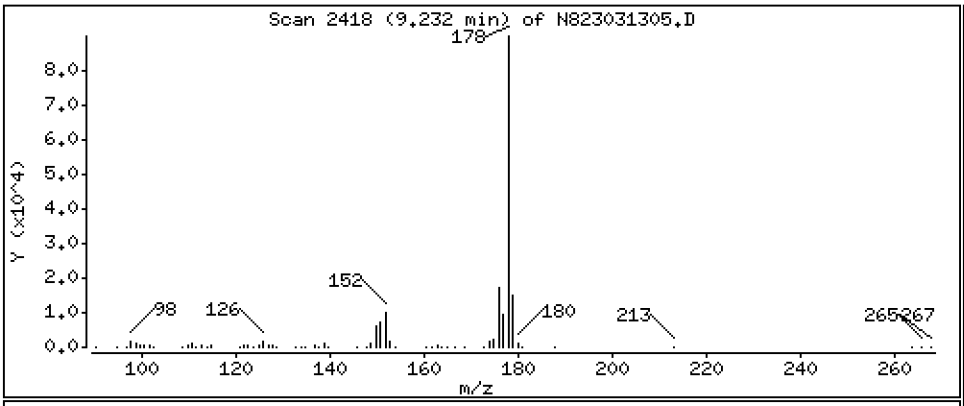
Operator: JZ

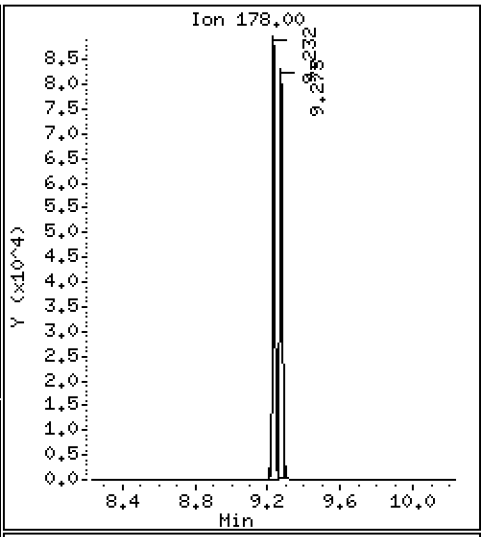
Column phase: Rxi-17sil

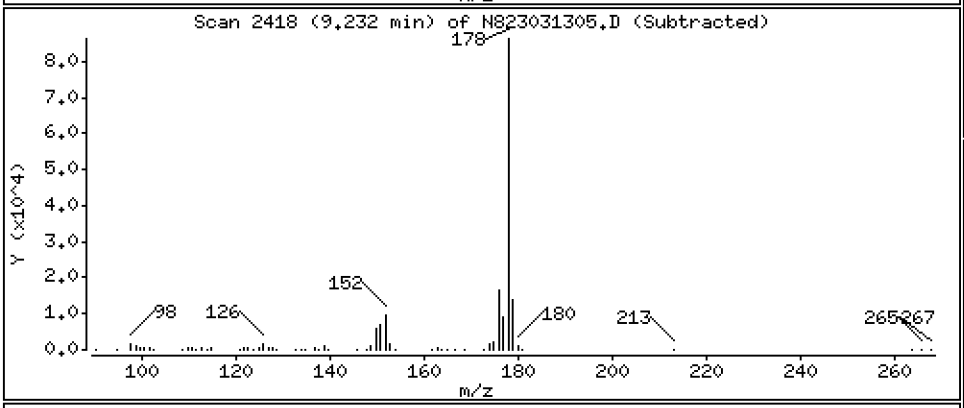
Column diameter: 0.25

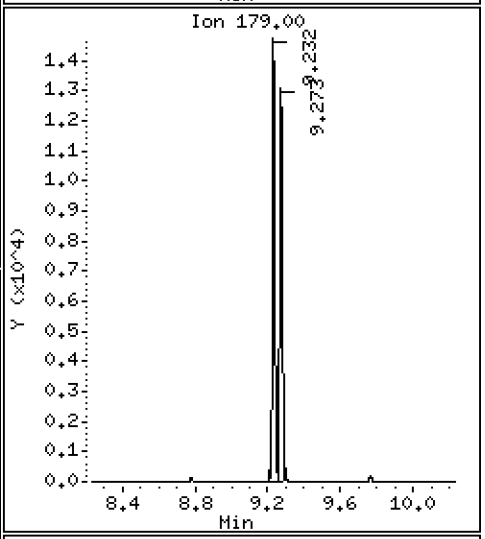
16 Phenanthrene

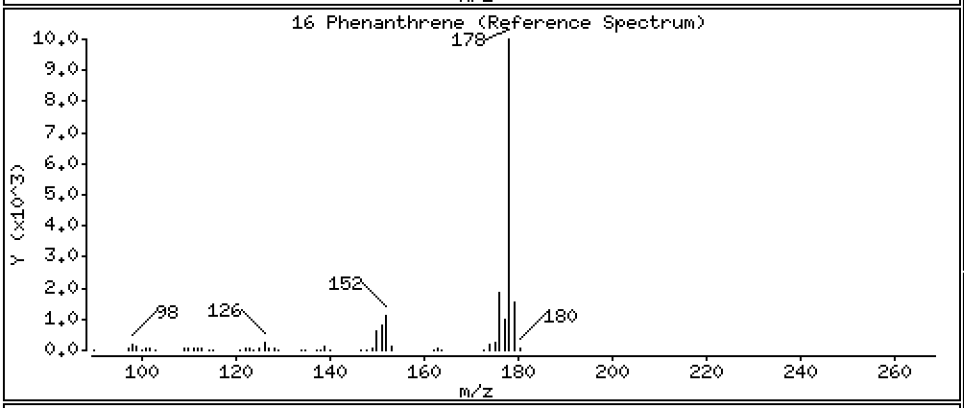
Concentration: 4.026 ug/mL

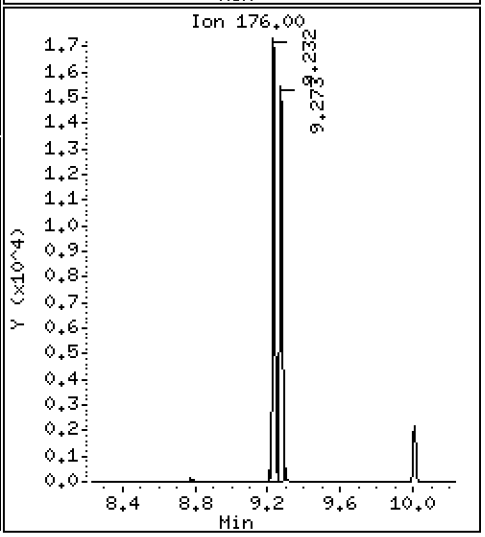


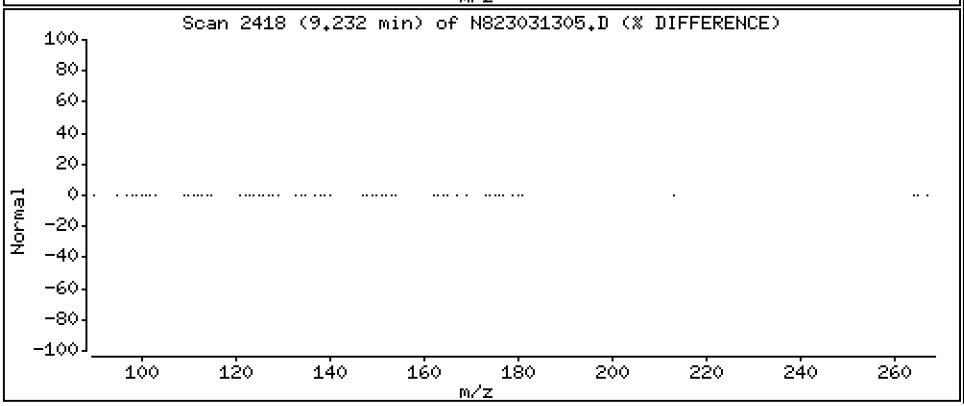












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BS1,

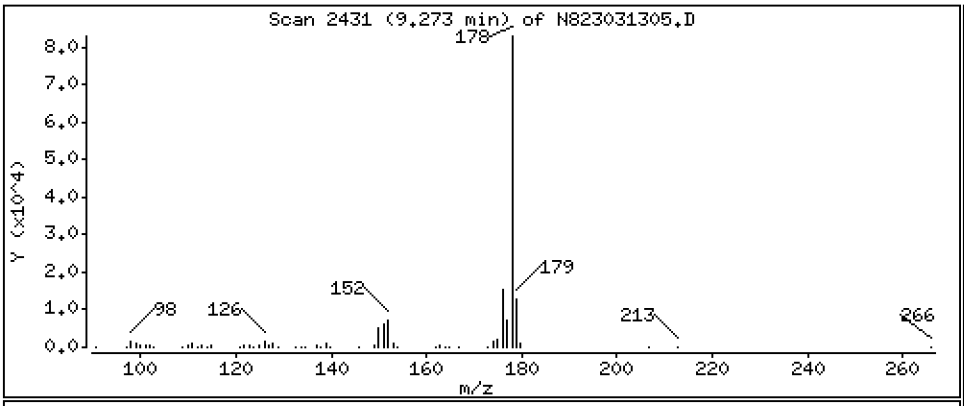
Operator: JZ

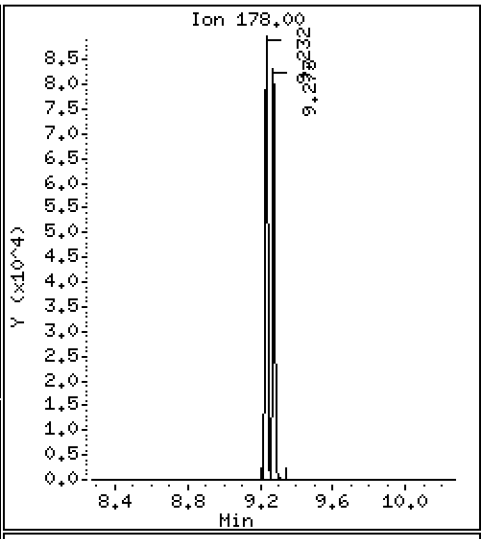
Column phase: Rxi-17sil

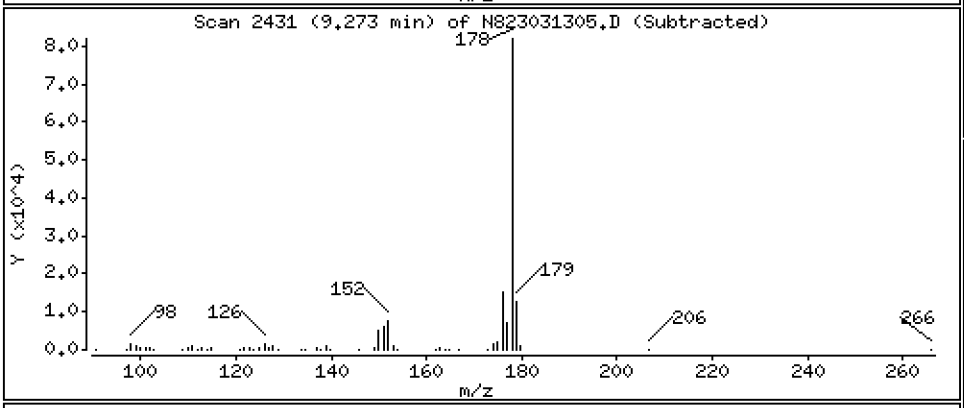
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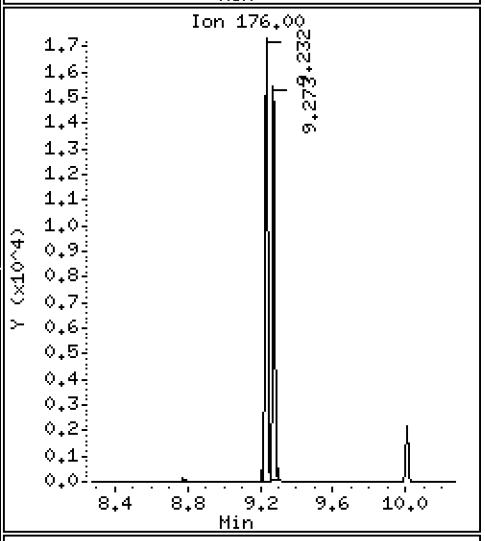
17 Anthracene

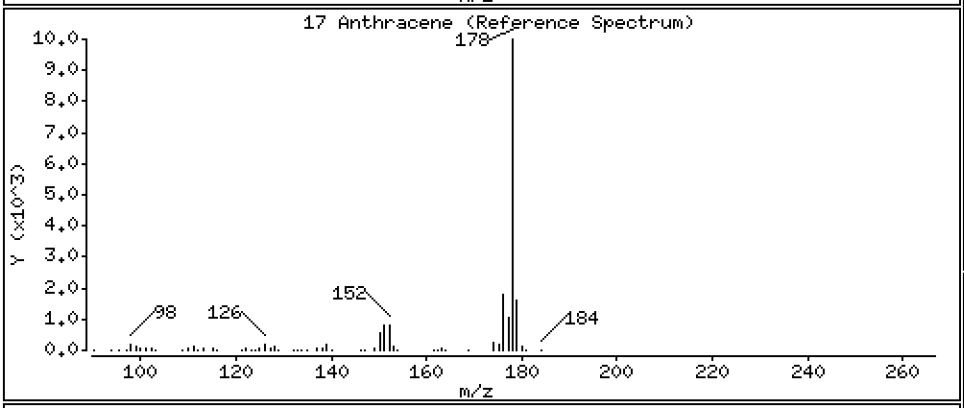
Concentration: 4.028 ug/mL

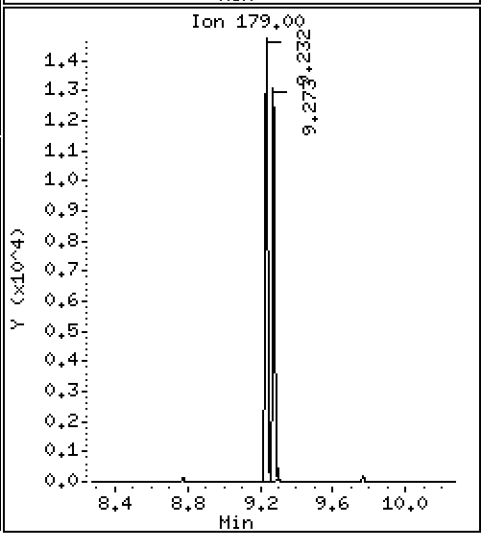


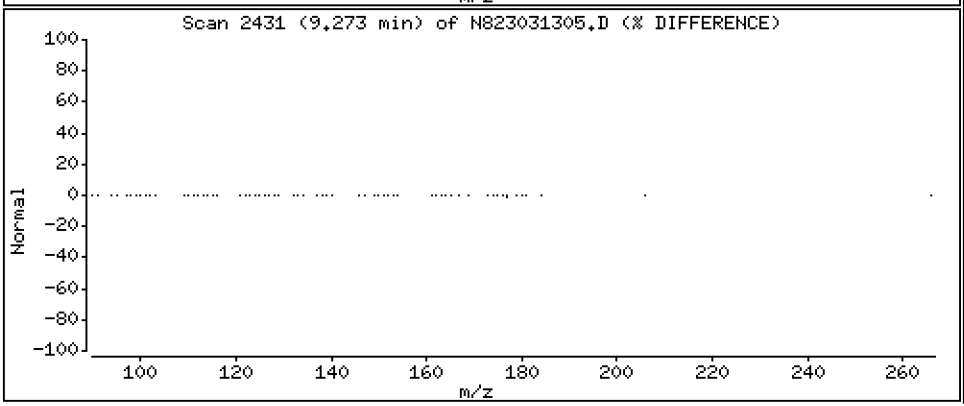












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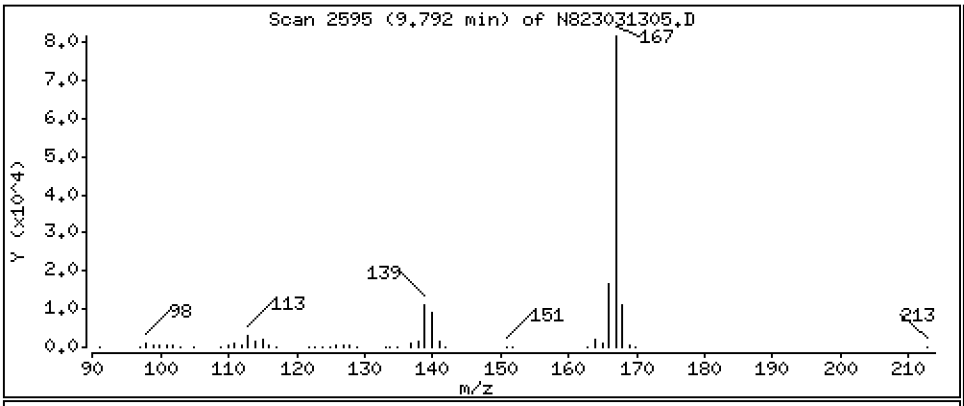
Operator: JZ

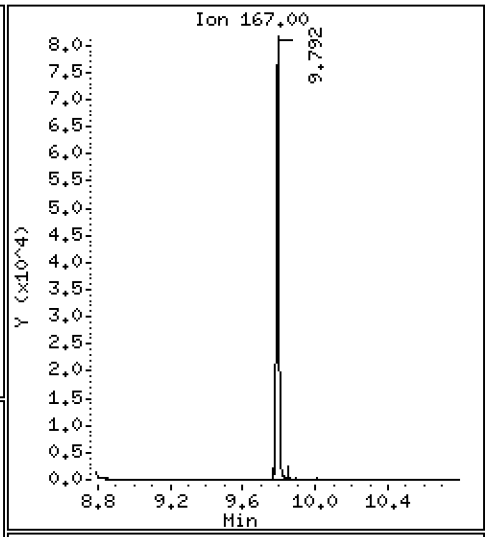
Column phase: Rxi-17sil

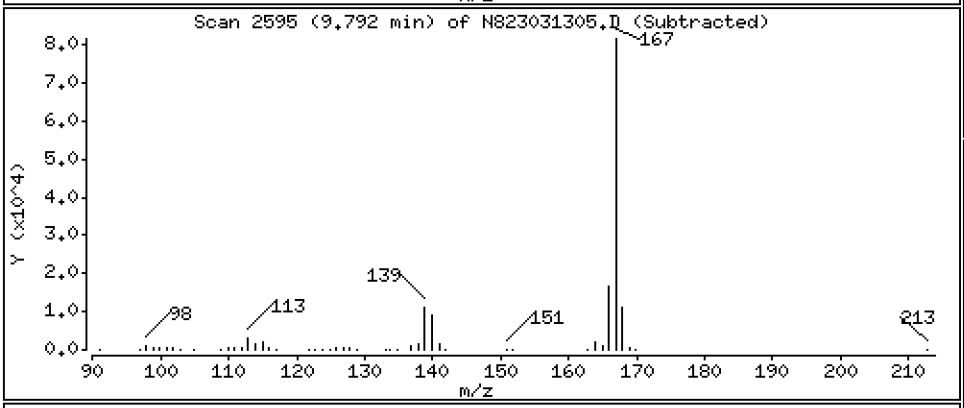
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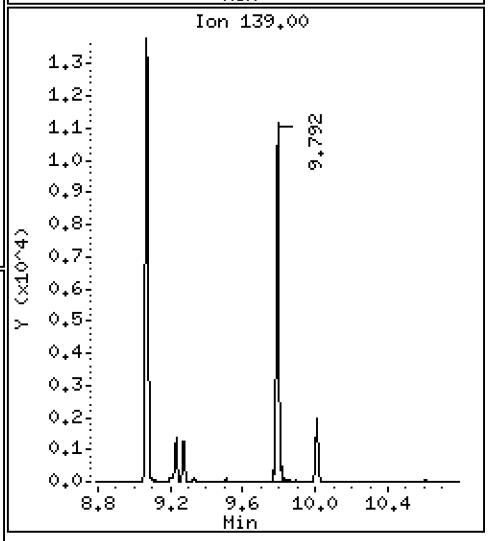
19 Carbazole

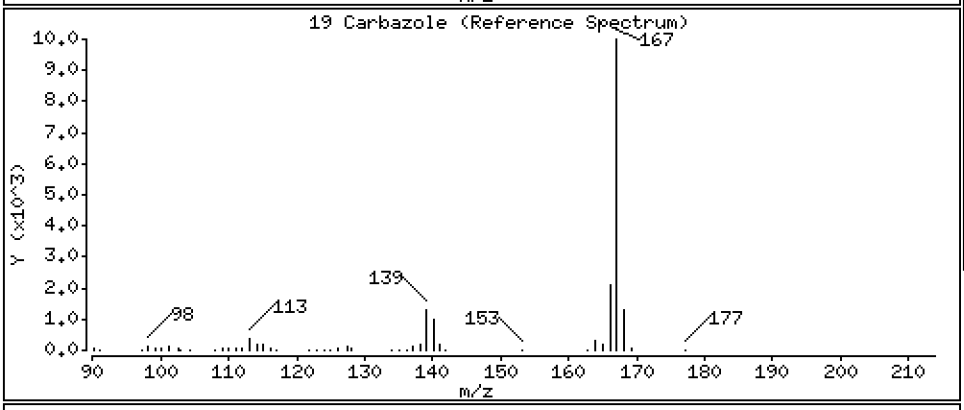
Concentration: 4.635 ug/mL

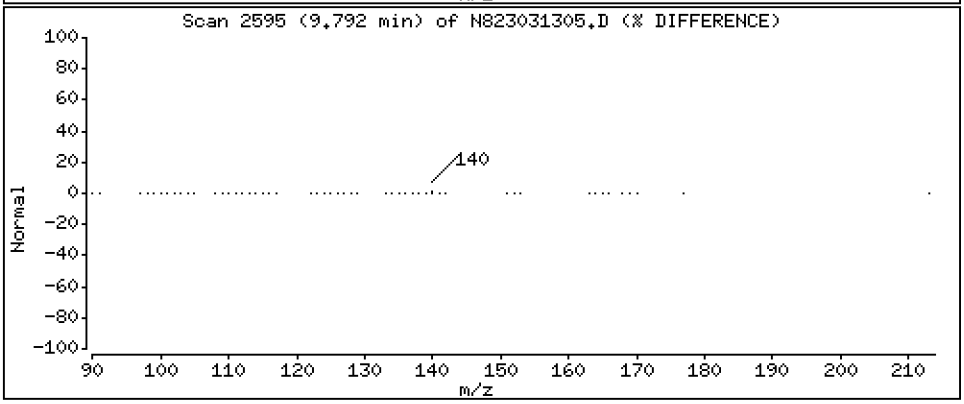












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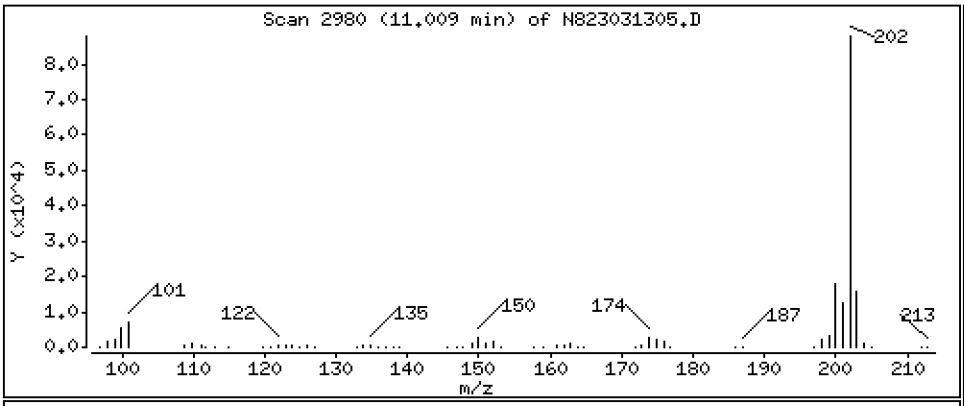
Operator: JZ

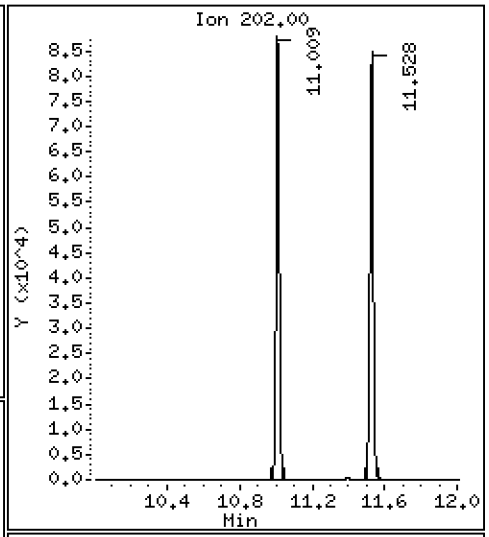
Column phase: Rxi-17sil

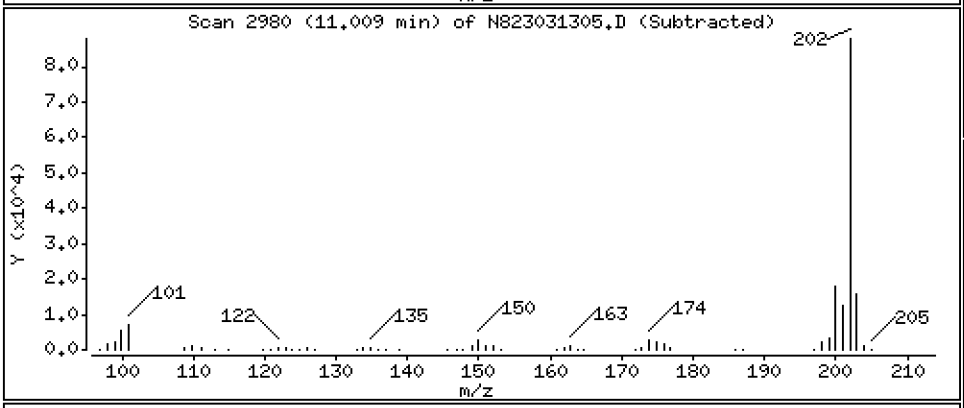
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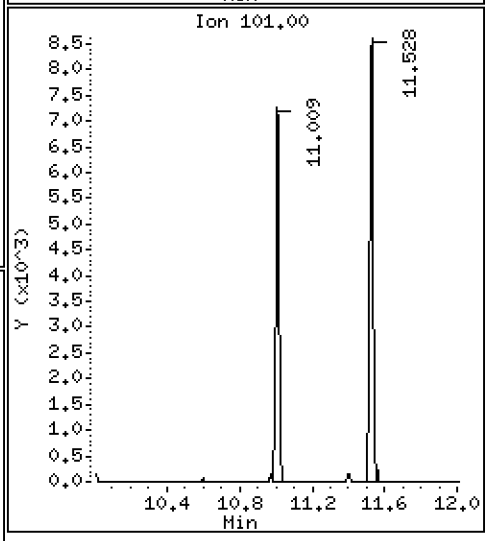
22 Fluoranthene

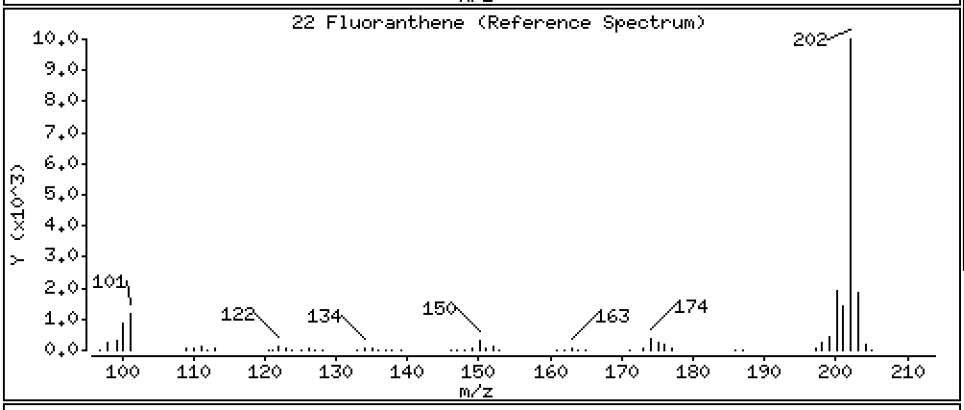
Concentration: 4.692 ug/mL

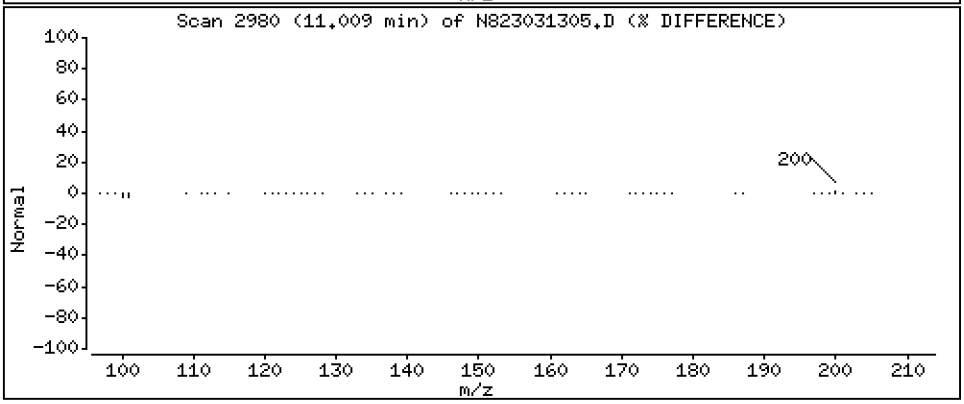












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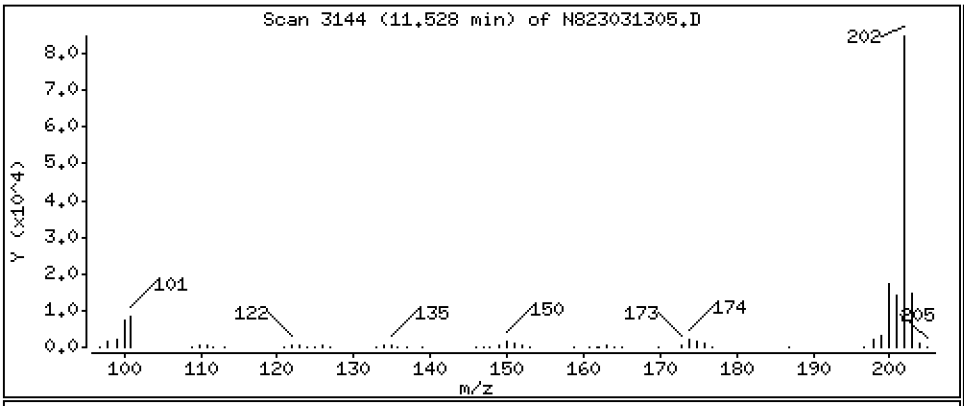
Operator: JZ

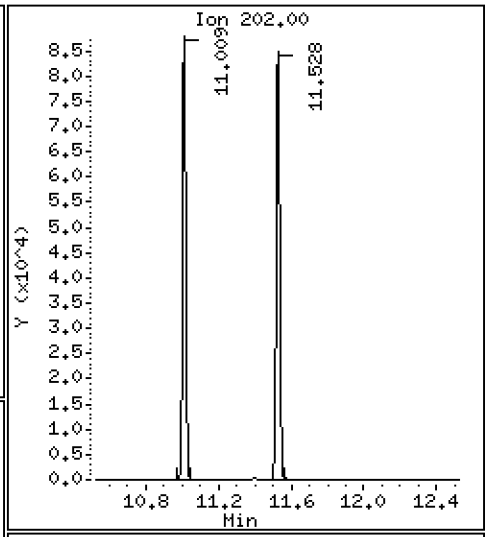
Column phase: Rxi-17sil

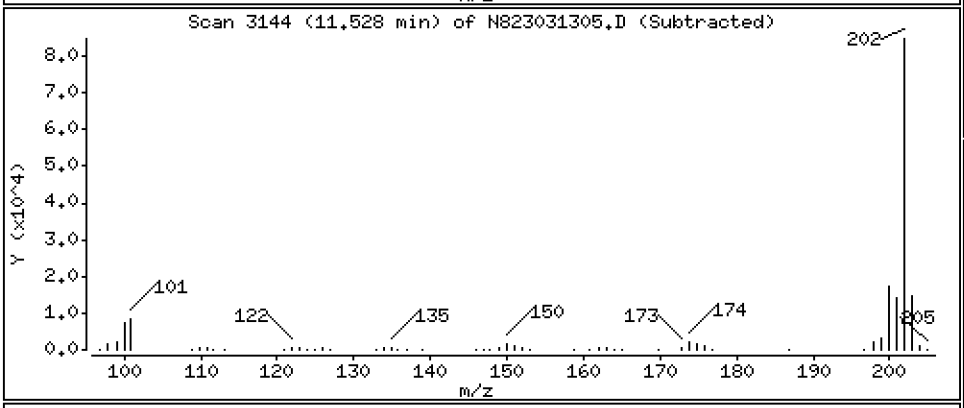
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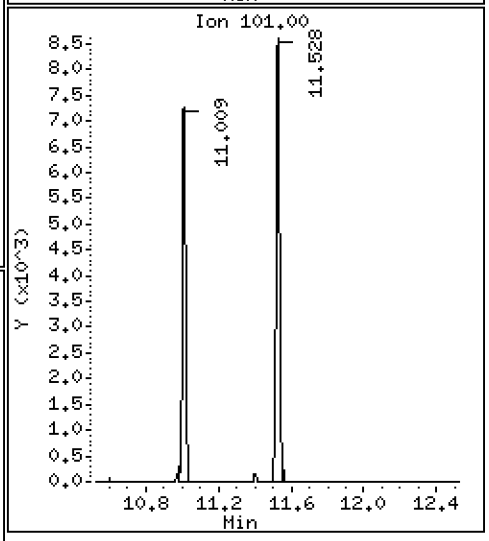
23 Pyrene

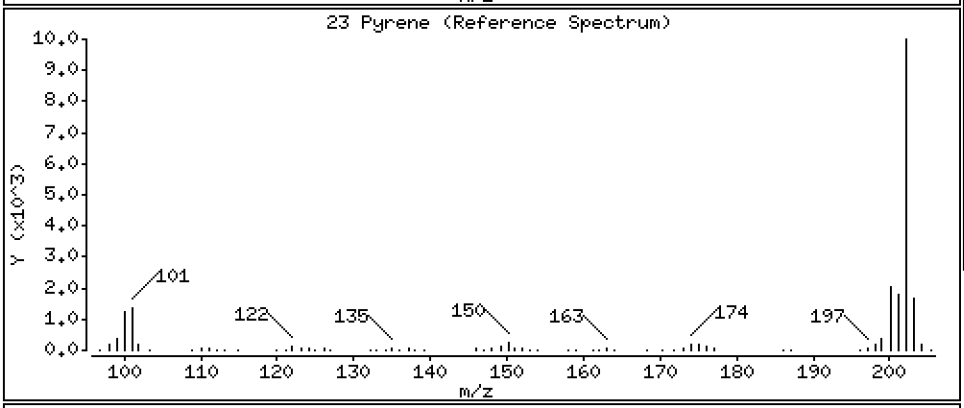
Concentration: 4.950 ug/mL

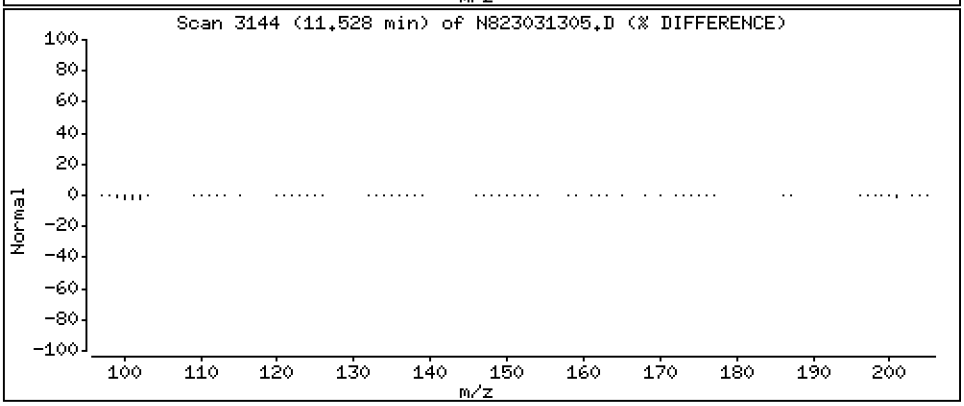












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Date : 13-MAR-2023 14:59

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Sample Info: BLC0106-BS1,

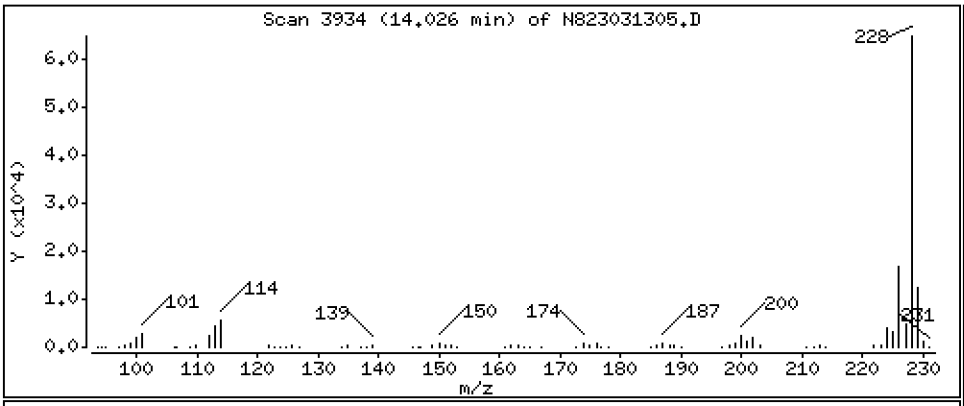
Operator: JZ

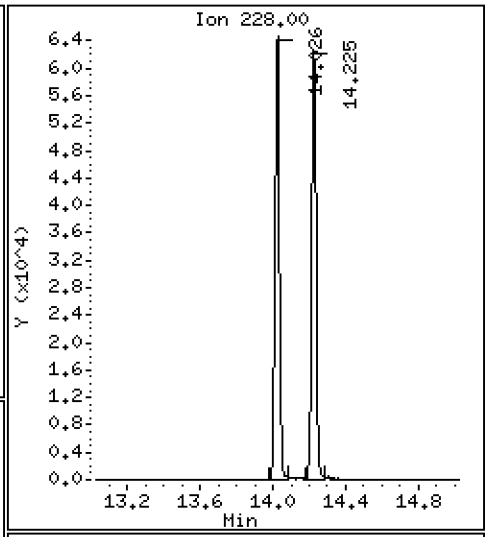
Column phase: Rxi-17sil

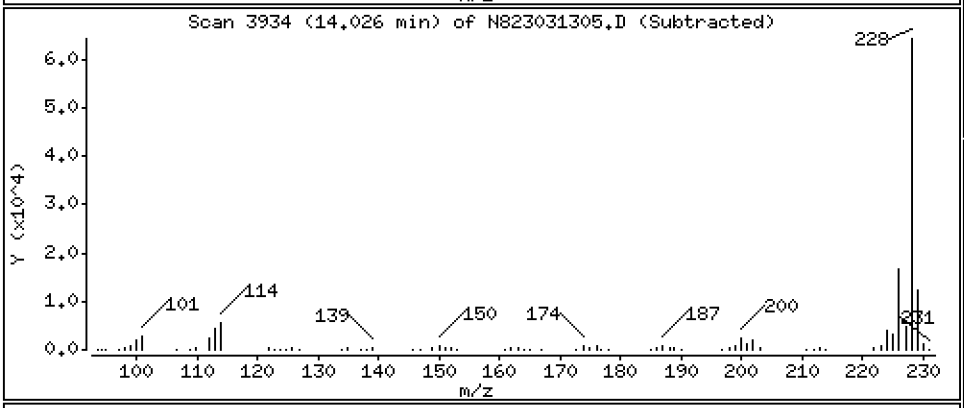
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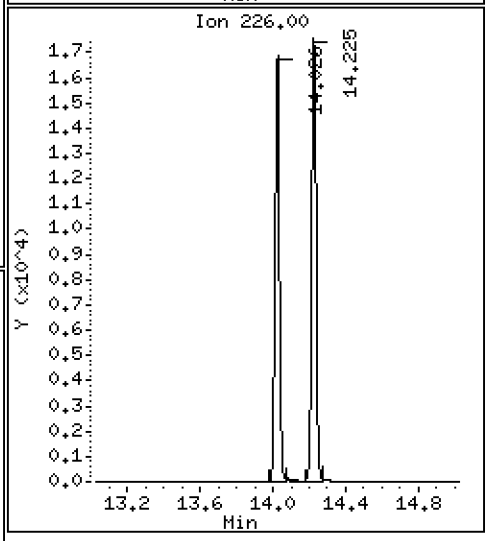
24 Benzo(a)anthracene

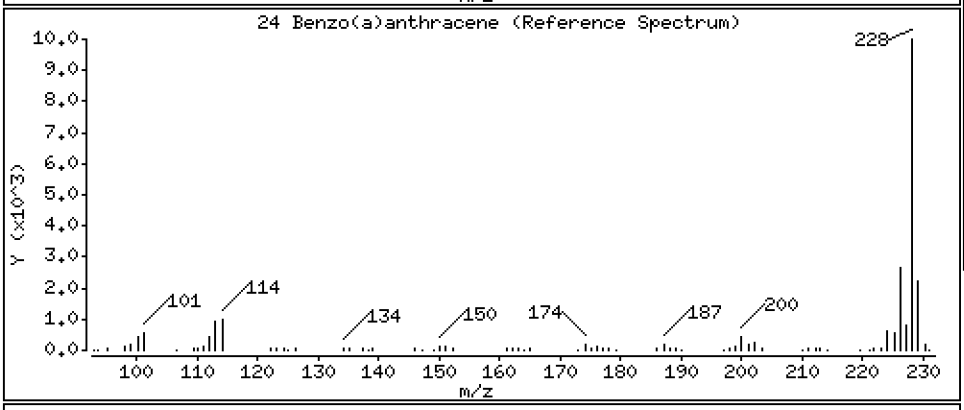
Concentration: 5.201 ug/mL

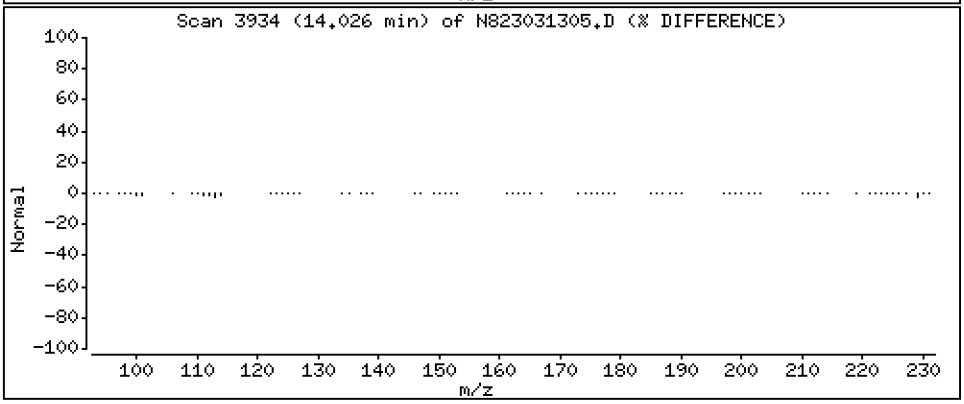












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Date : 13-MAR-2023 14:59

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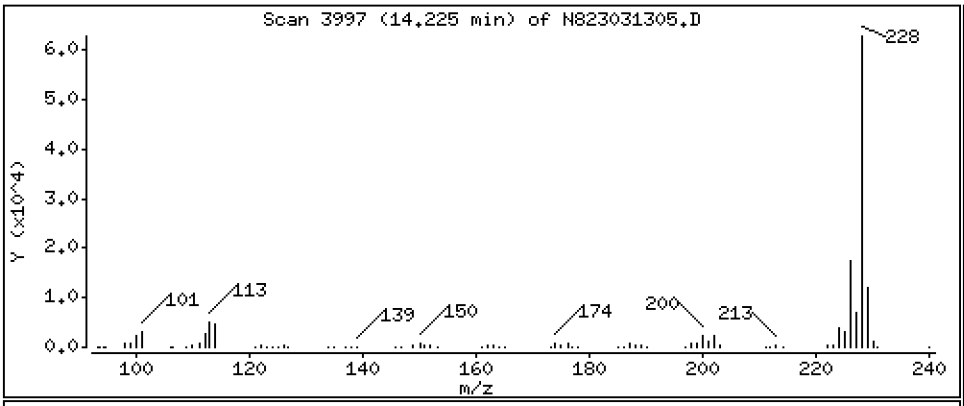
Operator: JZ

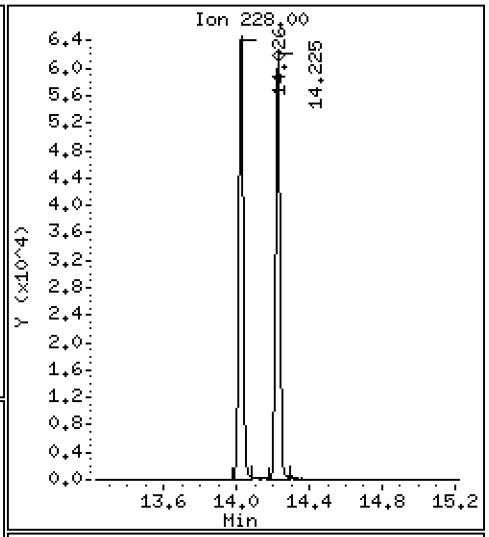
Column phase: Rxi-17sil

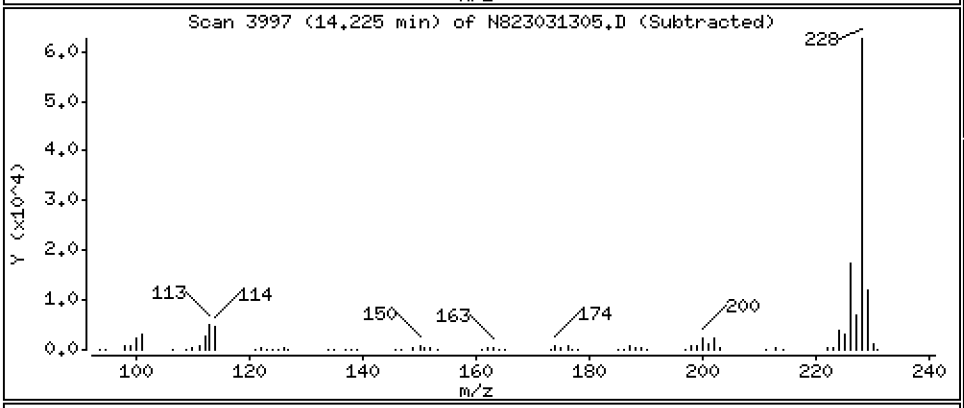
Column diameter: 0.25

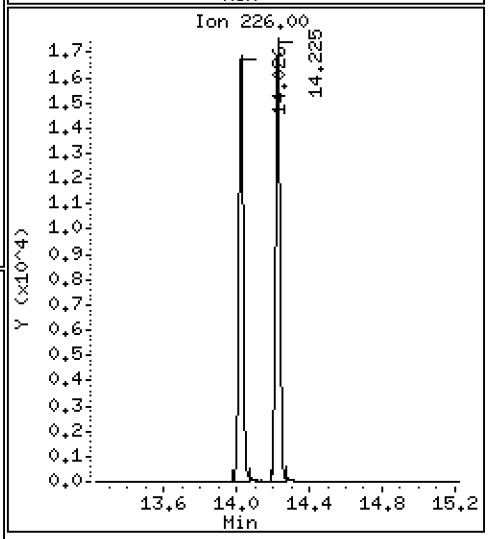
27 Chrysene

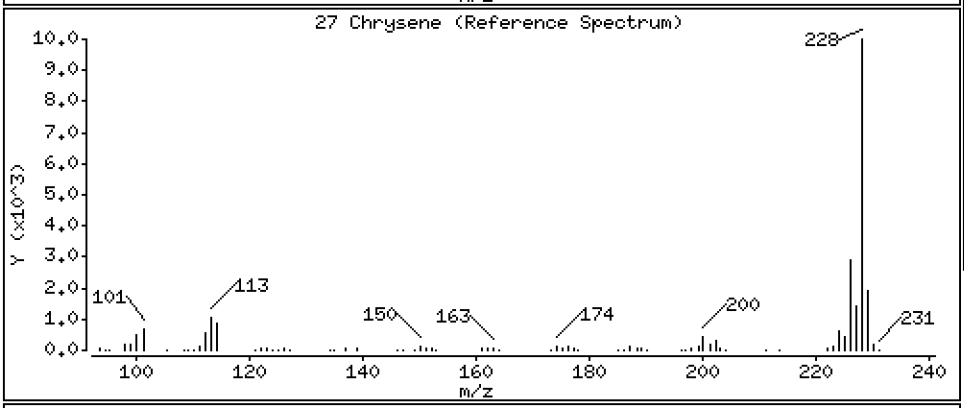
Concentration: 4.816 ug/mL

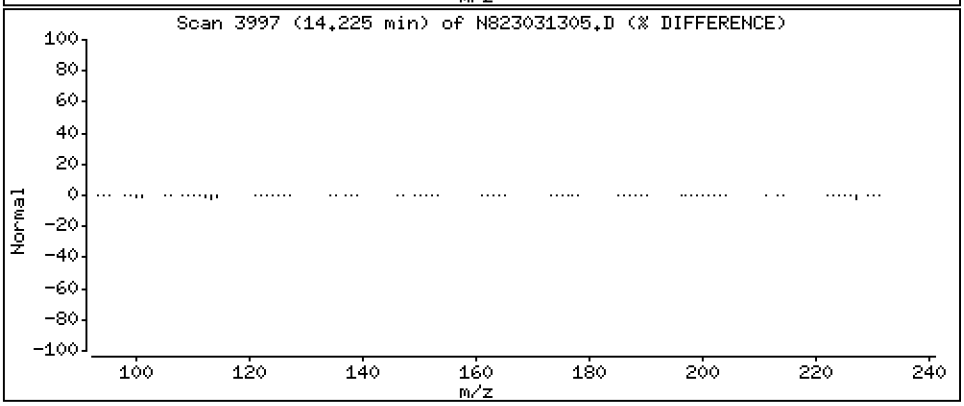












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

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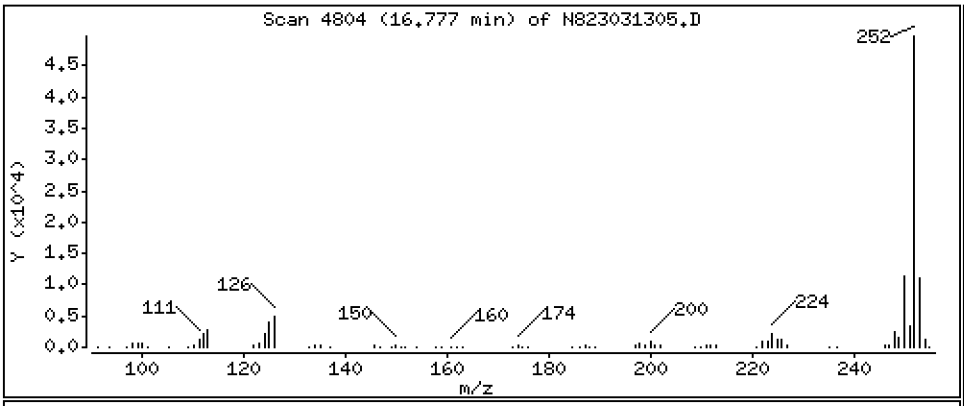
Operator: JZ

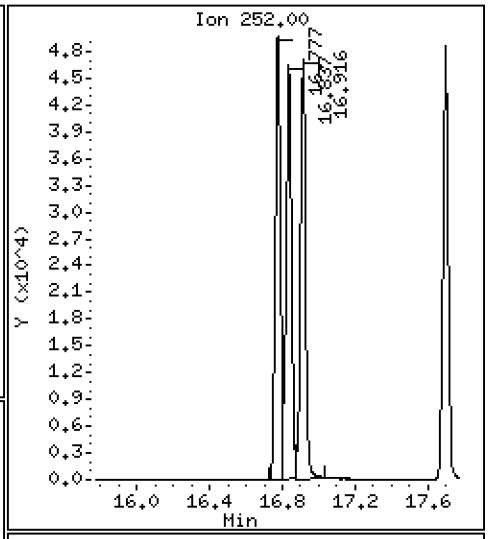
Column phase: Rxi-17sil

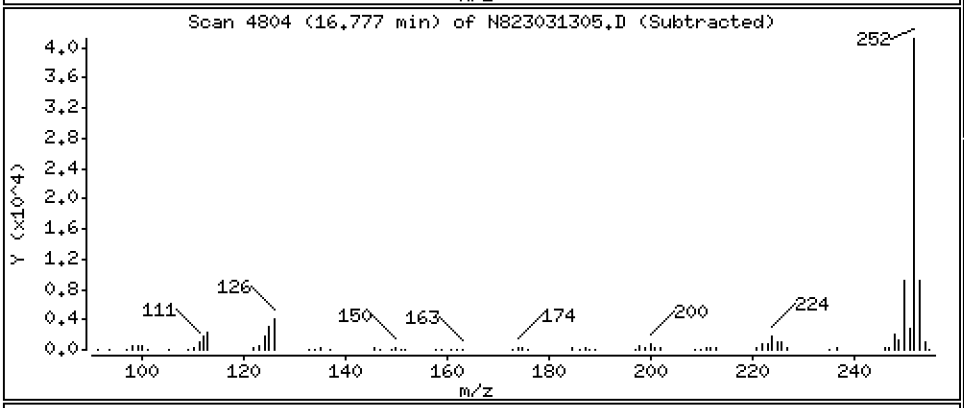
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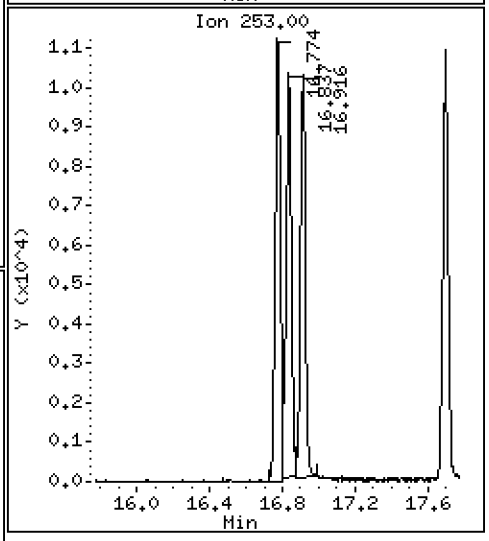
28 Benzo(b)fluoranthene

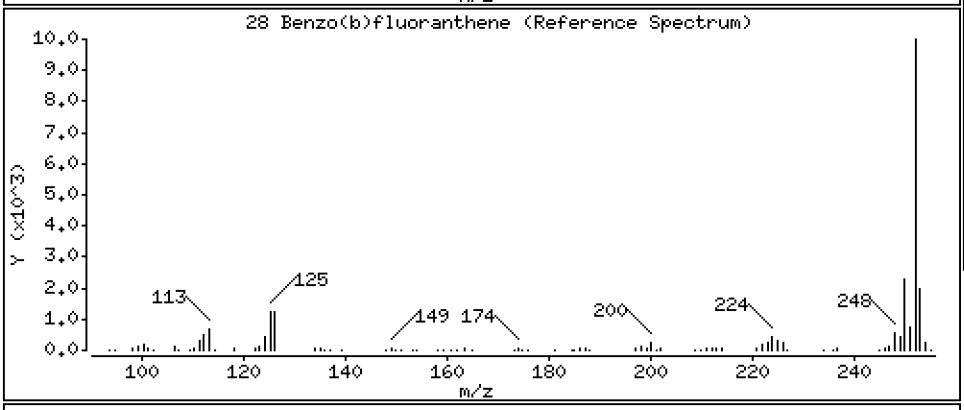
Concentration: 5.628 ug/mL

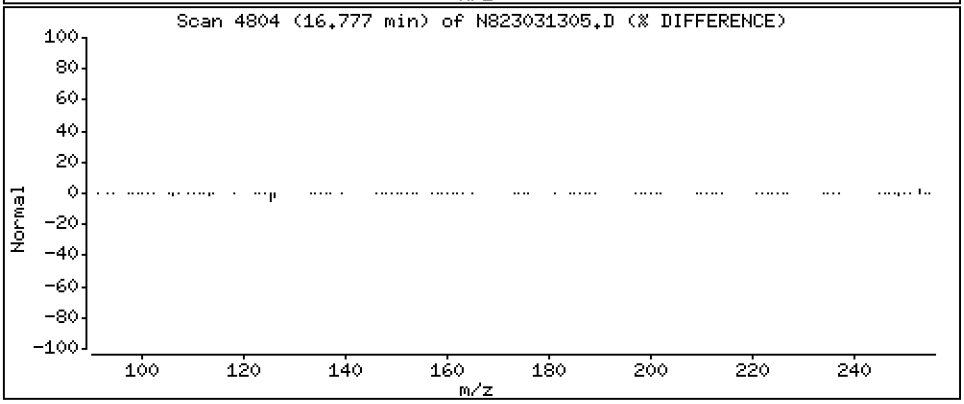












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BS1,

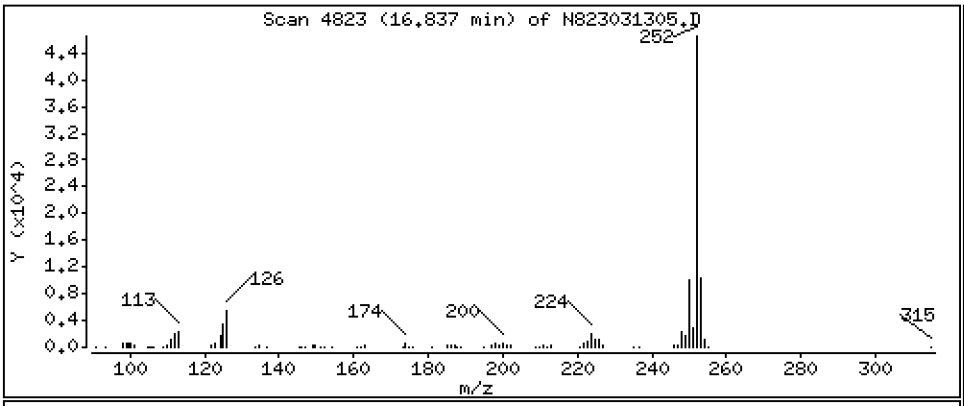
Operator: JZ

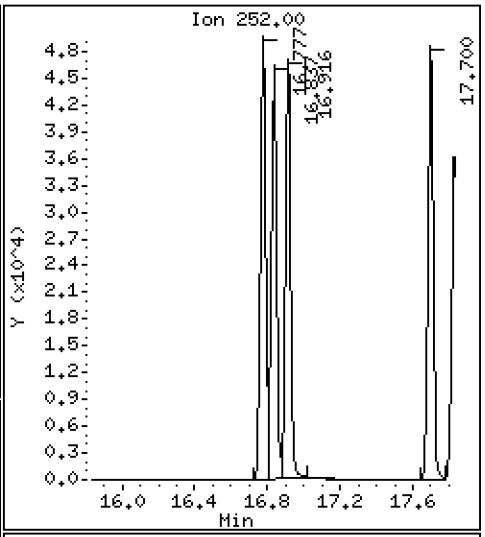
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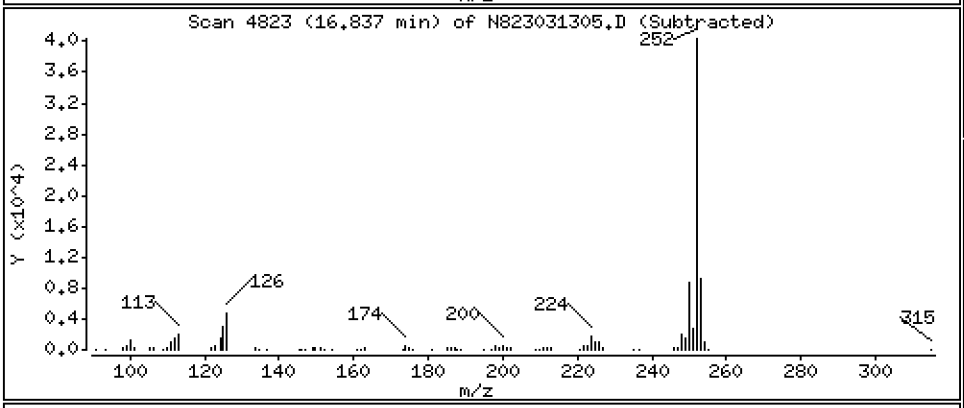
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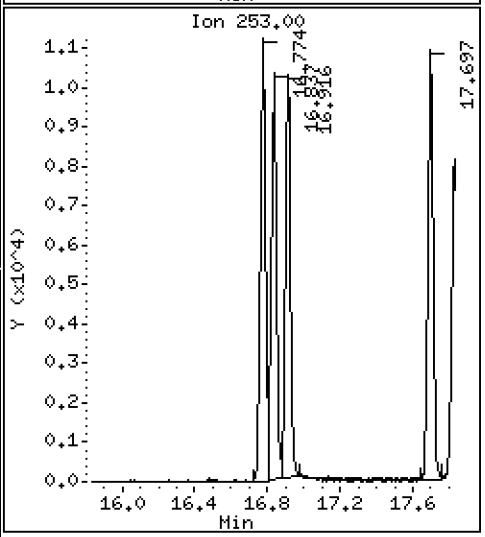
29 Benzo(k)fluoranthene

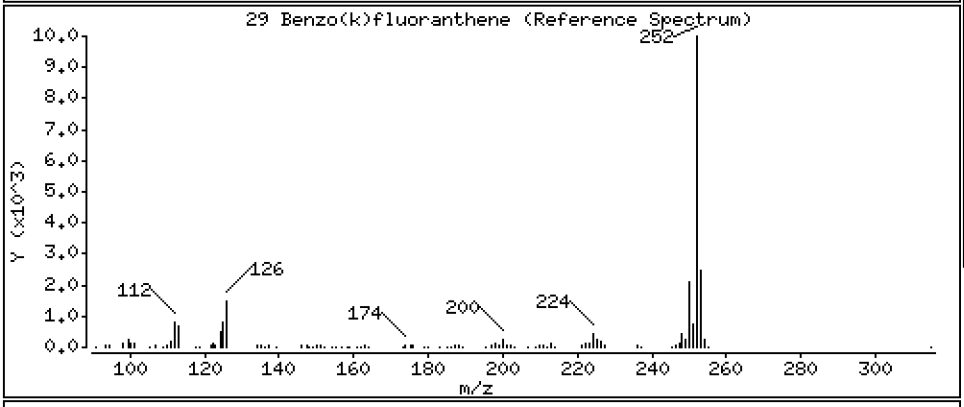
Concentration: 5.482 ug/mL

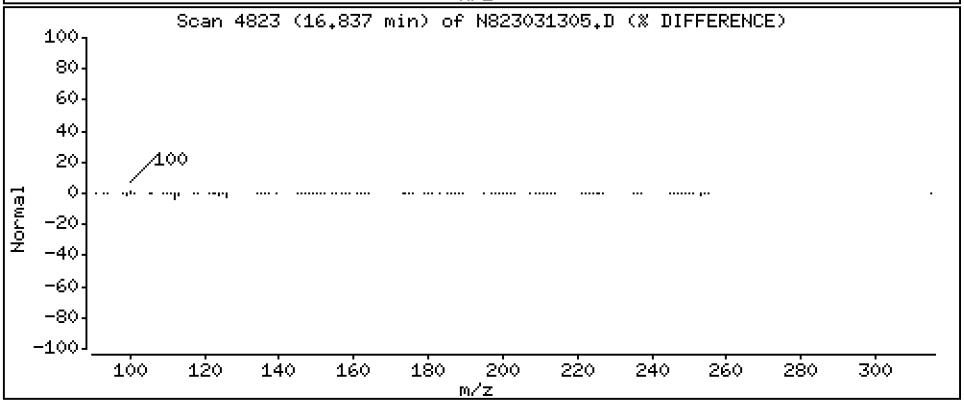












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Date : 13-MAR-2023 14:59

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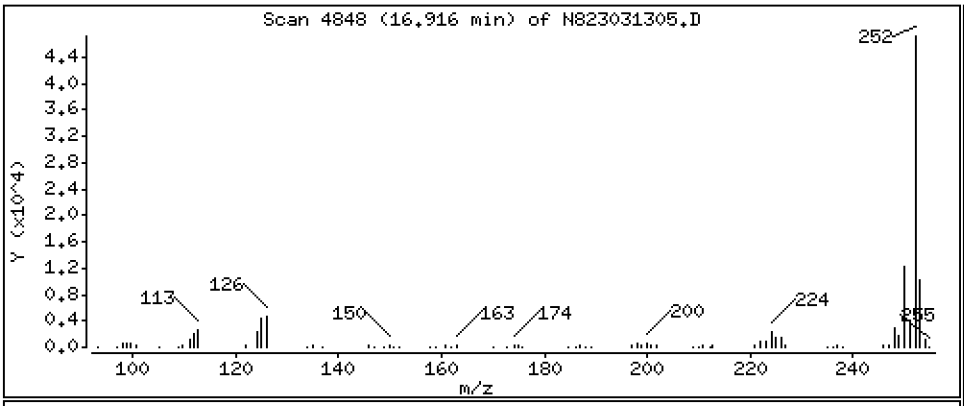
Operator: JZ

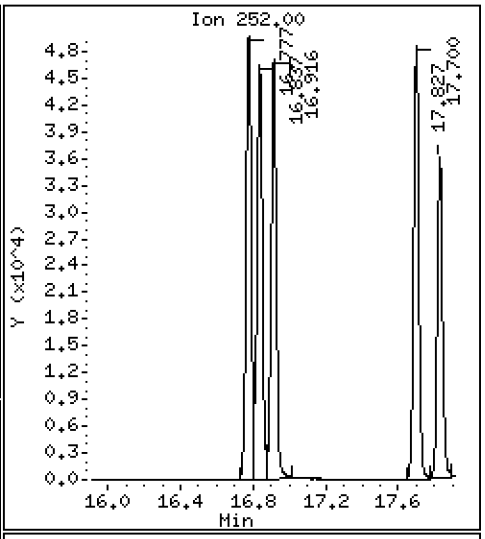
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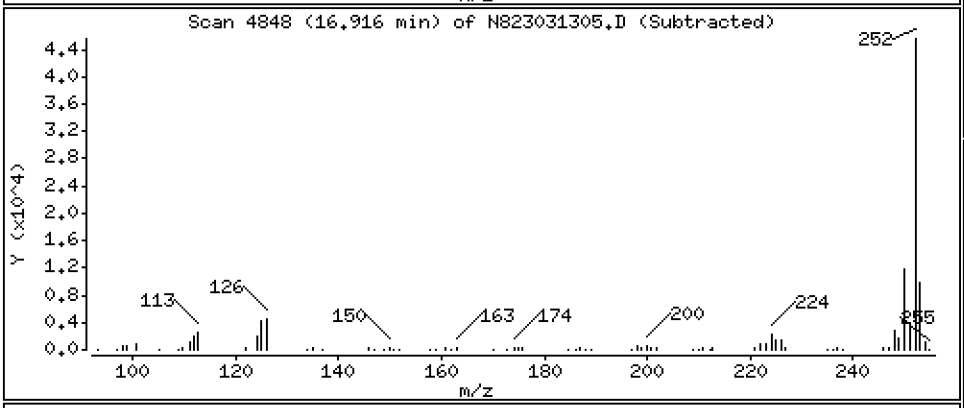
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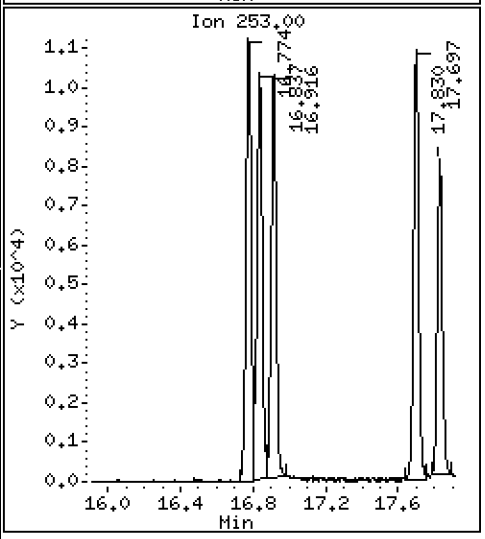
30 Benzo(j)fluoranthene

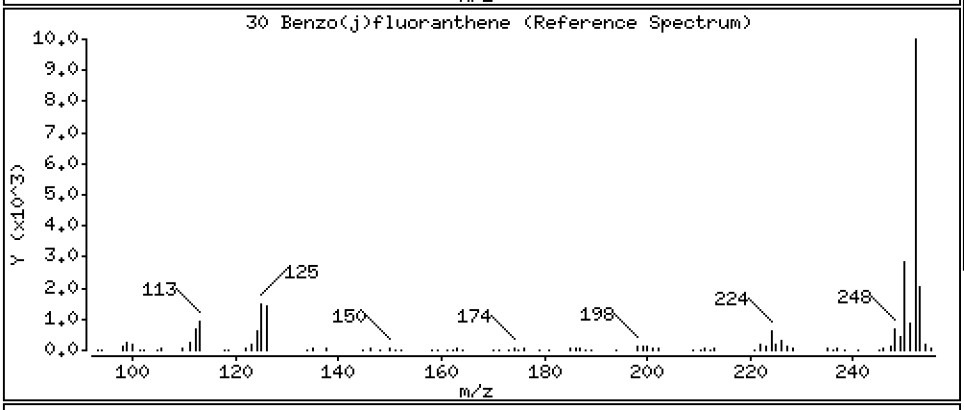
Concentration: 5.923 ug/mL

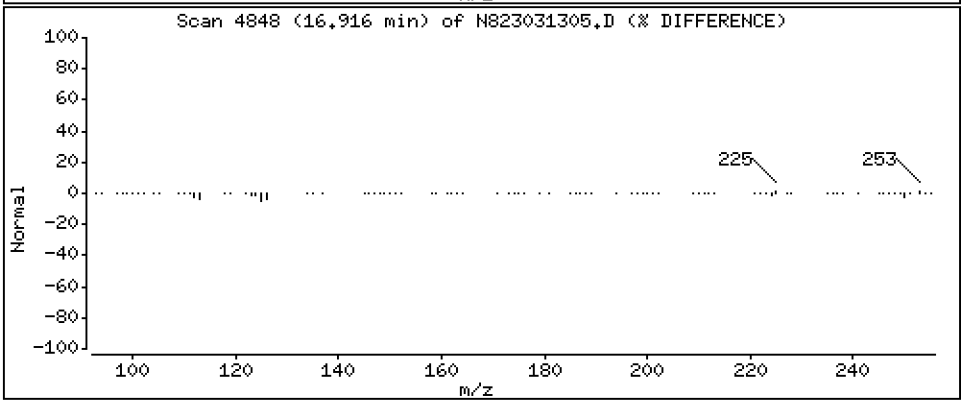












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Date : 13-MAR-2023 14:59

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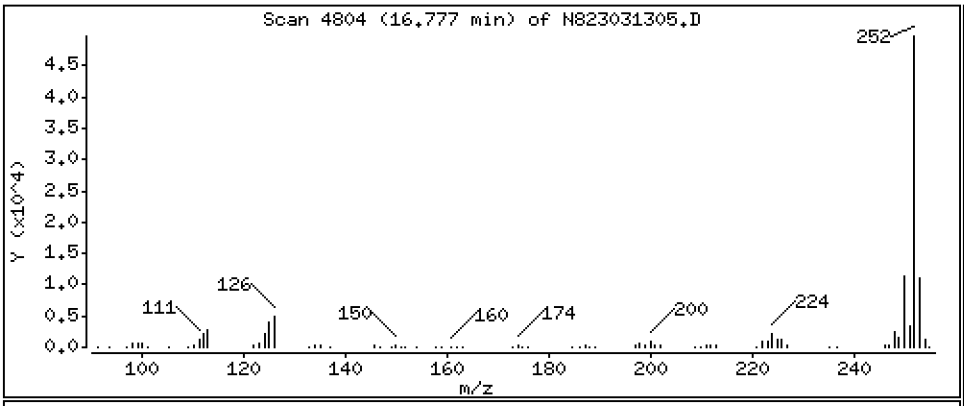
Operator: JZ

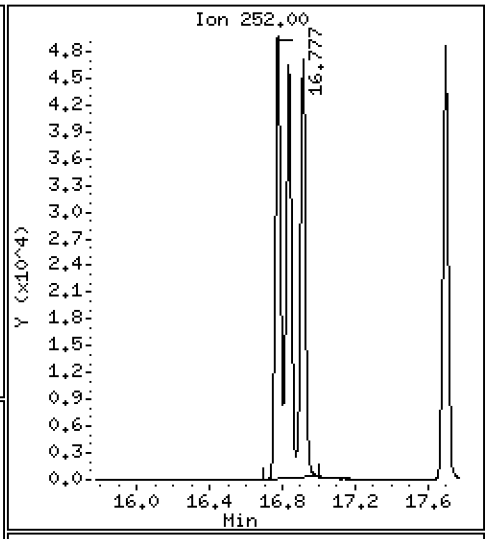
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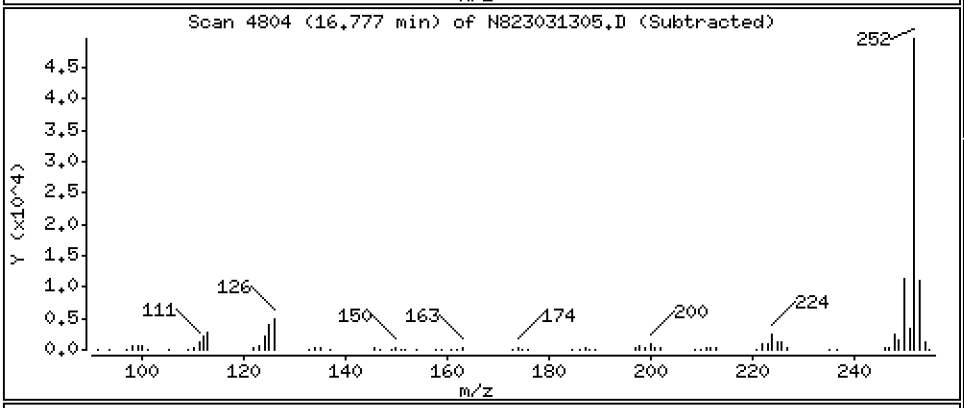
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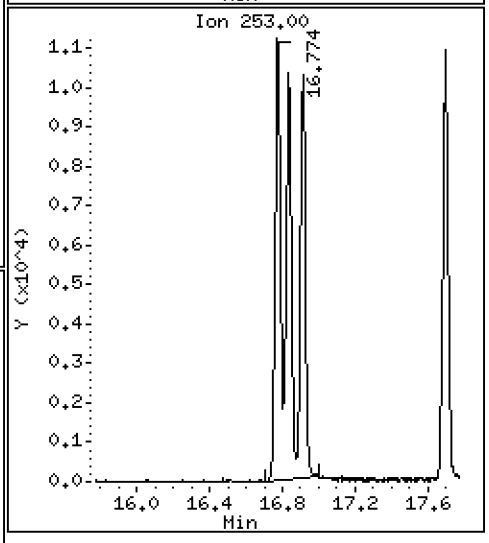
31 Total Benzofluoranthenes

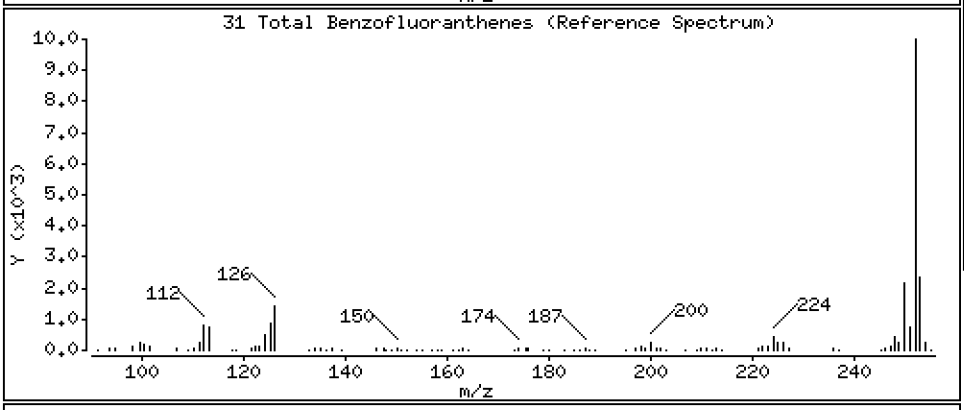
Concentration: 16.84 ug/mL

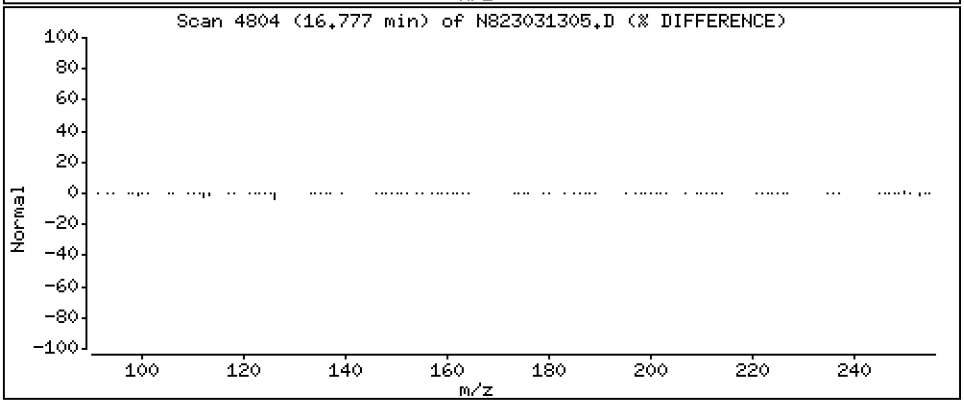












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Date : 13-MAR-2023 14:59

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Sample Info: BLC0106-BS1,

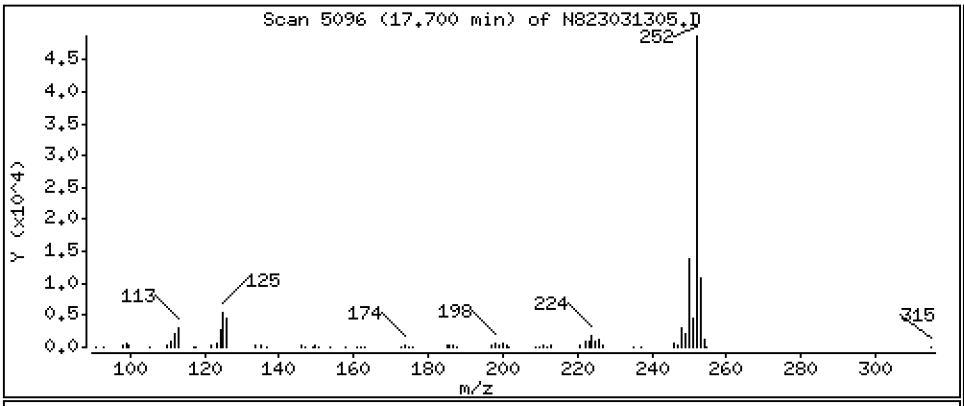
Operator: JZ

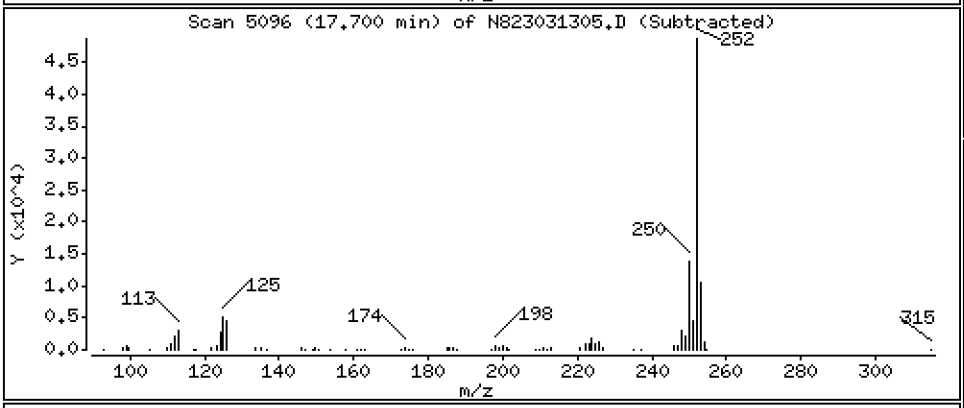
Column phase: Rxi-17sil

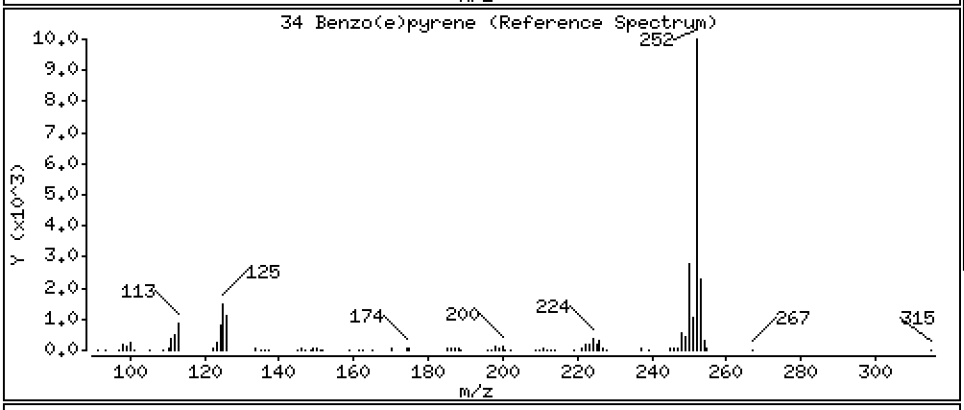
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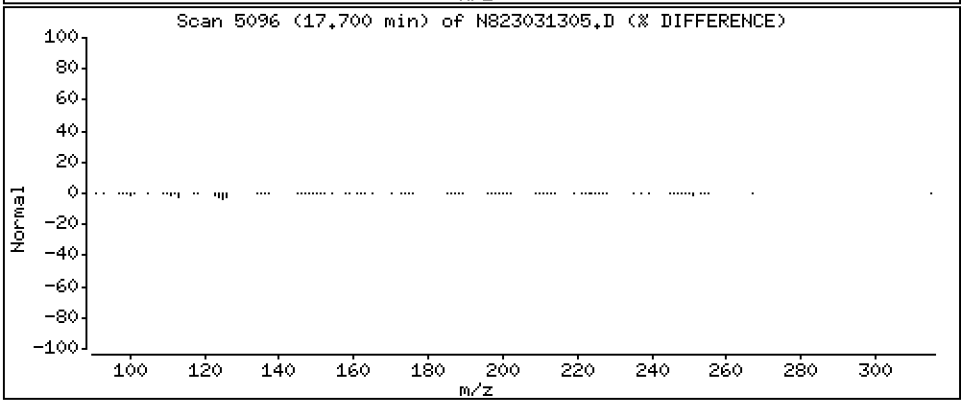
34 Benzo(e)pyrene

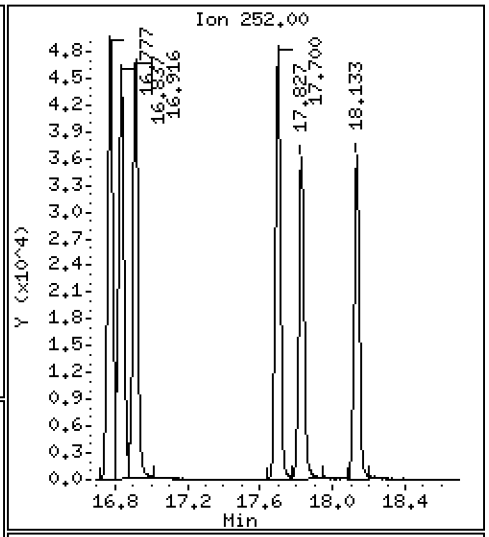
Concentration: 5.492 ug/mL

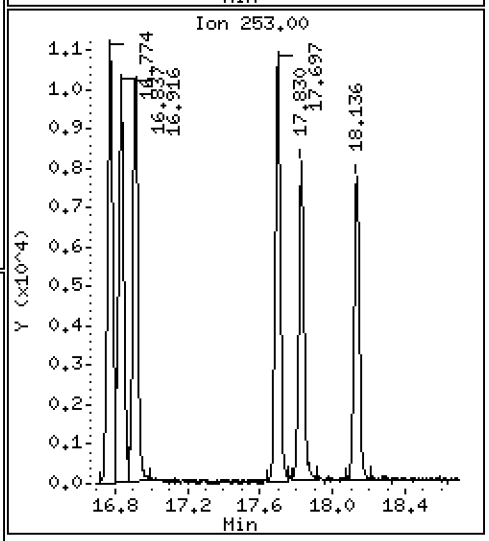












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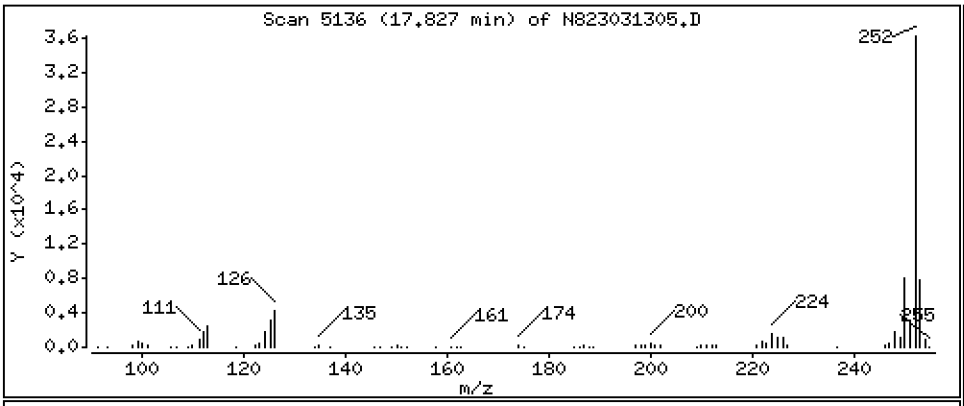
Operator: JZ

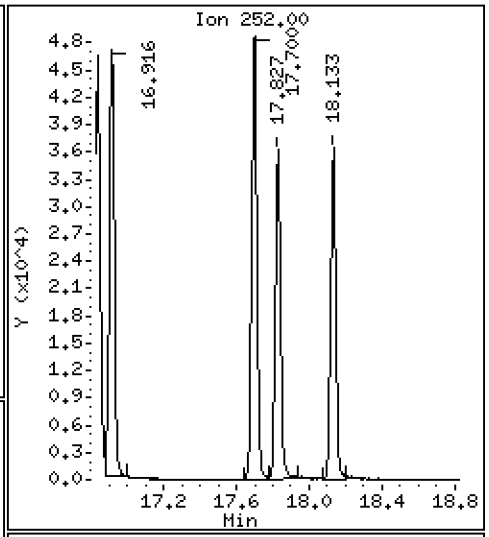
Column phase: Rxi-17sil

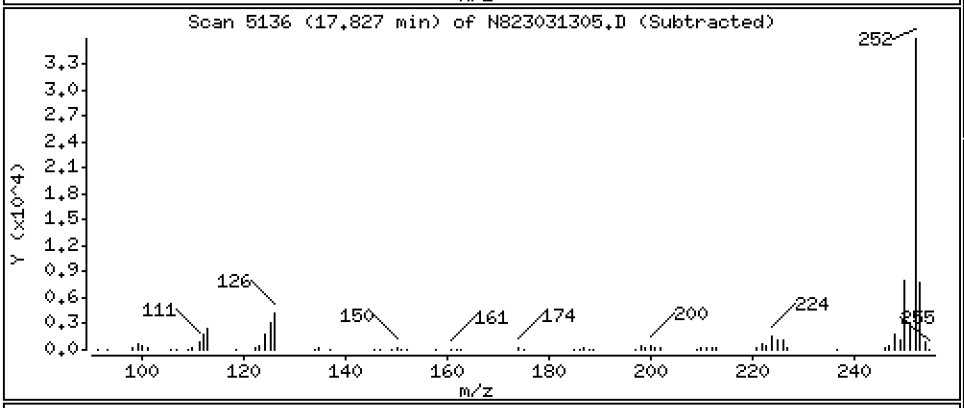
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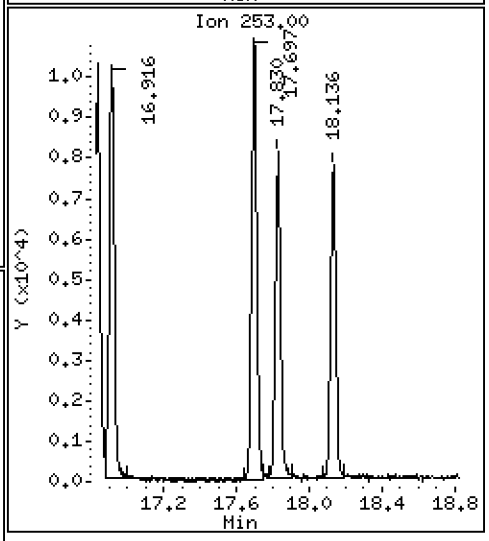
32 Benzo(a)pyrene

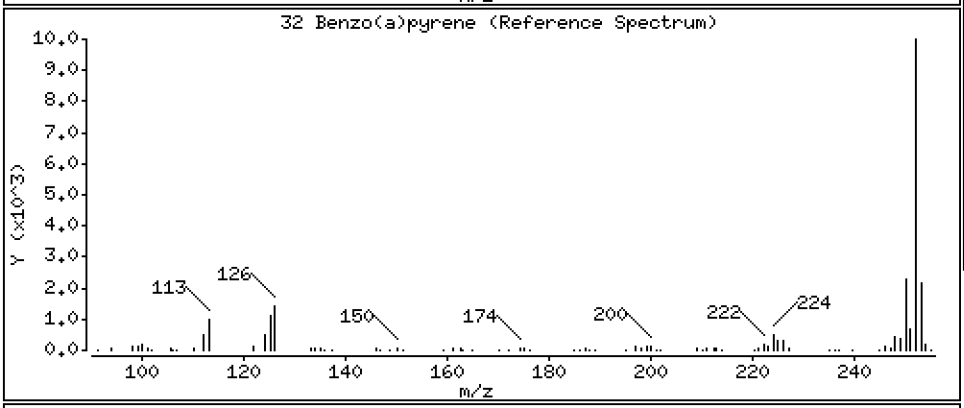
Concentration: 4.703 ug/mL

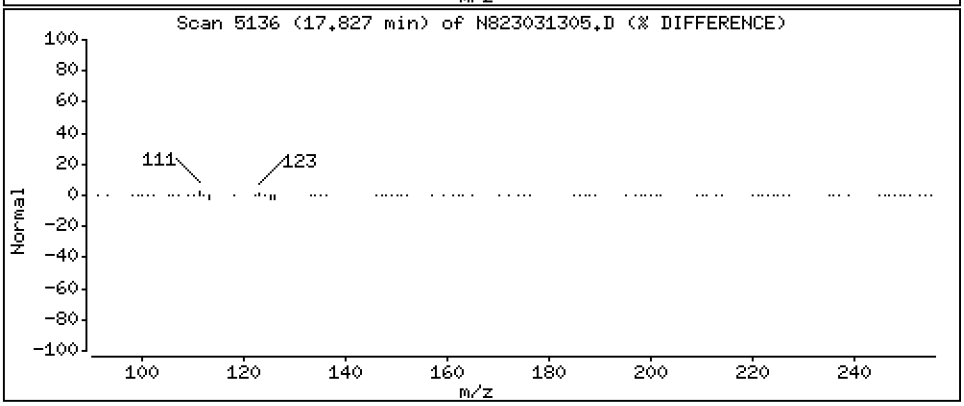












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Date : 13-MAR-2023 14:59

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-BS1,

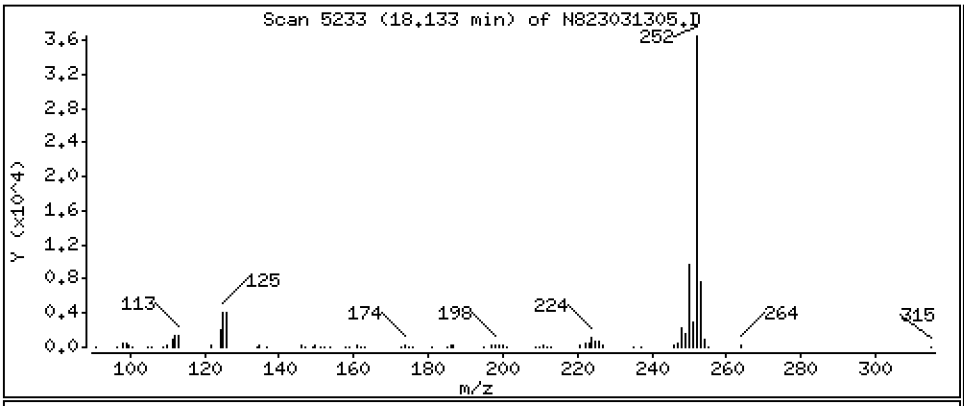
Operator: JZ

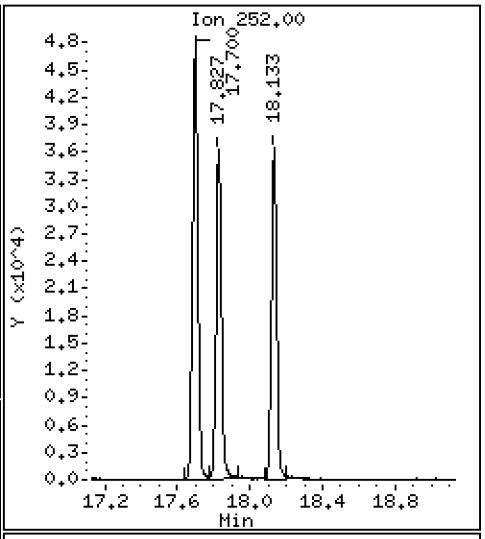
Column phase: Rxi-17sil

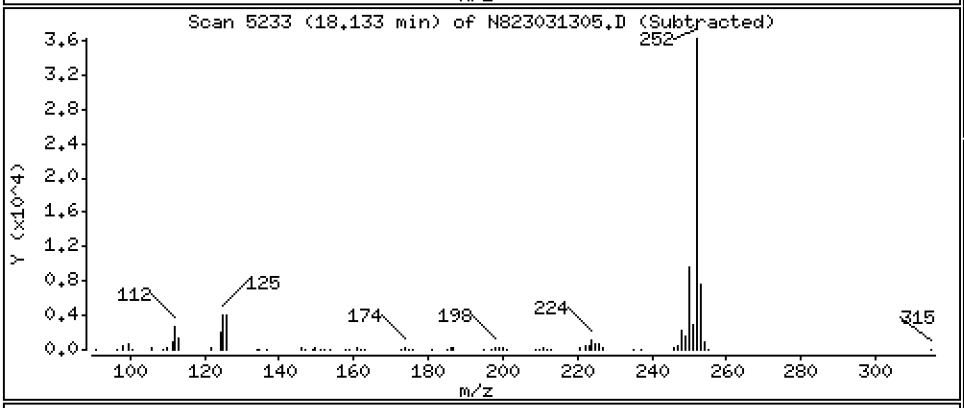
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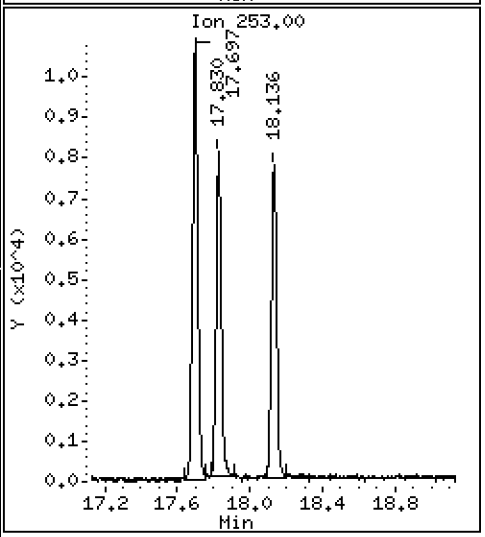
35 Perylene

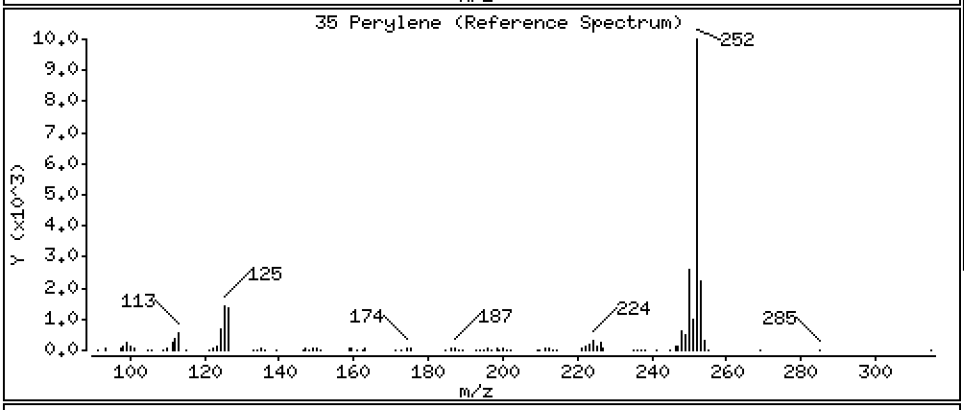
Concentration: 4.334 ug/mL

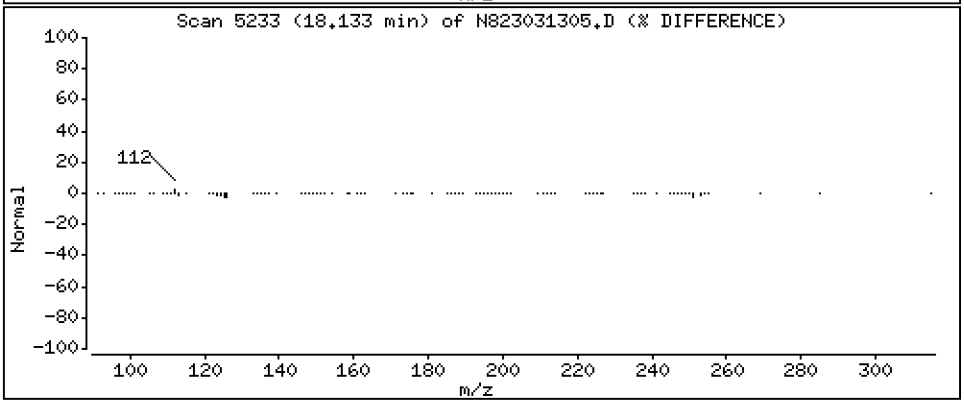












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Date : 13-MAR-2023 14:59

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Sample Info: BLC0106-BS1,

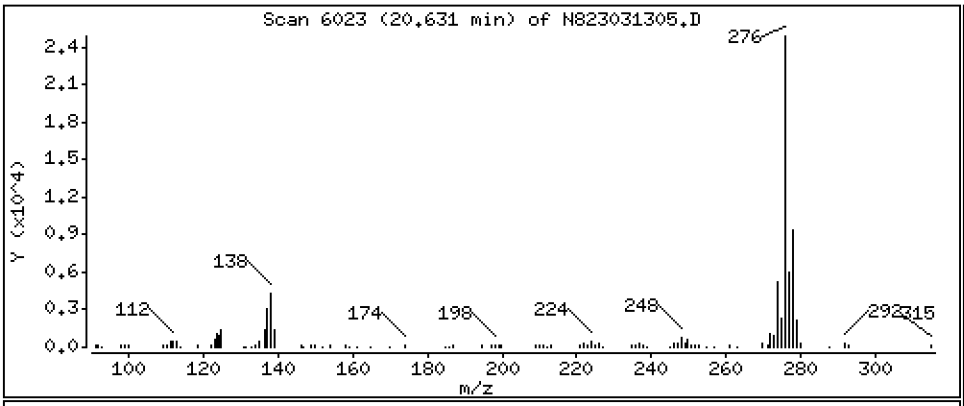
Operator: JZ

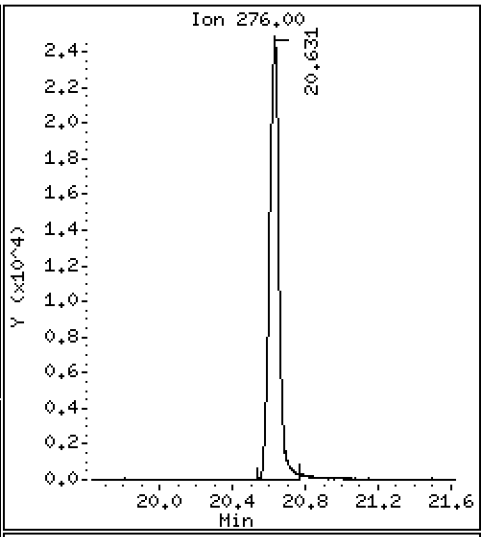
Column phase: Rxi-17sil

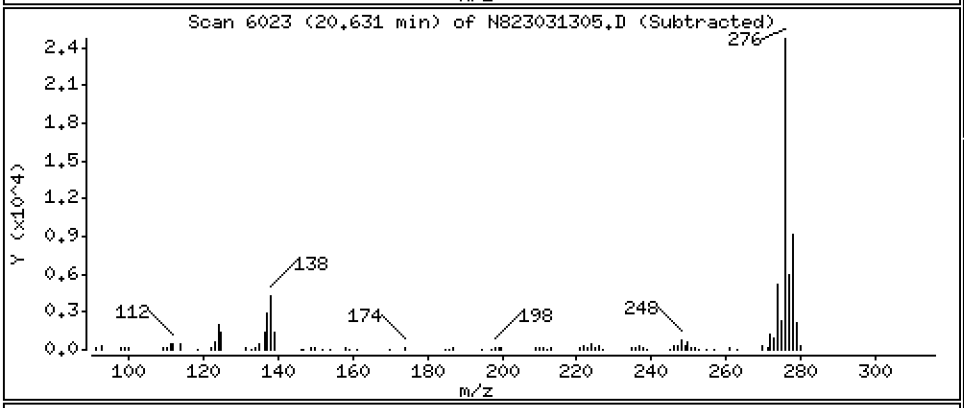
Column diameter: 0.25

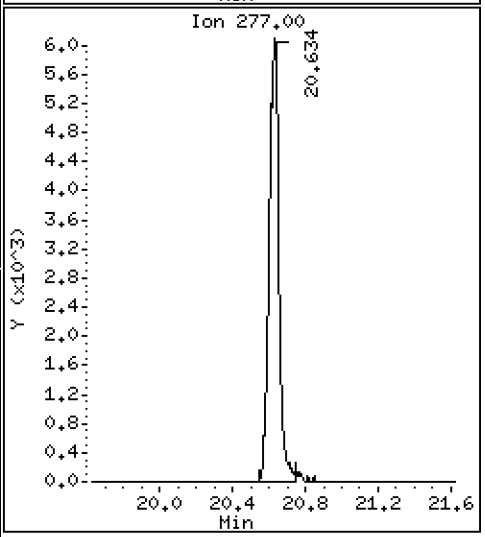
37 Indeno(1,2,3-cd)pyrene

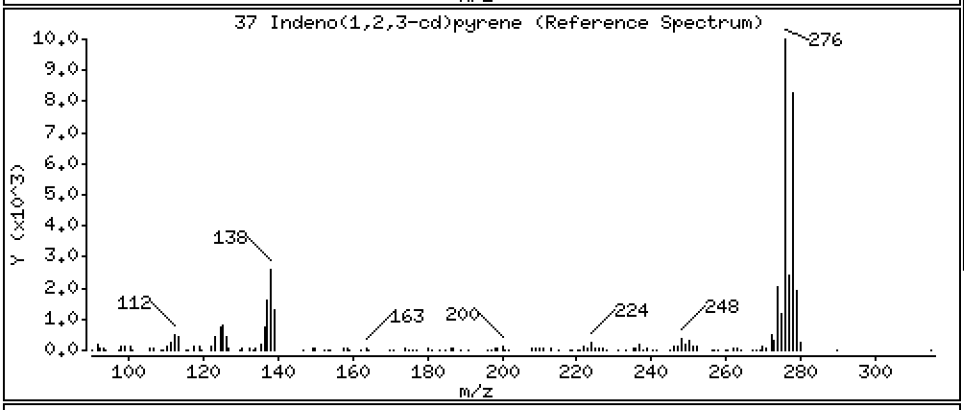
Concentration: 5.203 ug/mL

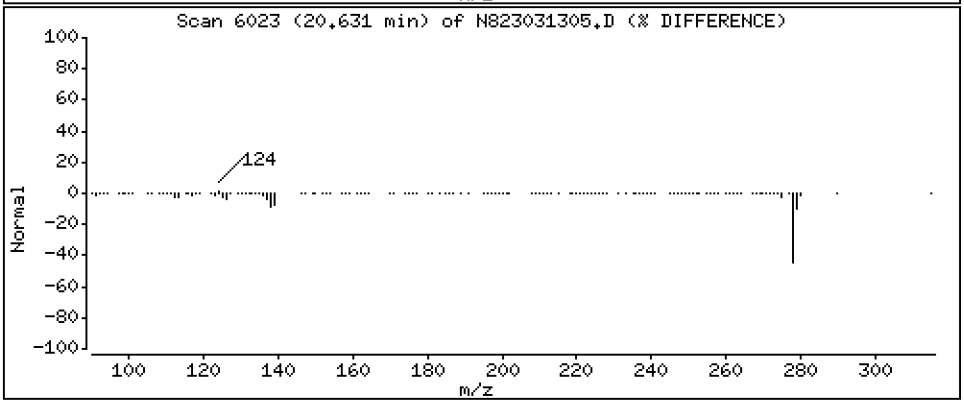












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Date : 13-MAR-2023 14:59

Client ID:

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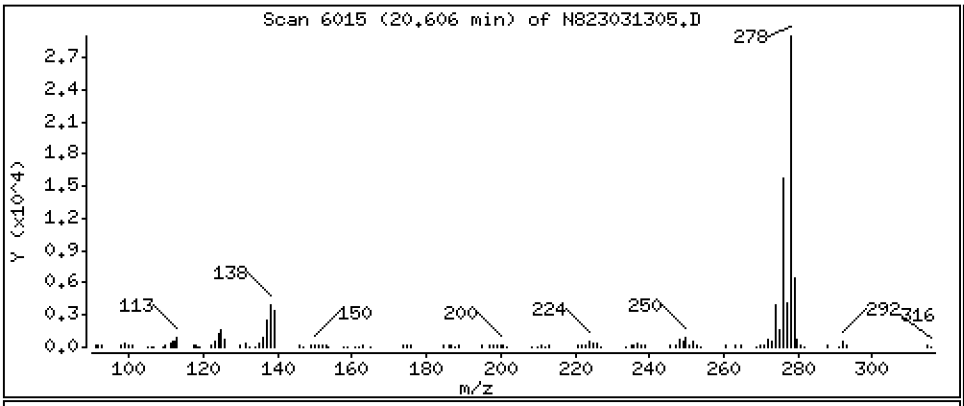
Operator: JZ

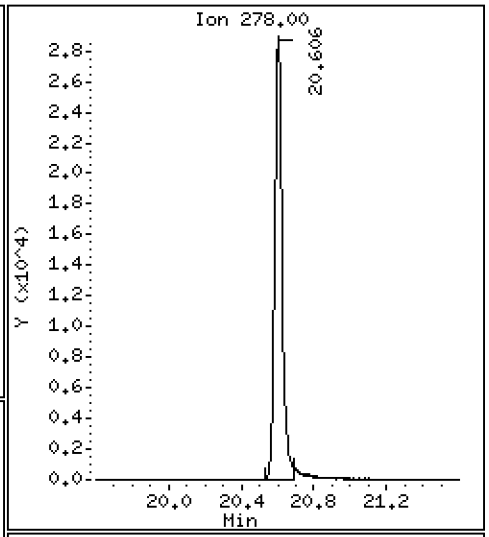
Column phase: Rxi-17sil

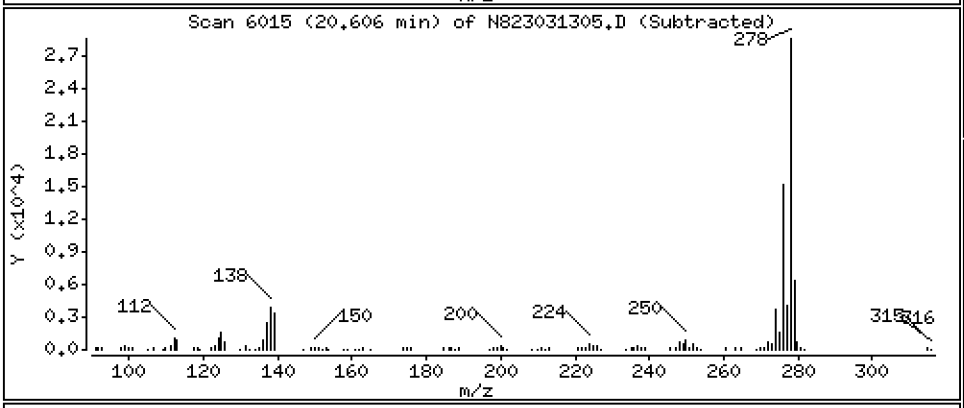
Column diameter: 0.25

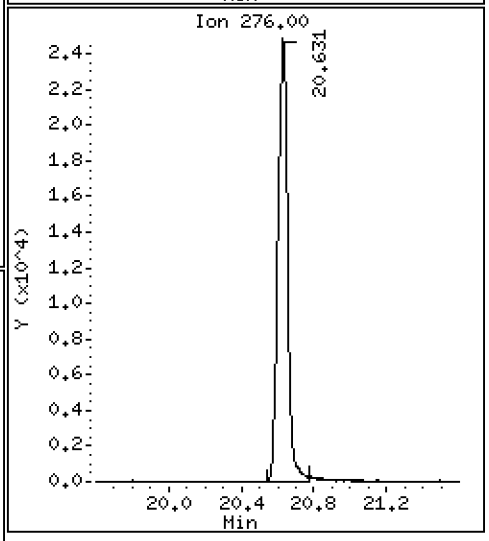
38 Dibenzo(a,h)anthracene

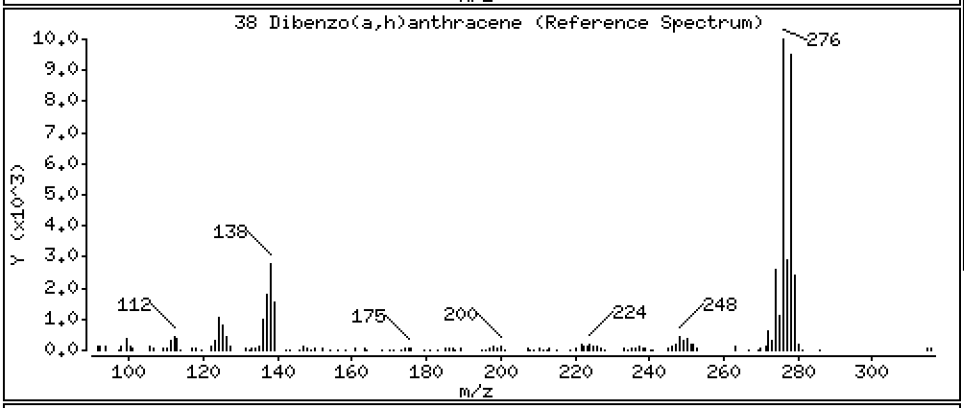
Concentration: 5.467 ug/mL

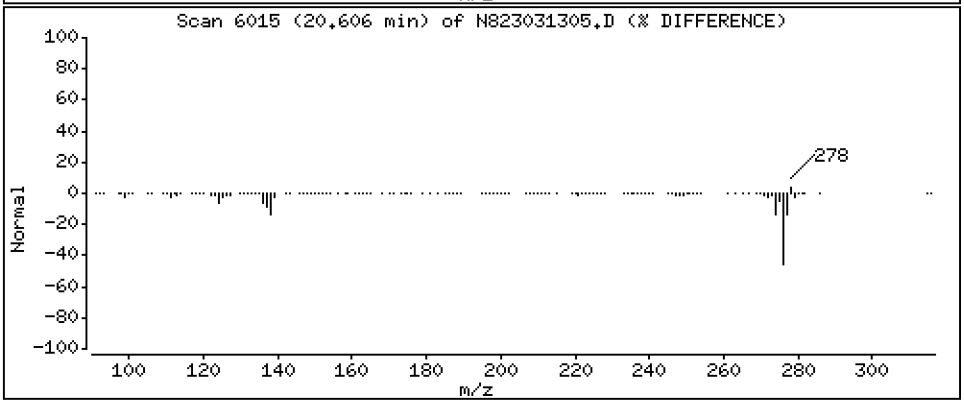












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Date : 13-MAR-2023 14:59

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Instrument: nt8.i

Sample Info: BLC0106-BS1,

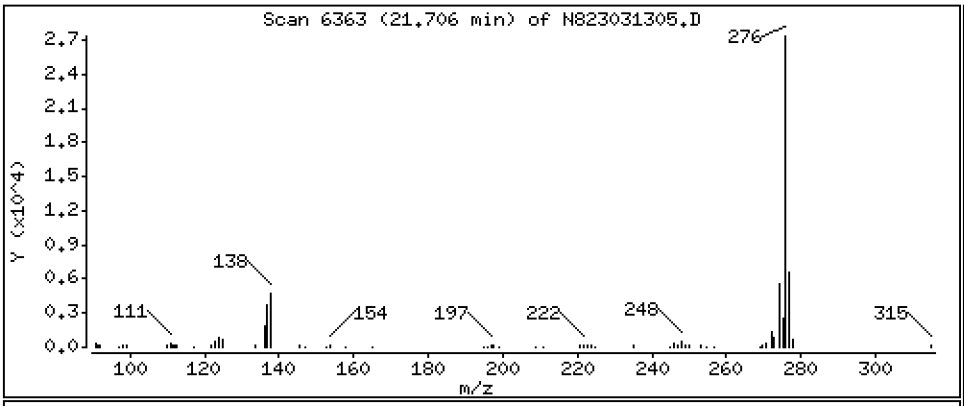
Operator: JZ

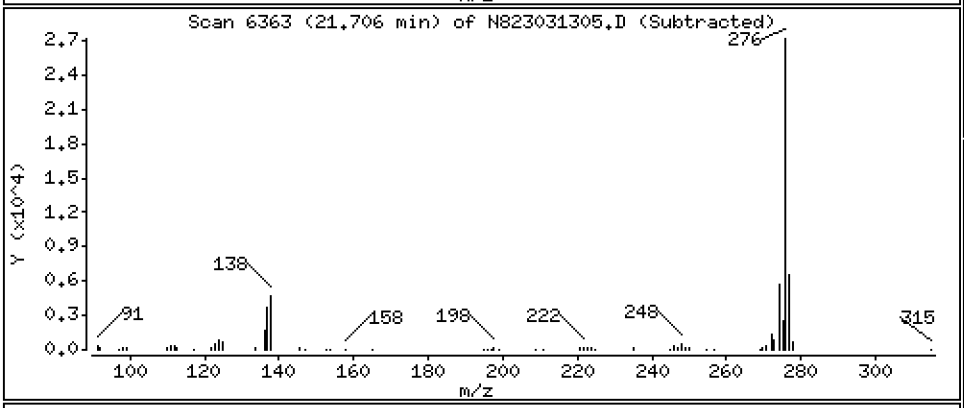
Column phase: Rxi-17sil

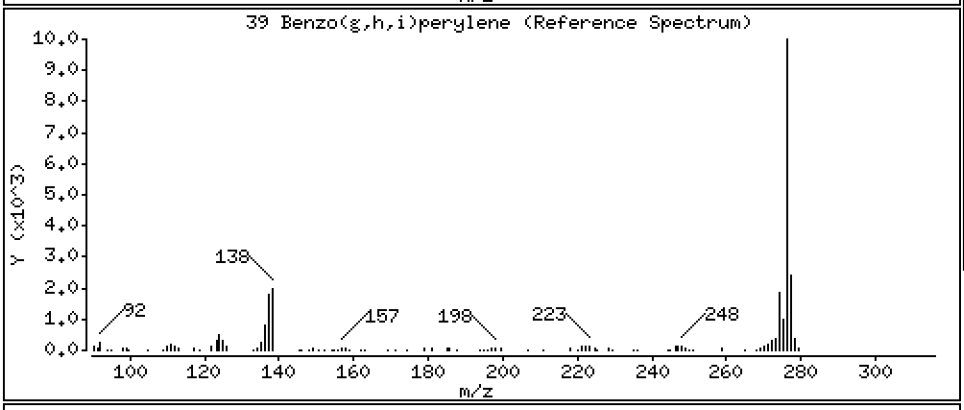
Column diameter: 0.25

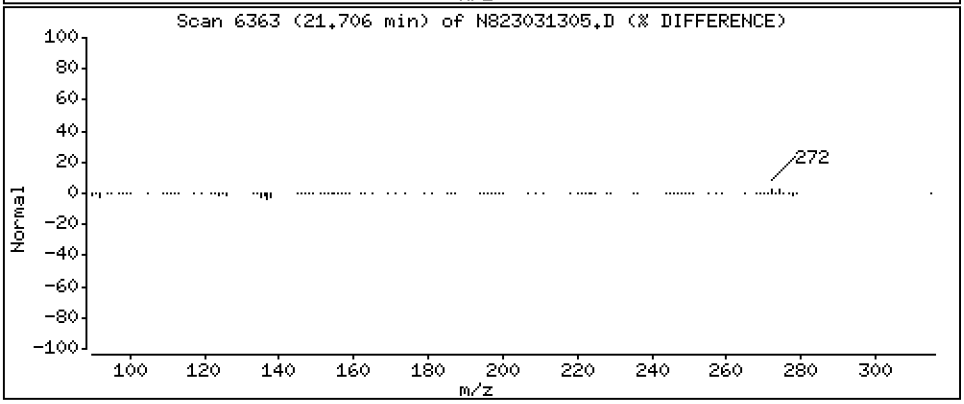
39 Benzo(g,h,i)perylene

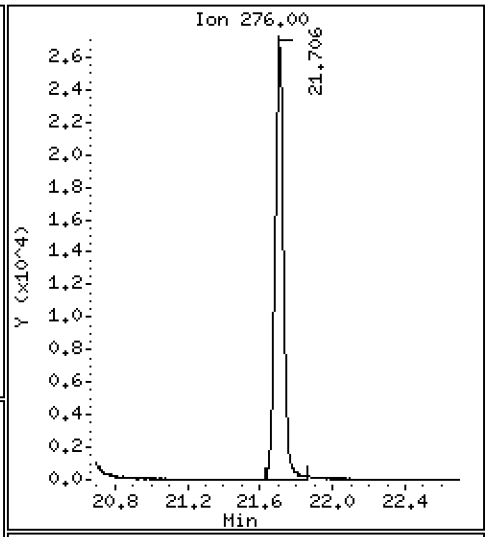
Concentration: 5.556 ug/mL

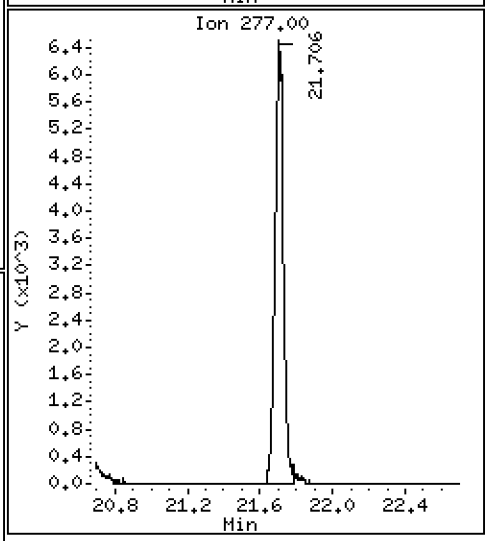












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031305.D
Lab Smp Id: BLC0106-BS1
Inj Date : 13-MAR-2023 14:59
Operator : JZ Inst ID: nt8.i
Smp Info : BLC0106-BS1,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

								CONCENTRATIONS	
		QUANT SIG						ON-COLUMN	FINAL
	Compounds	MASS	RT	EXP RT	REL RT	RESPONSE		(ug/mL)	(ug/mL)
*	1 Naphthalene-d8	136	4.856	4.862	(1.000)	36197		2.00000	
	2 Naphthalene	128	4.887	4.891	(1.007)	58651		3.48488	3.485
$	3 2-Methylnaphthalene-d10	152	5.596	5.599	(1.152)	23705		2.40128	2.401
	4 2-Methylnaphthalene	141	5.643	5.646	(1.162)	34364		3.71204	3.712
	5 1-methylnaphthalene	141	5.842	5.842	(1.203)	34727		3.69613	3.696
	9 Acenaphthylene	152	7.047	7.047	(0.985)	56643		3.39770	3.398
*	10 Acenaphthene-d10	164	7.154	7.155	(1.000)	22077		2.00000	
	11 Acenaphthene	153	7.205	7.205	(1.007)	40732		3.64655	3.647
	12 Dibenzofuran	168	7.357	7.357	(1.028)	62819		3.70268	3.703
	14 Fluorene	166	7.834	7.838	(1.095)	53226		4.03933	4.039
*	15 Phenanthrene-d10	188	9.197	9.197	(1.000)	43035		2.00000	
	16 Phenanthrene	178	9.232	9.232	(1.004)	84630		4.02585	4.026
	17 Anthracene	178	9.273	9.273	(1.008)	76914		4.02761	4.028
	19 Carbazole	167	9.792	9.792	(1.065)	81144		4.63499	4.635
	22 Fluoranthene	202	11.009	11.009	(1.197)	107364		4.69202	4.692
$	21 Fluoranthene-d10	212	10.971	10.971	(1.193)	60537		3.18836	3.188
	23 Pyrene	202	11.527	11.524	(0.815)	112008		4.94966	4.950
	24 Benzo(a)anthracene	228	14.025	14.025	(0.991)	106684		5.20133	5.201
*	25 Chrysene-d12	240	14.152	14.152	(1.000)	36500		2.00000	
	27 Chrysene	228	14.225	14.225	(1.005)	105161		4.81618	4.816
	28 Benzo(b)fluoranthene	252	16.776	16.773	(0.929)	99729		5.62759	5.628
	29 Benzo(k)fluoranthene	252	16.836	16.833	(0.932)	95150		5.48156	5.482
	30 Benzo(j)fluoranthene	252	16.915	16.912	(0.937)	92561		5.92334	5.923
	31 Total Benzofluoranthenes	252	16.776	16.773	(0.929)	282645		16.8410	16.84(M)
	34 Benzo(e)pyrene	252	17.700	17.697	(0.980)	97056		5.49217	5.492
	32 Benzo(a)pyrene	252	17.826	17.826	(0.987)	73349		4.70344	4.703
*	33 Perylene-d12	264	18.057	18.060	(1.000)	30428		2.00000	
	35 Perylene	252	18.133	18.130	(1.004)	72521		4.33355	4.334
$	36 Dibenzo(a,h)anthracene-d14	292	20.488	20.482	(1.135)	45734		3.83599	3.836
	37 Indeno(1,2,3-cd)pyrene	276	20.631	20.625	(1.143)	92435		5.20287	5.203
	38 Dibenzo(a,h)anthracene	278	20.605	20.599	(1.141)	83586		5.46699	5.467
	39 Benzo(g,h,i)perylene	276	21.706	21.696	(1.202)	89432		5.55596	5.556

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031305.D
Lab Smp Id: BLC0106-BS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	36197	-10.30
10 Acenaphthene-d10	24212	12106	48424	22077	-8.82
15 Phenanthrene-d10	46031	23016	92062	43035	-6.51
25 Chrysene-d12	38604	19302	77208	36500	-5.45
33 Perylene-d12	35963	17982	71926	30428	-15.39

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.86	-0.13
10 Acenaphthene-d10	7.16	6.66	7.66	7.15	-0.00
15 Phenanthrene-d10	9.20	8.70	9.70	9.20	-0.00
25 Chrysene-d12	14.15	13.65	14.65	14.15	-0.00
33 Perylene-d12	18.06	17.56	18.56	18.06	-0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031305.D

Lab ID: BLC0106-BS1
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 14:59

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

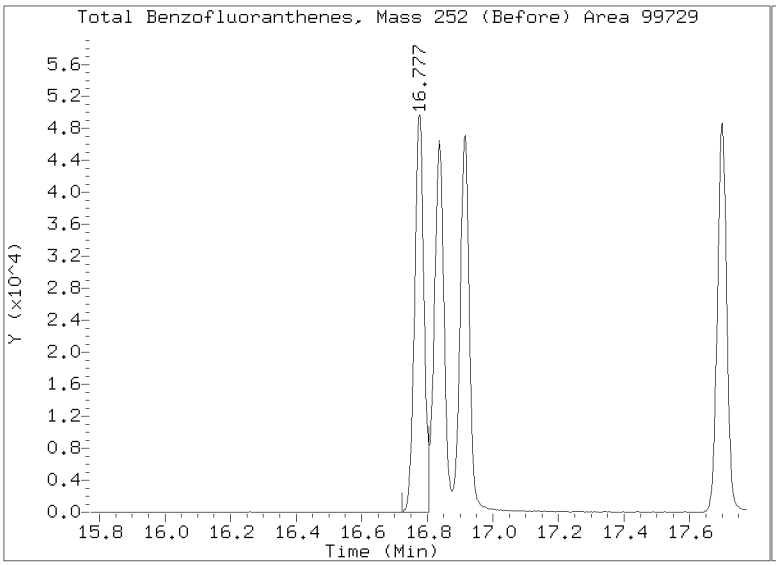
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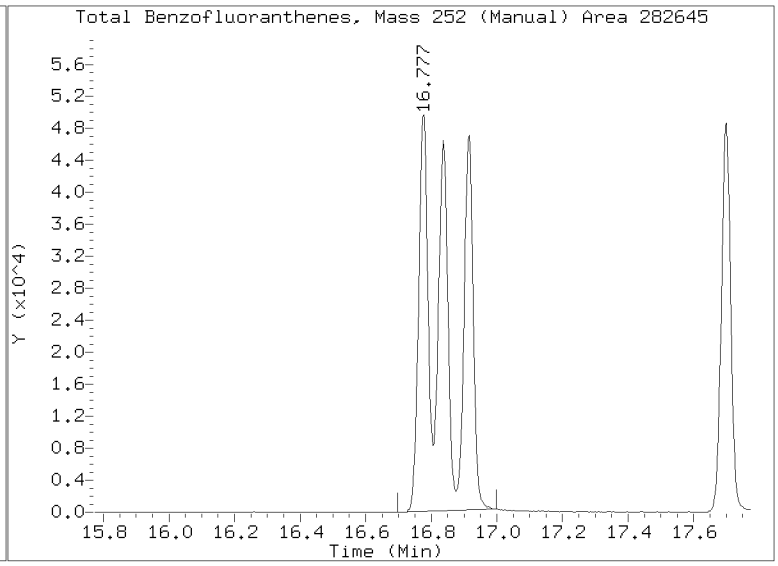
Exception: Benzo(e)pyrene 0.0800

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031305.D
Injection Date: 13-MAR-2023 14:59
Lab ID:BLC0106-BS1 Client ID:
Report Date: 03/13/2023 21:09





MS / MS DUPLICATE RECOVERY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	03/13/23 15:53
Batch:	BLC0106	Laboratory ID:	BLC0106-MS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike
Initial/Final:	12.58 g / 0.5 mL	Source Sample:	LY-28_2-3

COMPOUND	SPIKE ADDED (ug/kg dry)	SAMPLE CONCENTRATION (ug/kg dry)	Q	MS CONCENTRATION (ug/kg dry)	Q	MS % REC. #	QC LIMITS REC.
Benzo(a)anthracene	299	3.80	J	254		83.7	42 - 120
Chrysene	299	6.13		220		71.5	48 - 120
Benzo(b)fluoranthene	299	9.83		236		75.6	52 - 137
Benzo(k)fluoranthene	299	4.60	J	220		72.0	37 - 129
Benzo(a)pyrene	299	7.37		219		70.6	36 - 120
Indeno(1,2,3-cd)pyrene	299	2.43	J	225		74.3	67 - 132
Dibenzo(a,h)anthracene	299	ND	U	234		78.3	66 - 139
Benzo(g,h,i)perylene	299	3.11	J	239		78.9	51 - 153

* Values outside of QC limits

MS / MS DUPLICATE RECOVERY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	03/13/23 16:20
Batch:	BLC0106	Laboratory ID:	BLC0106-MSD1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	Matrix Spike Dup
Initial/Final:	12.58 g / 0.5 mL	Source Sample:	LY-28_2-3

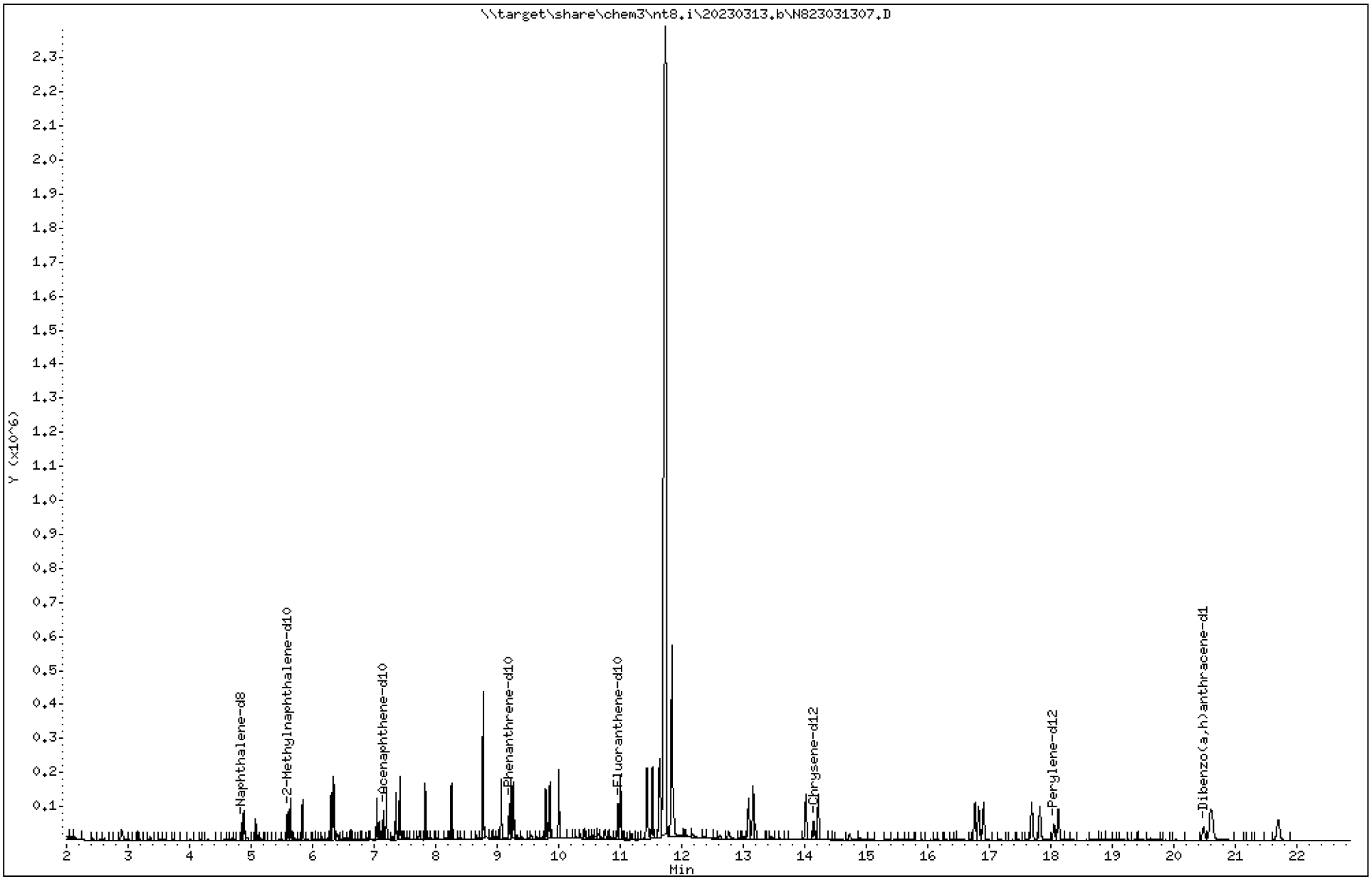
COMPOUND	SPIKE ADDED (ug/kg dry)	MSD CONCENTRATION (ug/kg dry)	Q	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzo(a)anthracene	299	251		82.6	1.20	30	42 - 120
Chrysene	299	219		71.0	0.651	30	48 - 120
Benzo(b)fluoranthene	299	224		71.4	5.39	30	52 - 137
Benzo(k)fluoranthene	299	209		68.2	5.25	30	37 - 129
Benzo(a)pyrene	299	213		68.7	2.69	30	36 - 120
Indeno(1,2,3-cd)pyrene	299	219		72.3	2.70	30	67 - 132
Dibenzo(a,h)anthracene	299	218		72.7	7.43	30	66 - 139
Benzo(g,h,i)perylene	299	226		74.4	5.88	30	51 - 153

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031307.D
Date : 13-MAR-2023 15:53
Client ID:
Sample Info: BLC0106-MS1,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23C0064 03/17/2023 Page 155 of 833

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031307.D

Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

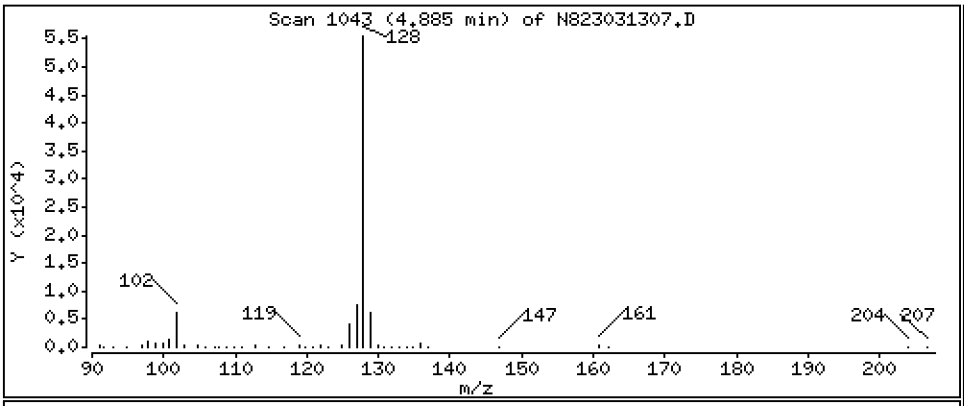
Operator: JZ

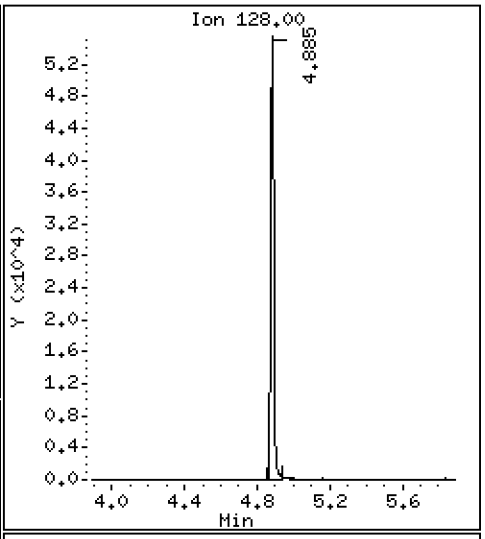
Column phase: Rxi-17sil

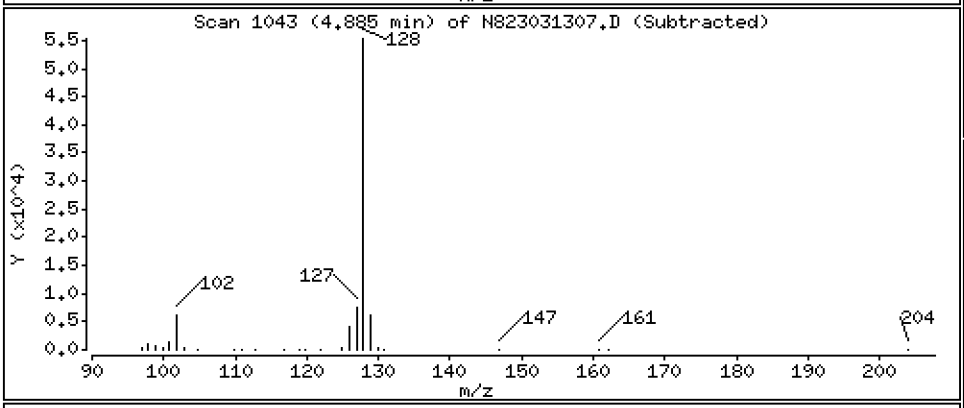
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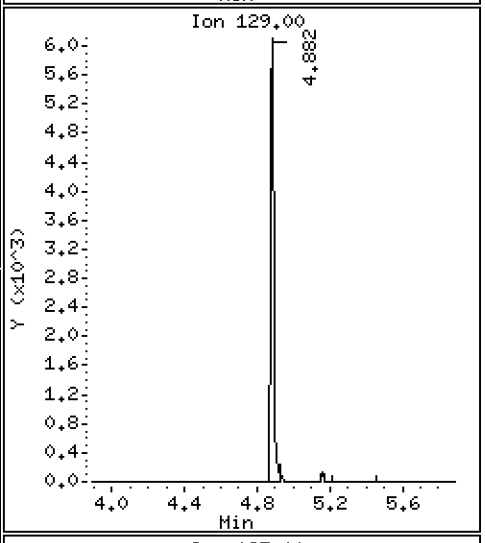
2 Naphthalene

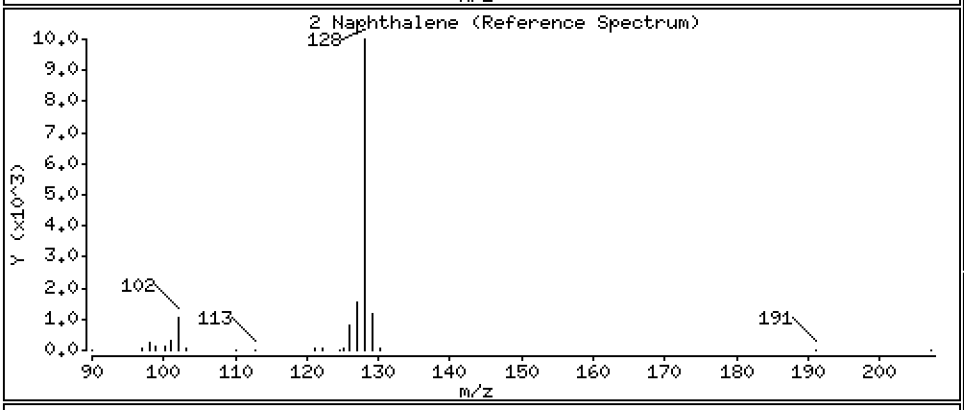
Concentration: 3.469 ug/mL

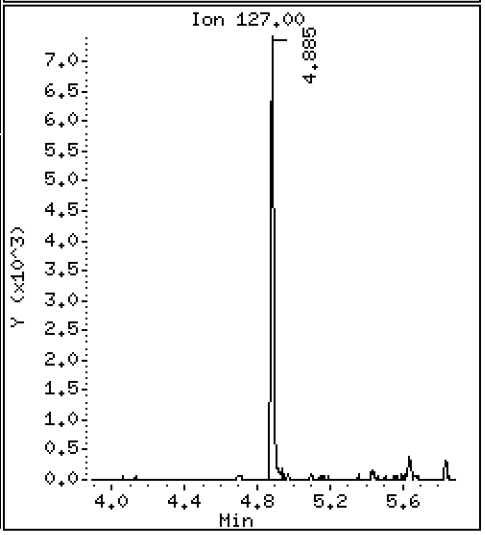


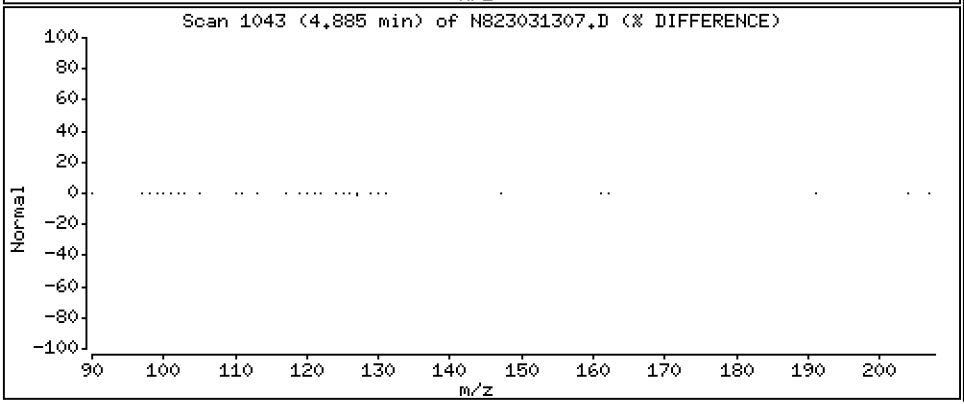












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031307.D

Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

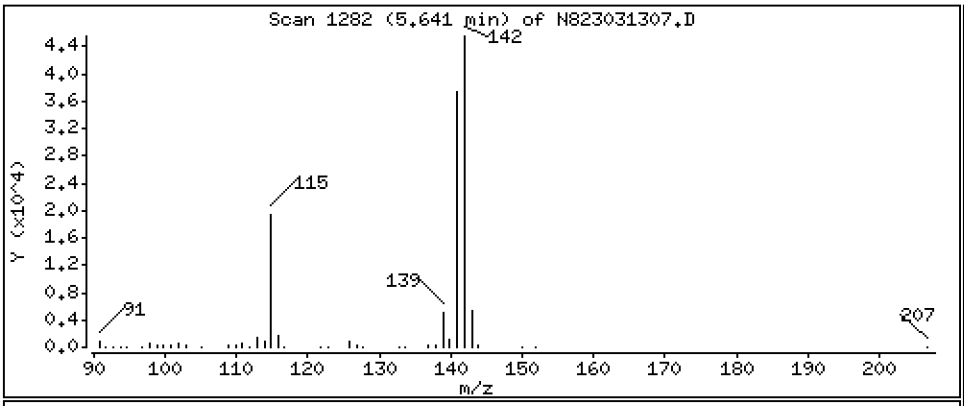
Operator: JZ

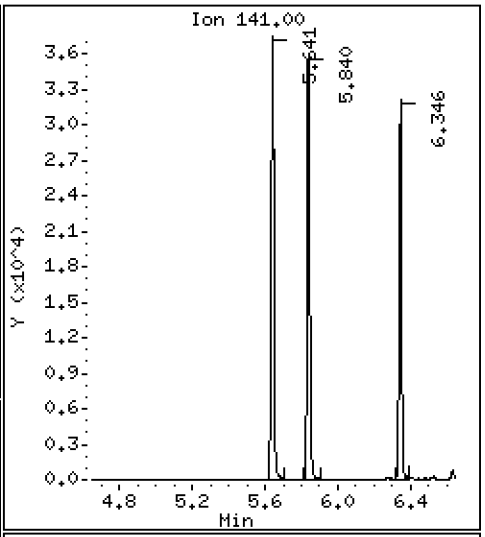
Column phase: Rxi-17sil

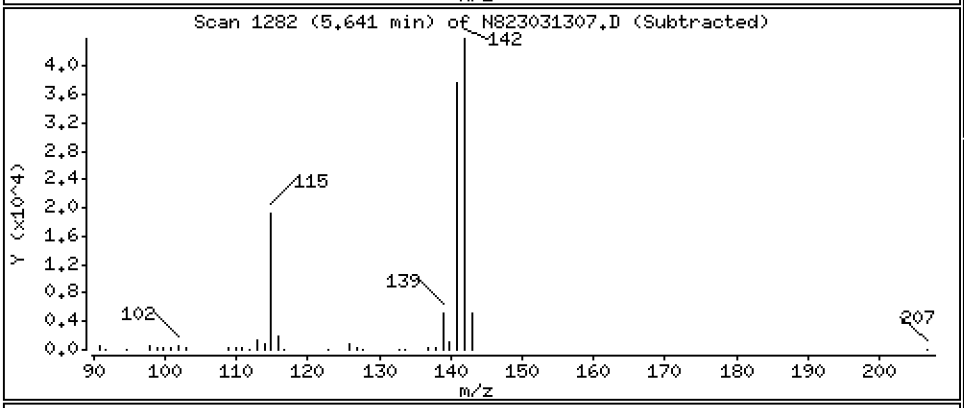
Column diameter: 0.25

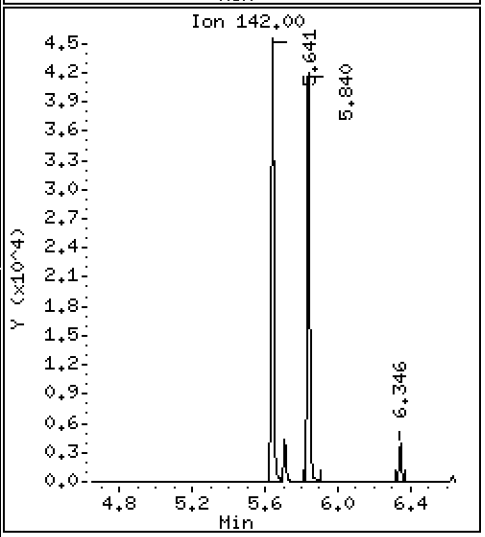
4 2-Methylnaphthalene

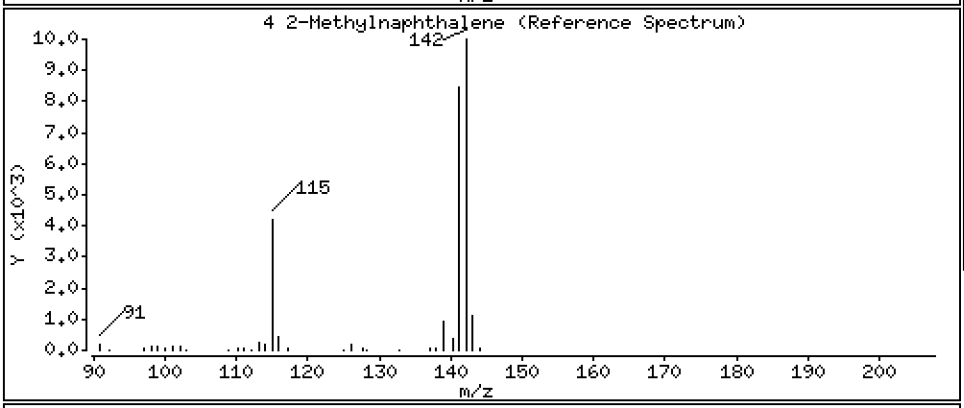
Concentration: 3.712 ug/mL

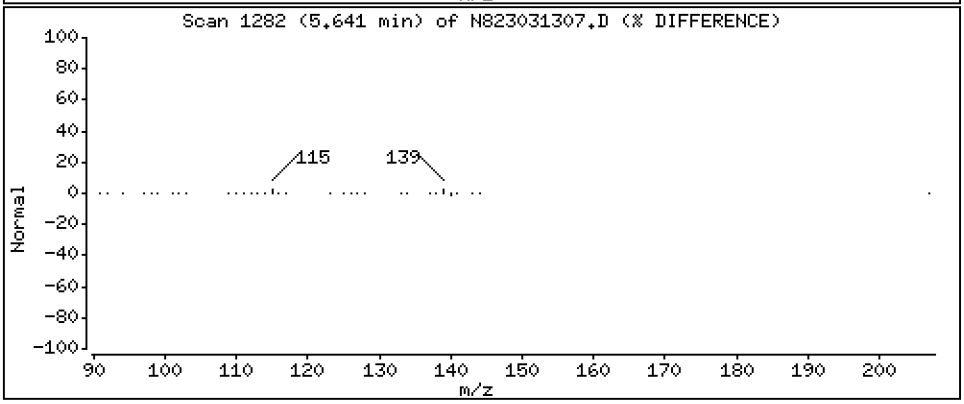












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031307.D

Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

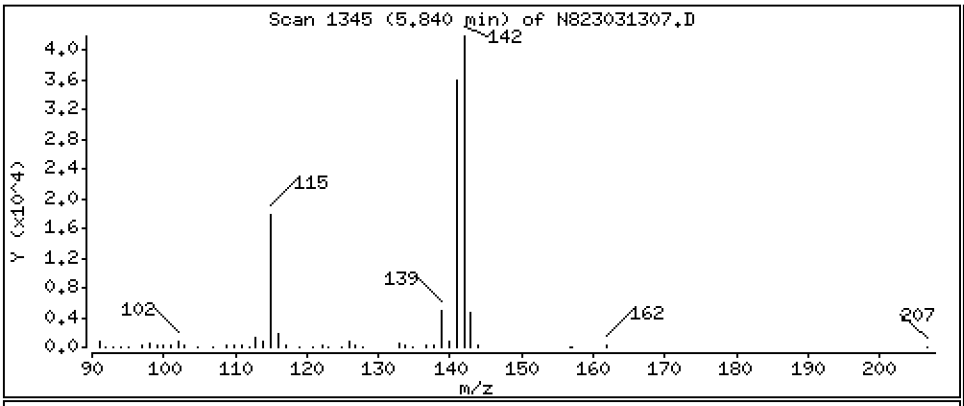
Operator: JZ

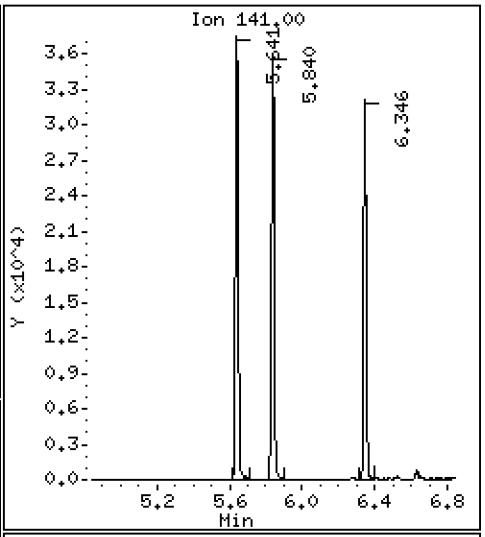
Column phase: Rxi-17sil

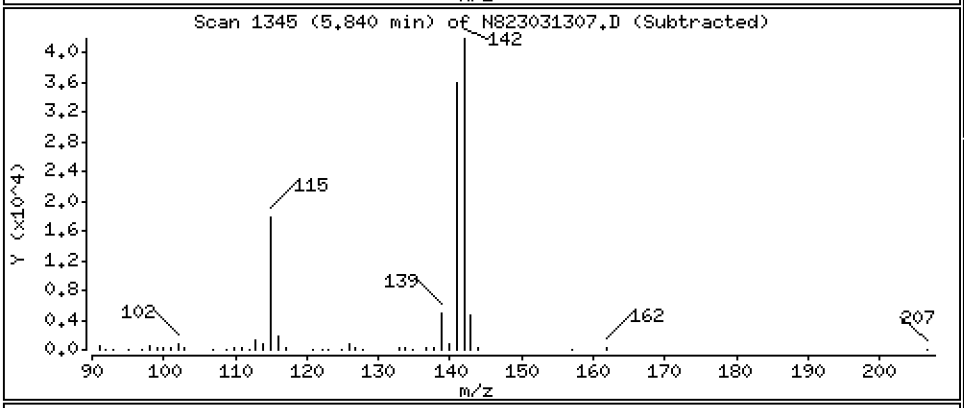
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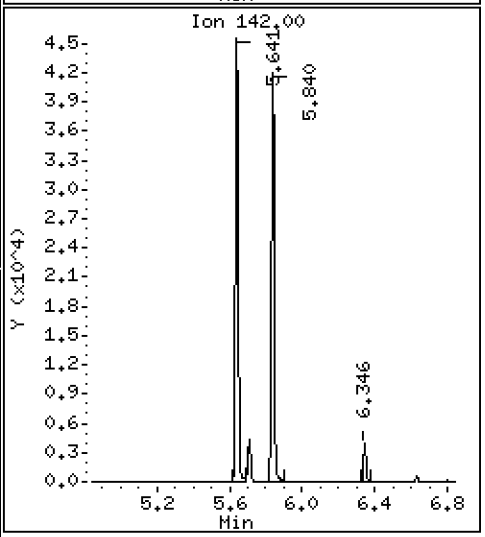
5 1-methylnaphthalene

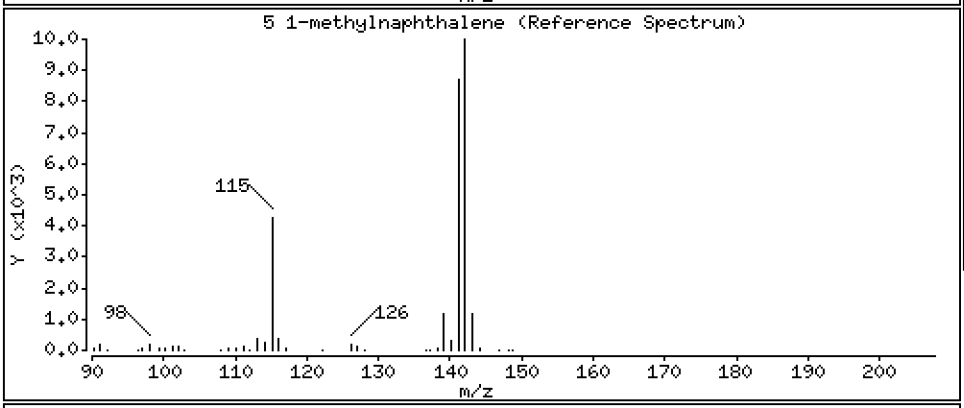
Concentration: 3.682 ug/mL

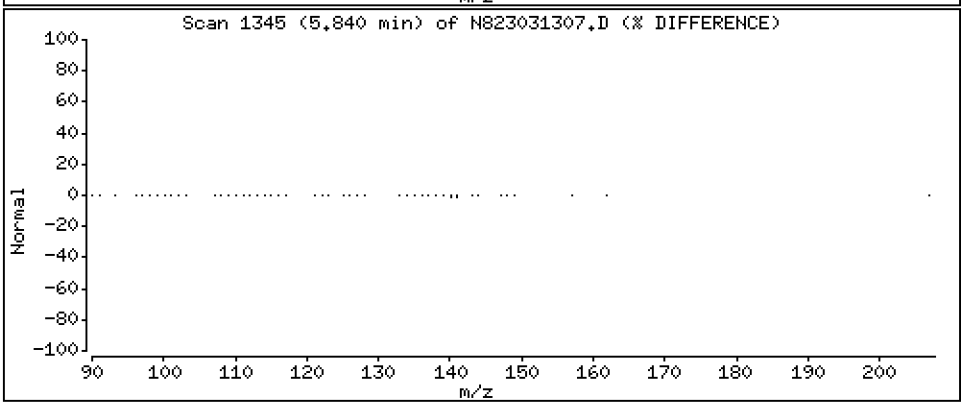












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031307.D

Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

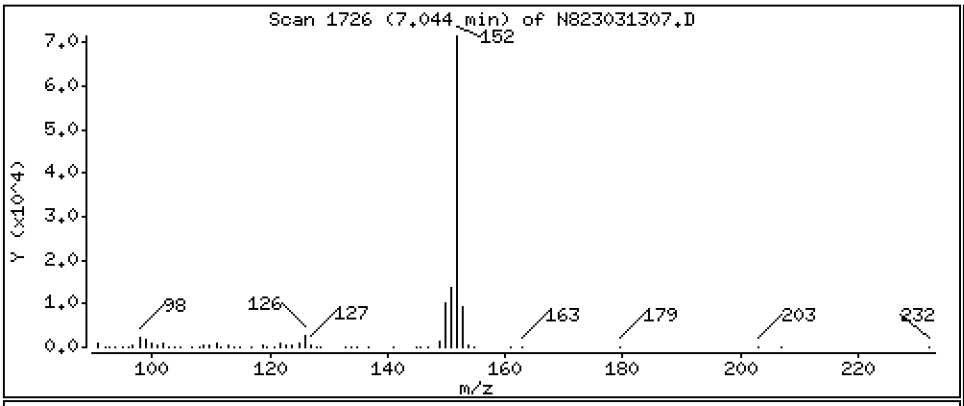
Operator: JZ

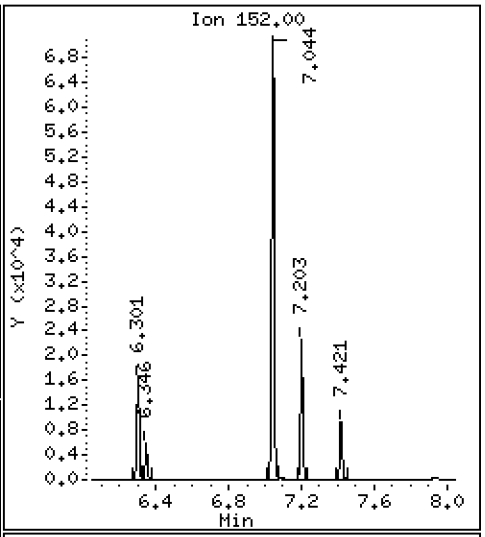
Column phase: Rxi-17sil

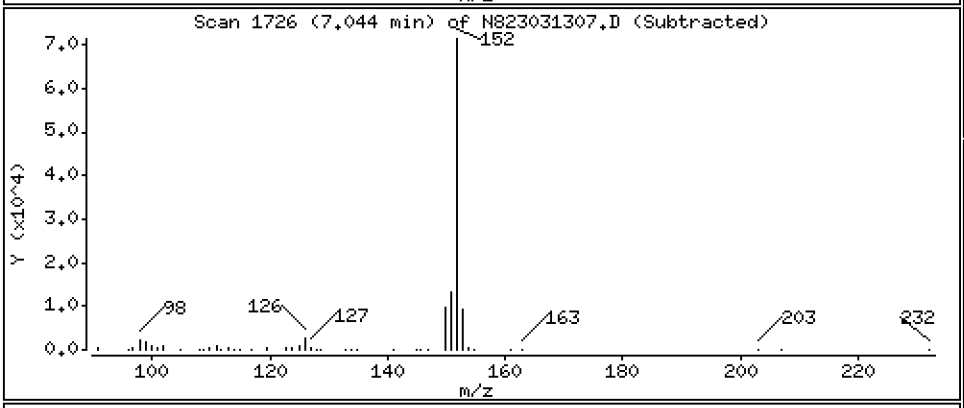
Column diameter: 0.25

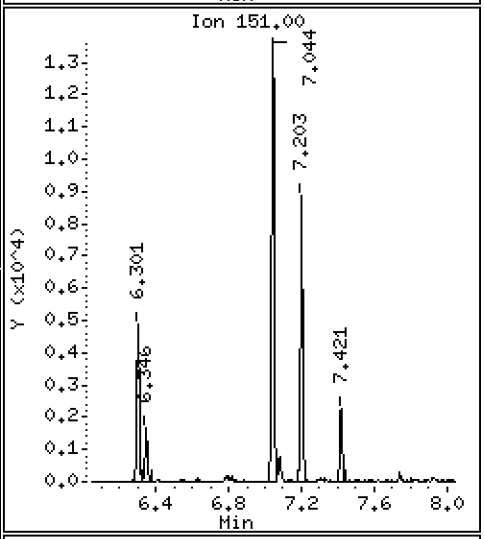
9 Acenaphthylene

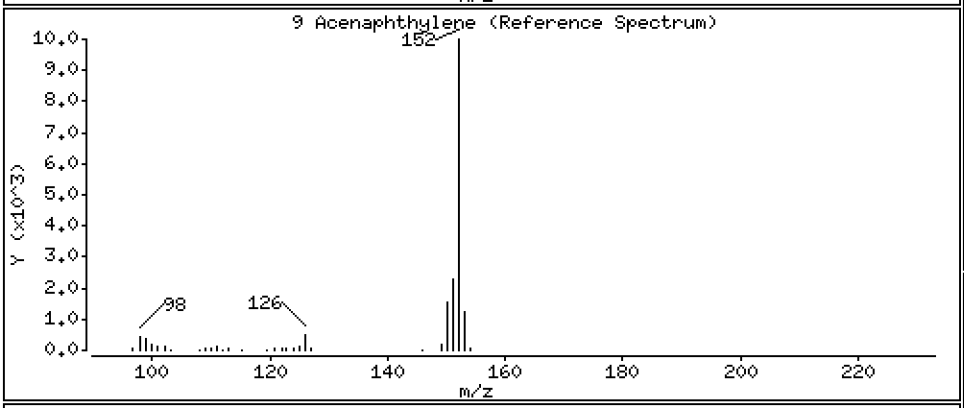
Concentration: 3.779 ug/mL

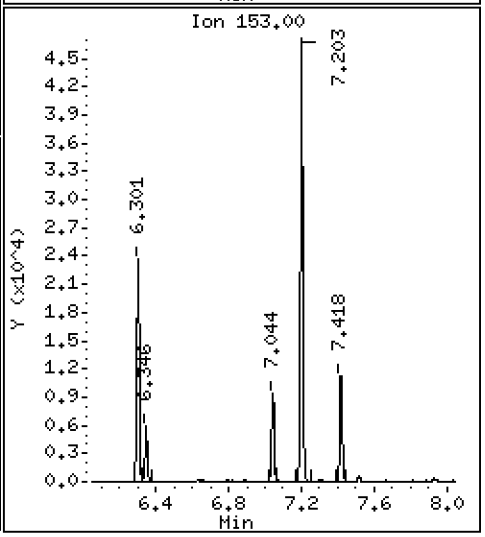


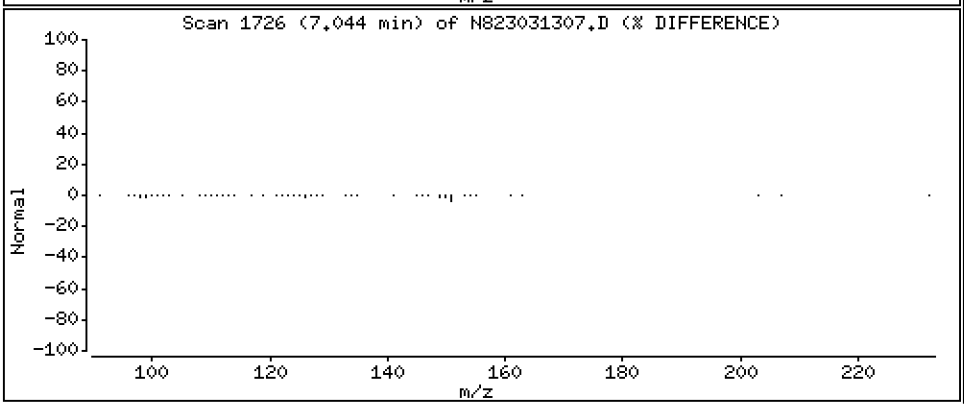












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

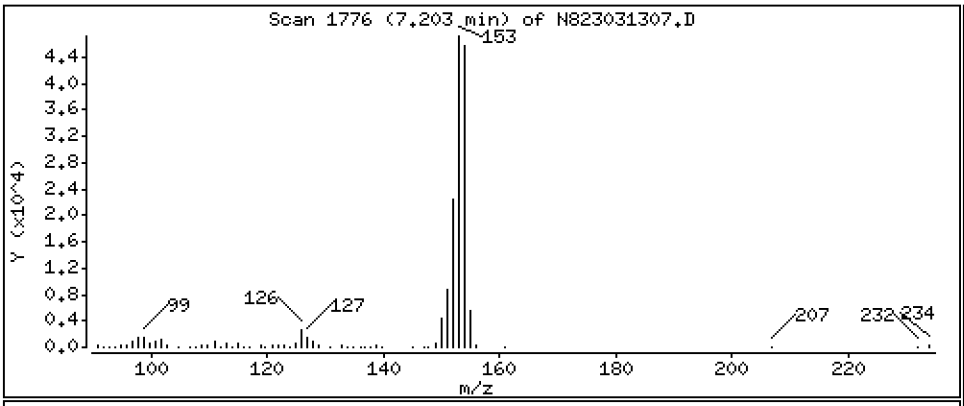
Operator: JZ

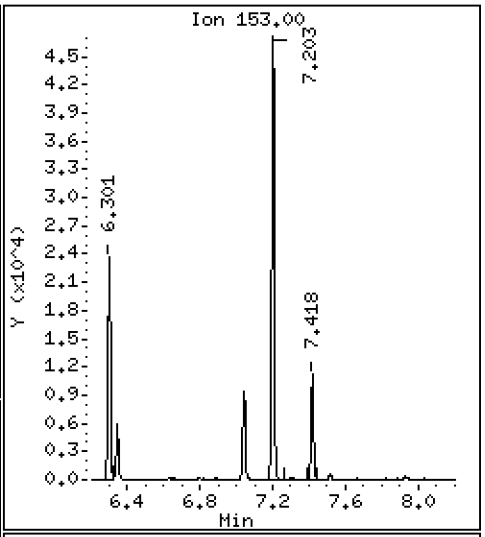
Column phase: Rxi-17sil

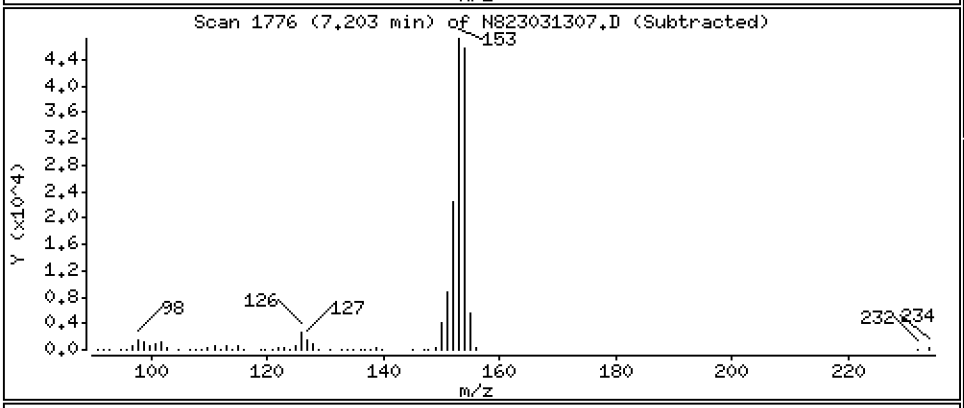
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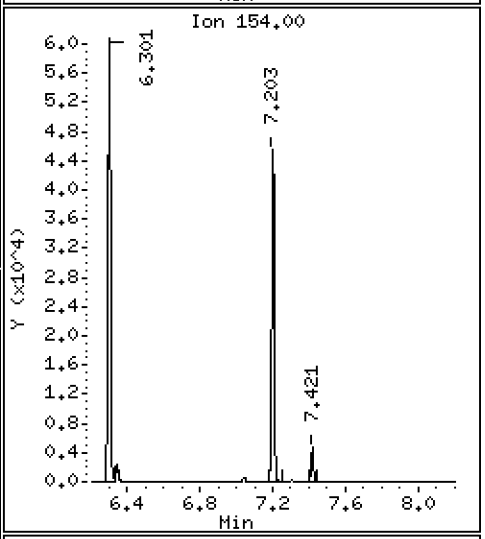
11 Acenaphthene

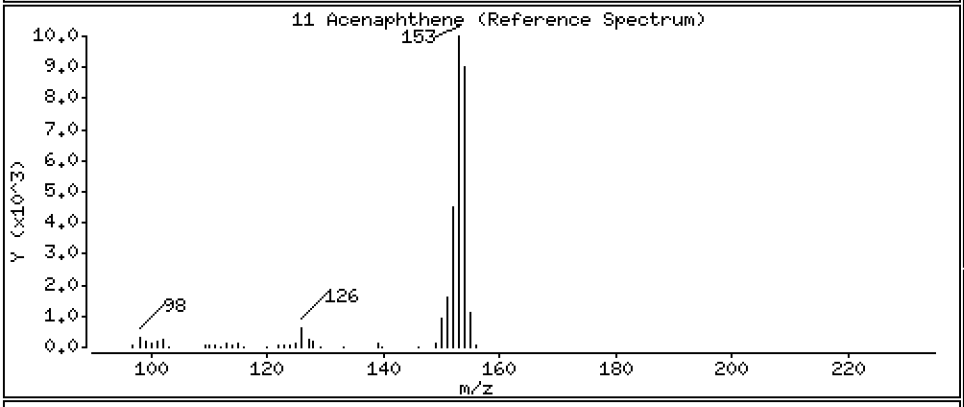
Concentration: 3.621 ug/mL

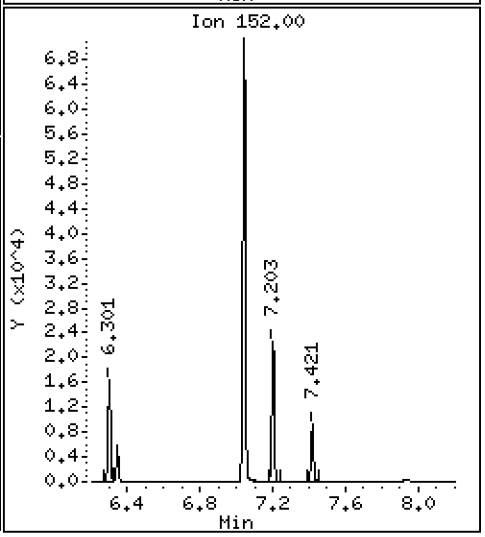


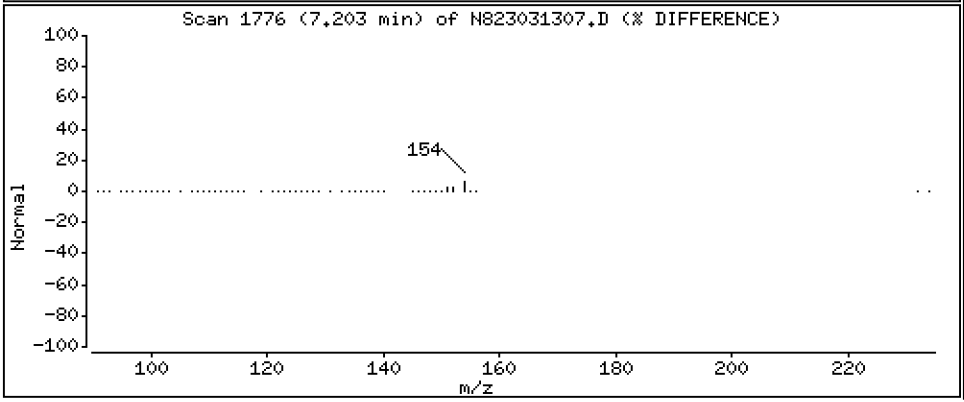












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

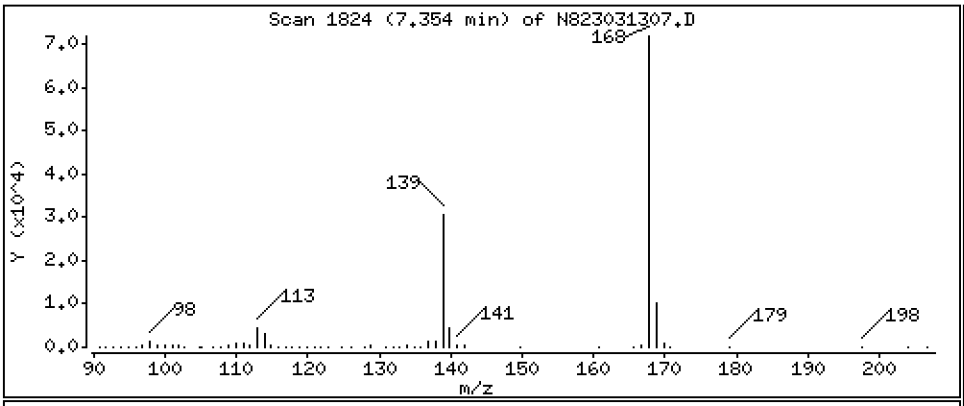
Operator: JZ

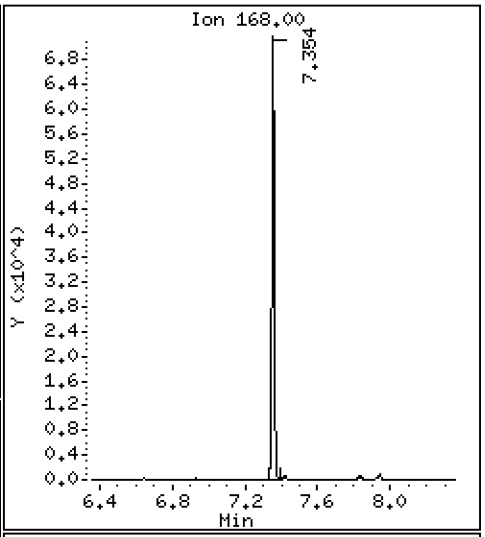
Column phase: Rxi-17sil

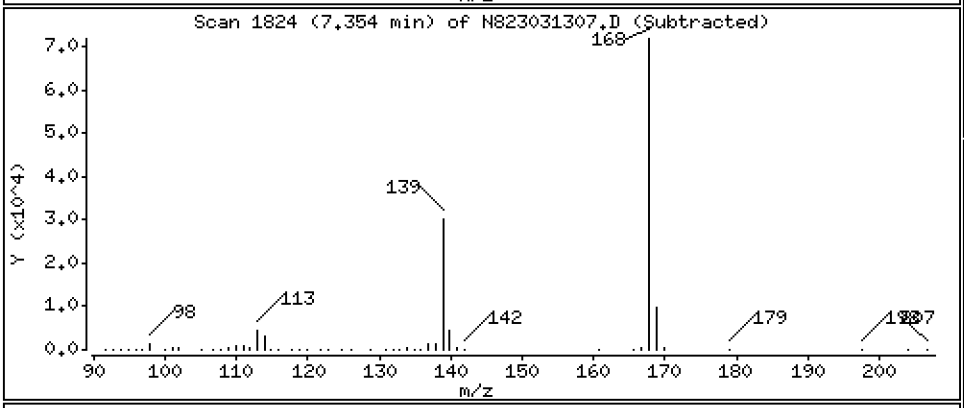
Column diameter: 0.25

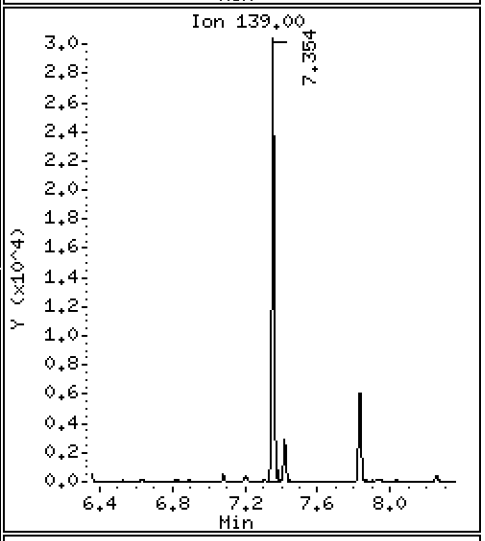
12 Dibenzofuran

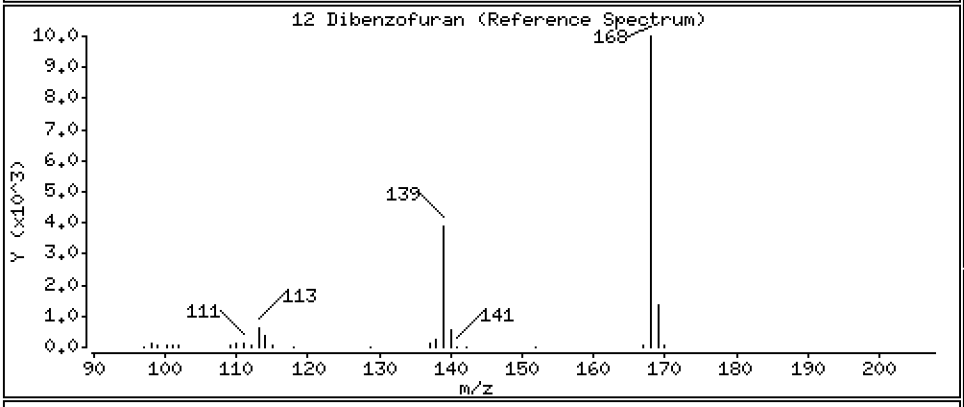
Concentration: 3.717 ug/mL

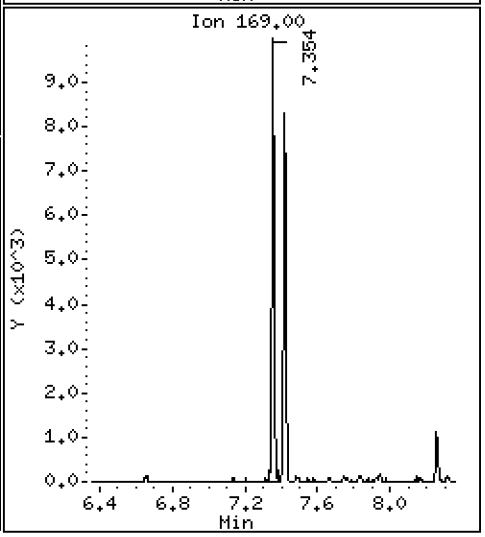


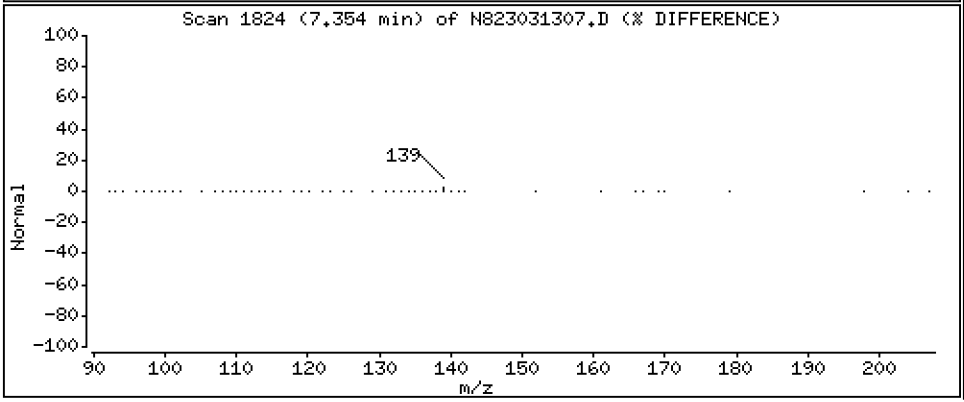












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Date : 13-MAR-2023 15:53

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Instrument: nt8.i

Sample Info: BLC0106-MS1,

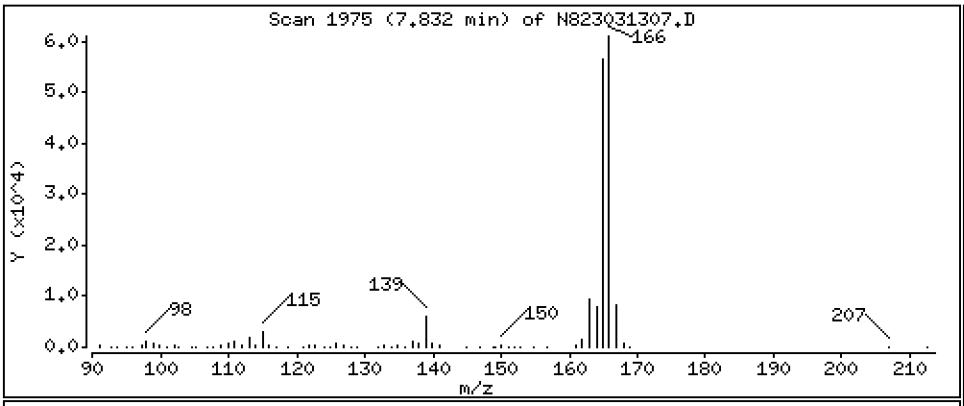
Operator: JZ

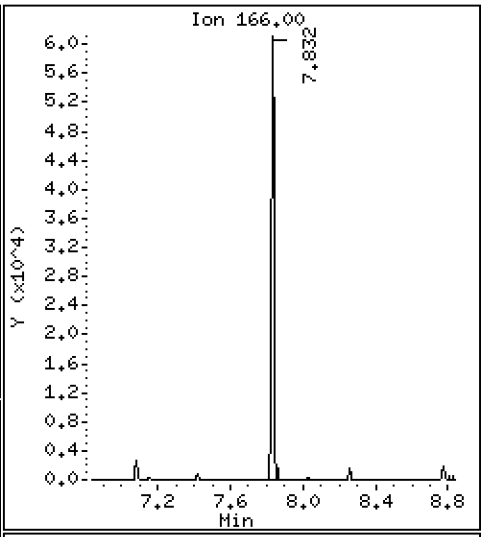
Column phase: Rxi-17sil

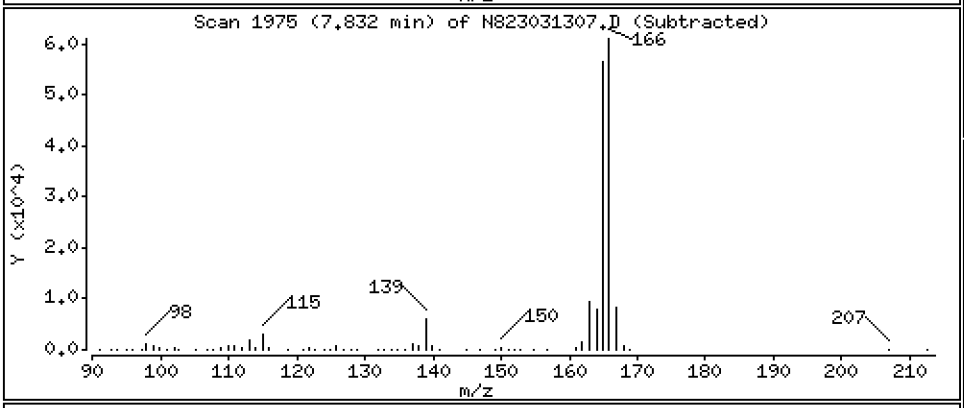
Column diameter: 0.25

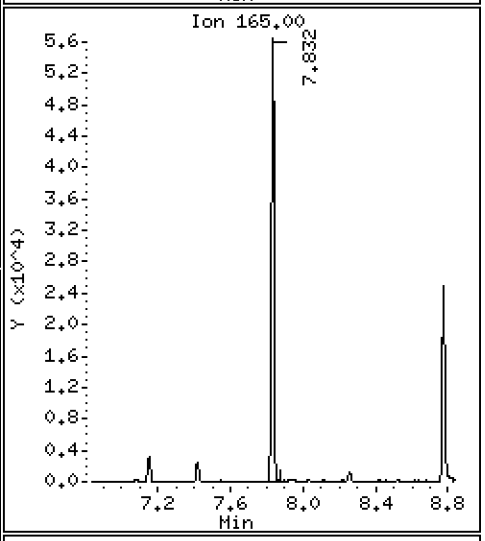
14 Fluorene

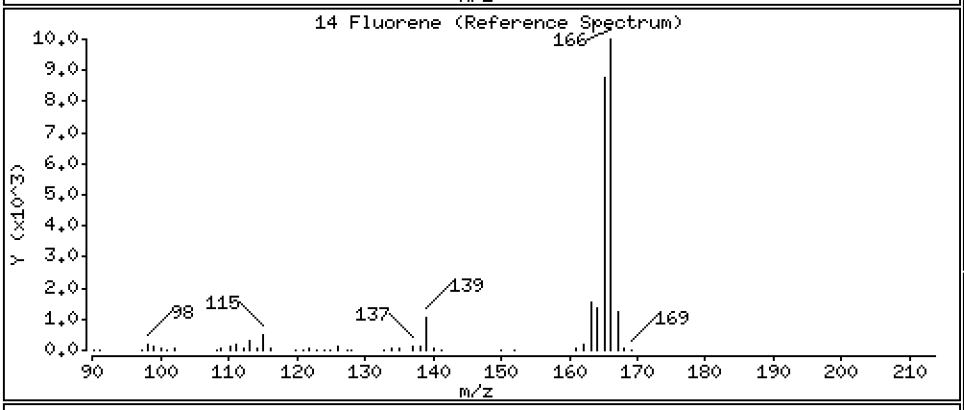
Concentration: 4.076 ug/mL

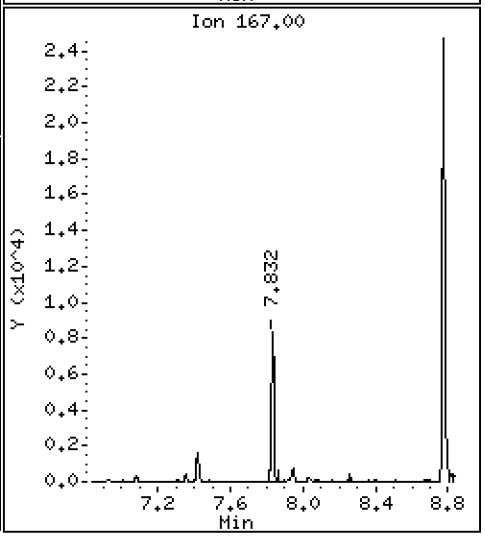


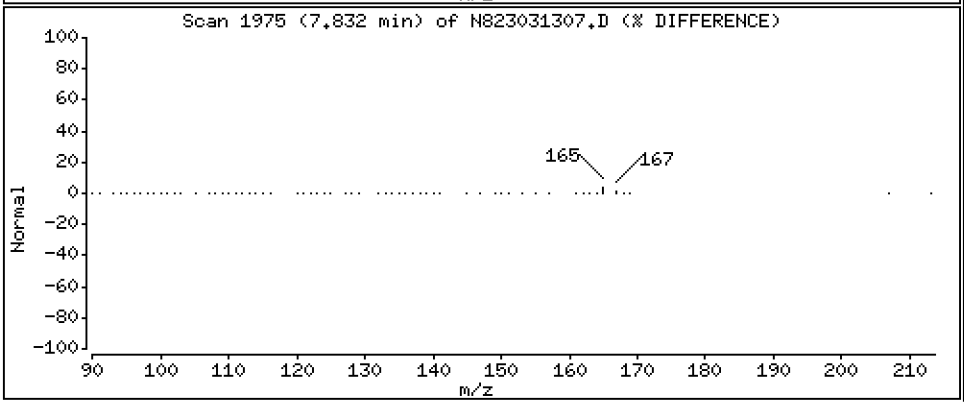












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

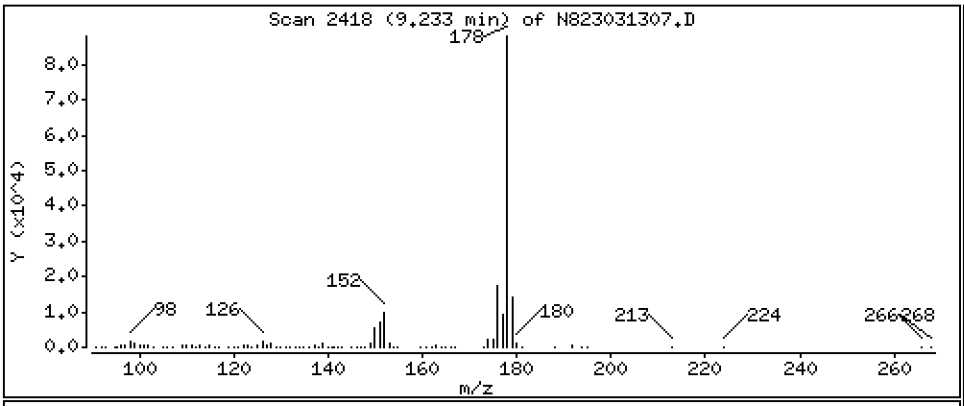
Operator: JZ

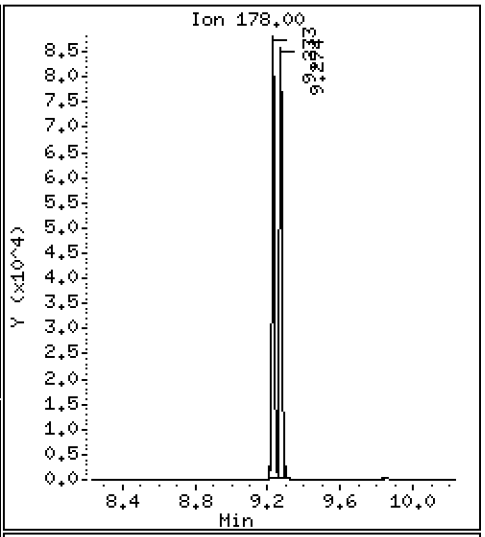
Column phase: Rxi-17sil

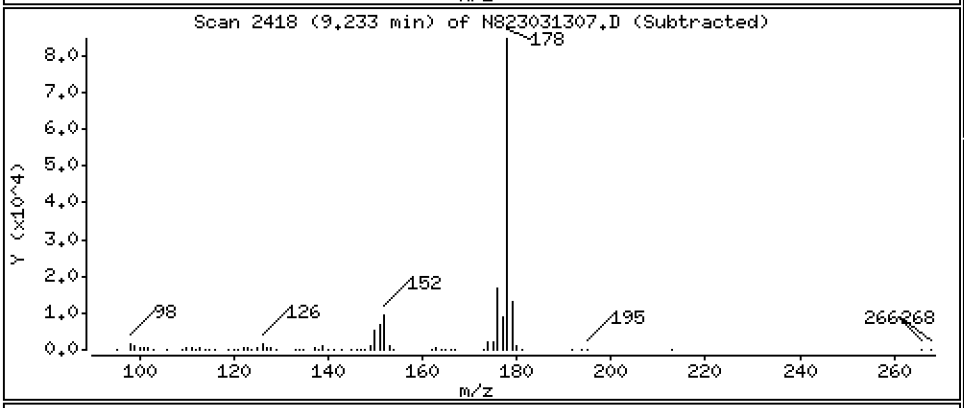
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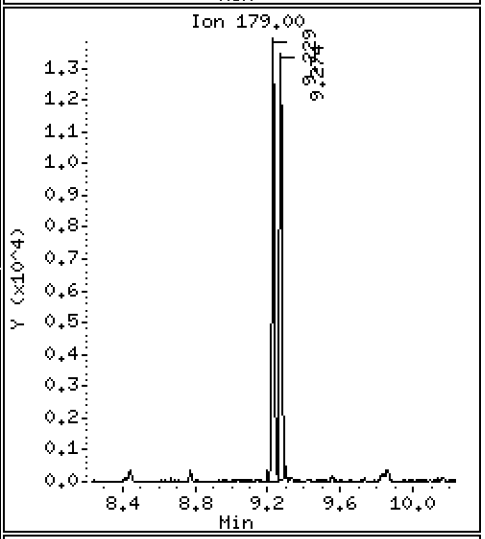
16 Phenanthrene

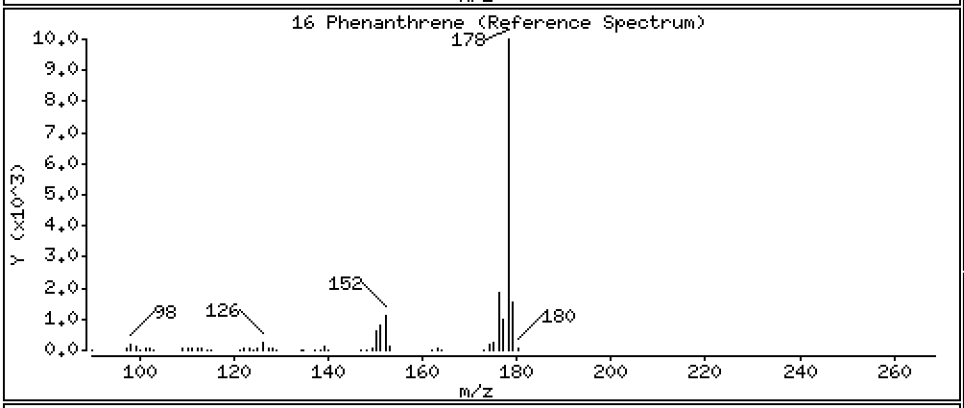
Concentration: 3.978 ug/mL

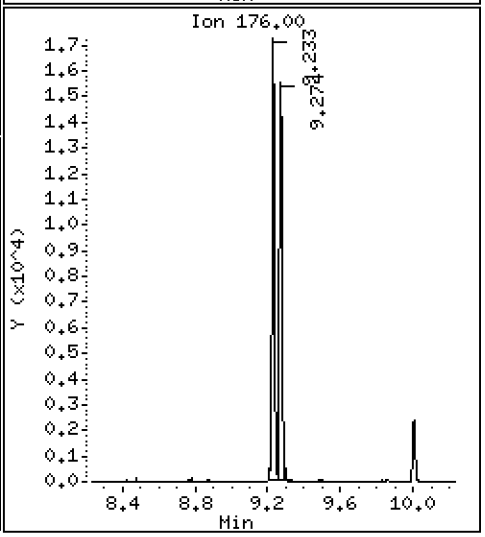


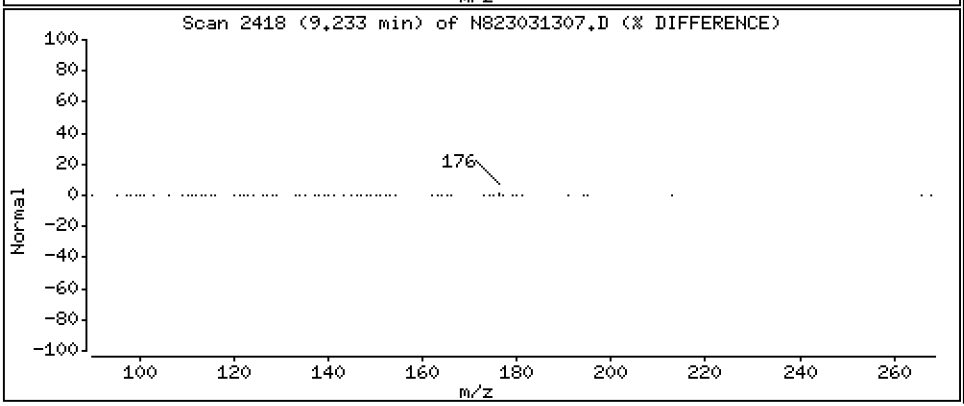












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

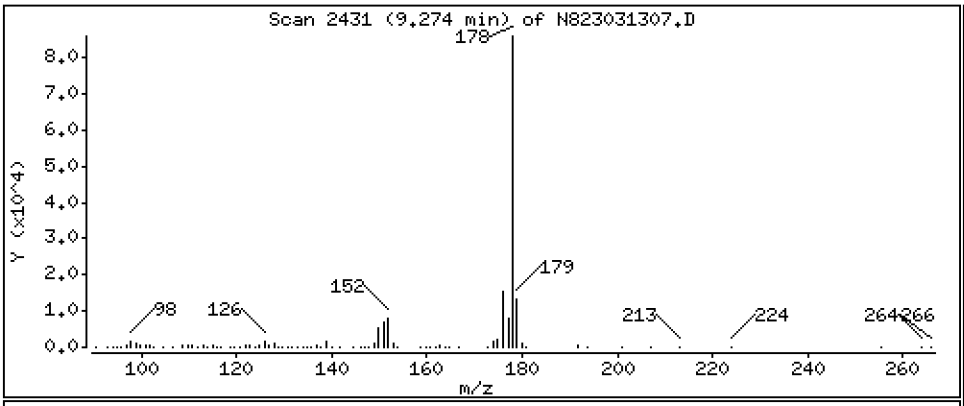
Operator: JZ

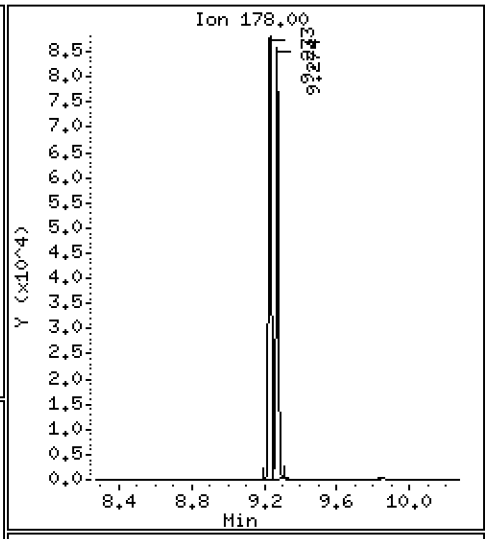
Column phase: Rxi-17sil

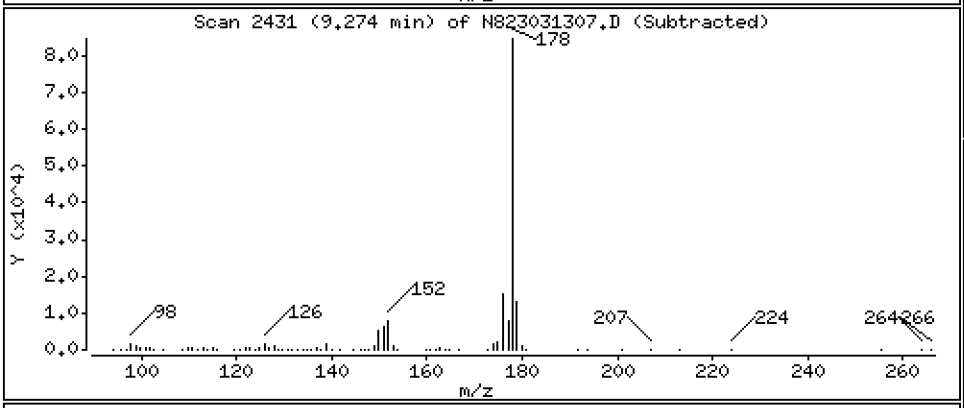
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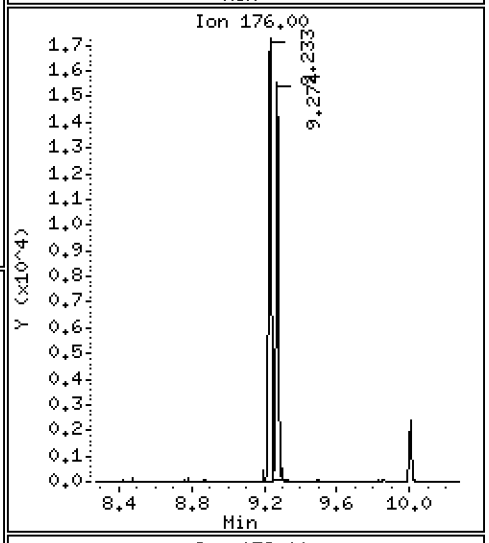
17 Anthracene

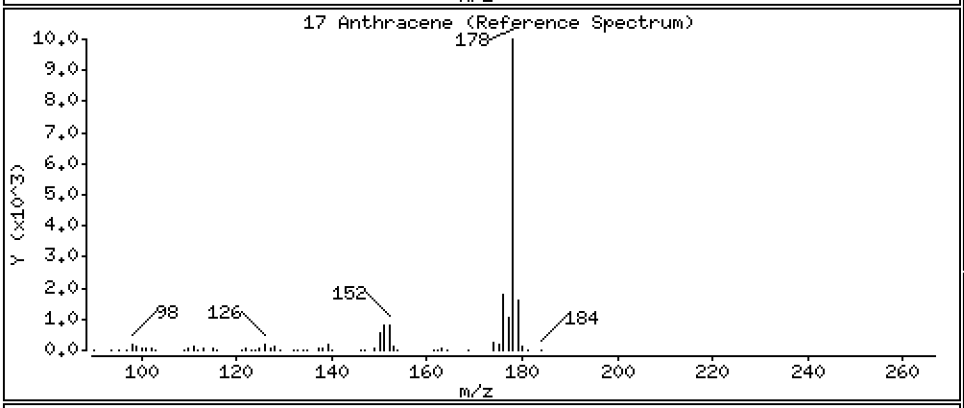
Concentration: 4.117 ug/mL

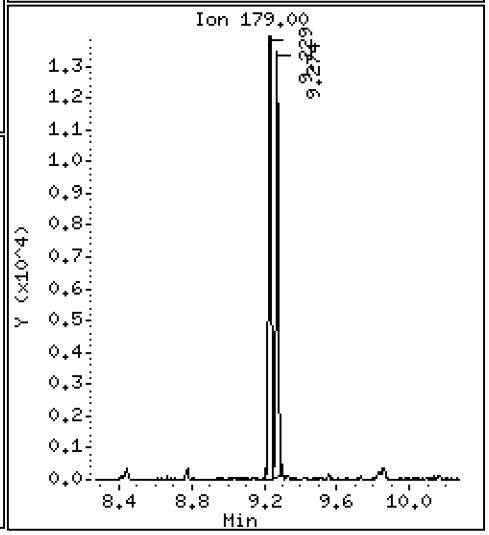


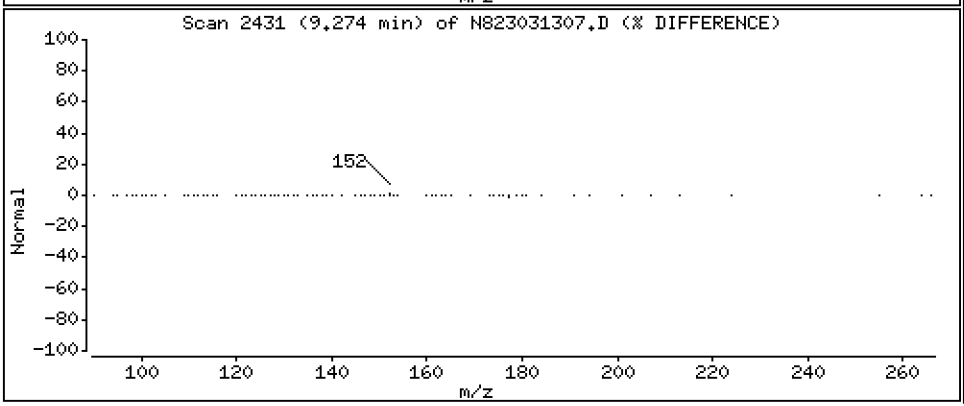












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Date : 13-MAR-2023 15:53

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Instrument: nt8.i

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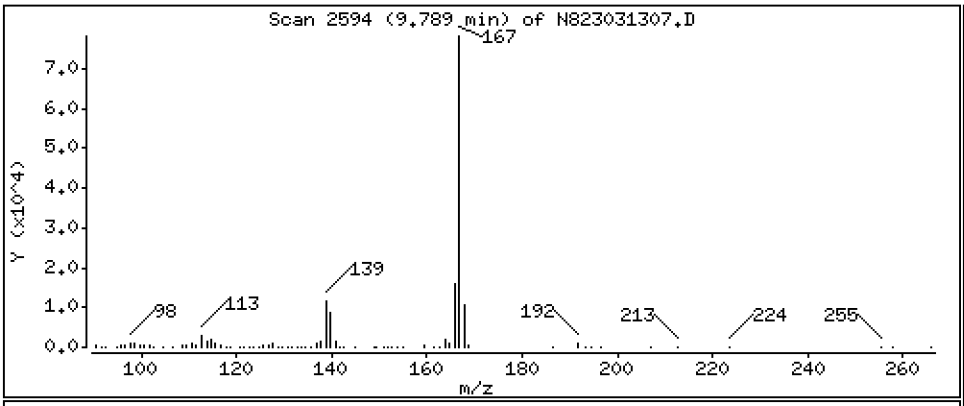
Operator: JZ

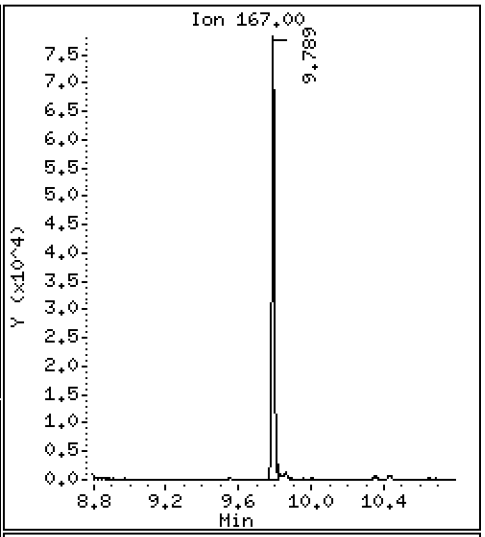
Column phase: Rxi-17sil

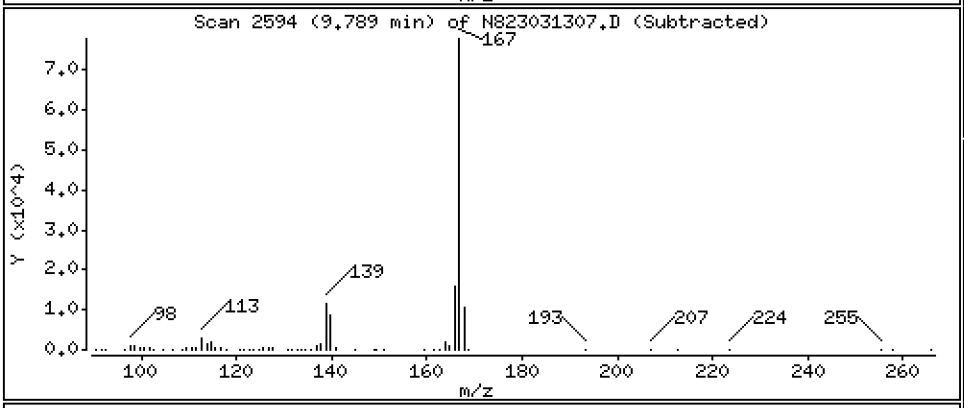
Column diameter: 0.25

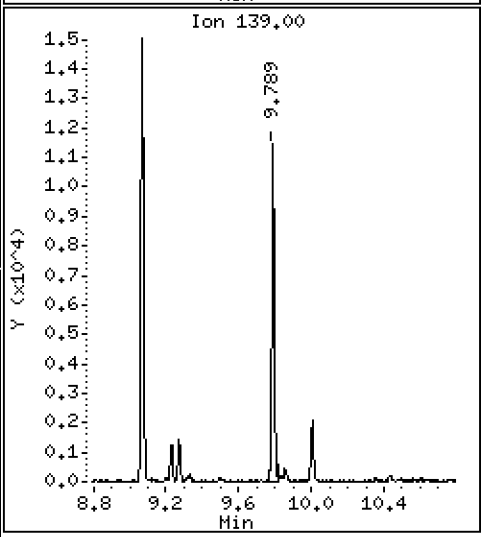
19 Carbazole

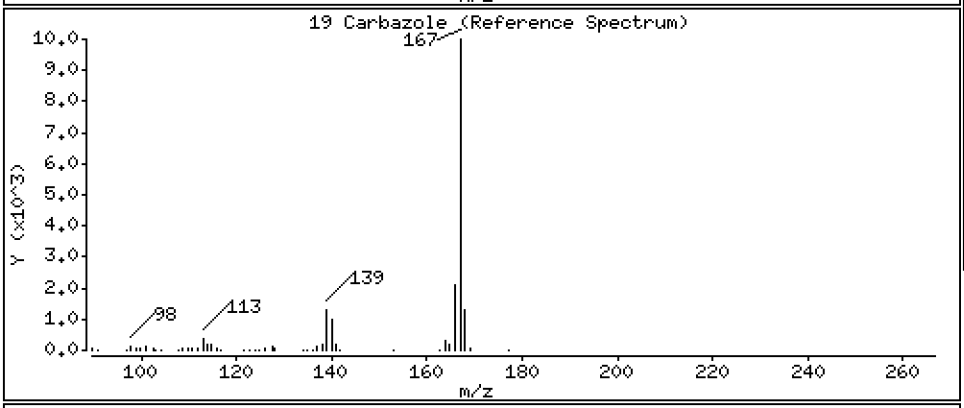
Concentration: 4.337 ug/mL

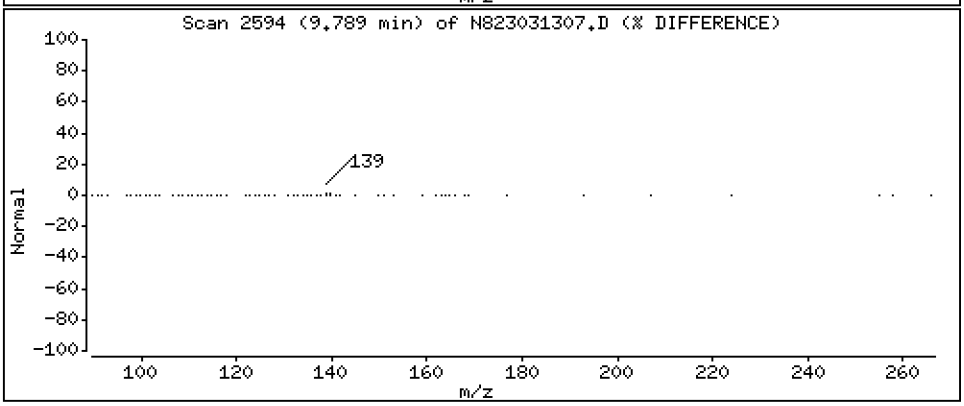












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Date : 13-MAR-2023 15:53

Client ID:

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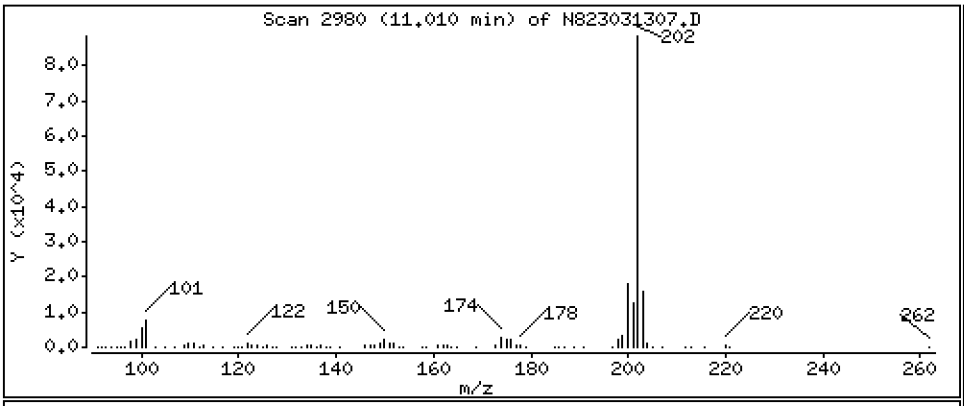
Operator: JZ

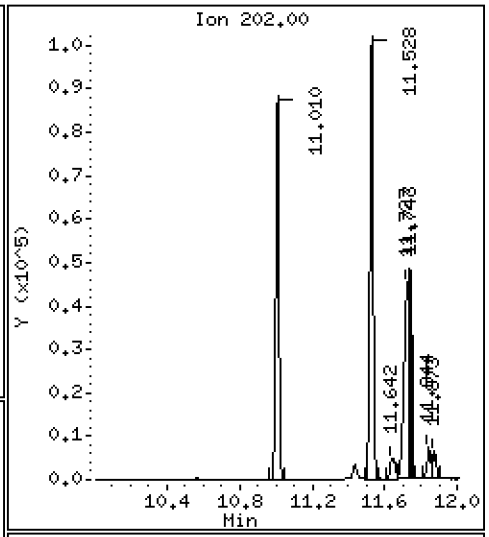
Column phase: Rxi-17sil

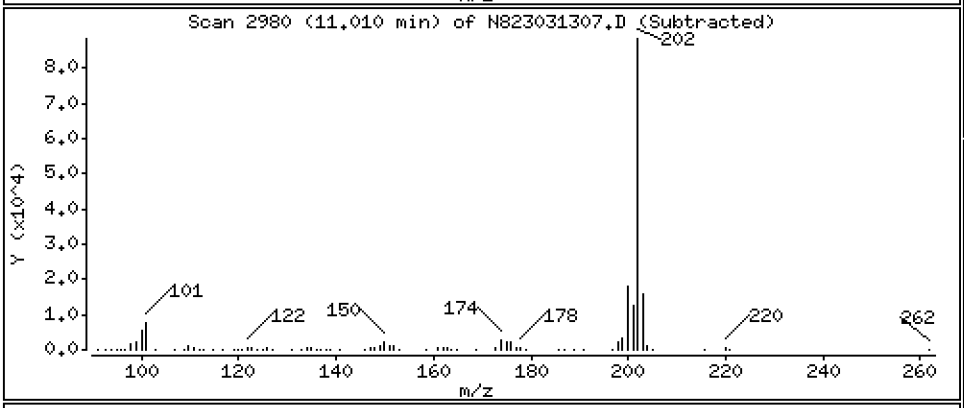
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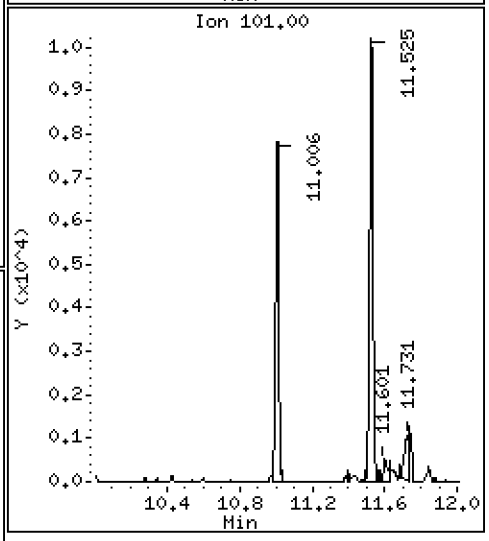
22 Fluoranthene

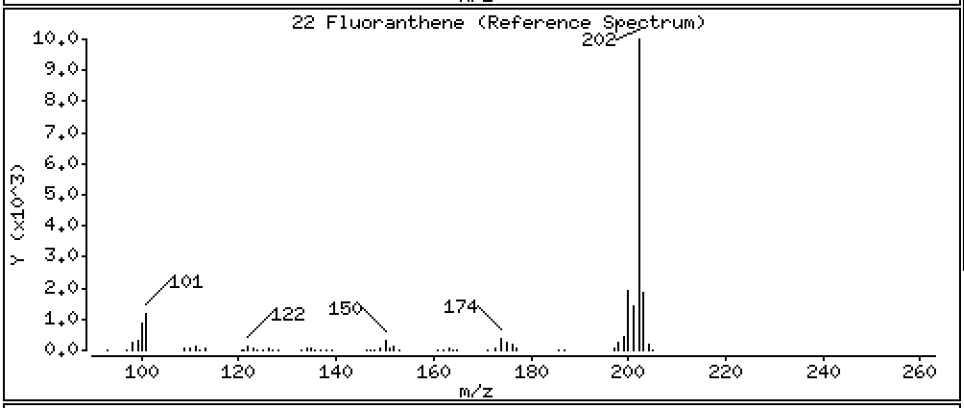
Concentration: 4.462 ug/mL

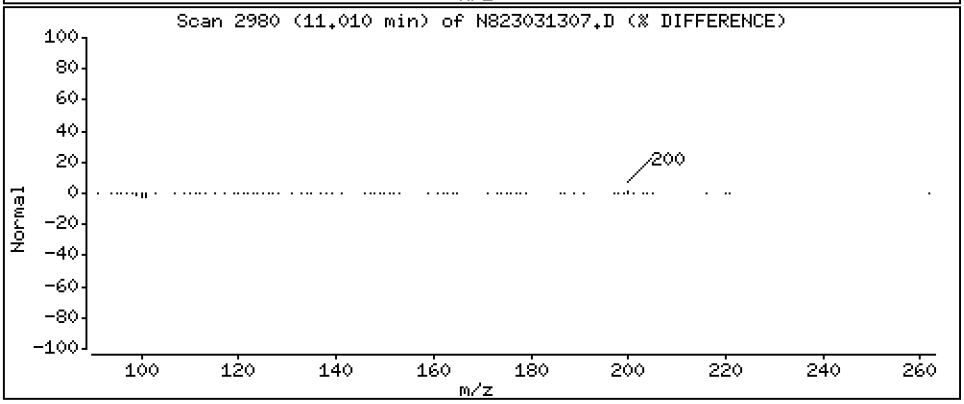












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Date : 13-MAR-2023 15:53

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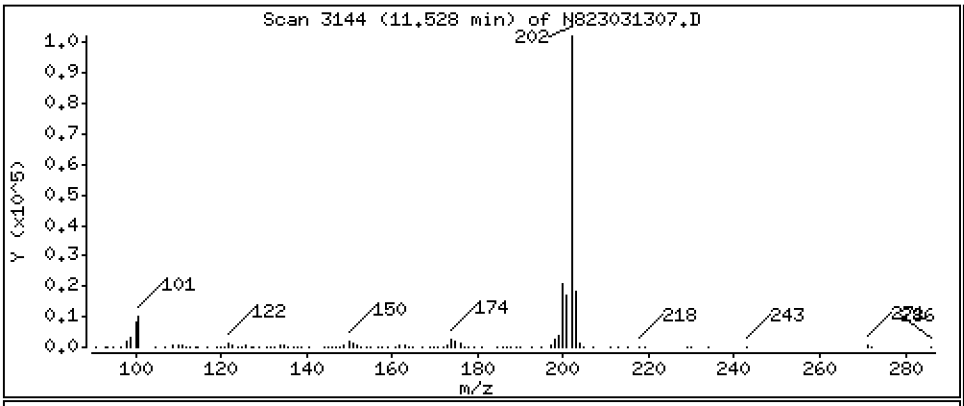
Operator: JZ

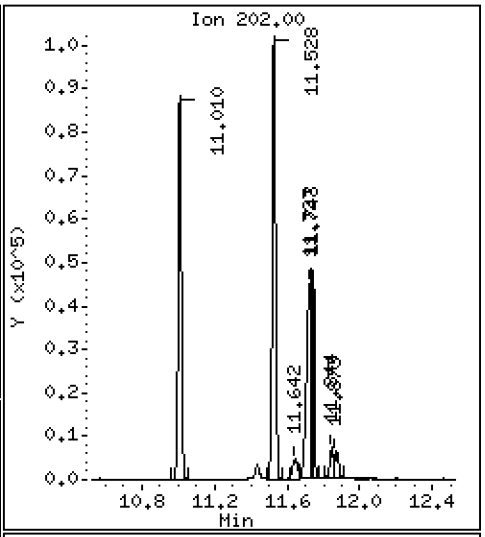
Column phase: Rxi-17sil

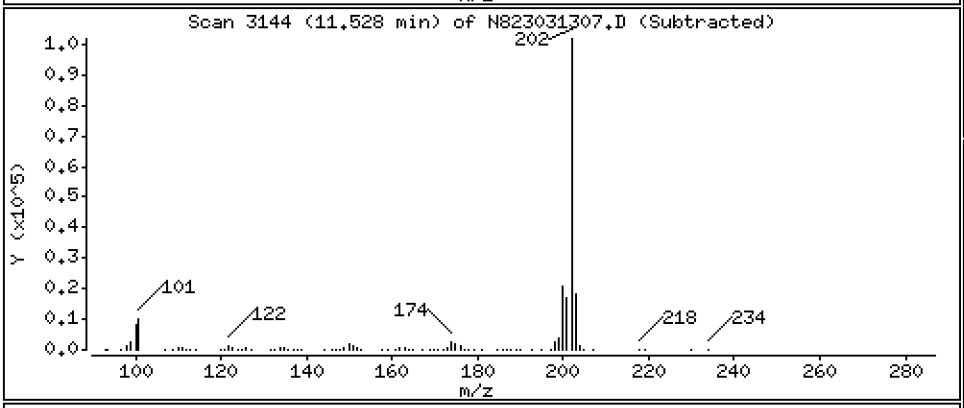
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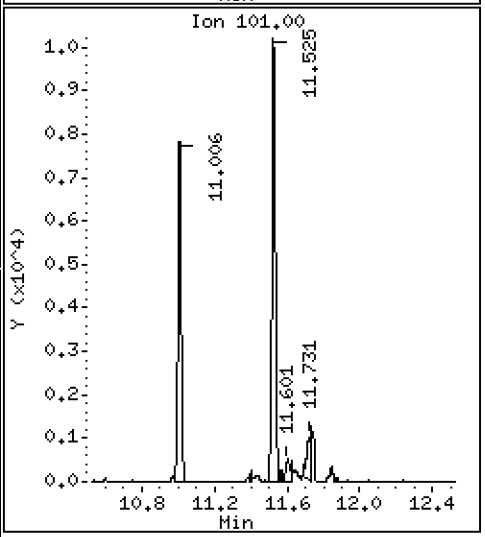
23 Pyrene

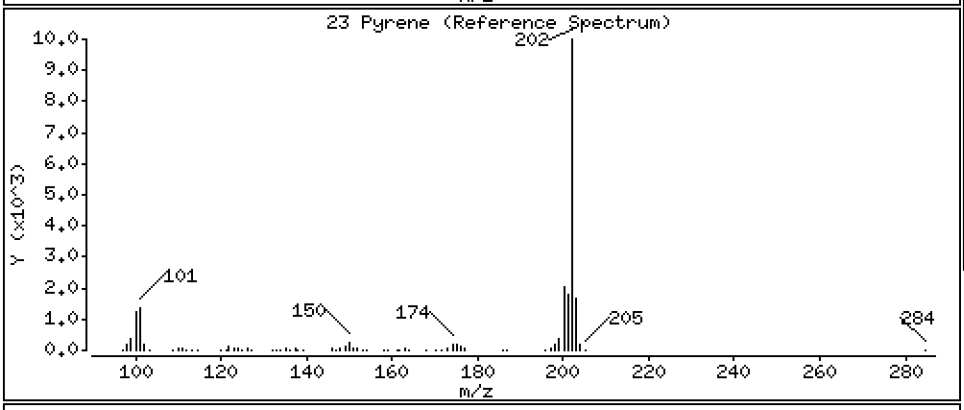
Concentration: 5.939 ug/mL

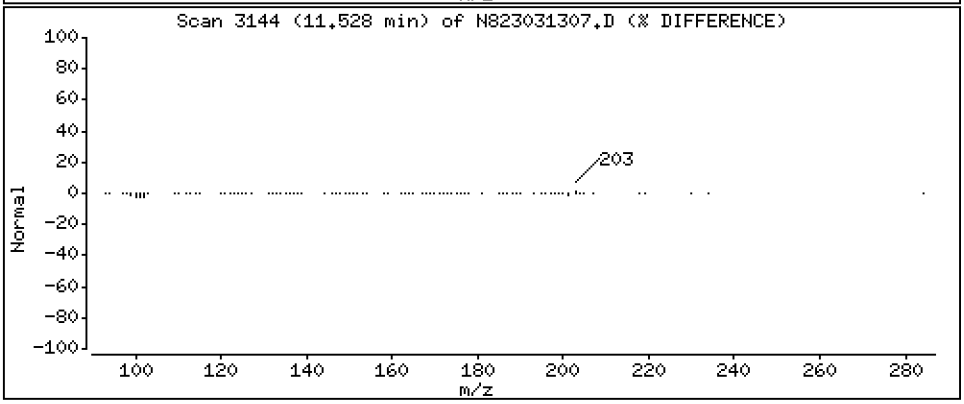












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

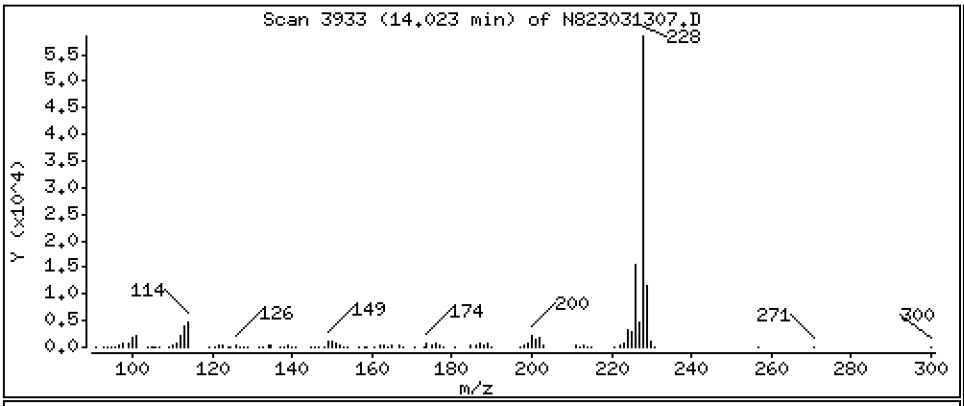
Operator: JZ

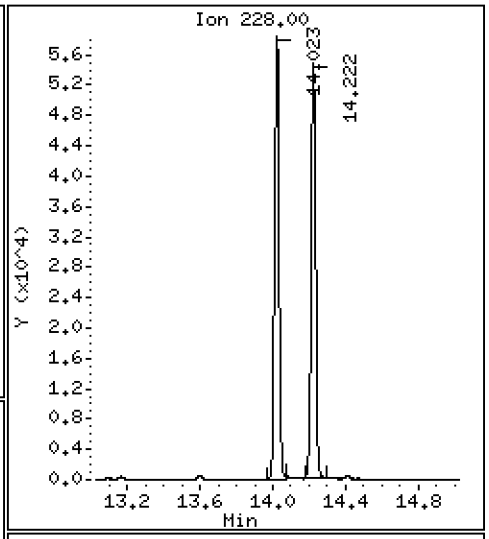
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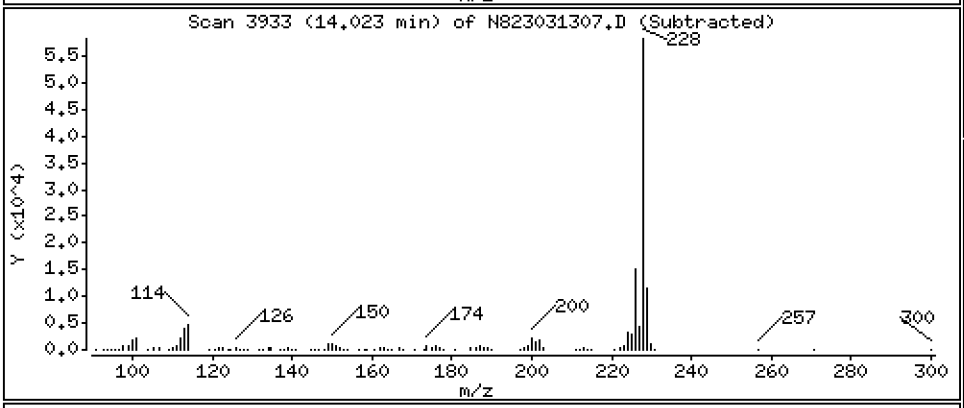
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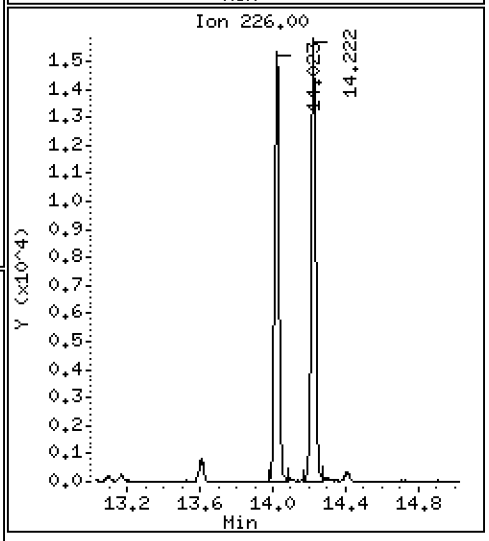
24 Benzo(a)anthracene

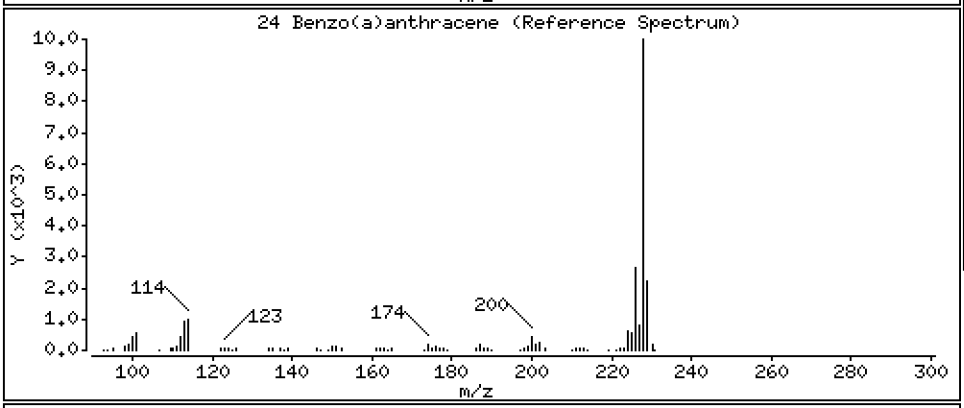
Concentration: 5.096 ug/mL

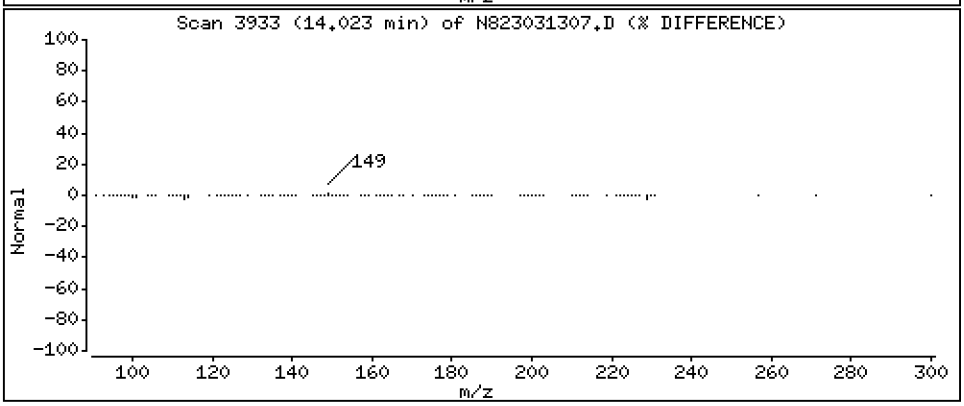












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

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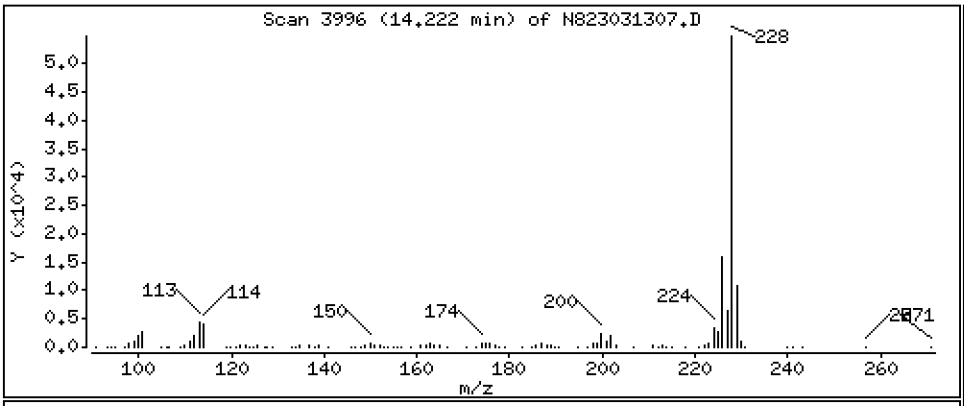
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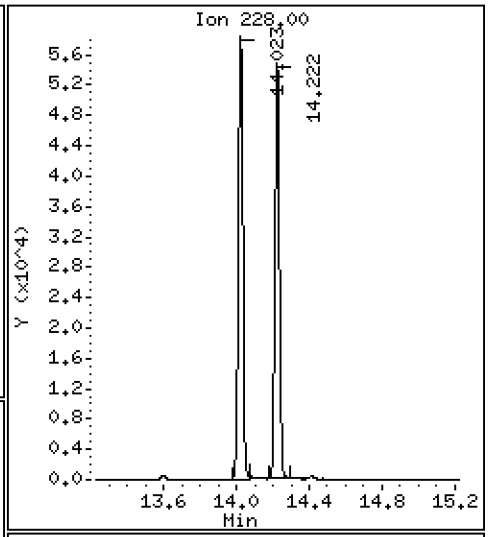
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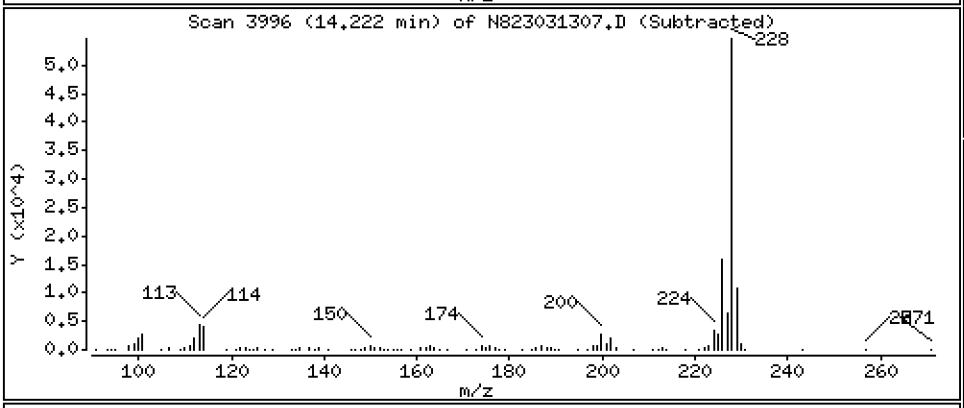
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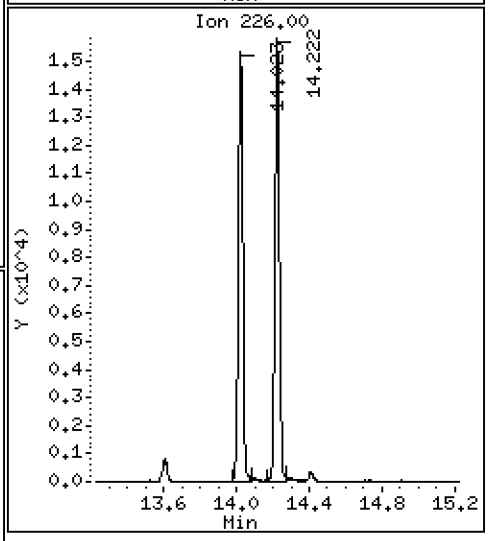
27 Chrysene

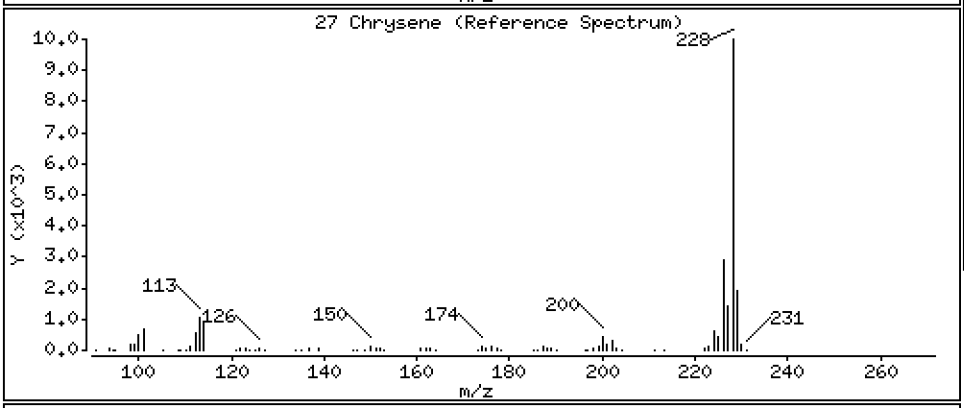
Concentration: 4.410 ug/mL

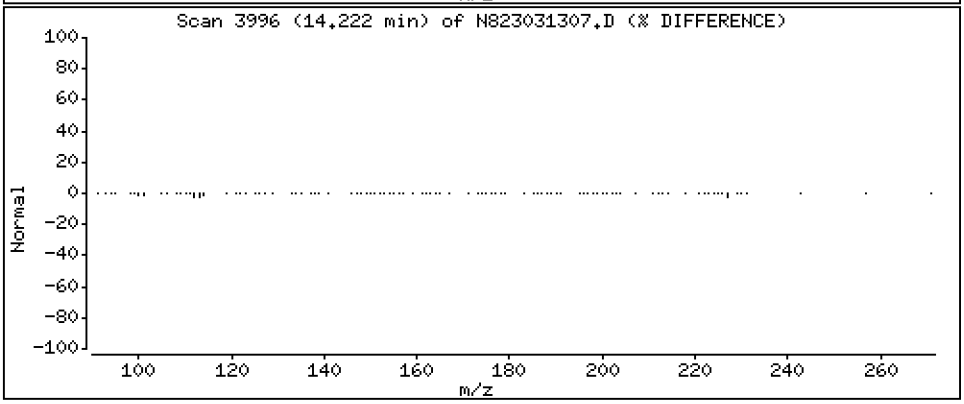












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Date : 13-MAR-2023 15:53

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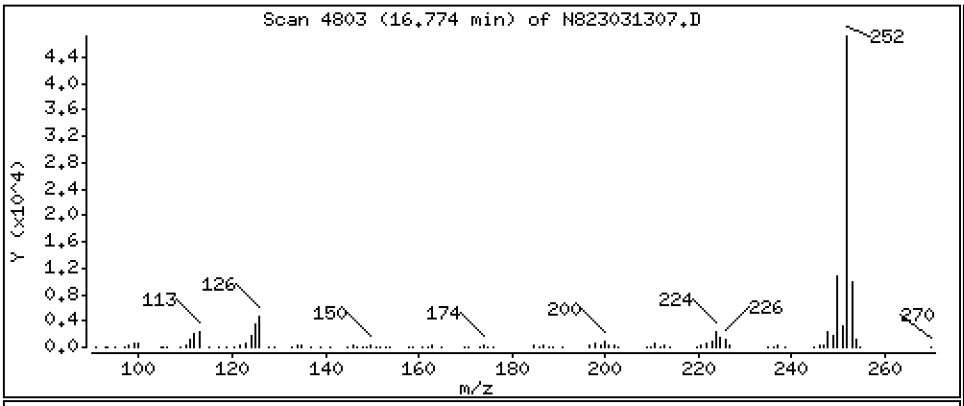
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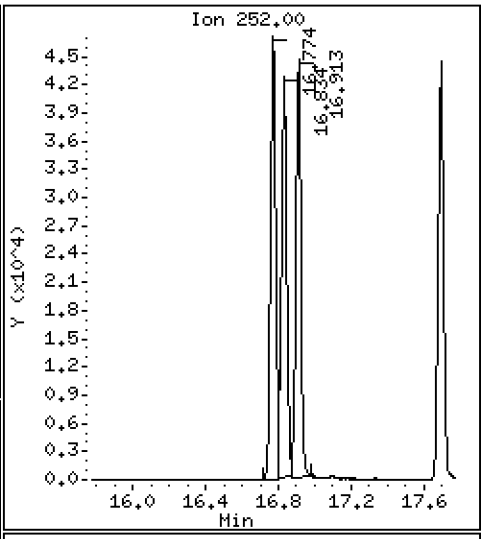
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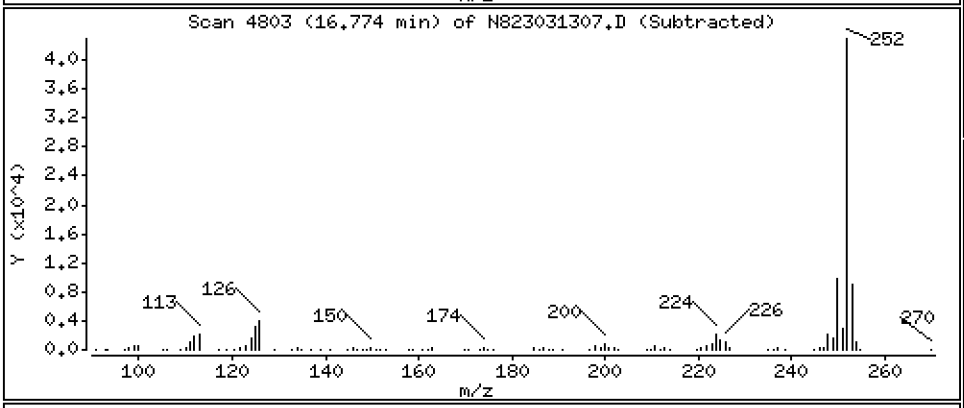
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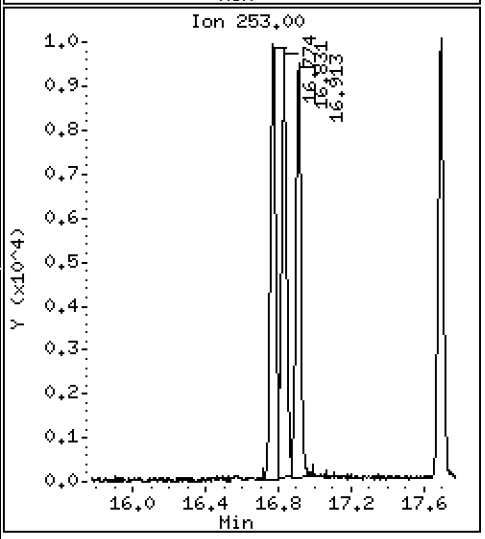
28 Benzo(b)fluoranthene

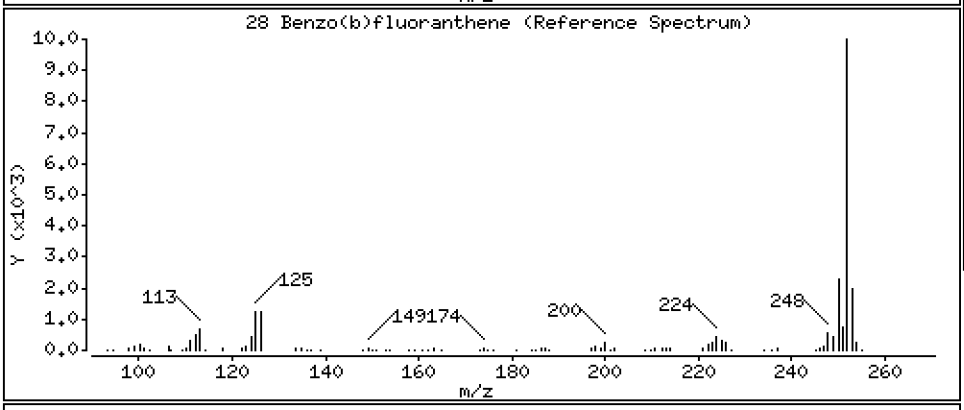
Concentration: 4.730 ug/mL

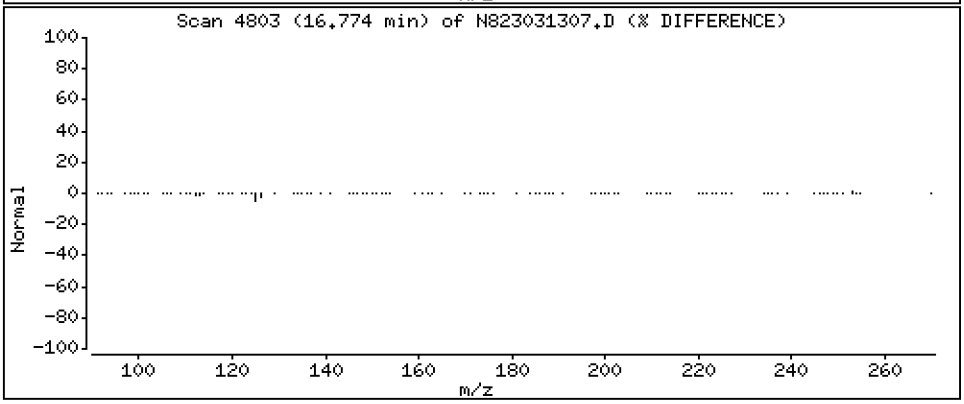












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Date : 13-MAR-2023 15:53

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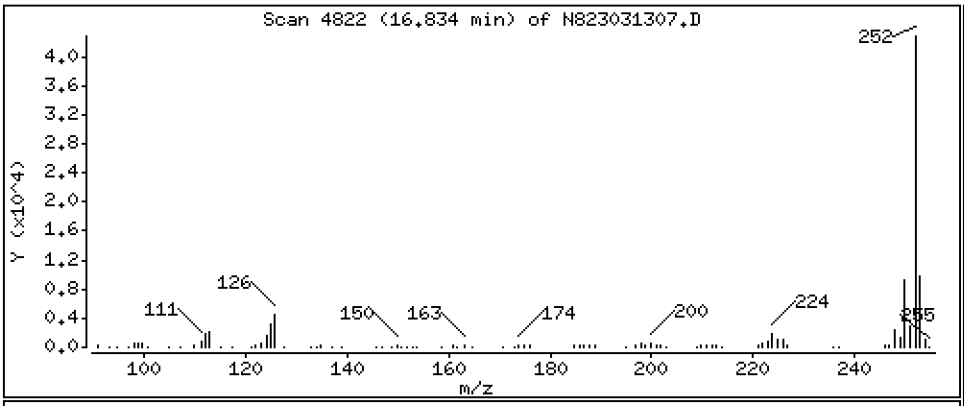
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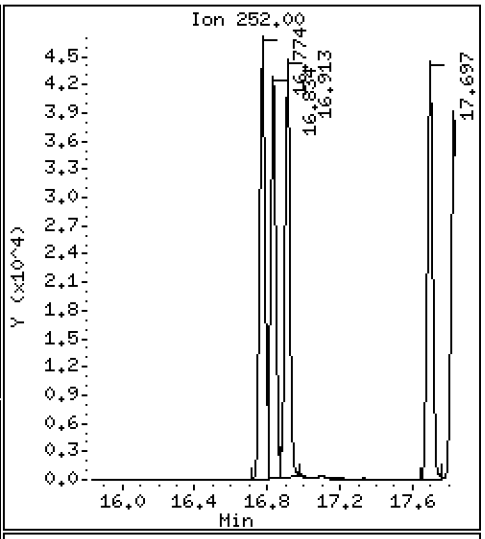
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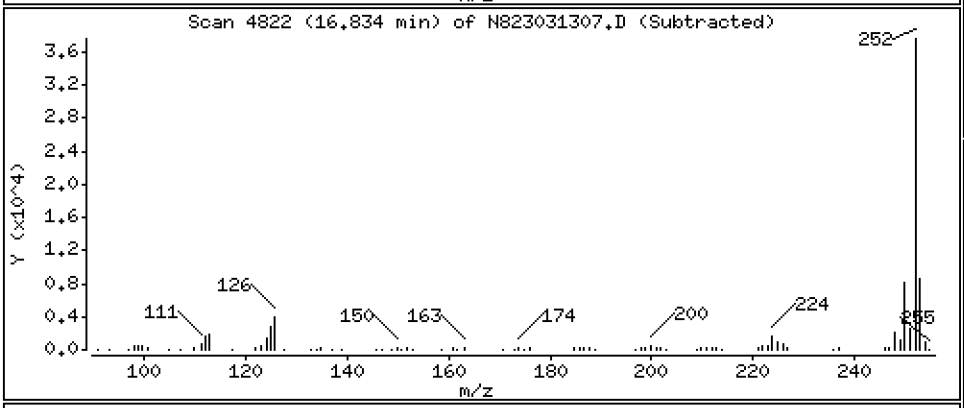
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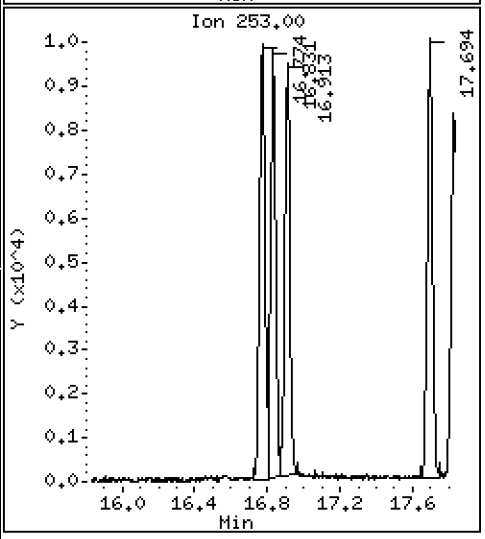
29 Benzo(k)fluoranthene

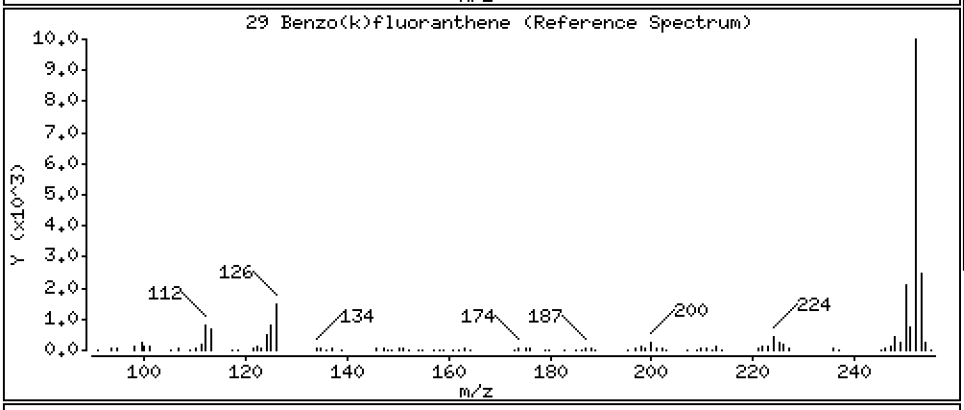
Concentration: 4.410 ug/mL

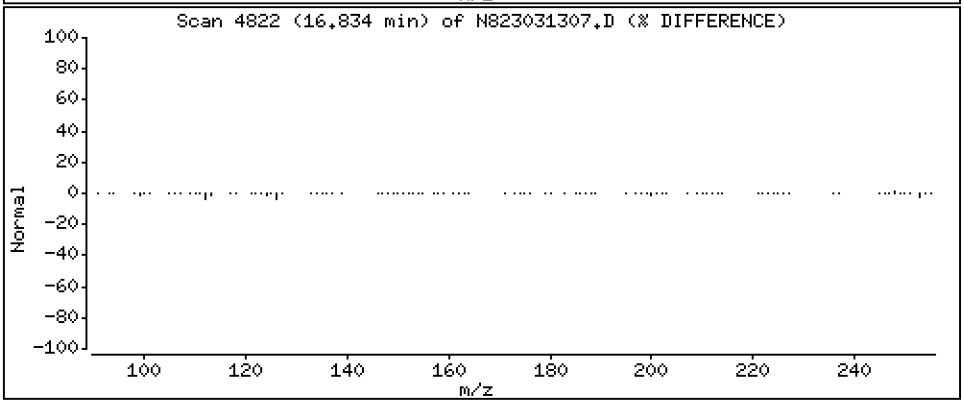












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Client ID:

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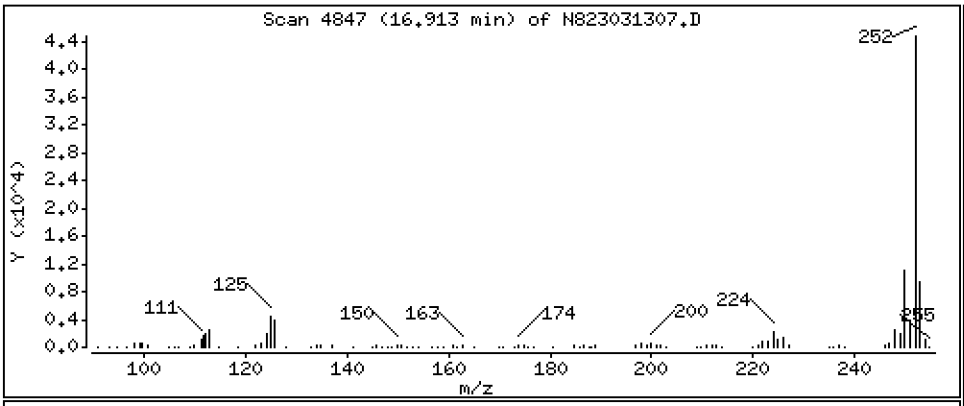
Operator: JZ

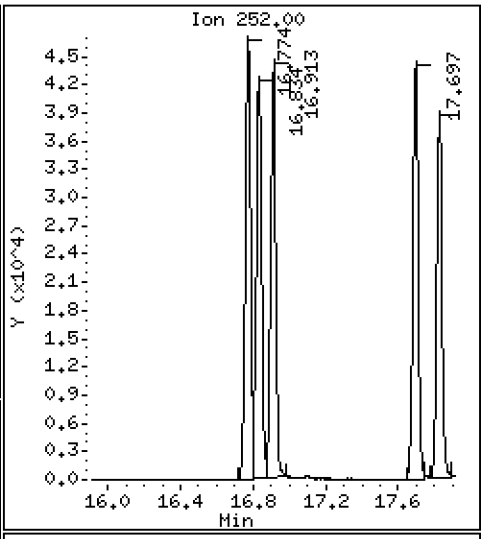
Column phase: Rxi-17sil

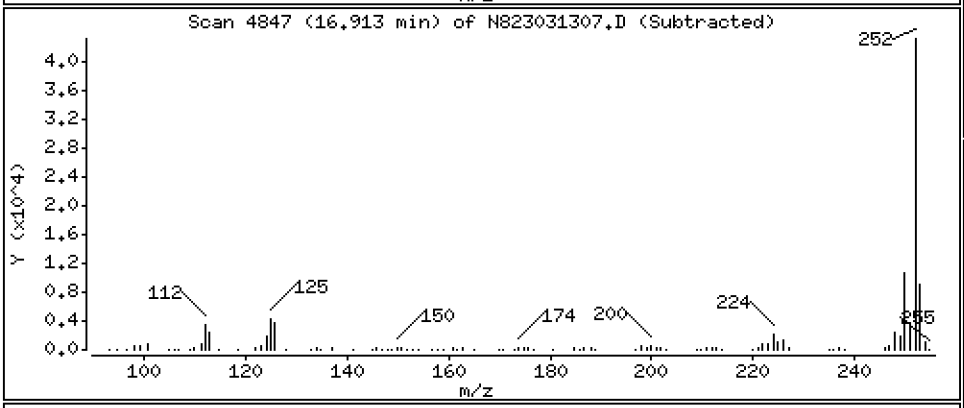
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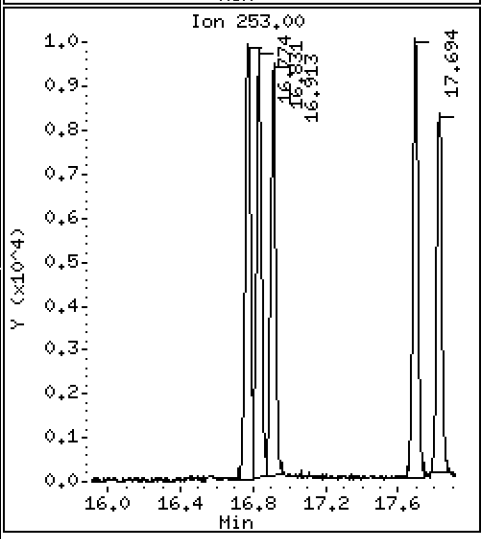
30 Benzo(j)fluoranthene

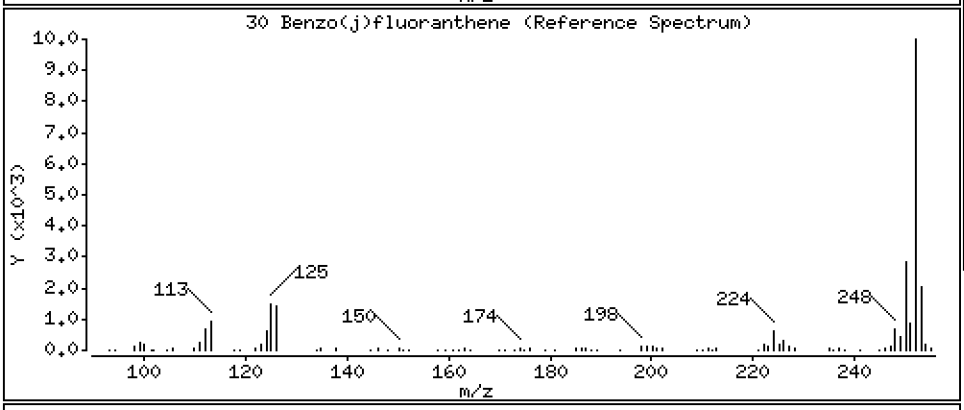
Concentration: 4.723 ug/mL

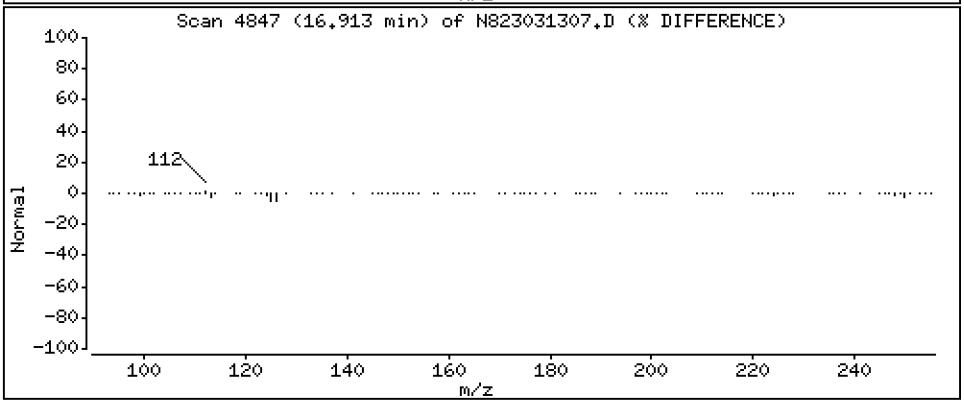












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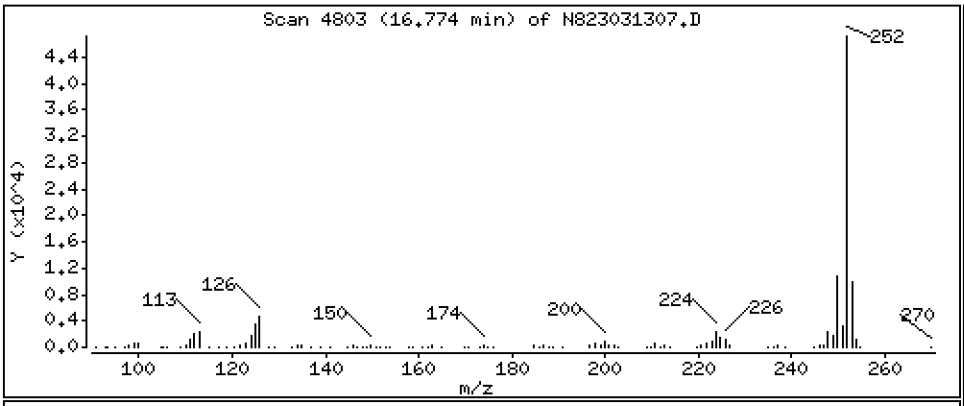
Operator: JZ

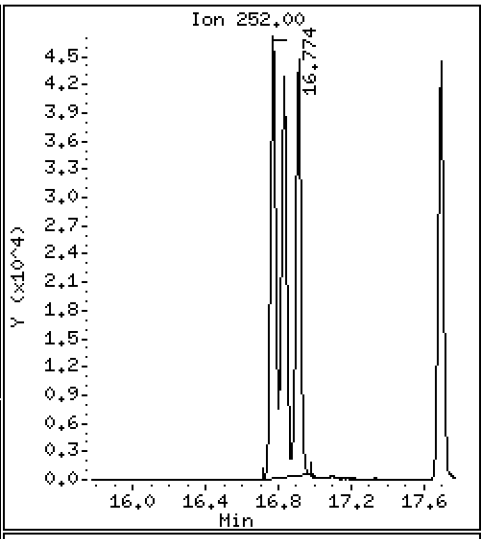
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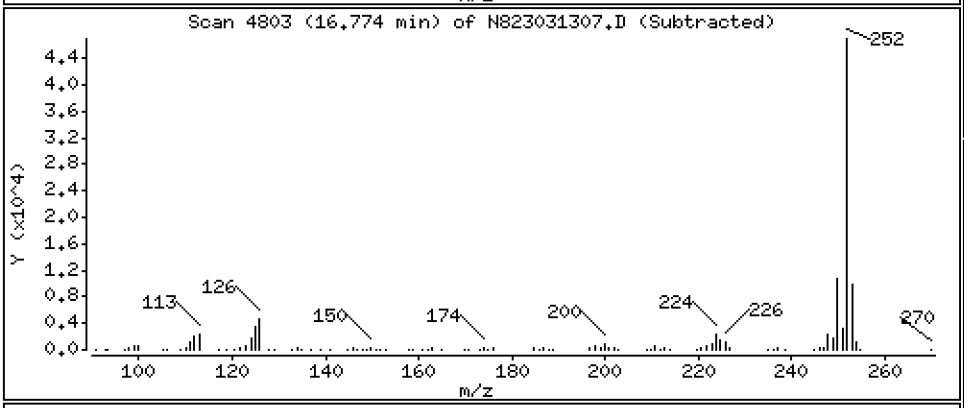
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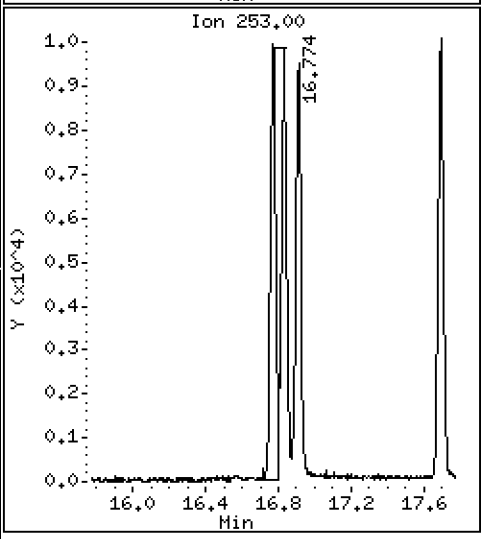
31 Total Benzofluoranthenes

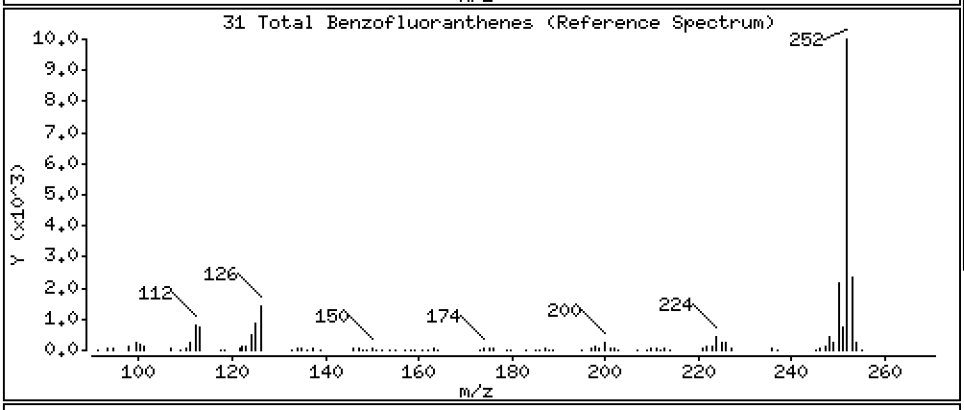
Concentration: 13.81 ug/mL

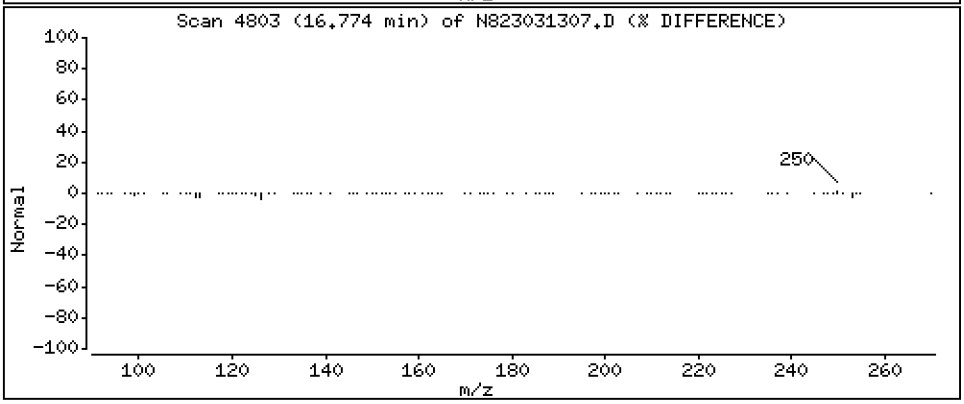












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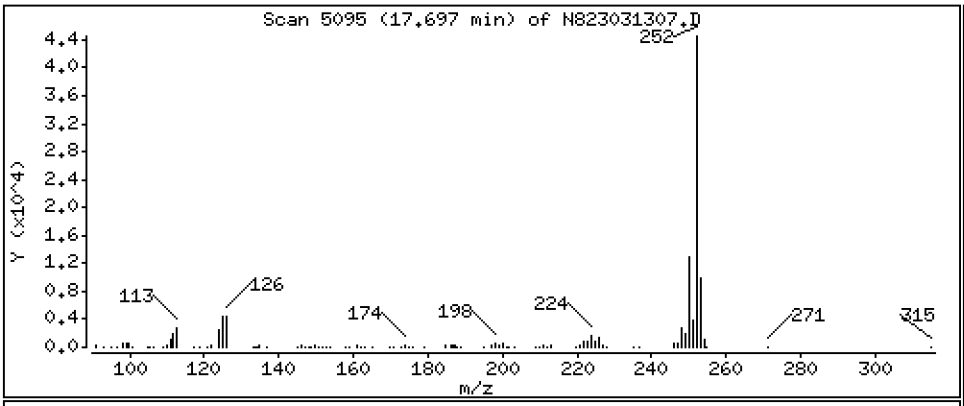
Operator: JZ

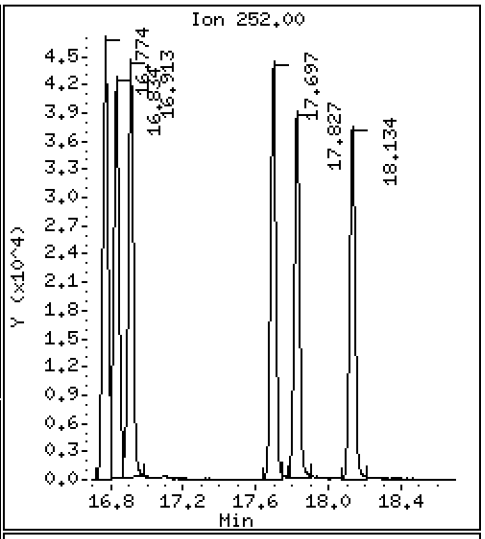
Column phase: Rxi-17sil

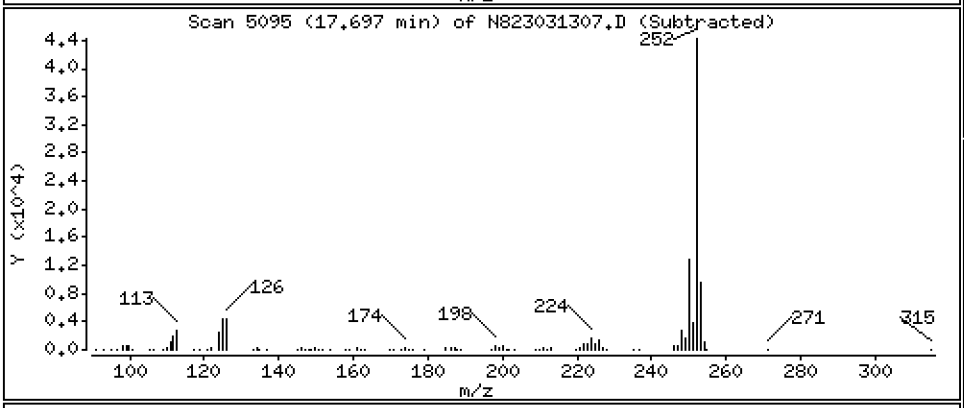
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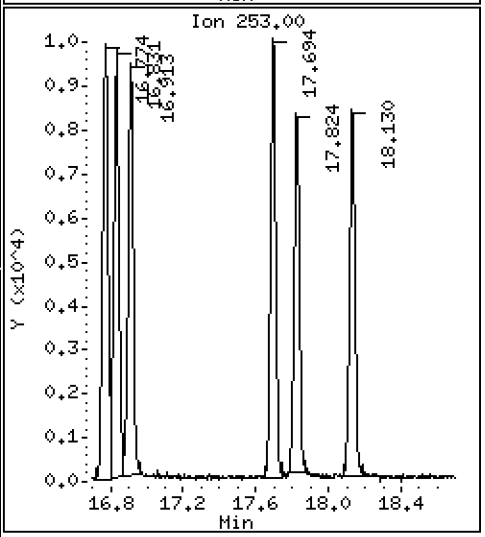
34 Benzo(e)pyrene

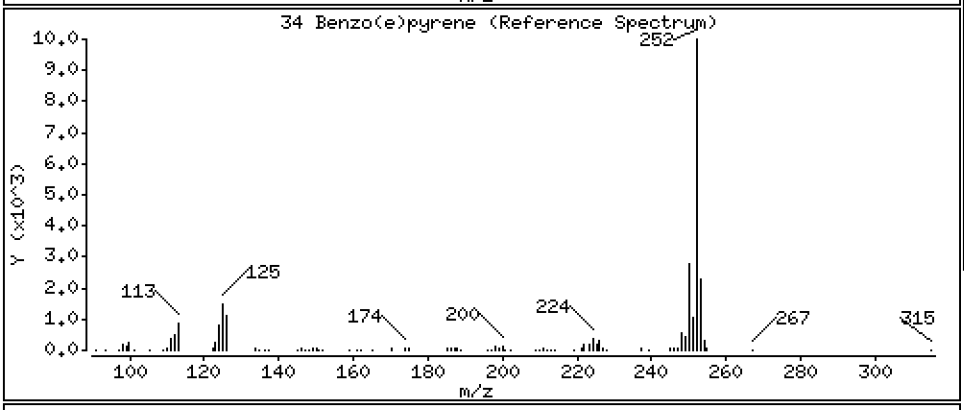
Concentration: 4.459 ug/mL

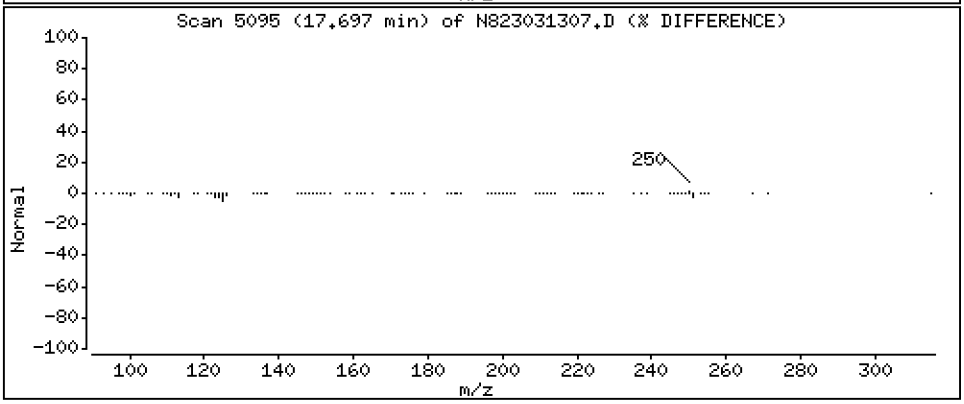












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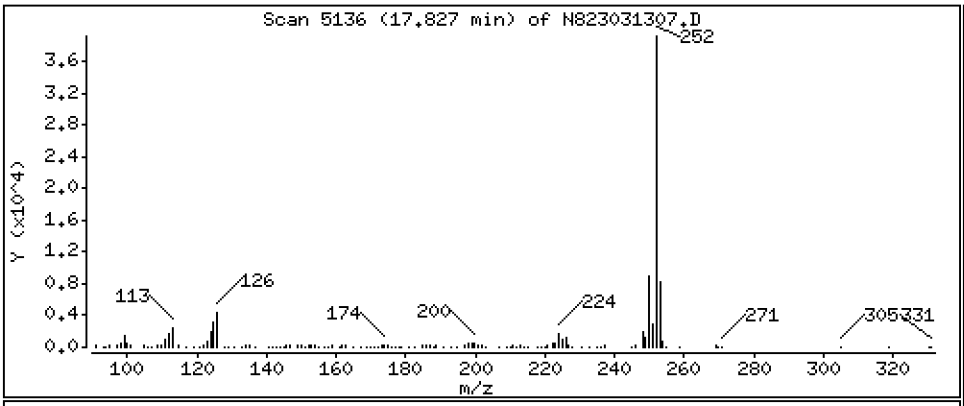
Operator: JZ

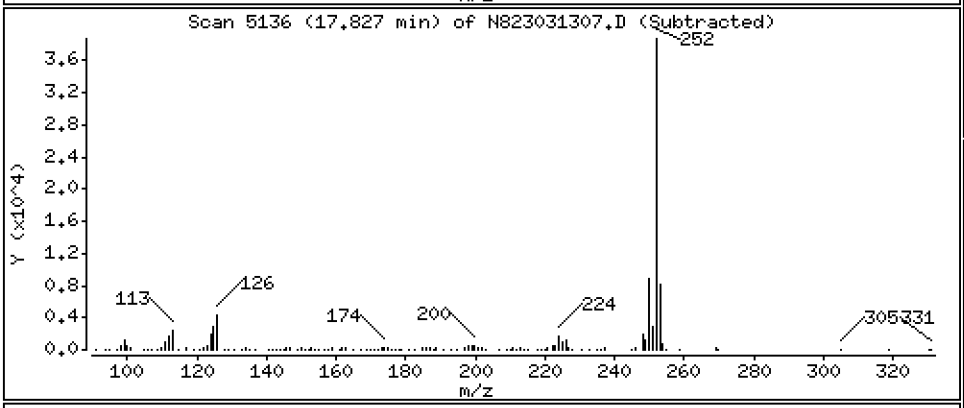
Column phase: Rxi-17sil

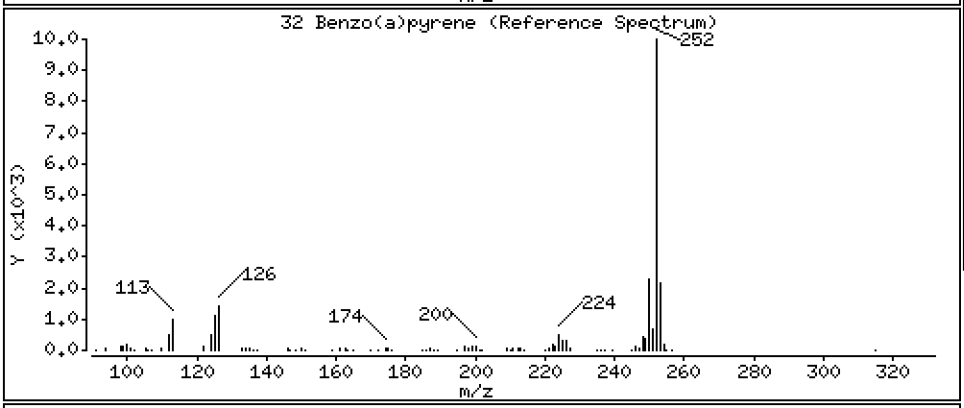
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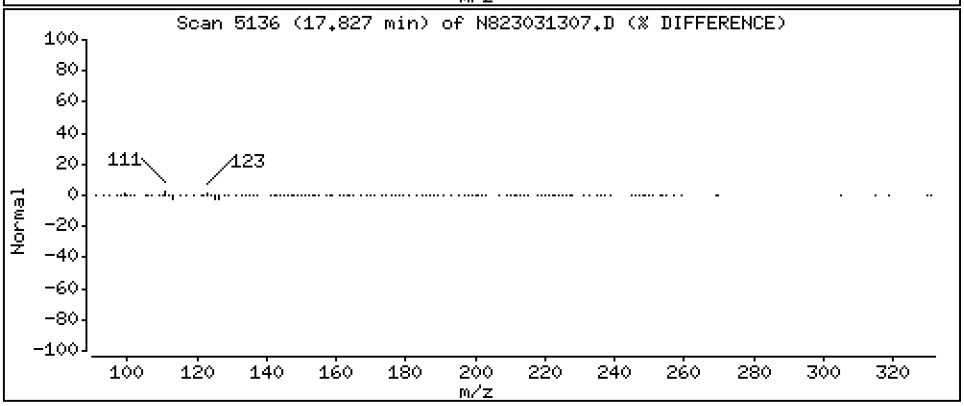
32 Benzo(a)pyrene

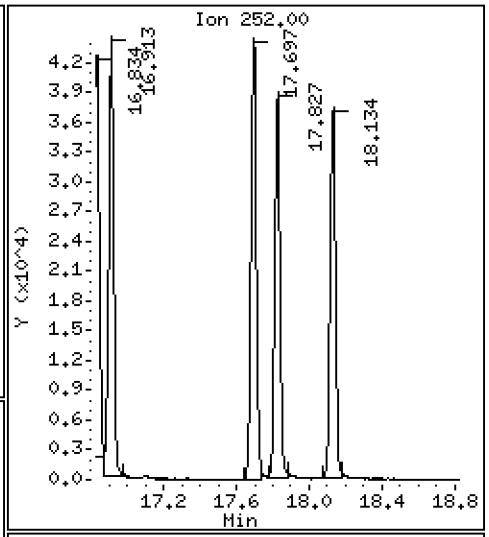
Concentration: 4.386 ug/mL

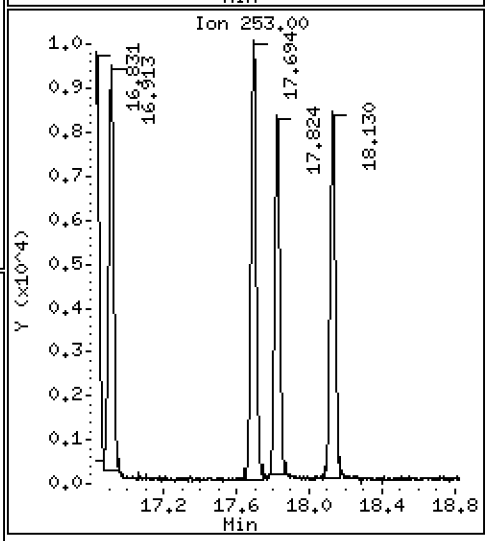












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Date : 13-MAR-2023 15:53

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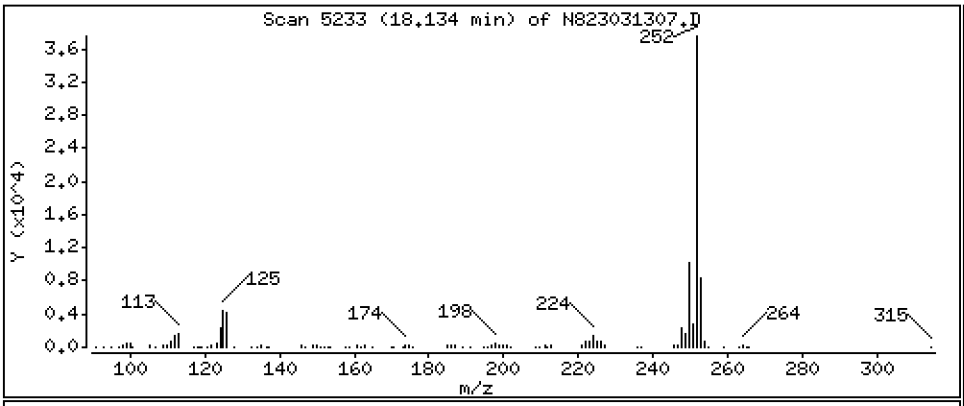
Operator: JZ

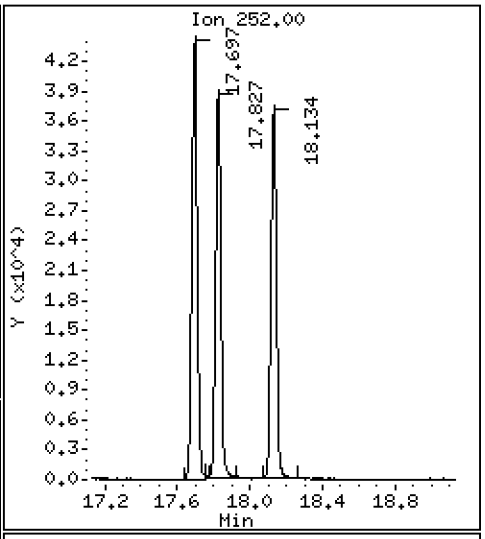
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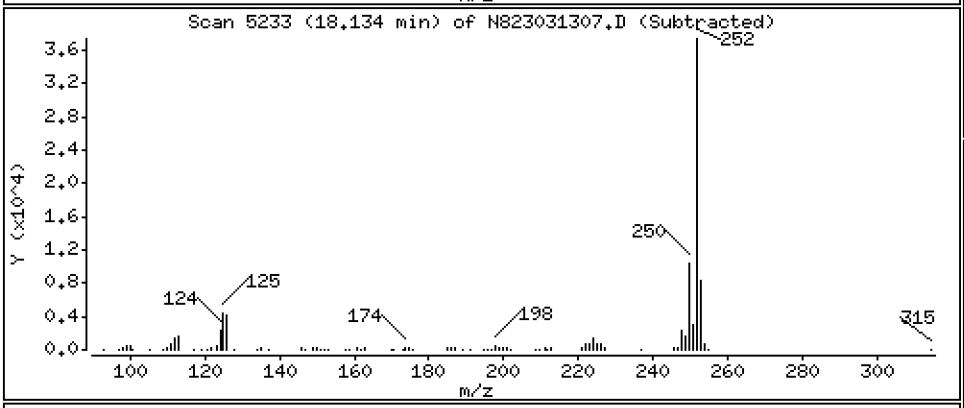
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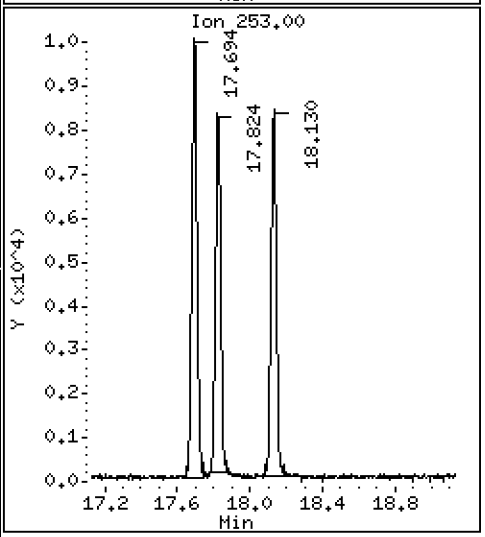
35 Perylene

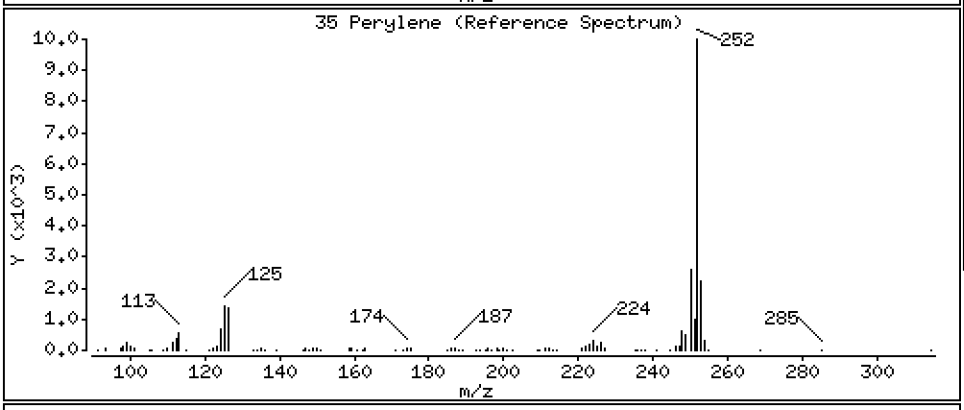
Concentration: 4.208 ug/mL

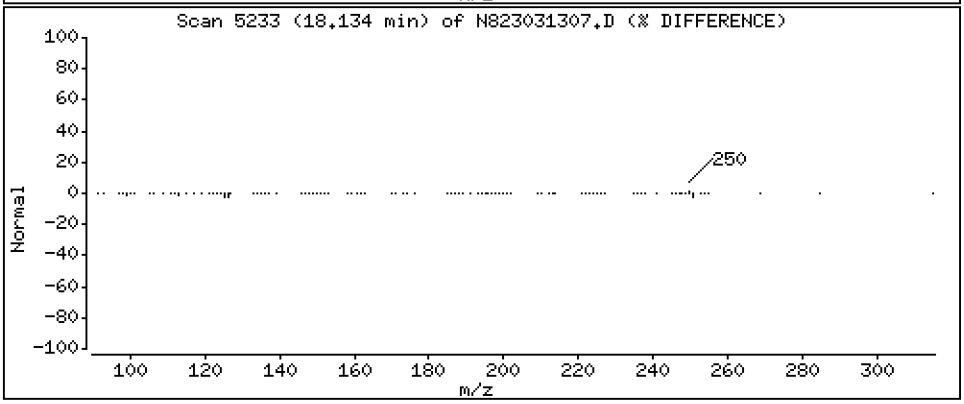












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031307.D

Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

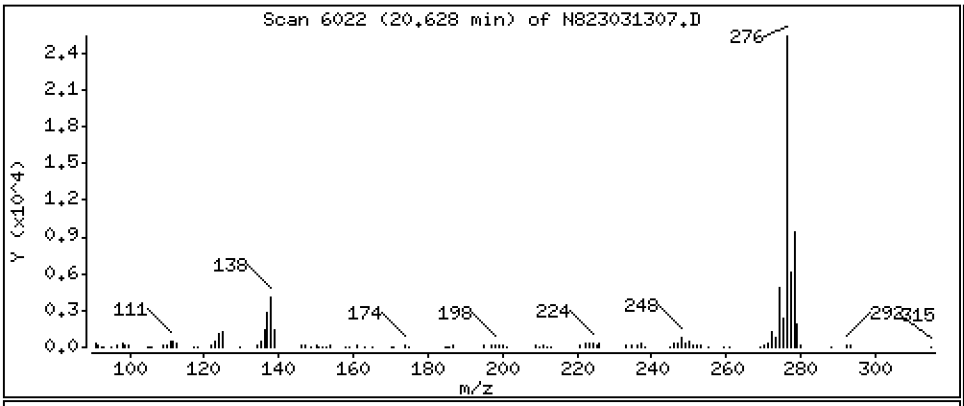
Operator: JZ

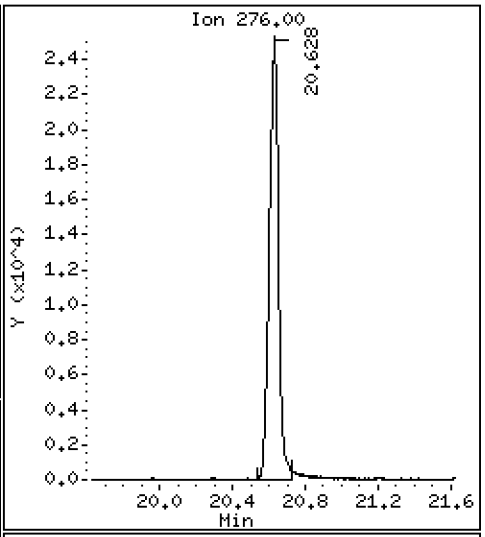
Column phase: Rxi-17sil

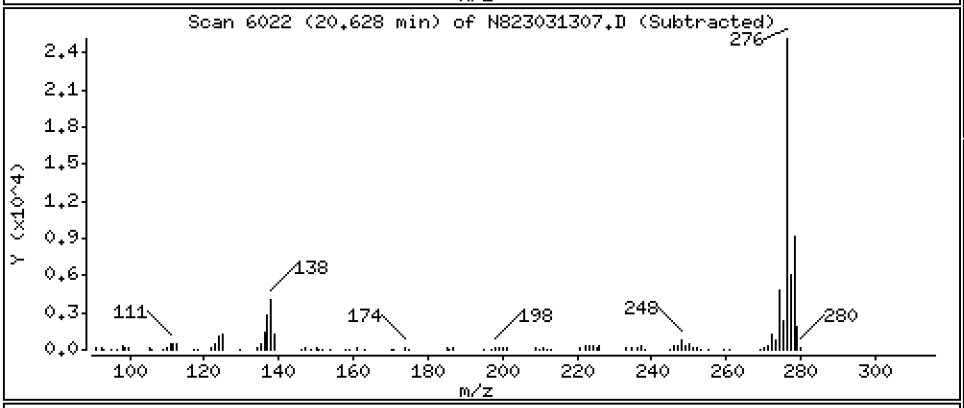
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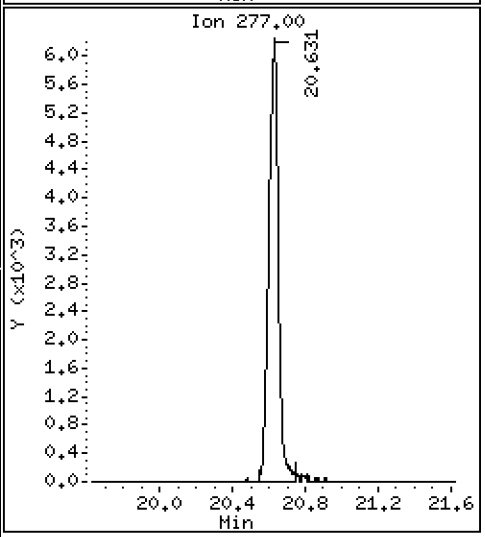
37 Indeno(1,2,3-cd)pyrene

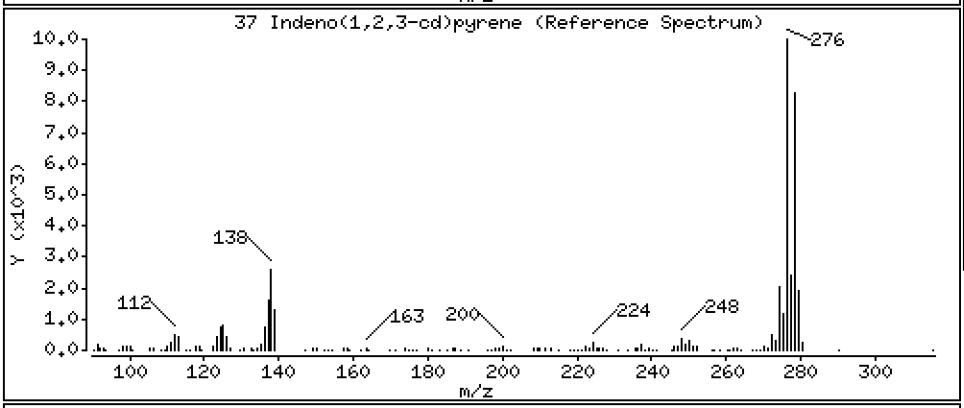
Concentration: 4.508 ug/mL

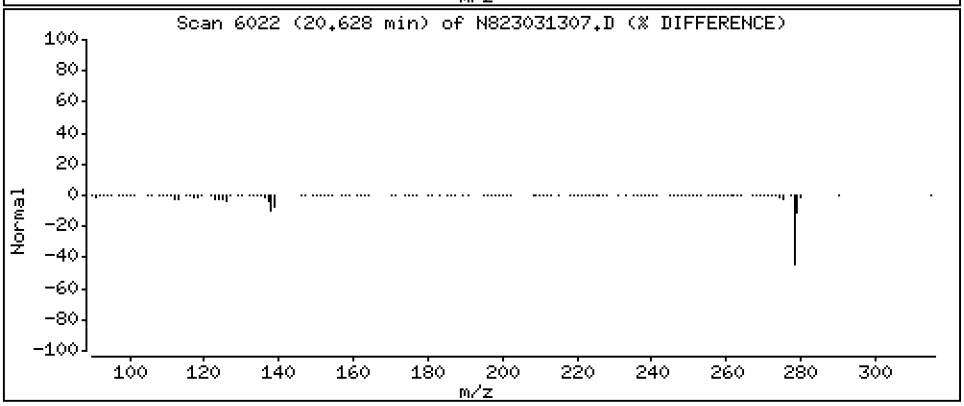












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

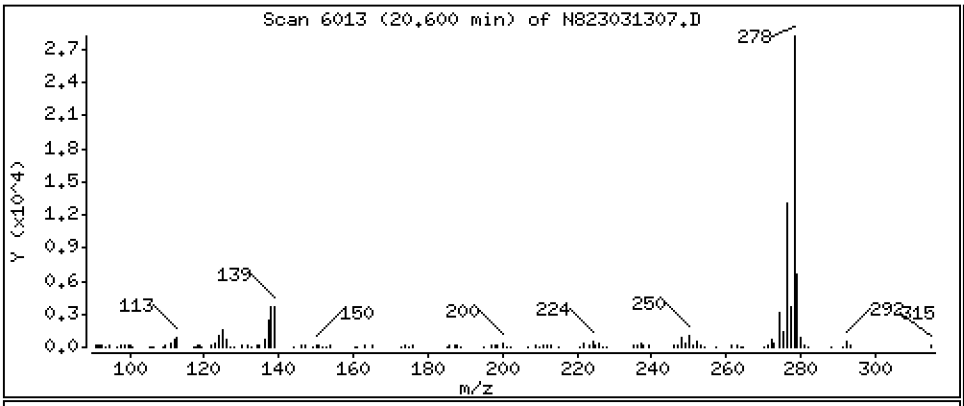
Operator: JZ

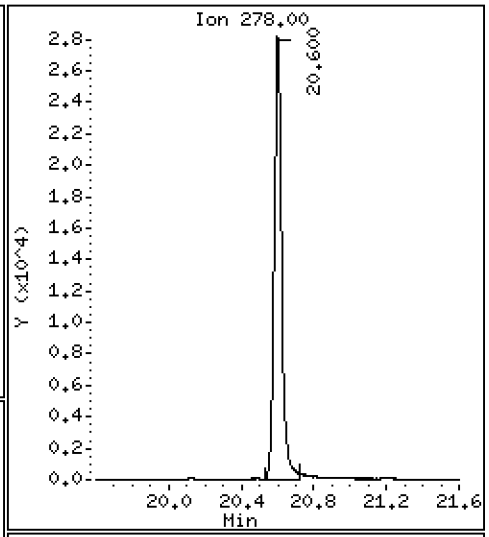
Column phase: Rxi-17sil

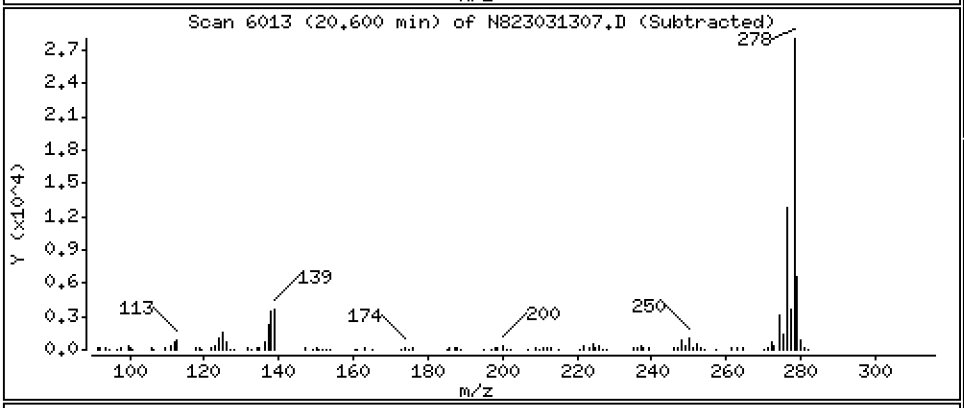
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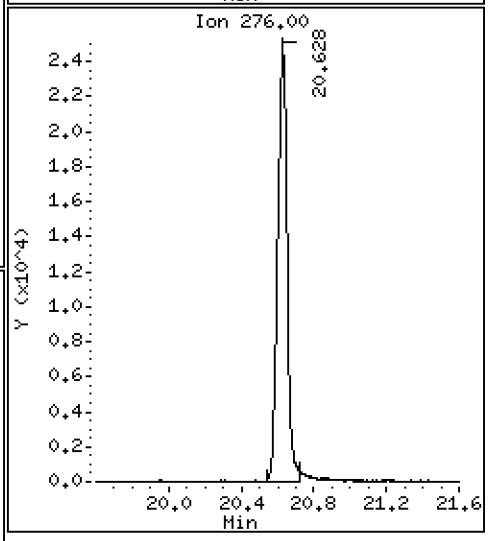
38 Dibenzo(a,h)anthracene

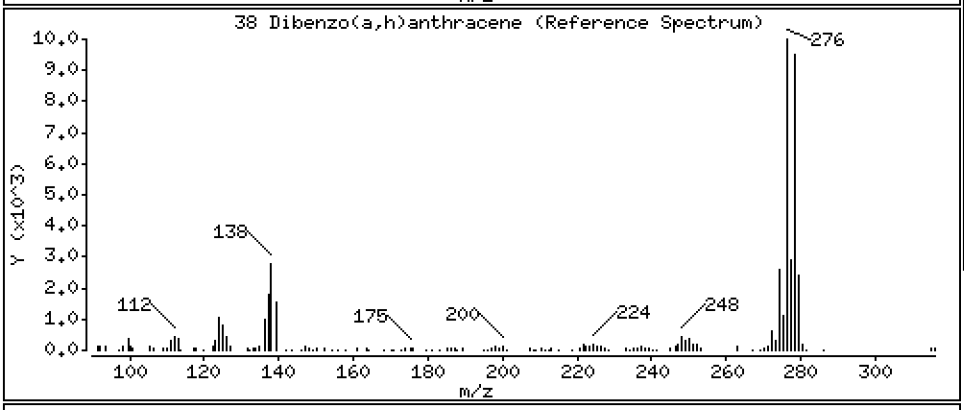
Concentration: 4.696 ug/mL

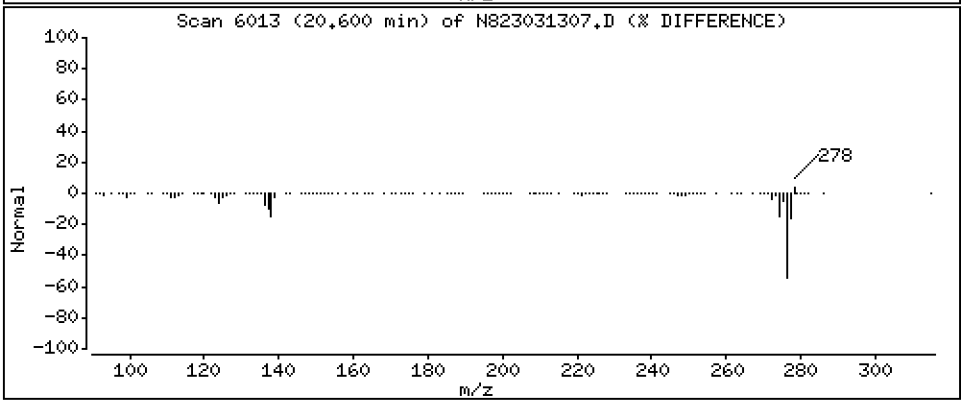












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Date : 13-MAR-2023 15:53

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MS1,

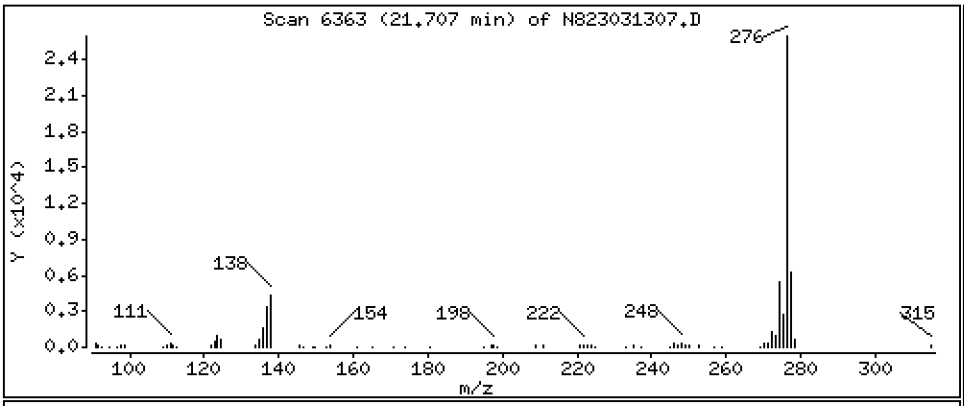
Operator: JZ

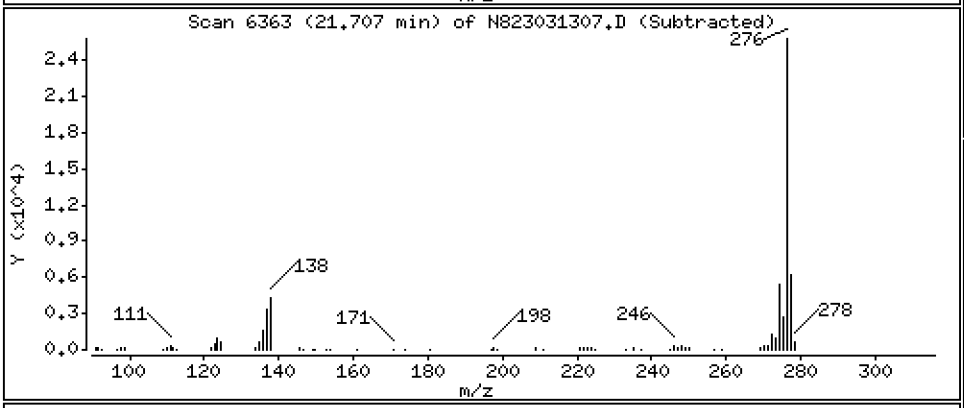
Column phase: Rxi-17sil

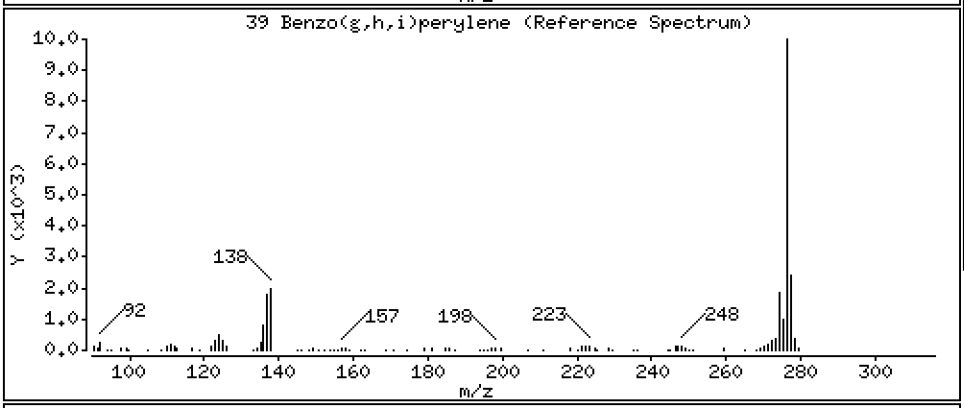
Column diameter: 0.25

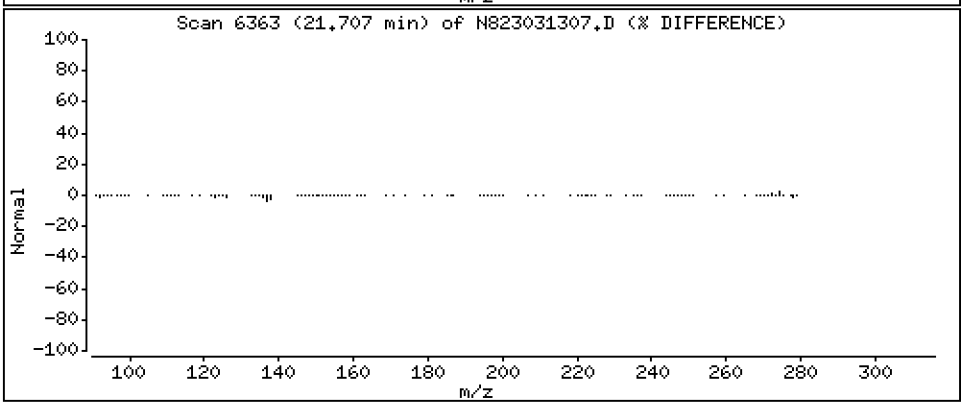
39 Benzo(g,h,i)perylene

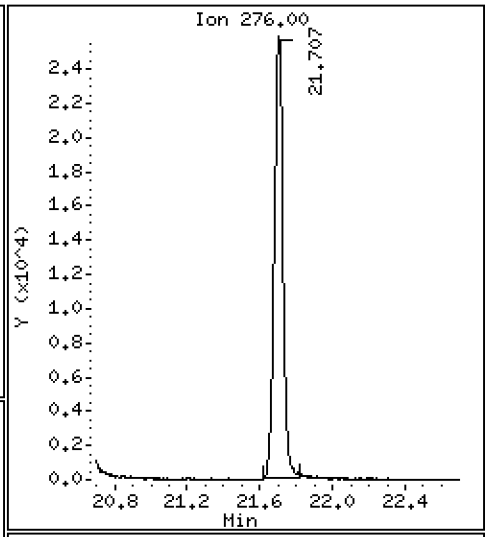
Concentration: 4.799 ug/mL

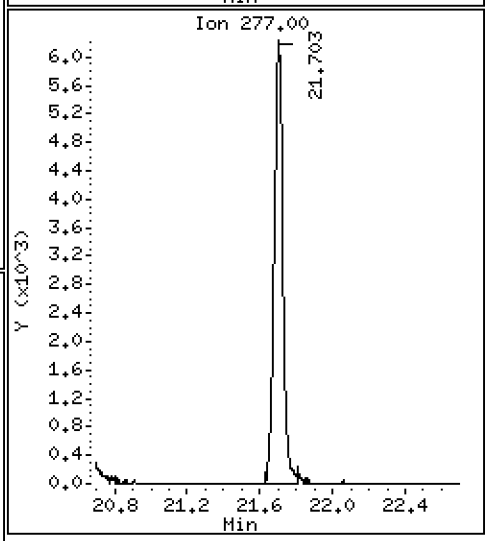












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031307.D
Lab Smp Id: BLC0106-MS1
Inj Date : 13-MAR-2023 15:53
Operator : JZ Inst ID: nt8.i
Smp Info : BLC0106-MS1,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

							CONCENTRATIONS	
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.853	4.862	(1.000)	38694	2.00000	
	2 Naphthalene	128	4.884	4.891	(1.007)	62404	3.46860	3.469
$	3 2-Methylnaphthalene-d10	152	5.593	5.599	(1.152)	26489	2.51013	2.510
	4 2-Methylnaphthalene	141	5.640	5.646	(1.162)	36739	3.71249	3.712
	5 1-methylnaphthalene	141	5.839	5.842	(1.203)	36985	3.68243	3.682
	9 Acenaphthylene	152	7.044	7.047	(0.985)	68687	3.77884	3.779
*	10 Acenaphthene-d10	164	7.151	7.155	(1.000)	24071	2.00000	
	11 Acenaphthene	153	7.202	7.205	(1.007)	44103	3.62126	3.621
	12 Dibenzofuran	168	7.354	7.357	(1.028)	68760	3.71712	3.717
	14 Fluorene	166	7.831	7.838	(1.095)	58555	4.07564	4.076
*	15 Phenanthrene-d10	188	9.194	9.197	(1.000)	45490	2.00000	
	16 Phenanthrene	178	9.232	9.232	(1.004)	88402	3.97833	3.978
	17 Anthracene	178	9.273	9.273	(1.009)	83105	4.11694	4.117
	19 Carbazole	167	9.789	9.792	(1.065)	80251	4.33659	4.337
	22 Fluoranthene	202	11.009	11.009	(1.197)	107923	4.46191	4.462
$	21 Fluoranthene-d10	212	10.971	10.971	(1.193)	62567	3.11744	3.117
	23 Pyrene	202	11.528	11.524	(0.815)	128647	5.93944	5.939
	24 Benzo(a)anthracene	228	14.022	14.025	(0.991)	100036	5.09555	5.096
*	25 Chrysene-d12	240	14.149	14.152	(1.000)	34936	2.00000	
	27 Chrysene	228	14.222	14.225	(1.005)	92162	4.40981	4.410
	28 Benzo(b)fluoranthene	252	16.773	16.773	(0.929)	95059	4.73040	4.730
	29 Benzo(k)fluoranthene	252	16.833	16.833	(0.932)	86810	4.41031	4.410
	30 Benzo(j)fluoranthene	252	16.912	16.912	(0.937)	83683	4.72259	4.723
	31 Total Benzofluoranthenes	252	16.773	16.773	(0.929)	262732	13.8052	13.81(M)
	34 Benzo(e)pyrene	252	17.697	17.697	(0.980)	89352	4.45892	4.459
	32 Benzo(a)pyrene	252	17.826	17.826	(0.987)	77569	4.38645	4.386
*	33 Perylene-d12	264	18.054	18.060	(1.000)	34504	2.00000	
	35 Perylene	252	18.133	18.130	(1.004)	79850	4.20784	4.208
$	36 Dibenzo(a,h)anthracene-d14	292	20.486	20.482	(1.135)	46623	3.44860	3.449
	37 Indeno(1,2,3-cd)pyrene	276	20.628	20.625	(1.143)	90822	4.50818	4.508
	38 Dibenzo(a,h)anthracene	278	20.599	20.599	(1.141)	81420	4.69624	4.696
	39 Benzo(g,h,i)perylene	276	21.706	21.696	(1.202)	87601	4.79931	4.799

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031307.D
Lab Smp Id: BLC0106-MS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	38694	-4.11
10 Acenaphthene-d10	24212	12106	48424	24071	-0.58
15 Phenanthrene-d10	46031	23016	92062	45490	-1.18
25 Chrysene-d12	38604	19302	77208	34936	-9.50
33 Perylene-d12	35963	17982	71926	34504	-4.06

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.85	-0.19
10 Acenaphthene-d10	7.16	6.66	7.66	7.15	-0.04
15 Phenanthrene-d10	9.20	8.70	9.70	9.19	-0.03
25 Chrysene-d12	14.15	13.65	14.65	14.15	-0.02
33 Perylene-d12	18.06	17.56	18.56	18.05	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031307.D

Lab ID: BLC0106-MS1
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 15:53

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

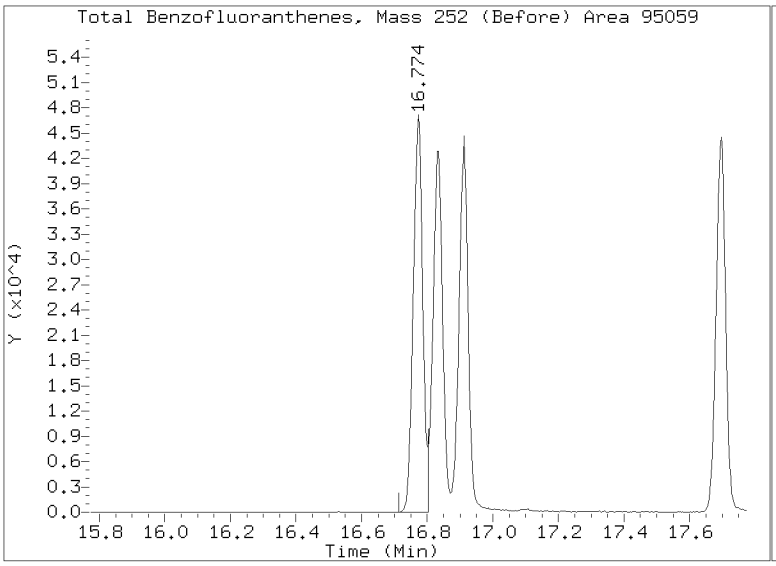
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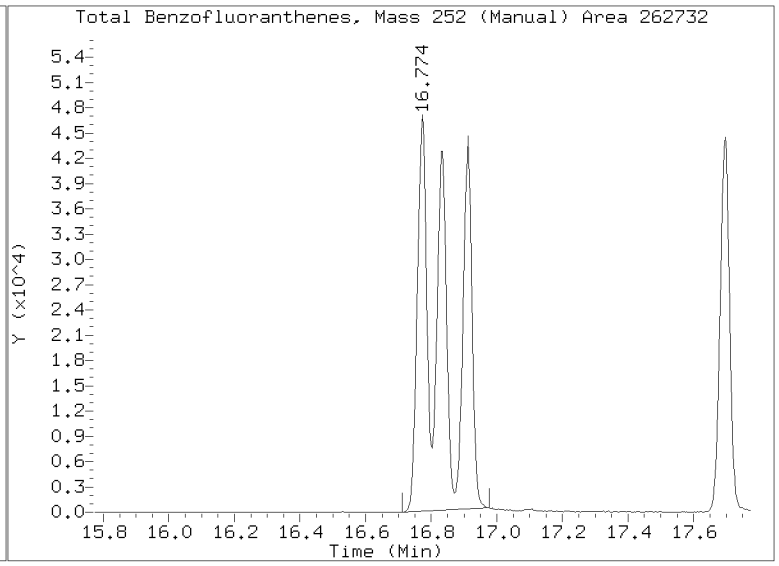
Exception: Benzo(e)pyrene 0.0800

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031307.D
Injection Date: 13-MAR-2023 15:53
Lab ID:BLC0106-MS1 Client ID:
Report Date: 03/13/2023 21:09

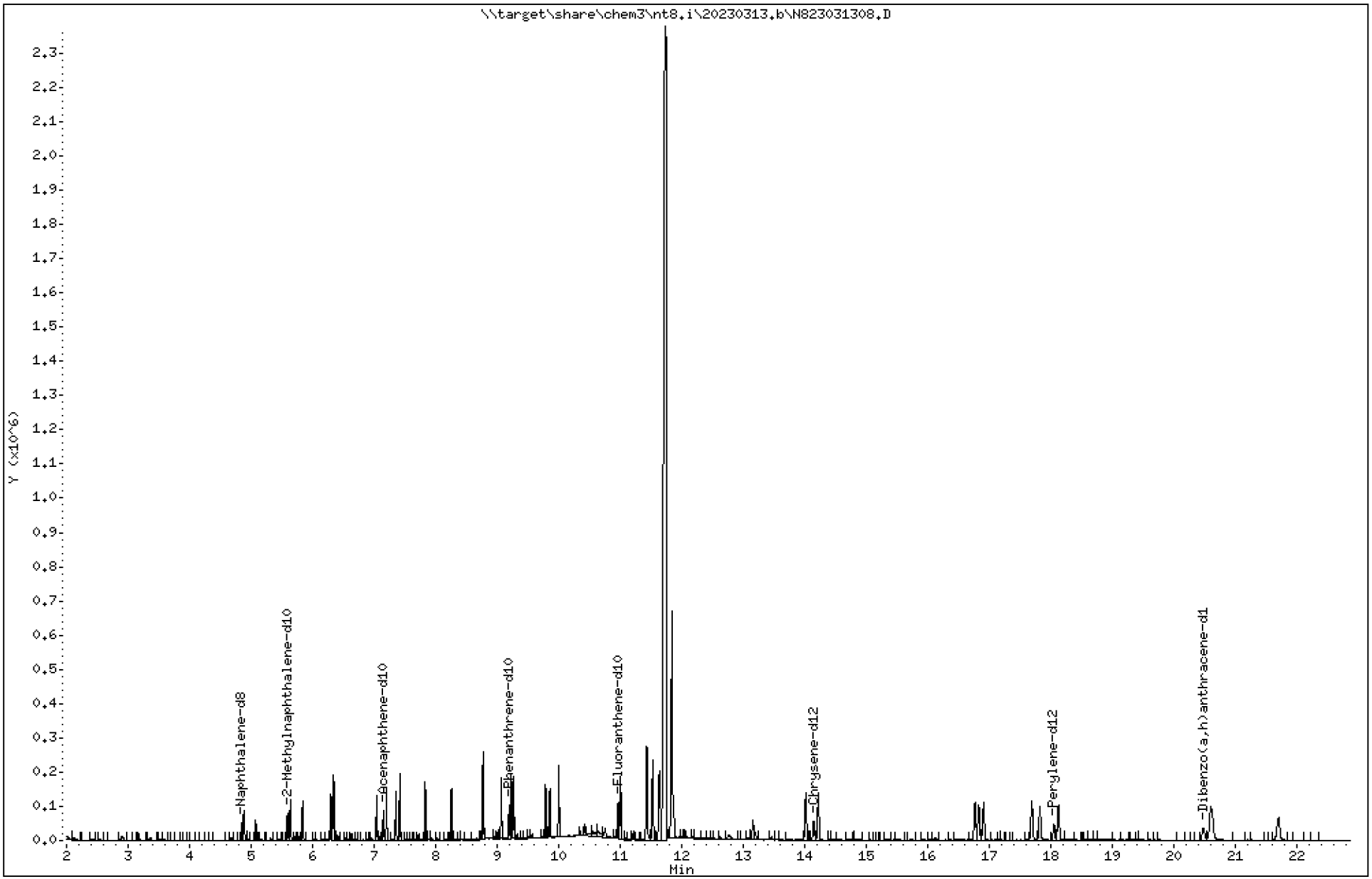




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Date : 13-MAR-2023 16:20
Client ID:
Sample Info: BLC0106-MSD1,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23C0064 03/17/2023 Page 185 of 833

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031308.D

Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MSD1,

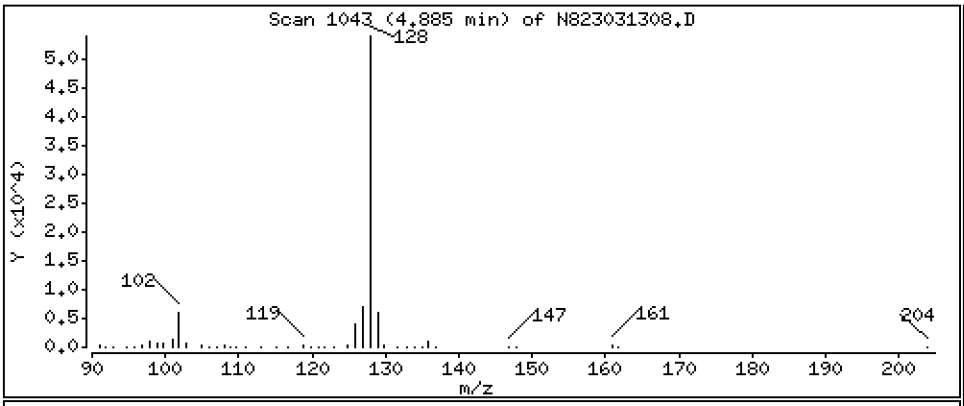
Operator: JZ

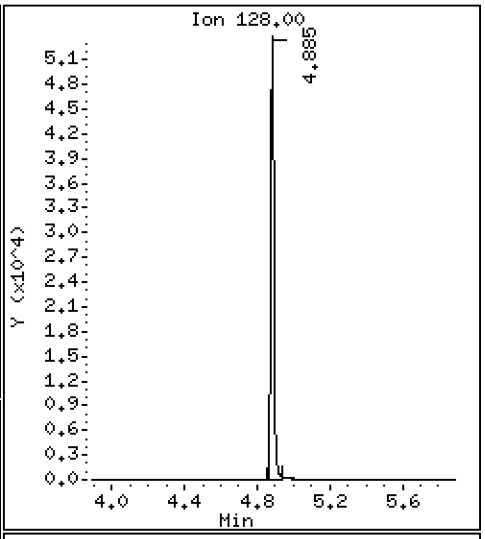
Column phase: Rxi-17sil

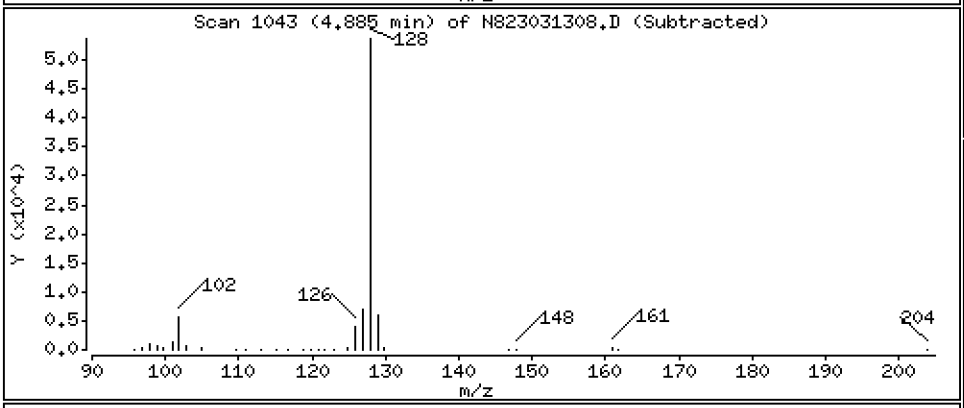
Column diameter: 0.25

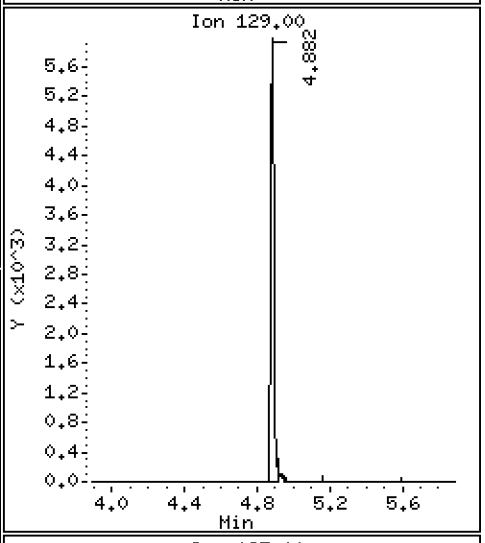
2 Naphthalene

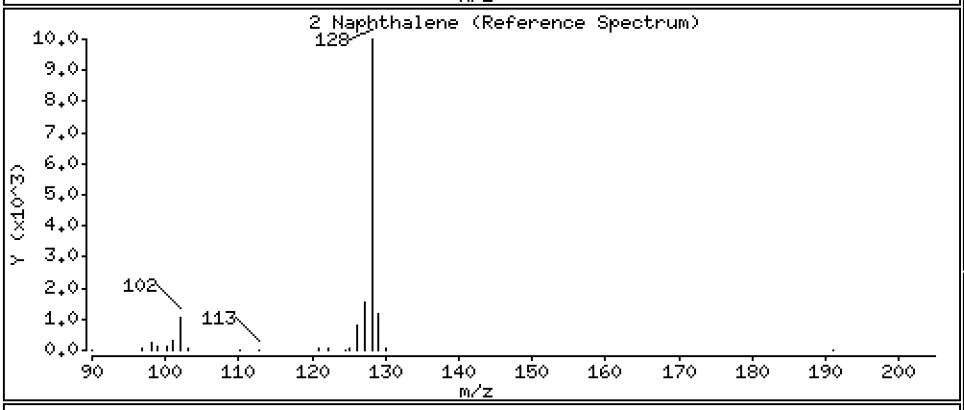
Concentration: 3.390 ug/mL

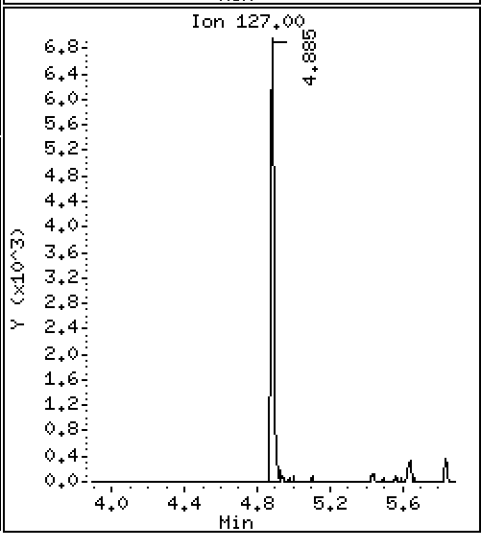


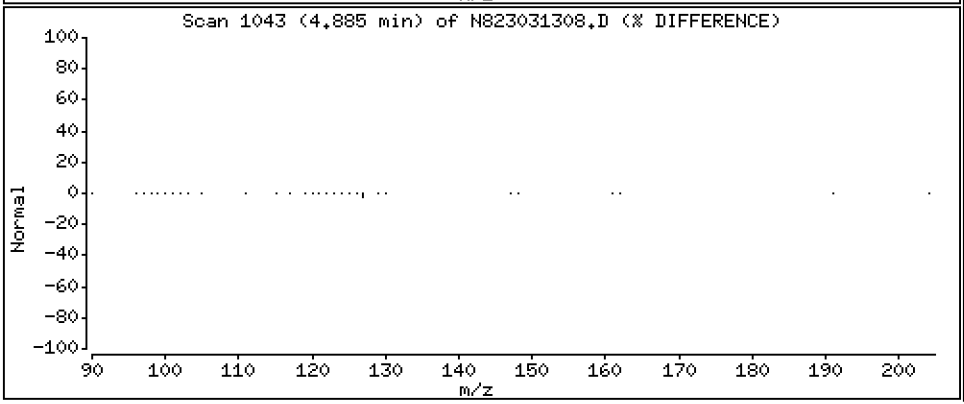












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Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

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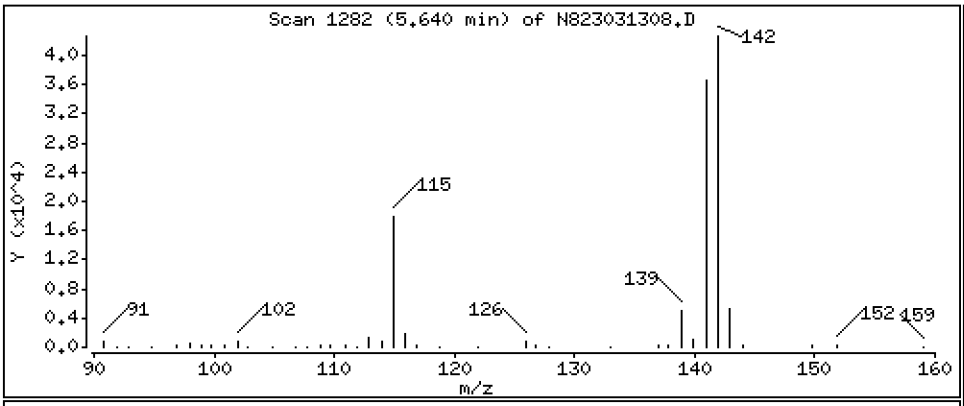
Operator: JZ

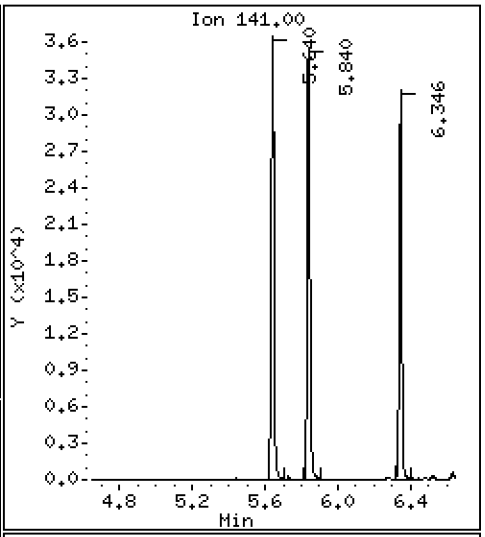
Column phase: Rxi-17sil

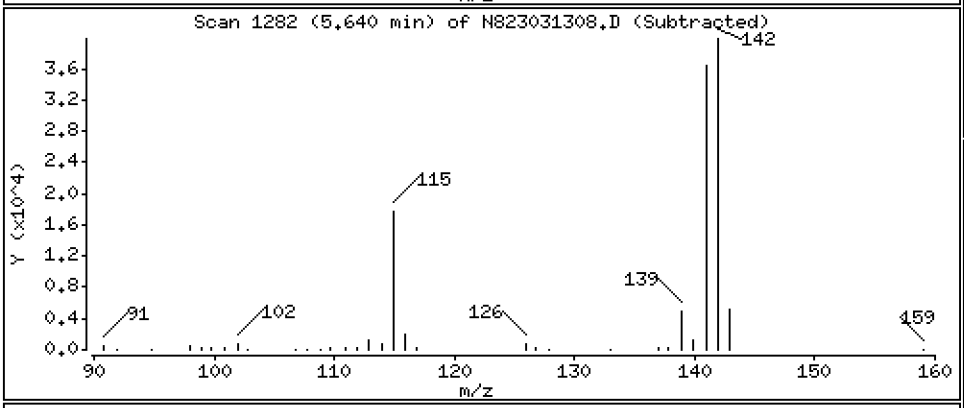
Column diameter: 0.25

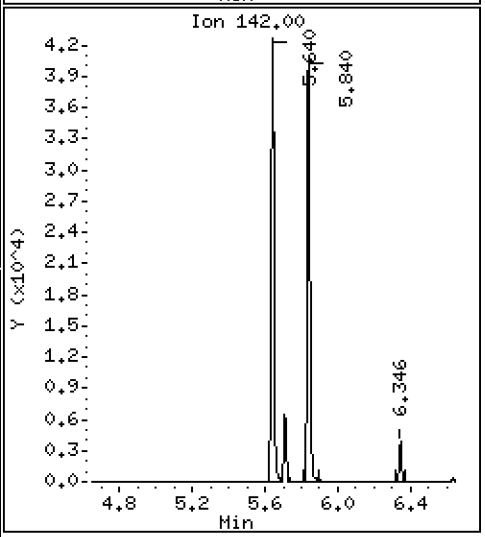
4 2-Methylnaphthalene

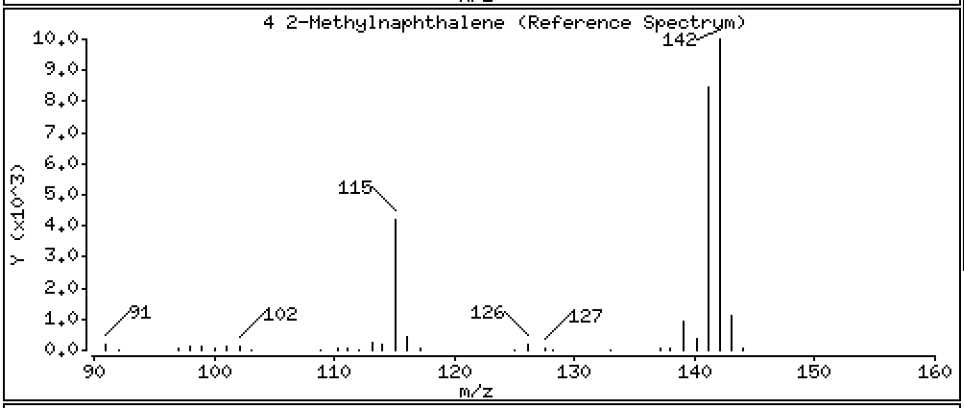
Concentration: 3.699 ug/mL

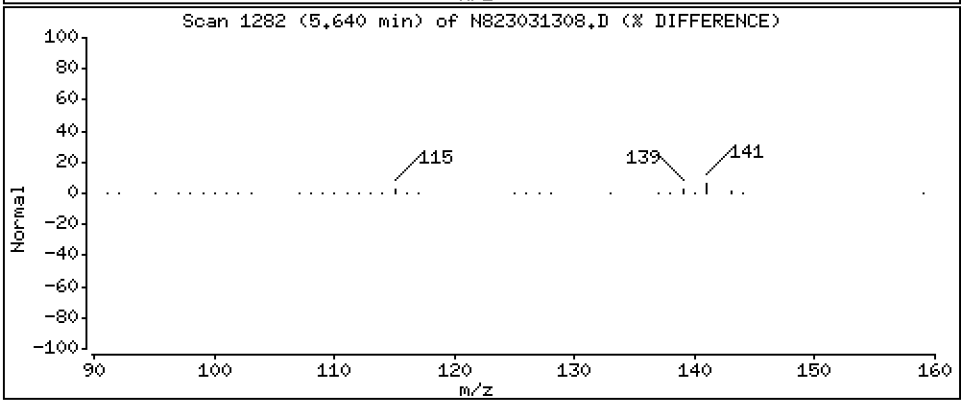












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031308.D

Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

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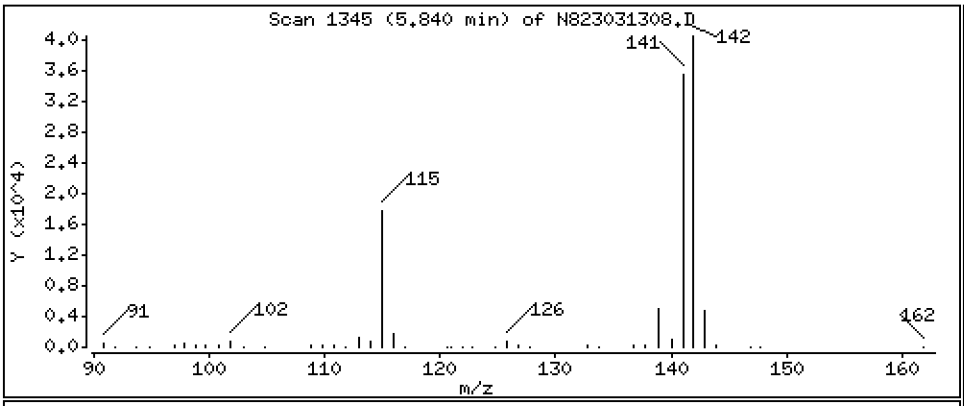
Operator: JZ

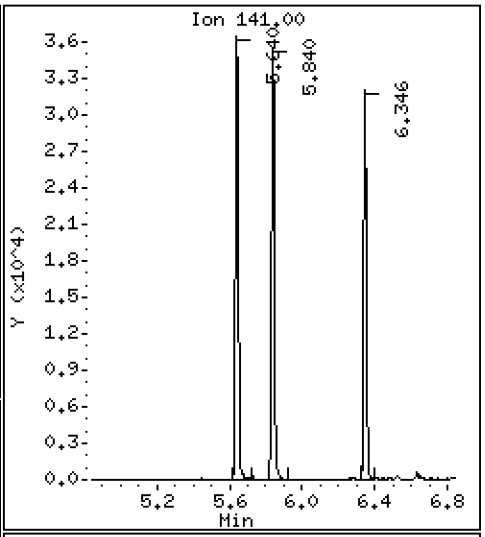
Column phase: Rxi-17sil

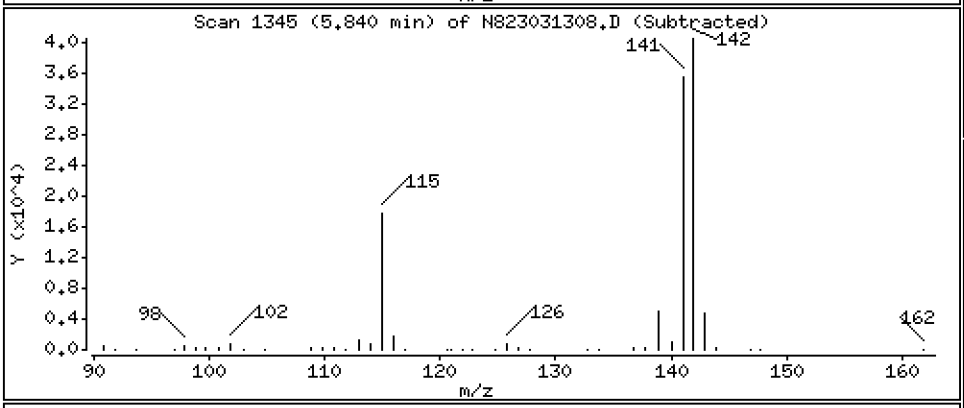
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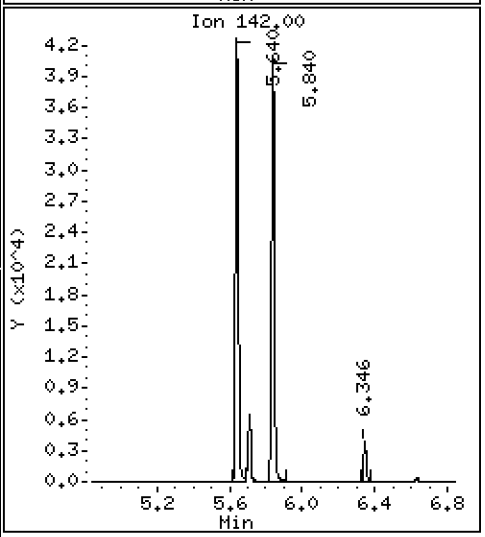
5 1-methylnaphthalene

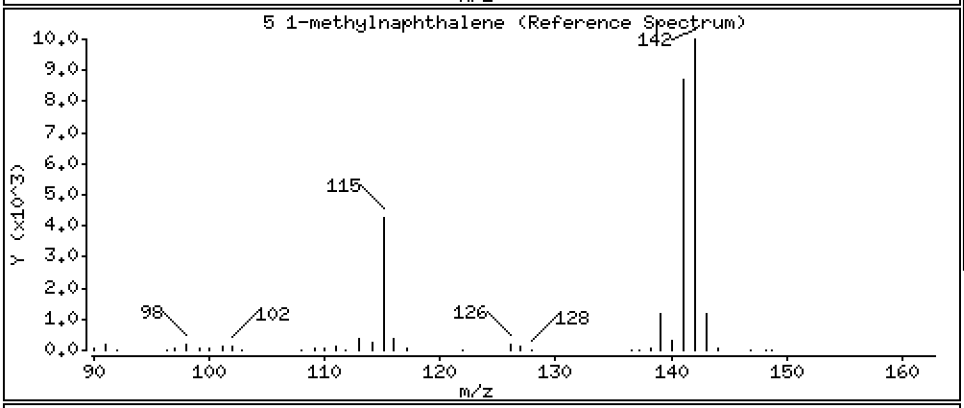
Concentration: 3.651 ug/mL

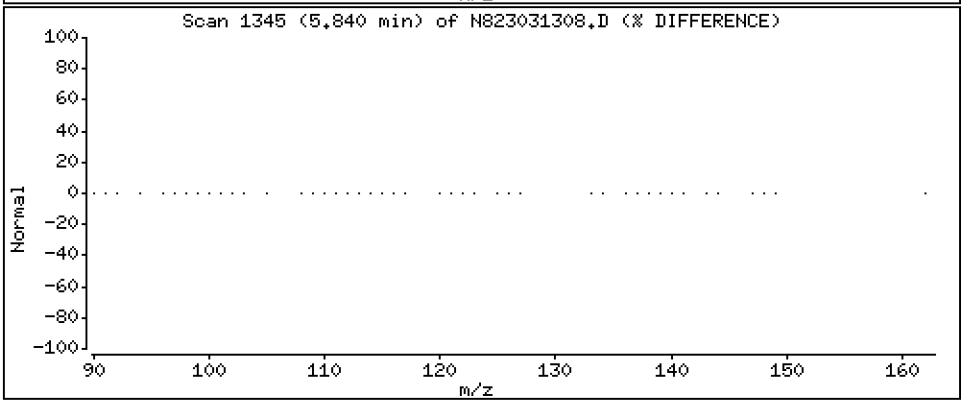












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Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MSD1,

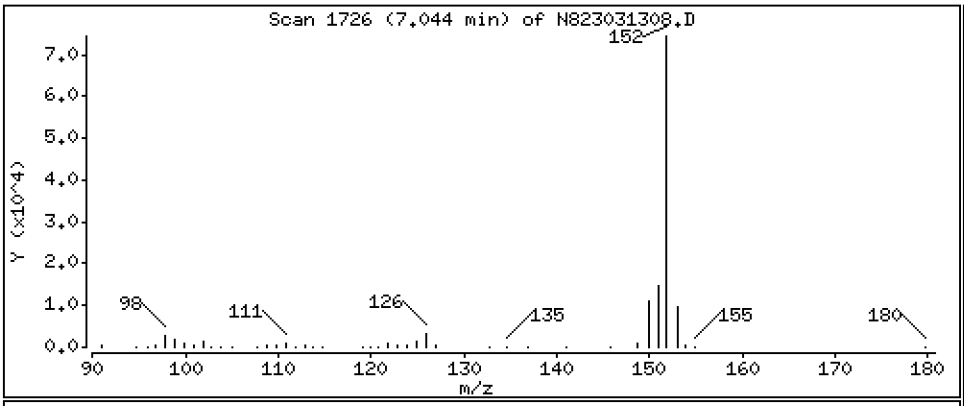
Operator: JZ

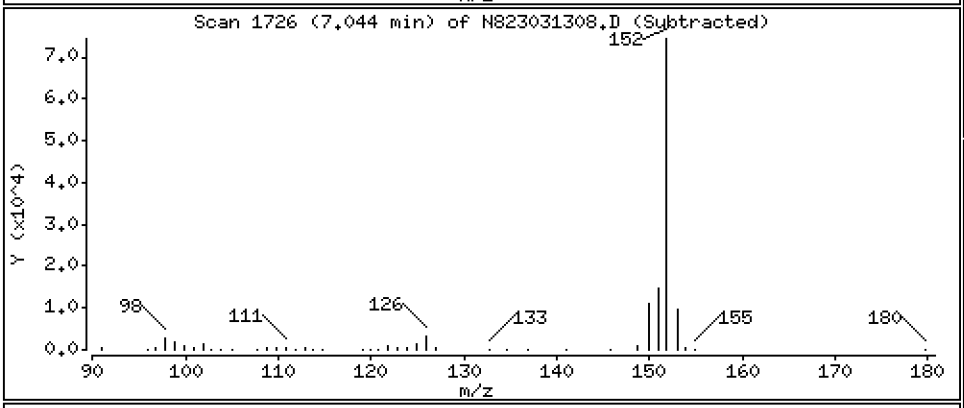
Column phase: Rxi-17sil

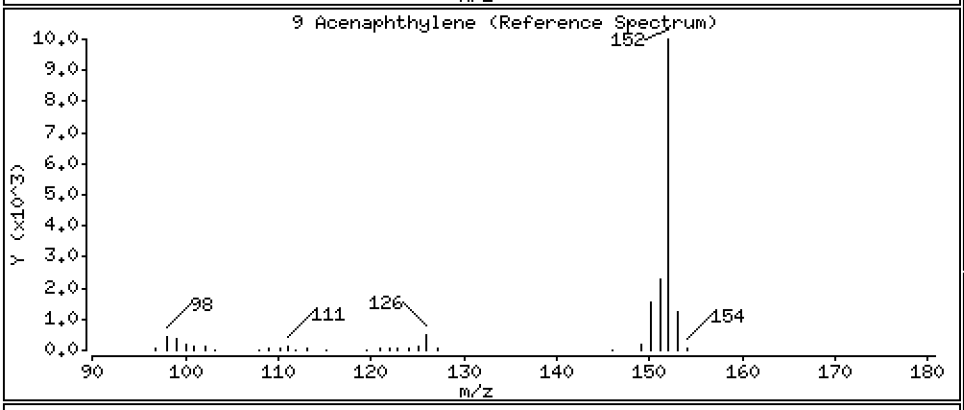
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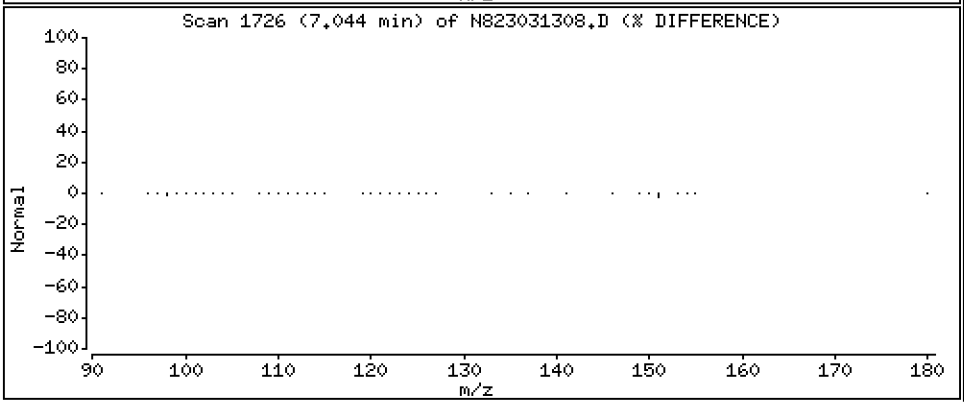
9 Acenaphthylene

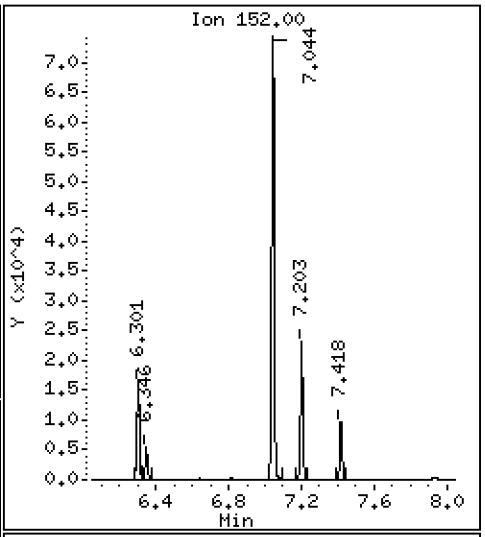
Concentration: 3.884 ug/mL

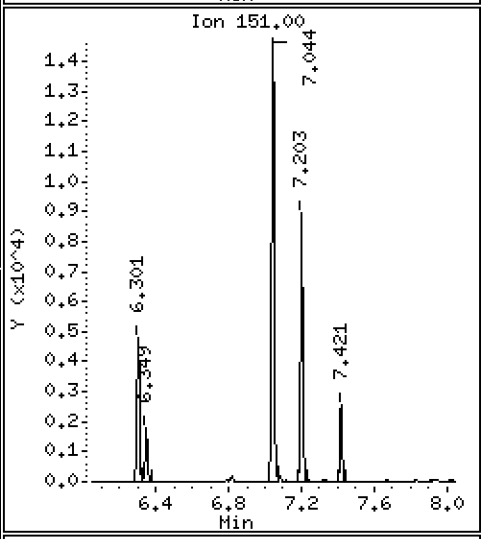


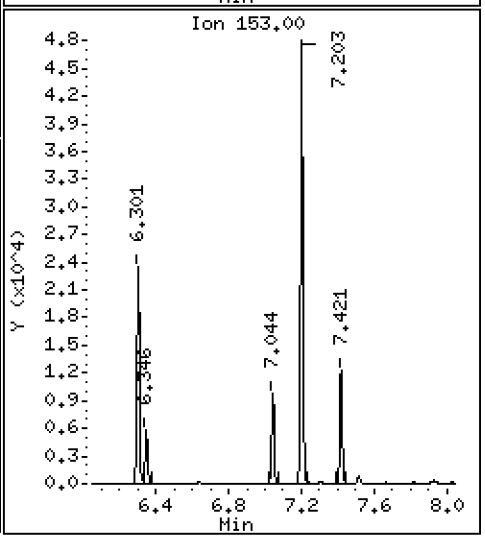












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Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MSD1,

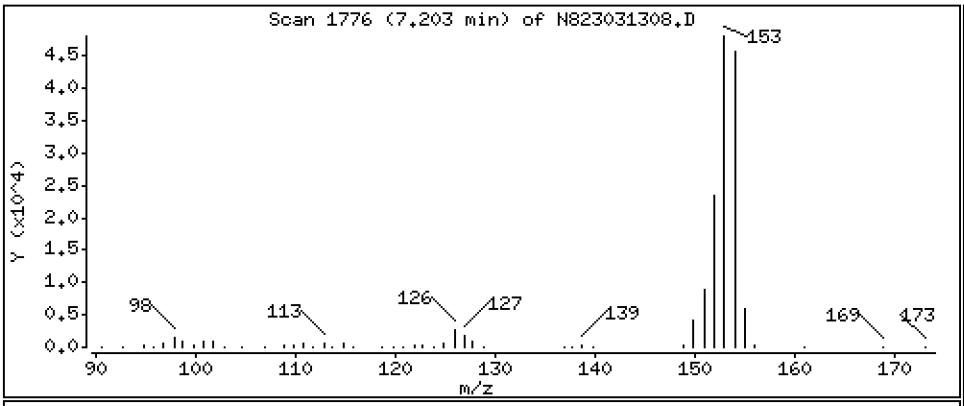
Operator: JZ

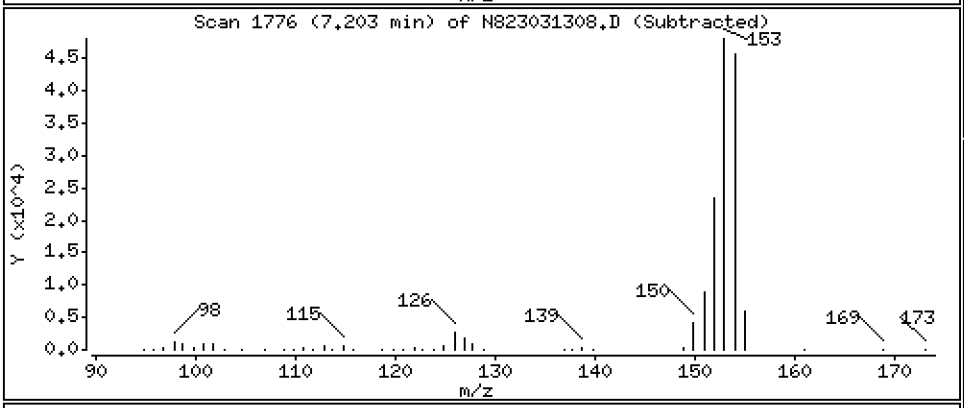
Column phase: Rxi-17sil

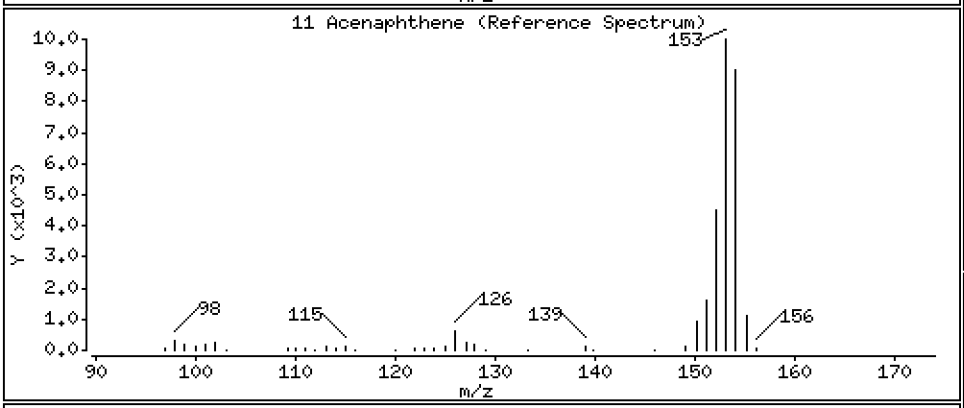
Column diameter: 0.25

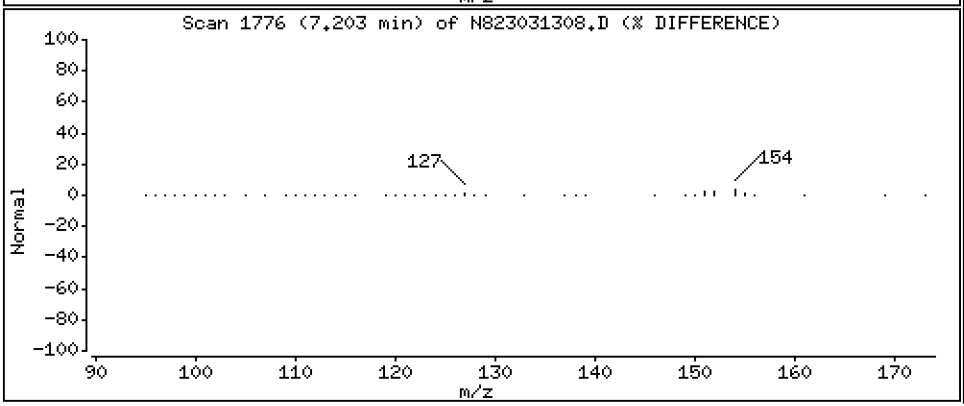
11 Acenaphthene

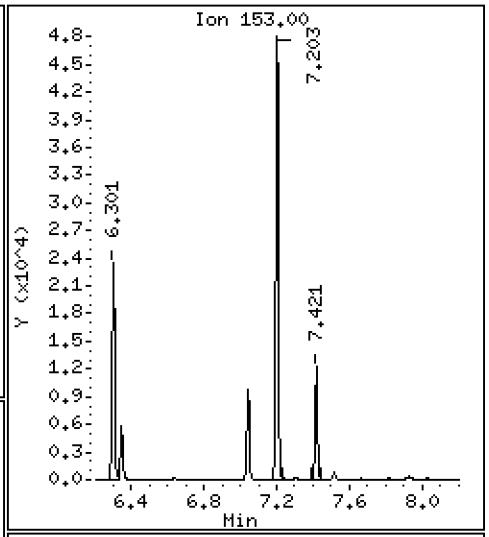
Concentration: 3.687 ug/mL

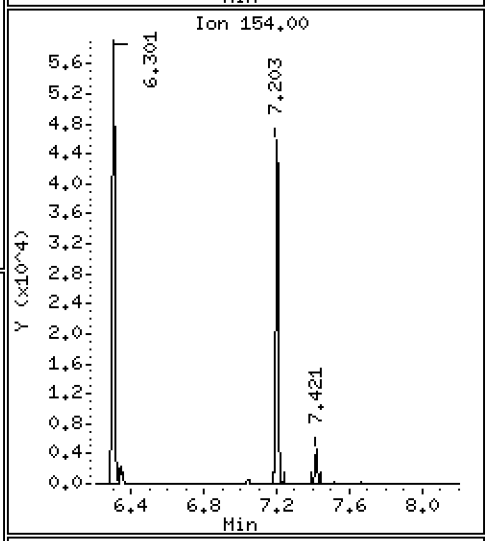


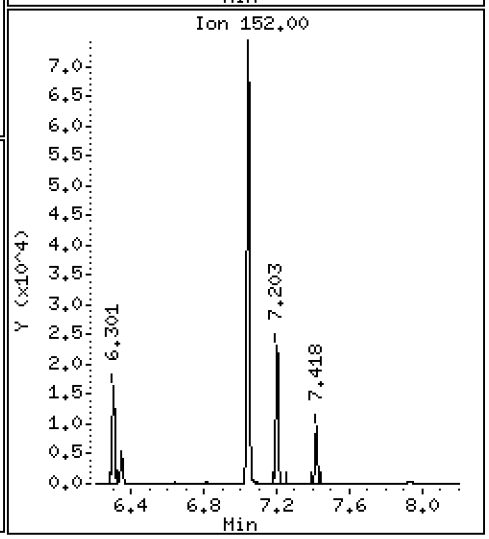












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Date : 13-MAR-2023 16:20

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Sample Info: BLC0106-MSD1,

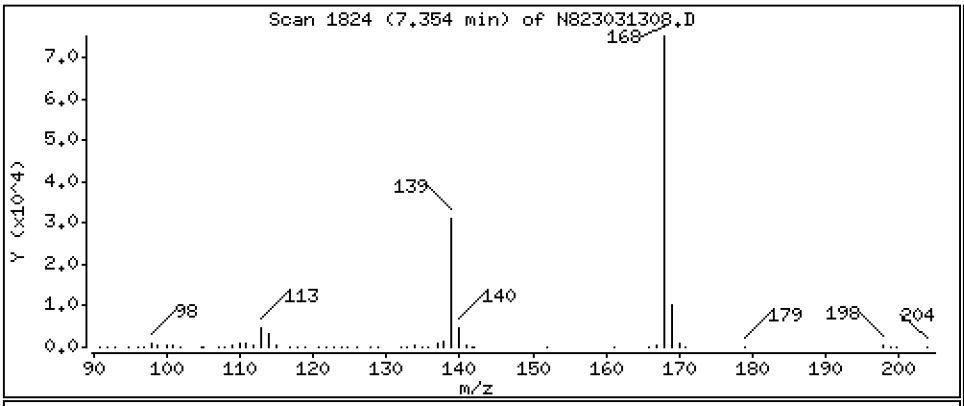
Operator: JZ

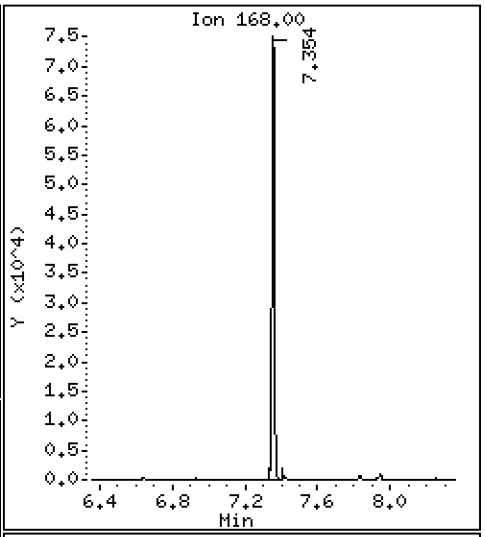
Column phase: Rxi-17sil

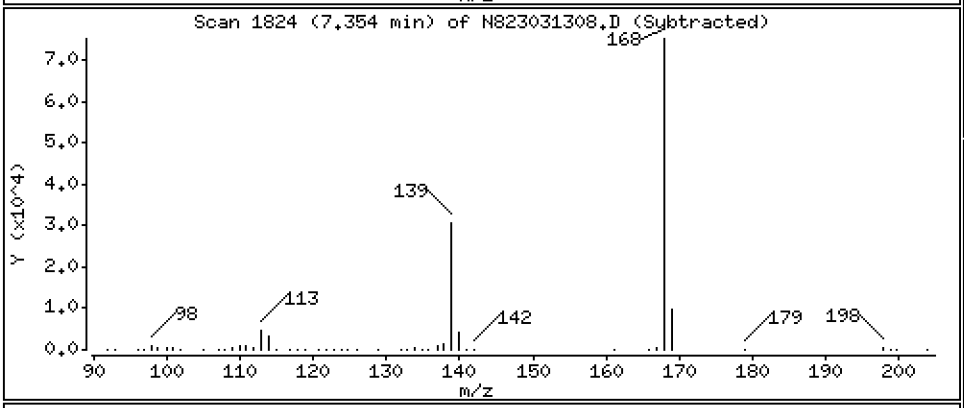
Column diameter: 0.25

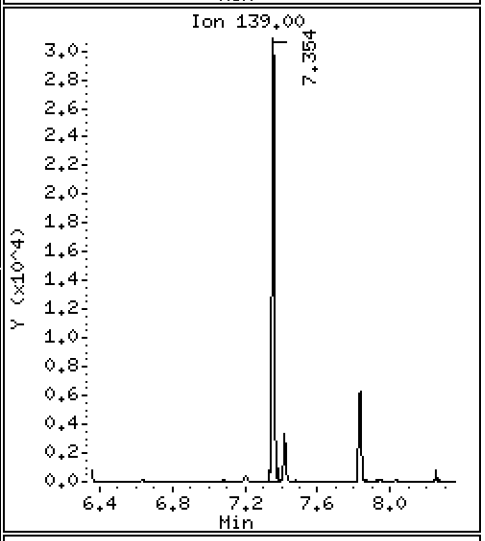
12 Dibenzofuran

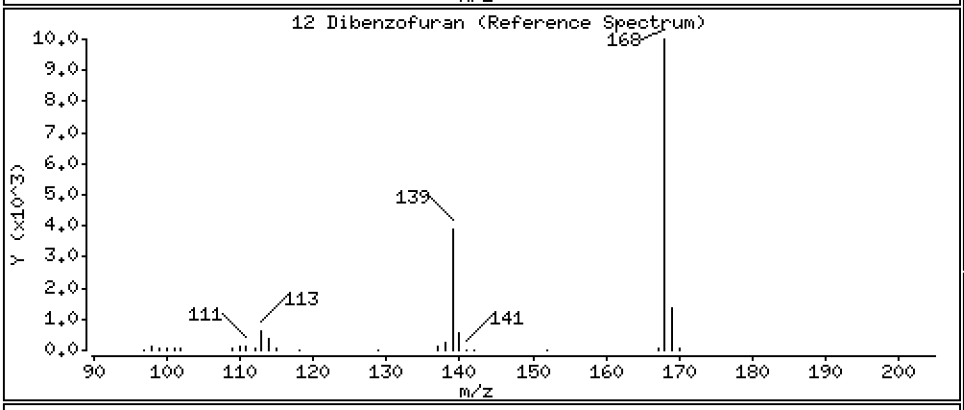
Concentration: 3.767 ug/mL

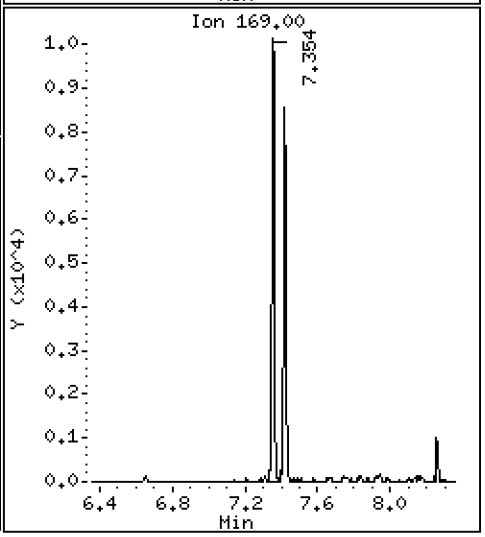


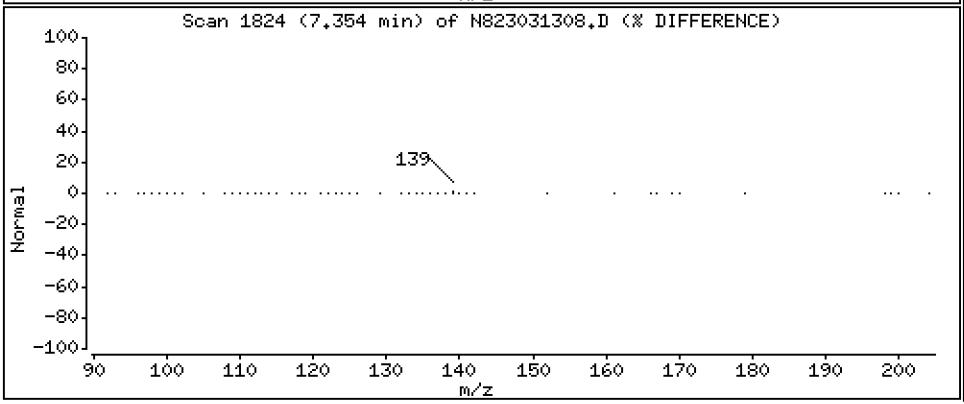












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Date : 13-MAR-2023 16:20

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Instrument: nt8.i

Sample Info: BLC0106-MSD1,

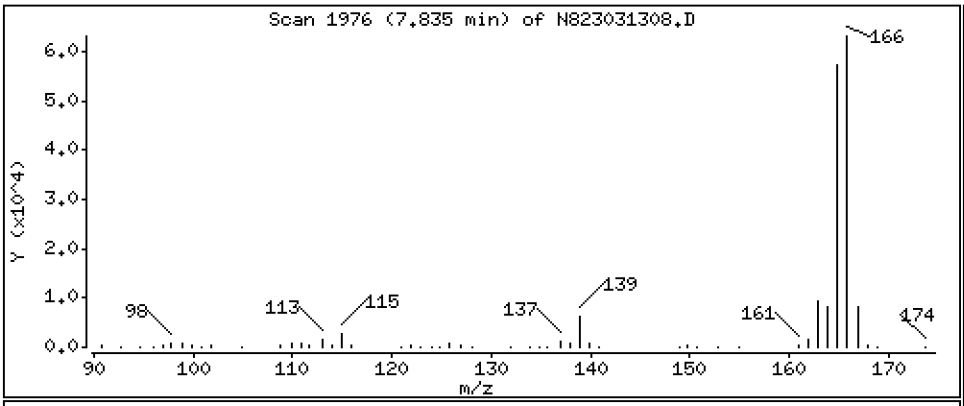
Operator: JZ

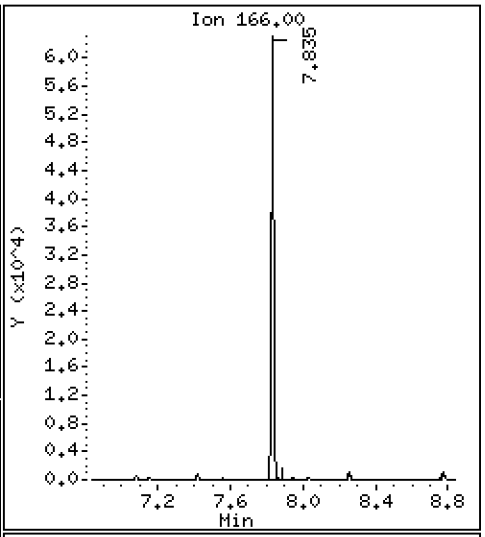
Column phase: Rxi-17sil

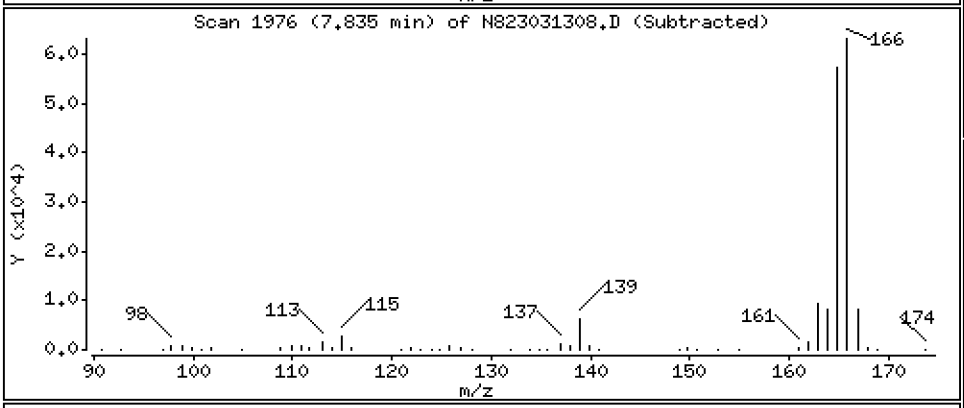
Column diameter: 0.25

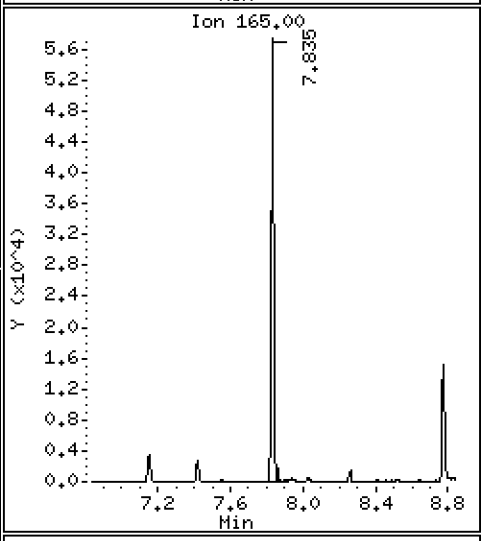
14 Fluorene

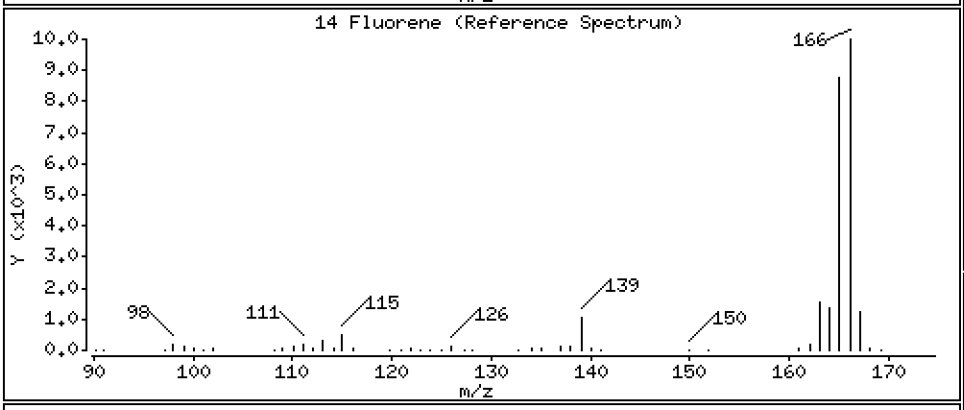
Concentration: 4.087 ug/mL

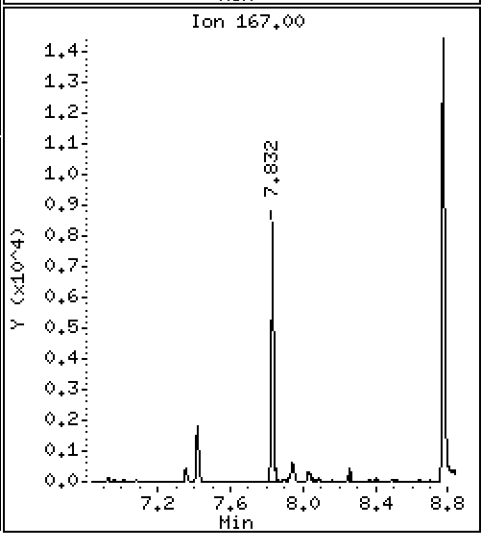


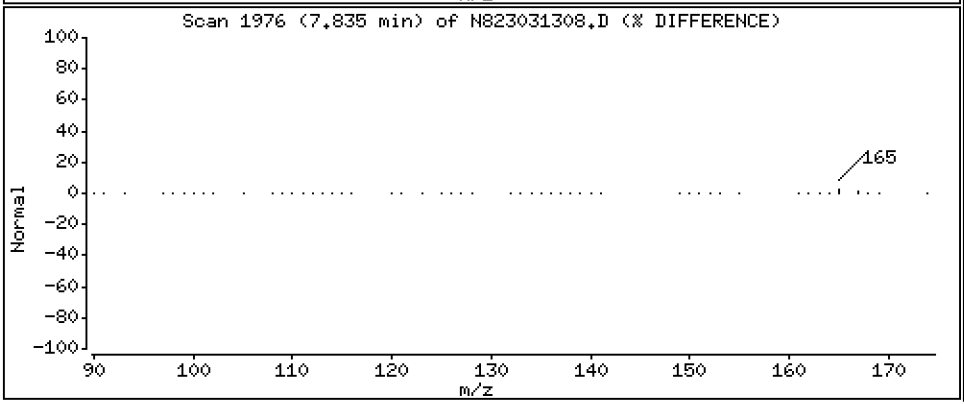












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Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

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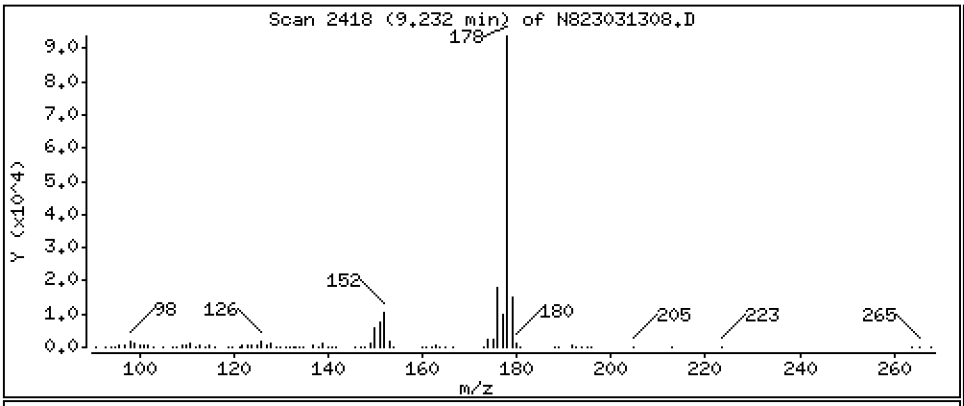
Operator: JZ

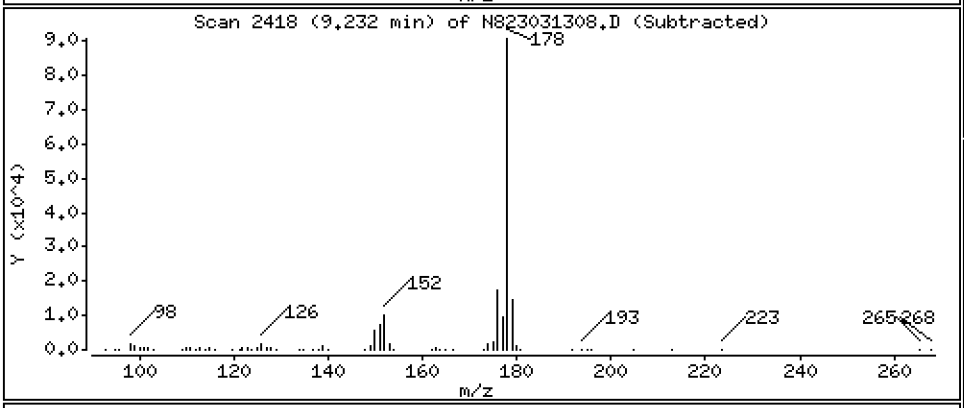
Column phase: Rxi-17sil

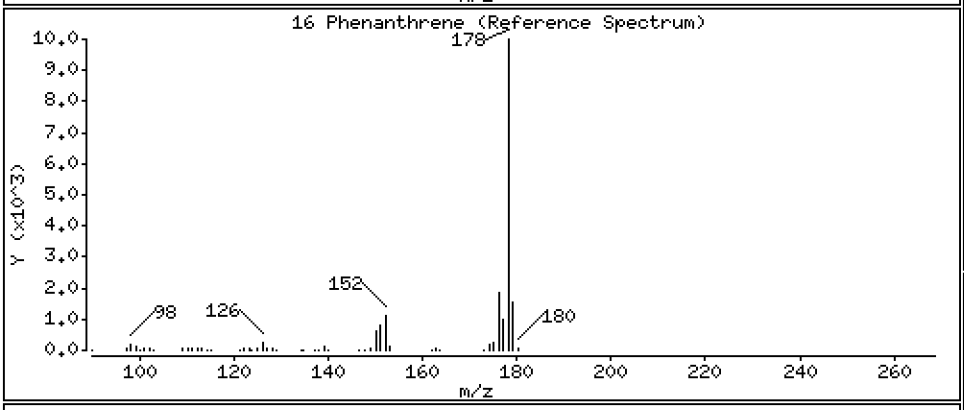
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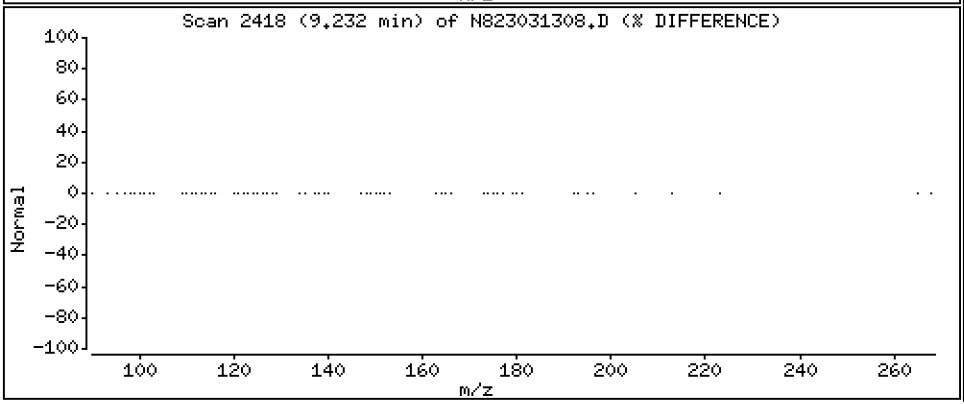
16 Phenanthrene

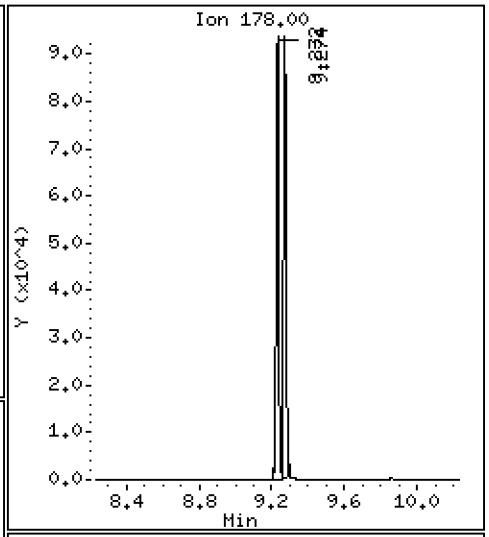
Concentration: 4.007 ug/mL

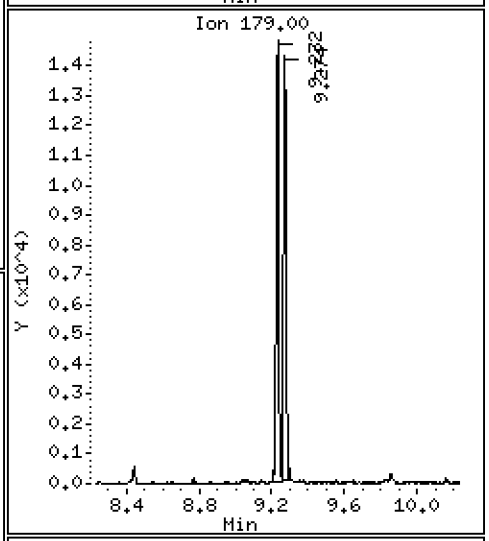


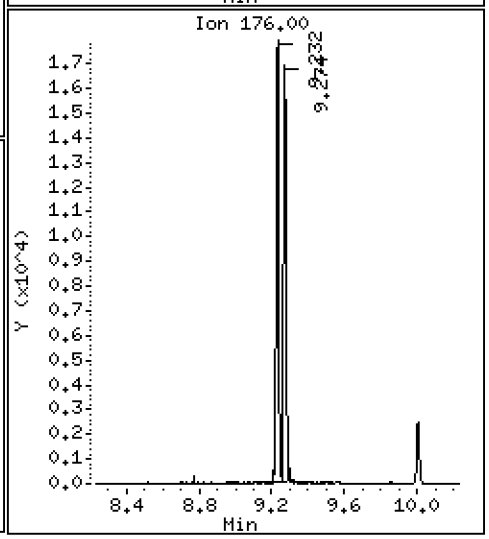












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Date : 13-MAR-2023 16:20

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Instrument: nt8.i

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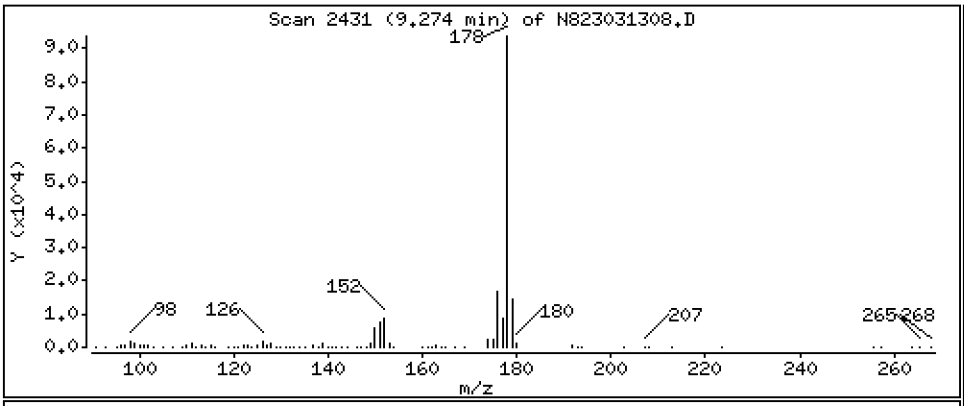
Operator: JZ

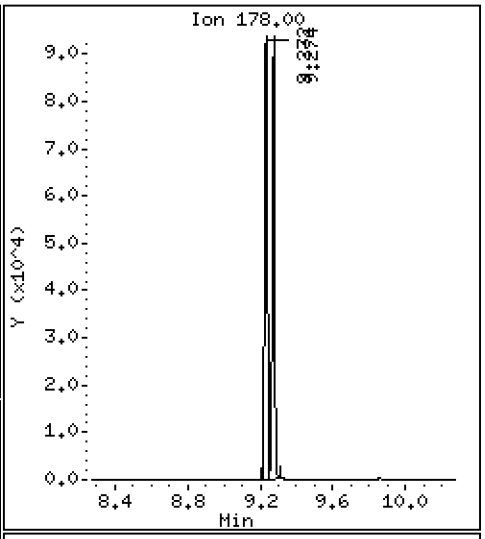
Column phase: Rxi-17sil

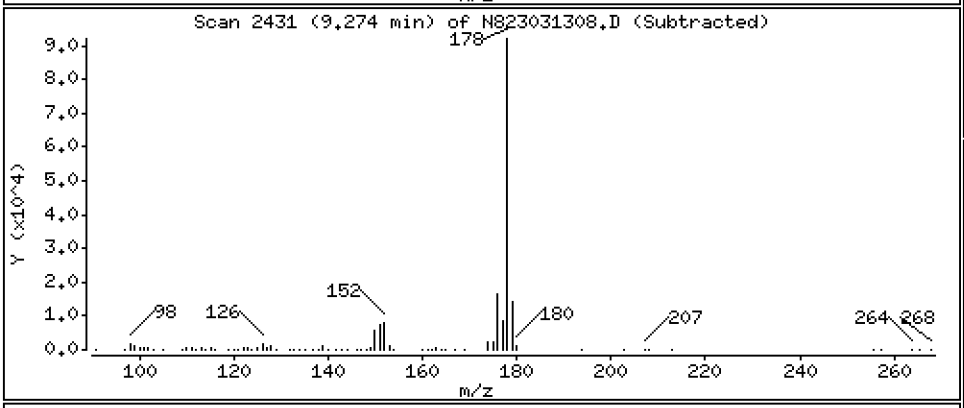
Column diameter: 0.25

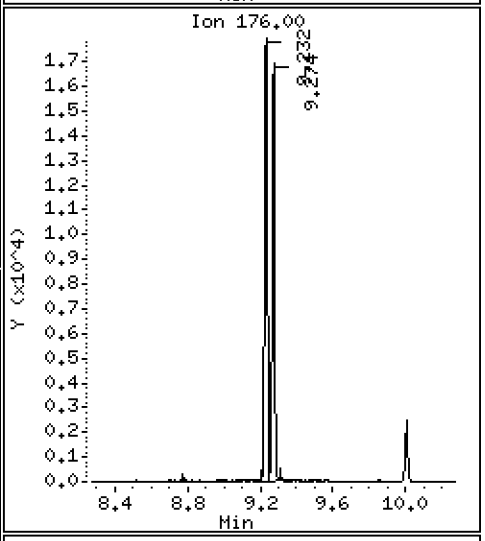
17 Anthracene

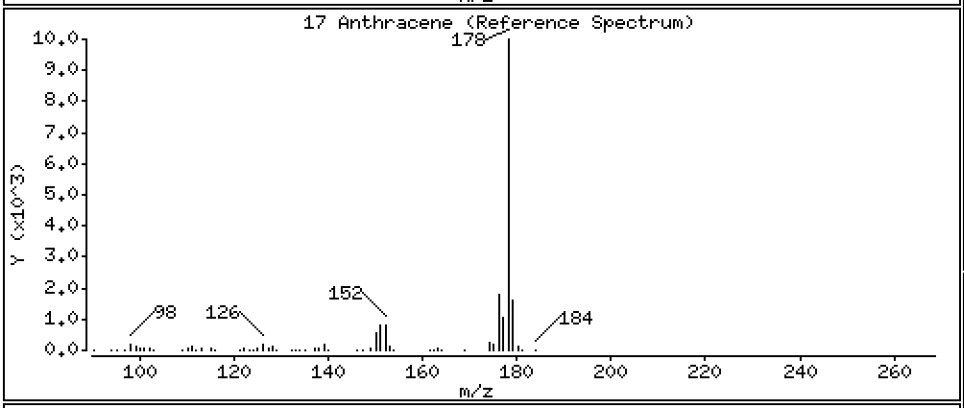
Concentration: 4.215 ug/mL

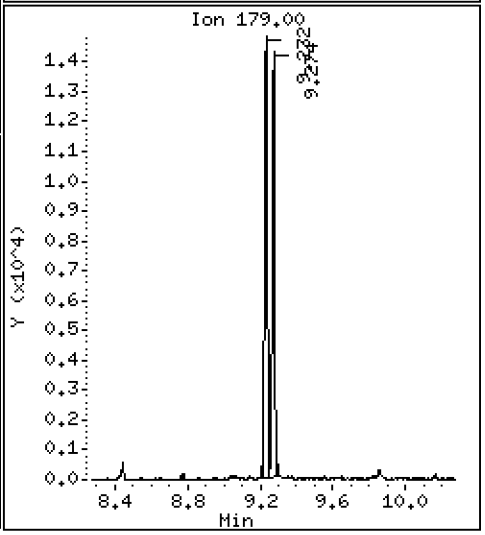


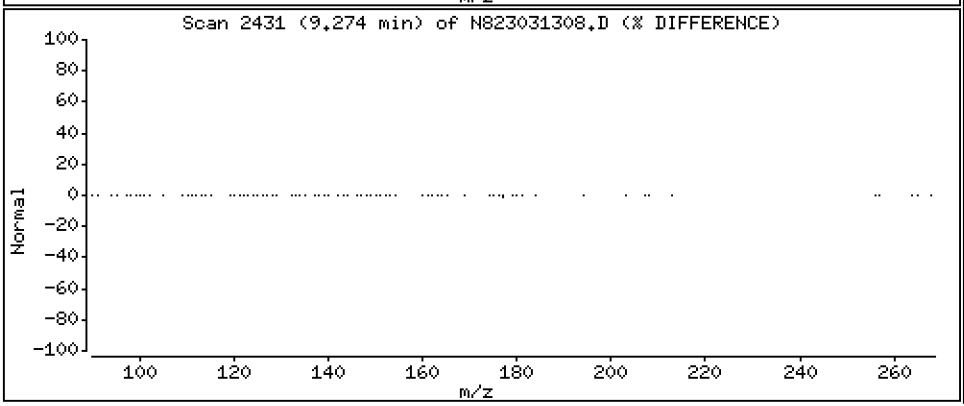












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Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

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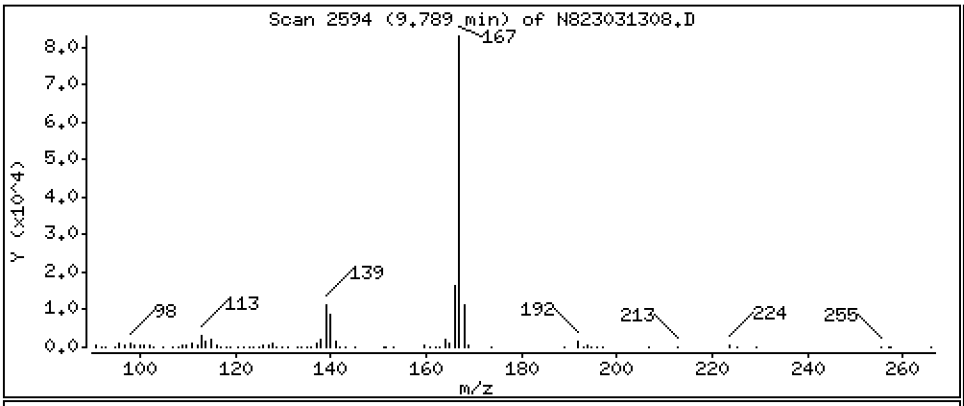
Operator: JZ

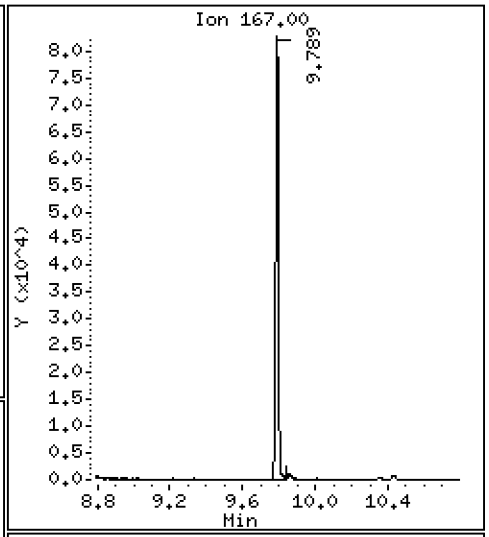
Column phase: Rxi-17sil

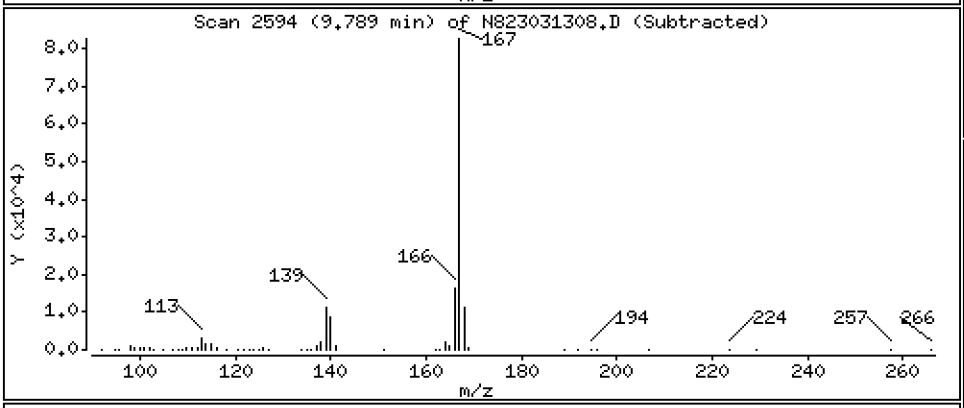
Column diameter: 0.25

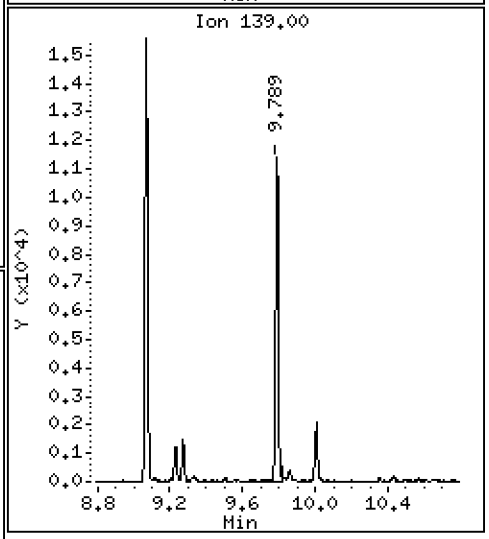
19 Carbazole

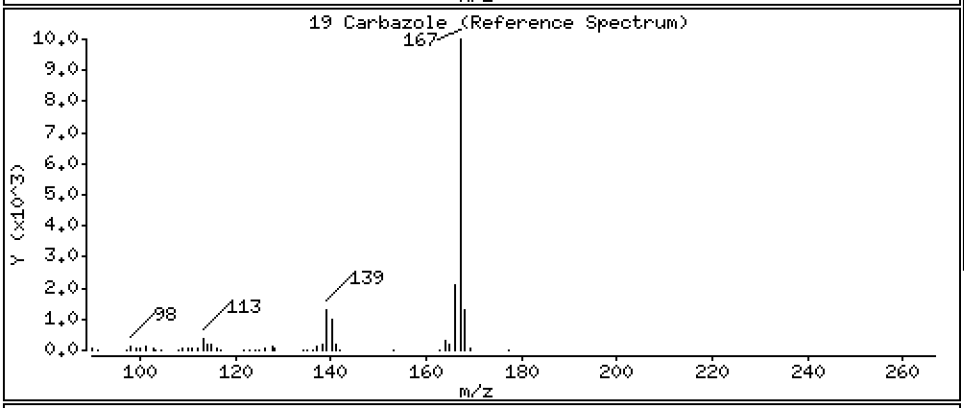
Concentration: 4.436 ug/mL

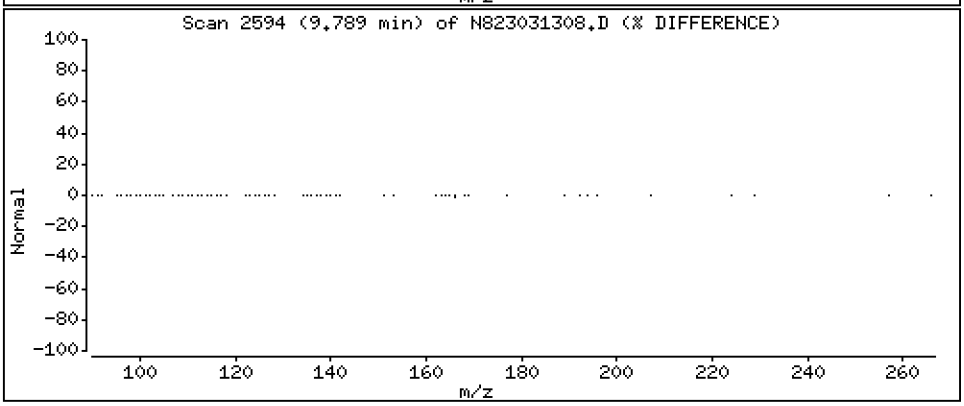












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Date : 13-MAR-2023 16:20

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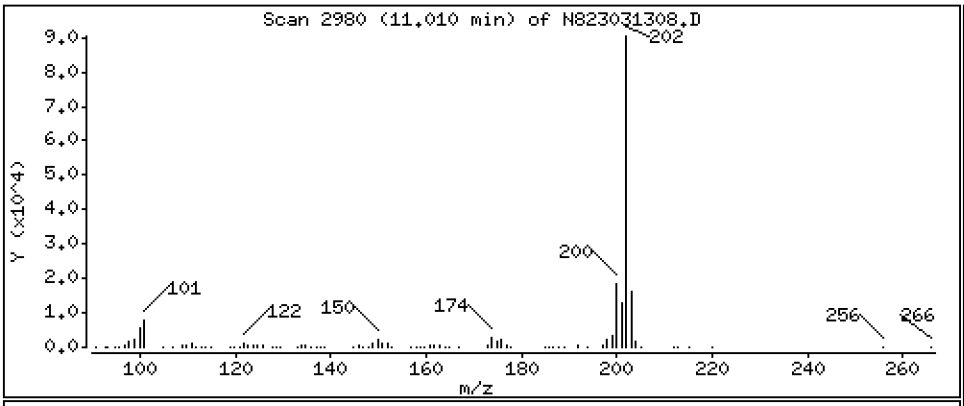
Operator: JZ

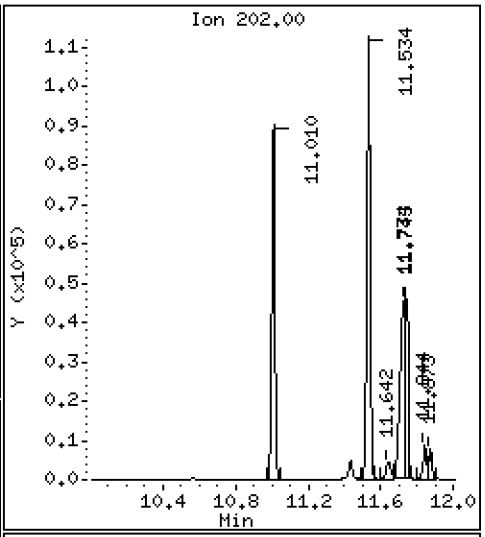
Column phase: Rxi-17sil

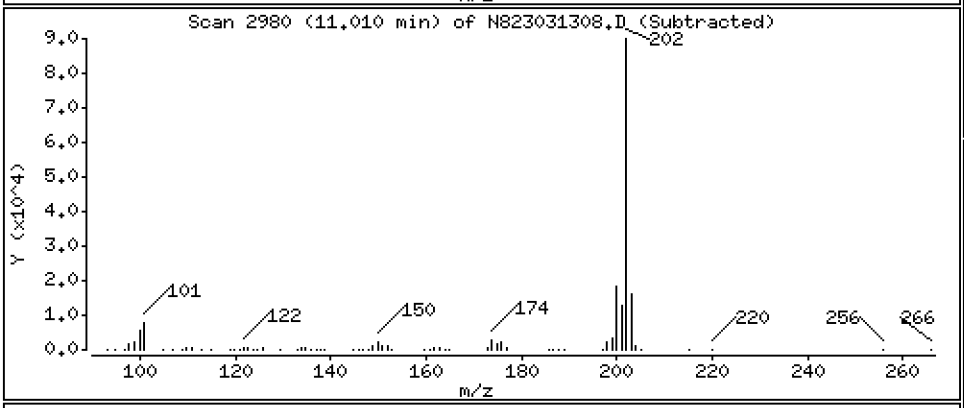
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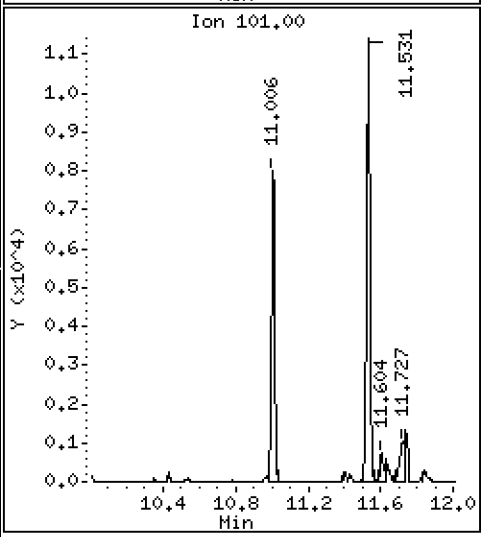
22 Fluoranthene

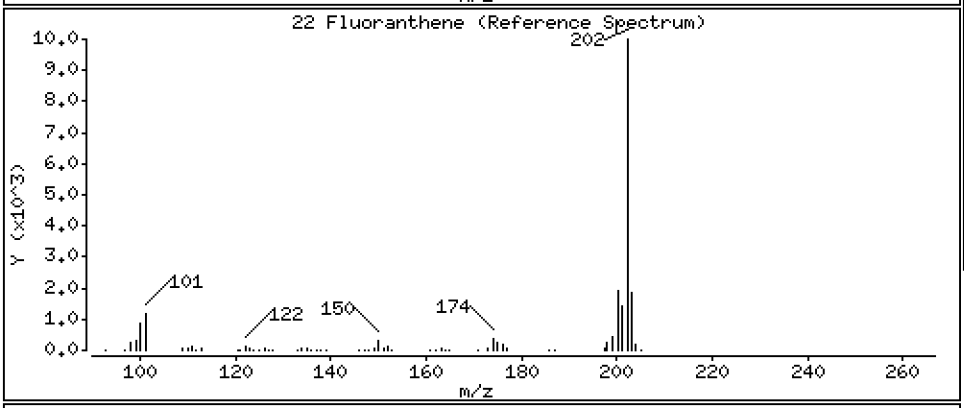
Concentration: 4.399 ug/mL

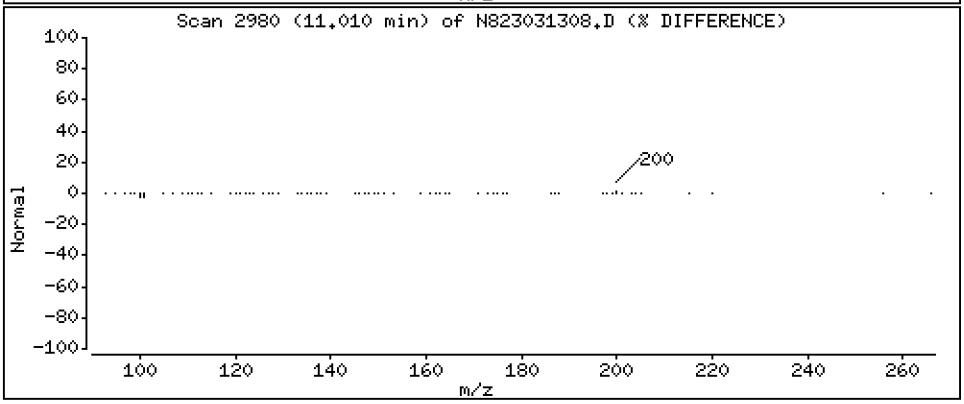












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Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

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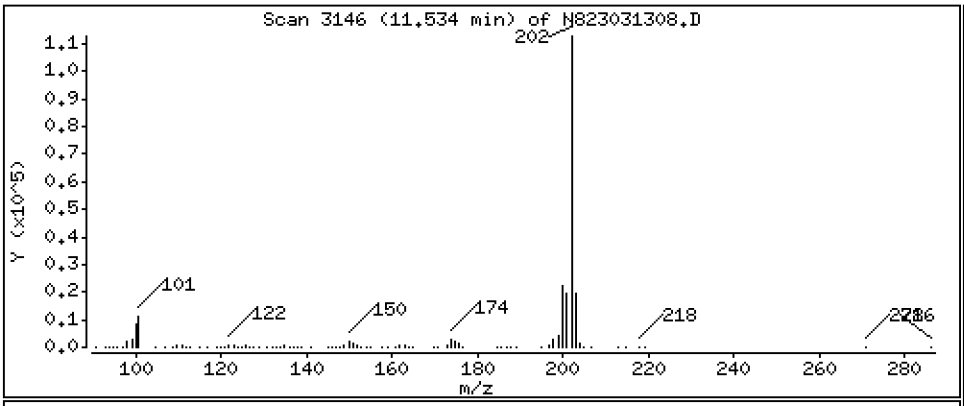
Operator: JZ

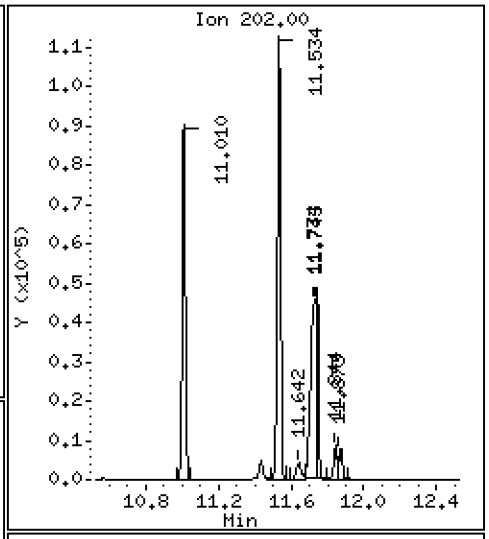
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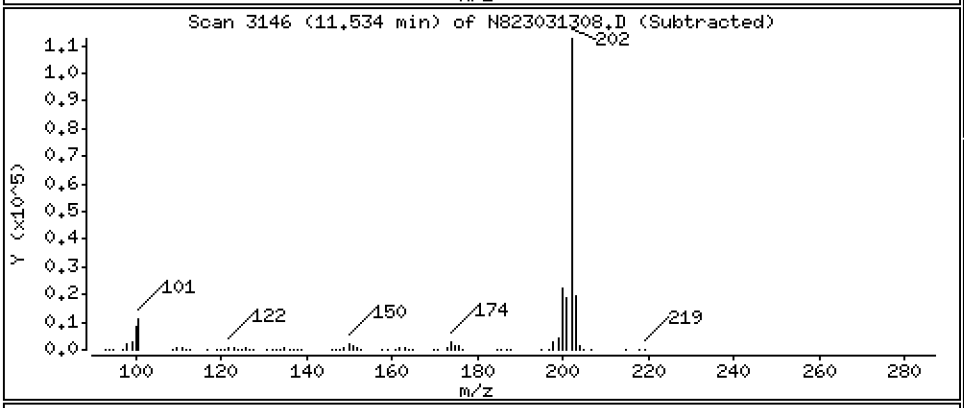
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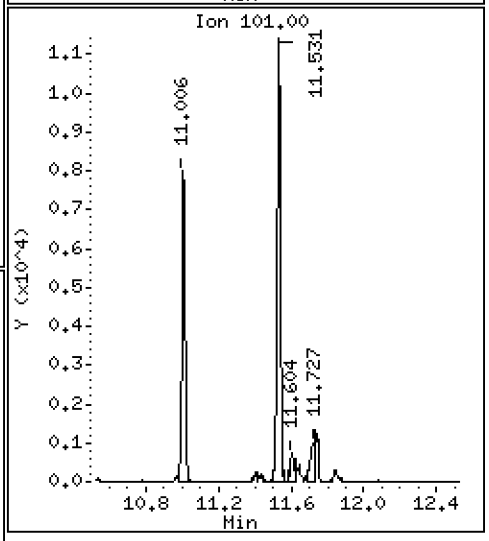
23 Pyrene

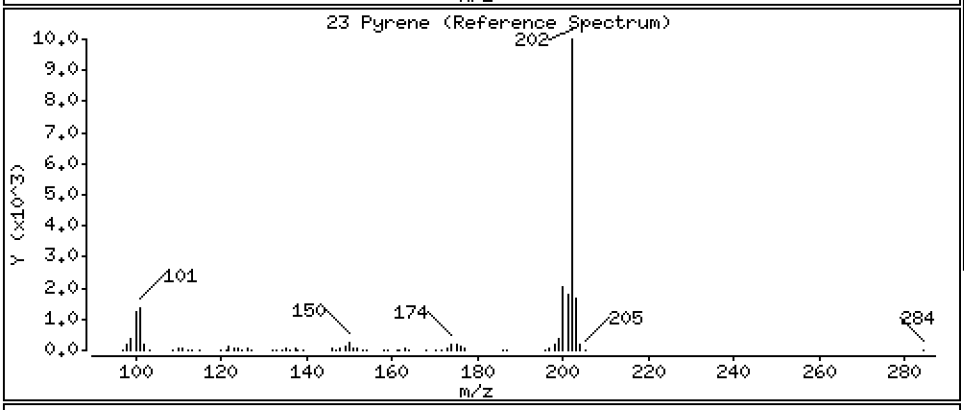
Concentration: 6.374 ug/mL

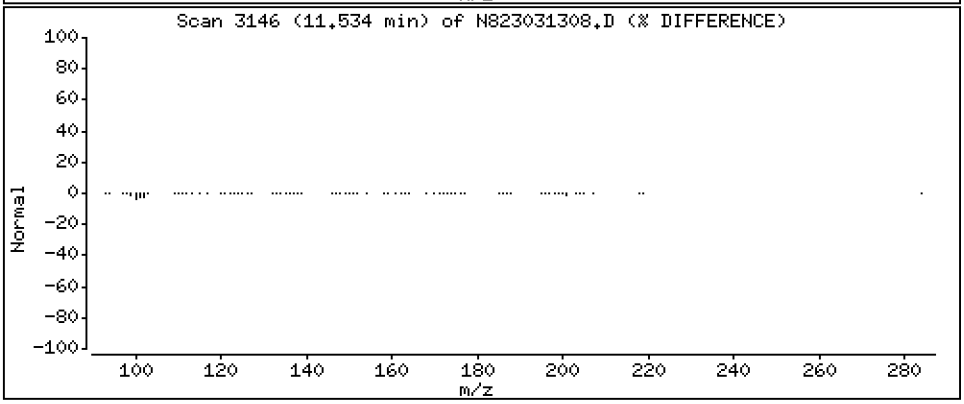












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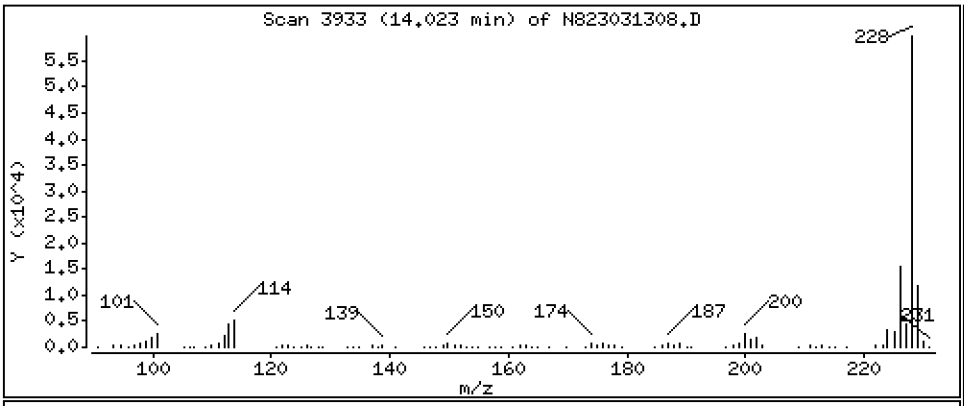
Operator: JZ

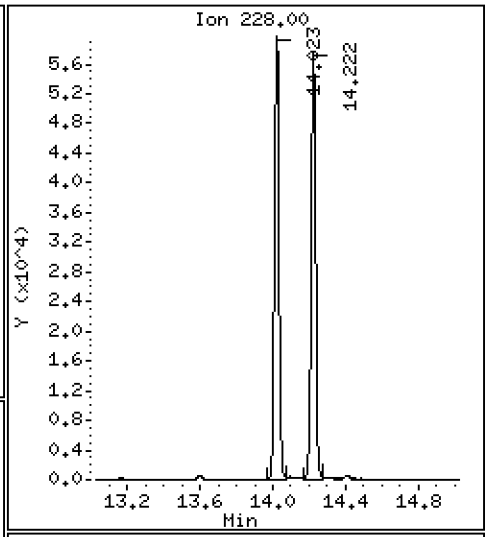
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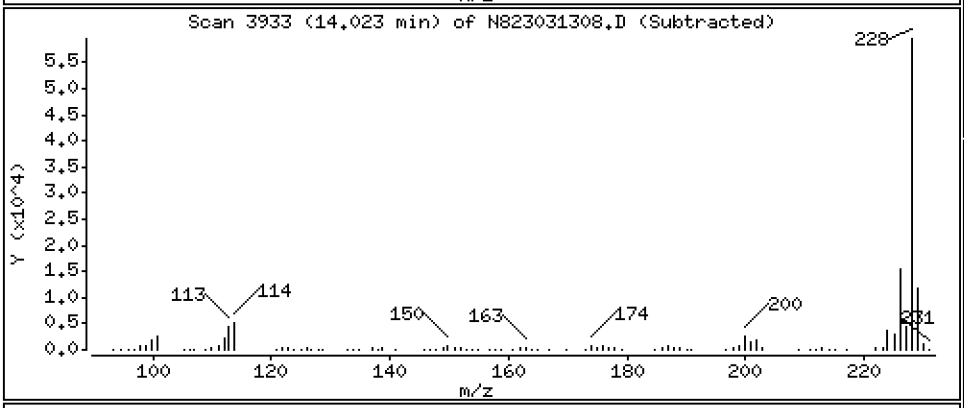
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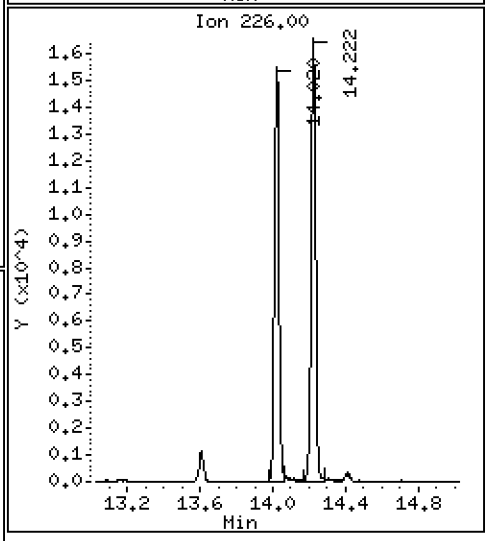
24 Benzo(a)anthracene

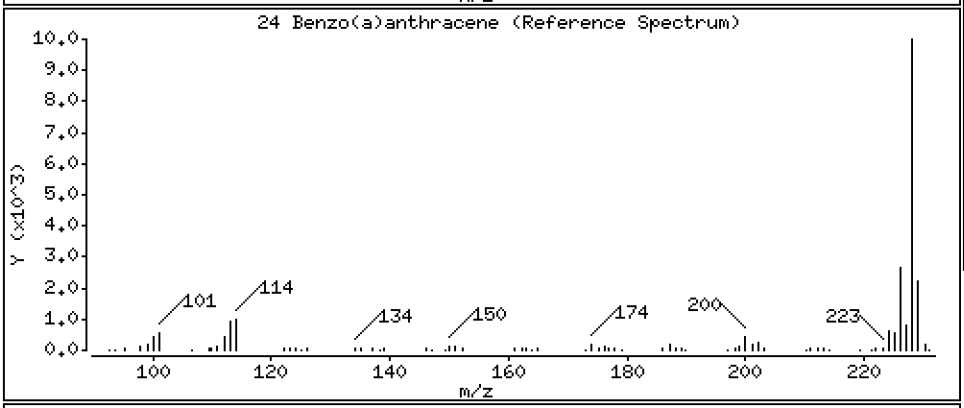
Concentration: 5.035 ug/mL

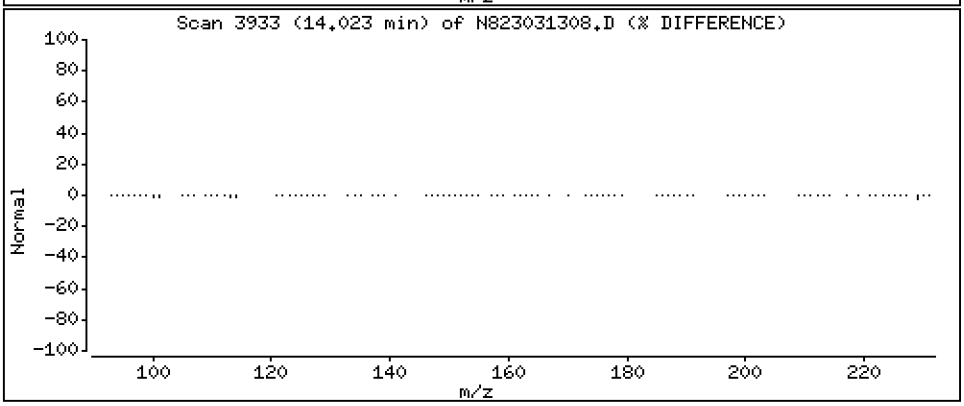












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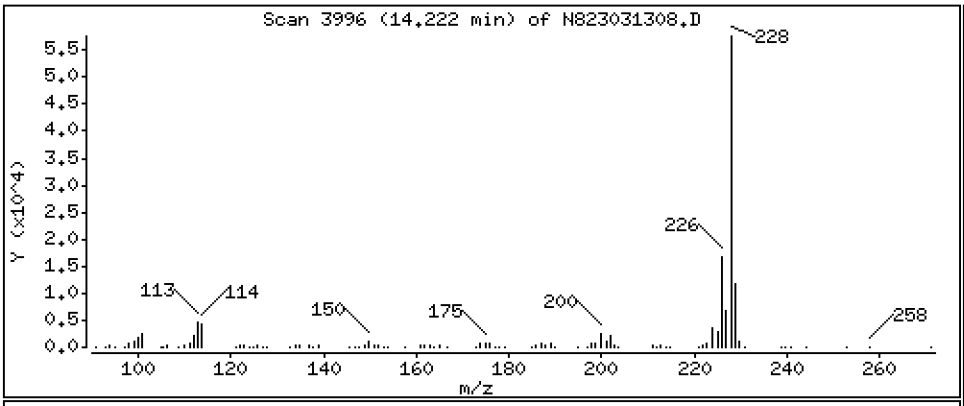
Operator: JZ

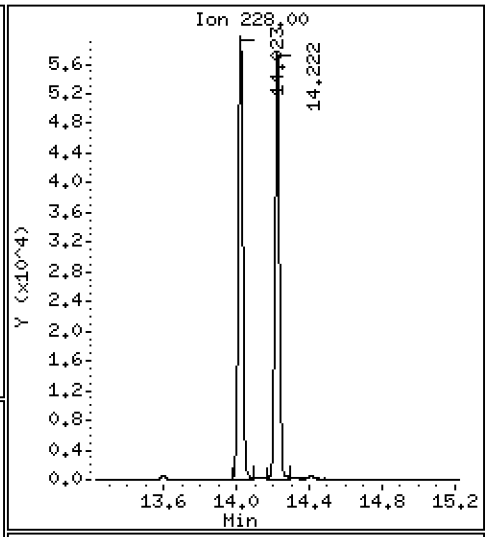
Column phase: Rxi-17sil

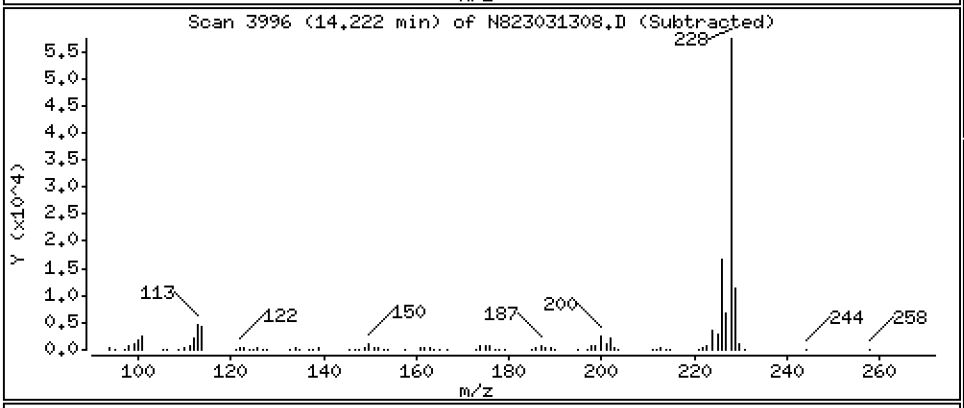
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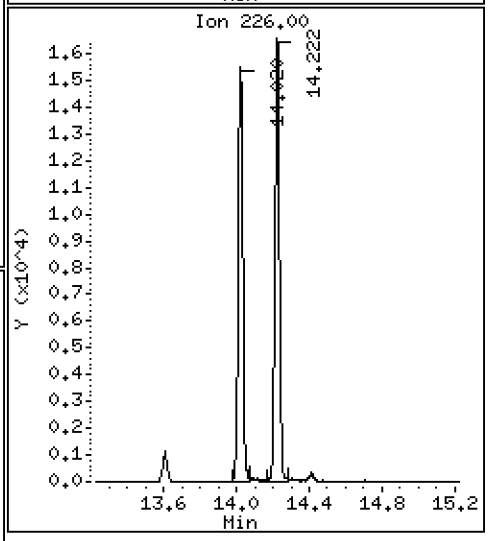
27 Chrysene

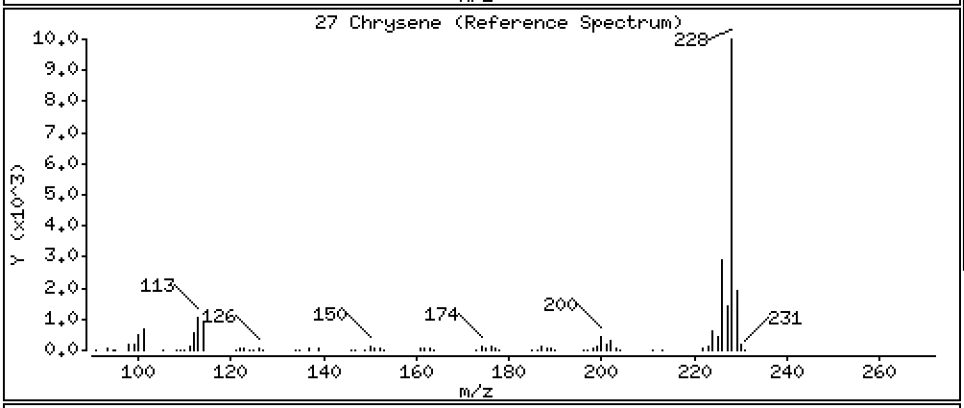
Concentration: 4.381 ug/mL

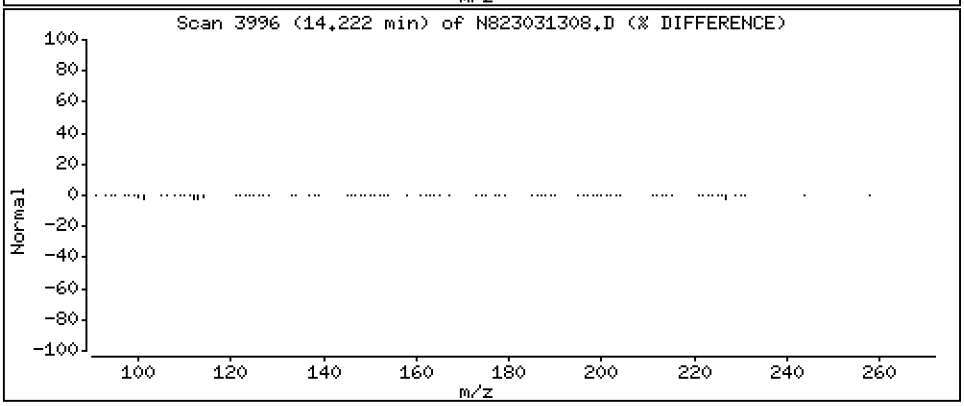












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Sample Info: BLC0106-MSD1,

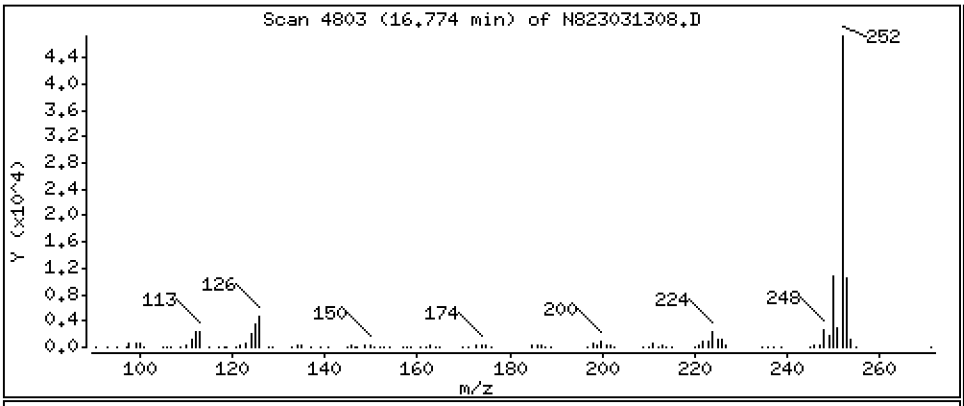
Operator: JZ

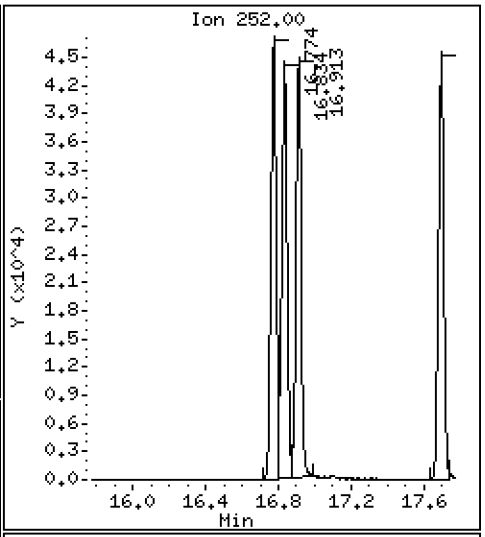
Column phase: Rxi-17sil

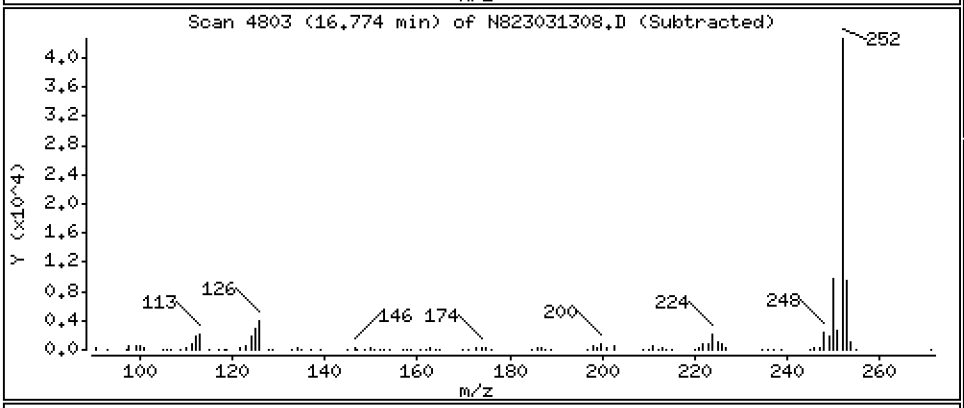
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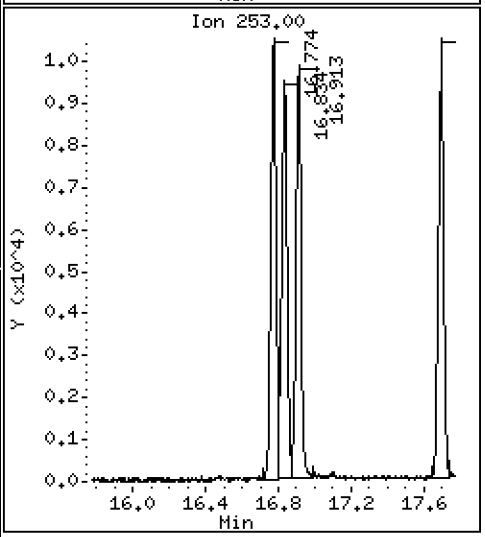
28 Benzo(b)fluoranthene

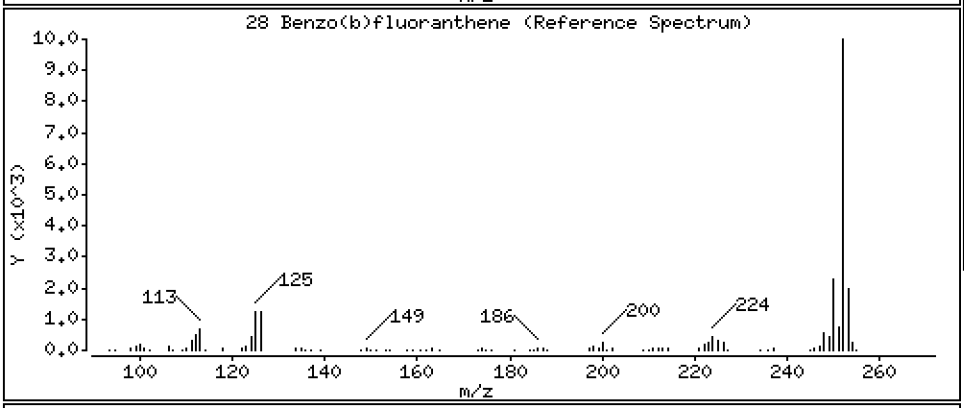
Concentration: 4.482 ug/mL

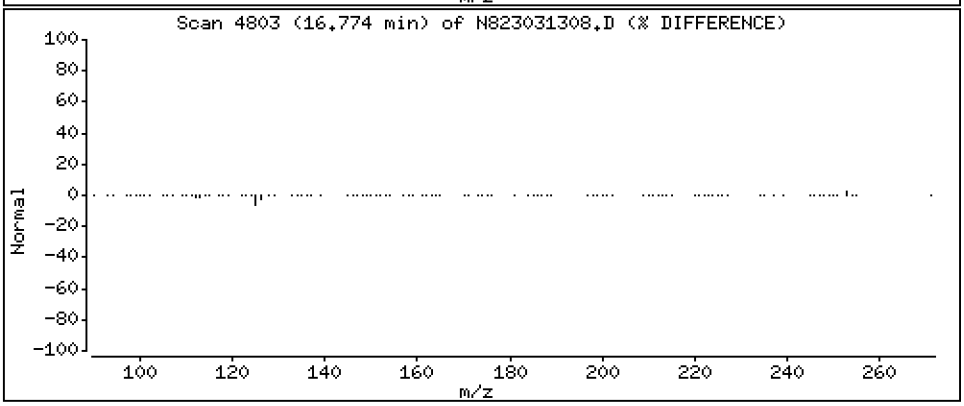












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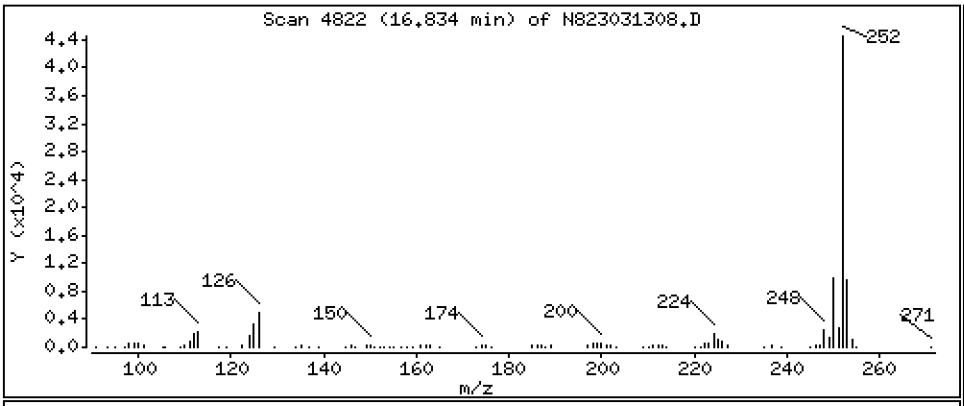
Operator: JZ

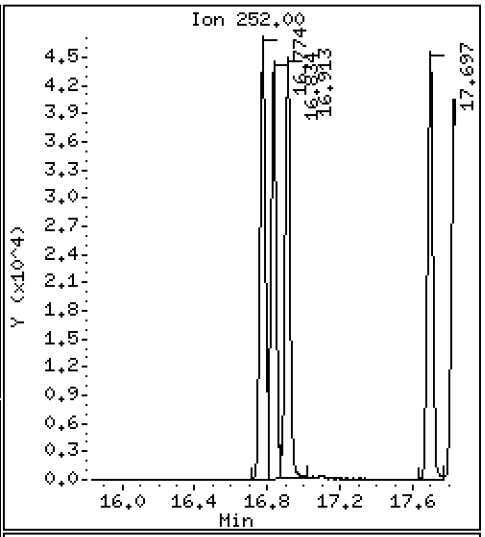
Column phase: Rxi-17sil

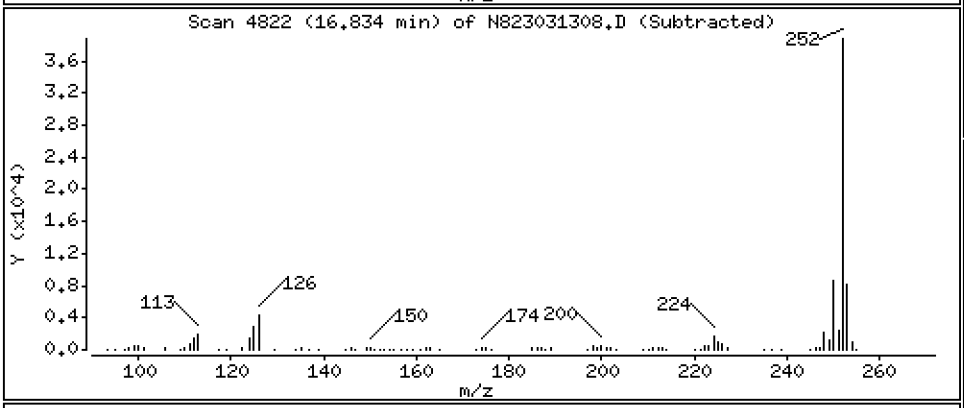
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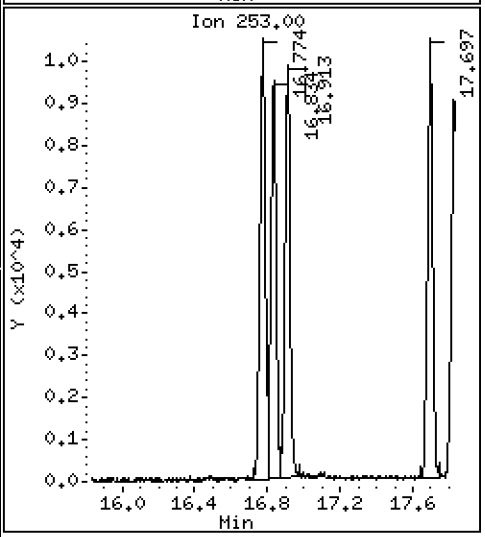
29 Benzo(k)fluoranthene

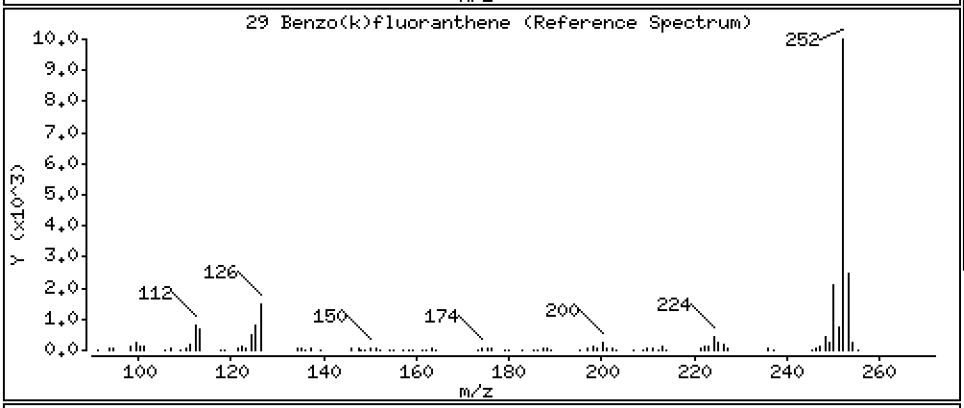
Concentration: 4.185 ug/mL

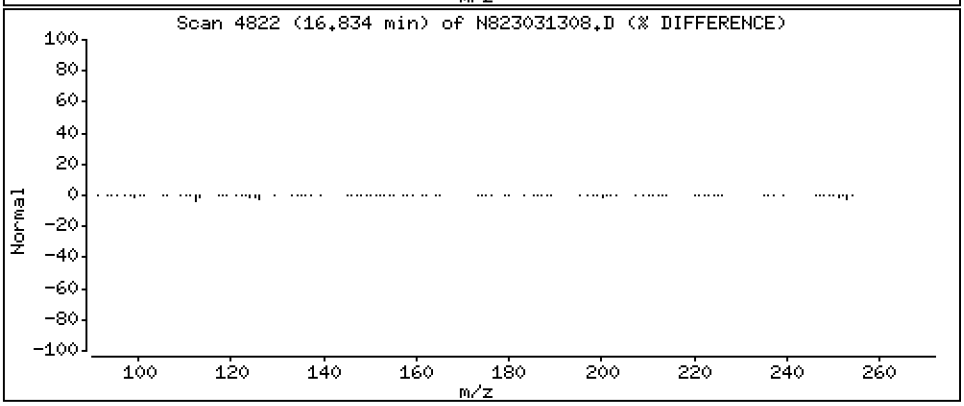












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Date : 13-MAR-2023 16:20

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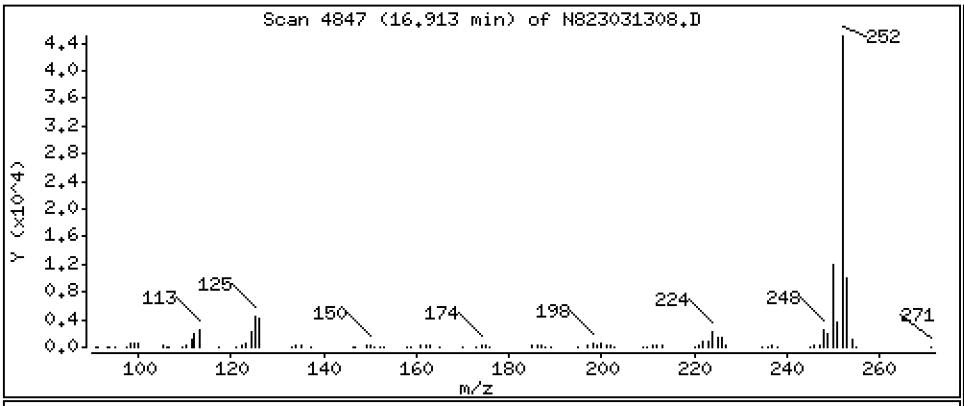
Operator: JZ

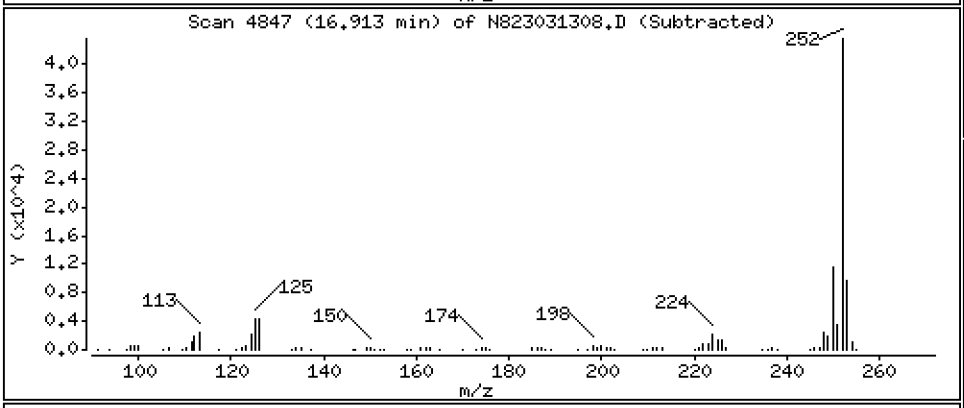
Column phase: Rxi-17sil

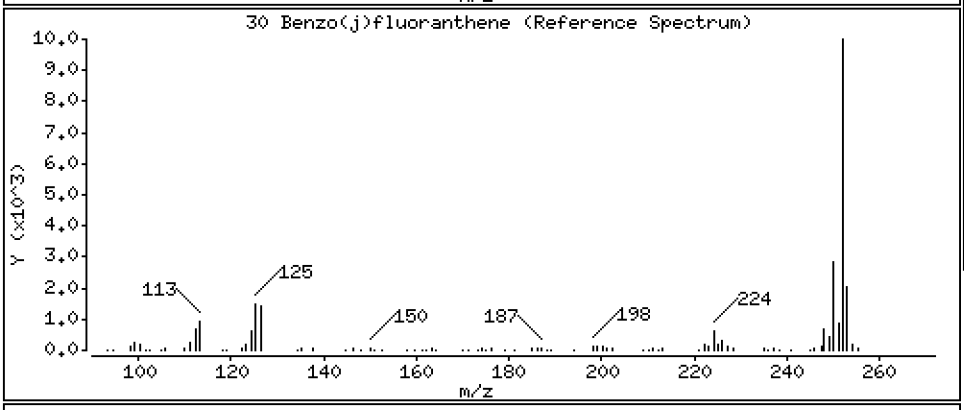
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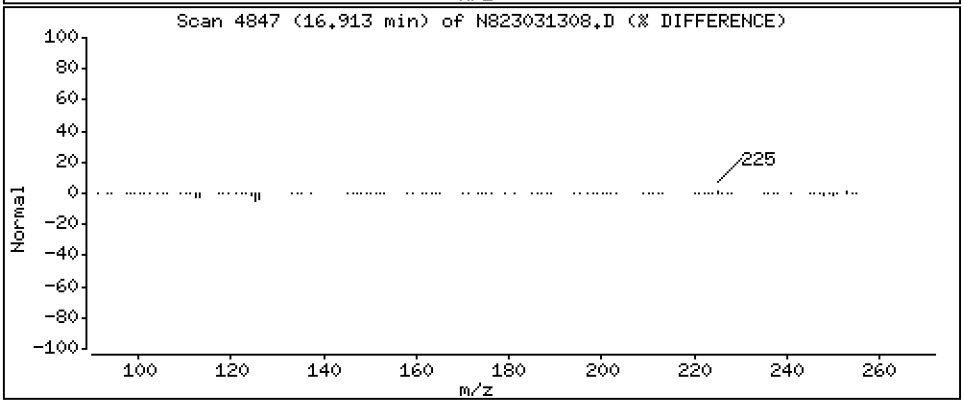
30 Benzo(j)fluoranthene

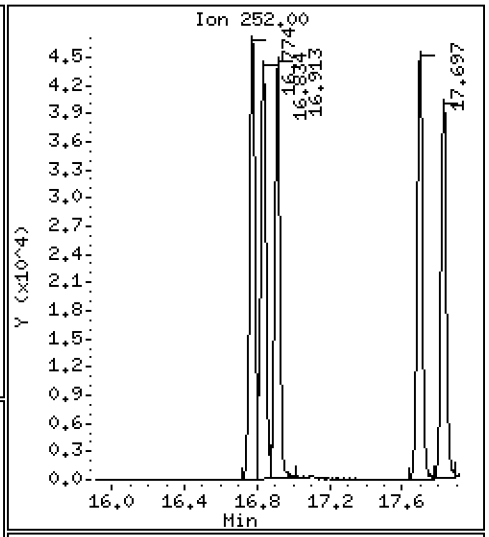
Concentration: 4.503 ug/mL

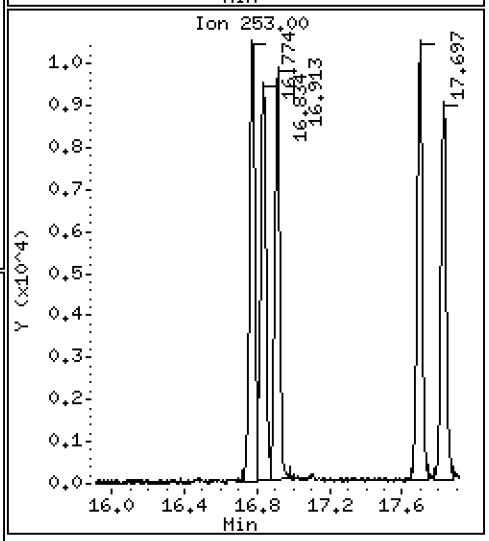












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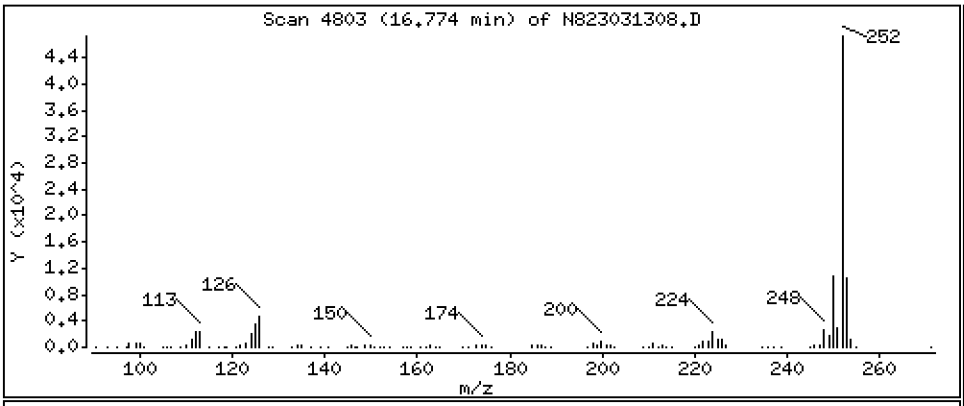
Operator: JZ

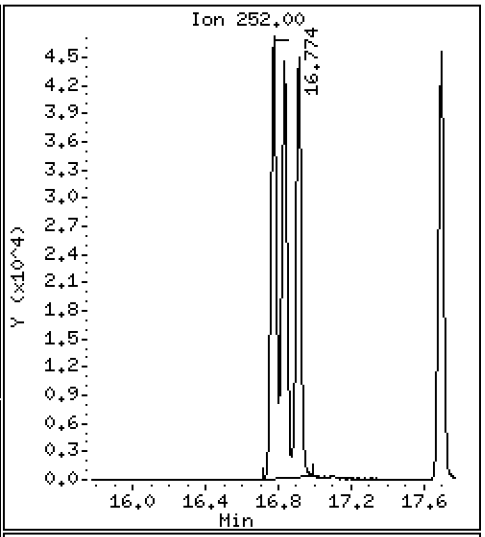
Column phase: Rxi-17sil

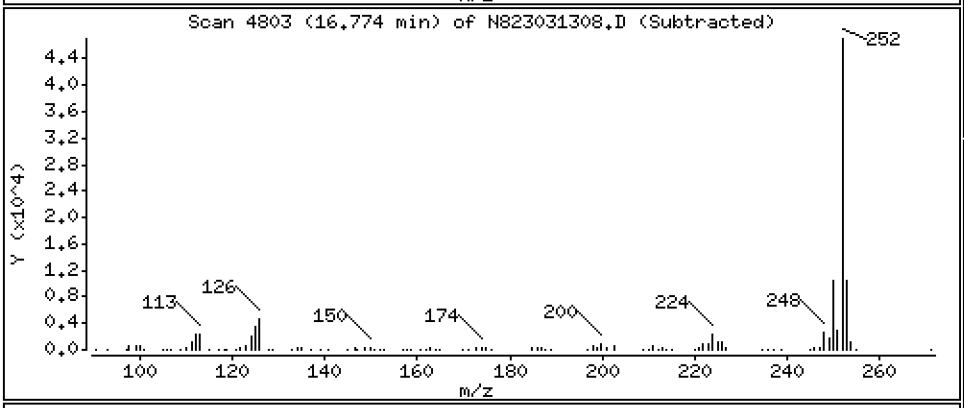
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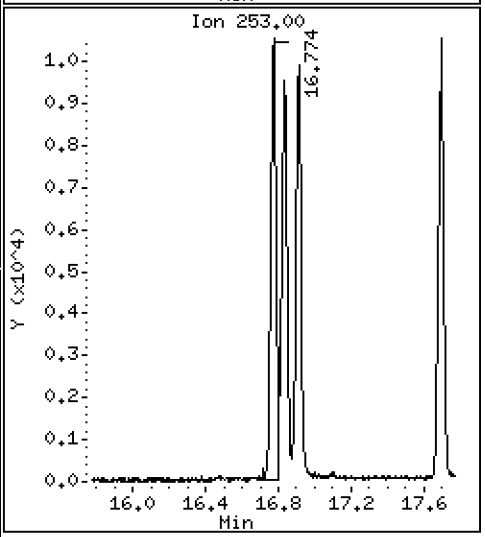
31 Total Benzofluoranthenes

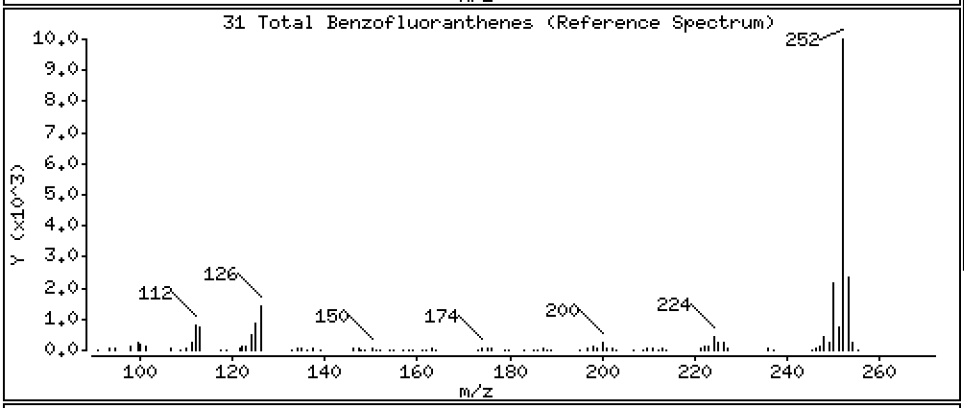
Concentration: 13.07 ug/mL

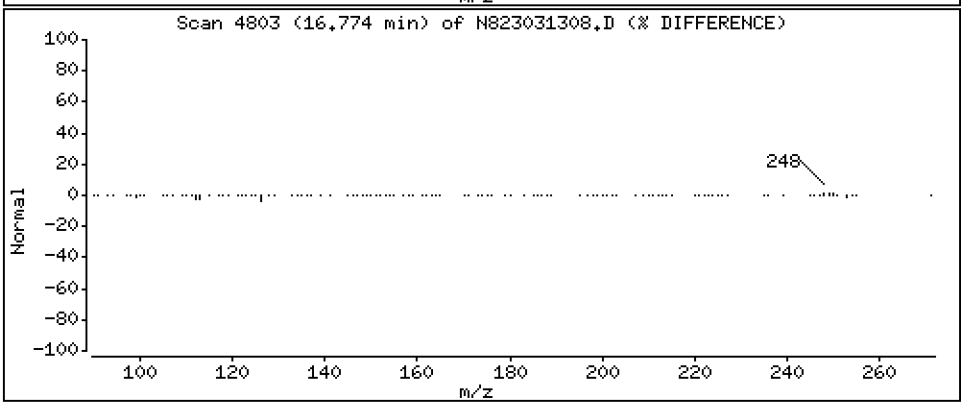












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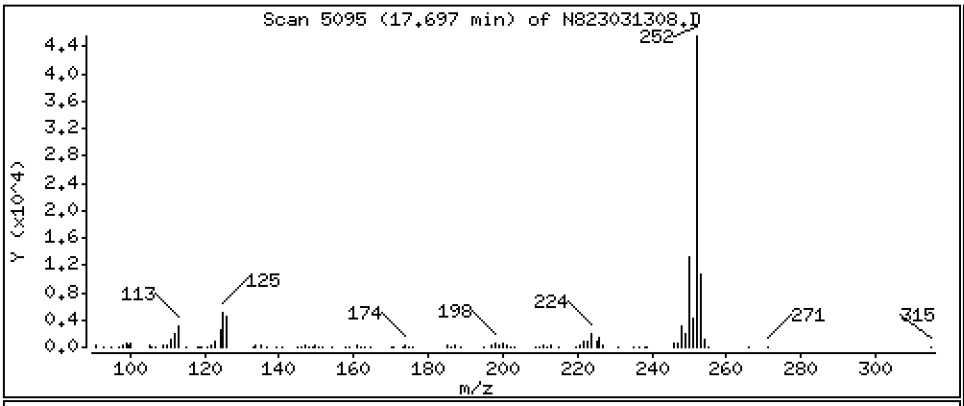
Operator: JZ

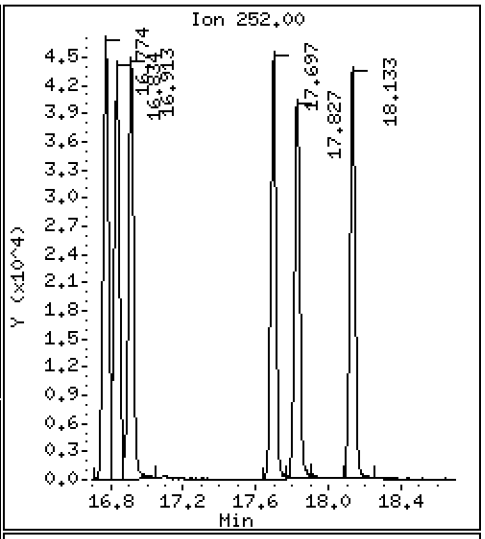
Column phase: Rxi-17sil

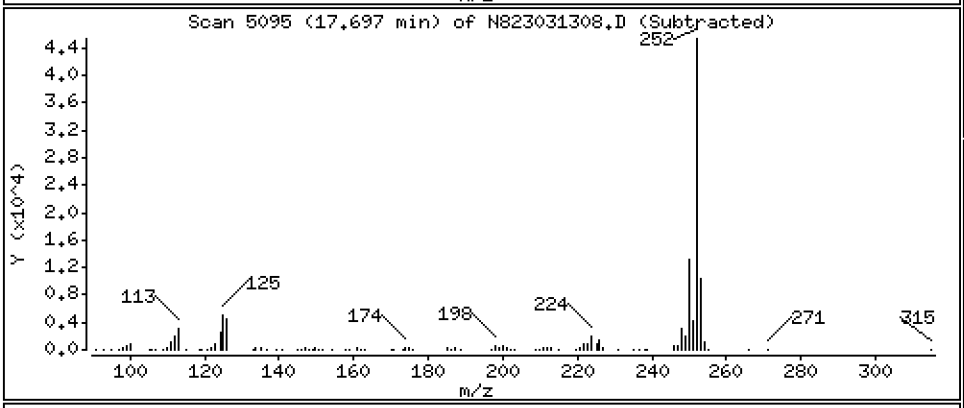
Column diameter: 0.25

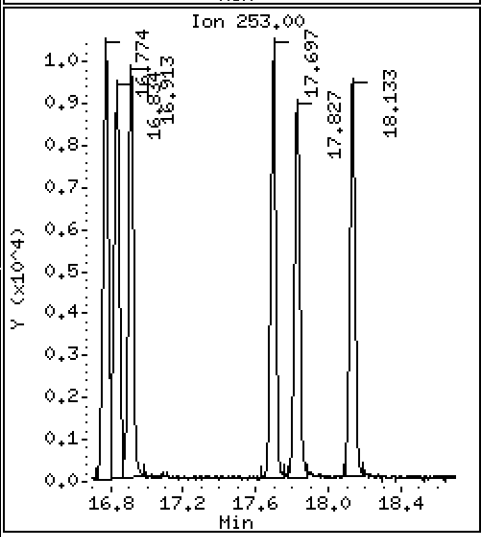
34 Benzo(e)pyrene

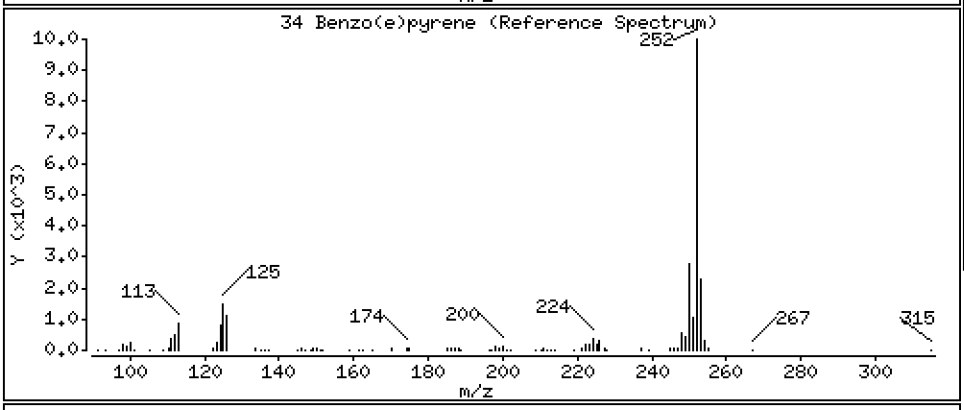
Concentration: 4.246 ug/mL

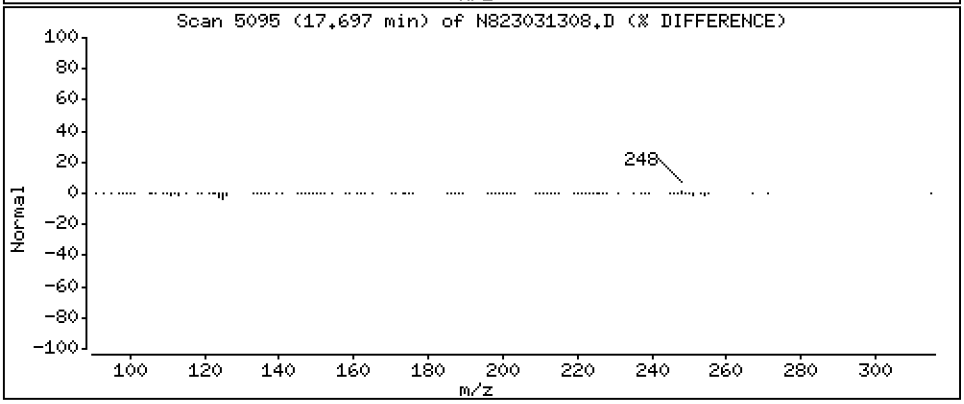












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Date : 13-MAR-2023 16:20

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Instrument: nt8.i

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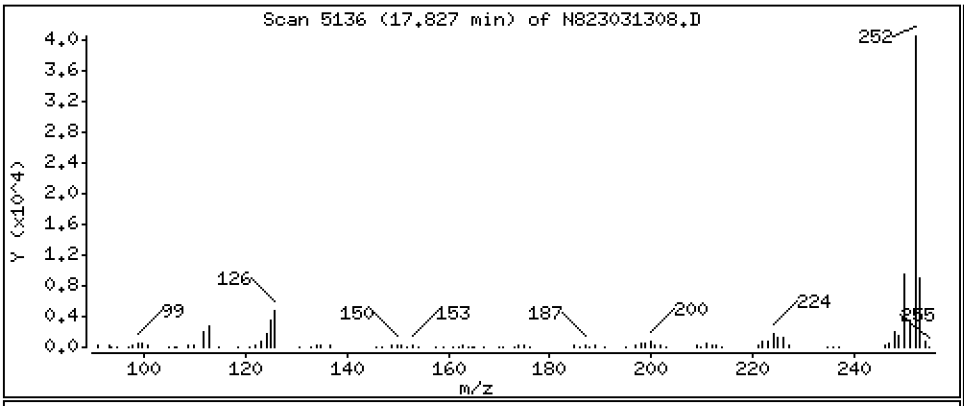
Operator: JZ

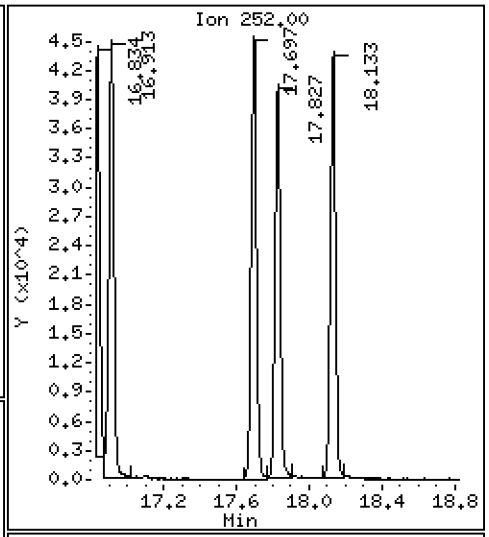
Column phase: Rxi-17sil

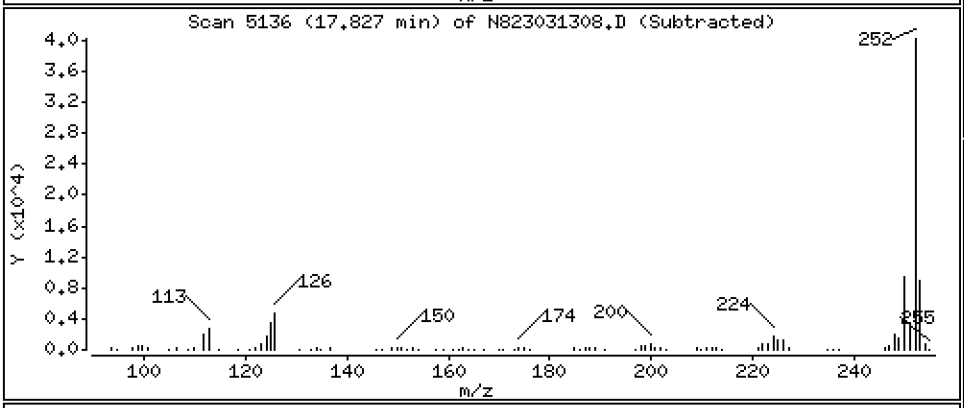
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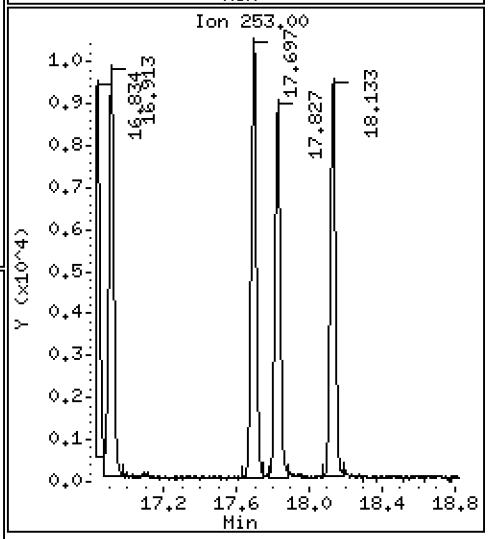
32 Benzo(a)pyrene

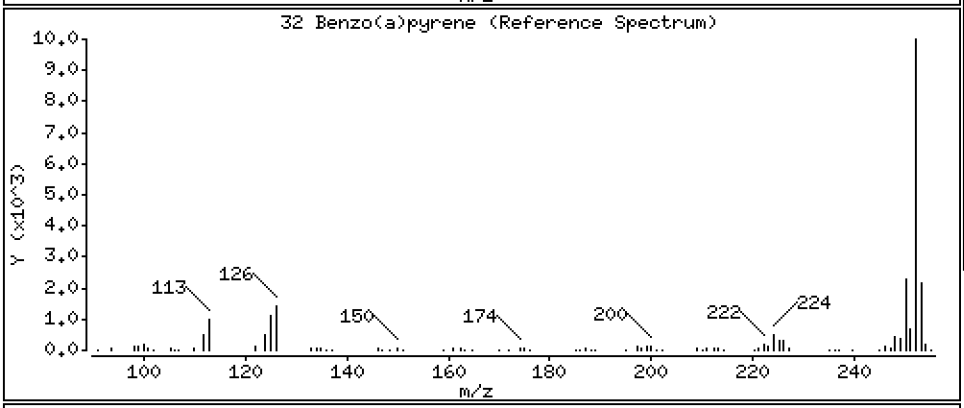
Concentration: 4.270 ug/mL

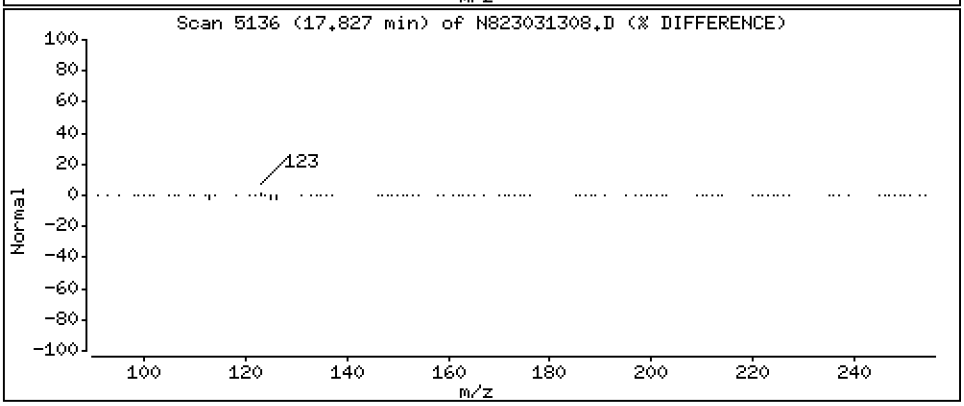












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031308.D

Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MSD1,

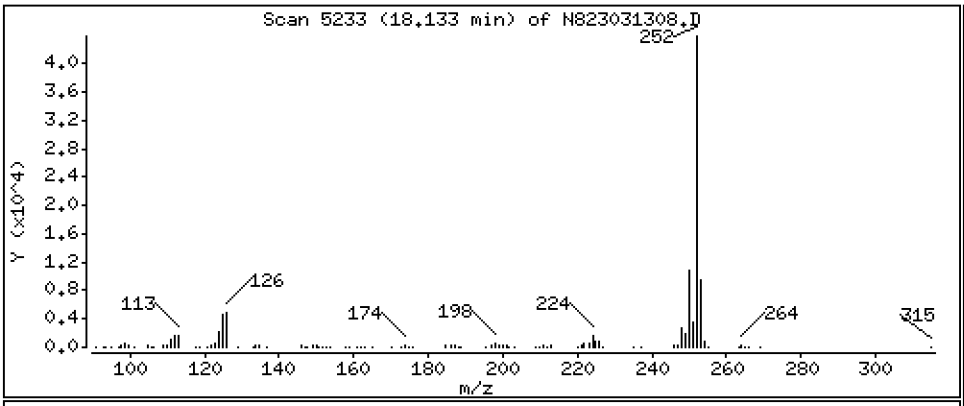
Operator: JZ

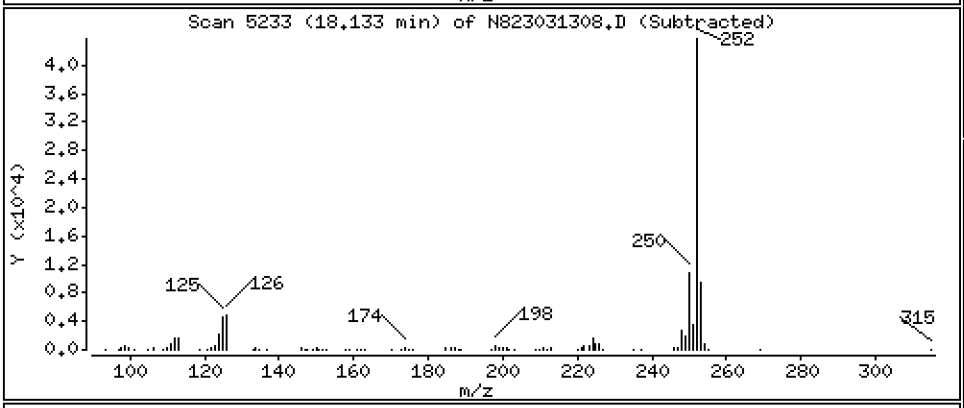
Column phase: Rxi-17sil

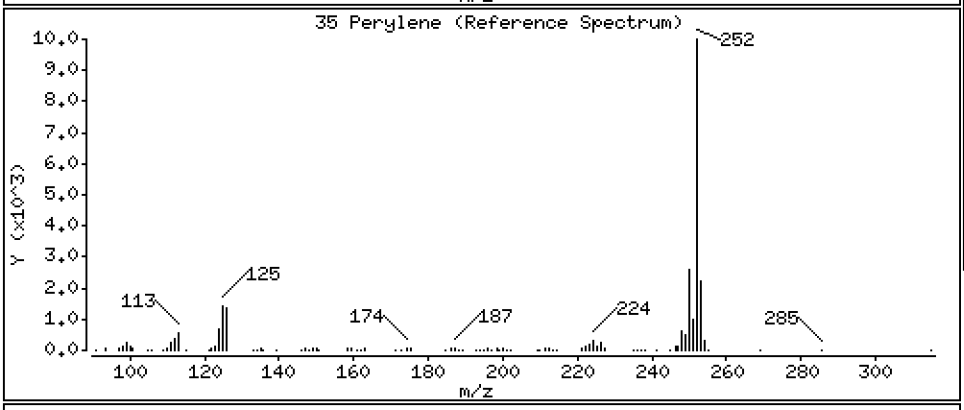
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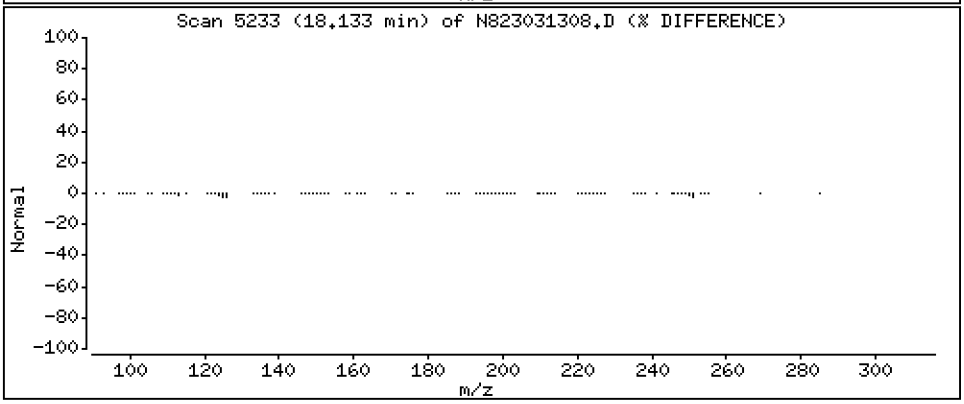
35 Perylene

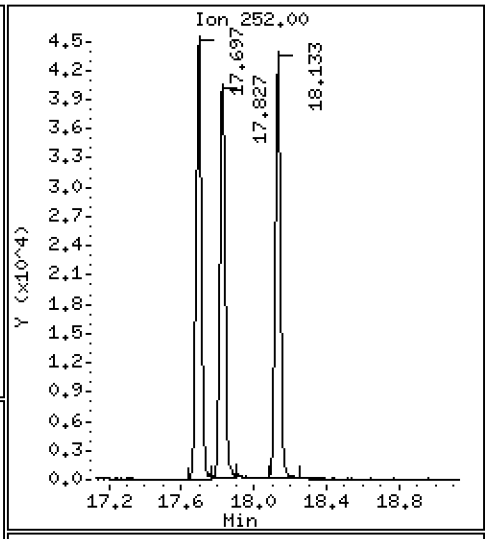
Concentration: 4.237 ug/mL

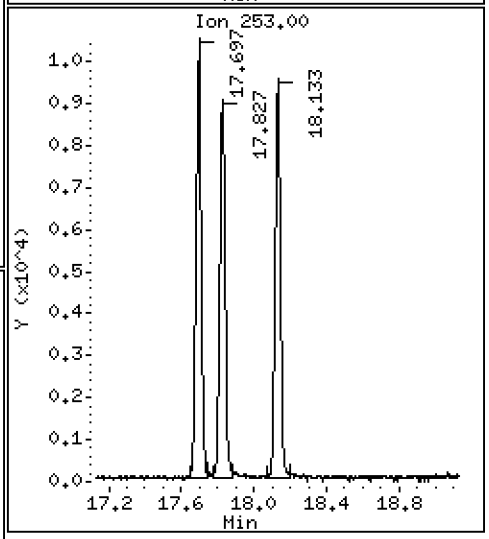












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031308.D

Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MSD1,

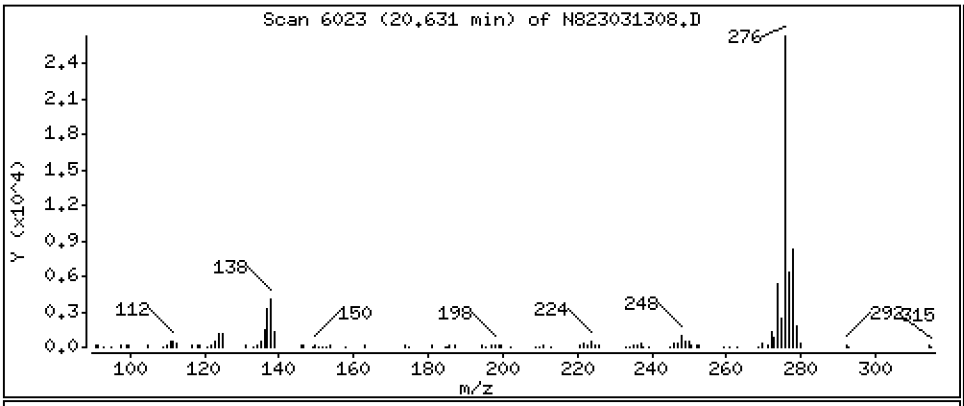
Operator: JZ

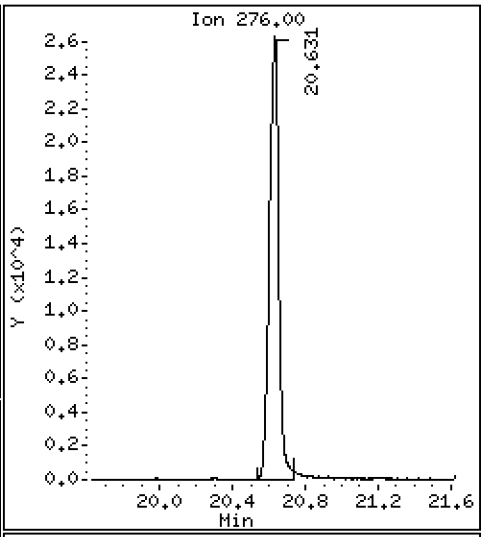
Column phase: Rxi-17sil

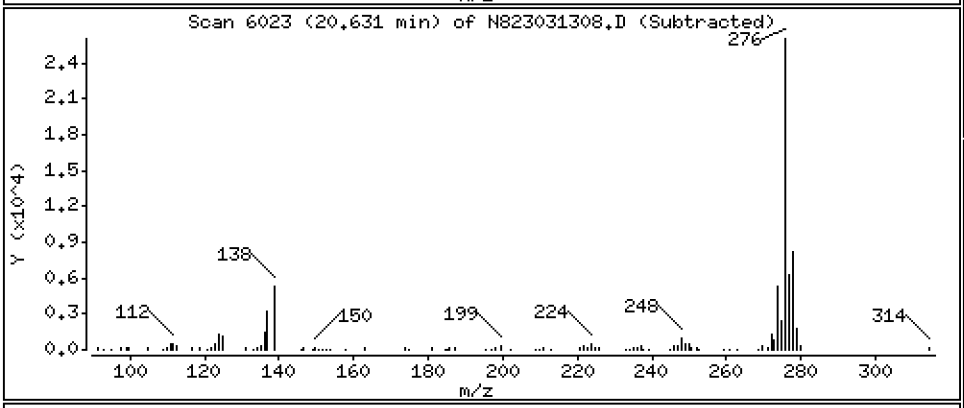
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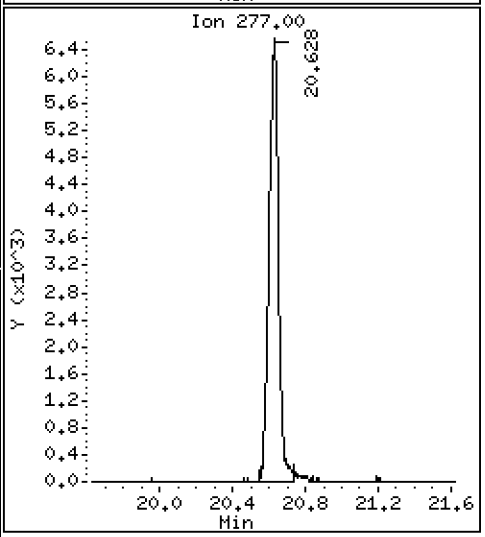
37 Indeno(1,2,3-cd)pyrene

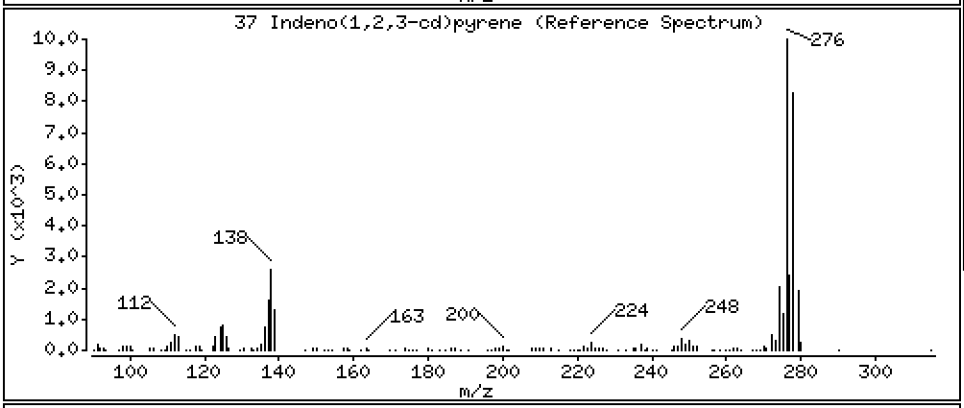
Concentration: 4.388 ug/mL

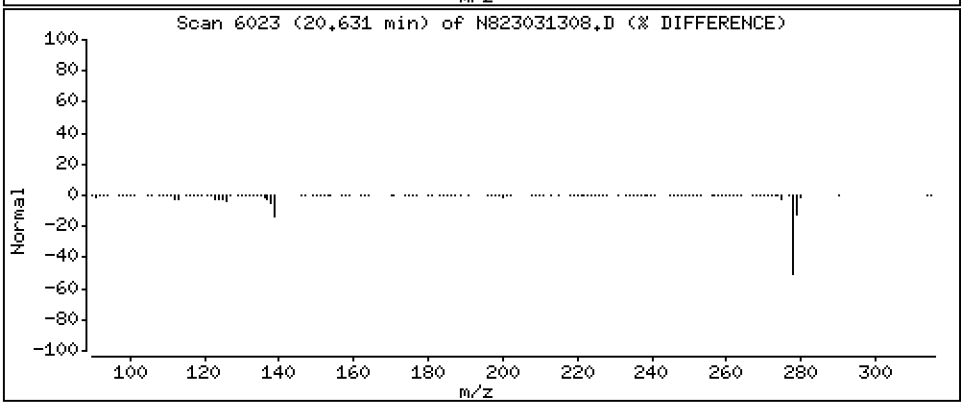












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031308.D

Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MSD1,

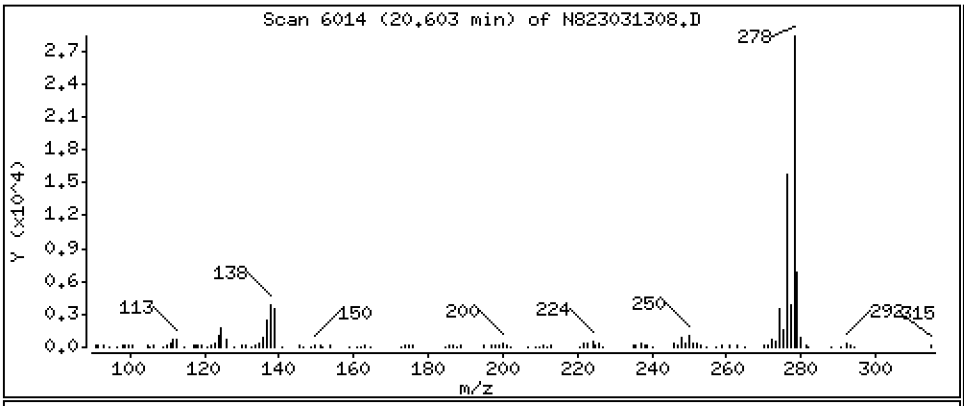
Operator: JZ

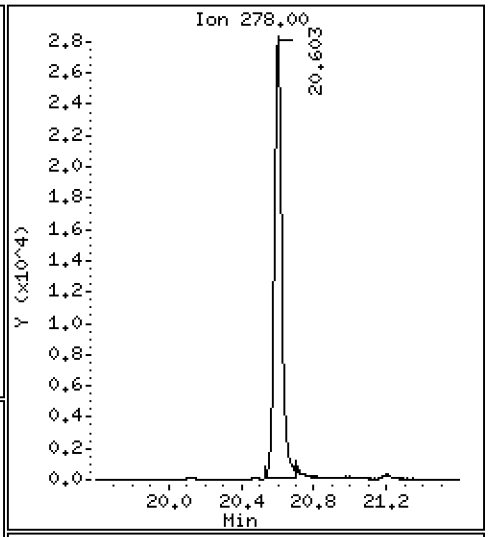
Column phase: Rxi-17sil

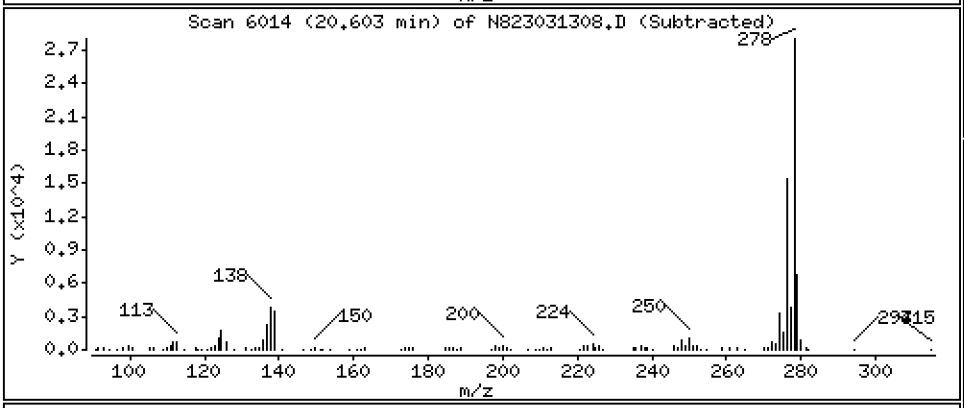
Column diameter: 0.25

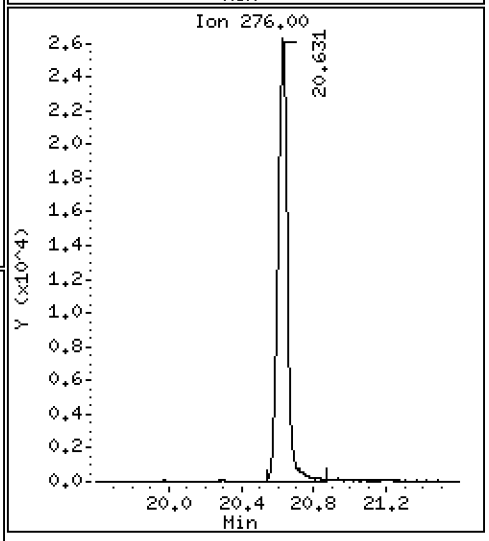
38 Dibenzo(a,h)anthracene

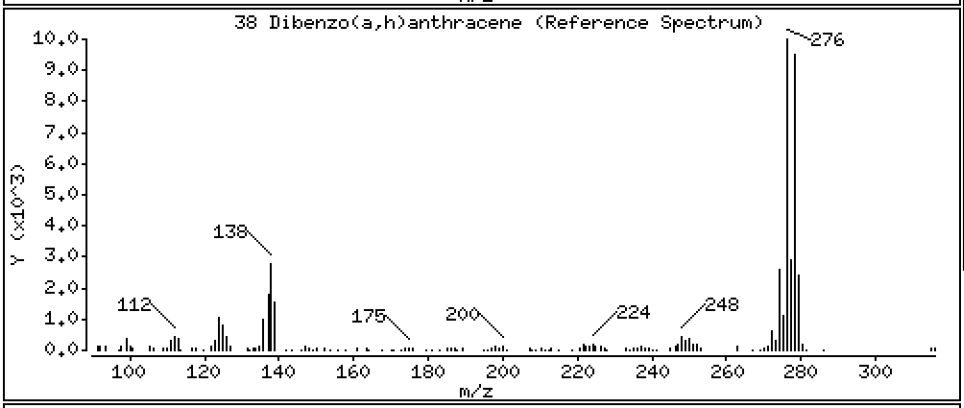
Concentration: 4.360 ug/mL

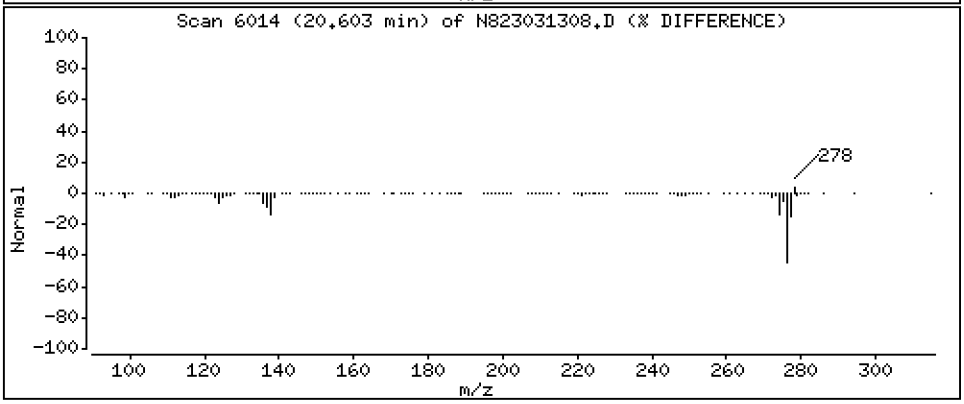












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031308.D

Date : 13-MAR-2023 16:20

Client ID:

Instrument: nt8.i

Sample Info: BLC0106-MSD1,

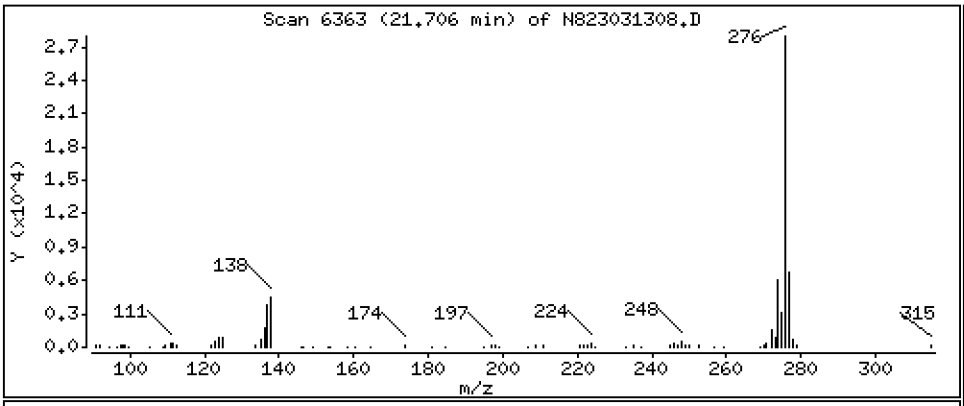
Operator: JZ

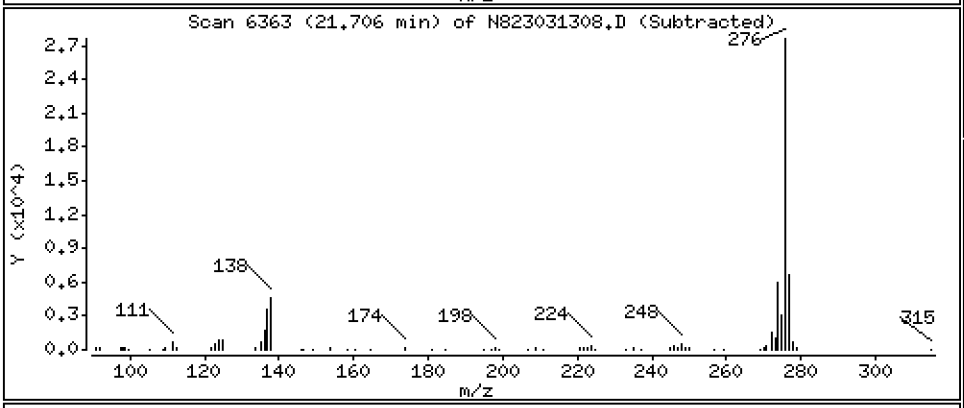
Column phase: Rxi-17sil

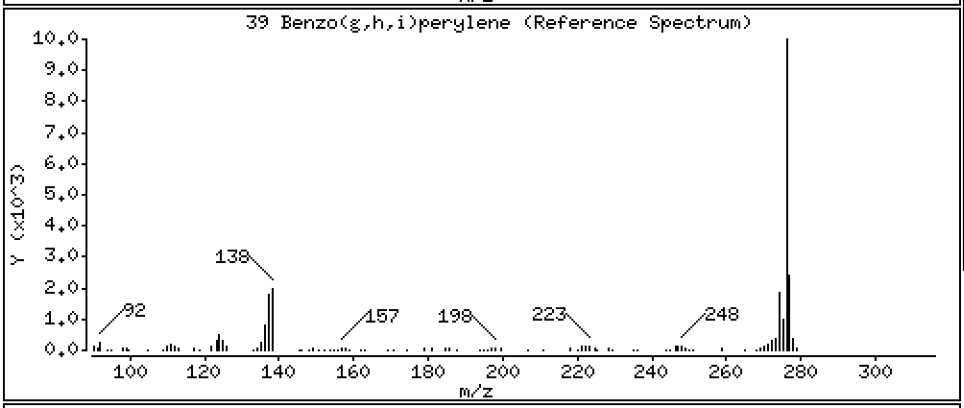
Column diameter: 0.25

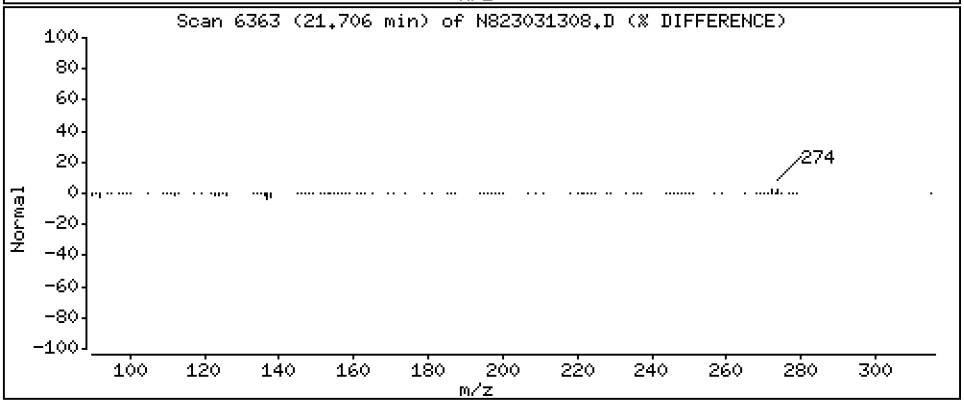
39 Benzo(g,h,i)perylene

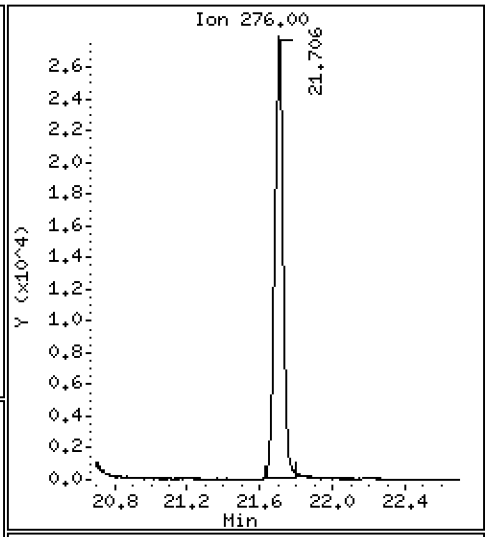
Concentration: 4.525 ug/mL

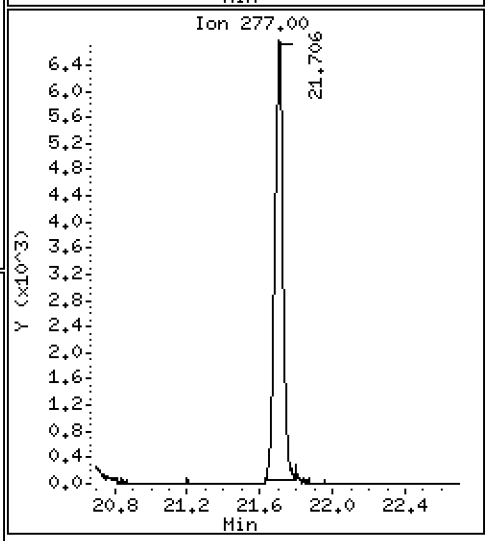












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031308.D
Lab Smp Id: BLC0106-MSD1
Inj Date : 13-MAR-2023 16:20
Operator : JZ Inst ID: nt8.i
Smp Info : BLC0106-MSD1,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: PNAXEMDL.sub
Target Version: 4.14
Processing Host: JIANQING-202105

								CONCENTRATIONS	
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE		ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.853	4.862	(1.000)	39979		2.00000	
	2 Naphthalene	128	4.884	4.891	(1.007)	63010		3.38971	3.390
$	3 2-Methylnaphthalene-d10	152	5.593	5.599	(1.152)	26361		2.41771	2.418
	4 2-Methylnaphthalene	141	5.640	5.646	(1.162)	37823		3.69918	3.699
	5 1-methylnaphthalene	141	5.839	5.842	(1.203)	37891		3.65138	3.651
	9 Acenaphthylene	152	7.044	7.047	(0.985)	71656		3.88394	3.884
*	10 Acenaphthene-d10	164	7.151	7.155	(1.000)	24432		2.00000	
	11 Acenaphthene	153	7.202	7.205	(1.007)	45571		3.68651	3.687
	12 Dibenzofuran	168	7.354	7.357	(1.028)	70732		3.76723	3.767
	14 Fluorene	166	7.834	7.838	(1.095)	59606		4.08749	4.087
*	15 Phenanthrene-d10	188	9.194	9.197	(1.000)	46495		2.00000	
	16 Phenanthrene	178	9.232	9.232	(1.004)	91013		4.00730	4.007
	17 Anthracene	178	9.273	9.273	(1.009)	86971		4.21533	4.215
	19 Carbazole	167	9.788	9.792	(1.065)	83902		4.43588	4.436
	22 Fluoranthene	202	11.009	11.009	(1.197)	108749		4.39888	4.399
$	21 Fluoranthene-d10	212	10.971	10.971	(1.193)	62503		3.04693	3.047
	23 Pyrene	202	11.534	11.524	(0.815)	144806		6.37369	6.374
	24 Benzo(a)anthracene	228	14.022	14.025	(0.991)	103682		5.03496	5.035
*	25 Chrysene-d12	240	14.149	14.152	(1.000)	36645		2.00000	
	27 Chrysene	228	14.222	14.225	(1.005)	96043		4.38119	4.381
	28 Benzo(b)fluoranthene	252	16.773	16.773	(0.929)	98170		4.48213	4.482
	29 Benzo(k)fluoranthene	252	16.833	16.833	(0.933)	89776		4.18466	4.185
	30 Benzo(j)fluoranthene	252	16.912	16.912	(0.937)	86961		4.50265	4.503
	31 Total Benzofluoranthenes	252	16.773	16.773	(0.929)	271097		13.0694	13.07(M)
	34 Benzo(e)pyrene	252	17.697	17.697	(0.980)	92739		4.24609	4.246
	32 Benzo(a)pyrene	252	17.826	17.826	(0.988)	82304		4.27019	4.270
*	33 Perylene-d12	264	18.051	18.060	(1.000)	37607		2.00000	
	35 Perylene	252	18.133	18.130	(1.005)	87624		4.23651	4.237
$	36 Dibenzo(a,h)anthracene-d14	292	20.485	20.482	(1.135)	46067		3.12632	3.126
	37 Indeno(1,2,3-cd)pyrene	276	20.631	20.625	(1.143)	96356		4.38823	4.388
	38 Dibenzo(a,h)anthracene	278	20.602	20.599	(1.141)	82385		4.35981	4.360
	39 Benzo(g,h,i)perylene	276	21.706	21.696	(1.202)	90023		4.52506	4.525

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031308.D
Lab Smp Id: BLC0106-MSD1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	39979	-0.92
10 Acenaphthene-d10	24212	12106	48424	24432	0.91
15 Phenanthrene-d10	46031	23016	92062	46495	1.01
25 Chrysene-d12	38604	19302	77208	36645	-5.07
33 Perylene-d12	35963	17982	71926	37607	4.57

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.85	-0.19
10 Acenaphthene-d10	7.16	6.66	7.66	7.15	-0.04
15 Phenanthrene-d10	9.20	8.70	9.70	9.19	-0.03
25 Chrysene-d12	14.15	13.65	14.65	14.15	-0.02
33 Perylene-d12	18.06	17.56	18.56	18.05	-0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031308.D

Lab ID: BLC0106-MSD1
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 16:20

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

No RRT check performed

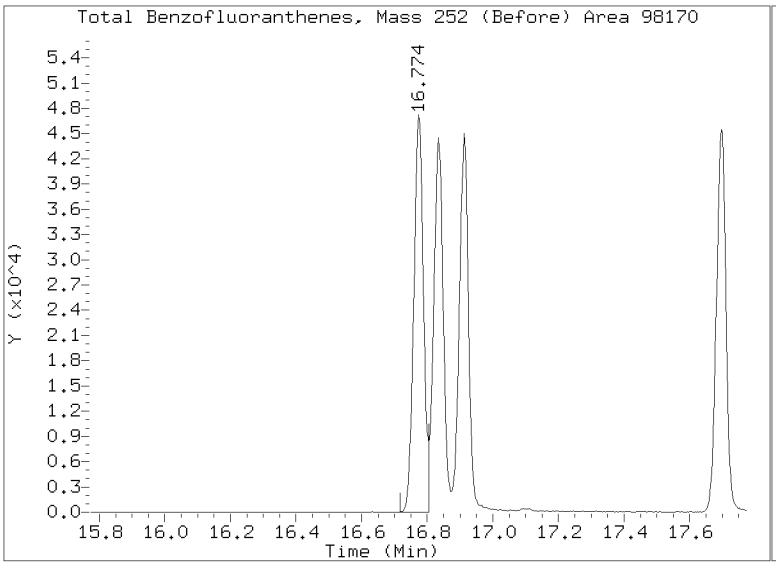
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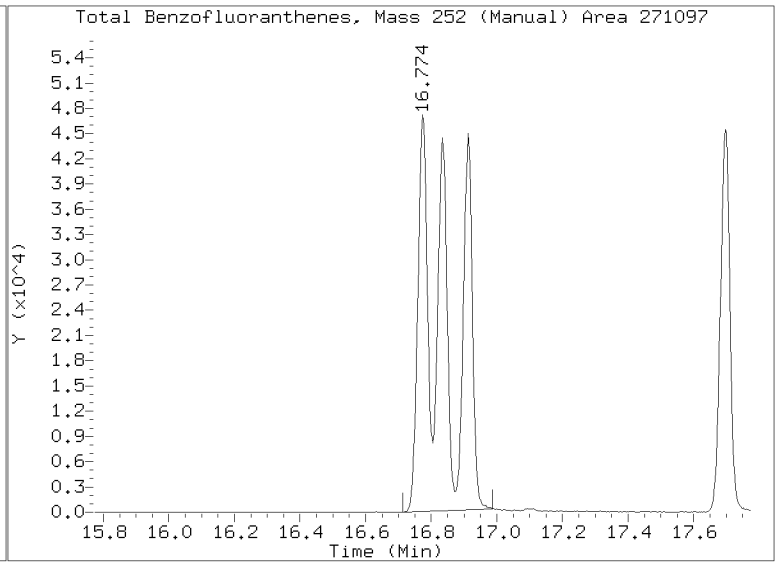
Exception: Benzo(e)pyrene 0.0800

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031308.D
Injection Date: 13-MAR-2023 16:20
Lab ID:BLC0106-MSD1 Client ID:
Report Date: 03/13/2023 21:09





Analytical Resources, LLC
Analytical Chemists and Consultants

MASS SPECTROMETER
INSTRUMENT PERFORMANCE CHECK
EPA 8270E-SIM

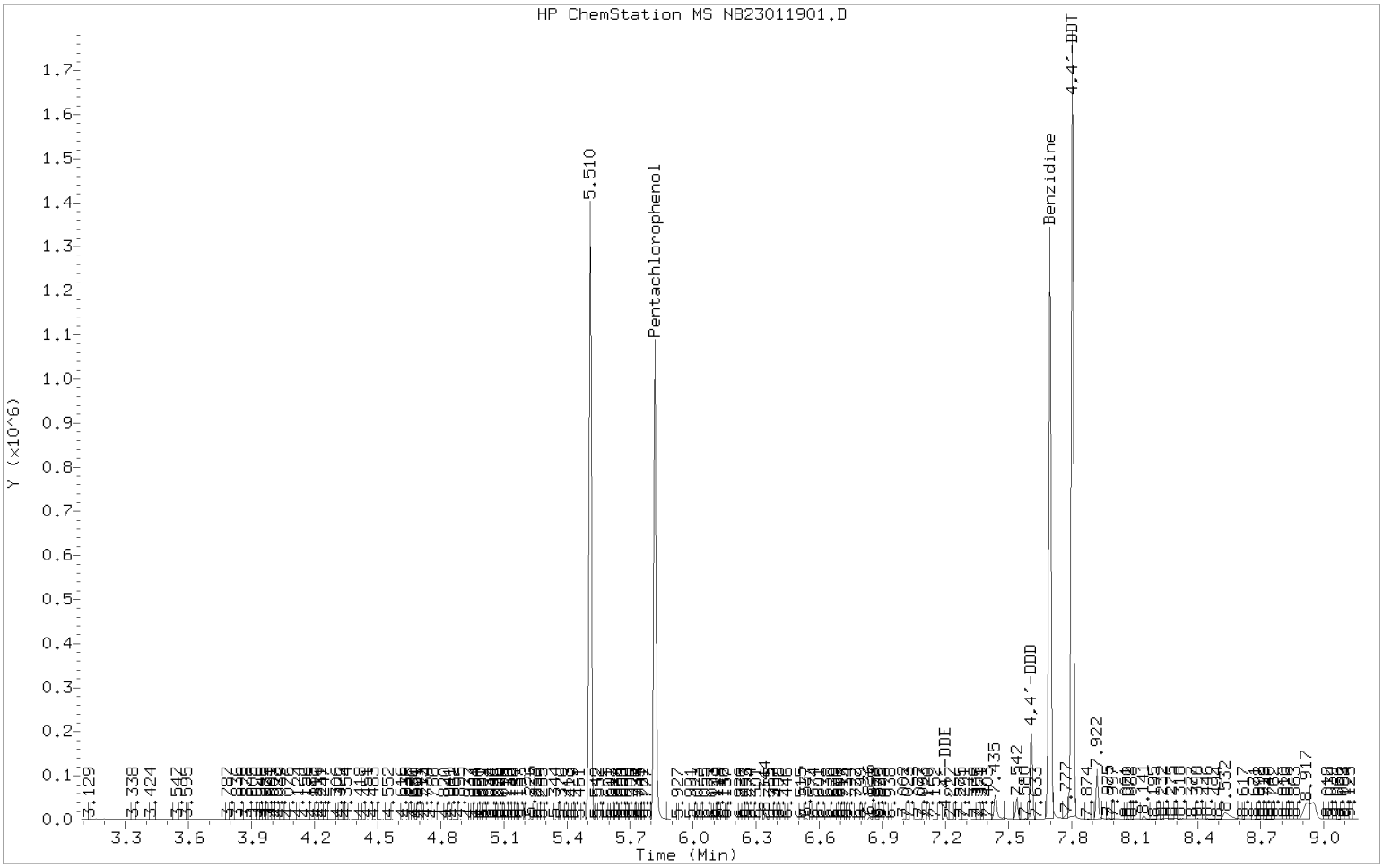
Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Lab File ID:	N823011901.D	Injection Date:	01/19/23
Instrument ID:	NT8	Injection Time:	10:28
Sequence:	SLA0213	Lab Sample ID:	SLA0213-TUN1

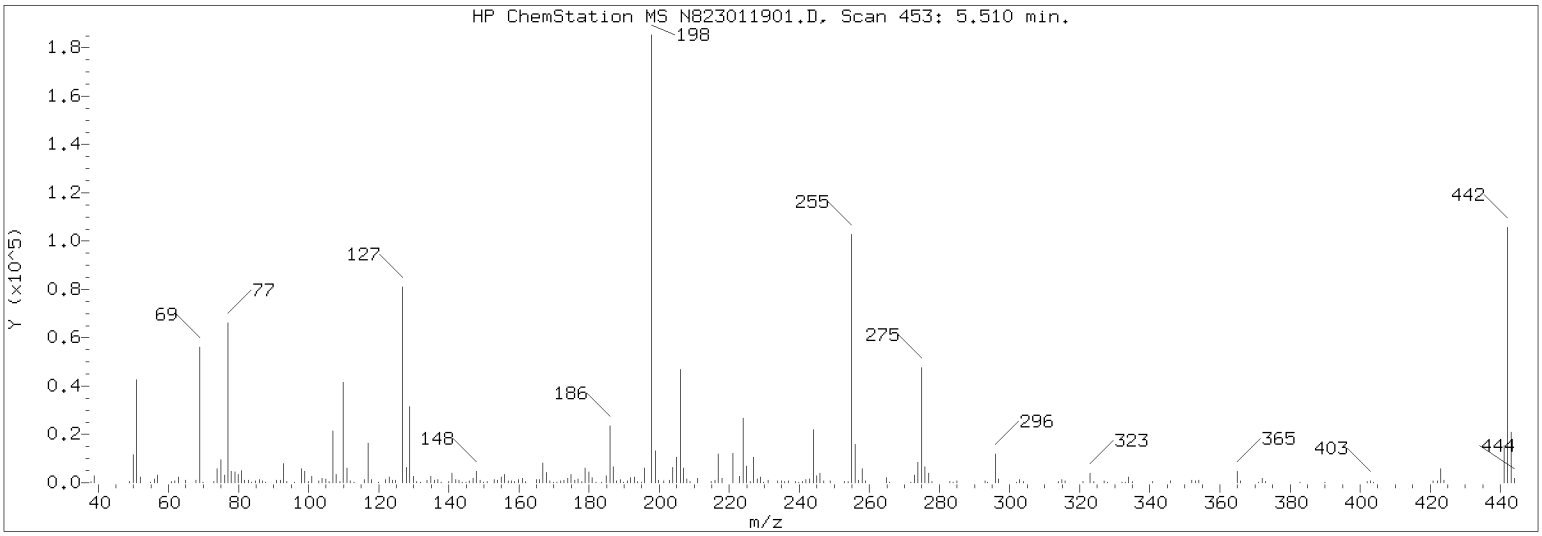
m/z	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
68	Less than 2% of 69	1.25	PASS
69	Less than 100% of 198	30.9	PASS
70	Less than 2% of 69	0.208	PASS
197	Less than 2% of 198	0.168	PASS
198	Base peak, 100% relative abundance	100	PASS
199	5 - 9% of 198	6.89	PASS
365	1 - 100% of 198	2.85	PASS
441	Less than 150% of 443	72.9	PASS
442	1 - 200% of 198	67.9	PASS
443	15 - 24% of 442	19.6	PASS
4,4'-DDD	Less than 20% of 4,4'-DDT		
4,4'-DDE	Less than 20% of		
4,4'-DDT	Base peak, 100% relative abundance		

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
MS Tune	SLA0213-TUN1	N823011901.D	01/19/2023	10:28
Initial Cal Blank	SLA0213-ICB1	N823011902.D	01/19/2023	10:59
Cal Standard	SLA0213-CAL1	N823011903.D	01/19/2023	11:26
Cal Standard	SLA0213-CAL2	N823011904.D	01/19/2023	11:58
Cal Standard	SLA0213-CAL3	N823011905.D	01/19/2023	12:25
Cal Standard	SLA0213-CAL4	N823011906.D	01/19/2023	12:52
Cal Standard	SLA0213-CAL5	N823011907.D	01/19/2023	13:19
Cal Standard	SLA0213-CAL6	N823011908.D	01/19/2023	13:46
Secondary Cal Check	SLA0213-SCV1	N823011909.D	01/19/2023	14:58

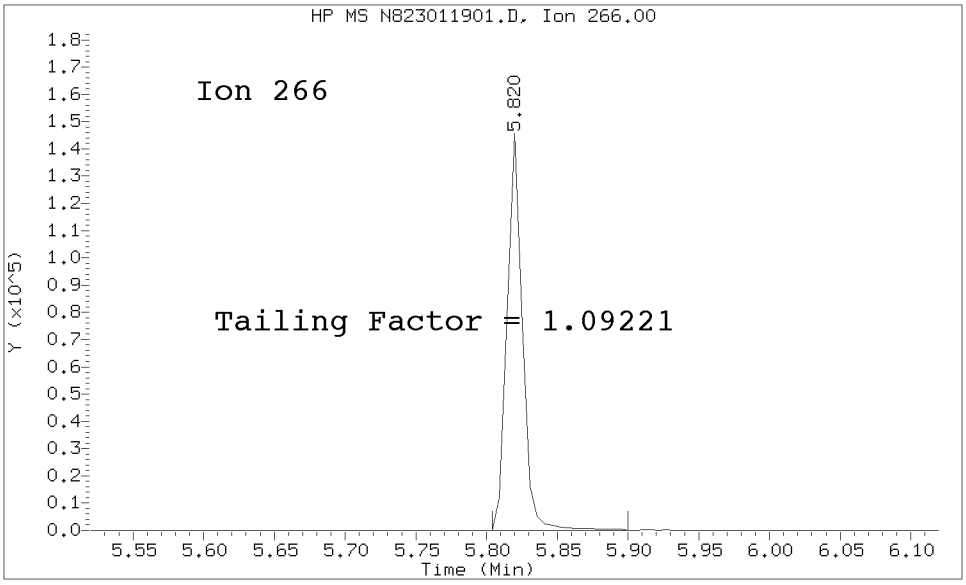
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: SLA0213-TUN1 DFTPP230119
Report Date: 01/19/2023 20:14



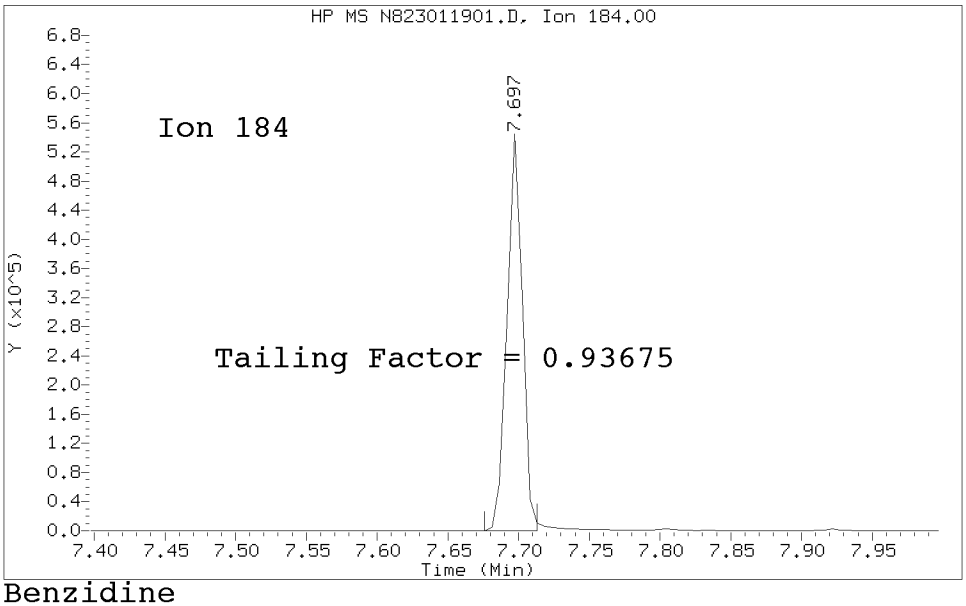


Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m\sw846ddt.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: DFTPP230119
Report Date: 01/19/2023 20:14



Pentachlorophenol
==========
Exp. RT = 5.825
Found RT = 5.820

Tail Factor = 1.092 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.703
Found RT = 7.697

Tail Factor = 0.937 Maximum Allowed = 2.0

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	23.71
68	Less than 2.00% of mass 69	0.39 (1.25)
69	Mass 69 relative abundance	30.92
70	Less than 2.00% of mass 69	0.06 (0.21)
127	10.00 - 80.00% of mass 198	44.20
197	Less than 2.00% of mass 198	0.17
199	5.00 - 9.00% of mass 198	6.89
275	10.00 - 60.00% of mass 198	26.96
365	Greater than 1.00% of mass 198	2.85
441	0.01 - 24.00% of mass 442	9.72 (14.32)
442	50.00 - 200.00% of mass 198	67.89
443	15.00 - 24.00% of mass 442	13.33 (19.64)

Data File: N823011901.D
Spectrum: Avg. Scans 452-454 (5.51), Background Scan 448
Location of Maximum: 198.00
Number of points: 228

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	424	124.00	727	188.00	466	265.00	1738
39.00	2285	125.00	694	189.00	1088	266.00	231
49.00	389	127.00	59064	190.00	92	272.00	97
50.00	8567	128.00	4618	191.00	538	273.00	2435
51.00	31688	129.00	23208	192.00	1501	274.00	6434
52.00	1694	130.00	1967	193.00	1652	275.00	36032
55.00	89	131.00	387	194.00	339	276.00	4936
56.00	1081	132.00	92	195.00	108	277.00	3133
57.00	2353	134.00	695	196.00	4417	278.00	496
61.00	487	135.00	1887	197.00	224	283.00	243
62.00	511	136.00	770	198.00	133632	284.00	200
63.00	1627	137.00	979	199.00	9210	285.00	536
65.00	865	138.00	101	200.00	711	293.00	678
68.00	518	140.00	220	201.00	653	294.00	83
69.00	41320	141.00	2913	203.00	891	296.00	9364
70.00	86	142.00	931	204.00	4715	297.00	1310
73.00	274	143.00	728	205.00	8070	302.00	96
74.00	4327	144.00	83	206.00	34104	303.00	1146
75.00	6885	145.00	91	207.00	4557	304.00	262
76.00	2362	146.00	508	208.00	1177	314.00	364
77.00	48072	147.00	1540	209.00	387	315.00	1068
78.00	3441	148.00	3391	210.00	236	316.00	588
79.00	3296	149.00	690	211.00	1430	321.00	250
80.00	2464	150.00	90	215.00	376	323.00	3145
81.00	3741	151.00	458	216.00	746	324.00	501
82.00	872	152.00	181	217.00	9085	327.00	540
83.00	845	153.00	893	218.00	1189	328.00	201
84.00	287	154.00	764	221.00	8442	332.00	178
85.00	621	155.00	1756	223.00	2039	333.00	129
86.00	1039	156.00	2503	224.00	19544	334.00	1893
87.00	481	157.00	527	225.00	5122	335.00	518
88.00	91	158.00	516	226.00	502	341.00	275
91.00	866	159.00	410	227.00	8274	346.00	674
92.00	878	160.00	955	228.00	1174	352.00	945
93.00	5816	161.00	1421	229.00	1712	353.00	630
94.00	409	162.00	445	230.00	111	354.00	910
96.00	203	165.00	1085	231.00	685	365.00	3802
98.00	4243	166.00	1023	234.00	538	366.00	580
99.00	3501	167.00	5993	235.00	568	371.00	91
100.00	344	168.00	3082	236.00	394	372.00	1475
101.00	1983	169.00	490	237.00	657	373.00	292
103.00	704	170.00	94	239.00	327	383.00	290
104.00	1275	171.00	194	240.00	187	390.00	177
105.00	1230	172.00	595	241.00	468	402.00	468
106.00	379	173.00	732	242.00	1090	403.00	736
107.00	15826	174.00	1319	243.00	1102	404.00	243
108.00	2447	175.00	2491	244.00	16206	421.00	649
109.00	331	176.00	751	245.00	2245	422.00	226
110.00	30008	177.00	1175	246.00	3000	423.00	4860

111.00	4456	178.00	288	247.00	624	424.00	978
112.00	513	179.00	4561	249.00	587	441.00	12991
113.00	89	180.00	3271	253.00	239	442.00	90720
116.00	935	181.00	1513	254.00	438	443.00	17816
117.00	12513	182.00	106	255.00	76904	444.00	1584
118.00	931	184.00	333	256.00	11699		
120.00	104	185.00	2153	257.00	880		
122.00	1003	186.00	17336	258.00	4539		
123.00	1682	187.00	4916	259.00	746		

INITIAL CALIBRATION DATA
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GA00050	Instrument:	NT8
Calibration Date:	01/19/2023	Column (1):	RXI-17Sil ms

Calibration Comments: SS, Dibenzo(a,h)anthracene-d14, highest point included. Changed curve fit from "AVG" to "LRO" on 1/25/23 by JZ.

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	**RRF**	Conc	RRF	Conc	RRF	Conc	**RRF**	Conc	**RRF**
Naphthalene	0.1	1.051331	0.5	0.8804155	1	0.9140738	2.5	0.9442377	5	0.9059688	10	0.8834817
2-Methylnaphthalene	0.1	0.5583976	0.5	0.483576	1	0.4966087	2.5	0.5321582	5	0.5081776	10	0.490102
1-Methylnaphthalene	0.1	0.567502	0.5	0.4881925	1	0.5073336	2.5	0.5386185	5	0.5123544	10	0.5007901
Acenaphthylene	0.1	1.569275	0.5	1.288567	1	1.419627	2.5	1.612722	5	1.573862	10	1.597505
Acenaphthene	0.1	1.159165	0.5	0.9399536	1	0.9690137	2.5	1.040021	5	0.9826181	10	0.9807186
Dibenzofuran	0.1	1.856131	0.5	1.449189	1	1.468766	2.5	1.539056	5	1.458398	10	1.450275
Fluorene	0.1	1.333774	0.5	1.066627	1	1.134936	2.5	1.226731	5	1.19285	10	1.207426
Phenanthrene	0.1	1.200199	0.5	0.9068737	1	0.925967	2.5	0.9922048	5	0.9288855	10	0.90761
Anthracene	0.1	0.9900686	0.5	0.7891408	1	0.8362482	2.5	0.9415647	5	0.895227	10	0.8727266
Fluoranthene	0.1	1.200966	0.5	0.9720444	1	1.022937	2.5	1.114343	5	1.05358	10	1.016684
Pyrene	0.1	1.416146	0.5	1.066416	1	1.156217	2.5	1.294823	5	1.256828	10	1.249389
Benzo(a)anthracene	0.1	1.200365	0.5	0.9419141	1	1.006861	2.5	1.18718	5	1.184592	10	1.222407
Chrysene	0.1	1.382333	0.5	1.081643	1	1.128342	2.5	1.227241	5	1.185771	10	1.173282
Benzo(b)fluoranthene	0.1	1.335895	0.5	0.9774708	1	1.022944	2.5	1.220494	5	1.192377	10	1.239686
Benzo(k)fluoranthene	0.1	1.327249	0.5	0.9937275	1	1.005899	2.5	1.178993	5	1.164539	10	1.175213
Benzo(j)fluoranthene	0.1	1.092831	0.5	0.9205253	1	0.9228699	2.5	1.084778	5	1.075203	10	1.066465
Benzofluoranthenes, Total	0.3	1.255354	1.5	0.9344954	3	0.9716584	7.5	1.159079	15	1.142352	30	1.155882
Benzo(a)pyrene	0.1	1.139906	0.5	0.8777692	1	0.8951488	2.5	1.077374	5	1.063086	10	1.096879
Indeno(1,2,3-cd)pyrene	0.1	1.208599	0.5	0.995325	1	1.072555	2.5	1.257473	5	1.228578	10	1.24398
Dibenzo(a,h)anthracene	0.1	1.049117	0.5	0.8348251	1	0.8950591	2.5	1.081382	5	1.068557	10	1.100721
Benzo(g,h,i)perylene	0.1	1.162964	0.5	0.9102826	1	0.9409469	2.5	1.106673	5	1.088733	10	1.138469
2-Methylnaphthalene-d10	0.1	0.5857106	0.5	0.4932528	1	0.5345061	2.5	0.5674481	5	0.5504276	10	0.5413545
Dibenzo[a,h]anthracene-d14	0.1	0.580281	0.5	0.5471844	1	0.6076211	2.5	0.7324975	5	0.7420675	10	0.7980029
Fluoranthene-d10	0.1	0.9007247	0.5	0.754546	1	0.8247891	2.5	0.9550254	5	0.9291815	10	0.930087

INITIAL CALIBRATION DATA

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GA00050	Instrument:	NT8
Calibration Date:	01/19/2023	Column (1):	RXI-17Sil ms

Calibration Comments: SS, Dibenzo(a,h)anthracene-d14, highest point included. Changed curve fit from "AVG" to "LRO" on 1/25/23 by JZ.

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Naphthalene	0.9299181	6.9			RSD (15)	
2-Methylnaphthalene	0.5115033	5.6			RSD (15)	
1-Methylnaphthalene	0.5191318	5.6			RSD (15)	
Acenaphthylene	1.51026	8.5			RSD (15)	
Acenaphthene	1.011915	7.8			RSD (15)	
Dibenzofuran	1.536969	10.4			RSD (15)	
Fluorene	1.193724	7.5			RSD (15)	
Phenanthrene	0.9769567	11.6			RSD (15)	
Anthracene	0.887496	8.1			RSD (15)	
Fluoranthene	1.063426	7.7			RSD (15)	
Pyrene	1.23997	9.6			RSD (15)	
Benzo(a)anthracene	1.123887	10.5			RSD (15)	
Chrysene	1.196435	8.7			RSD (15)	
Benzo(b)fluoranthene	1.164811	11.8			RSD (15)	
Benzo(k)fluoranthene	1.140937	10.9			RSD (15)	
Benzo(j)fluoranthene	1.027112	8.0			RSD (15)	
Benzofluoranthenes, Total	1.103137	11.2			RSD (15)	
Benzo(a)pyrene	1.025027	10.8			RSD (15)	
Indeno(1,2,3-cd)pyrene	1.167752	9.2			RSD (15)	
Dibenzo(a,h)anthracene	1.004944	11.1			RSD (15)	
Benzo(g,h,i)perylene	1.058011	10.0			RSD (15)	
2-Methylnaphthalene-d10	0.5454499	5.8			RSD (15)	
Dibenzo[a,h]anthracene-d14	0.6679424	15.3	0.9971		LCOD (0.99)	
Fluoranthene-d10	0.8823923	8.7			RSD (15)	

Printed: 1/19/2023 8:45:16PM

ANALYSIS SEQUENCE

SLA0213

Instrument: NT8 Element Column ID: J006458
Calibration ID: GA00050

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	Comments
SLA0213-TUN1	MS Tune	QC		1	K004775			
SLA0213-ICB1	Initial Cal Blank	QC		2		K008540		
SLA0213-CAL1	8270 SIM PNA 0.1	QC		3	L000603	K008540		
SLA0213-CAL2	8270 SIM PNA 0.5	QC		4	L000604	K008540		
SLA0213-CAL3	8270 SIM PNA 1.0	QC		5	L000605	K008540		
SLA0213-CAL4	8270 SIM PNA 2.5	QC		6	L000606	K008540		
SLA0213-CAL5	8270 SIM PNA 5	QC		7	L000607	K008540		
SLA0213-CAL6	8270 SIM PNA 10	QC		8	L000608	K008540		
SLA0213-SCV1	8270 SIM PNA SCV	QC		9	L000686	K008540		

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

	Time	Filename	LabID	ClientId	DF											
1	1028	N823011901.D	SLA0213-TUN1		1	NO ISTDS FOUND										
2	1059	N823011902.D	SLA0213-ICB1		1	4.92	52082	7.20	30936	9.24	59030	14.22	50944	18.12	47418	
3	1126	N823011903.D	SLA0213-CAL1		1	4.91	46132	7.20	27261	9.24	52158	14.20	44953	18.11	41635	
4	1158	N823011904.D	SLA0213-CAL2		1	4.91	45056	7.20	26746	9.24	50759	14.21	44658	18.11	42567	
5	1225	N823011905.D	SLA0213-CAL3		1	4.91	47180	7.20	28206	9.24	53233	14.20	46493	18.11	44587	
6	1252	N823011906.D	SLA0213-CAL4		1	4.91	44704	7.20	26411	9.24	49210	14.20	42994	18.11	40520	
7	1319	N823011907.D	SLA0213-CAL5		1	4.91	46542	7.20	27638	9.23	51351	14.20	44781	18.11	42187	
8	1346	N823011908.D	SLA0213-CAL6		1	4.91	46070	7.20	26689	9.24	50683	14.21	43880	18.11	40659	
9	1458	N823011909.D	SLA0213-SCV1		1	4.91	46346	7.20	27709	9.24	51685	14.21	46582	18.12	41743	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

ARI Job No.: SLA0 Method: FSIMPNA230119.m Instrument: nt8.i Date: 19-JAN-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1059	N823011902.D	SLA0213-ICB1		1	NO MANUAL INTEGRATION
1126	N823011903.D	SLA0213-CAL1		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene-d14,
1158	N823011904.D	SLA0213-CAL2		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene, Dibenzo(a,h)anthracene-d14,
1225	N823011905.D	SLA0213-CAL3		1	Total Benzofluoranthenes,
1252	N823011906.D	SLA0213-CAL4		1	Total Benzofluoranthenes,
1319	N823011907.D	SLA0213-CAL5		1	Total Benzofluoranthenes,
1346	N823011908.D	SLA0213-CAL6		1	Total Benzofluoranthenes,
1458	N823011909.D	SLA0213-SCV1		1	Total Benzofluoranthenes,

Security Status Report

Date: 19-Jan-2023 20:43

N823011901.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011902.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011903.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011904.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011905.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011906.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011907.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011908.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011909.D	Data Locked	jianqing, 19-Jan-2023 20:43

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 19-JAN-2023 11:26
End Cal Date : 19-JAN-2023 13:46
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Last Edit : 19-Jan-2023 20:20 jianqing
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem3\nt8.i\20230119.b\N823011903.D
Level 2: \\target\share\chem3\nt8.i\20230119.b\N823011904.D
Level 3: \\target\share\chem3\nt8.i\20230119.b\N823011905.D
Level 4: \\target\share\chem3\nt8.i\20230119.b\N823011906.D
Level 5: \\target\share\chem3\nt8.i\20230119.b\N823011907.D
Level 6: \\target\share\chem3\nt8.i\20230119.b\N823011908.D

	0.10000	0.50000	1.000	2.500	5.000	10.000	___	
Compound	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	RRF	% RSD
2 Naphthalene	1.05133	0.88042	0.91407	0.94424	0.90597	0.88348	0.92992	6.865
4 2-Methylnaphthalene	0.55840	0.48358	0.49661	0.53216	0.50818	0.49010	0.51150	5.596
5 1-methylnaphthalene	0.56750	0.48819	0.50733	0.53862	0.51235	0.50079	0.51913	5.582
6 2-Chloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
7 Biphenyl	1.53553	1.22381	1.26186	1.35447	1.27381	1.26708	1.31943	8.655
8 2,6-Dimethylnaphthalene	1.00657	0.84902	0.90342	0.98129	0.93327	0.92936	0.93382	5.997
9 Acenaphthylene	1.56927	1.28857	1.41963	1.61272	1.57386	1.59750	1.51026	8.531
11 Acenaphthene	1.15917	0.93995	0.96901	1.04002	0.98262	0.98072	1.01192	7.822
12 Dibenzofuran	1.85613	1.44919	1.46877	1.53906	1.45840	1.45028	1.53697	10.407
13 1,6,7-Trimethylnaphthalene	1.10194	0.88028	0.91555	1.00758	0.95392	0.95592	0.96920	8.030
14 Fluorene	1.33377	1.06663	1.13494	1.22673	1.19285	1.20743	1.19372	7.540
16 Phenanthrene	1.20020	0.90687	0.92597	0.99220	0.92889	0.90761	0.97696	11.644
17 Anthracene	0.99007	0.78914	0.83625	0.94156	0.89523	0.87273	0.88750	8.129
18 Dibenzothiophene	1.00464	0.81097	0.83858	0.91687	0.87432	0.85731	0.88378	7.813
19 Carbazole	0.89689	0.71317	0.75168	0.85950	0.83159	0.82882	0.81361	8.430
20 1-Methylphenanthrene	0.79489	0.62625	0.65095	0.73891	0.70849	0.70462	0.70402	8.607

22 Fluoranthene	1.20097	0.97204	1.02294	1.11434	1.05358	1.01668	1.06343	7.729
23 Pyrene	1.41615	1.06642	1.15622	1.29482	1.25683	1.24939	1.23997	9.648
24 Benzo(a)anthracene	1.20036	0.94191	1.00686	1.18718	1.18459	1.22241	1.12389	10.532
27 Chrysene	1.38233	1.08164	1.12834	1.22724	1.18577	1.17328	1.19644	8.684
28 Benzo(b)fluoranthene	1.33590	0.97747	1.02294	1.22049	1.19238	1.23969	1.16481	11.769
29 Benzo(k)fluoranthene	1.32725	0.99373	1.00590	1.17899	1.16454	1.17521	1.14094	10.933
30 Benzo(j)fluoranthene	1.09283	0.92053	0.92287	1.08478	1.07520	1.06646	1.02711	7.997
31 Total Benzofluoranthenes	1.25535	0.93450	0.97166	1.15908	1.14235	1.15588	1.10314	11.202
32 Benzo(a)pyrene	1.13991	0.87777	0.89515	1.07737	1.06309	1.09688	1.02503	10.785
34 Benzo(e)pyrene	1.38633	1.02276	1.03286	1.18813	1.15641	1.18275	1.16154	11.391
35 Perylene	1.28978	0.96103	0.98751	1.14448	1.10241	1.11455	1.09996	10.771
37 Indeno(1,2,3-cd)pyrene	1.20860	0.99533	1.07255	1.25747	1.22858	1.24398	1.16775	9.225

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 19-JAN-2023 11:26
End Cal Date : 19-JAN-2023 13:46
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP RTE
Method file : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Last Edit : 19-Jan-2023 20:20 jianqing
Curve Type : Average

Compound	0.10000 Level 1	0.50000 Level 2	1.000 Level 3	2.500 Level 4	5.000 Level 5	10.000 Level 6	RRF	% RSD
38 Dibenzo(a,h)anthracene	1.04912	0.83483	0.89506	1.08138	1.06856	1.10072	1.00494	11.083
39 Benzo(g,h,i)perylene	1.16296	0.91028	0.94095	1.10667	1.08873	1.13847	1.05801	10.032
$ 3 2-Methylnaphthalene-d10	0.58571	0.49325	0.53451	0.56745	0.55043	0.54135	0.54545	5.792
$ 21 Fluoranthene-d10	0.90072	0.75455	0.82479	0.95503	0.92918	0.93009	0.88239	8.740
$ 36 Dibenzo(a,h)anthracene-d14	0.58028	0.54718	0.60762	0.73250	0.74207	+++++	0.64193	13.973

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Batch File: \\target\share\chem3\nt8.i\20230119.b
Inst ID: nt8.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	N823011903	N823011904	N823011905	N823011906	N823011907	N823011908
INJ.DATE:	19-JAN-2023	19-JAN-2023	19-JAN-2023	19-JAN-2023	19-JAN-2023	19-JAN-2023
INJ.TIME:	11:26	11:58	12:25	12:52	13:19	13:46

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 1 Naphthalene-d8	4.907	4.913	4.907	4.907	4.910	4.907	4.907	1.907-7.907	4.908	0.003
2 Naphthalene	4.939	4.942	4.939	4.938	4.938	4.938	4.938	1.938-7.938	4.939	0.001
$ 3 2-Methylnaphthalene-d1	5.644	5.647	5.640	5.640	5.640	5.640	5.640	2.640-8.640	5.642	0.003
4 2-Methylnaphthalene	5.691	5.694	5.688	5.688	5.688	5.688	5.688	2.688-8.688	5.689	0.003
5 1-methylnaphthalene	5.884	5.890	5.887	5.884	5.887	5.887	5.887	2.887-8.887	5.887	0.002
6 2-Chloronaphthalene	+++++	+++++	+++++	+++++	+++++	+++++	6.377	3.377-9.377	+++++	+++++
7 Biphenyl	6.346	6.352	6.346	6.345	6.346	6.349	6.349	3.349-9.349	6.347	0.003
8 2,6-Dimethylnaphthalen	6.390	6.396	6.390	6.390	6.390	6.393	6.393	3.393-9.393	6.391	0.003
9 Acenaphthylene	7.086	7.092	7.085	7.085	7.085	7.089	7.089	4.089-10.089	7.087	0.003
* 10 Acenaphthene-d10	7.196	7.199	7.196	7.196	7.196	7.196	7.196	4.196-10.196	7.197	0.001
11 Acenaphthene	7.247	7.250	7.247	7.247	7.247	7.247	7.247	4.247-10.247	7.247	0.001
12 Dibenzofuran	7.395	7.402	7.395	7.395	7.395	7.398	7.398	4.398-10.398	7.397	0.003
13 1,6,7-Trimethylnaphtha	7.462	7.465	7.462	7.462	7.462	7.465	7.465	4.465-10.465	7.463	0.002
14 Fluorene	7.876	7.879	7.876	7.873	7.876	7.876	7.876	4.876-10.876	7.876	0.002
* 15 Phenanthrene-d10	9.236	9.239	9.236	9.236	9.232	9.236	9.236	6.236-12.236	9.236	0.002
16 Phenanthrene	9.270	9.273	9.270	9.270	9.270	9.274	9.274	6.274-12.274	9.271	0.002
17 Anthracene	9.312	9.315	9.312	9.311	9.311	9.315	9.315	6.315-12.315	9.313	0.002

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

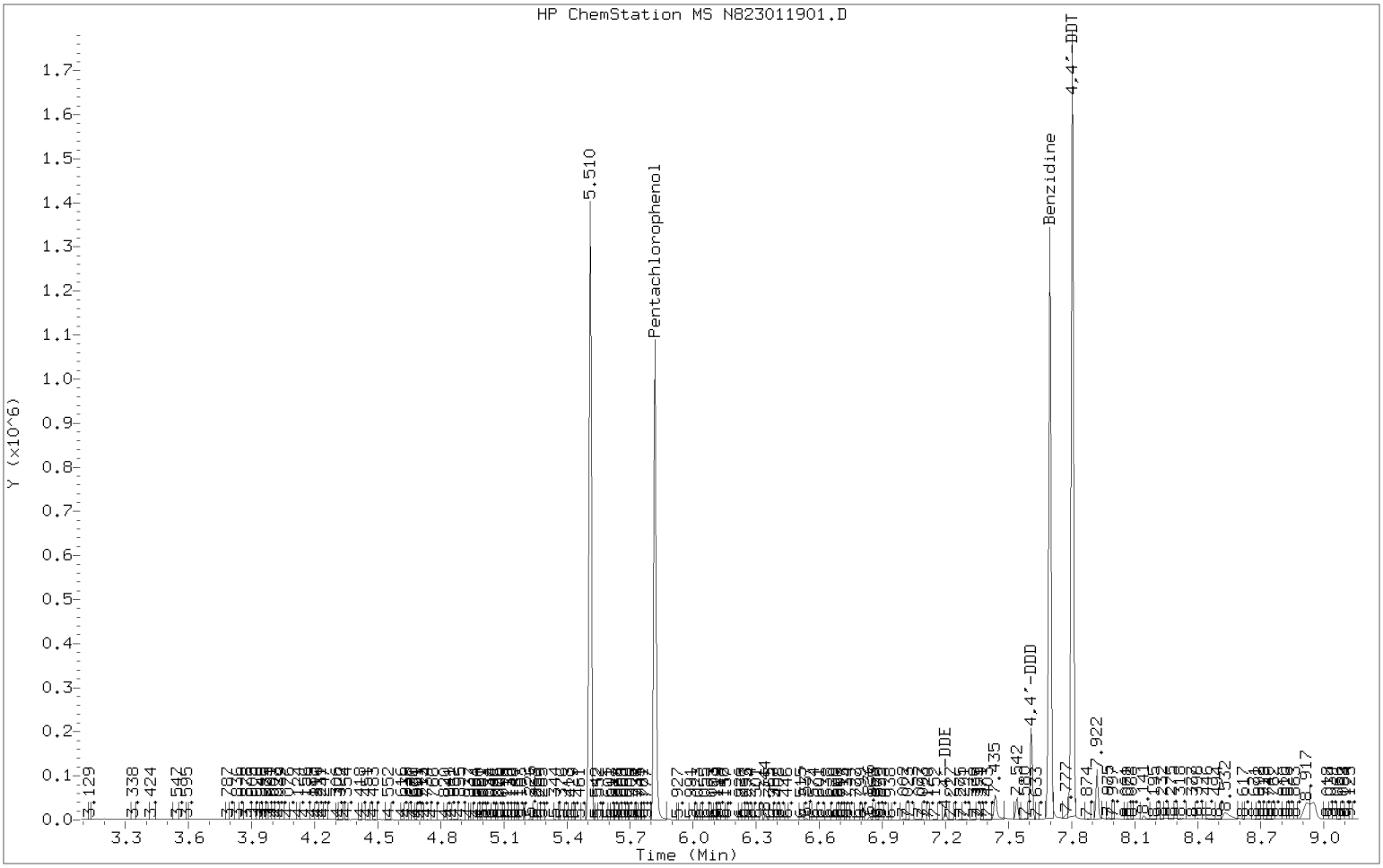
ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

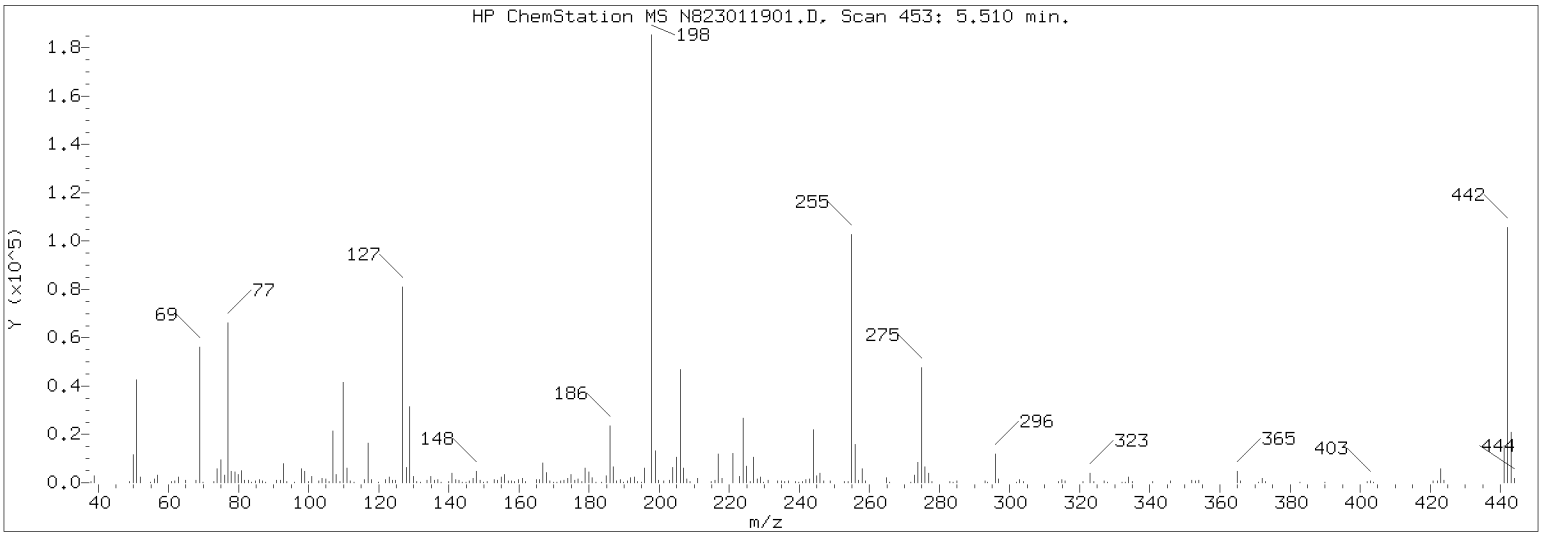
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Batch File: \\target\share\chem3\nt8.i\20230119.b
Inst ID: nt8.i

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	18 Dibenzothiophene	9.109	9.112	9.109	9.109	9.109	9.112	9.112	6.112-12.112	9.110	0.002
	19 Carbazole	9.824	9.830	9.824	9.824	9.824	9.827	9.827	6.827-12.827	9.825	0.003
	20 1-Methylphenanthrene	10.048	10.051	10.048	10.048	10.048	10.051	10.051	7.051-13.051	10.049	0.002
$	21 Fluoranthene-d10	11.016	11.019	11.016	11.016	11.016	11.019	11.019	8.019-14.019	11.017	0.002
	22 Fluoranthene	11.054	11.057	11.051	11.054	11.054	11.057	11.057	8.057-14.057	11.054	0.002
	23 Pyrene	11.572	11.575	11.572	11.572	11.572	11.575	11.575	8.575-14.575	11.573	0.002
	24 Benzo(a)anthracene	14.073	14.080	14.077	14.077	14.077	14.080	14.080	11.080-17.080	14.077	0.002
*	25 Chrysene-d12	14.203	14.209	14.203	14.203	14.203	14.206	14.206	11.206-17.206	14.205	0.003
	27 Chrysene	14.276	14.279	14.276	14.279	14.279	14.282	14.282	11.282-17.282	14.278	0.002
	28 Benzo(b)fluoranthene	16.821	16.827	16.824	16.821	16.827	16.834	16.834	13.834-19.834	16.826	0.005
	29 Benzo(k)fluoranthene	16.881	16.887	16.881	16.884	16.888	16.897	16.897	13.897-19.897	16.886	0.006
	30 Benzo(j)fluoranthene	16.960	16.963	16.960	16.963	16.967	16.973	16.973	13.973-19.973	16.964	0.005
	31 Total Benzofluoranthen	16.821	16.827	16.824	16.821	16.827	16.834	16.834	13.834-19.834	16.826	0.005
	32 Benzo(a)pyrene	17.874	17.883	17.877	17.877	17.884	17.890	17.890	14.890-20.890	17.881	0.006
*	33 Perylene-d12	18.111	18.114	18.111	18.111	18.111	18.114	18.114	15.114-21.114	18.112	0.002
	34 Benzo(e)pyrene	17.748	17.754	17.751	17.748	17.751	17.760	17.760	14.760-20.760	17.752	0.005
	35 Perylene	18.184	18.187	18.184	18.184	18.187	18.193	18.193	15.193-21.193	18.187	0.004
$	36 Dibenzo(a,h)anthracene	20.546	20.549	20.549	20.552	20.555	20.565	20.565	17.565-23.565	20.553	0.007
	37 Indeno(1,2,3-cd)pyrene	20.666	20.676	20.672	20.676	20.682	20.691	20.691	17.691-23.691	20.677	0.009
	38 Dibenzo(a,h)anthracene	20.666	20.666	20.657	20.663	20.669	20.685	20.685	17.685-23.685	20.668	0.010
	39 Benzo(g,h,i)perylene	21.757	21.760	21.748	21.757	21.763	21.782	21.782	18.782-24.782	21.761	0.012

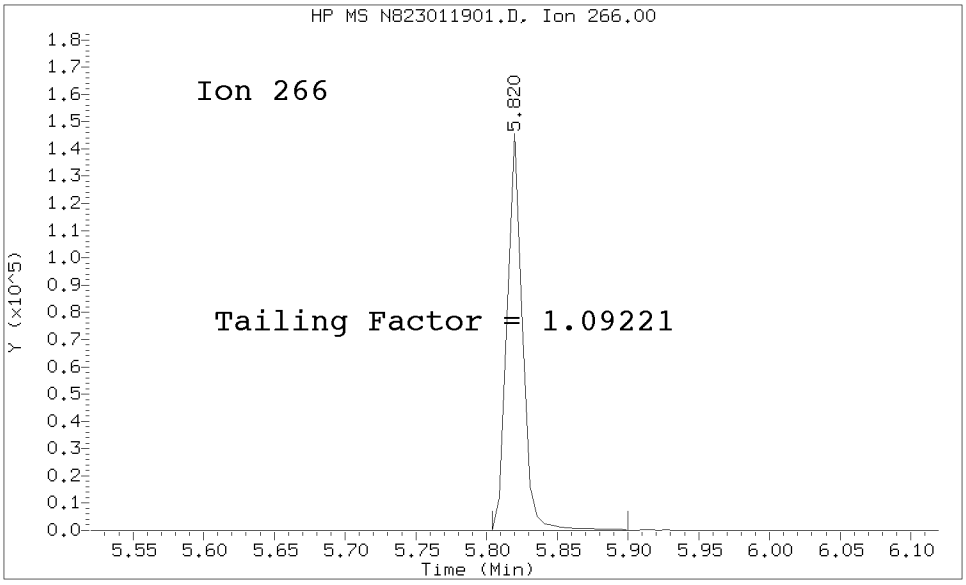
DFTPP TAILING FACTOR AND BREAKDOWN GRAPHIC REPORT

Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: SLA0213-TUN1 DFTPP230119
Report Date: 01/19/2023 20:14



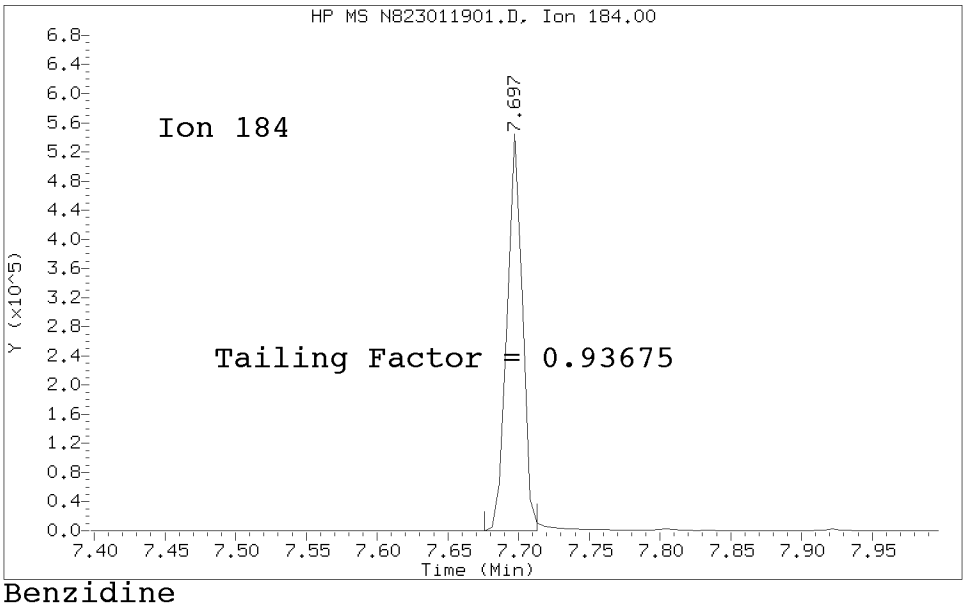


Datafile Analyzed: /20230119.b/tune.b/N823011901.D/N823011901.D
Method Used: \20230119.b\tune.b\DFTPP.m\sw846ddt.m Inst: nt8
Injection Date: 19-JAN-2023 10:28 Operator: JZ
Sample Info: DFTPP230119
Report Date: 01/19/2023 20:14



Pentachlorophenol
==========
Exp. RT = 5.825
Found RT = 5.820

Tail Factor = 1.092 Maximum Allowed = 2.0



Benzidine
==========
Exp. RT = 7.703
Found RT = 7.697

Tail Factor = 0.937 Maximum Allowed = 2.0

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	23.71
68	Less than 2.00% of mass 69	0.39 (1.25)
69	Mass 69 relative abundance	30.92
70	Less than 2.00% of mass 69	0.06 (0.21)
127	10.00 - 80.00% of mass 198	44.20
197	Less than 2.00% of mass 198	0.17
199	5.00 - 9.00% of mass 198	6.89
275	10.00 - 60.00% of mass 198	26.96
365	Greater than 1.00% of mass 198	2.85
441	0.01 - 24.00% of mass 442	9.72 (14.32)
442	50.00 - 200.00% of mass 198	67.89
443	15.00 - 24.00% of mass 442	13.33 (19.64)

Data File: N823011901.D
Spectrum: Avg. Scans 452-454 (5.51), Background Scan 448
Location of Maximum: 198.00
Number of points: 228

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	424	124.00	727	188.00	466	265.00	1738
39.00	2285	125.00	694	189.00	1088	266.00	231
49.00	389	127.00	59064	190.00	92	272.00	97
50.00	8567	128.00	4618	191.00	538	273.00	2435
51.00	31688	129.00	23208	192.00	1501	274.00	6434
52.00	1694	130.00	1967	193.00	1652	275.00	36032
55.00	89	131.00	387	194.00	339	276.00	4936
56.00	1081	132.00	92	195.00	108	277.00	3133
57.00	2353	134.00	695	196.00	4417	278.00	496
61.00	487	135.00	1887	197.00	224	283.00	243
62.00	511	136.00	770	198.00	133632	284.00	200
63.00	1627	137.00	979	199.00	9210	285.00	536
65.00	865	138.00	101	200.00	711	293.00	678
68.00	518	140.00	220	201.00	653	294.00	83
69.00	41320	141.00	2913	203.00	891	296.00	9364
70.00	86	142.00	931	204.00	4715	297.00	1310
73.00	274	143.00	728	205.00	8070	302.00	96
74.00	4327	144.00	83	206.00	34104	303.00	1146
75.00	6885	145.00	91	207.00	4557	304.00	262
76.00	2362	146.00	508	208.00	1177	314.00	364
77.00	48072	147.00	1540	209.00	387	315.00	1068
78.00	3441	148.00	3391	210.00	236	316.00	588
79.00	3296	149.00	690	211.00	1430	321.00	250
80.00	2464	150.00	90	215.00	376	323.00	3145
81.00	3741	151.00	458	216.00	746	324.00	501
82.00	872	152.00	181	217.00	9085	327.00	540
83.00	845	153.00	893	218.00	1189	328.00	201
84.00	287	154.00	764	221.00	8442	332.00	178
85.00	621	155.00	1756	223.00	2039	333.00	129
86.00	1039	156.00	2503	224.00	19544	334.00	1893
87.00	481	157.00	527	225.00	5122	335.00	518
88.00	91	158.00	516	226.00	502	341.00	275
91.00	866	159.00	410	227.00	8274	346.00	674
92.00	878	160.00	955	228.00	1174	352.00	945
93.00	5816	161.00	1421	229.00	1712	353.00	630
94.00	409	162.00	445	230.00	111	354.00	910
96.00	203	165.00	1085	231.00	685	365.00	3802
98.00	4243	166.00	1023	234.00	538	366.00	580
99.00	3501	167.00	5993	235.00	568	371.00	91
100.00	344	168.00	3082	236.00	394	372.00	1475
101.00	1983	169.00	490	237.00	657	373.00	292
103.00	704	170.00	94	239.00	327	383.00	290
104.00	1275	171.00	194	240.00	187	390.00	177
105.00	1230	172.00	595	241.00	468	402.00	468
106.00	379	173.00	732	242.00	1090	403.00	736
107.00	15826	174.00	1319	243.00	1102	404.00	243
108.00	2447	175.00	2491	244.00	16206	421.00	649
109.00	331	176.00	751	245.00	2245	422.00	226
110.00	30008	177.00	1175	246.00	3000	423.00	4860

111.00	4456	178.00	288	247.00	624	424.00	978
112.00	513	179.00	4561	249.00	587	441.00	12991
113.00	89	180.00	3271	253.00	239	442.00	90720
116.00	935	181.00	1513	254.00	438	443.00	17816
117.00	12513	182.00	106	255.00	76904	444.00	1584
118.00	931	184.00	333	256.00	11699		
120.00	104	185.00	2153	257.00	880		
122.00	1003	186.00	17336	258.00	4539		
123.00	1682	187.00	4916	259.00	746		

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Date : 19-JAN-2023 10:59

Client ID:

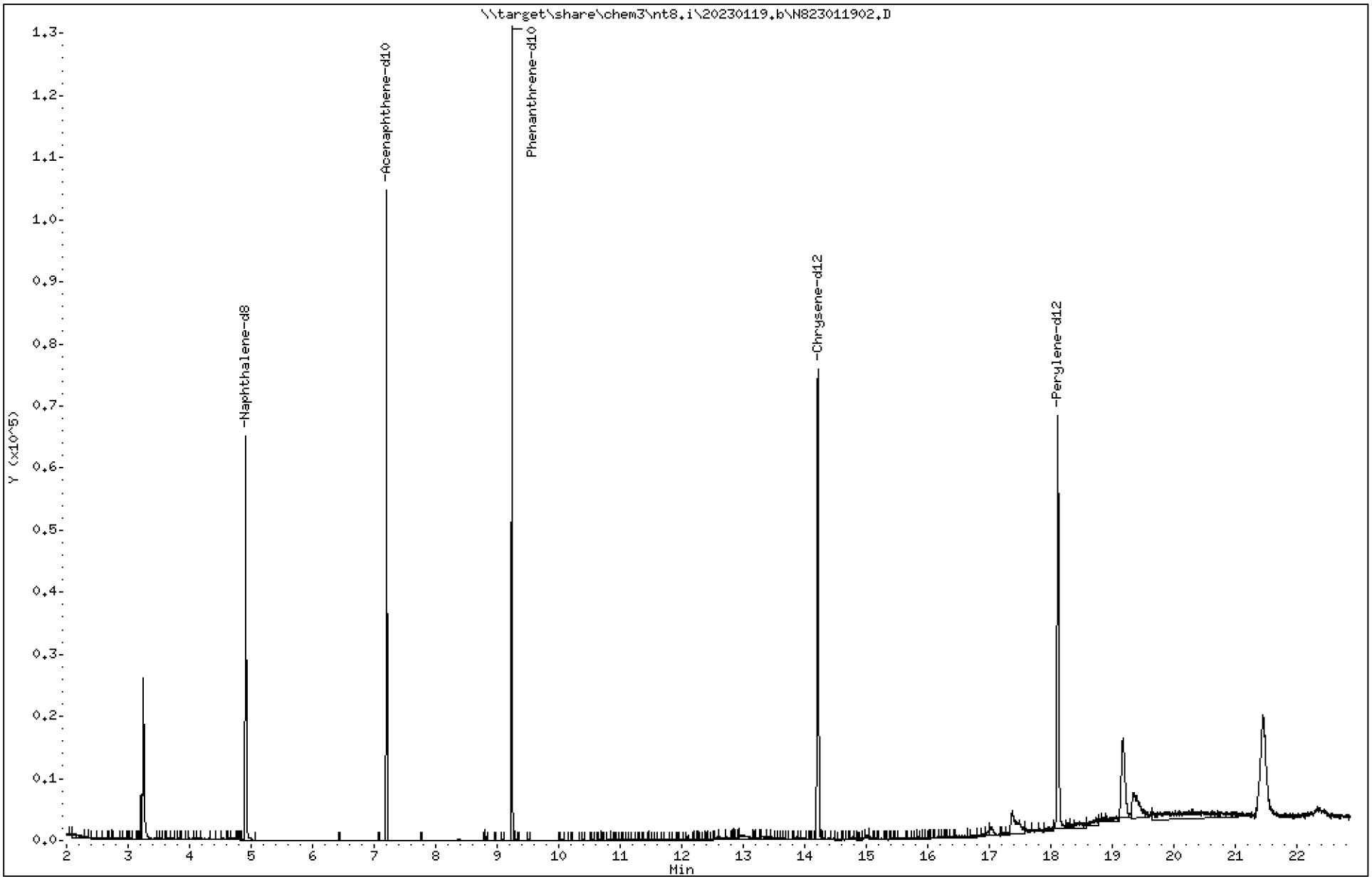
Instrument: nt8.i

Sample Info: ICB230119

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23C0064 03/17/2023 Page 237 of 833

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011902.D
Lab Smp Id: SLA0213-ICB1
Inj Date : 19-JAN-2023 10:59
Operator : JZ Inst ID: nt8.i
Smp Info : ICB230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:20 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.916	4.906	(1.000)	52082	2.00000	
	2 Naphthalene	128	Compound Not Detected.					
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	Compound Not Detected.					
	5 1-methylnaphthalene	141	Compound Not Detected.					
	7 Biphenyl	154	Compound Not Detected.					
	8 2,6-Dimethylnaphthalene	156	Compound Not Detected.					
	9 Acenaphthylene	152	Compound Not Detected.					
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	30936	2.00000	
	11 Acenaphthene	153	Compound Not Detected.					
	12 Dibenzofuran	168	Compound Not Detected.					
	13 1,6,7-Trimethylnaphthalene	170	Compound Not Detected.					
	14 Fluorene	166	Compound Not Detected.					
	18 Dibenzothiophene	184	Compound Not Detected.					
*	15 Phenanthrene-d10	188	9.241	9.235	(1.000)	59030	2.00000	
	16 Phenanthrene	178	Compound Not Detected.					
	17 Anthracene	178	Compound Not Detected.					
	19 Carbazole	167	Compound Not Detected.					
	20 1-Methylphenanthrene	192	Compound Not Detected.					
	22 Fluoranthene	202	Compound Not Detected.					
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	Compound Not Detected.					
	24 Benzo(a)anthracene	228	Compound Not Detected.					
*	25 Chrysene-d12	240	14.215	14.202	(1.000)	50944	2.00000	
	27 Chrysene	228	Compound Not Detected.					
	28 Benzo(b)fluoranthene	252	Compound Not Detected.					
	29 Benzo(k)fluoranthene	252	Compound Not Detected.					
	30 Benzo(j)fluoranthene	252	Compound Not Detected.					
	31 Total Benzofluoranthenes	252	Compound Not Detected.					
	34 Benzo(e)pyrene	252	Compound Not Detected.					
	32 Benzo(a)pyrene	252	Compound Not Detected.					
*	33 Perylene-d12	264	18.120	18.111	(1.000)	47418	2.00000	
	35 Perylene	252	Compound Not Detected.					

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
37 Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
38 Dibenzo(a,h)anthracene	278	Compound Not Detected.					
39 Benzo(g,h,i)perylene	276	Compound Not Detected.					

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011902.D
Lab Smp Id: SLA0213-ICB1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	52082	16.50
10 Acenaphthene-d10	26411	13206	52822	30936	17.13
15 Phenanthrene-d10	49210	24605	98420	59030	19.96
25 Chrysene-d12	42994	21497	85988	50944	18.49
33 Perylene-d12	40520	20260	81040	47418	17.02

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.92	0.19
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.07
25 Chrysene-d12	14.20	13.70	14.70	14.22	0.09
33 Perylene-d12	18.11	17.61	18.61	18.12	0.05

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011902.D

Lab ID: SLA0213-ICB1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 10:59

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

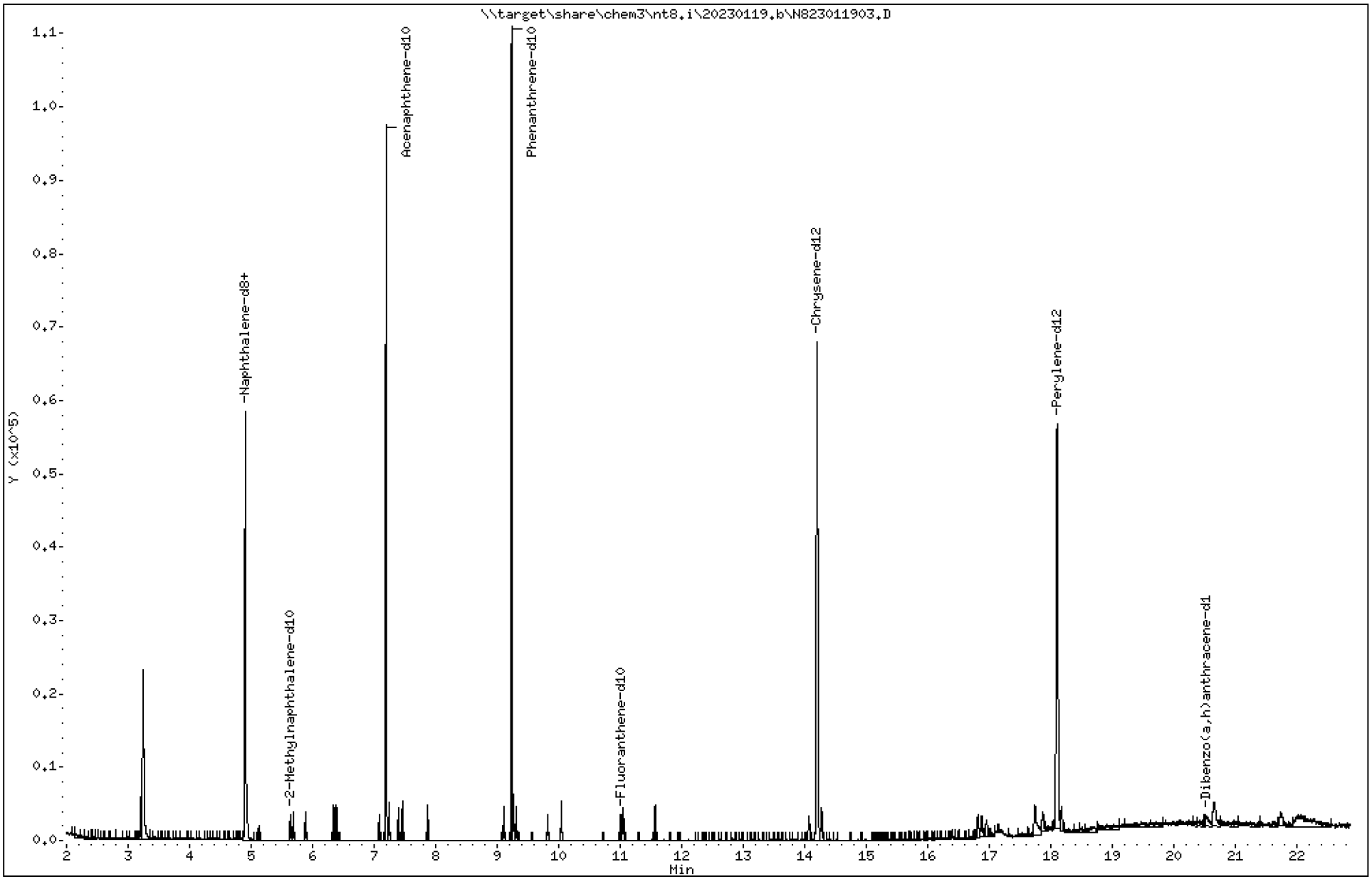
No RRT check performed

On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011903.D
Date : 19-JAN-2023 11:26
Client ID:
Sample Info: IC01230119,

Instrument: nt8.i
Operator: JZ
Column phase: Rxi-17sil
Column diameter: 0.25



Final Report 23C0064 03/17/2023 Page 242 of 833

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011903.D
Lab Smp Id: SLA0213-CAL1
Inj Date : 19-JAN-2023 11:26
Operator : JZ Inst ID: nt8.i
Smp Info : IC01230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 3 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	46132	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	2425	0.10000	0.1131
$	3 2-Methylnaphthalene-d10	152	5.643	5.640	(1.150)	1351	0.10000	0.1074
	4 2-Methylnaphthalene	141	5.691	5.687	(1.160)	1288	0.10000	0.1092
	5 1-methylnaphthalene	141	5.883	5.887	(1.199)	1309	0.10000	0.1093
	7 Biphenyl	154	6.345	6.348	(0.882)	2093	0.10000	0.1164
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	1372	0.10000	0.1078
	9 Acenaphthylene	152	7.085	7.088	(0.985)	2139	0.10000	0.1039
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	27261	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	1580	0.10000	0.1146
	12 Dibenzofuran	168	7.395	7.398	(1.028)	2530	0.10000	0.1208
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	1502	0.10000	0.1137
	14 Fluorene	166	7.876	7.875	(1.094)	1818	0.10000	0.1117
	18 Dibenzothiophene	184	9.109	9.112	(0.986)	2620	0.10000	0.1137
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	52158	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	3130	0.10000	0.1229
	17 Anthracene	178	9.311	9.314	(1.008)	2582	0.10000	0.1116
	19 Carbazole	167	9.823	9.826	(1.064)	2339	0.10000	0.1102
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	2073	0.10000	0.1129
	22 Fluoranthene	202	11.053	11.056	(1.197)	3132	0.10000	0.1129
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	2349	0.10000	0.1021
	23 Pyrene	202	11.572	11.575	(0.815)	3183	0.10000	0.1142
	24 Benzo(a)anthracene	228	14.073	14.079	(0.991)	2698	0.10000	0.1068
*	25 Chrysene-d12	240	14.203	14.206	(1.000)	44953	2.00000	
	27 Chrysene	228	14.275	14.282	(1.005)	3107	0.10000	0.1155
	28 Benzo(b)fluoranthene	252	16.821	16.833	(0.929)	2781	0.10000	0.1147
	29 Benzo(k)fluoranthene	252	16.881	16.897	(0.932)	2763	0.10000	0.1163
	30 Benzo(j)fluoranthene	252	16.960	16.972	(0.936)	2275	0.10000	0.1064
	31 Total Benzofluoranthenes	252	16.821	16.833	(0.929)	7840	0.30000	0.3414(M)
	34 Benzo(e)pyrene	252	17.747	17.760	(0.980)	2886	0.10000	0.1194
	32 Benzo(a)pyrene	252	17.874	17.889	(0.987)	2373	0.10000	0.1112
*	33 Perylene-d12	264	18.111	18.114	(1.000)	41635	2.00000	
	35 Perylene	252	18.184	18.193	(1.004)	2685	0.10000	0.1173

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.546	20.565	(1.134)	1208	0.10000	0.09040(M)
37 Indeno(1,2,3-cd)pyrene	276	20.666	20.691	(1.141)	2516	0.10000	0.1035
38 Dibenzo(a,h)anthracene	278	20.666	20.685	(1.141)	2184	0.10000	0.1044
39 Benzo(g,h,i)perylene	276	21.757	21.782	(1.201)	2421	0.10000	0.1099

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011903.D
Lab Smp Id: SLA0213-CAL1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46132	3.19
10 Acenaphthene-d10	26411	13206	52822	27261	3.22
15 Phenanthrene-d10	49210	24605	98420	52158	5.99
25 Chrysene-d12	42994	21497	85988	44953	4.56
33 Perylene-d12	40520	20260	81040	41635	2.75

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011903.D

Lab ID: SLA0213-CAL1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 11:26

RT	CO-ELUTION COMPOUNDS
20.666	Indeno(1,2,3-cd)pyrene and Dibenzo(a,h)anthracene
20.666	Dibenzo(a,h)anthracene and Indeno(1,2,3-cd)pyrene

Quant Method: ICAL

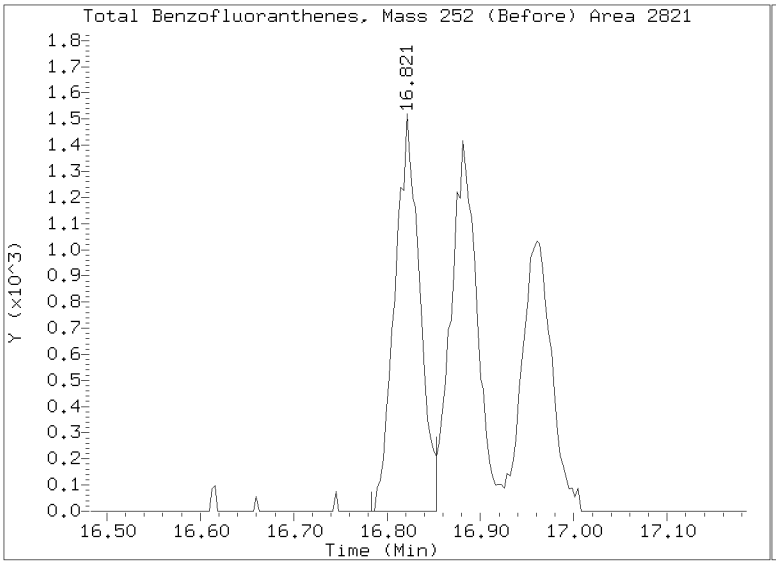
No RRT check performed

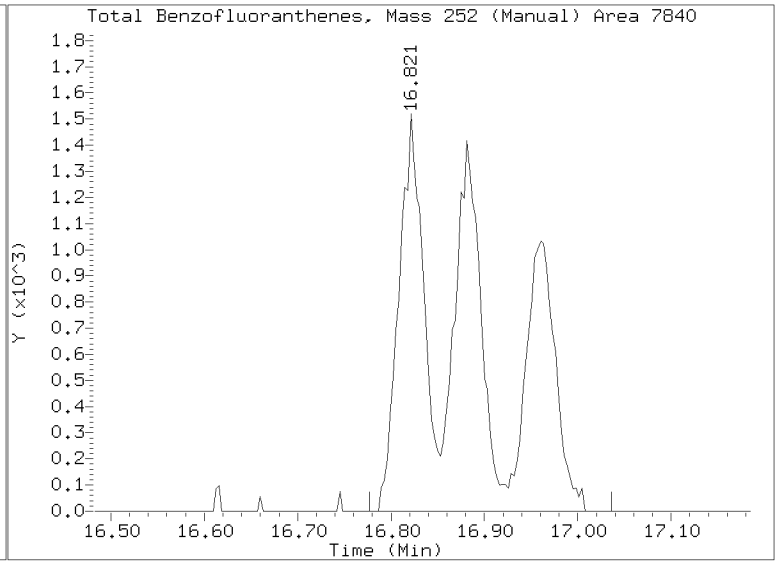
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

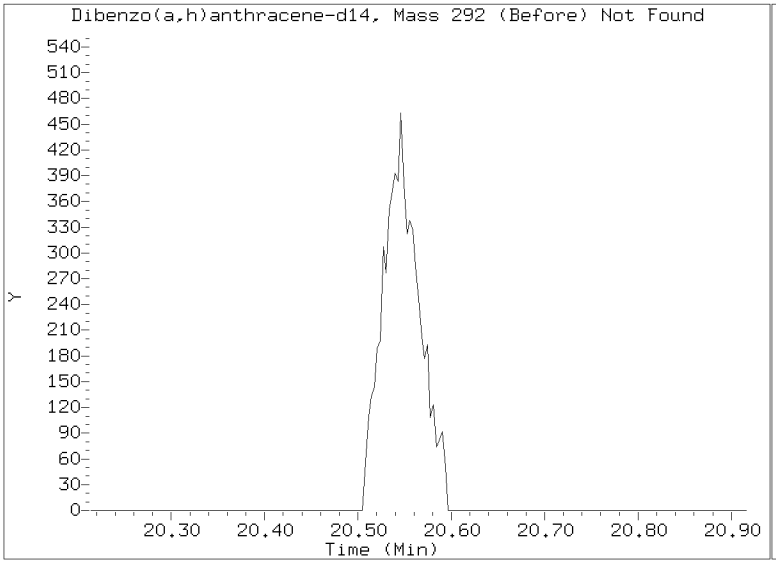
* Only compounds listed in the work order have been verified by the analyst *

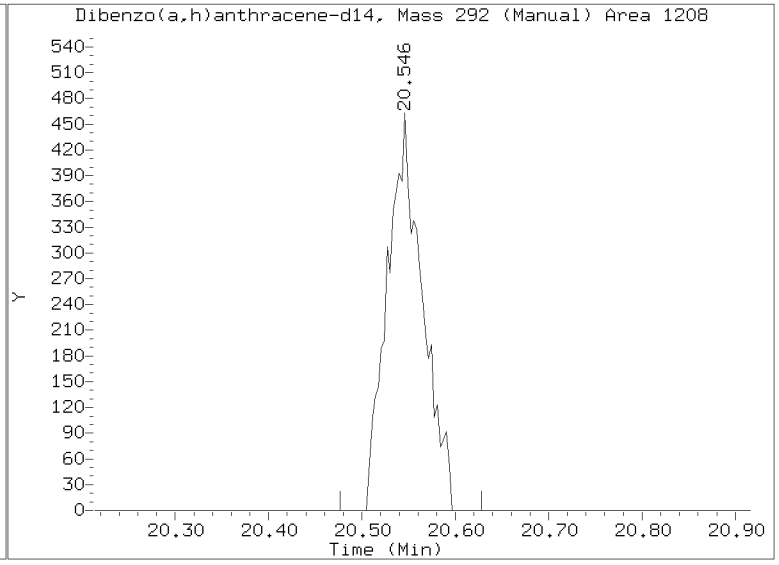
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011903.D
Injection Date: 19-JAN-2023 11:26
Lab ID:SLA0213-CAL1 Client ID:
Report Date: 01/19/2023 20:12









Data File: \\target\share\chem3\nt8.i\20230119.b\N823011904.D

Page 1

Date : 19-JAN-2023 11:58

Client ID:

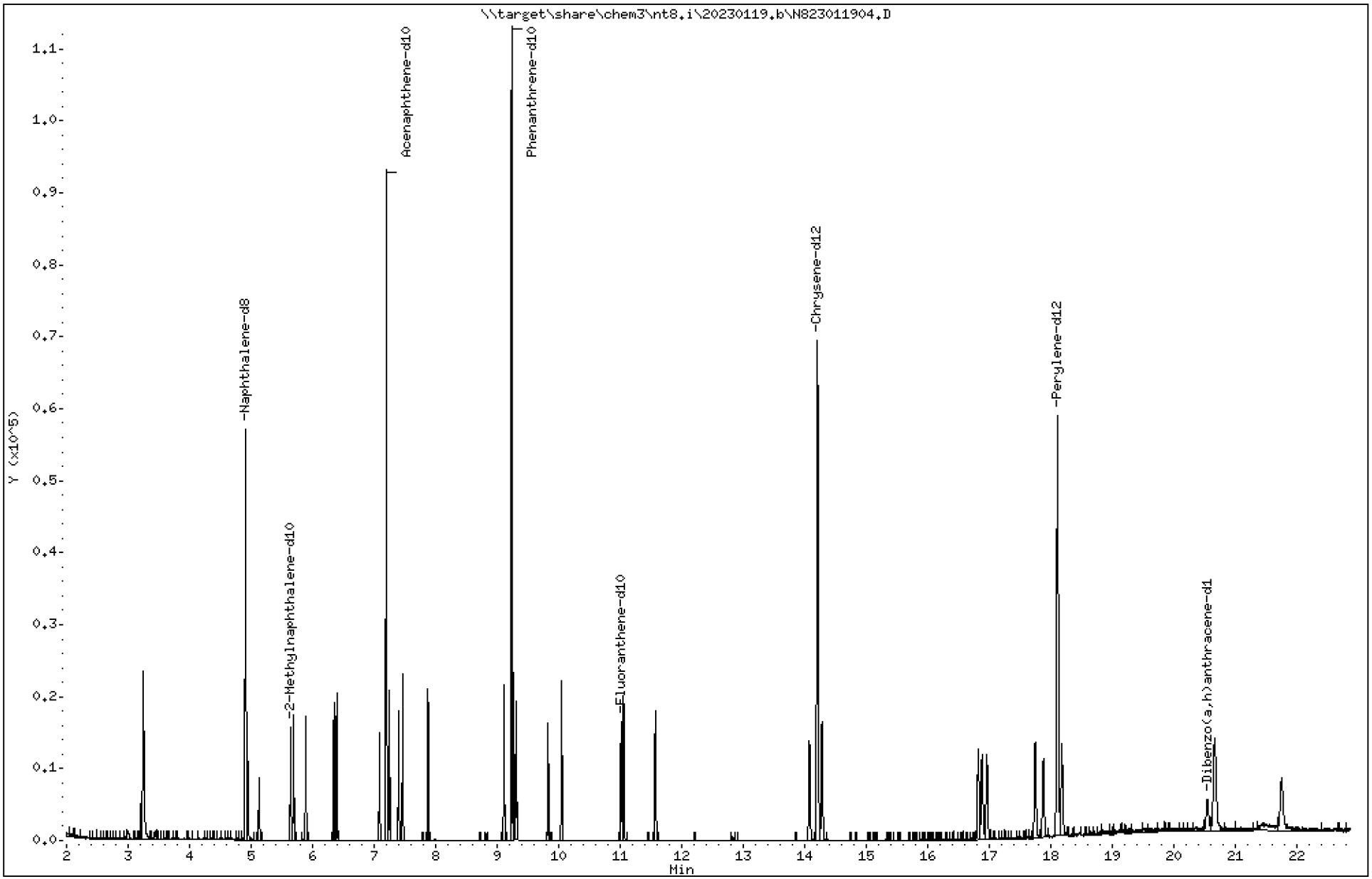
Instrument: nt8.i

Sample Info: IC05230119,

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011904.D
Lab Smp Id: SLA0213-CAL2
Inj Date : 19-JAN-2023 11:58
Operator : JZ Inst ID: nt8.i
Smp Info : IC05230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

			QUANT SIG					AMOUNTS	
		Compounds	MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1	Naphthalene-d8	136	4.913	4.906	(1.000)	45056	2.00000	
	2	Naphthalene	128	4.941	4.938	(1.006)	9917	0.50000	0.4734
$	3	2-Methylnaphthalene-d10	152	5.646	5.640	(1.149)	5556	0.50000	0.4522
	4	2-Methylnaphthalene	141	5.694	5.687	(1.159)	5447	0.50000	0.4727
	5	1-methylnaphthalene	141	5.890	5.887	(1.199)	5499	0.50000	0.4702
	7	Biphenyl	154	6.351	6.348	(0.882)	8183	0.50000	0.4638
	8	2,6-Dimethylnaphthalene	156	6.396	6.392	(0.888)	5677	0.50000	0.4546
	9	Acenaphthylene	152	7.091	7.088	(0.985)	8616	0.50000	0.4266
*	10	Acenaphthene-d10	164	7.199	7.196	(1.000)	26746	2.00000	
	11	Acenaphthene	153	7.249	7.246	(1.007)	6285	0.50000	0.4644
	12	Dibenzofuran	168	7.401	7.398	(1.028)	9690	0.50000	0.4714
	13	1,6,7-Trimethylnaphthalene	170	7.464	7.464	(1.037)	5886	0.50000	0.4541
	14	Fluorene	166	7.879	7.875	(1.094)	7132	0.50000	0.4468
	18	Dibenzothiophene	184	9.112	9.112	(0.986)	10291	0.50000	0.4588
*	15	Phenanthrene-d10	188	9.238	9.235	(1.000)	50759	2.00000	
	16	Phenanthrene	178	9.273	9.273	(1.004)	11508	0.50000	0.4641
	17	Anthracene	178	9.314	9.314	(1.008)	10014	0.50000	0.4446
	19	Carbazole	167	9.829	9.826	(1.064)	9050	0.50000	0.4383
	20	1-Methylphenanthrene	192	10.051	10.051	(1.088)	7947	0.50000	0.4448
	22	Fluoranthene	202	11.056	11.056	(1.197)	12335	0.50000	0.4570
$	21	Fluoranthene-d10	212	11.018	11.018	(1.193)	9575	0.50000	0.4276
	23	Pyrene	202	11.575	11.575	(0.815)	11906	0.50000	0.4300
	24	Benzo(a)anthracene	228	14.079	14.079	(0.991)	10516	0.50000	0.4190
*	25	Chrysene-d12	240	14.209	14.206	(1.000)	44658	2.00000	
	27	Chrysene	228	14.278	14.282	(1.005)	12076	0.50000	0.4520
	28	Benzo(b)fluoranthene	252	16.827	16.833	(0.929)	10402	0.50000	0.4196
	29	Benzo(k)fluoranthene	252	16.887	16.897	(0.932)	10575	0.50000	0.4355
	30	Benzo(j)fluoranthene	252	16.963	16.972	(0.936)	9796	0.50000	0.4481
	31	Total Benzofluoranthenes	252	16.827	16.833	(0.929)	29834	1.50000	1.271(M)
	34	Benzo(e)pyrene	252	17.753	17.760	(0.980)	10884	0.50000	0.4403
	32	Benzo(a)pyrene	252	17.883	17.889	(0.987)	9341	0.50000	0.4282
*	33	Perylene-d12	264	18.114	18.114	(1.000)	42567	2.00000	
	35	Perylene	252	18.187	18.193	(1.004)	10227	0.50000	0.4368

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.549	20.565	(1.134)	5823	0.50000	0.4262(M)
37 Indeno(1,2,3-cd)pyrene	276	20.675	20.691	(1.141)	10592	0.50000	0.4262
38 Dibenzo(a,h)anthracene	278	20.666	20.685	(1.141)	8884	0.50000	0.4154(M)
39 Benzo(g,h,i)perylene	276	21.760	21.782	(1.201)	9687	0.50000	0.4302

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011904.D
Lab Smp Id: SLA0213-CAL2
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	45056	0.79
10 Acenaphthene-d10	26411	13206	52822	26746	1.27
15 Phenanthrene-d10	49210	24605	98420	50759	3.15
25 Chrysene-d12	42994	21497	85988	44658	3.87
33 Perylene-d12	40520	20260	81040	42567	5.05

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.04
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.04
33 Perylene-d12	18.11	17.61	18.61	18.11	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011904.D

Lab ID: SLA0213-CAL2
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 11:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

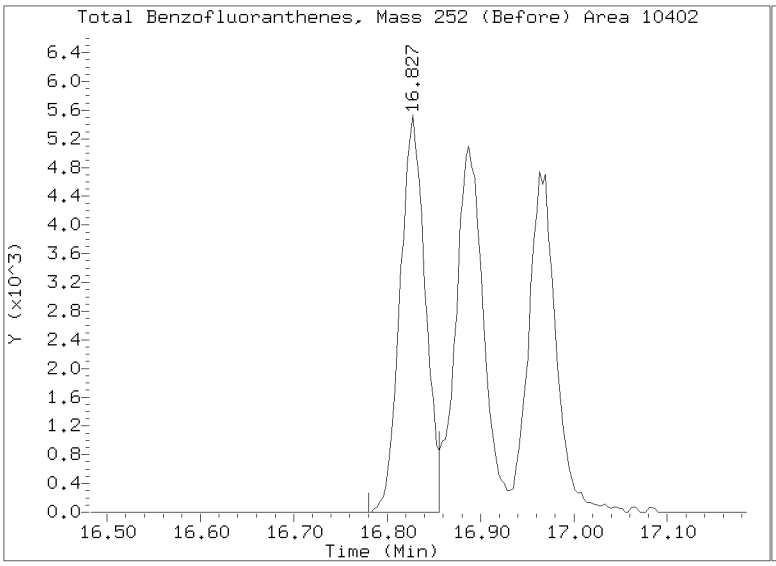
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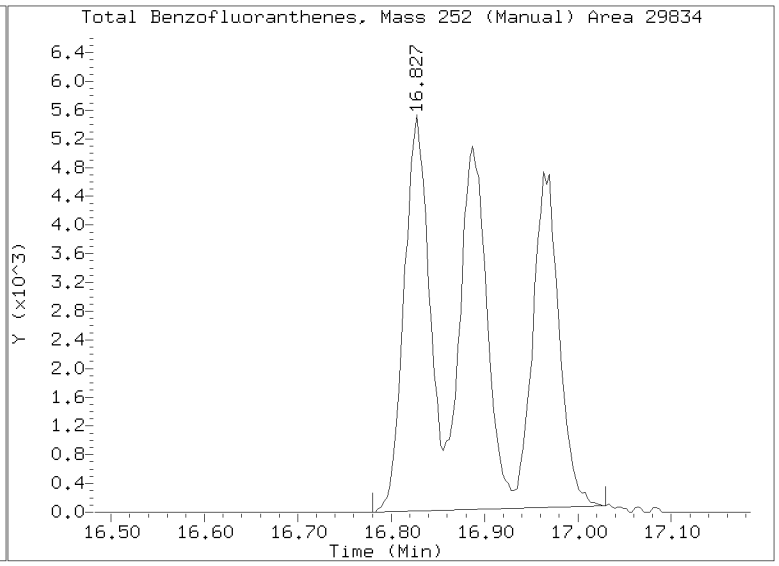
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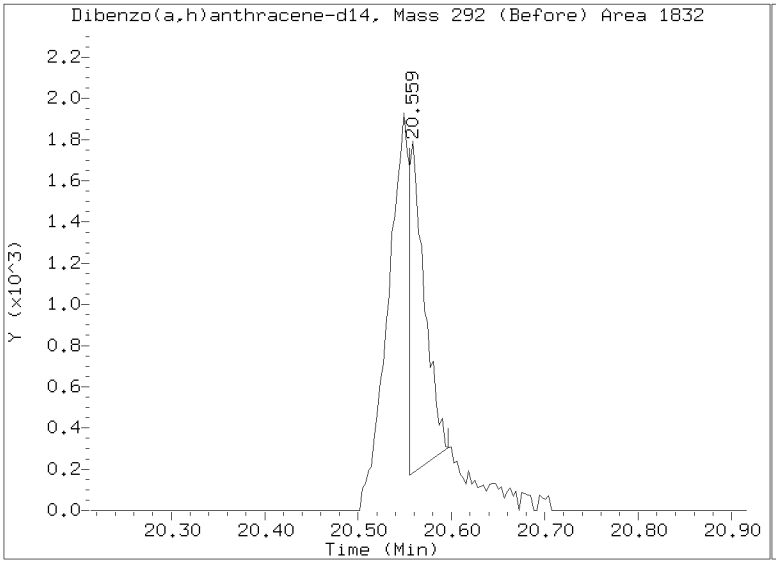
* Only compounds listed in the work order have been verified by the analyst *

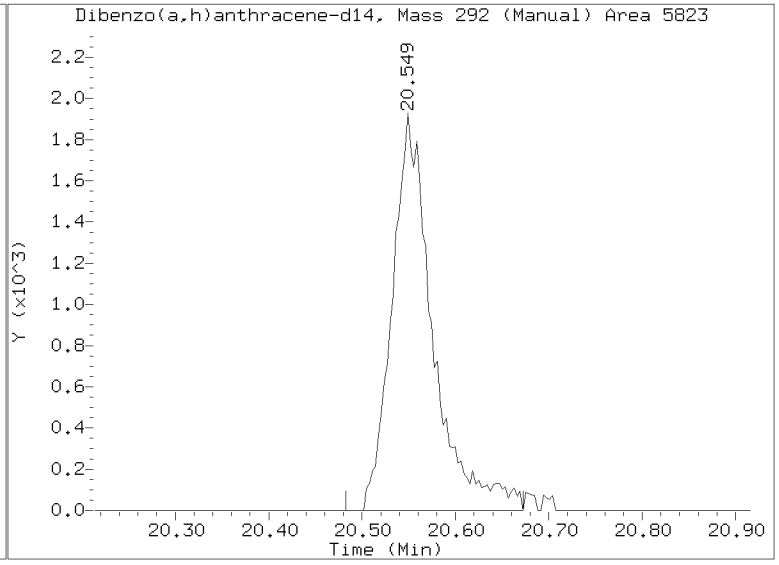
Quant Ion Manual Peak Adjustment Report

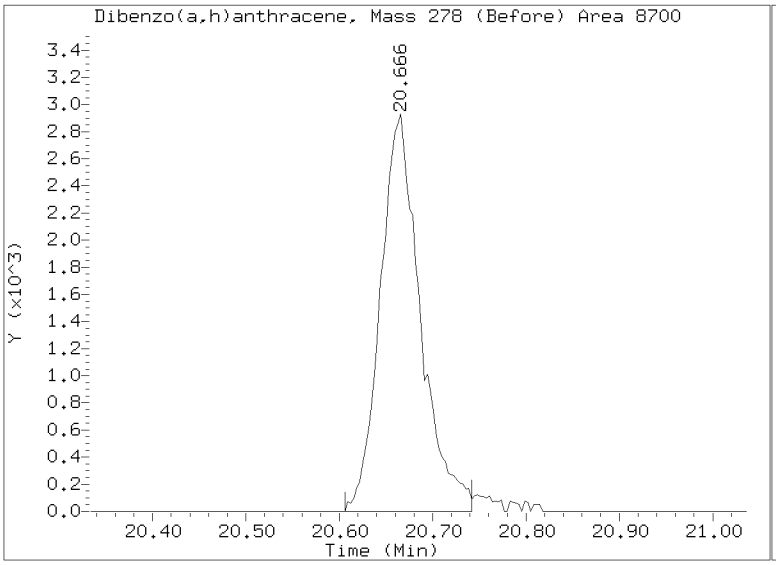
Datafile: //target/share/chem3/nt8.i/20230119.b/N823011904.D
Injection Date: 19-JAN-2023 11:58
Lab ID:SLA0213-CAL2 Client ID:
Report Date: 01/19/2023 20:12

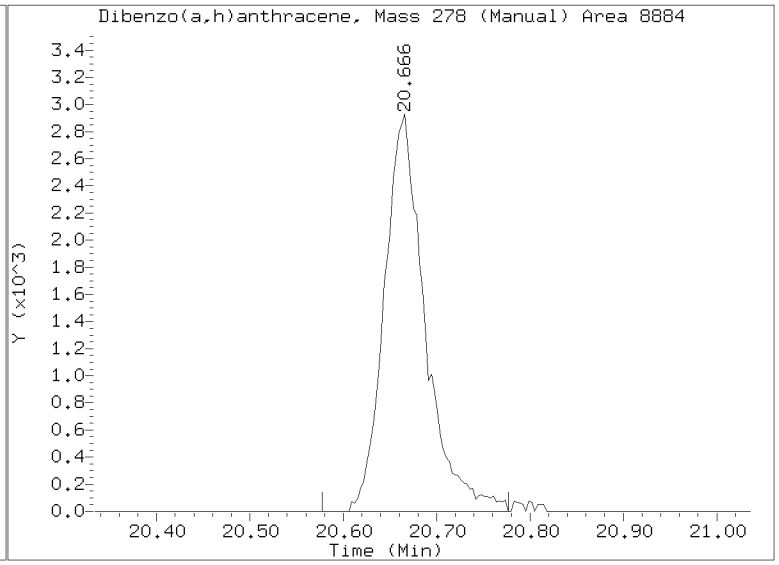








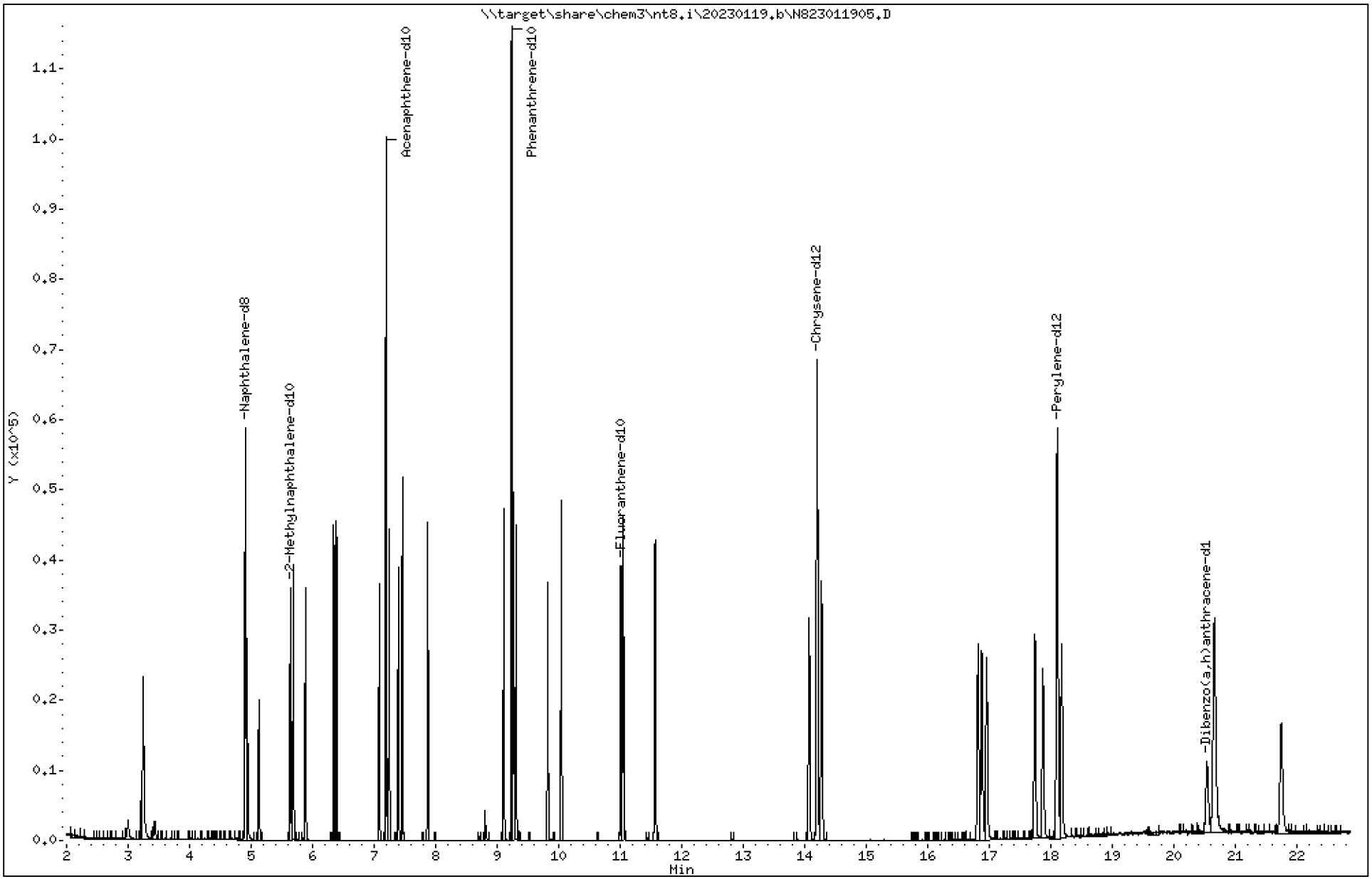




Data File: \\target\share\chem3\nt8.i\20230119.b\N823011905.D
Date : 19-JAN-2023 12:25
Client ID:
Sample Info: IC1230119,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



Final Report 23C0064 03/17/2023 Page 254 of 833

ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011905.D
Lab Smp Id: SLA0213-CAL3
Inj Date : 19-JAN-2023 12:25
Operator : JZ Inst ID: nt8.i
Smp Info : IC1230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	47180	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	21563	1.00000	0.9830
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.150)	12609	1.00000	0.9799
	4 2-Methylnaphthalene	141	5.687	5.687	(1.159)	11715	1.00000	0.9709
	5 1-methylnaphthalene	141	5.887	5.887	(1.200)	11968	1.00000	0.9773
	7 Biphenyl	154	6.345	6.348	(0.882)	17796	1.00000	0.9564
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	12741	1.00000	0.9674
	9 Acenaphthylene	152	7.085	7.088	(0.985)	20021	1.00000	0.9400
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	28206	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	13666	1.00000	0.9576
	12 Dibenzofuran	168	7.395	7.398	(1.028)	20714	1.00000	0.9556
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	12912	1.00000	0.9446
	14 Fluorene	166	7.875	7.875	(1.094)	16006	1.00000	0.9508
	18 Dibenzothiophene	184	9.109	9.112	(0.986)	22320	1.00000	0.9489
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	53233	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	24646	1.00000	0.9478
	17 Anthracene	178	9.311	9.314	(1.008)	22258	1.00000	0.9423
	19 Carbazole	167	9.823	9.826	(1.064)	20007	1.00000	0.9239
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	17326	1.00000	0.9246
	22 Fluoranthene	202	11.050	11.056	(1.197)	27227	1.00000	0.9619
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	21953	1.00000	0.9347
	23 Pyrene	202	11.572	11.575	(0.815)	26878	1.00000	0.9325
	24 Benzo(a)anthracene	228	14.076	14.079	(0.991)	23406	1.00000	0.8959
*	25 Chrysene-d12	240	14.203	14.206	(1.000)	46493	2.00000	
	27 Chrysene	228	14.275	14.282	(1.005)	26230	1.00000	0.9431
	28 Benzo(b)fluoranthene	252	16.824	16.833	(0.929)	22805	1.00000	0.8782
	29 Benzo(k)fluoranthene	252	16.881	16.897	(0.932)	22425	1.00000	0.8816
	30 Benzo(j)fluoranthene	252	16.960	16.972	(0.936)	20574	1.00000	0.8985
	31 Total Benzofluoranthenes	252	16.824	16.833	(0.929)	64985	3.00000	2.642(M)
	34 Benzo(e)pyrene	252	17.750	17.760	(0.980)	23026	1.00000	0.8892
	32 Benzo(a)pyrene	252	17.877	17.889	(0.987)	19956	1.00000	0.8733
*	33 Perylene-d12	264	18.111	18.114	(1.000)	44587	2.00000	
	35 Perylene	252	18.184	18.193	(1.004)	22015	1.00000	0.8978

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.549	20.565	(1.135)	13546	1.00000	0.9466
37 Indeno(1,2,3-cd)pyrene	276	20.672	20.691	(1.141)	23911	1.00000	0.9185
38 Dibenzo(a,h)anthracene	278	20.656	20.685	(1.141)	19954	1.00000	0.8907
39 Benzo(g,h,i)perylene	276	21.747	21.782	(1.201)	20977	1.00000	0.8894

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011905.D
Lab Smp Id: SLA0213-CAL3
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	47180	5.54
10 Acenaphthene-d10	26411	13206	52822	28206	6.80
15 Phenanthrene-d10	49210	24605	98420	53233	8.18
25 Chrysene-d12	42994	21497	85988	46493	8.14
33 Perylene-d12	40520	20260	81040	44587	10.04

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011905.D

Lab ID: SLA0213-CAL3
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 12:25

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

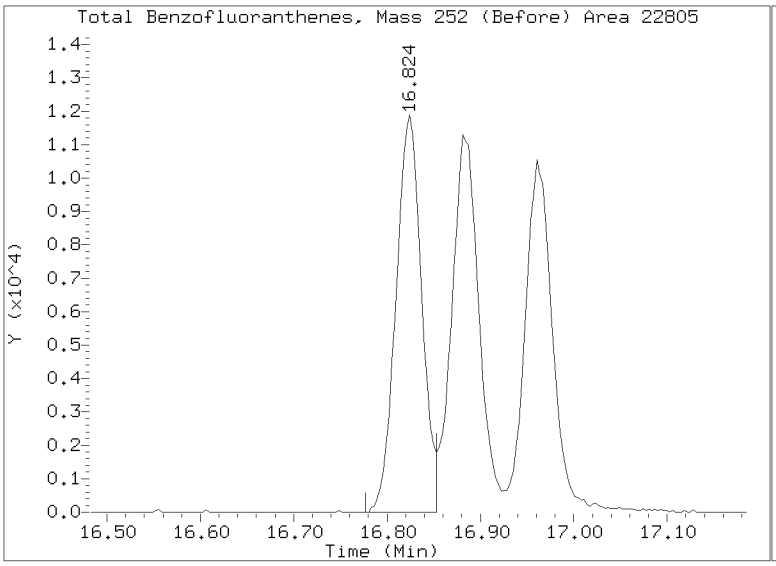
No RRT check performed

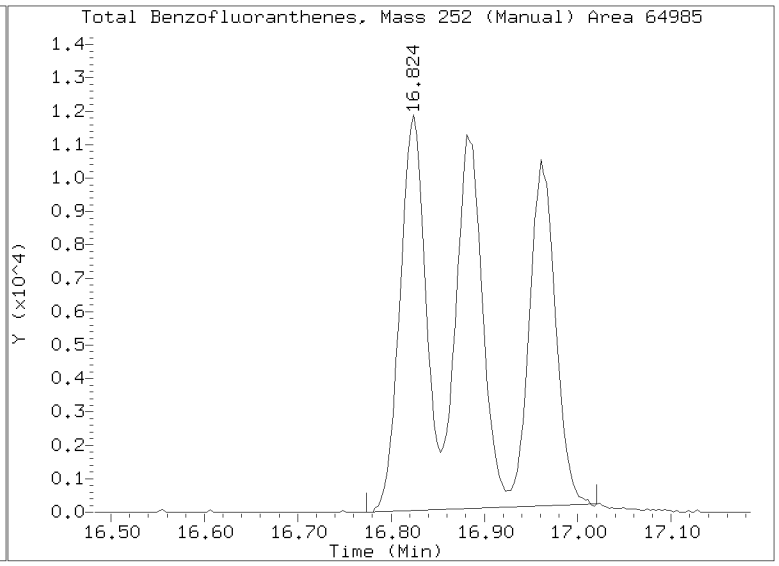
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011905.D
Injection Date: 19-JAN-2023 12:25
Lab ID:SLA0213-CAL3 Client ID:
Report Date: 01/19/2023 20:12

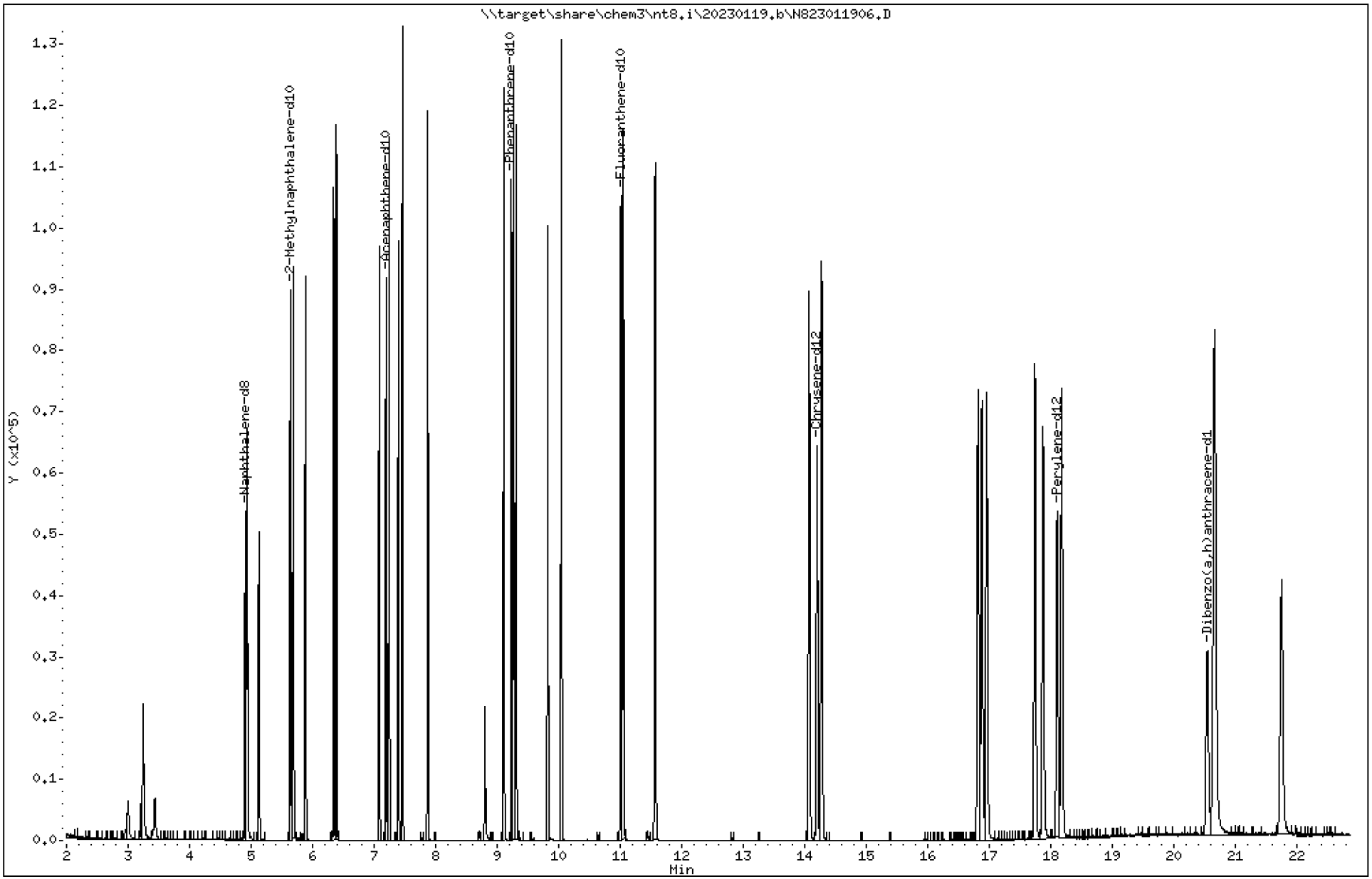




Data File: \\target\share\chem3\nt8.i\20230119.b\N823011906.D
Date : 19-JAN-2023 12:52
Client ID:
Sample Info: IC25230119,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011906.D
Lab Smp Id: SLA0213-CAL4
Inj Date : 19-JAN-2023 12:52
Operator : JZ Inst ID: nt8.i
Smp Info : IC25230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	44704	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	52764	2.50000	2.538
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.150)	31709	2.50000	2.601
	4 2-Methylnaphthalene	141	5.687	5.687	(1.159)	29737	2.50000	2.601
	5 1-methylnaphthalene	141	5.883	5.887	(1.199)	30098	2.50000	2.594
	7 Biphenyl	154	6.345	6.348	(0.882)	44716	2.50000	2.566
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	32396	2.50000	2.627
	9 Acenaphthylene	152	7.085	7.088	(0.985)	53242	2.50000	2.670
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	26411	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	34335	2.50000	2.569
	12 Dibenzofuran	168	7.395	7.398	(1.028)	50810	2.50000	2.503
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	33264	2.50000	2.599
	14 Fluorene	166	7.872	7.875	(1.094)	40499	2.50000	2.569
	18 Dibenzothiophene	184	9.109	9.112	(0.986)	56399	2.50000	2.594
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	49210	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	61033	2.50000	2.539
	17 Anthracene	178	9.311	9.314	(1.008)	57918	2.50000	2.652
	19 Carbazole	167	9.823	9.826	(1.064)	52870	2.50000	2.641
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	45452	2.50000	2.624
	22 Fluoranthene	202	11.053	11.056	(1.197)	68546	2.50000	2.620
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	58746	2.50000	2.706
	23 Pyrene	202	11.572	11.575	(0.815)	69587	2.50000	2.611
	24 Benzo(a)anthracene	228	14.076	14.079	(0.991)	63802	2.50000	2.641
*	25 Chrysene-d12	240	14.202	14.206	(1.000)	42994	2.00000	
	27 Chrysene	228	14.278	14.282	(1.005)	65955	2.50000	2.564
	28 Benzo(b)fluoranthene	252	16.821	16.833	(0.929)	61818	2.50000	2.620
	29 Benzo(k)fluoranthene	252	16.884	16.897	(0.932)	59716	2.50000	2.583
	30 Benzo(j)fluoranthene	252	16.963	16.972	(0.937)	54944	2.50000	2.640
	31 Total Benzofluoranthenes	252	16.821	16.833	(0.929)	176122	7.50000	7.880(M)
	34 Benzo(e)pyrene	252	17.747	17.760	(0.980)	60179	2.50000	2.557
	32 Benzo(a)pyrene	252	17.877	17.889	(0.987)	54569	2.50000	2.628
*	33 Perylene-d12	264	18.111	18.114	(1.000)	40520	2.00000	
	35 Perylene	252	18.183	18.193	(1.004)	57968	2.50000	2.601

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.552	20.565	(1.135)	37101	2.50000	2.853
37 Indeno(1,2,3-cd)pyrene	276	20.675	20.691	(1.142)	63691	2.50000	2.692
38 Dibenzo(a,h)anthracene	278	20.662	20.685	(1.141)	54772	2.50000	2.690
39 Benzo(g,h,i)perylene	276	21.756	21.782	(1.201)	56053	2.50000	2.615

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011906.D
Lab Smp Id: SLA0213-CAL4
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	44704	0.00
10 Acenaphthene-d10	26411	13206	52822	26411	0.00
15 Phenanthrene-d10	49210	24605	98420	49210	0.00
25 Chrysene-d12	42994	21497	85988	42994	0.00
33 Perylene-d12	40520	20260	81040	40520	0.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011906.D

Lab ID: SLA0213-CAL4
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 12:52

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

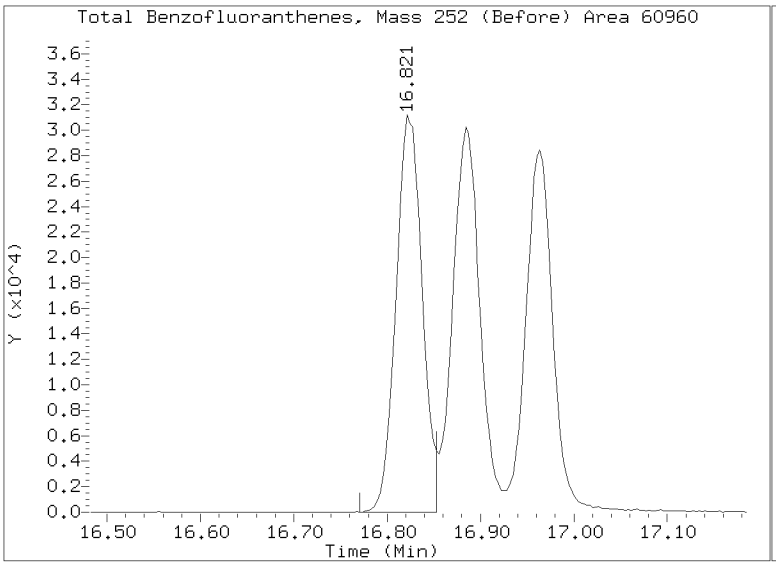
No RRT check performed

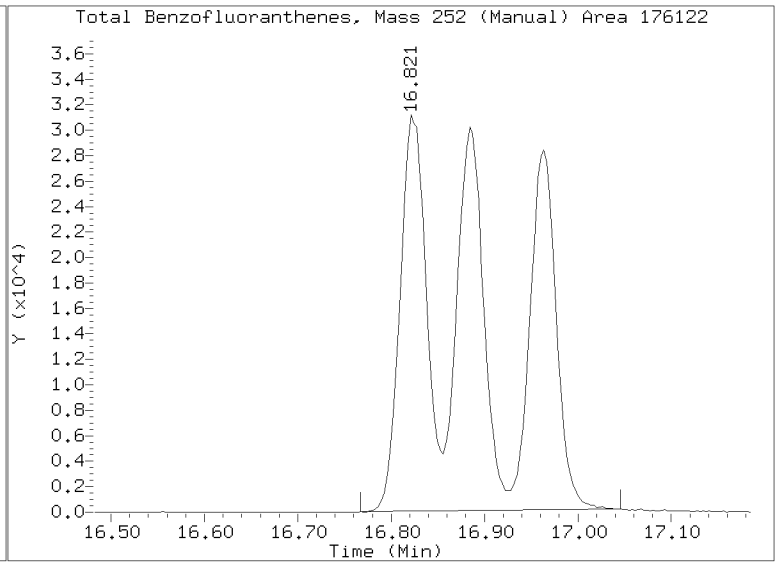
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011906.D
Injection Date: 19-JAN-2023 12:52
Lab ID:SLA0213-CAL4 Client ID:
Report Date: 01/19/2023 20:12

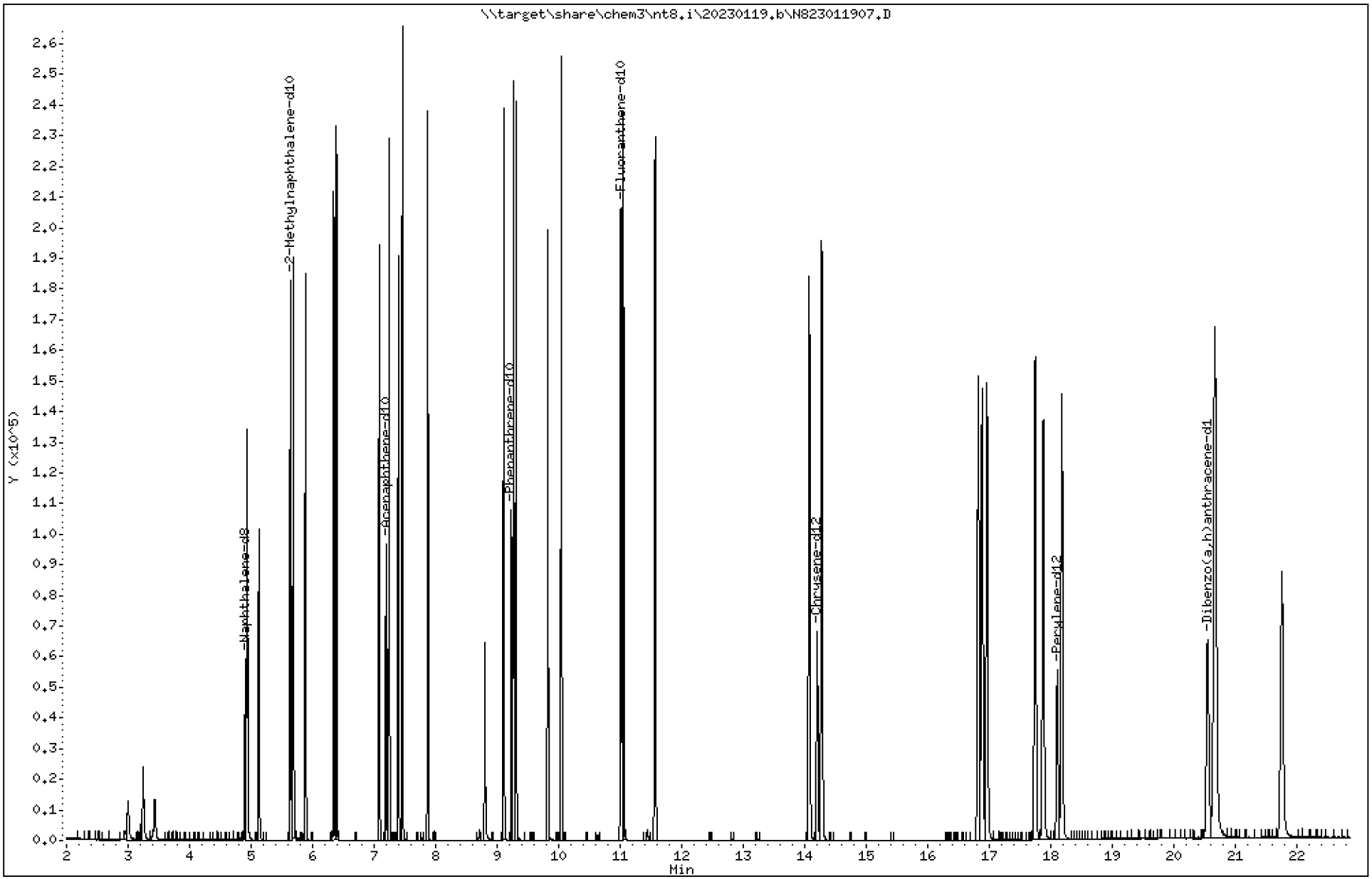




Data File: \\target\share\chem3\nt8.i\20230119.b\N823011907.D
Date : 19-JAN-2023 13:19
Client ID:
Sample Info: IC5230119,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011907.D
Lab Smp Id: SLA0213-CAL5
Inj Date : 19-JAN-2023 13:19
Operator : JZ Inst ID: nt8.i
Smp Info : IC5230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.909	4.906	(1.000)	46542	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	105414	5.00000	4.871
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.149)	64045	5.00000	5.046
	4 2-Methylnaphthalene	141	5.687	5.687	(1.158)	59129	5.00000	4.967
	5 1-methylnaphthalene	141	5.887	5.887	(1.199)	59615	5.00000	4.935
	7 Biphenyl	154	6.345	6.348	(0.882)	88014	5.00000	4.827
	8 2,6-Dimethylnaphthalene	156	6.389	6.392	(0.888)	64484	5.00000	4.997
	9 Acenaphthylene	152	7.085	7.088	(0.985)	108746	5.00000	5.211
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	27638	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	67894	5.00000	4.855
	12 Dibenzofuran	168	7.395	7.398	(1.028)	100768	5.00000	4.744
	13 1,6,7-Trimethylnaphthalene	170	7.461	7.464	(1.037)	65911	5.00000	4.921
	14 Fluorene	166	7.875	7.875	(1.094)	82420	5.00000	4.996
	18 Dibenzothiophene	184	9.109	9.112	(0.987)	112243	5.00000	4.946
*	15 Phenanthrene-d10	188	9.232	9.235	(1.000)	51351	2.00000	
	16 Phenanthrene	178	9.270	9.273	(1.004)	119248	5.00000	4.754
	17 Anthracene	178	9.311	9.314	(1.009)	114927	5.00000	5.044
	19 Carbazole	167	9.823	9.826	(1.064)	106758	5.00000	5.111
	20 1-Methylphenanthrene	192	10.048	10.051	(1.088)	90954	5.00000	5.032
	22 Fluoranthene	202	11.053	11.056	(1.197)	135256	5.00000	4.954
$	21 Fluoranthene-d10	212	11.015	11.018	(1.193)	119286	5.00000	5.265
	23 Pyrene	202	11.572	11.575	(0.815)	140705	5.00000	5.068
	24 Benzo(a)anthracene	228	14.076	14.079	(0.991)	132618	5.00000	5.270
*	25 Chrysene-d12	240	14.203	14.206	(1.000)	44781	2.00000	
	27 Chrysene	228	14.278	14.282	(1.005)	132750	5.00000	4.955
	28 Benzo(b)fluoranthene	252	16.827	16.833	(0.929)	125757	5.00000	5.118
	29 Benzo(k)fluoranthene	252	16.887	16.897	(0.932)	122821	5.00000	5.103
	30 Benzo(j)fluoranthene	252	16.966	16.972	(0.937)	113399	5.00000	5.234
	31 Total Benzofluoranthenes	252	16.827	16.833	(0.929)	361443	15.0000	15.53(M)
	34 Benzo(e)pyrene	252	17.750	17.760	(0.980)	121964	5.00000	4.978
	32 Benzo(a)pyrene	252	17.883	17.889	(0.987)	112121	5.00000	5.186
*	33 Perylene-d12	264	18.111	18.114	(1.000)	42187	2.00000	
	35 Perylene	252	18.187	18.193	(1.004)	116268	5.00000	5.011

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.555	20.565	(1.135)	78264	5.00000	5.780
37 Indeno(1,2,3-cd)pyrene	276	20.681	20.691	(1.142)	129575	5.00000	5.260
38 Dibenzo(a,h)anthracene	278	20.669	20.685	(1.141)	112698	5.00000	5.317
39 Benzo(g,h,i)perylene	276	21.763	21.782	(1.202)	114826	5.00000	5.145

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011907.D
Lab Smp Id: SLA0213-CAL5
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46542	4.11
10 Acenaphthene-d10	26411	13206	52822	27638	4.65
15 Phenanthrene-d10	49210	24605	98420	51351	4.35
25 Chrysene-d12	42994	21497	85988	44781	4.16
33 Perylene-d12	40520	20260	81040	42187	4.11

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.06
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.23	-0.03
25 Chrysene-d12	14.20	13.70	14.70	14.20	0.00
33 Perylene-d12	18.11	17.61	18.61	18.11	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011907.D

Lab ID: SLA0213-CAL5
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 13:19

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

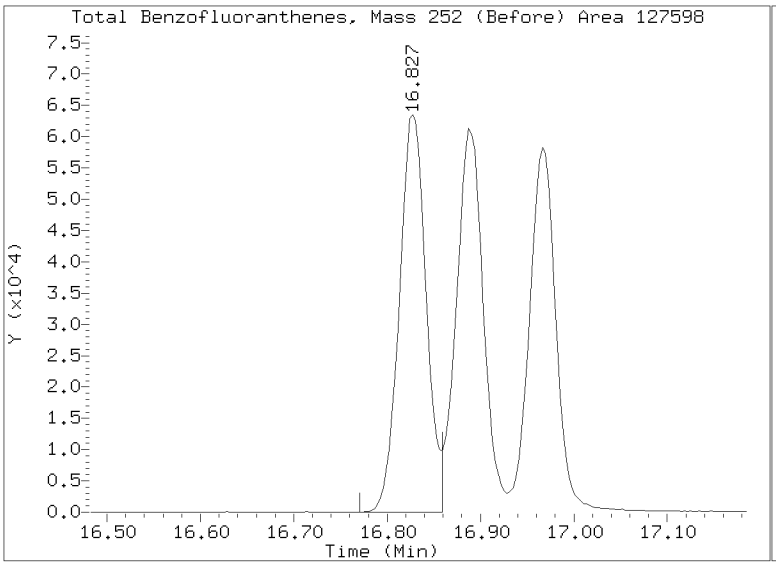
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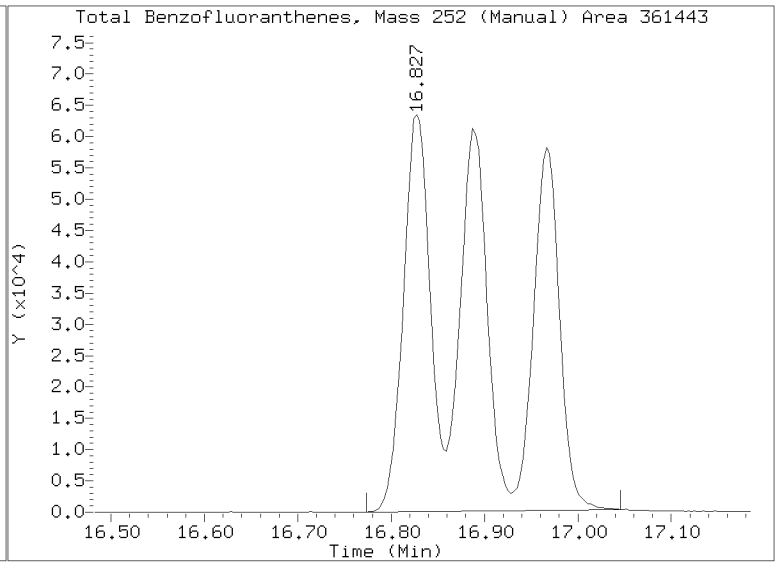
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011907.D
Injection Date: 19-JAN-2023 13:19
Lab ID:SLA0213-CAL5 Client ID:
Report Date: 01/19/2023 20:12

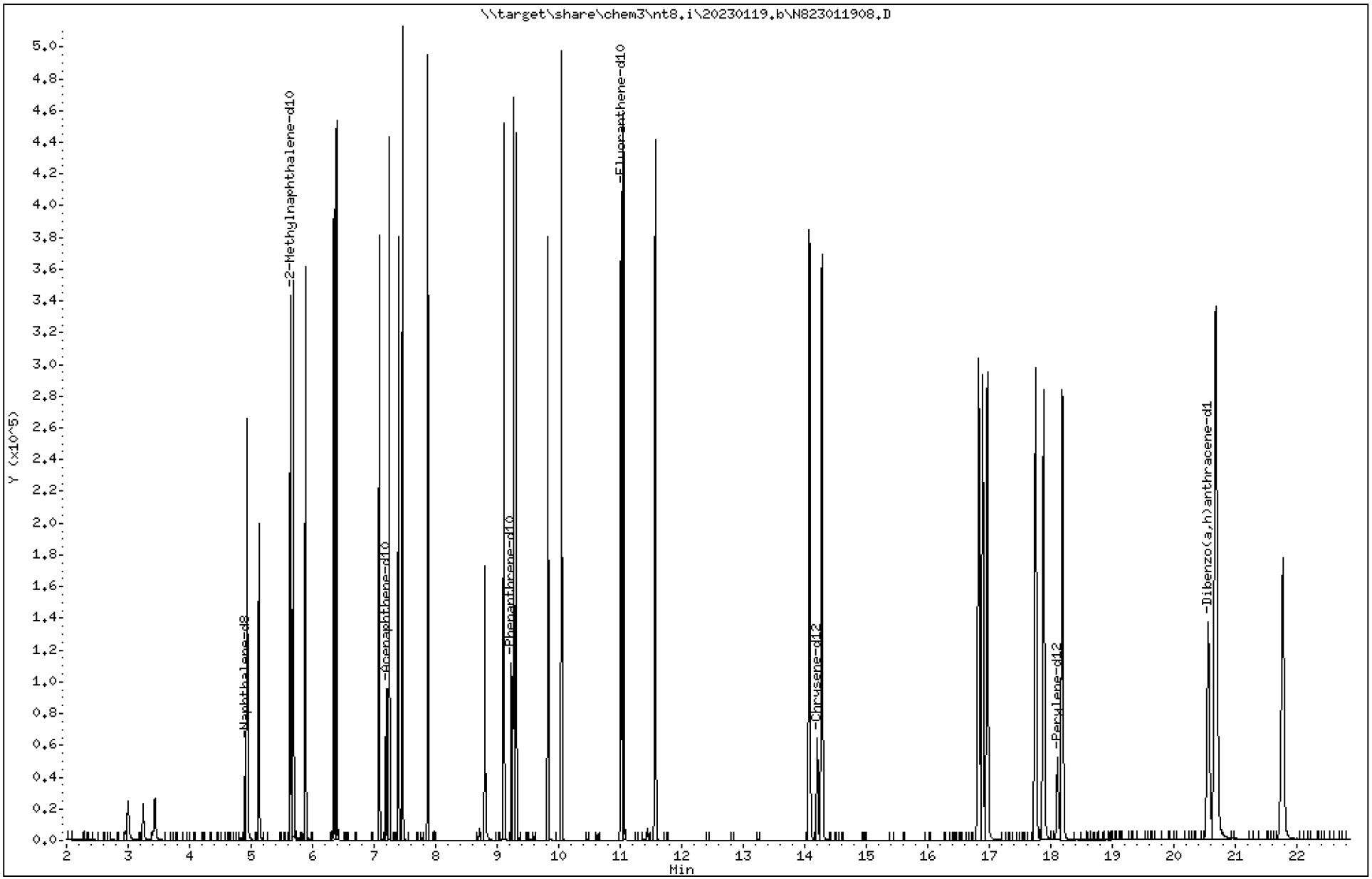




Data File: \\target\share\chem3\nt8.i\20230119.b\N823011908.D
Date : 19-JAN-2023 13:46
Client ID:
Sample Info: IC10230119,

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25

Column phase: Rxi-17sil



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011908.D
Lab Smp Id: SLA0213-CAL6
Inj Date : 19-JAN-2023 13:46
Operator : JZ Inst ID: nt8.i
Smp Info : IC10230119,
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:10 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.906	4.906	(1.000)	46070	2.00000	
	2 Naphthalene	128	4.938	4.938	(1.006)	203510	10.0000	9.501
$	3 2-Methylnaphthalene-d10	152	5.640	5.640	(1.149)	124701	10.0000	9.925
	4 2-Methylnaphthalene	141	5.687	5.687	(1.159)	112895	10.0000	9.582
	5 1-methylnaphthalene	141	5.887	5.887	(1.200)	115357	10.0000	9.647
	7 Biphenyl	154	6.348	6.348	(0.882)	169086	10.0000	9.603
	8 2,6-Dimethylnaphthalene	156	6.392	6.392	(0.888)	124019	10.0000	9.952
	9 Acenaphthylene	152	7.088	7.088	(0.985)	213179	10.0000	10.58
*	10 Acenaphthene-d10	164	7.196	7.196	(1.000)	26689	2.00000	
	11 Acenaphthene	153	7.246	7.246	(1.007)	130872	10.0000	9.692
	12 Dibenzofuran	168	7.398	7.398	(1.028)	193532	10.0000	9.436
	13 1,6,7-Trimethylnaphthalene	170	7.464	7.464	(1.037)	127563	10.0000	9.863
	14 Fluorene	166	7.875	7.875	(1.094)	161125	10.0000	10.11
	18 Dibenzothiophene	184	9.112	9.112	(0.987)	217256	10.0000	9.701
*	15 Phenanthrene-d10	188	9.235	9.235	(1.000)	50683	2.00000	
	16 Phenanthrene	178	9.273	9.273	(1.004)	230002	10.0000	9.290
	17 Anthracene	178	9.314	9.314	(1.009)	221162	10.0000	9.834
	19 Carbazole	167	9.826	9.826	(1.064)	210036	10.0000	10.19
	20 1-Methylphenanthrene	192	10.051	10.051	(1.088)	178561	10.0000	10.01
	22 Fluoranthene	202	11.056	11.056	(1.197)	257643	10.0000	9.560
$	21 Fluoranthene-d10	212	11.018	11.018	(1.193)	235698	10.0000	10.54
	23 Pyrene	202	11.575	11.575	(0.815)	274116	10.0000	10.08
	24 Benzo(a)anthracene	228	14.079	14.079	(0.991)	268196	10.0000	10.88
*	25 Chrysene-d12	240	14.206	14.206	(1.000)	43880	2.00000	
	27 Chrysene	228	14.282	14.282	(1.005)	257418	10.0000	9.806
	28 Benzo(b)fluoranthene	252	16.833	16.833	(0.929)	252022	10.0000	10.64
	29 Benzo(k)fluoranthene	252	16.897	16.897	(0.933)	238915	10.0000	10.30
	30 Benzo(j)fluoranthene	252	16.972	16.972	(0.937)	216807	10.0000	10.38
	31 Total Benzofluoranthenes	252	16.833	16.833	(0.929)	704955	30.0000	31.43(M)
	34 Benzo(e)pyrene	252	17.760	17.760	(0.980)	240447	10.0000	10.18
	32 Benzo(a)pyrene	252	17.889	17.889	(0.988)	222990	10.0000	10.70
*	33 Perylene-d12	264	18.114	18.114	(1.000)	40659	2.00000	
	35 Perylene	252	18.193	18.193	(1.004)	226582	10.0000	10.13

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.564	20.565	(1.135)	162230	10.0000	12.43
37 Indeno(1,2,3-cd)pyrene	276	20.691	20.691	(1.142)	252895	10.0000	10.65
38 Dibenzo(a,h)anthracene	278	20.685	20.685	(1.142)	223771	10.0000	10.95
39 Benzo(g,h,i)perylene	276	21.782	21.782	(1.202)	231445	10.0000	10.76

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011908.D
Lab Smp Id: SLA0213-CAL6
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46070	3.06
10 Acenaphthene-d10	26411	13206	52822	26689	1.05
15 Phenanthrene-d10	49210	24605	98420	50683	2.99
25 Chrysene-d12	42994	21497	85988	43880	2.06
33 Perylene-d12	40520	20260	81040	40659	0.34

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.00
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.00
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.00
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.02
33 Perylene-d12	18.11	17.61	18.61	18.11	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011908.D

Lab ID: SLA0213-CAL6
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 13:46

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

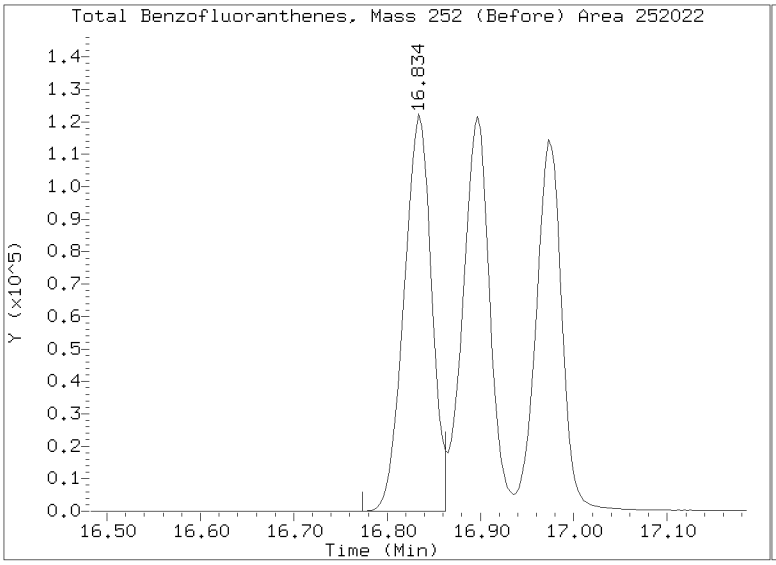
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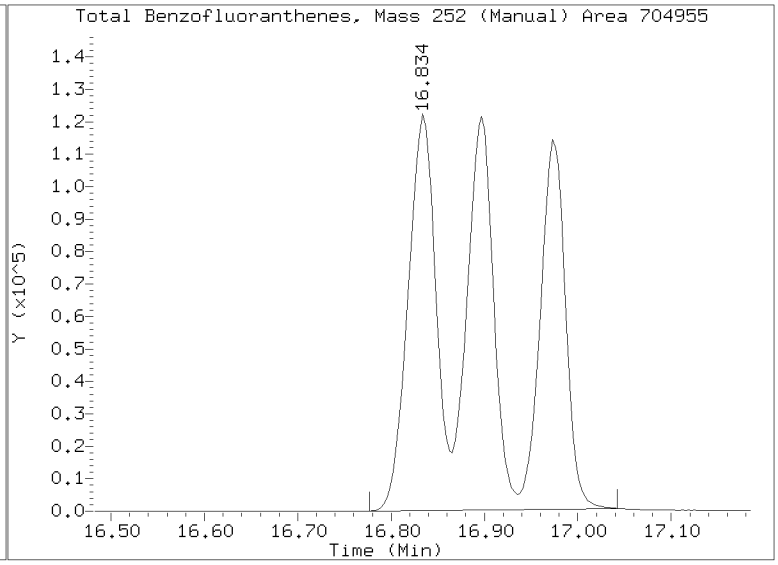
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

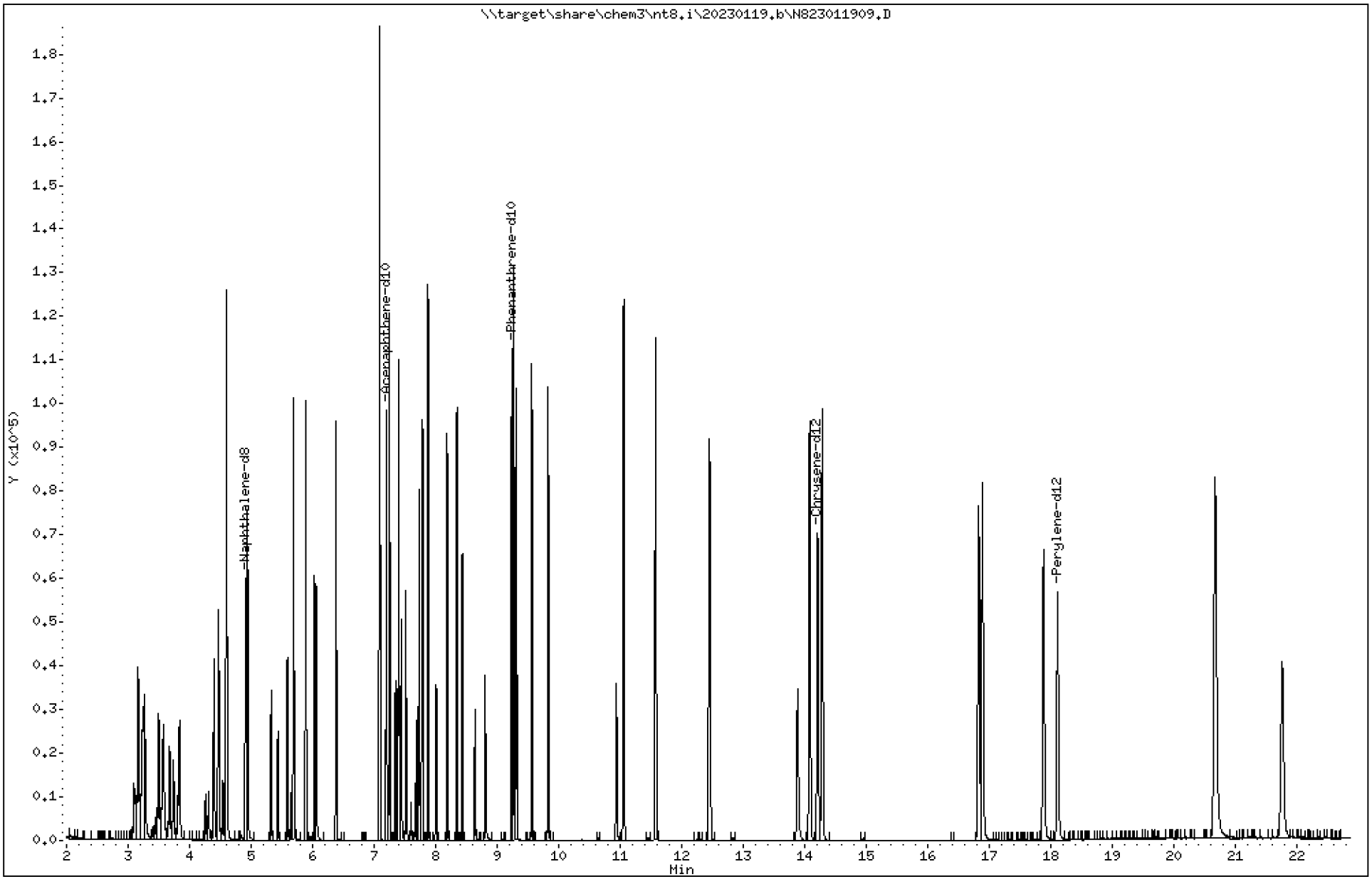
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Injection Date: 19-JAN-2023 13:46
Lab ID:SLA0213-CAL6 Client ID:
Report Date: 01/19/2023 20:12





Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Date : 19-JAN-2023 14:58
Client ID:
Sample Info: SCV230119
Volume Injected (uL): 1.0
Column phase: Rxi-17sil

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25



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Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

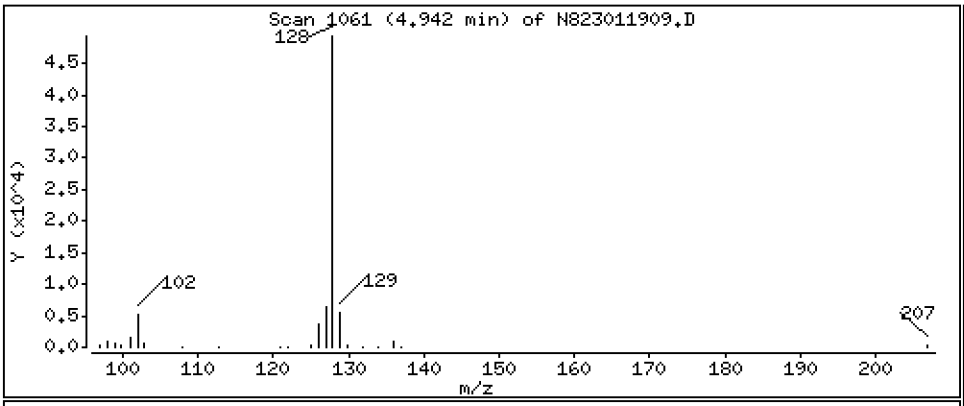
Operator: JZ

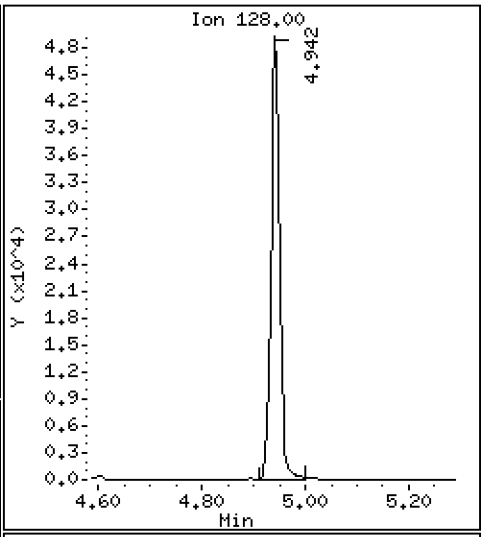
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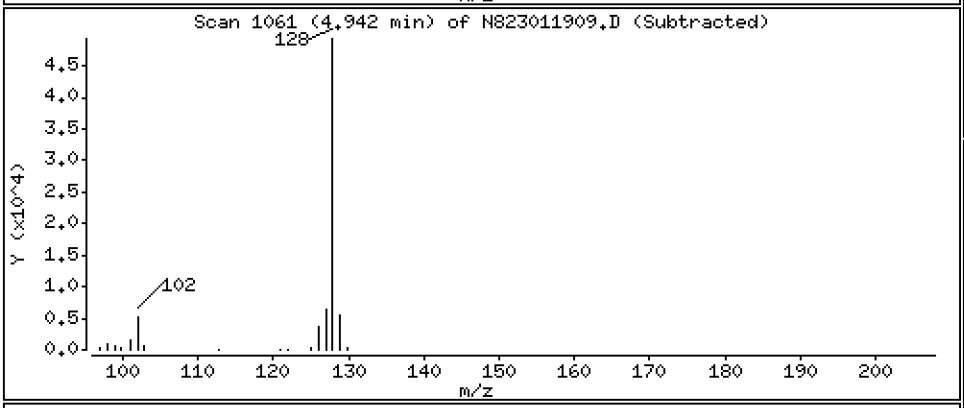
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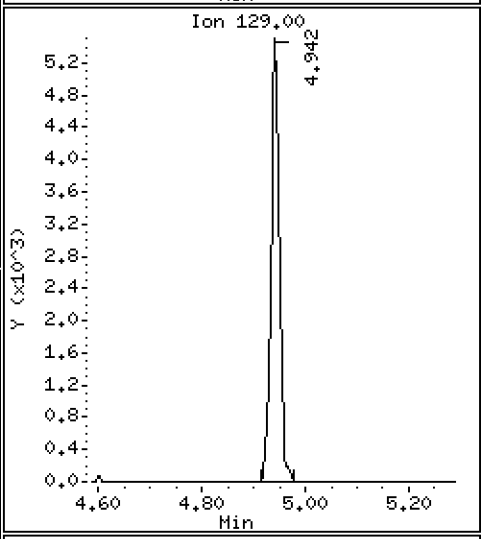
2 Naphthalene

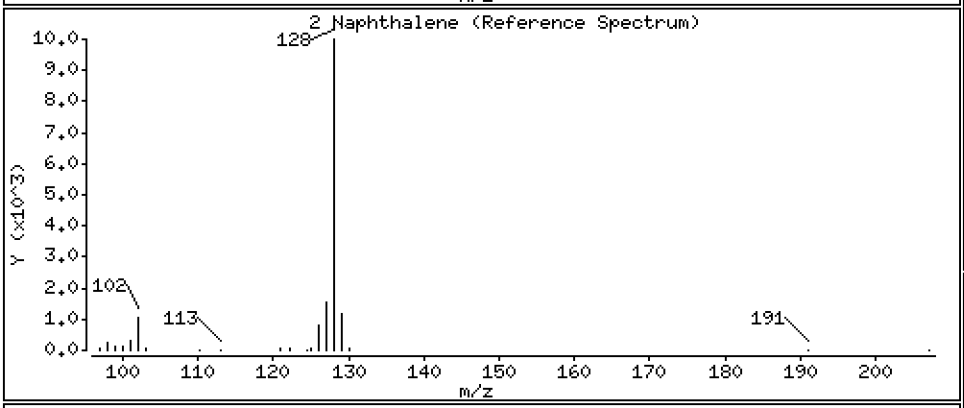
Concentration: 2.626 ug/L

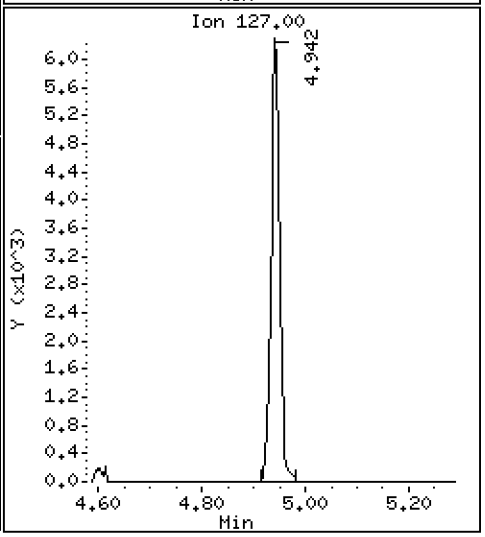


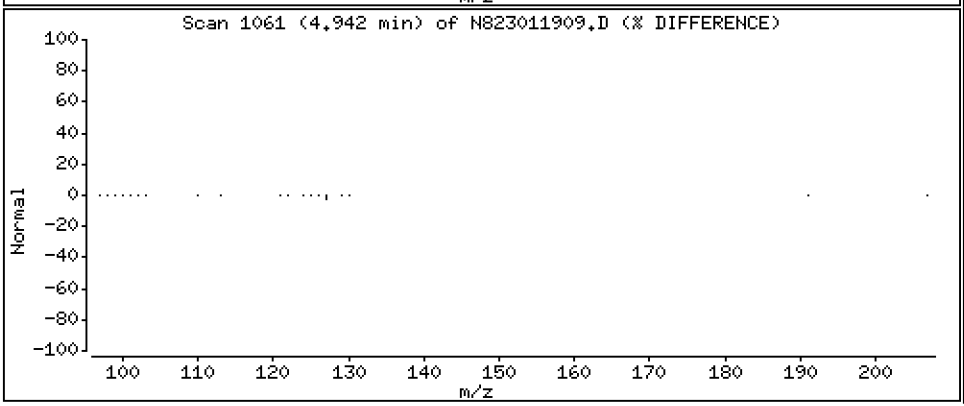












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

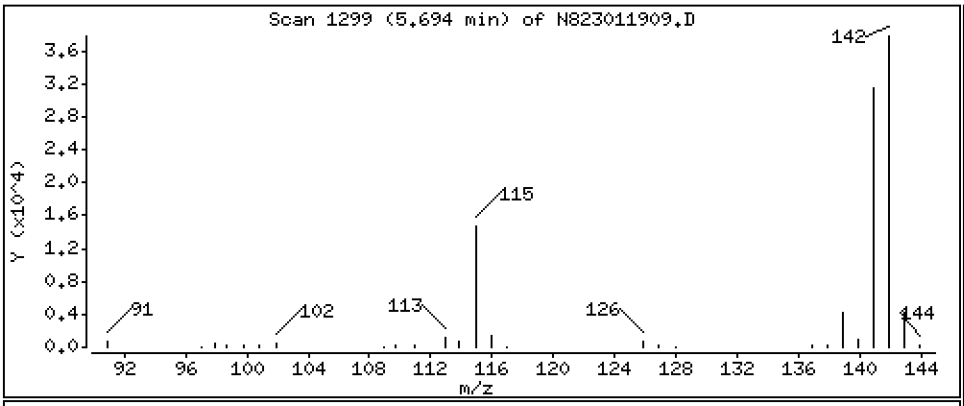
Operator: JZ

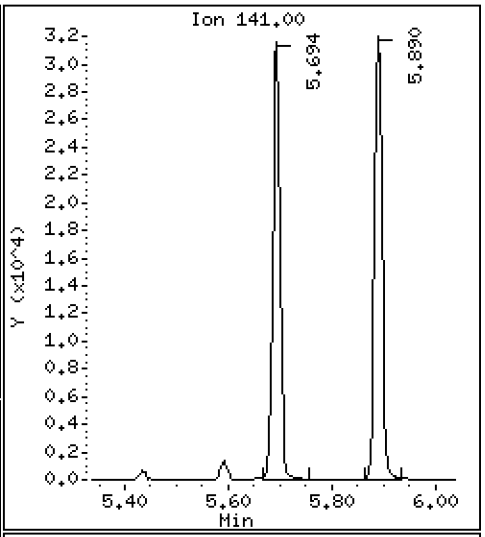
Column phase: Rxi-17sil

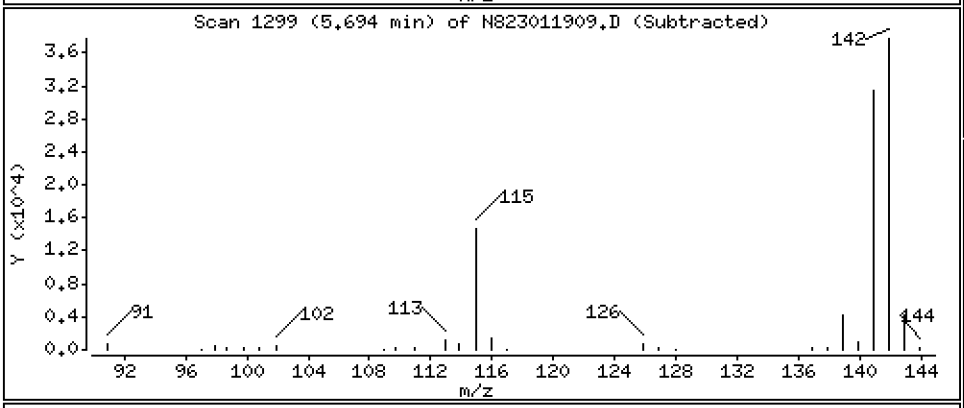
Column diameter: 0.25

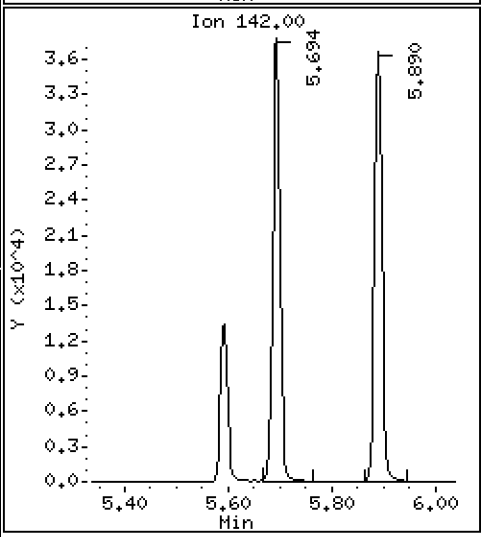
4 2-Methylnaphthalene

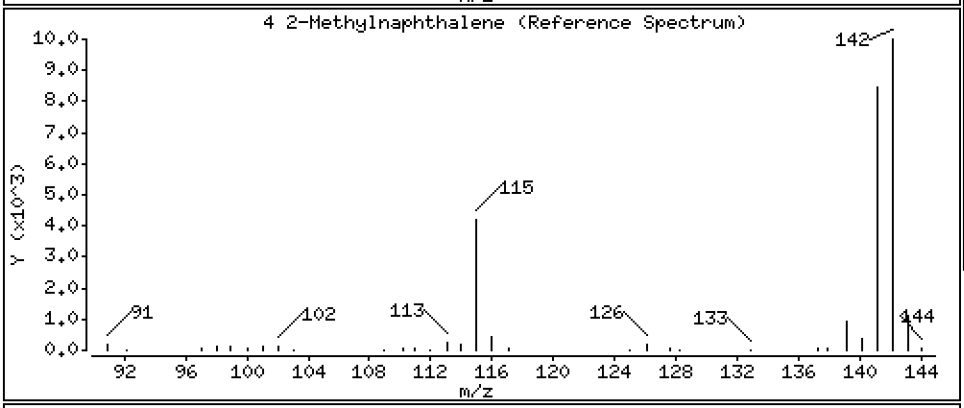
Concentration: 2.670 ug/L

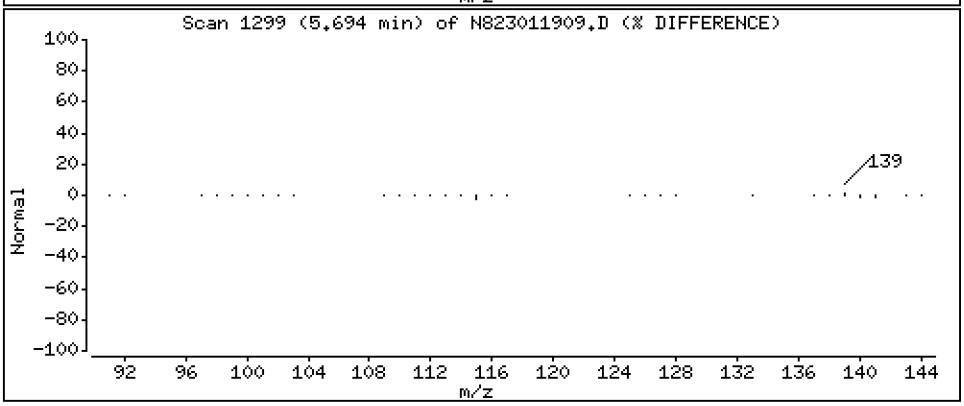












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

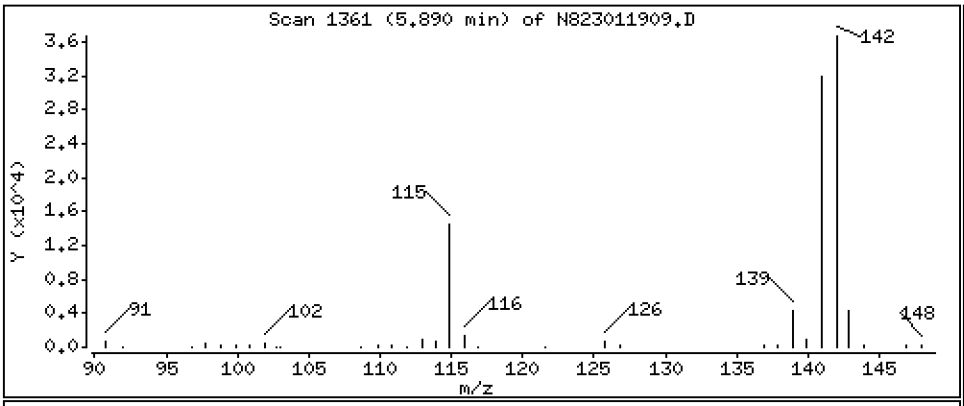
Operator: JZ

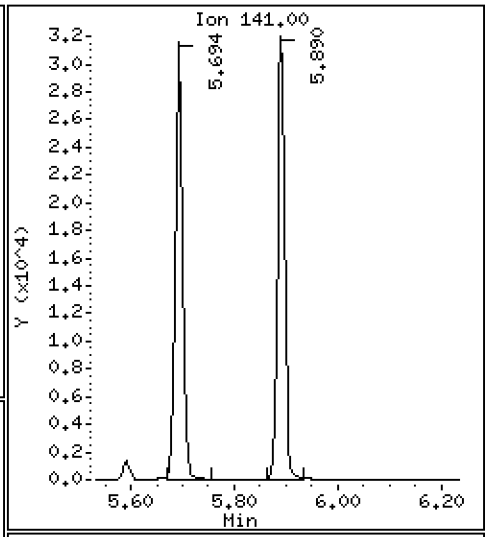
Column phase: Rxi-17sil

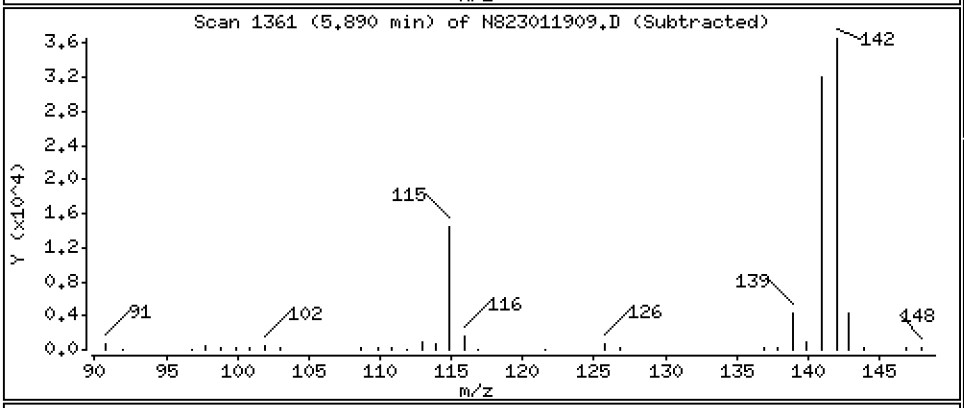
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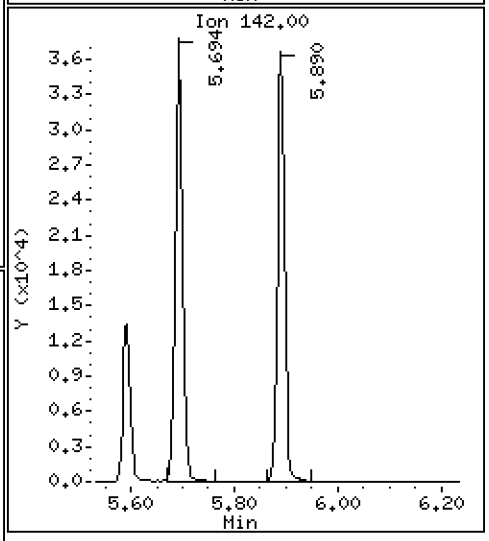
5 1-methylnaphthalene

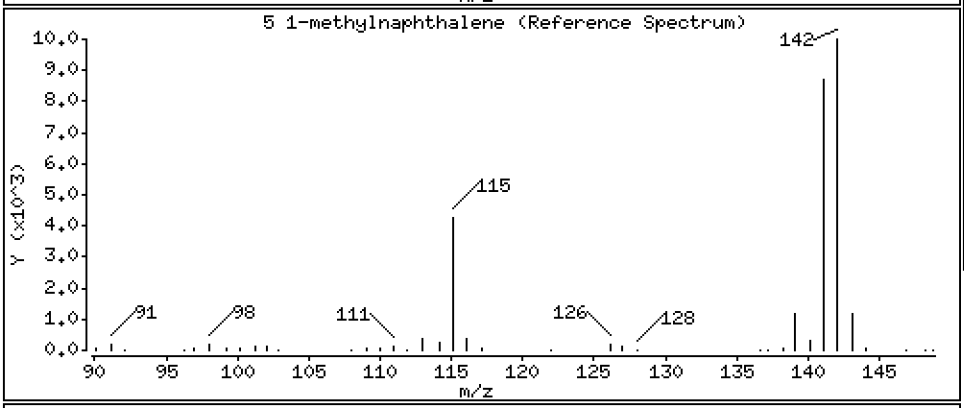
Concentration: 2.649 ug/L

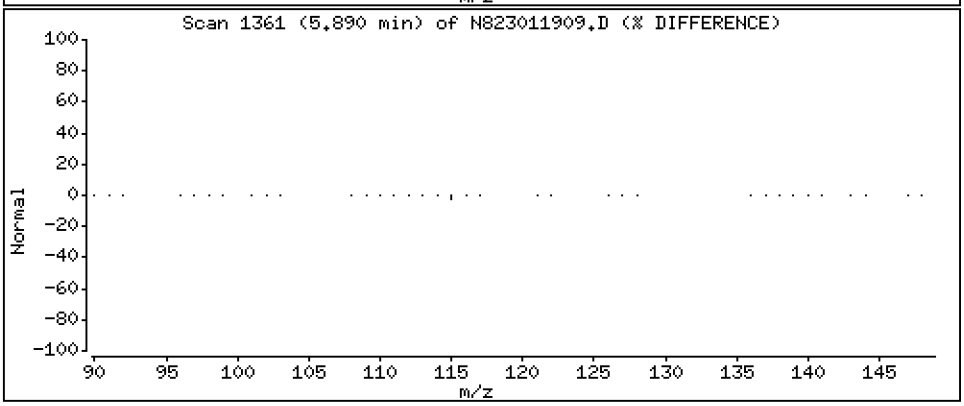












Date : 19-JAN-2023 14:58

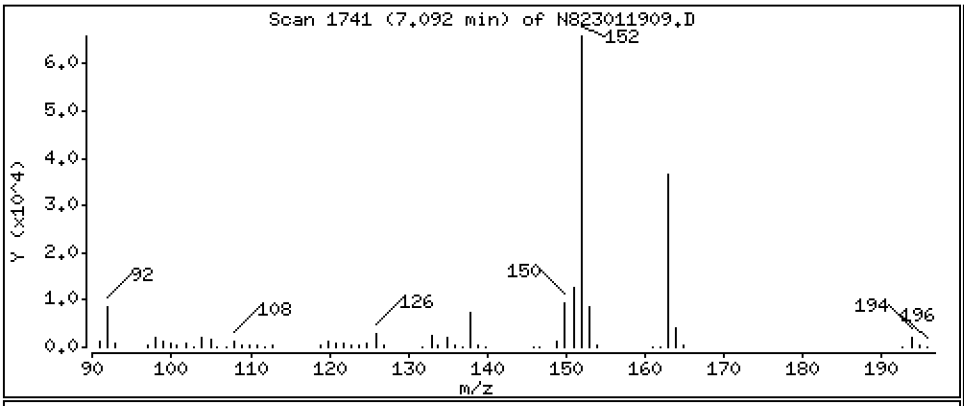
Client ID: Instrument: nt8.i

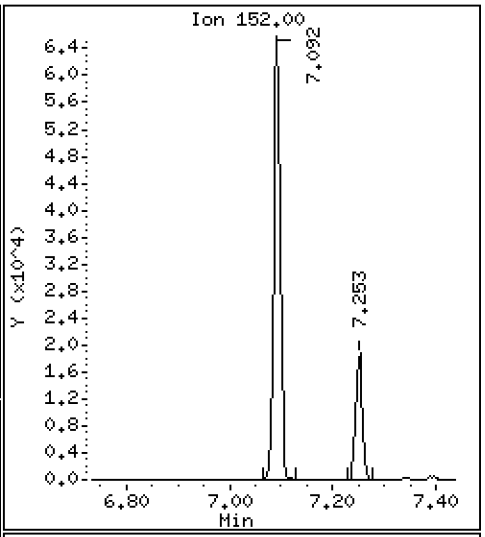
Sample Info: SCV230119

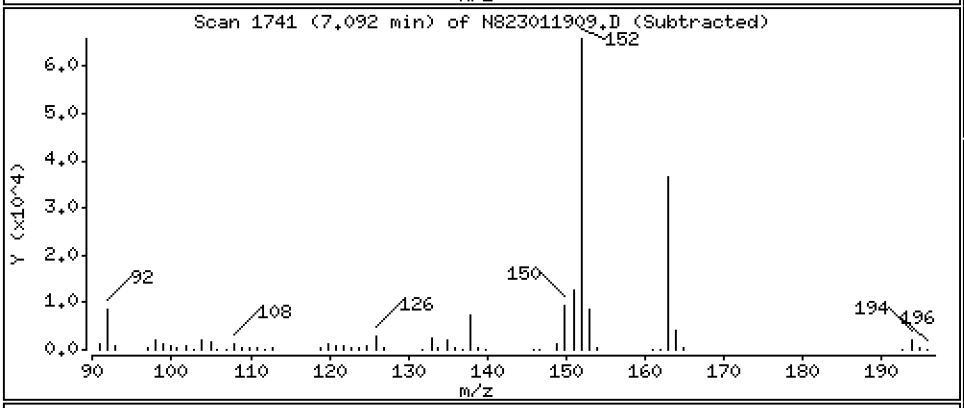
Volume Injected (uL): 1.0 Operator: JZ

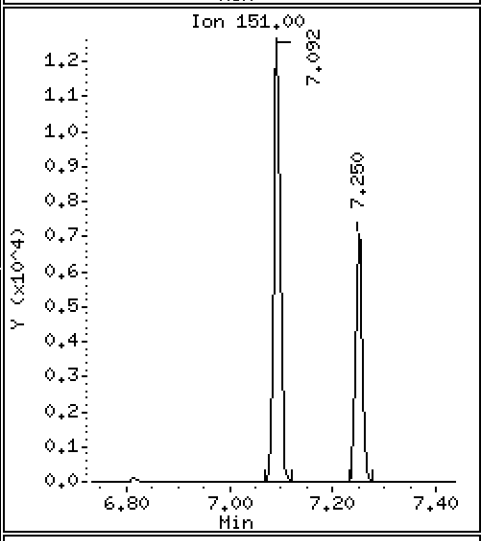
Column phase: Rxi-17sil Column diameter: 0.25

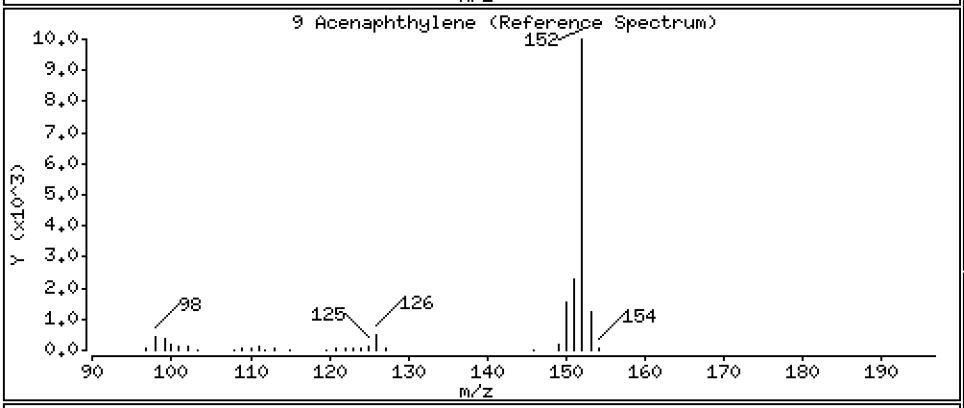
9 Acenaphthylene Concentration: 2.821 ug/L

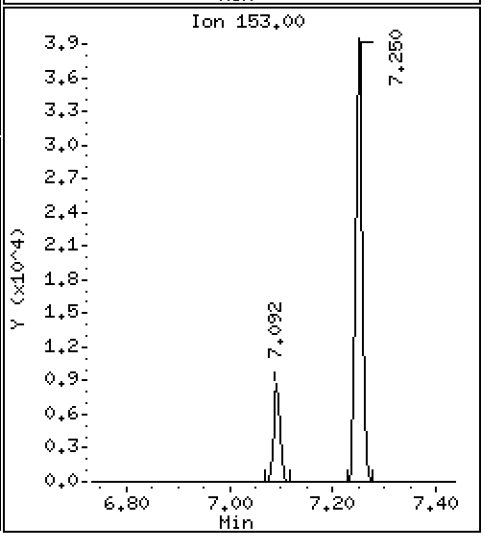


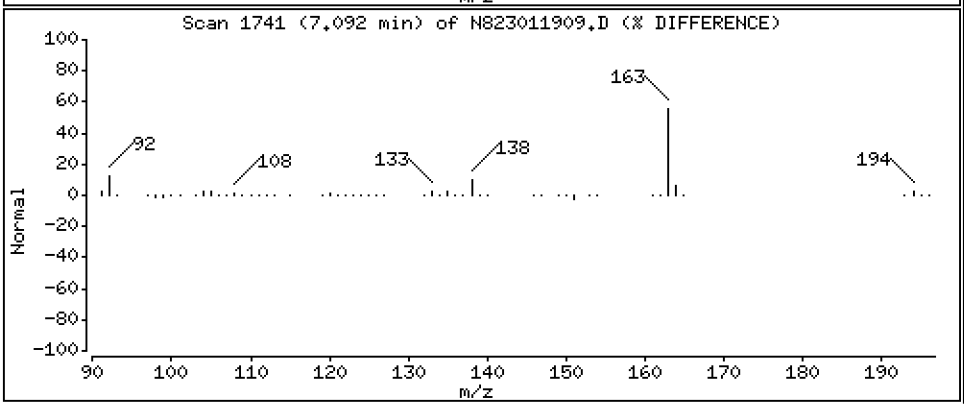












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

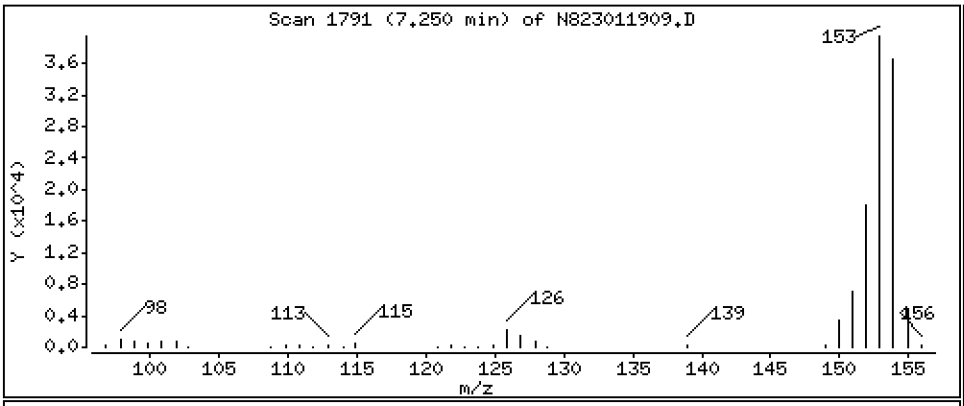
Operator: JZ

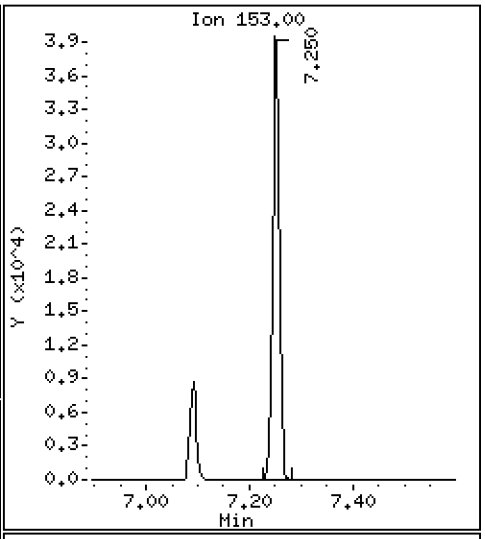
Column phase: Rxi-17sil

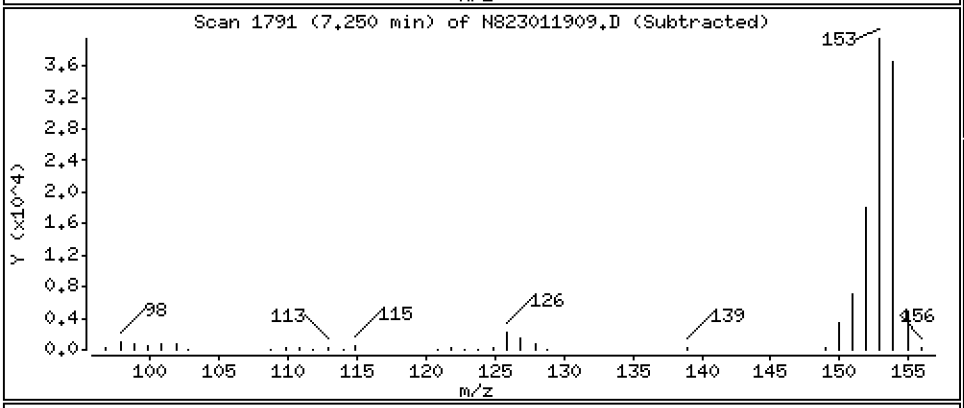
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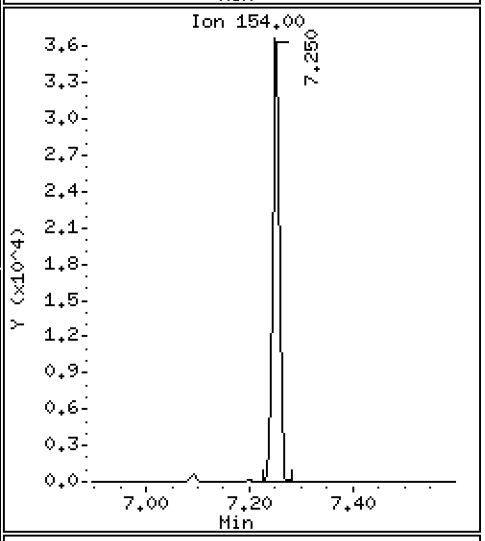
11 Acenaphthene

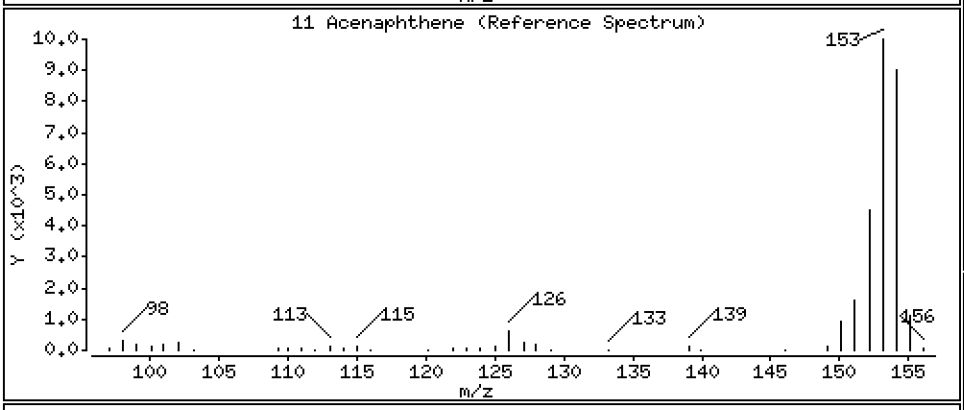
Concentration: 2.600 ug/L

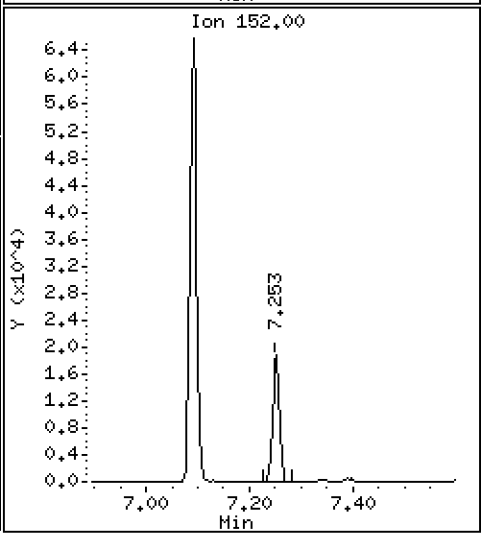


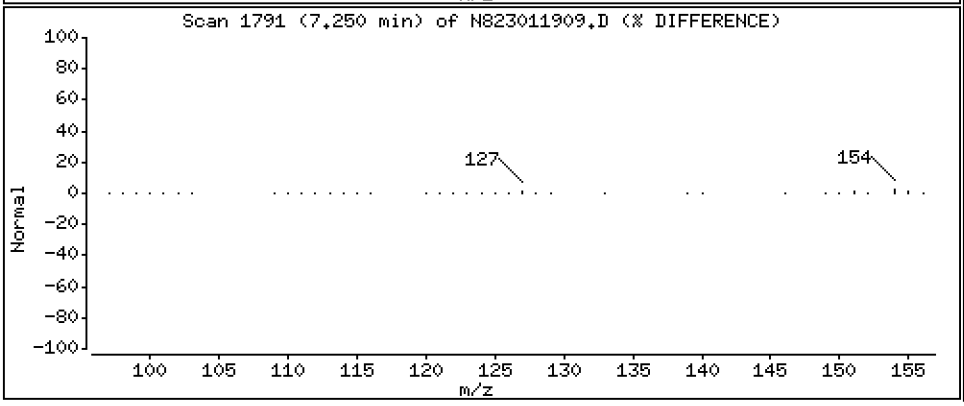












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

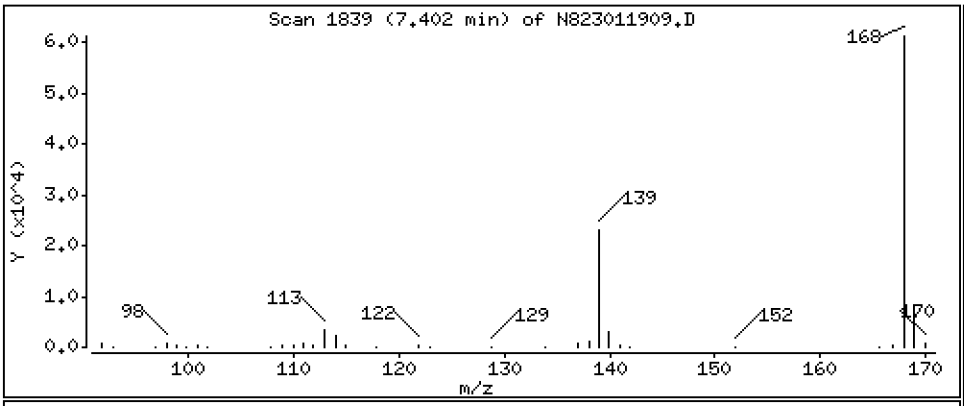
Operator: JZ

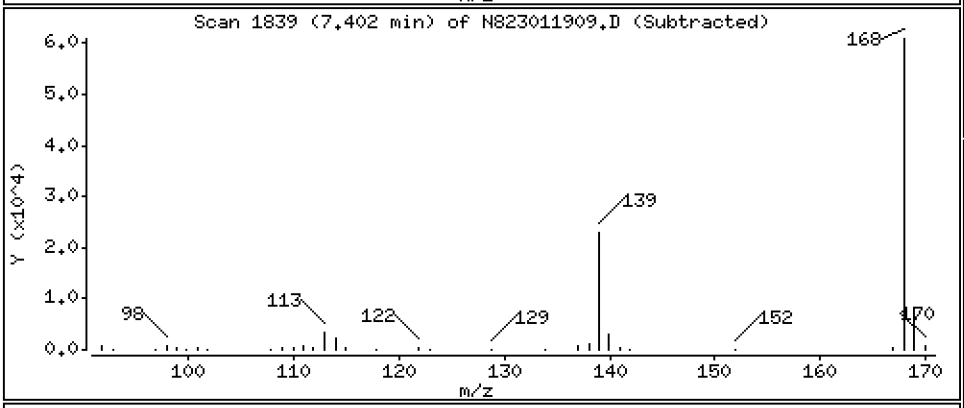
Column phase: Rxi-17sil

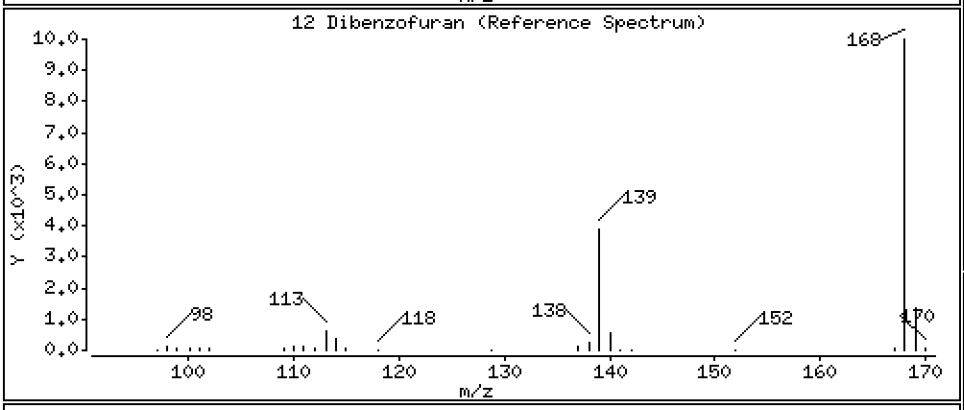
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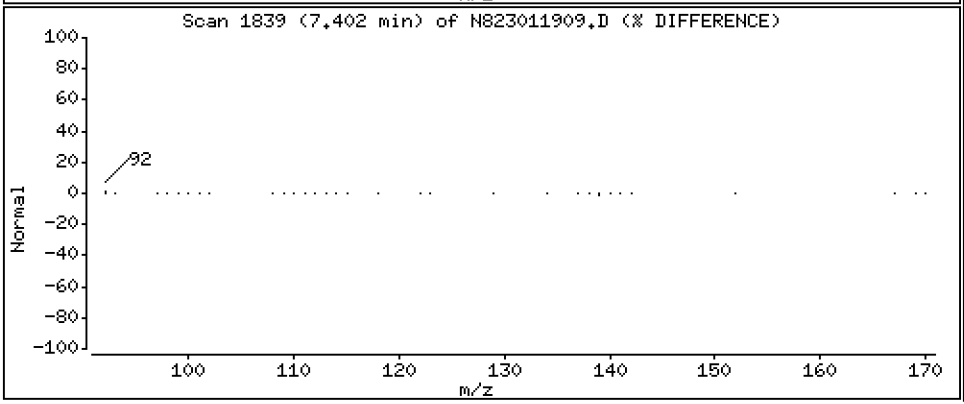
12 Dibenzofuran

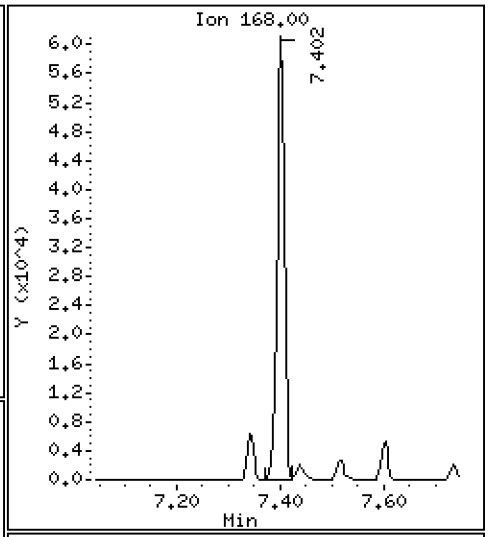
Concentration: 2.860 ug/L

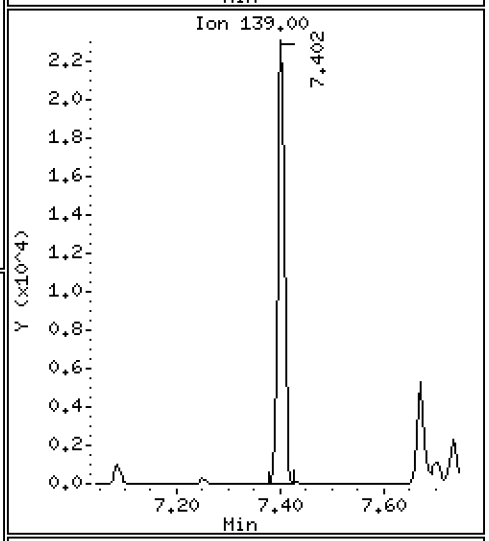


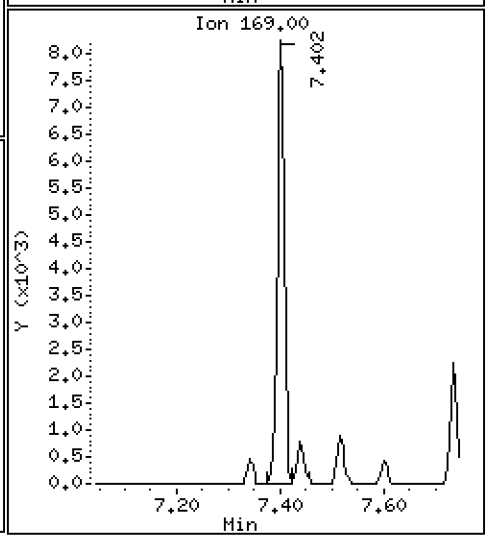












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

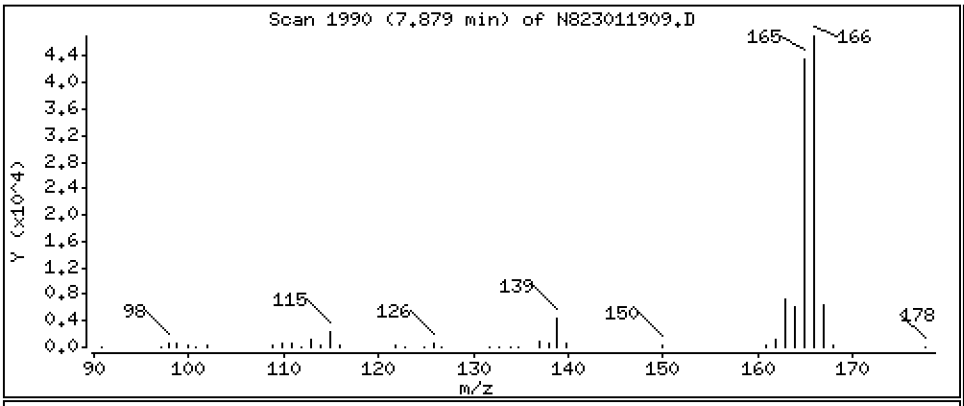
Operator: JZ

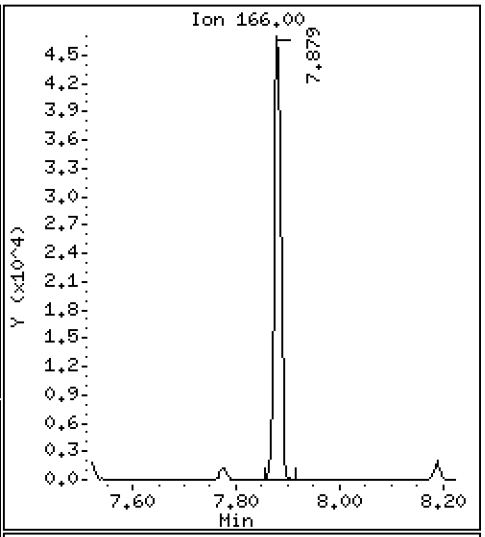
Column phase: Rxi-17sil

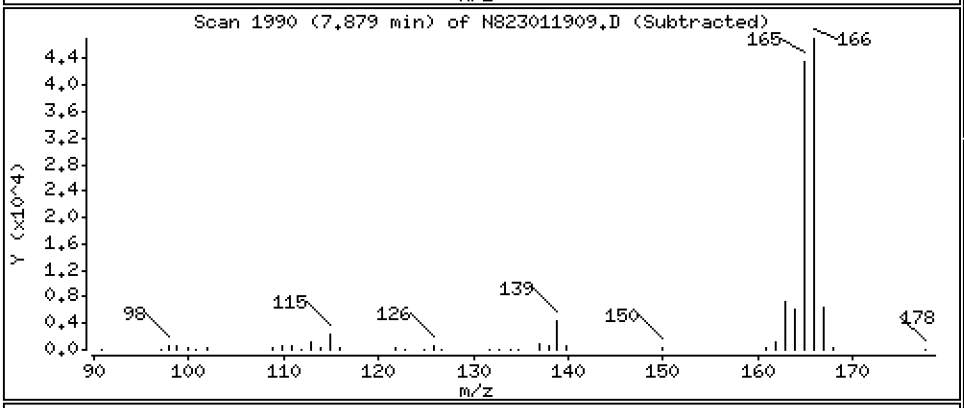
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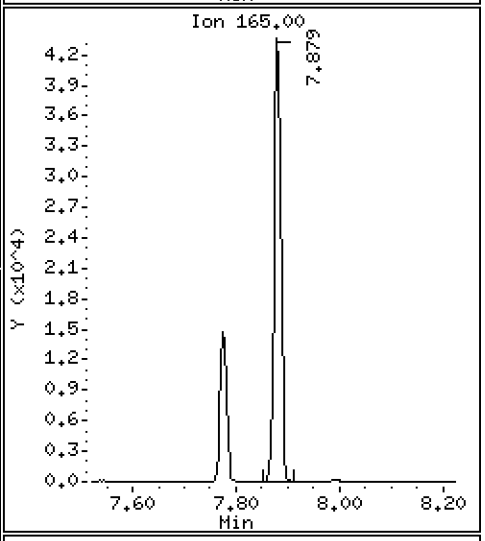
14 Fluorene

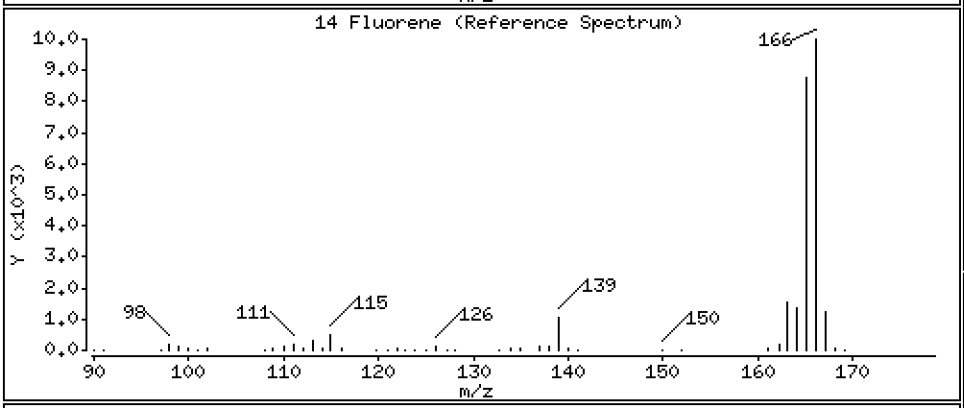
Concentration: 2.631 ug/L

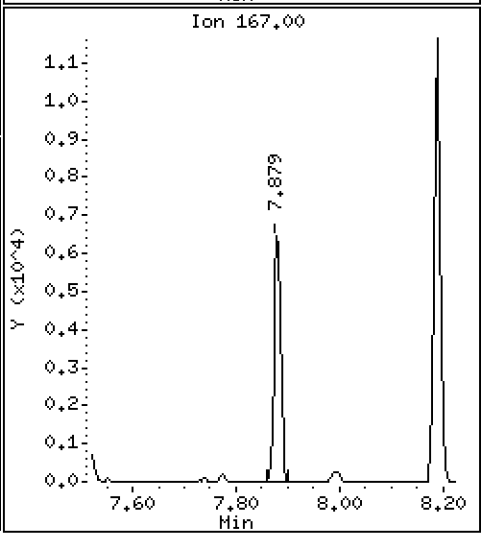


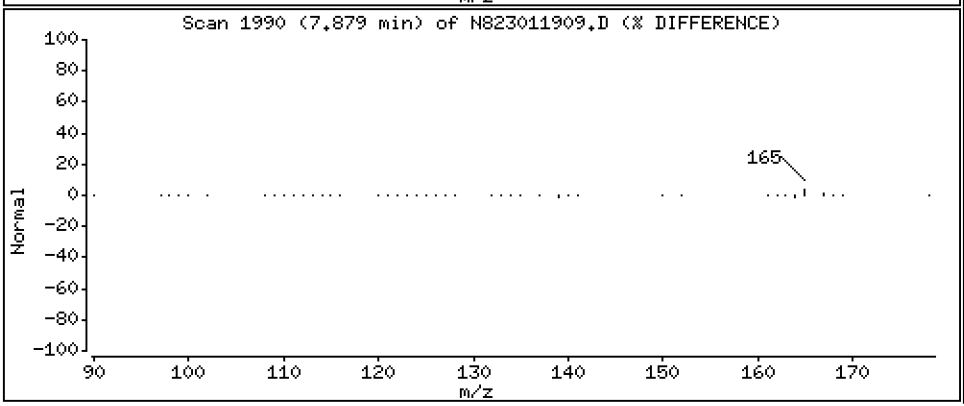












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

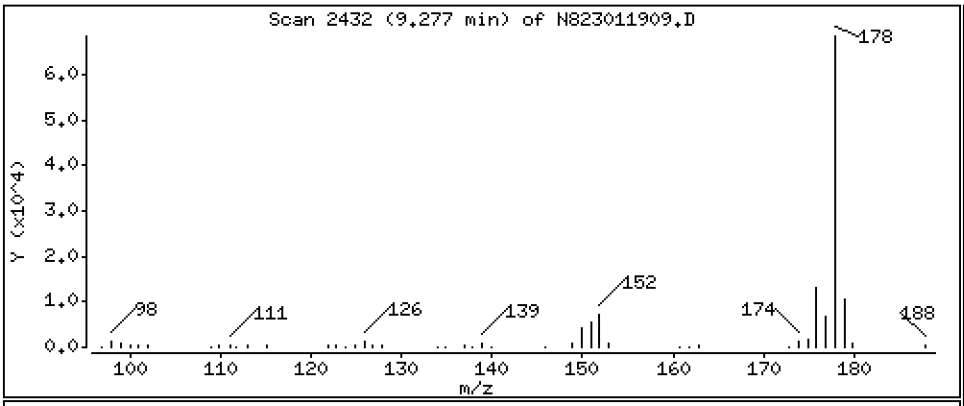
Operator: JZ

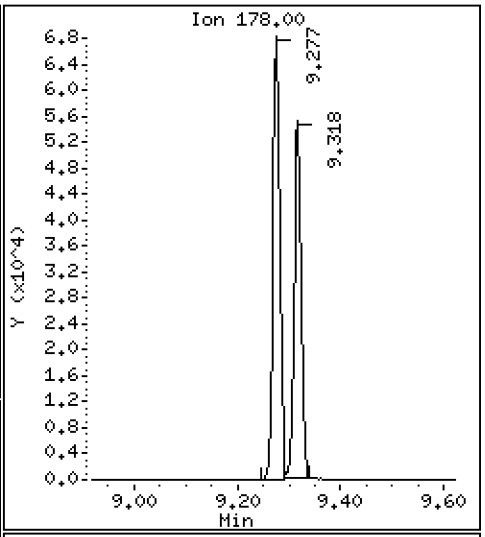
Column phase: Rxi-17sil

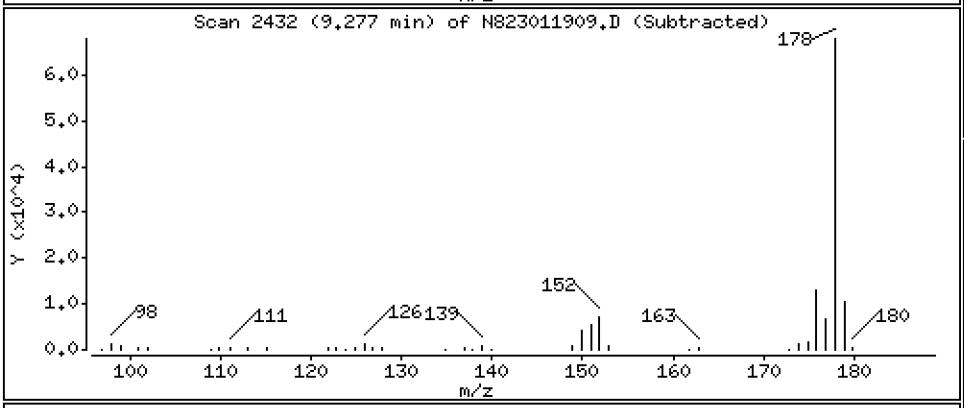
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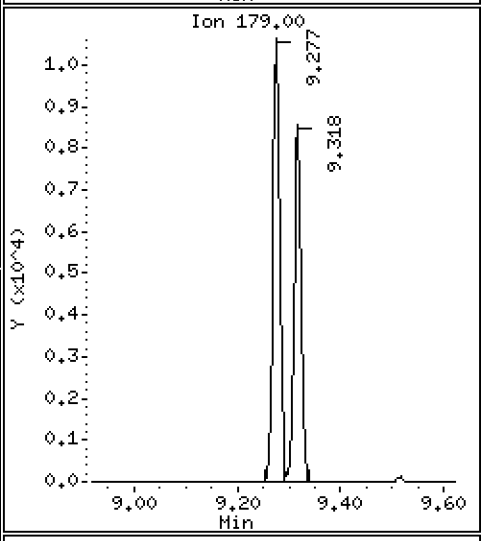
16 Phenanthrene

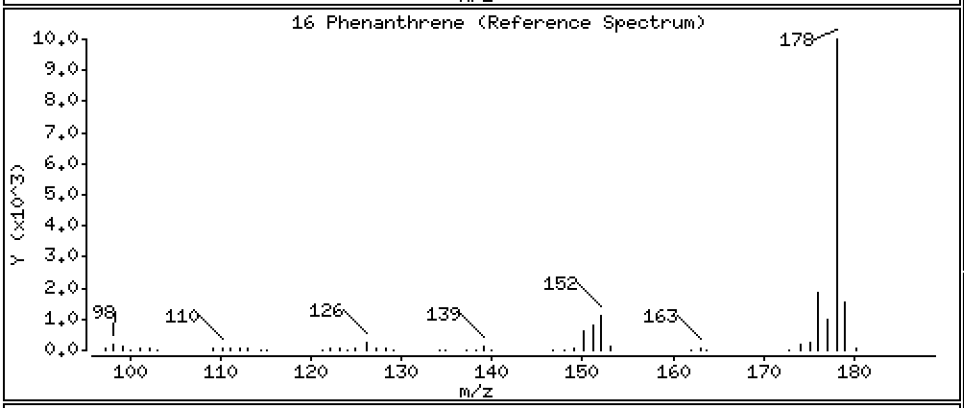
Concentration: 2.448 ug/L

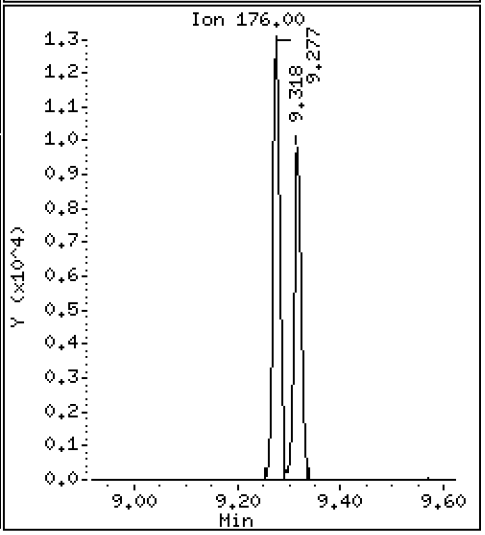


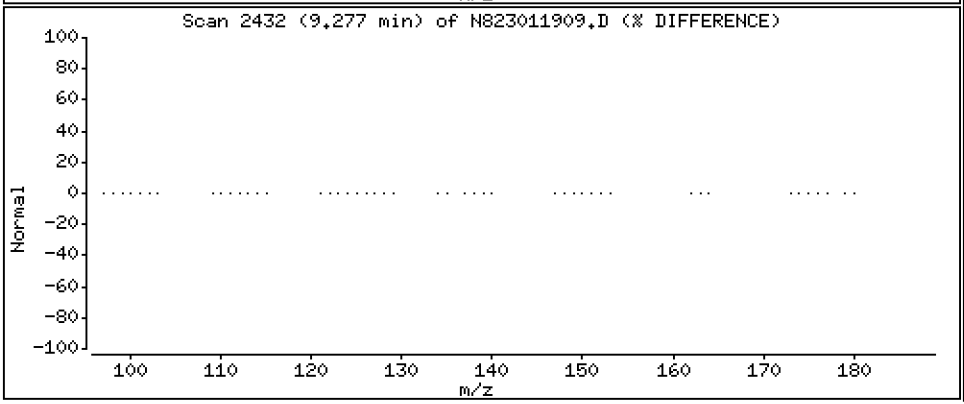












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

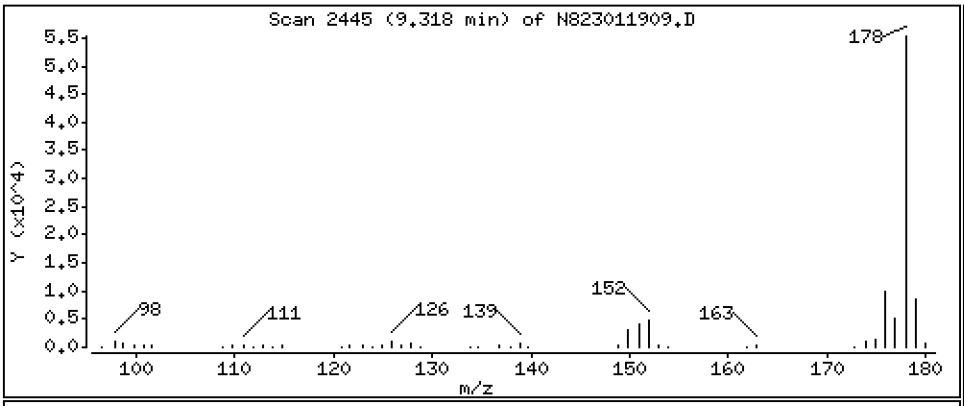
Operator: JZ

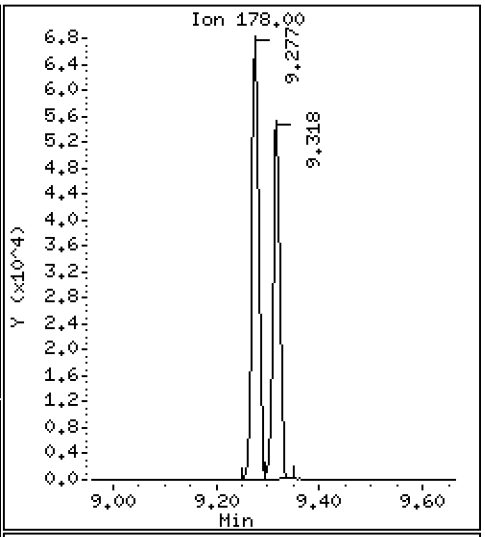
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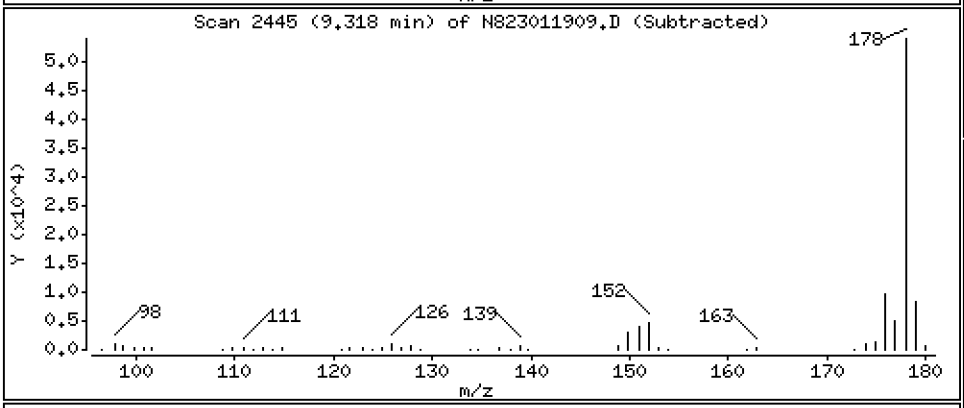
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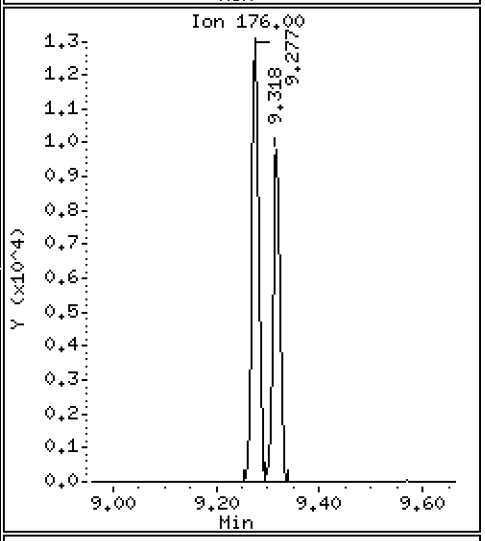
17 Anthracene

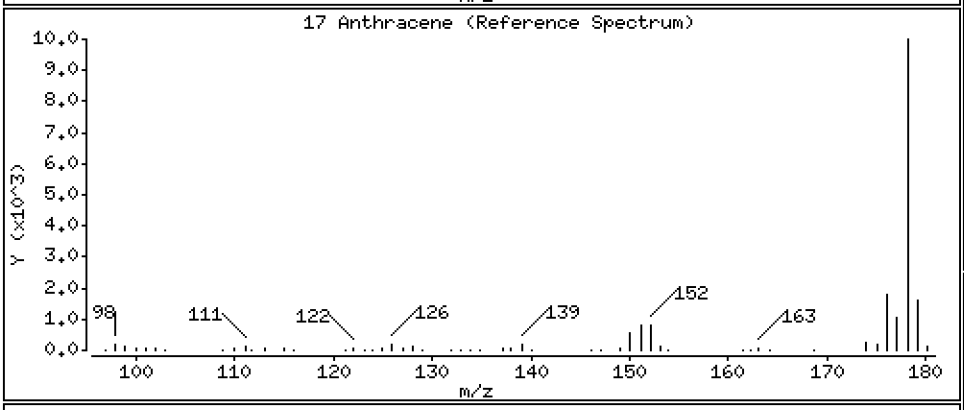
Concentration: 2.270 ug/L

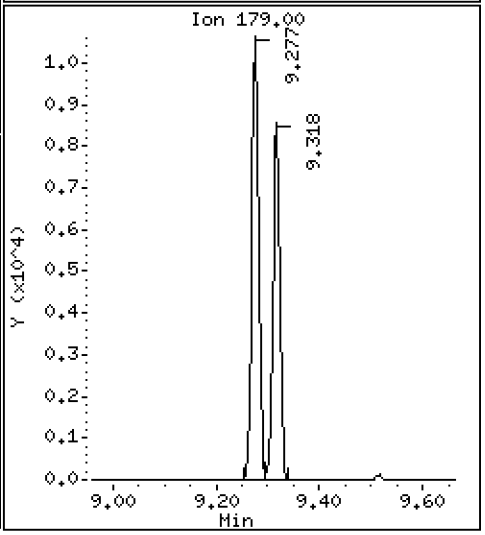


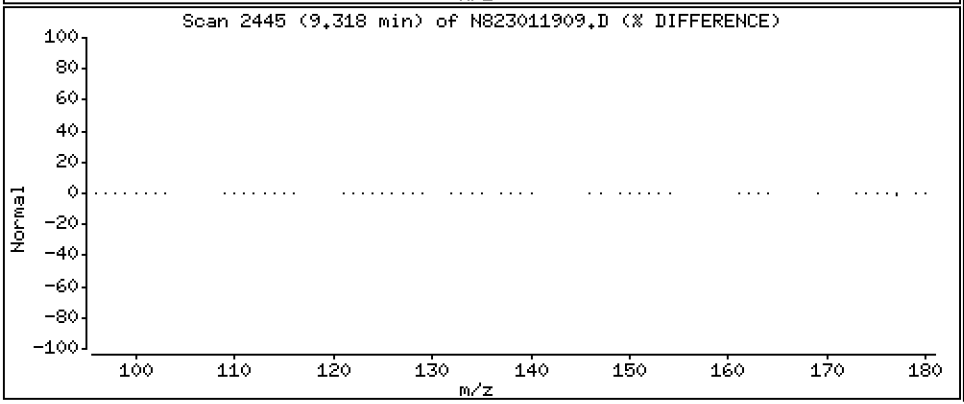












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

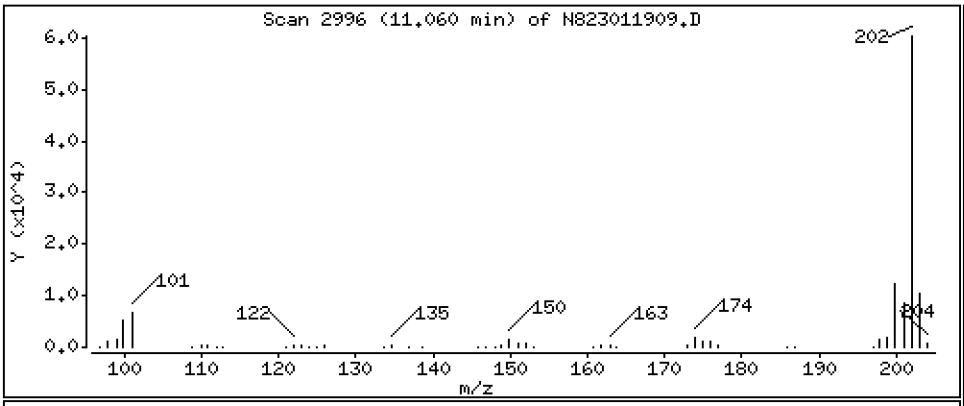
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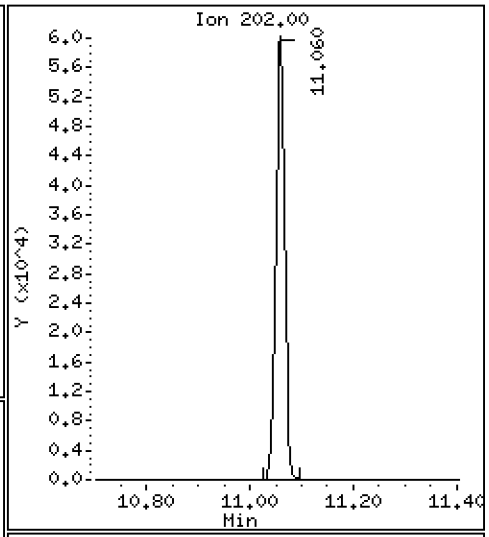
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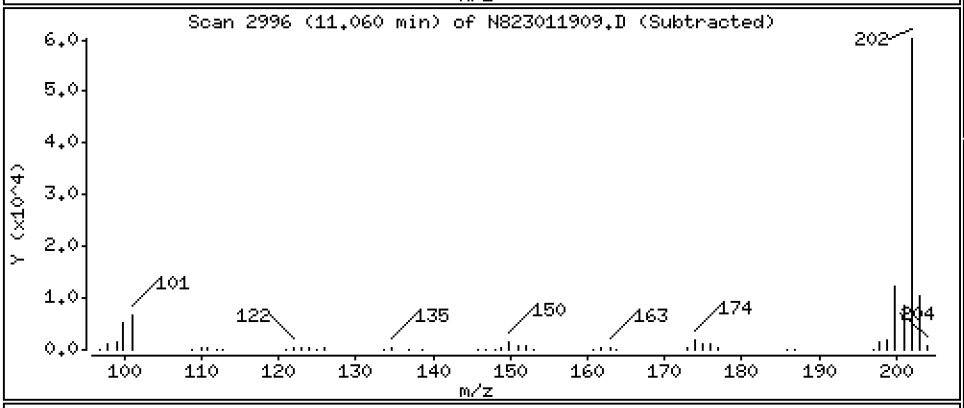
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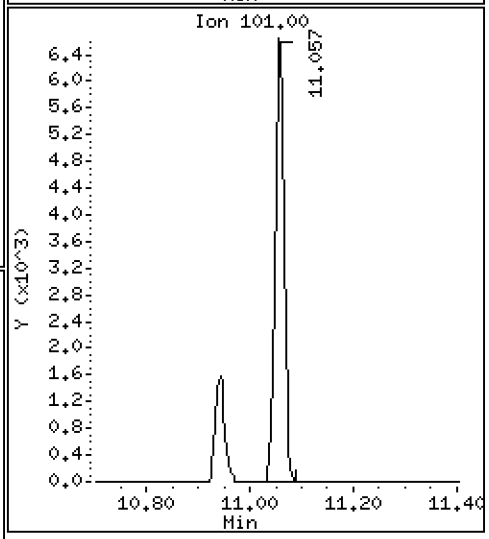
22 Fluoranthene

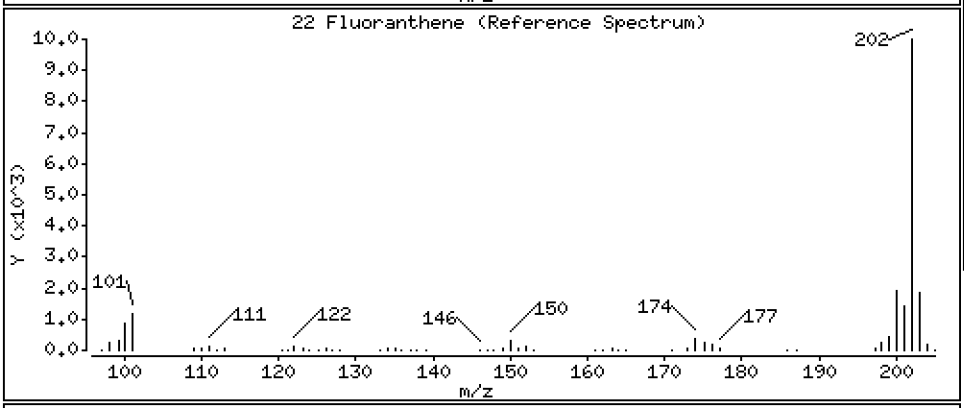
Concentration: 2.653 ug/L

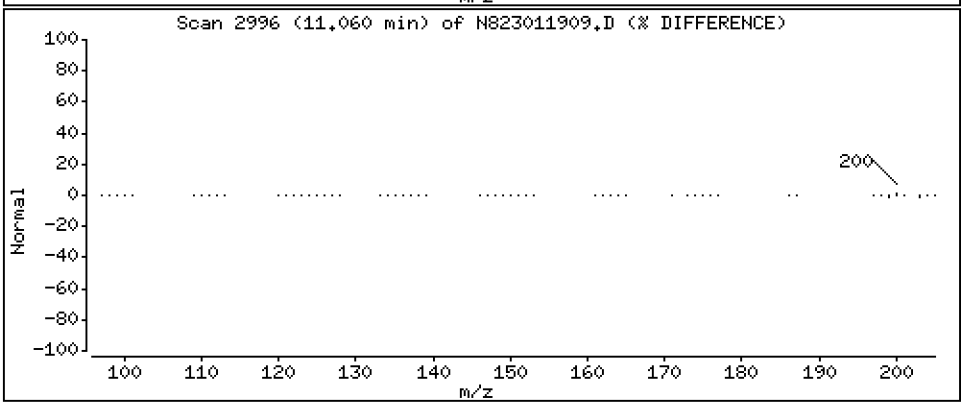












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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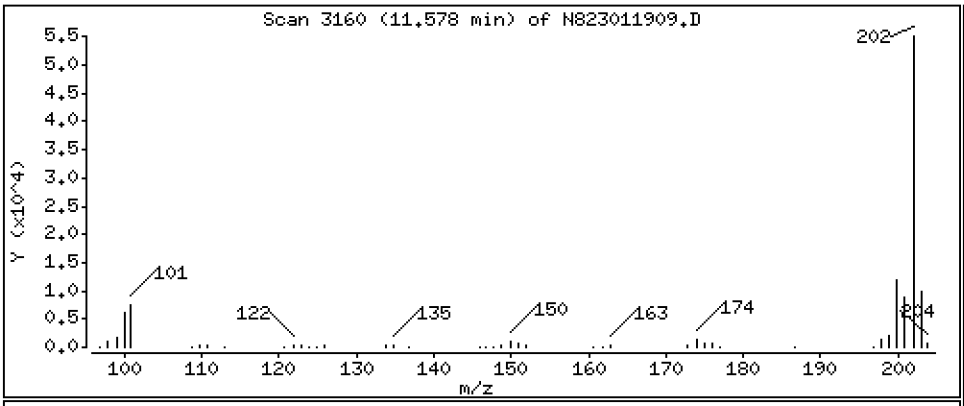
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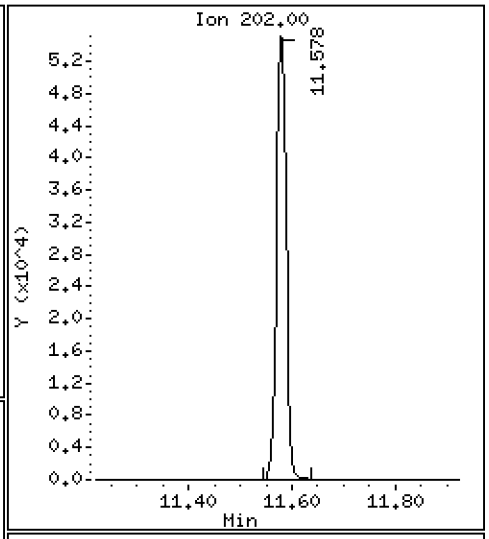
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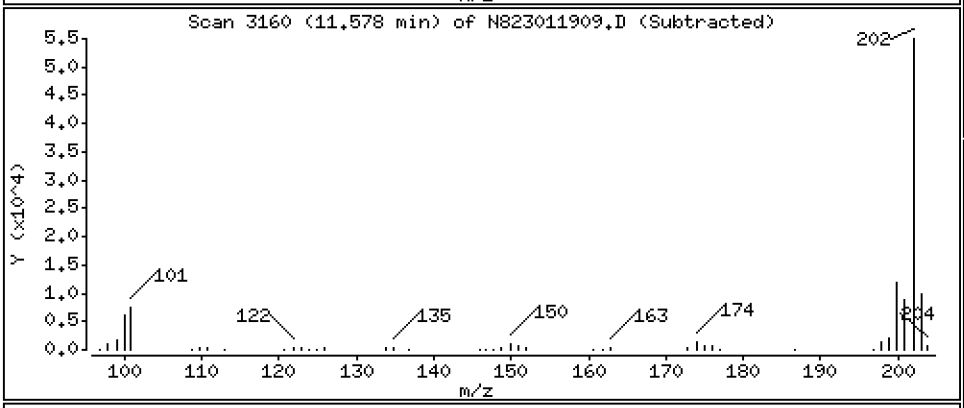
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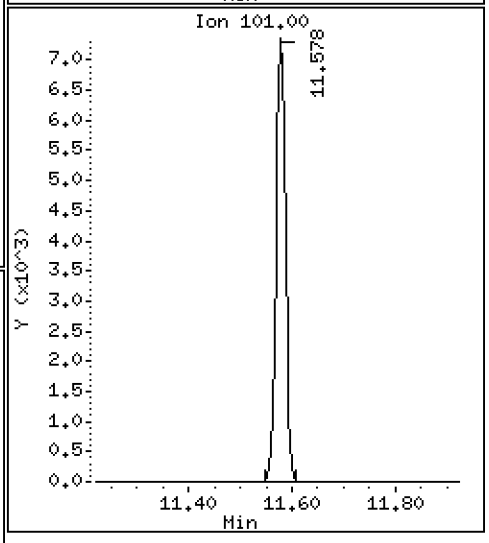
23 Pyrene

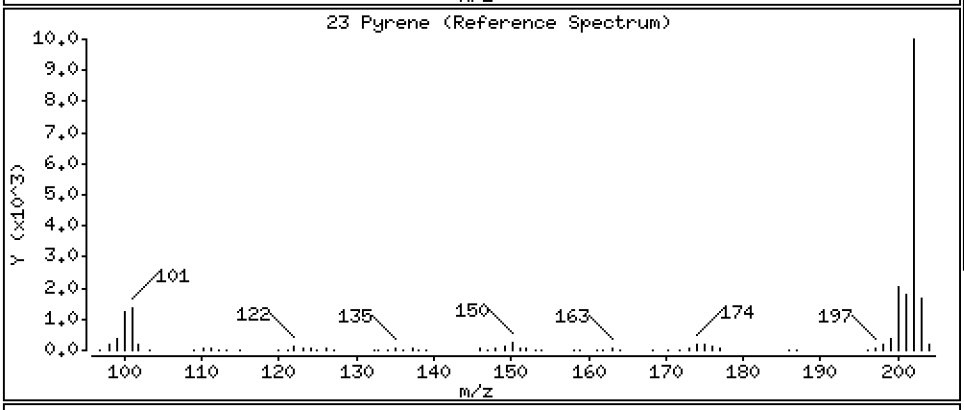
Concentration: 2.462 ug/L

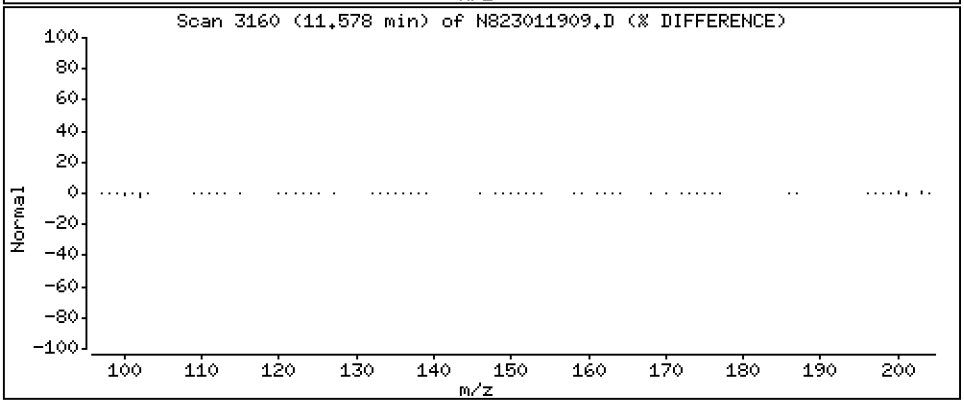












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Date : 19-JAN-2023 14:58

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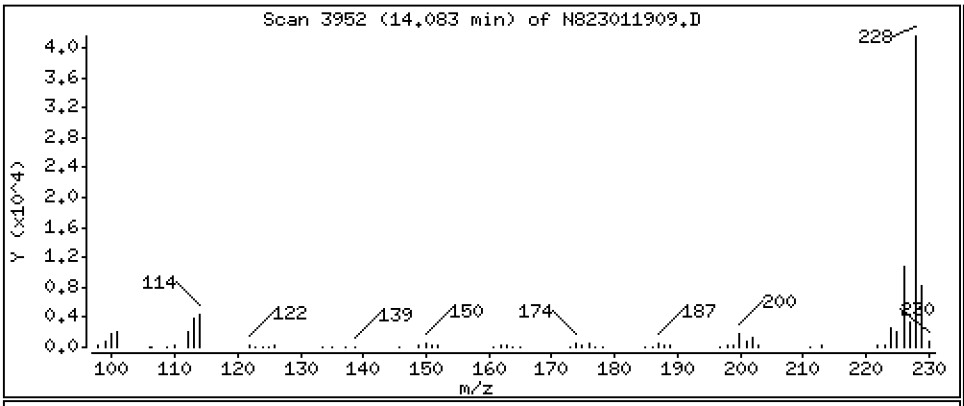
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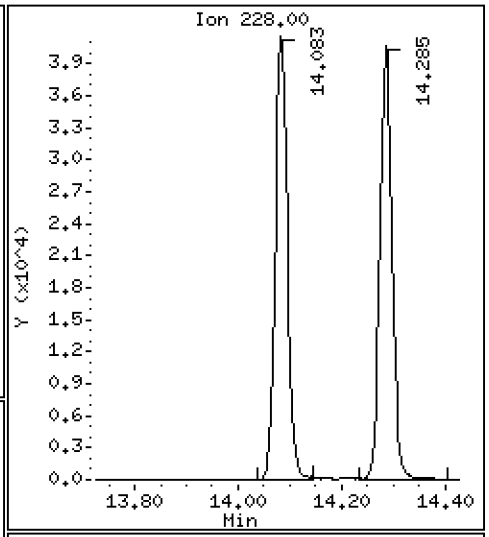
Column phase: Rxi-17sil

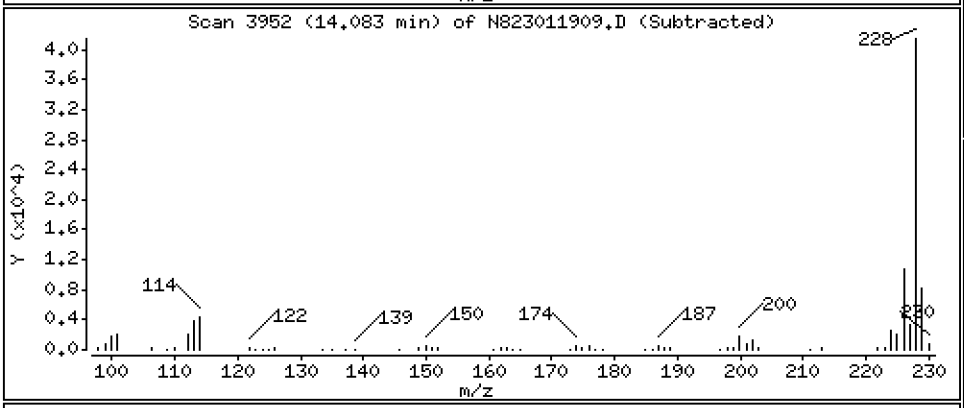
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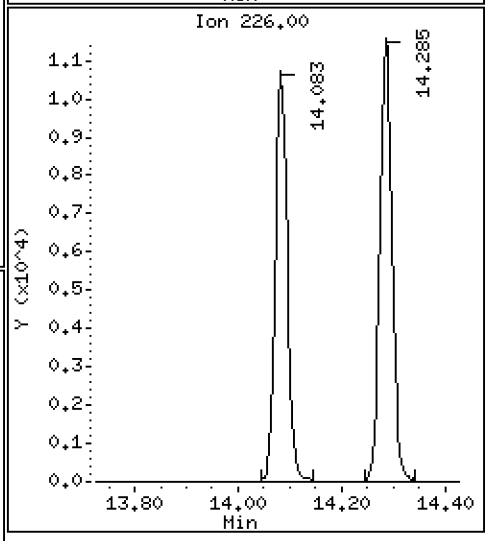
24 Benzo(a)anthracene

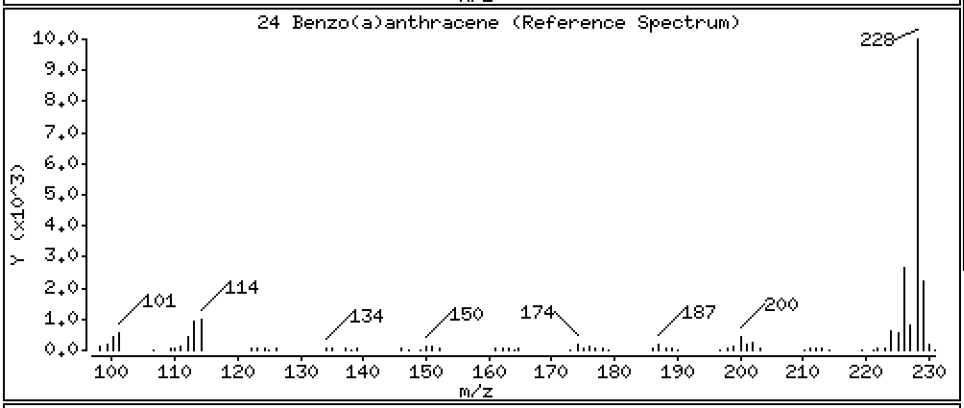
Concentration: 2.587 ug/L

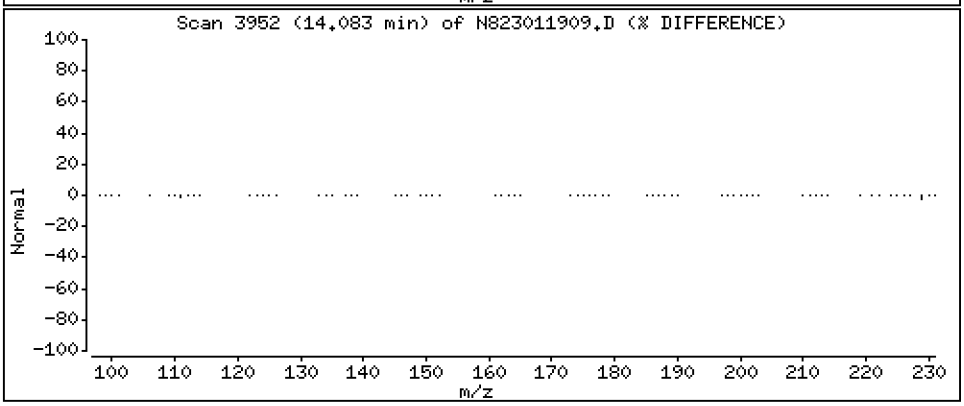












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

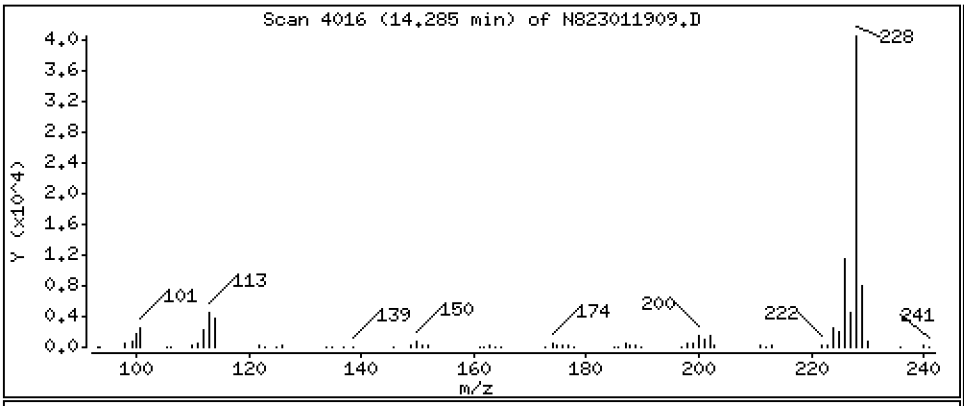
Operator: JZ

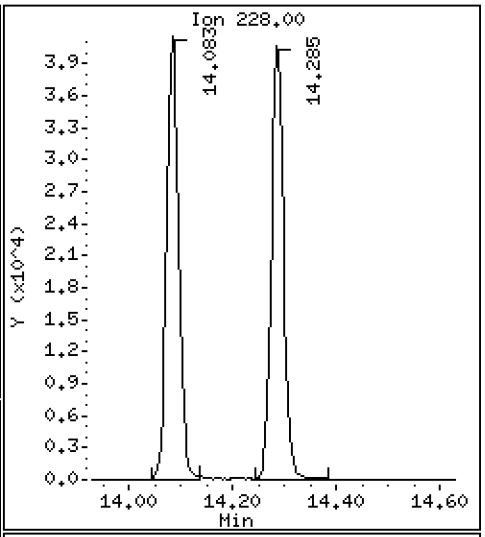
Column phase: Rxi-17sil

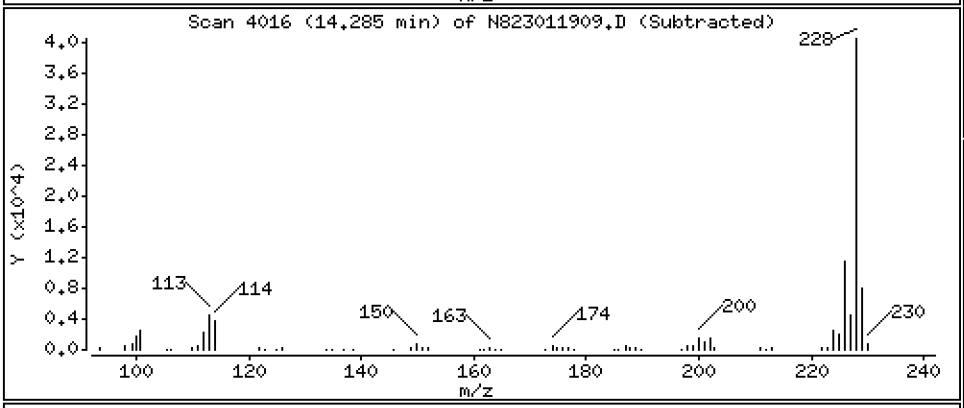
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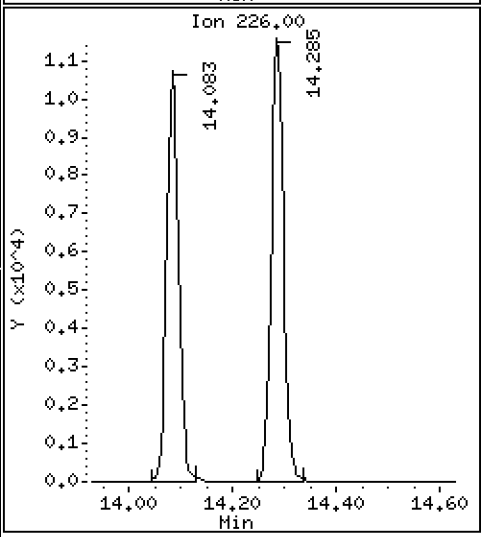
27 Chrysene

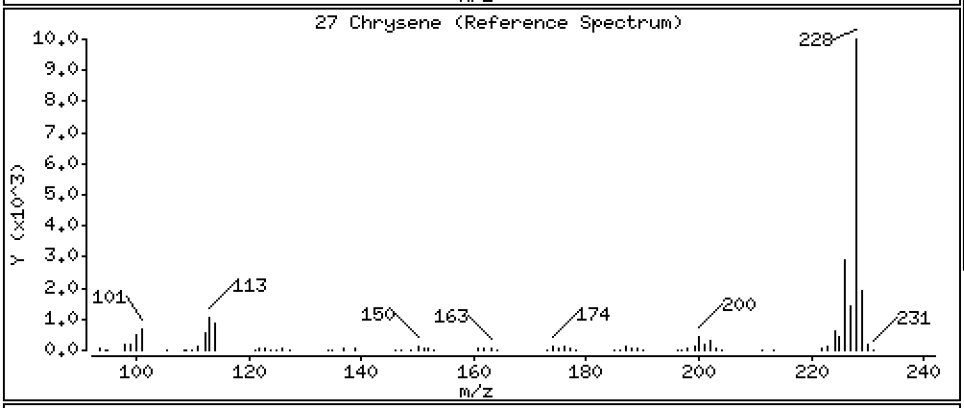
Concentration: 2.400 ug/L

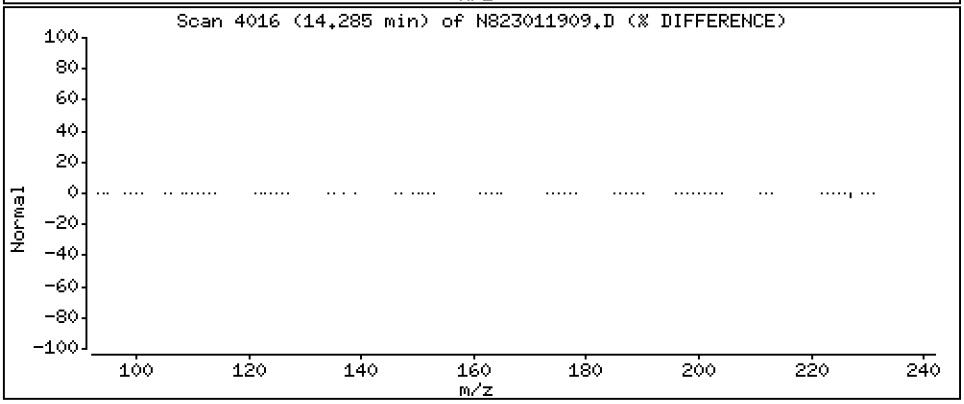












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

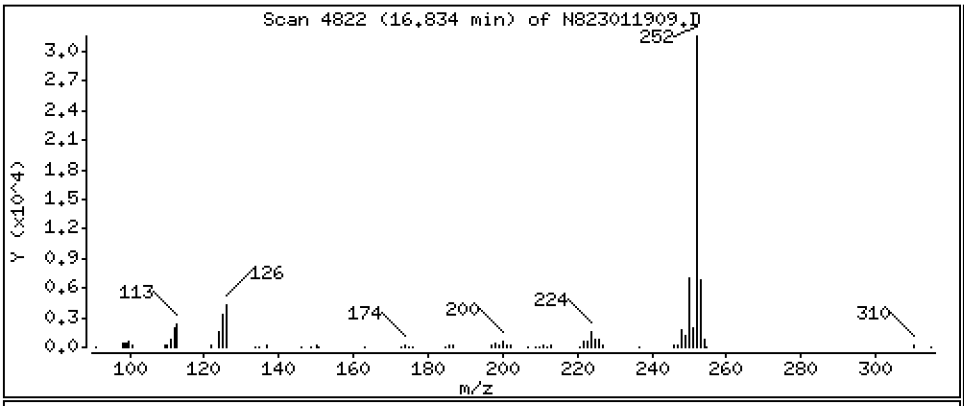
Operator: JZ

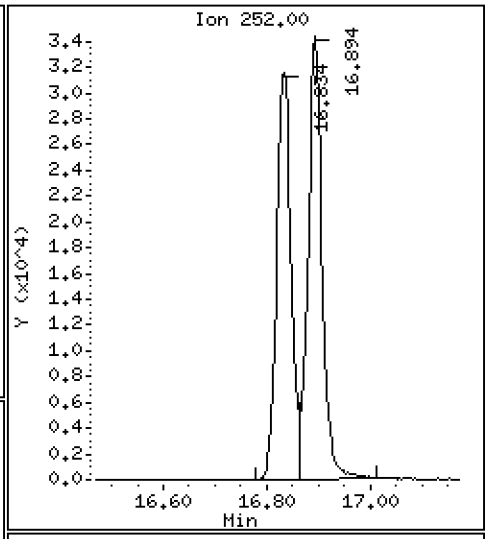
Column phase: Rxi-17sil

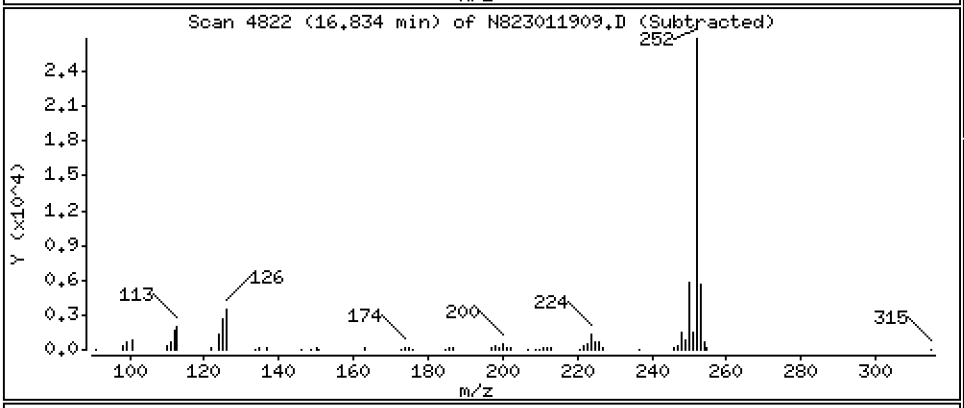
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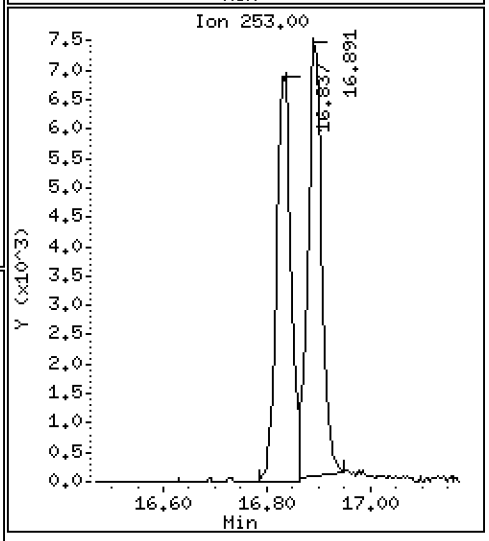
28 Benzo(b)fluoranthene

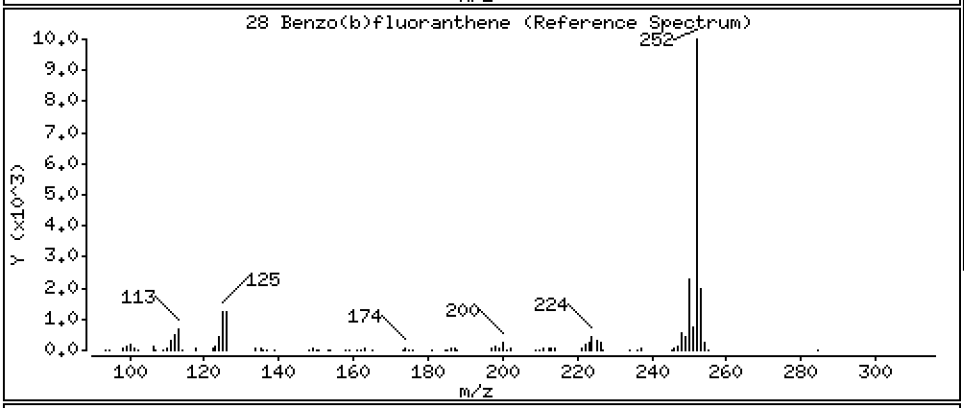
Concentration: 2.507 ug/L

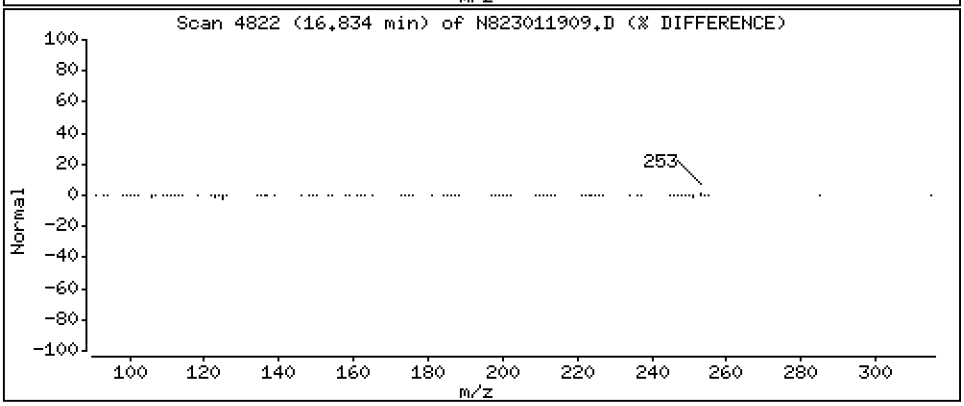












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

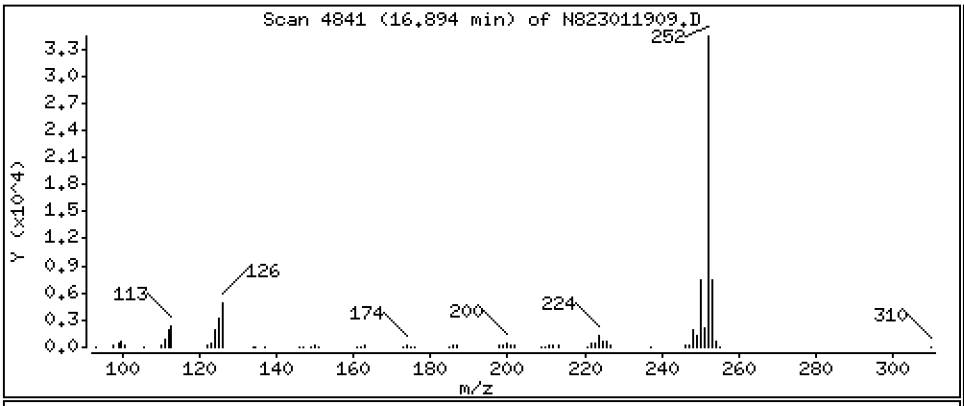
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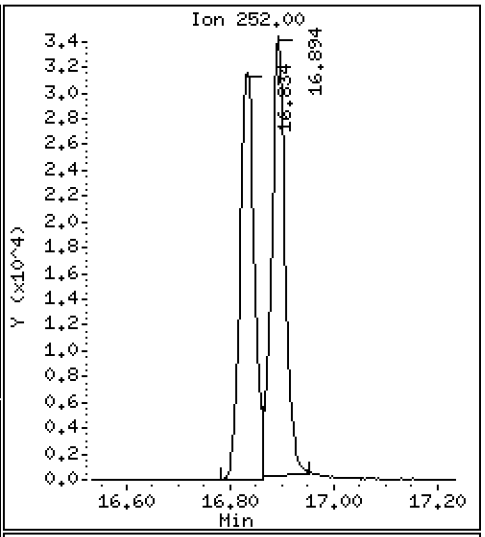
Column phase: Rxi-17sil

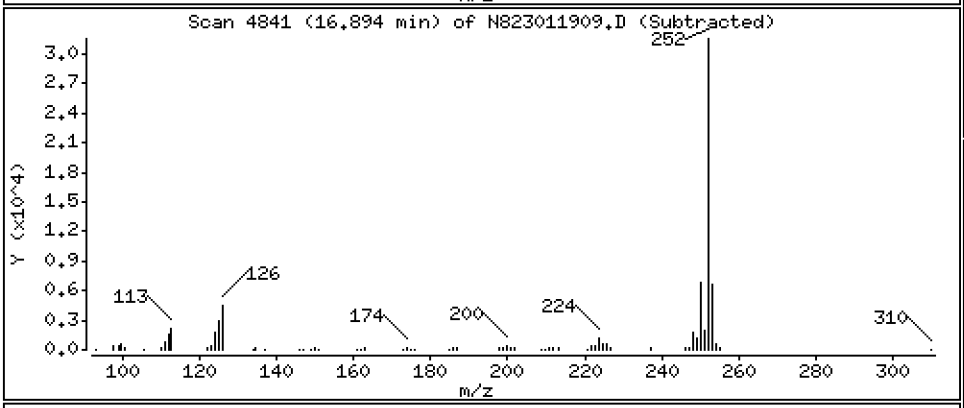
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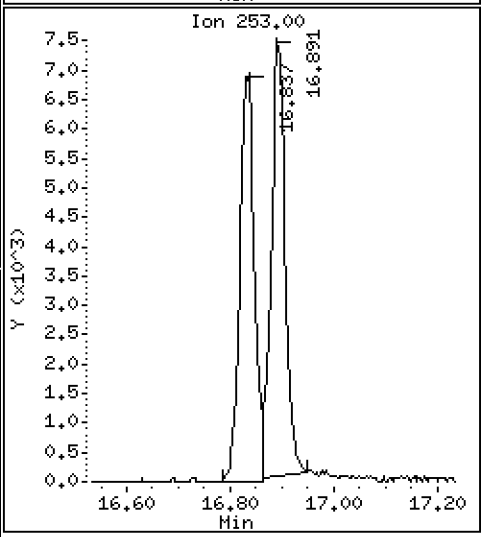
29 Benzo(k)fluoranthene

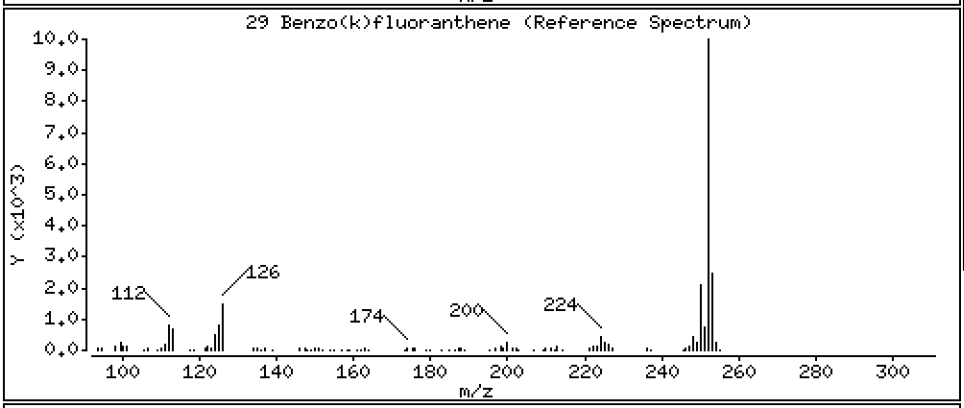
Concentration: 2.656 ug/L

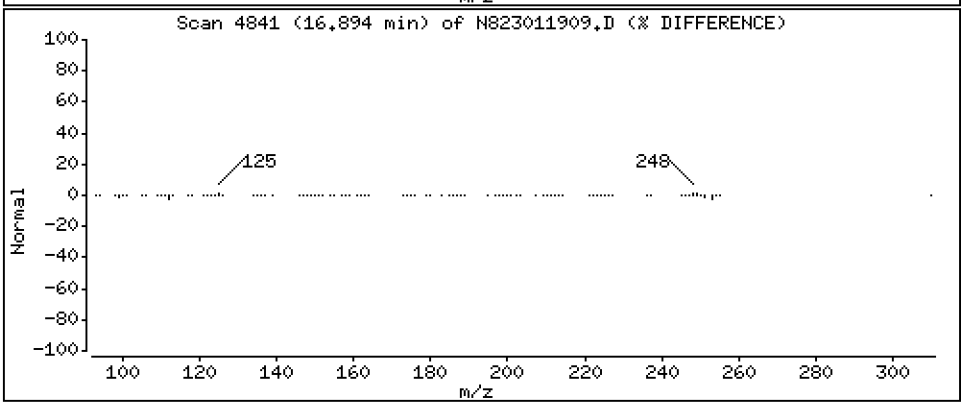












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

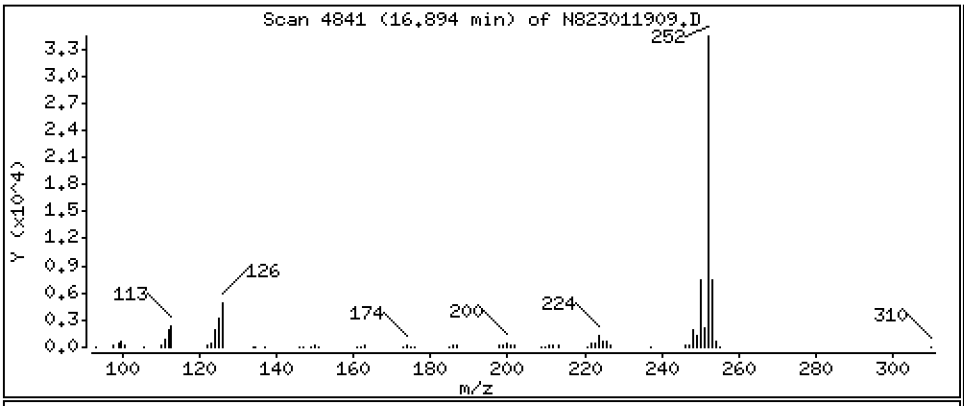
Operator: JZ

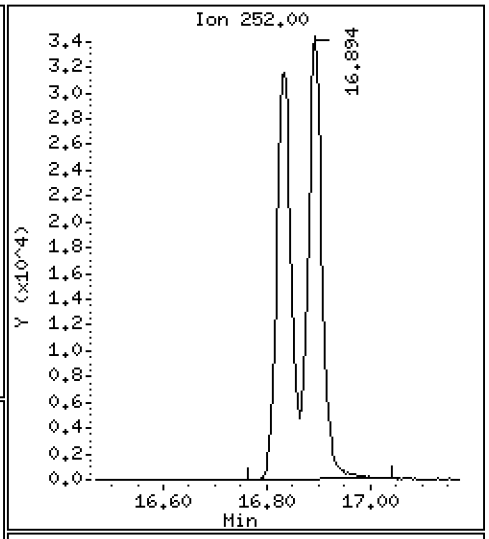
Column phase: Rxi-17sil

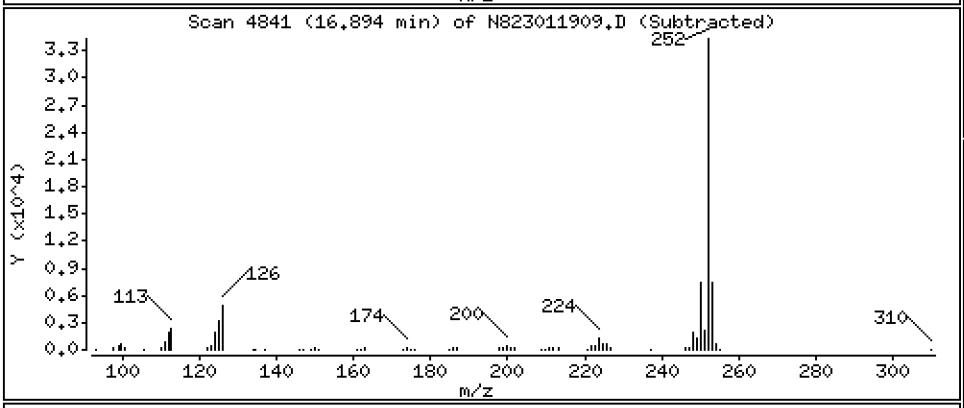
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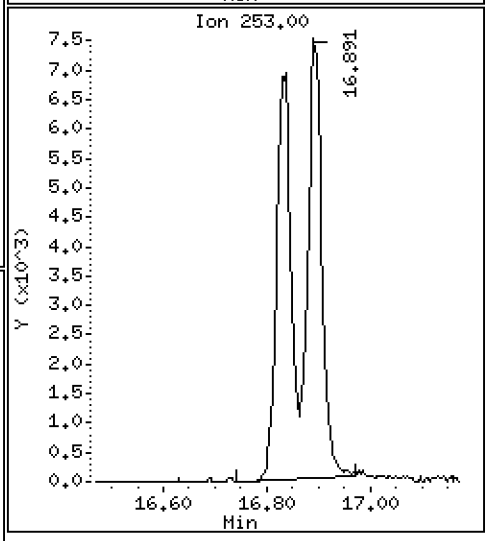
31 Total Benzofluoranthenes

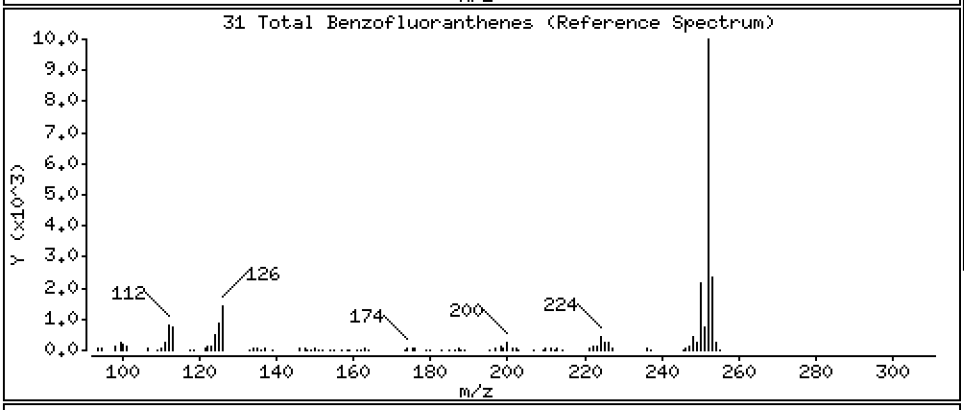
Concentration: 5.480 ug/L

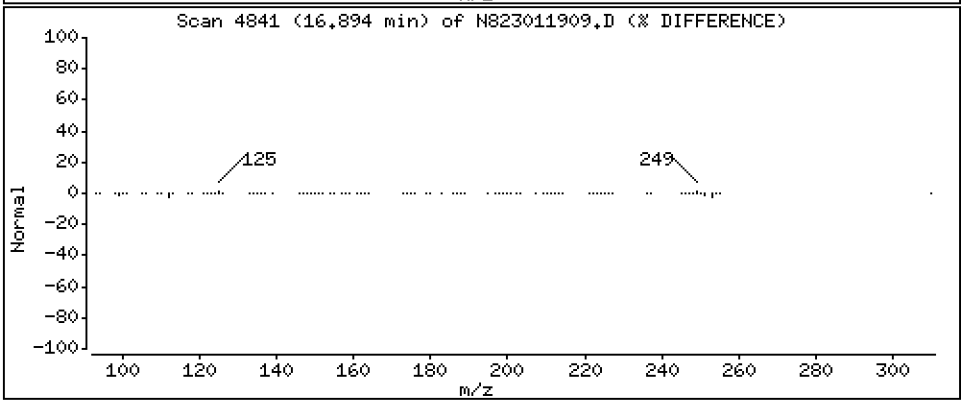












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

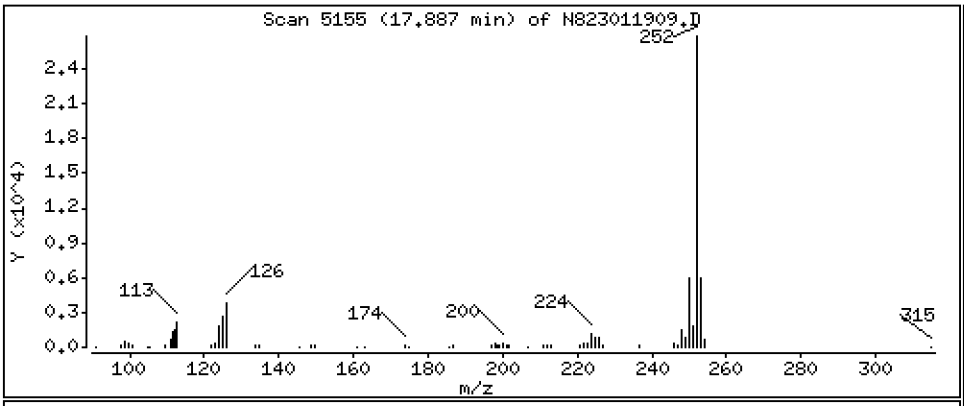
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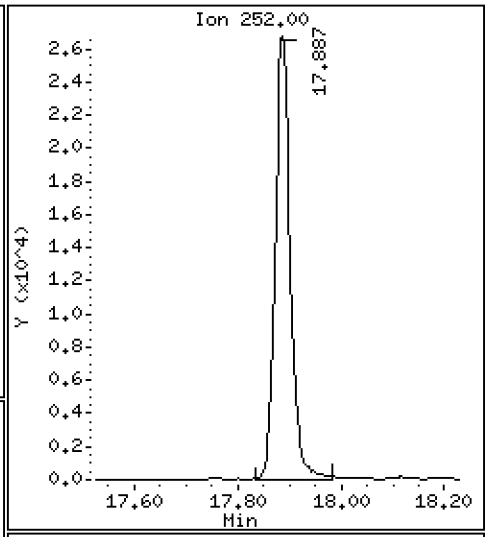
Column phase: Rxi-17sil

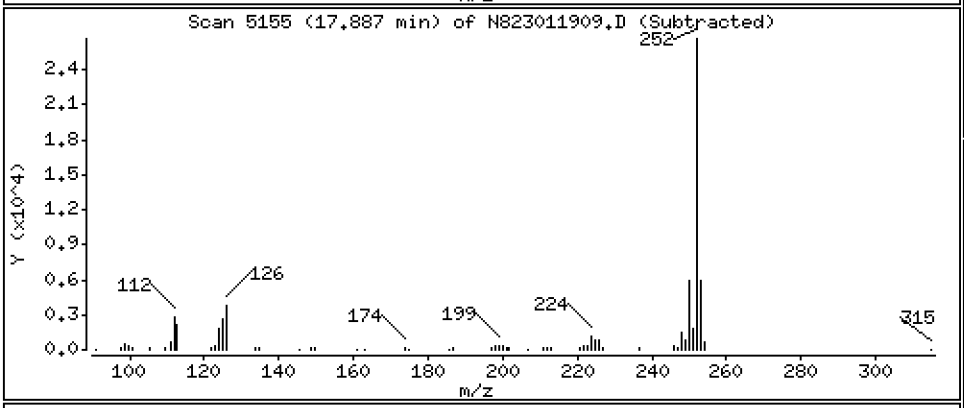
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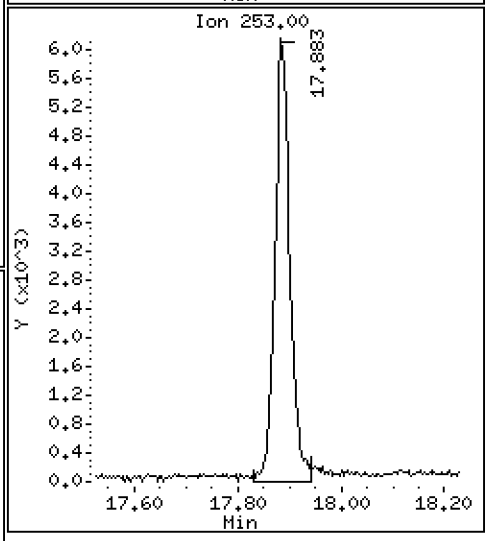
32 Benzo(a)pyrene

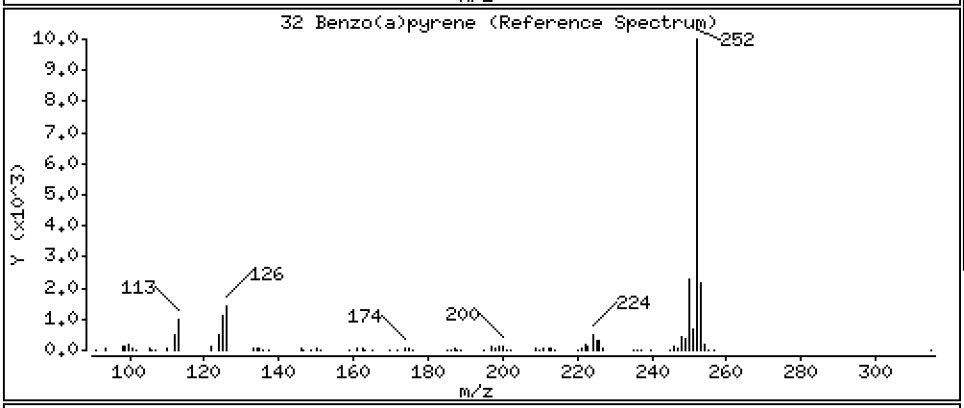
Concentration: 2.572 ug/L

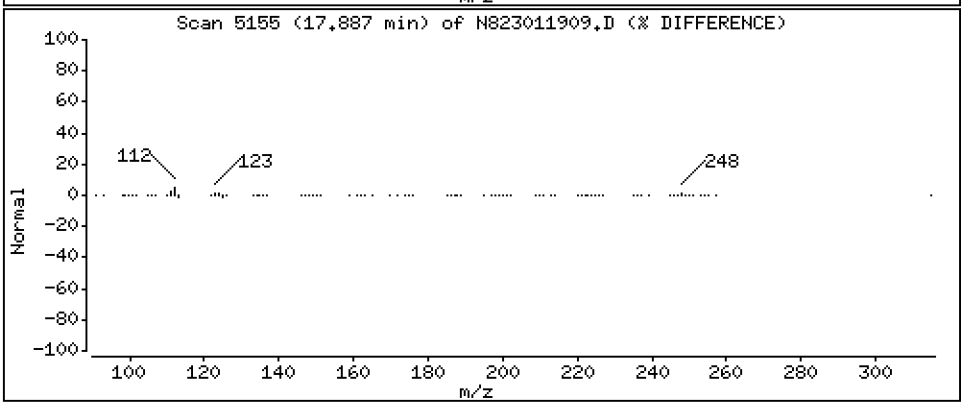












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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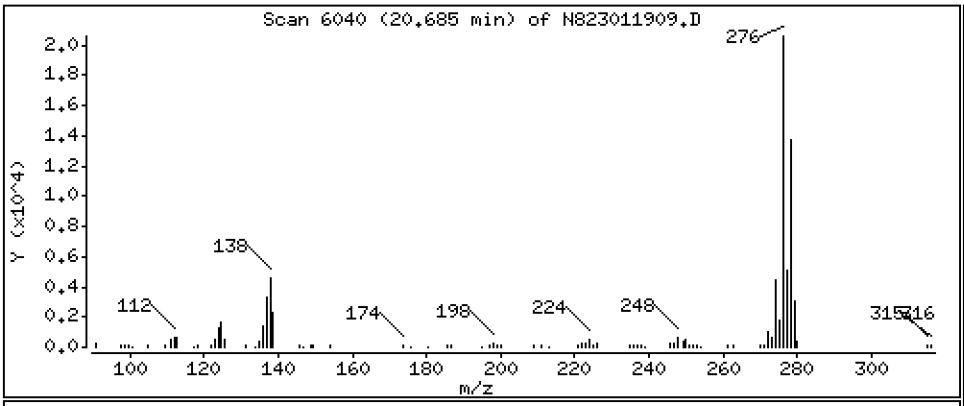
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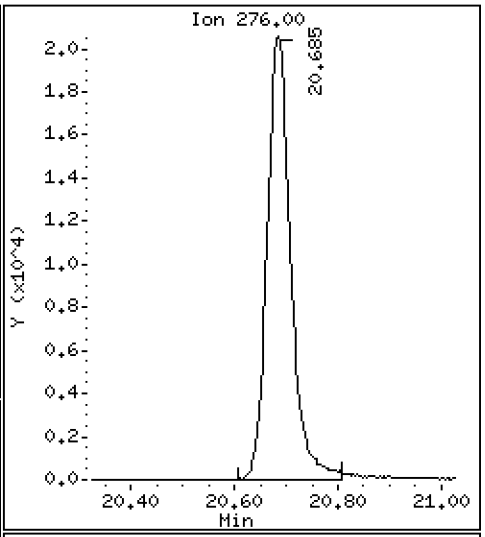
Column phase: Rxi-17sil

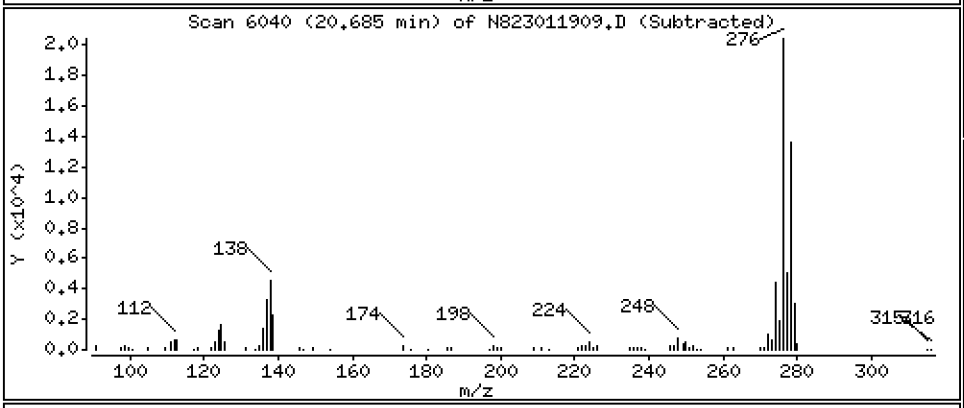
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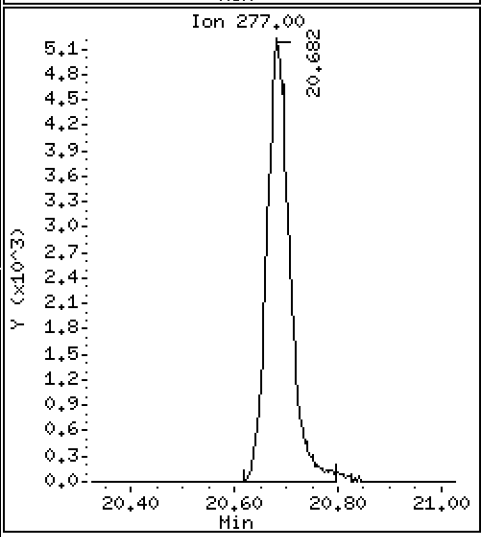
37 Indeno(1,2,3-cd)pyrene

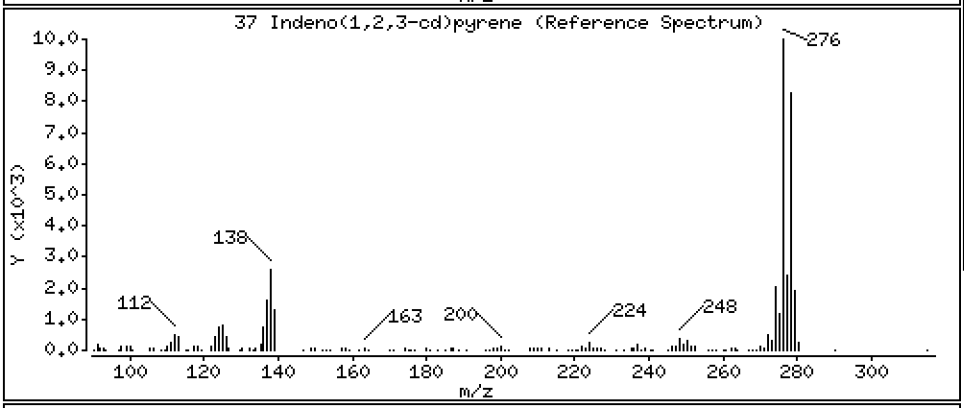
Concentration: 2.689 ug/L

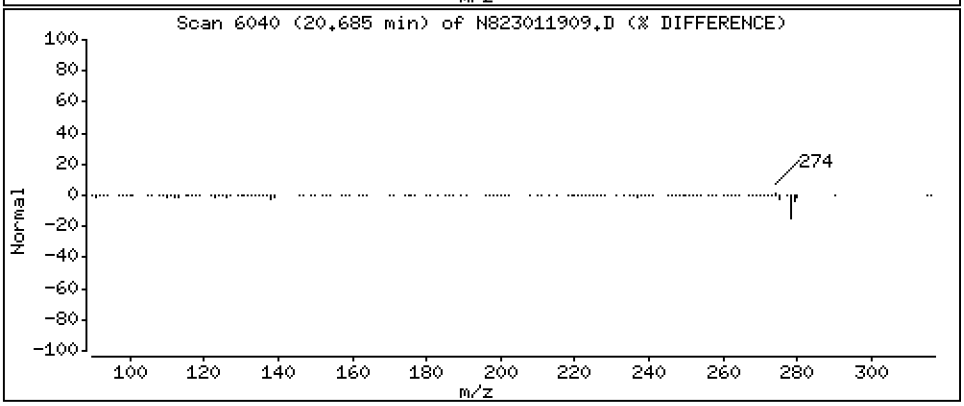












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Client ID:

Instrument: nt8.i

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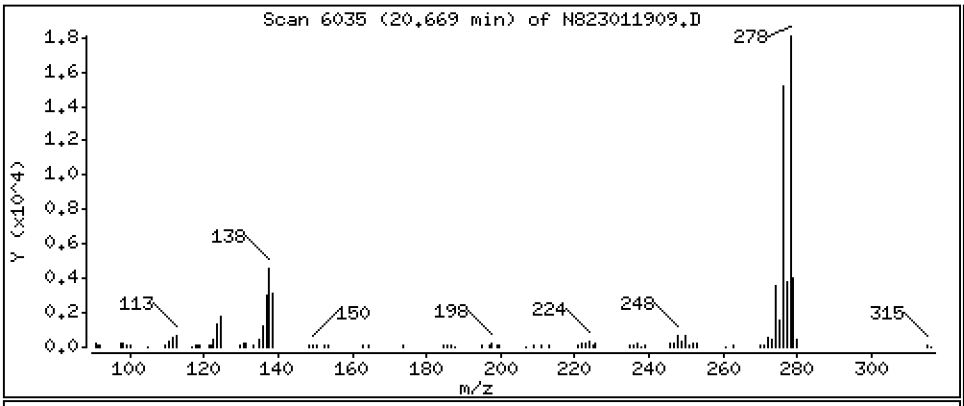
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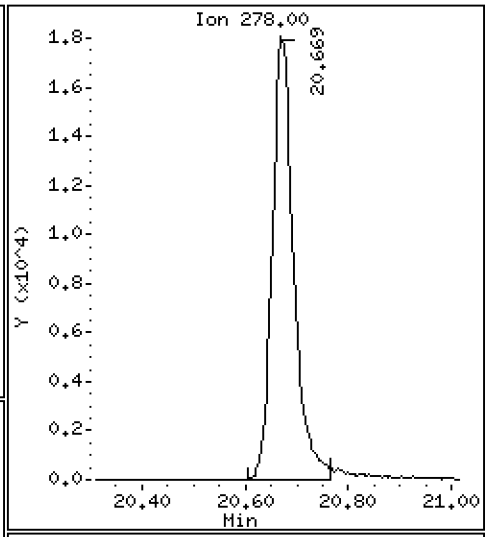
Column phase: Rxi-17sil

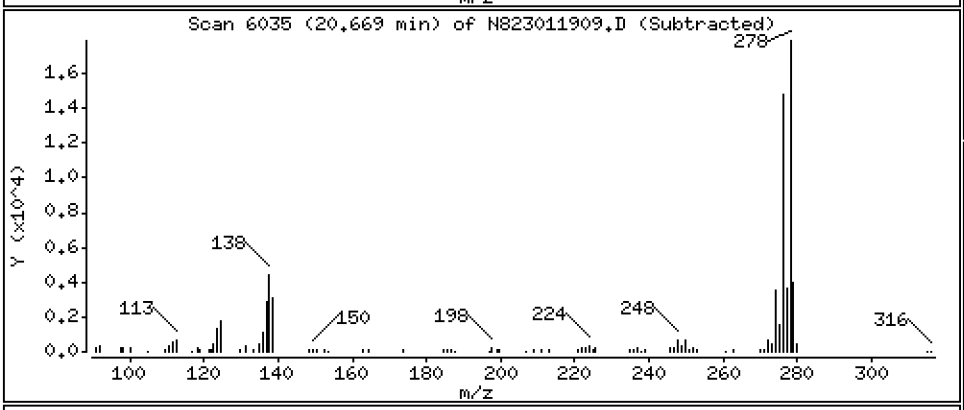
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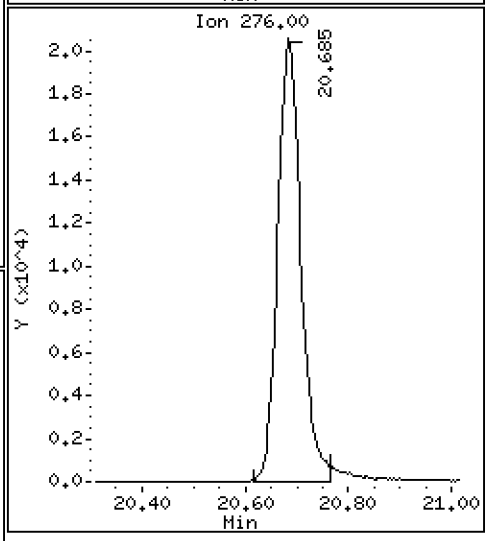
38 Dibenzo(a,h)anthracene

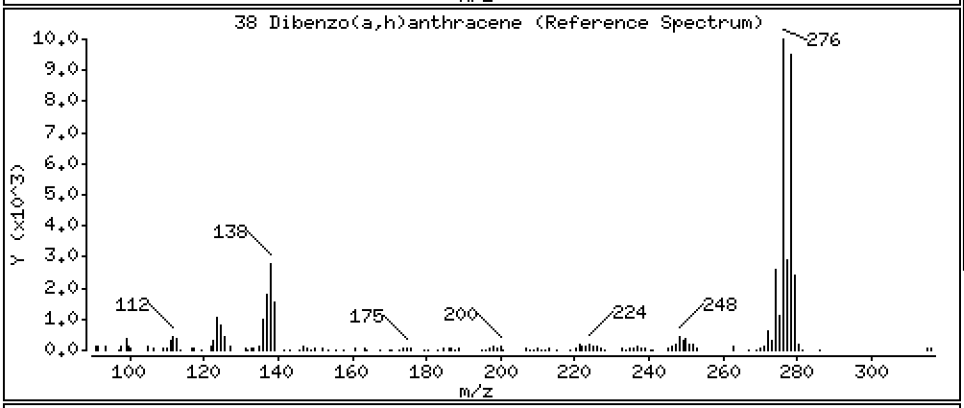
Concentration: 2.493 ug/L

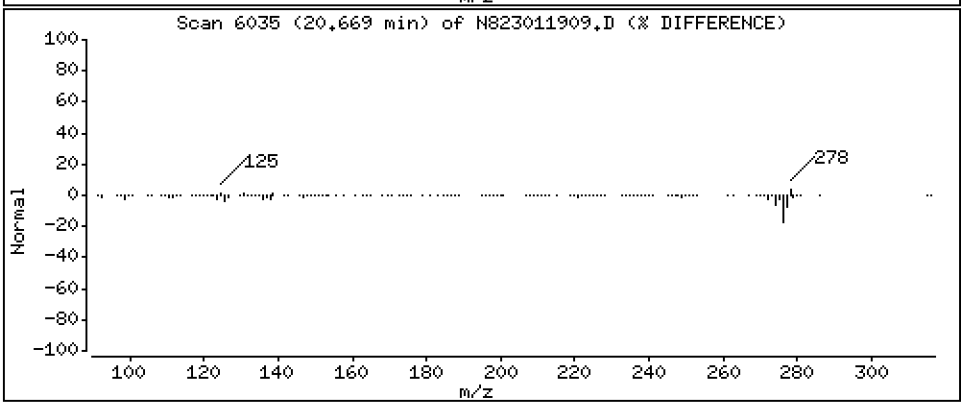












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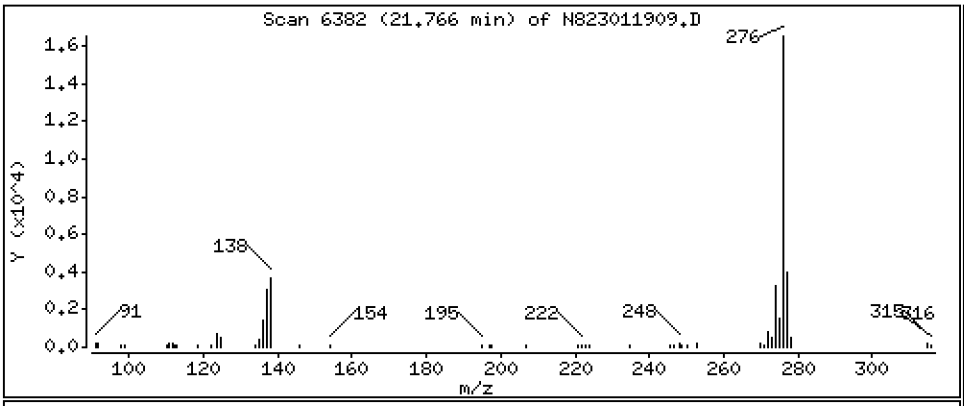
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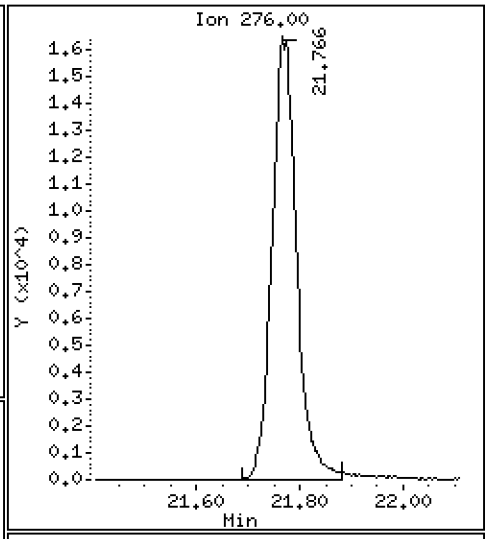
Column phase: Rxi-17sil

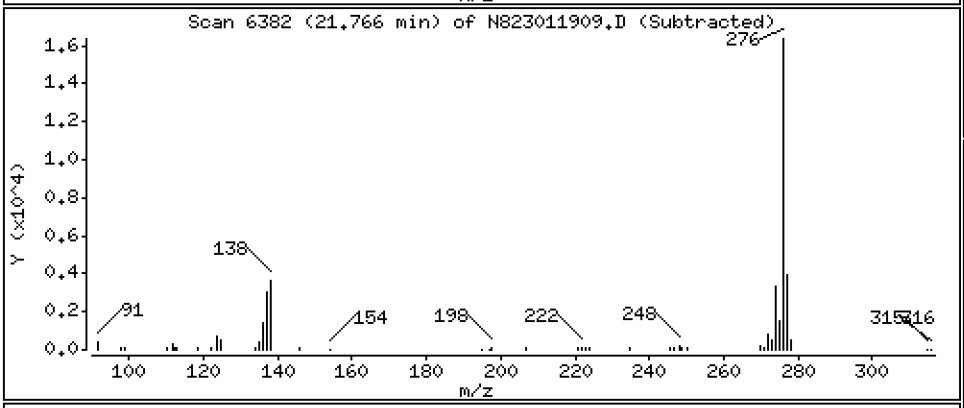
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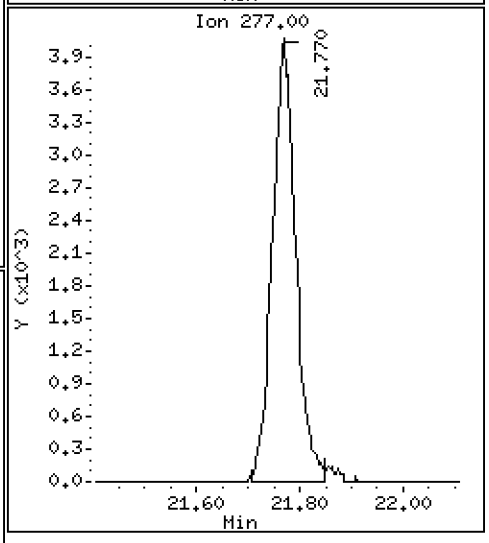
39 Benzo(g,h,i)perylene

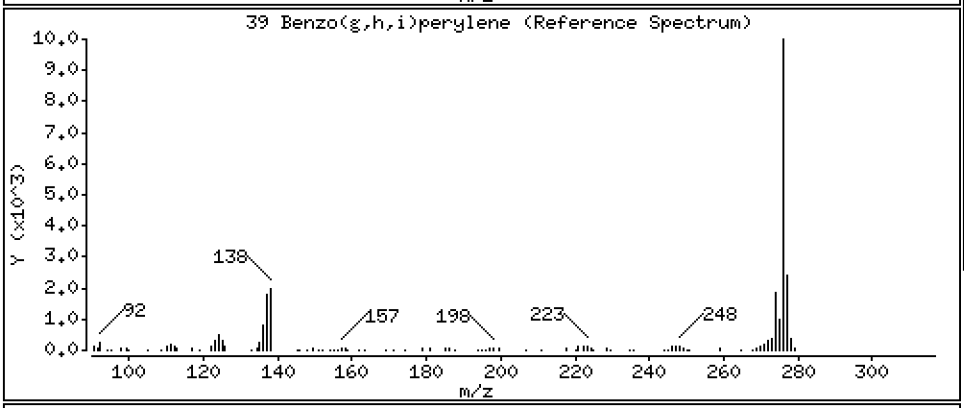
Concentration: 2.483 ug/L

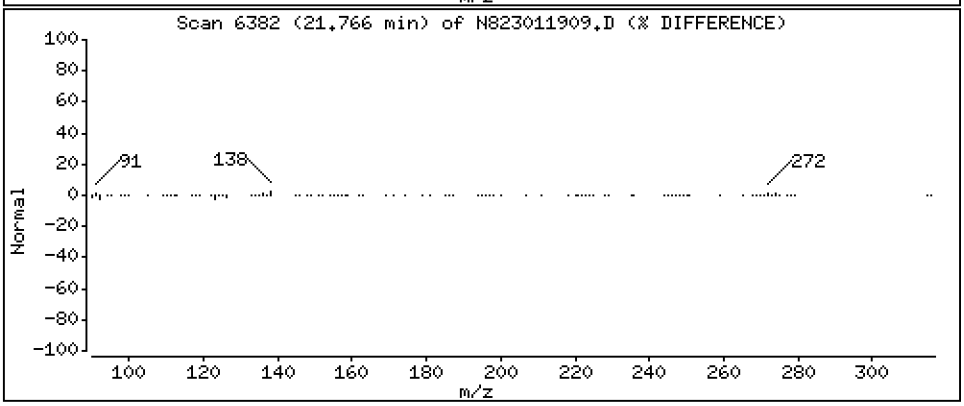












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 19-Jan-2023 20:20 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

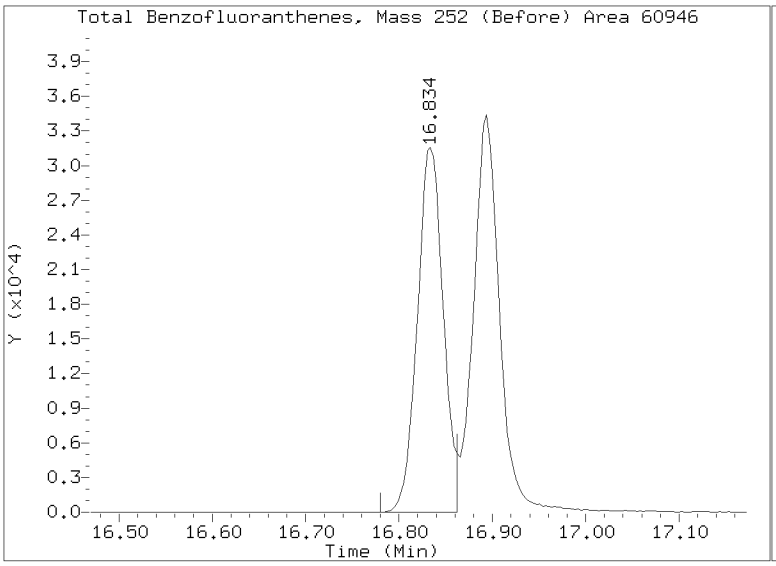
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, pnascv.sub = 0.0500

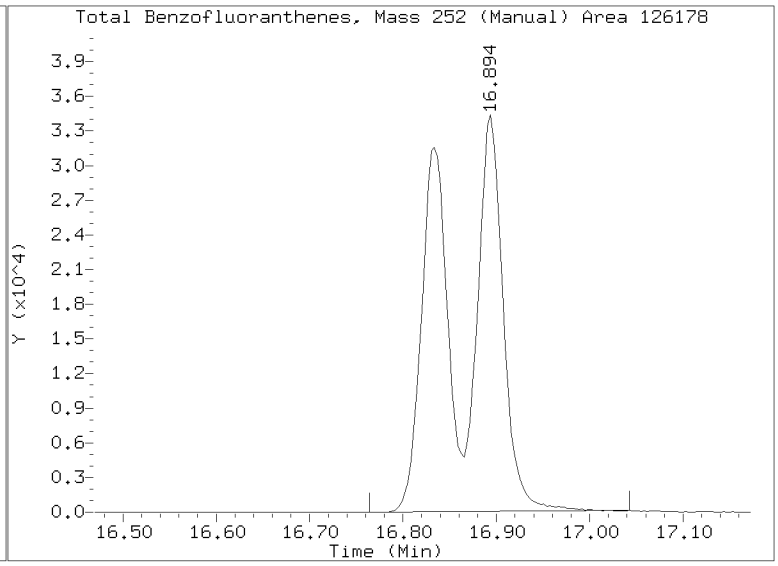
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/19/2023 20:27





SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270E-SIM

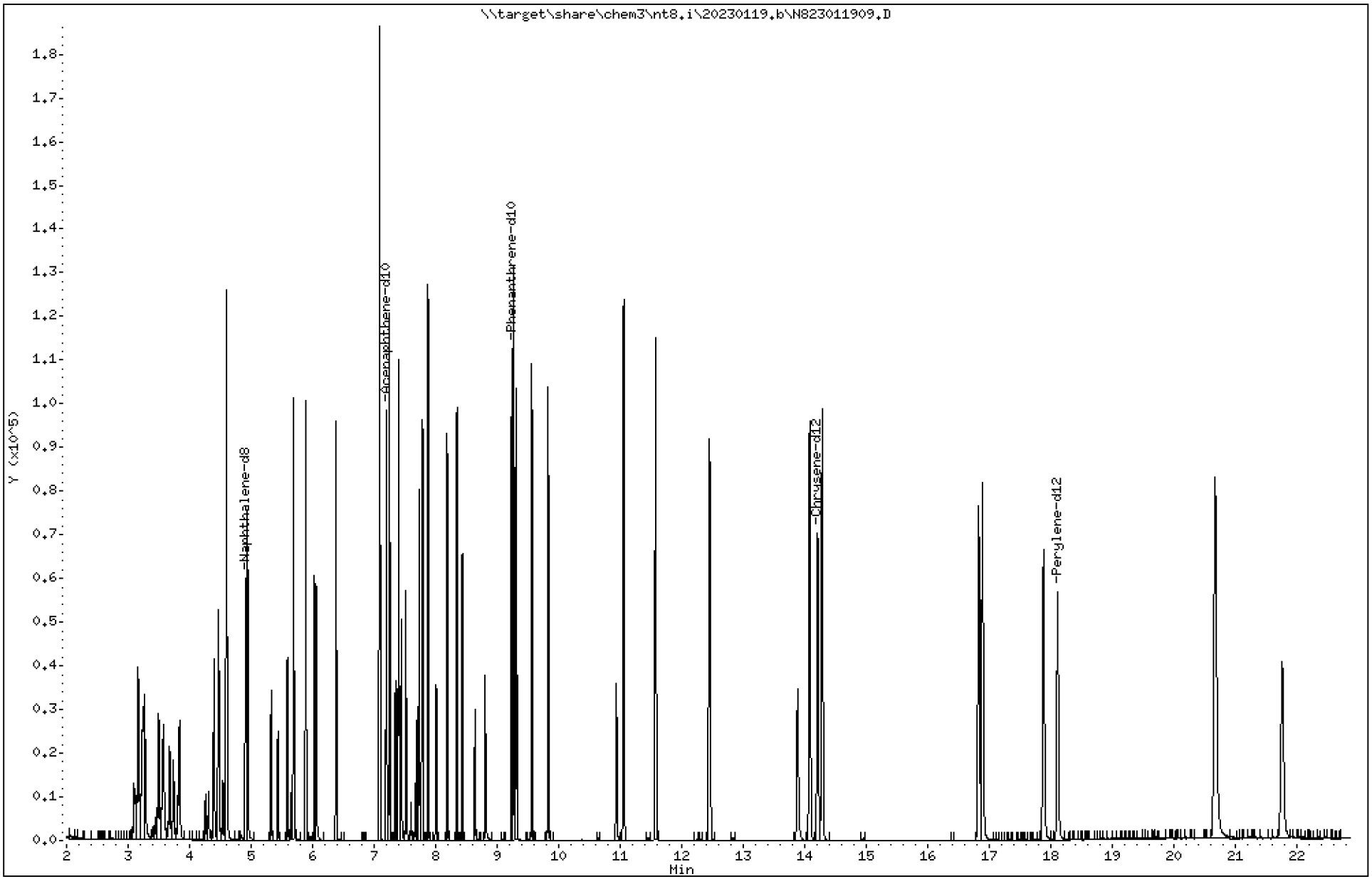
Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GA00050
Laboratory ID: SLA0213-SCV1
Sequence: SLA0213
Sequence Name: 8270 SIM PNA SCV
Standard ID: L000686

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Naphthalene	2.5000	2.63	5.0	
2-Methylnaphthalene	2.5000	2.67	6.8	
1-Methylnaphthalene	2.5000	2.65	6.0	
Acenaphthylene	2.5000	2.82	12.8	
Acenaphthene	2.5000	2.60	4.0	
Dibenzofuran	2.5000	2.86	14.4	
Fluorene	2.5000	2.63	5.2	
Phenanthrene	2.5000	2.45	-2.1	
Anthracene	2.5000	2.27	-9.2	
Fluoranthene	2.5000	2.65	6.1	
Pyrene	2.5000	2.46	-1.5	
Benzo(a)anthracene	2.5000	2.59	3.5	
Chrysene	2.5000	2.40	-4.0	
Benzo(b)fluoranthene	2.5000	2.51	0.3	
Benzo(k)fluoranthene	2.5000	2.66	6.2	
Benzofluoranthenes, Total	5.0000	5.48	9.6	
Benzo(a)pyrene	2.5000	2.57	2.9	
Indeno(1,2,3-cd)pyrene	2.5000	2.69	7.6	
Dibenzo(a,h)anthracene	2.5000	2.49	-0.3	
Benzo(g,h,i)perylene	2.5000	2.48	-0.7	

* Indicates values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Date : 19-JAN-2023 14:58
Client ID:
Sample Info: SCV230119
Volume Injected (uL): 1.0
Column phase: Rxi-17sil

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25



Final Report 23C0064 03/17/2023 Page 305 of 833

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

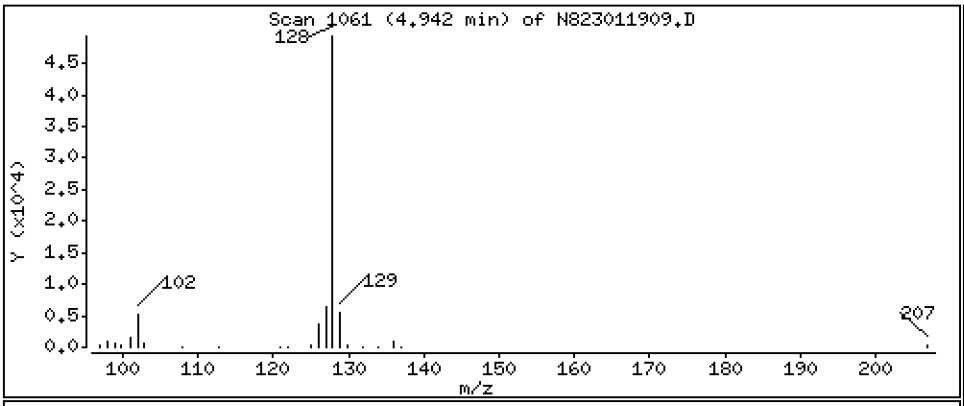
Operator: JZ

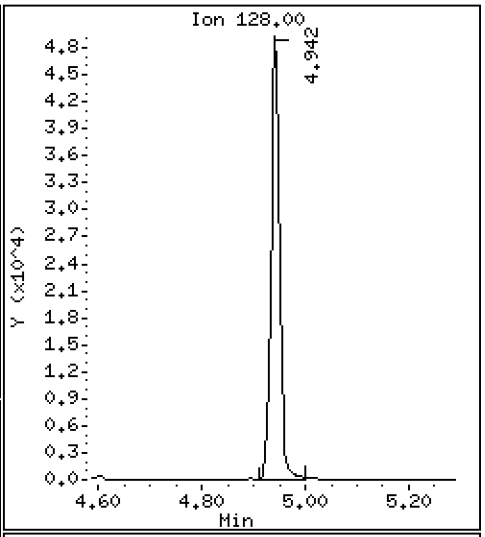
Column phase: Rxi-17sil

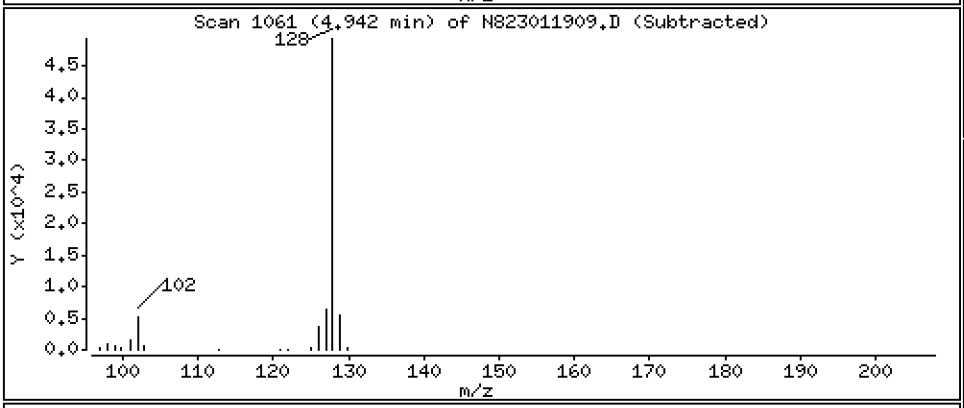
Column diameter: 0.25

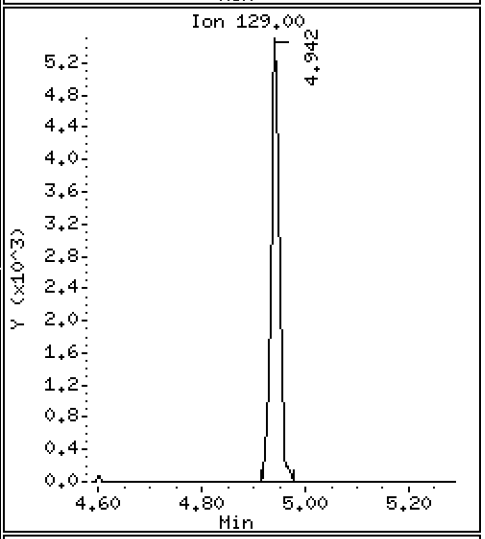
2 Naphthalene

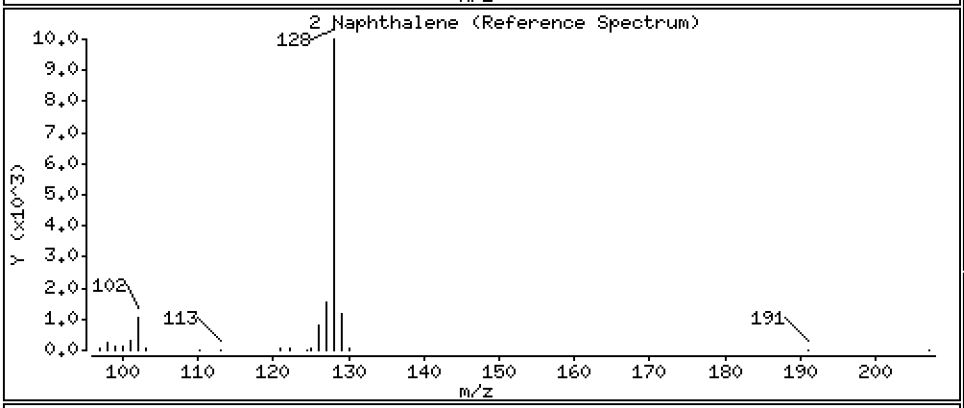
Concentration: 2.626 ug/L

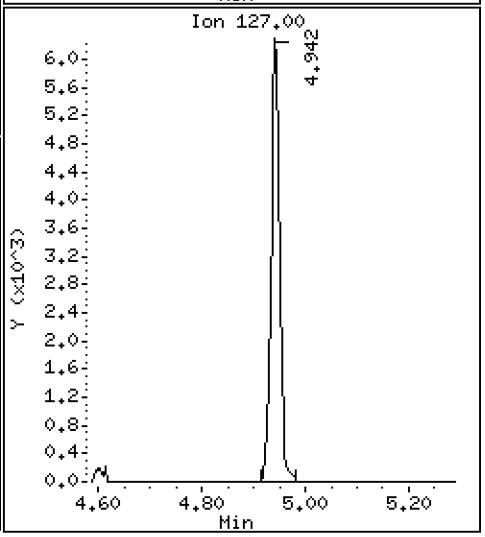


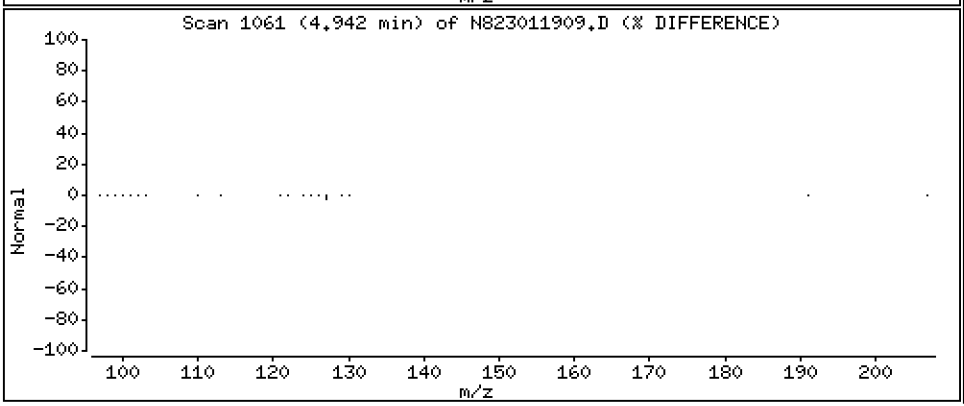












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

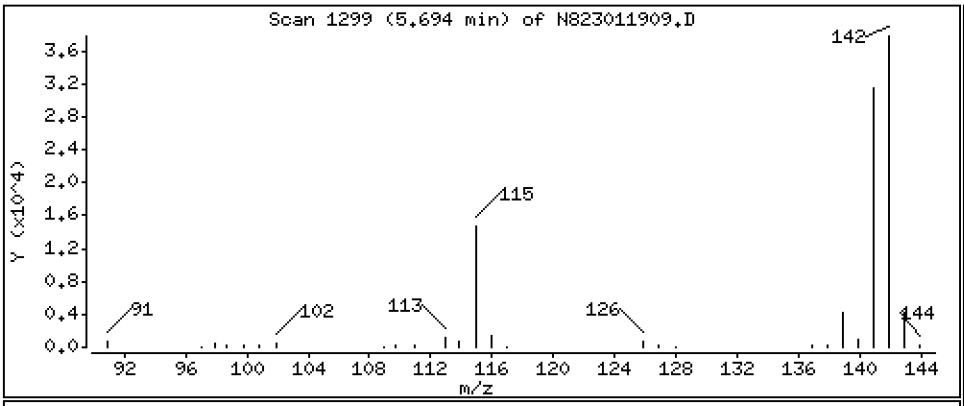
Operator: JZ

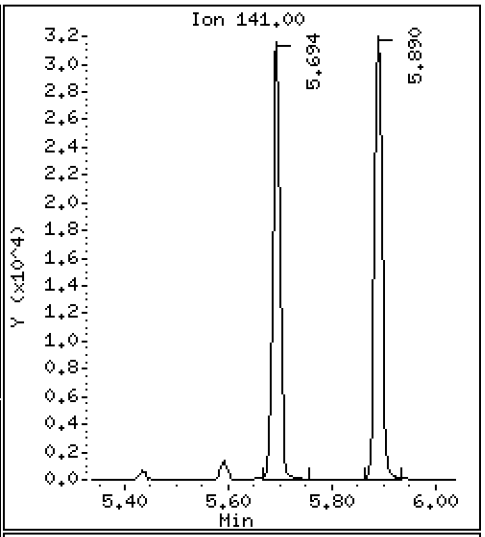
Column phase: Rxi-17sil

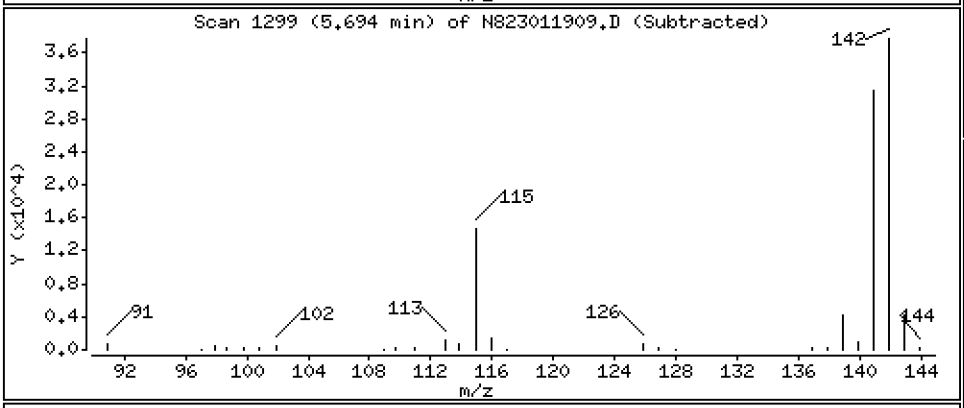
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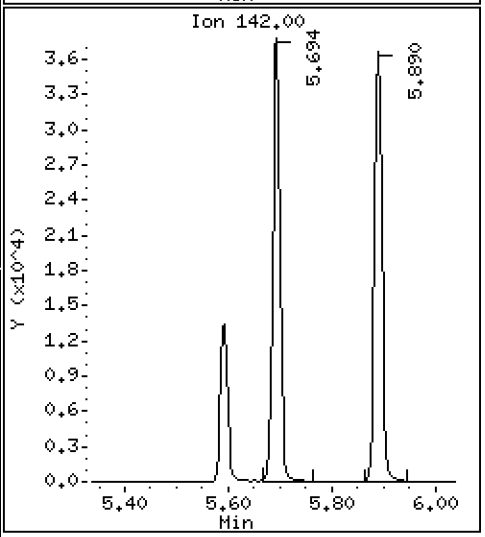
4 2-Methylnaphthalene

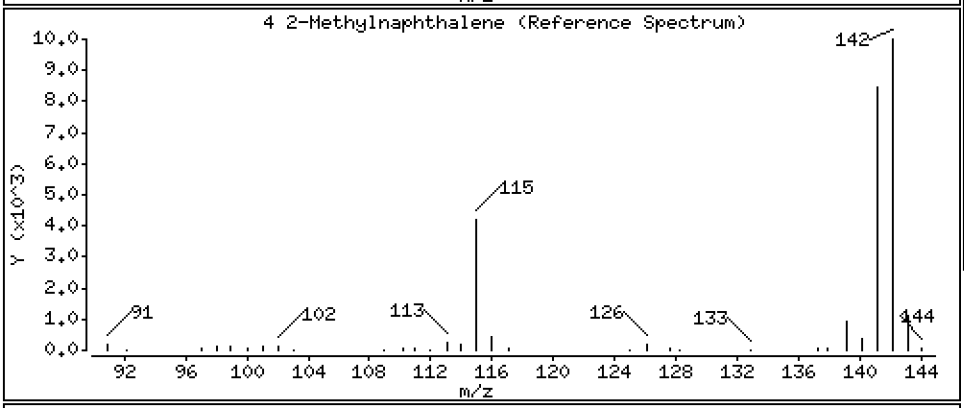
Concentration: 2.670 ug/L

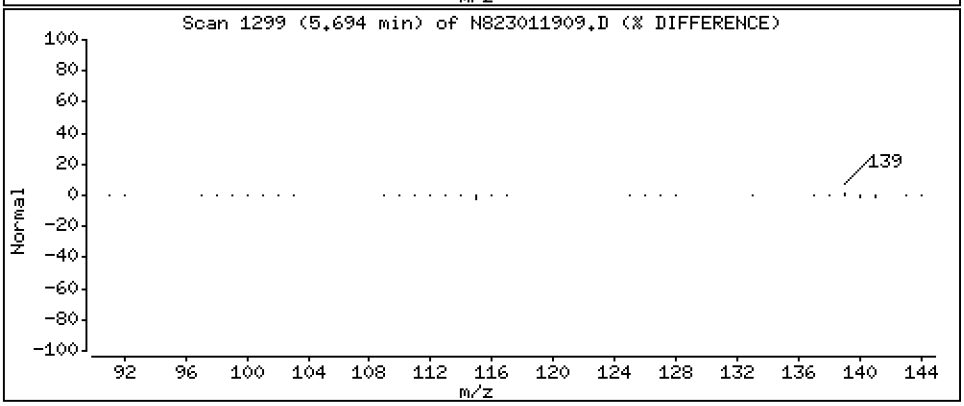












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

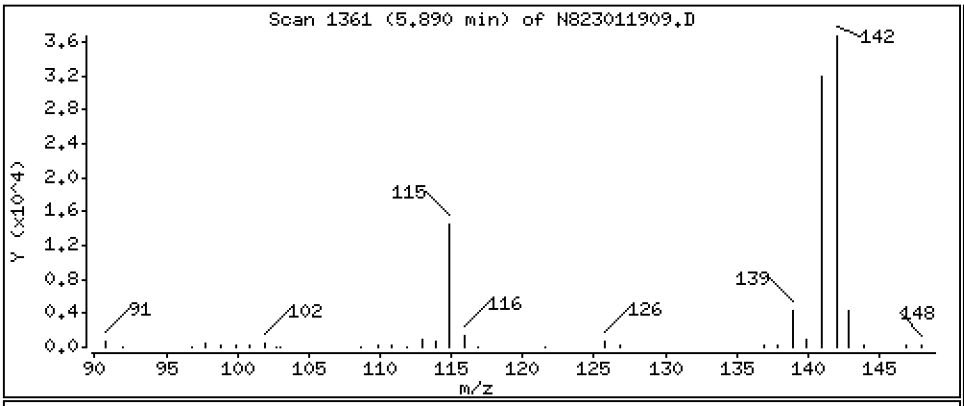
Operator: JZ

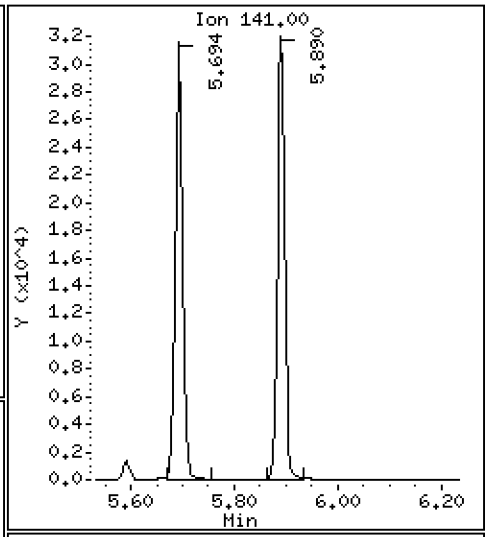
Column phase: Rxi-17sil

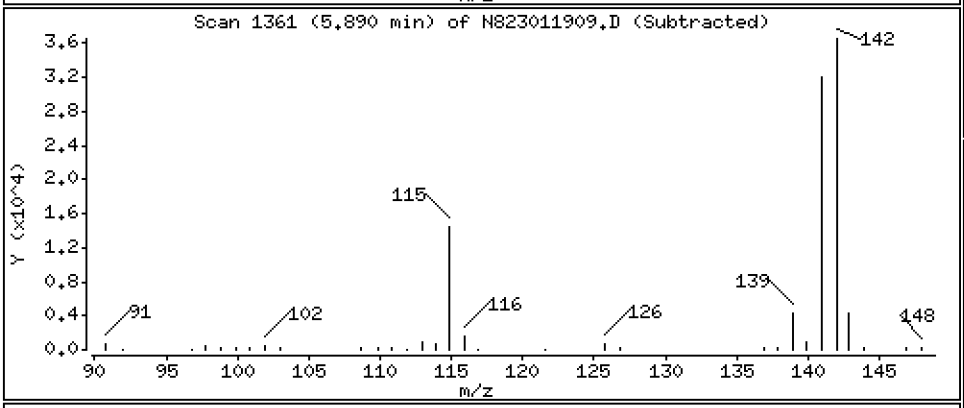
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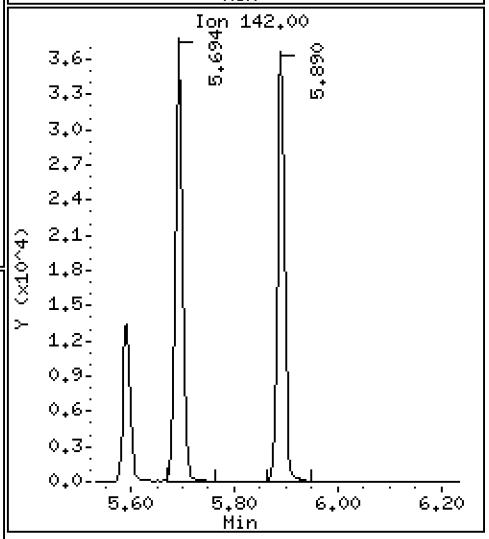
5 1-methylnaphthalene

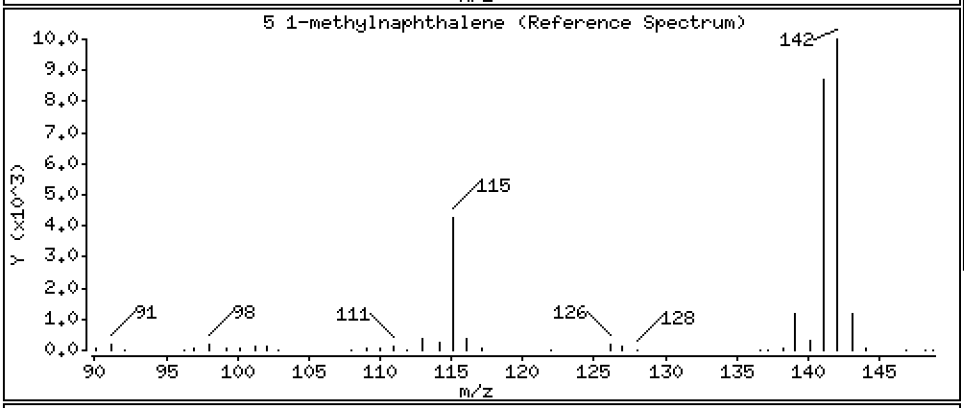
Concentration: 2.649 ug/L

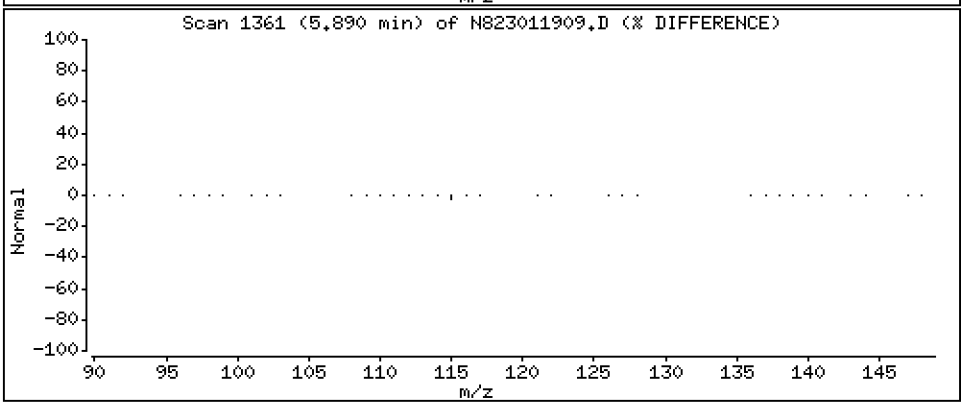












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

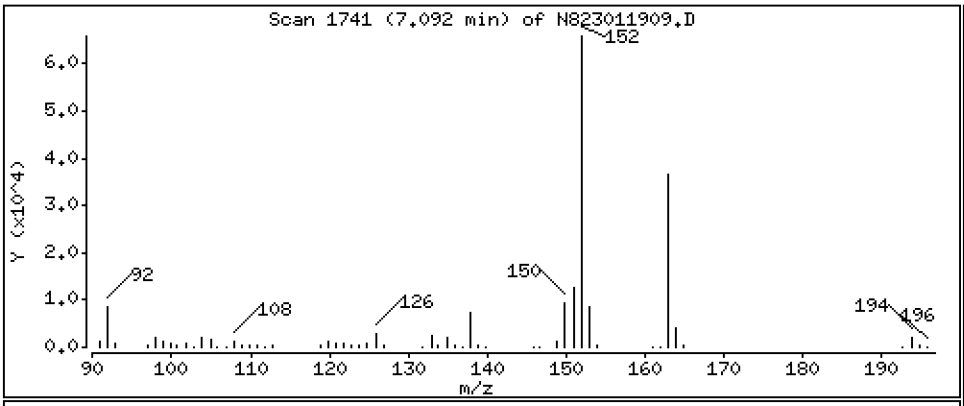
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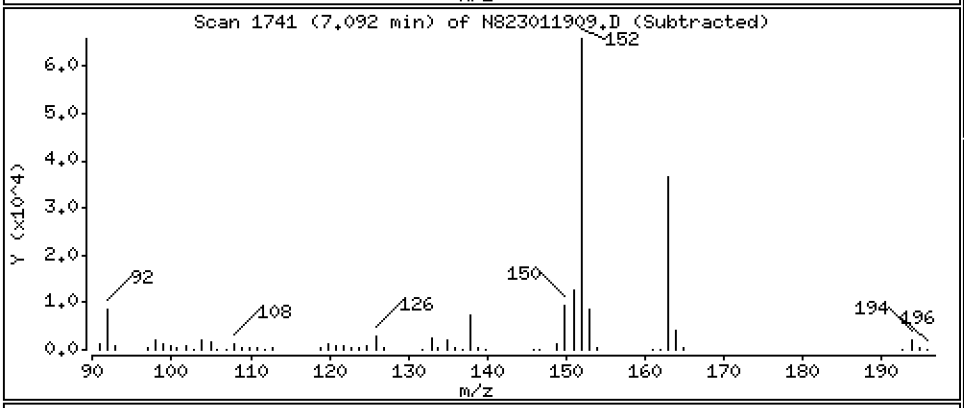
Column phase: Rxi-17sil

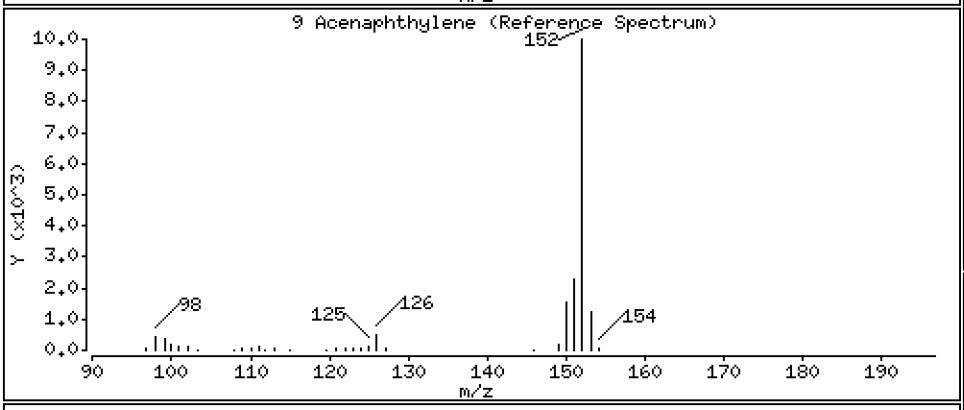
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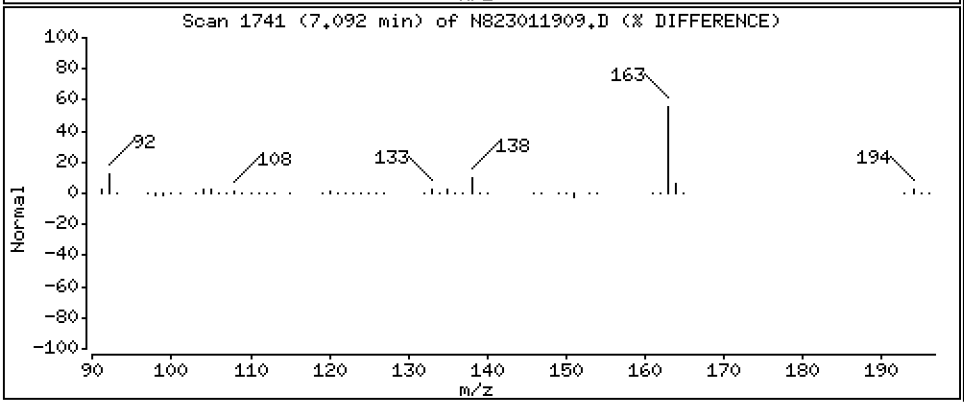
9 Acenaphthylene

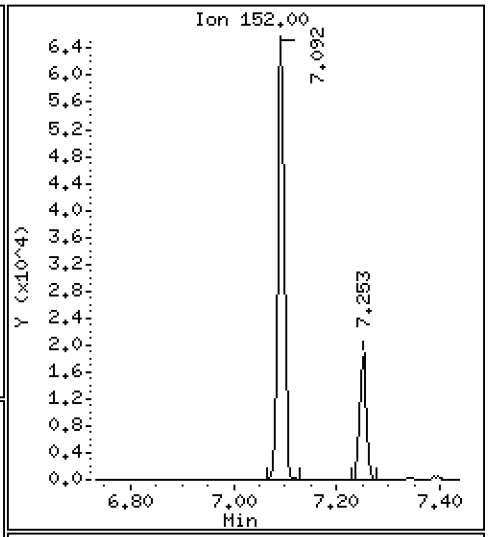
Concentration: 2.821 ug/L

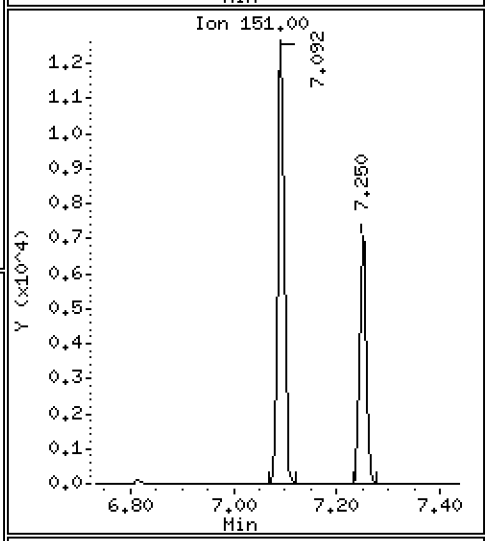


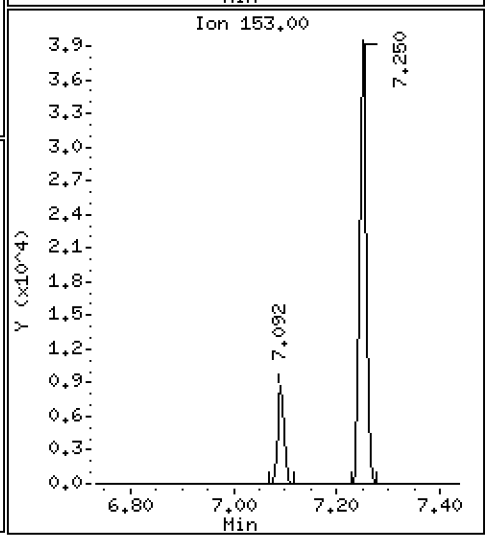












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

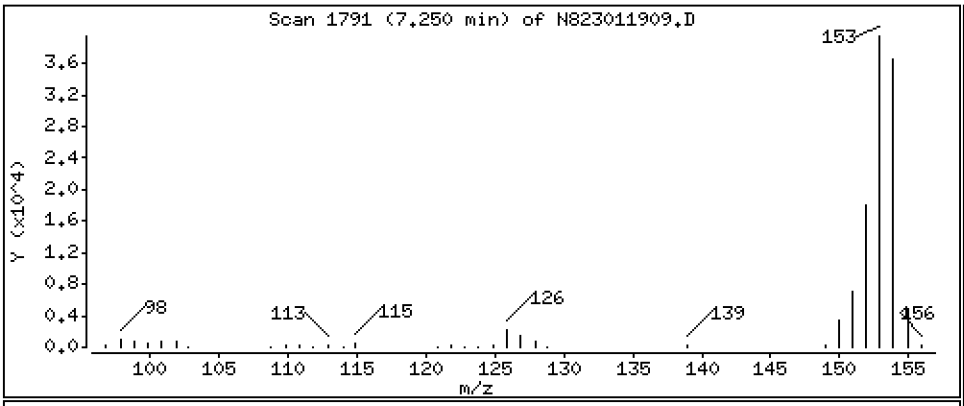
Operator: JZ

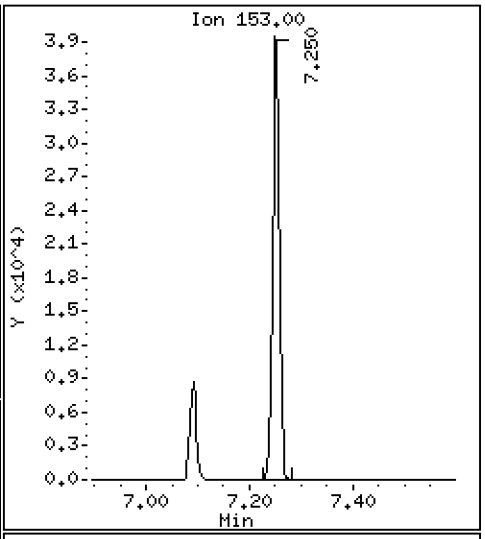
Column phase: Rxi-17sil

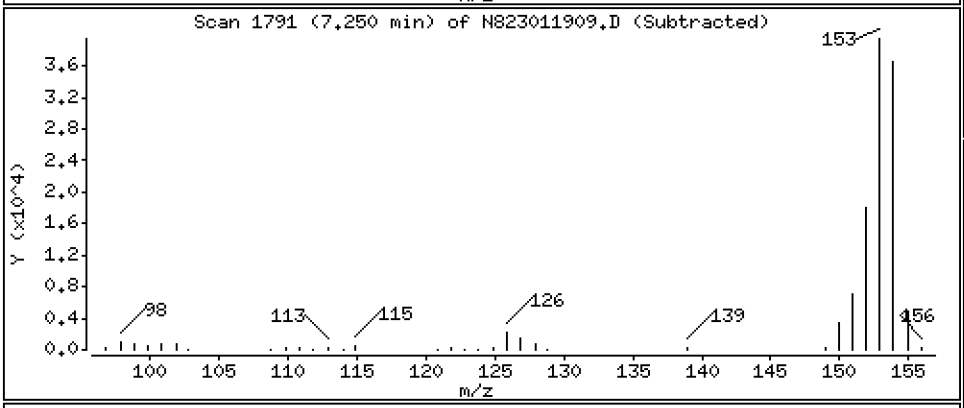
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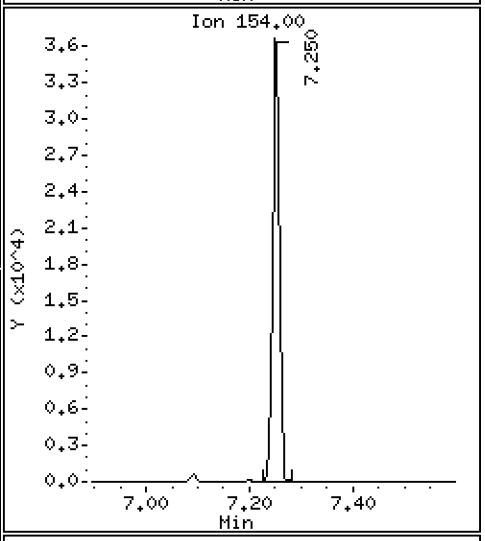
11 Acenaphthene

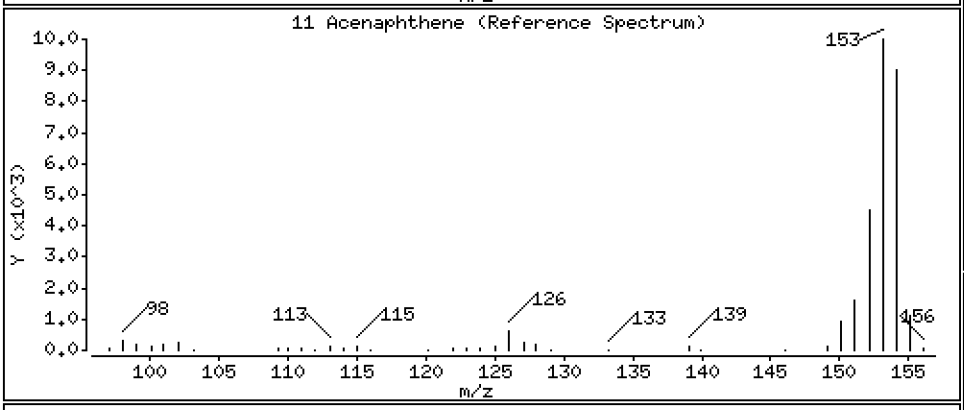
Concentration: 2.600 ug/L

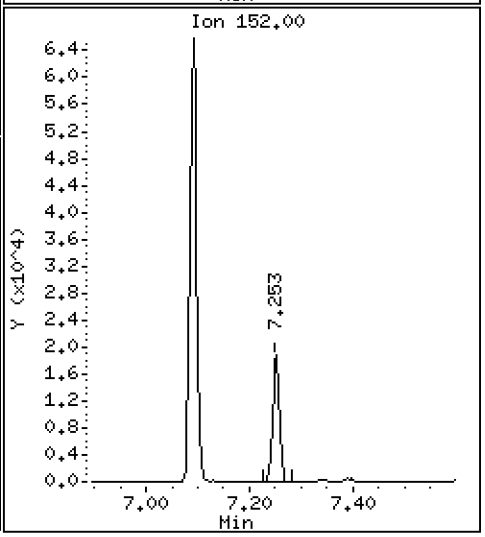


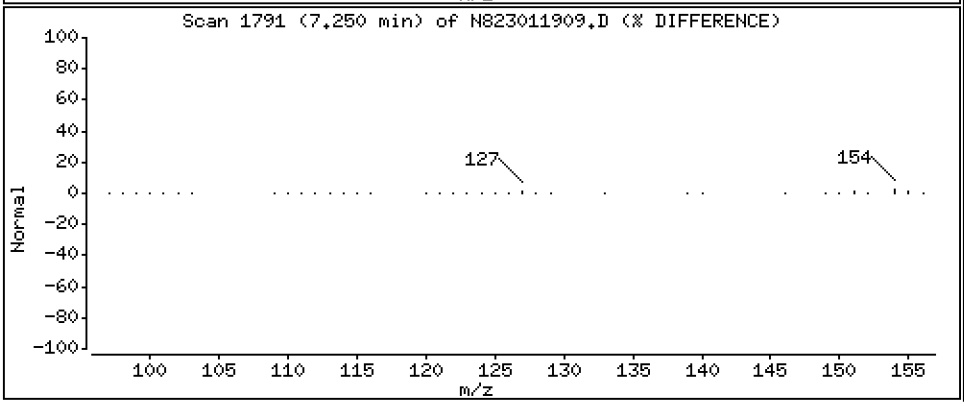












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

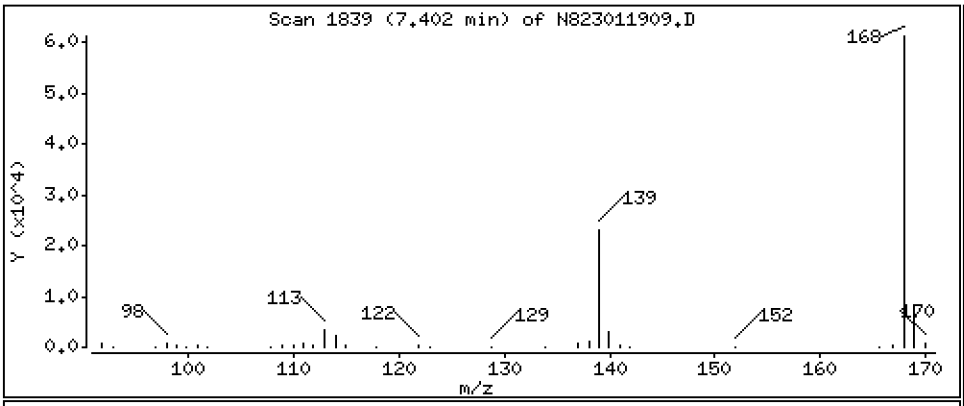
Operator: JZ

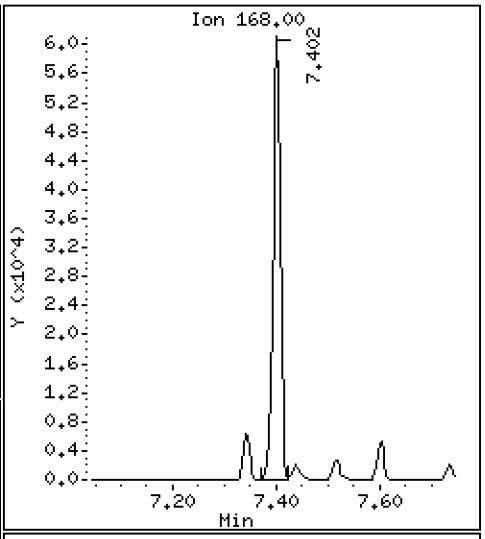
Column phase: Rxi-17sil

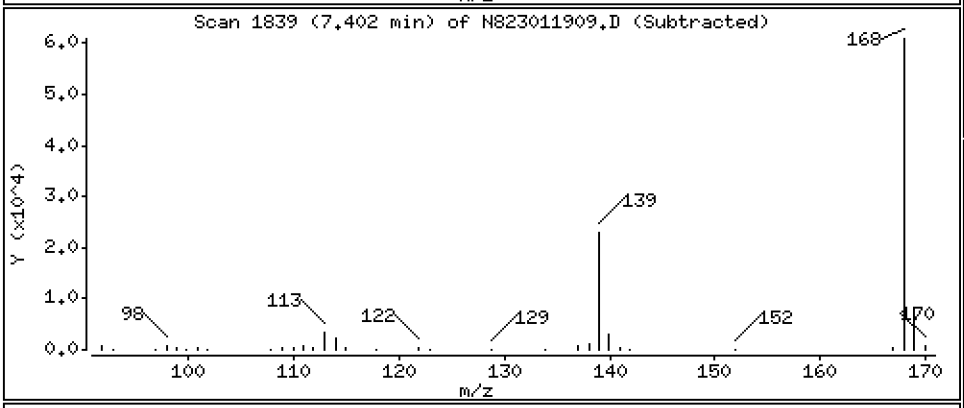
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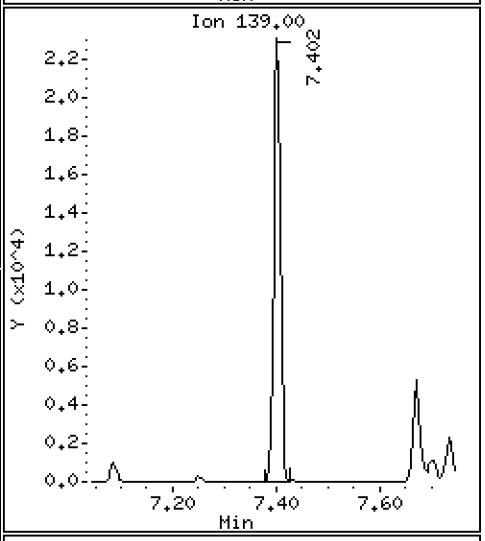
12 Dibenzofuran

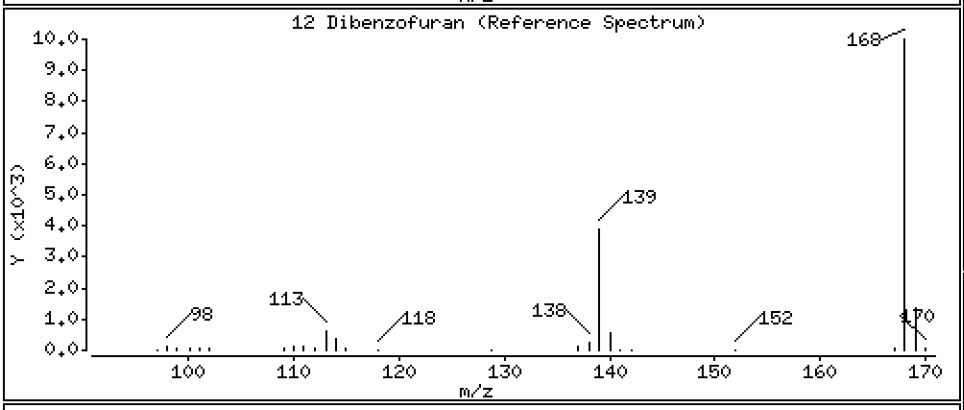
Concentration: 2.860 ug/L

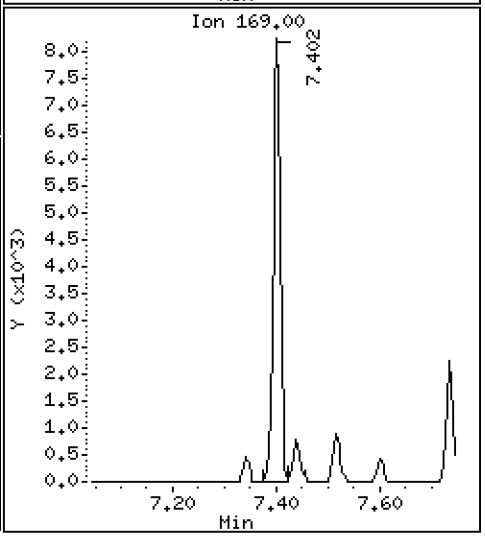


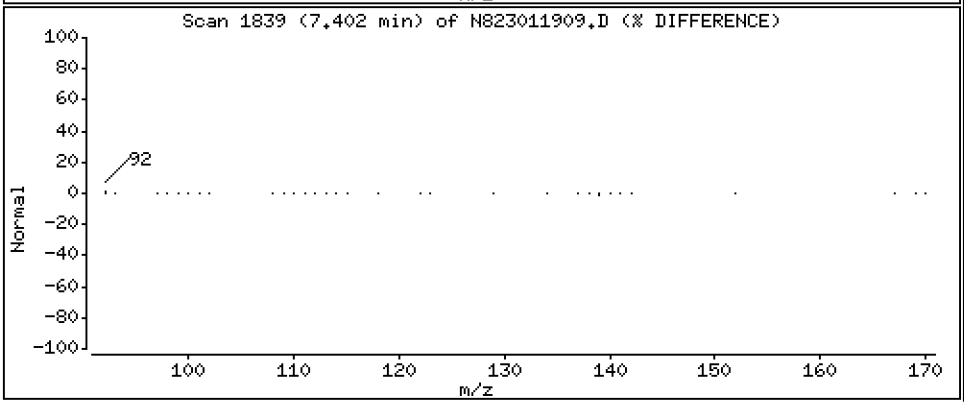












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

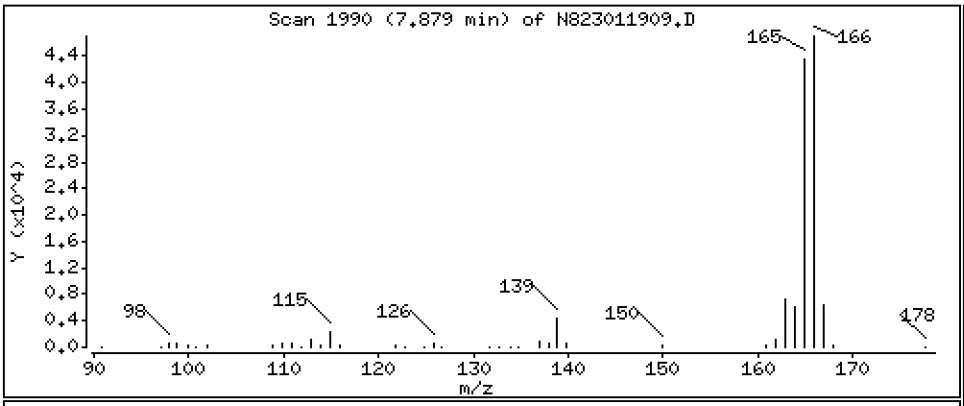
Operator: JZ

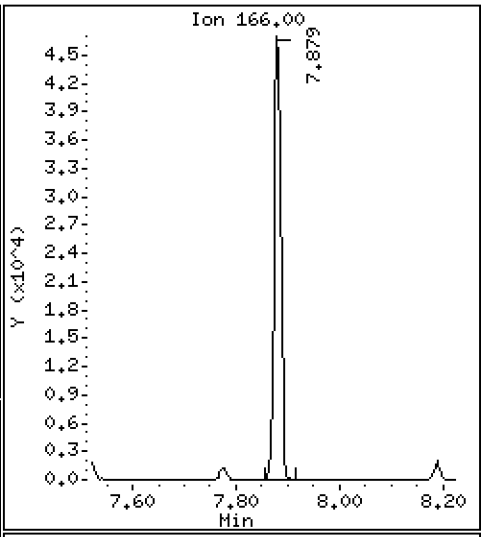
Column phase: Rxi-17sil

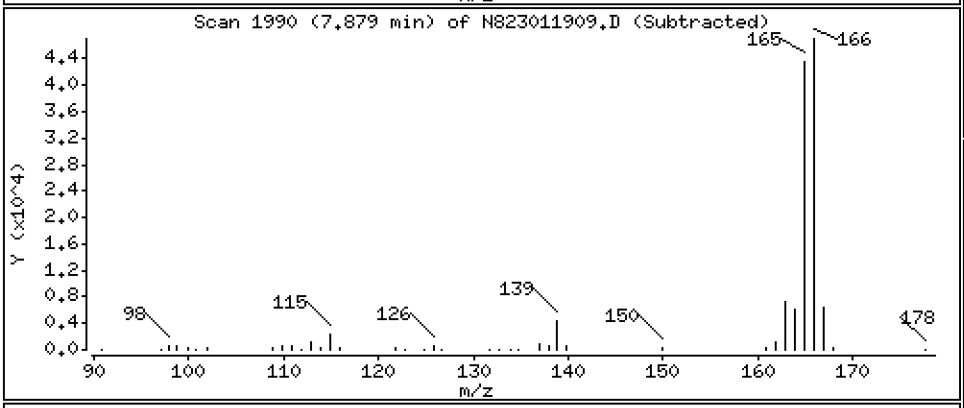
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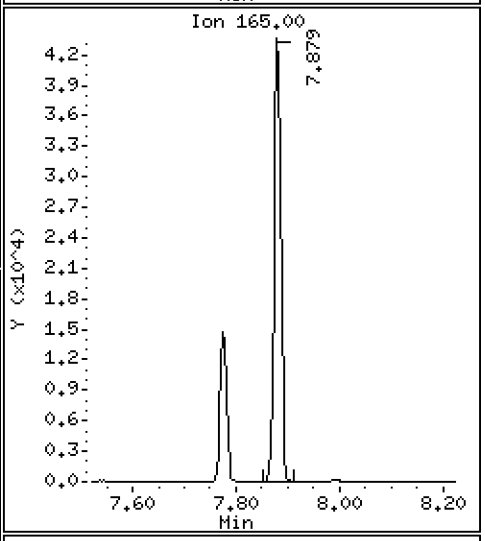
14 Fluorene

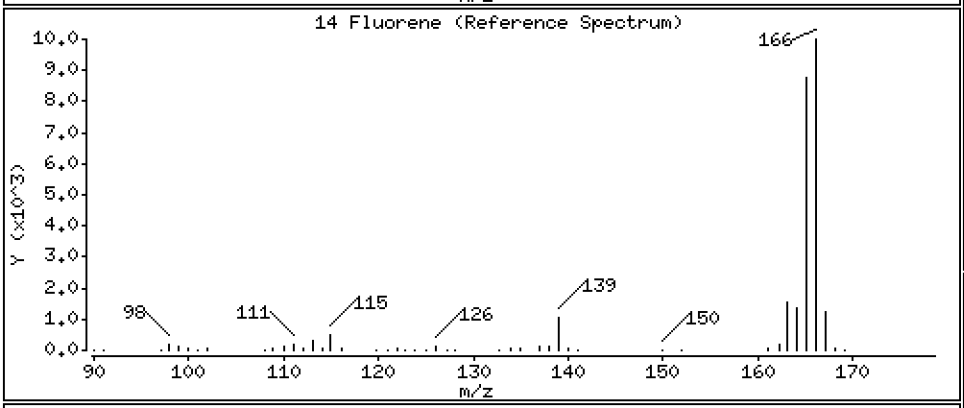
Concentration: 2.631 ug/L

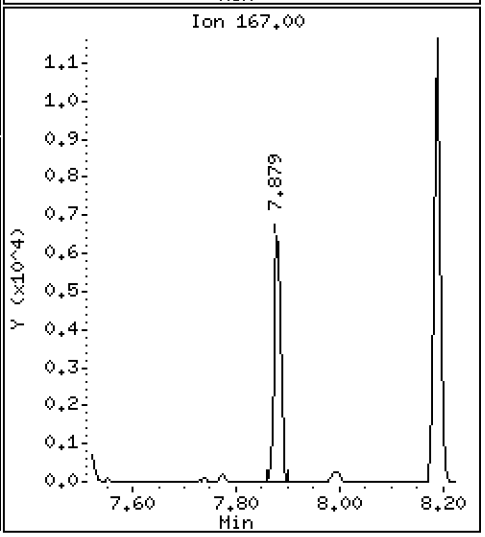


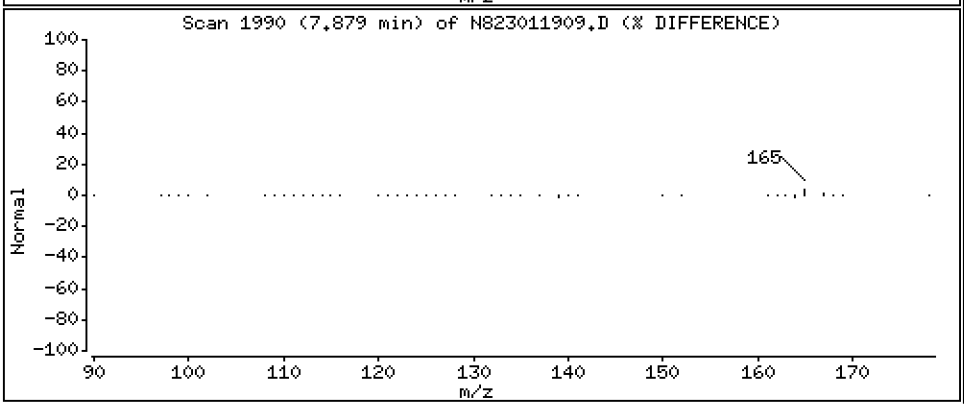












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

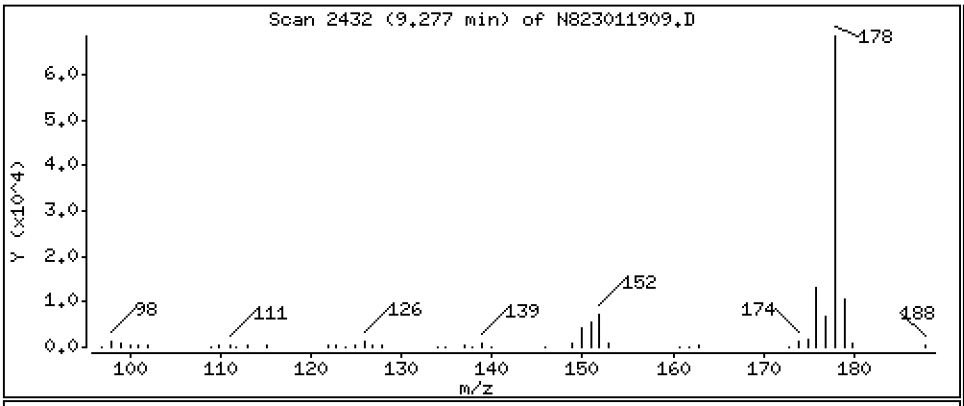
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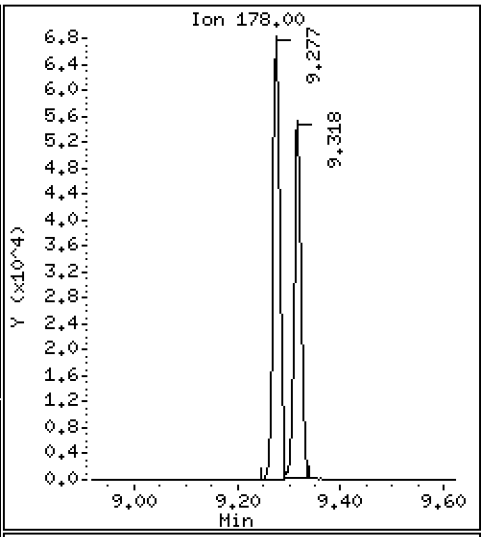
Column phase: Rxi-17sil

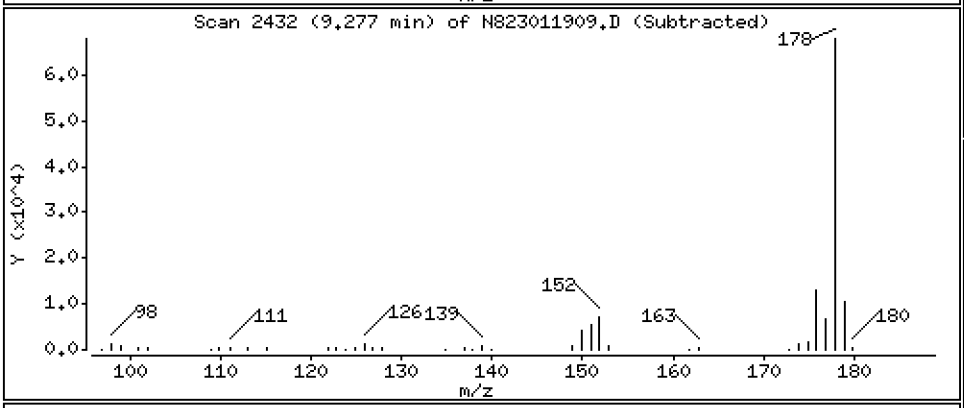
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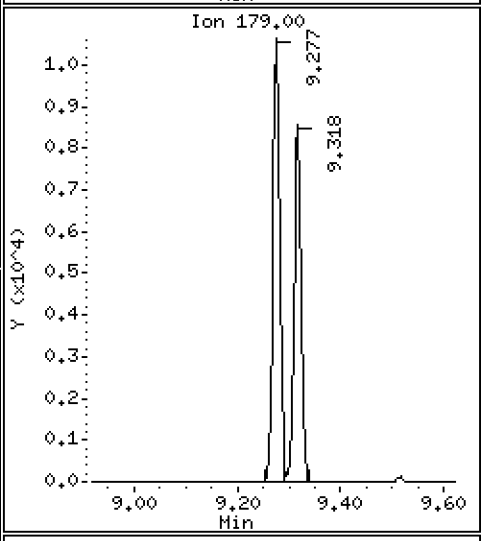
16 Phenanthrene

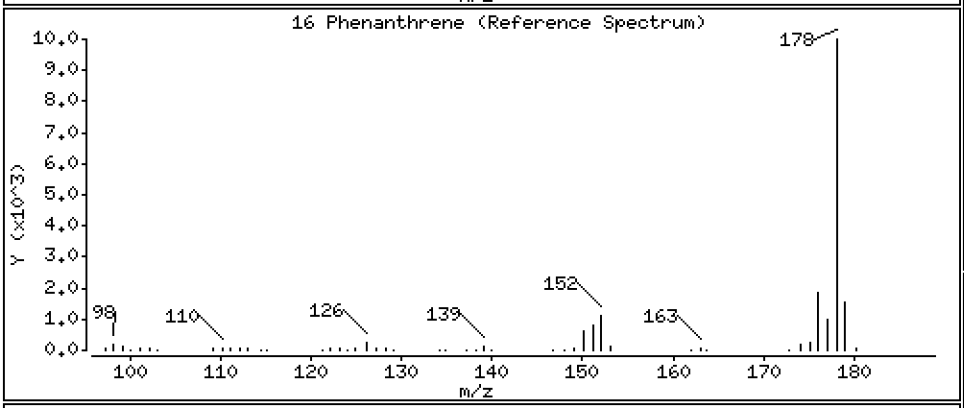
Concentration: 2.448 ug/L

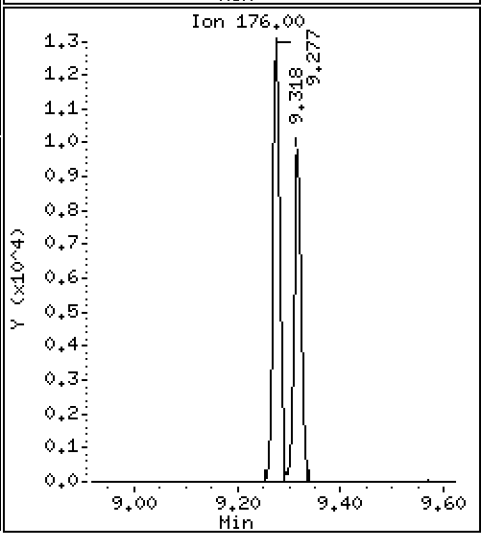


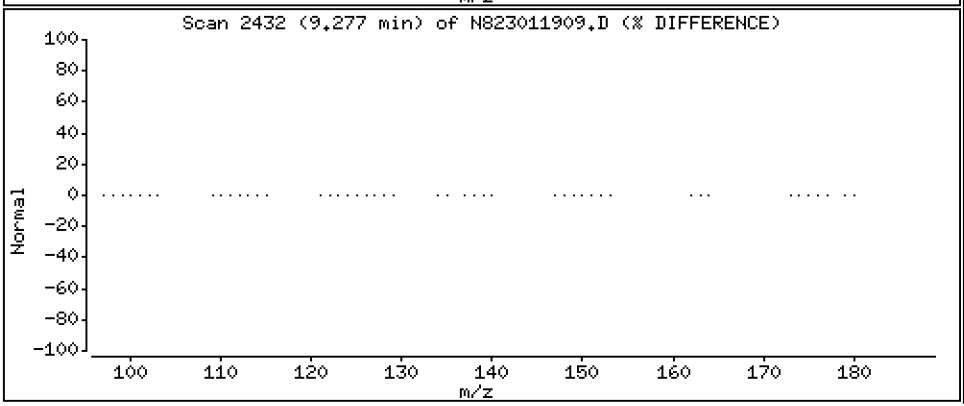












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

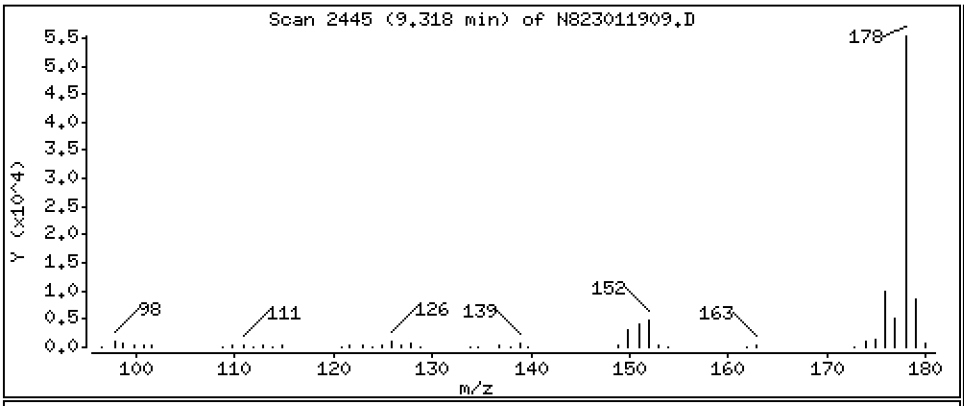
Operator: JZ

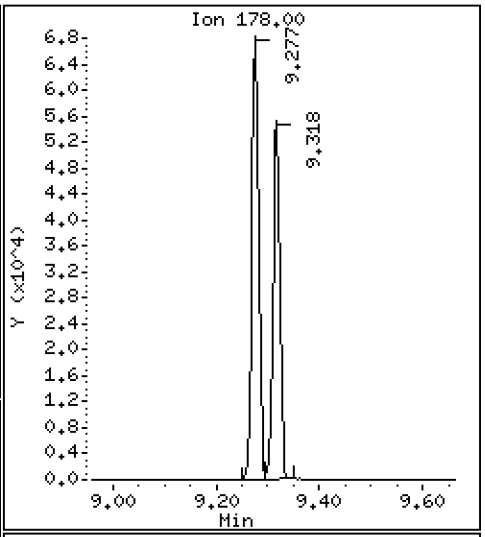
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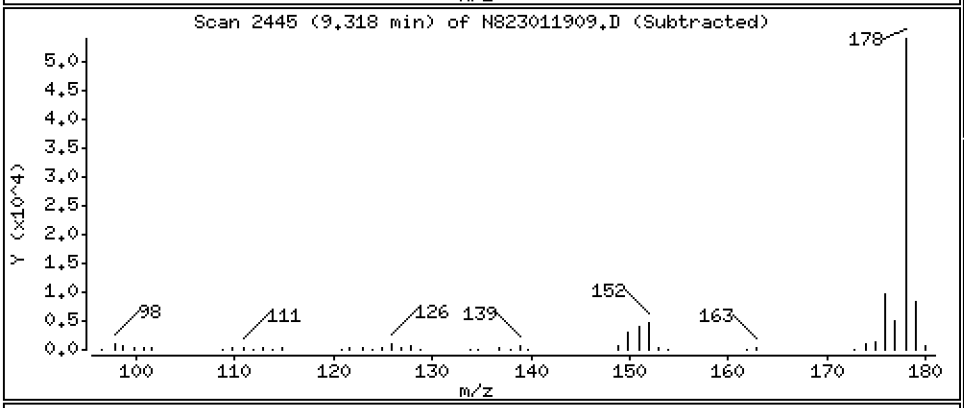
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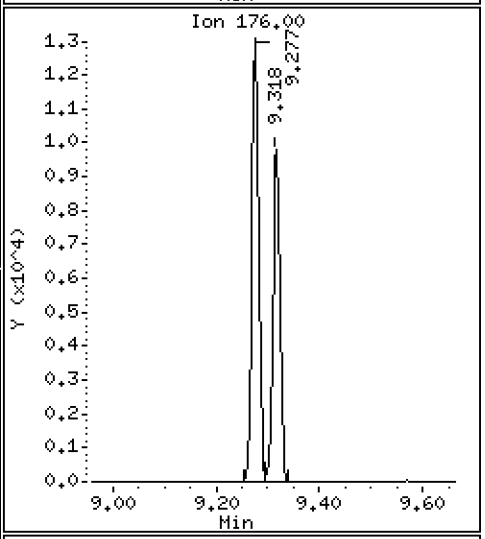
17 Anthracene

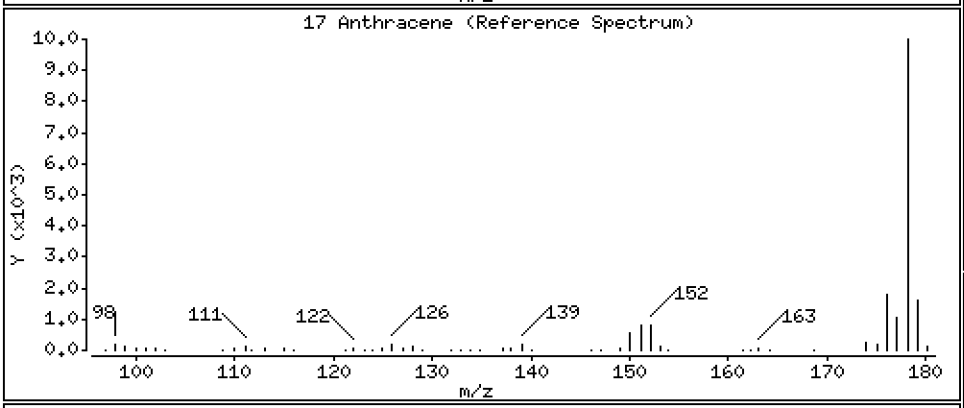
Concentration: 2.270 ug/L

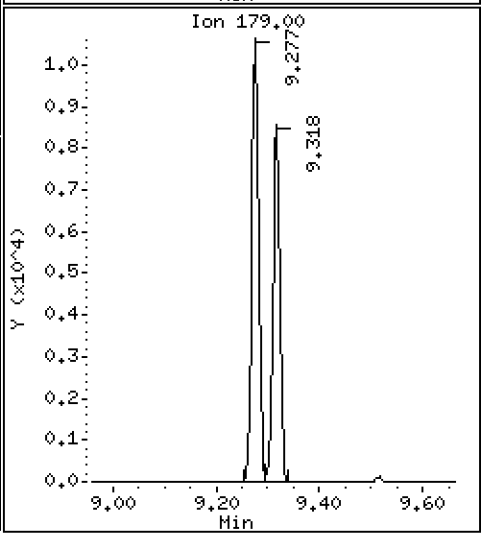


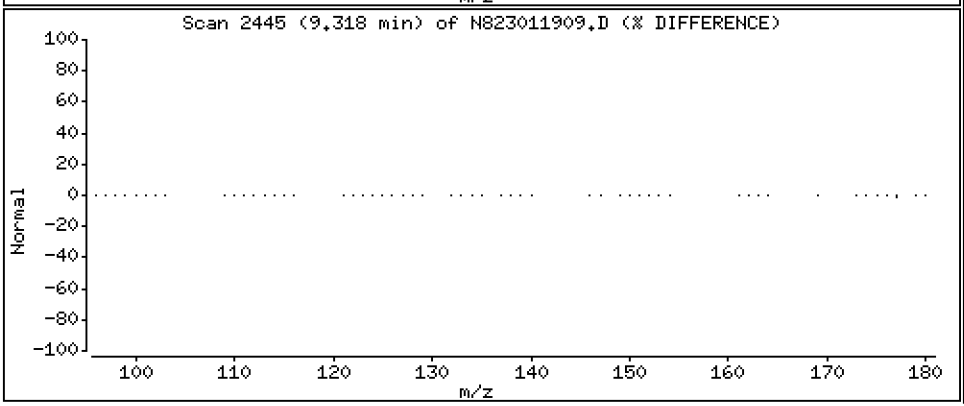












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Instrument: nt8.i

Sample Info: SCV230119

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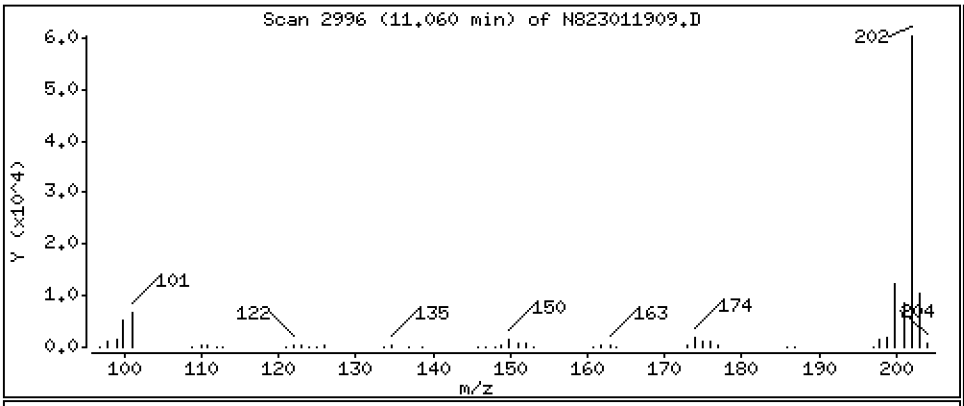
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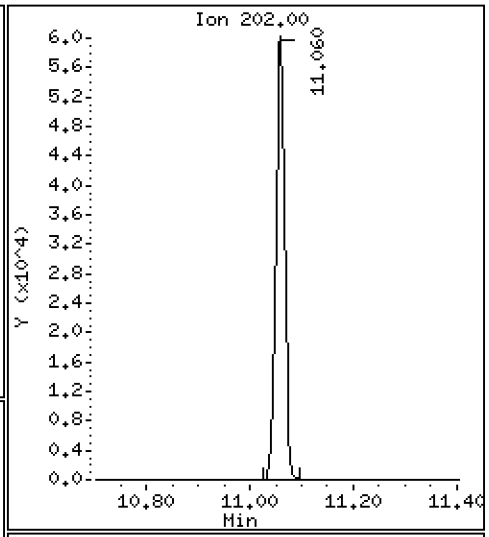
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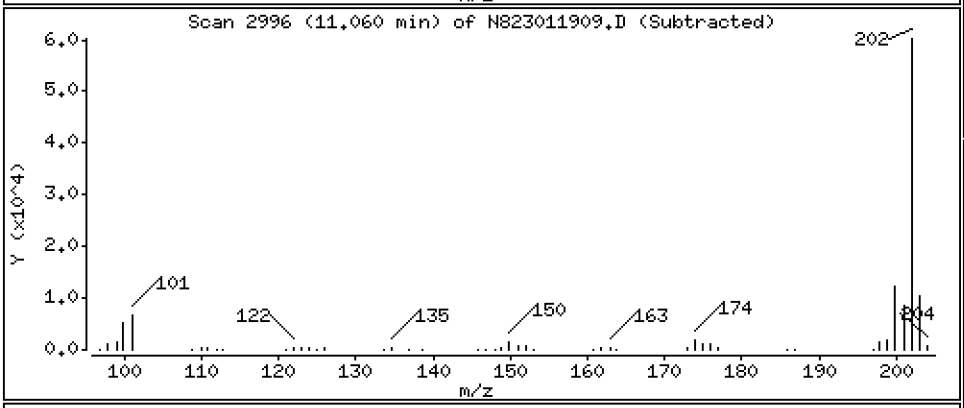
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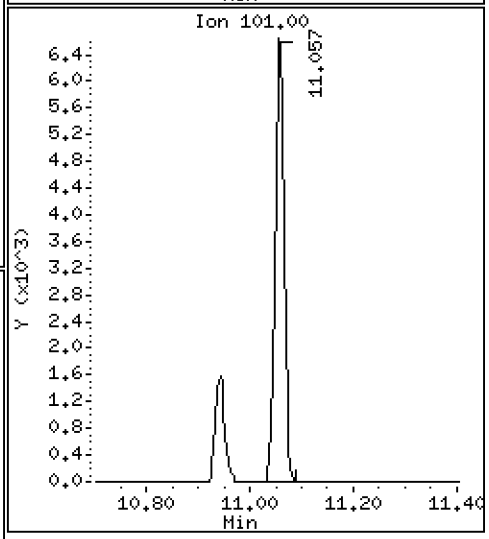
22 Fluoranthene

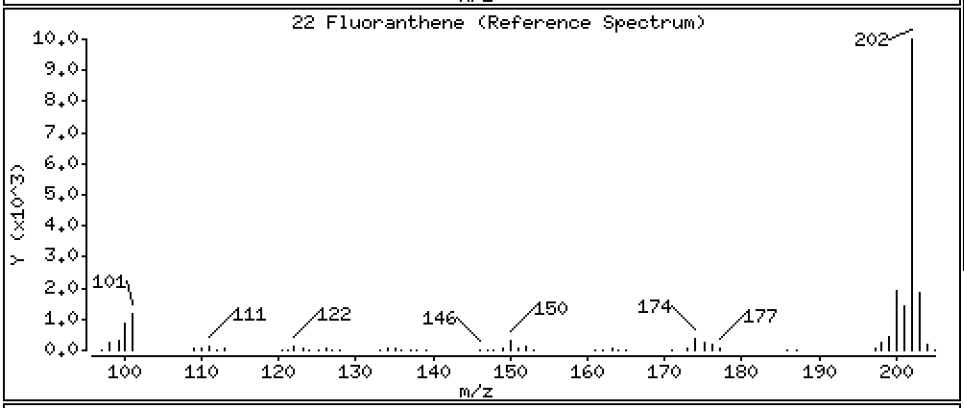
Concentration: 2.653 ug/L

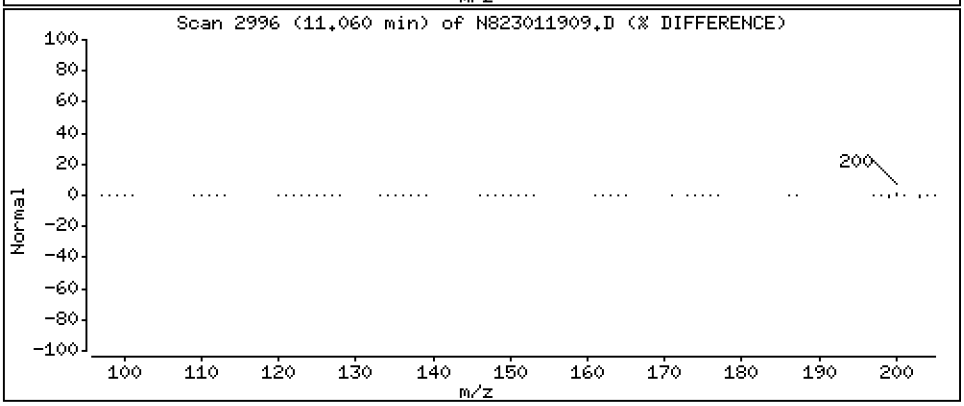












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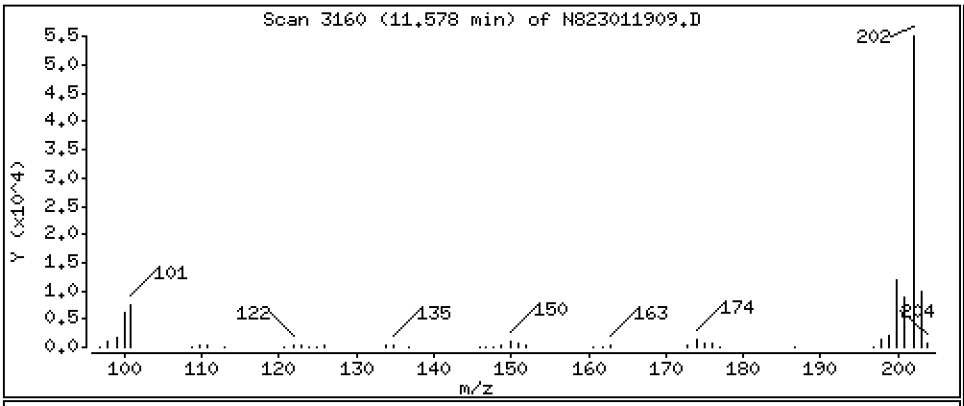
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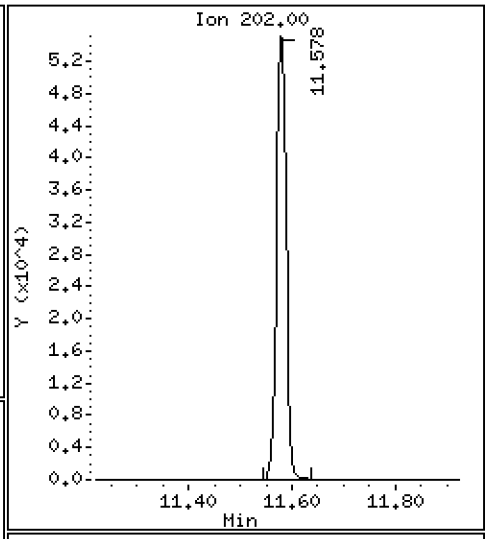
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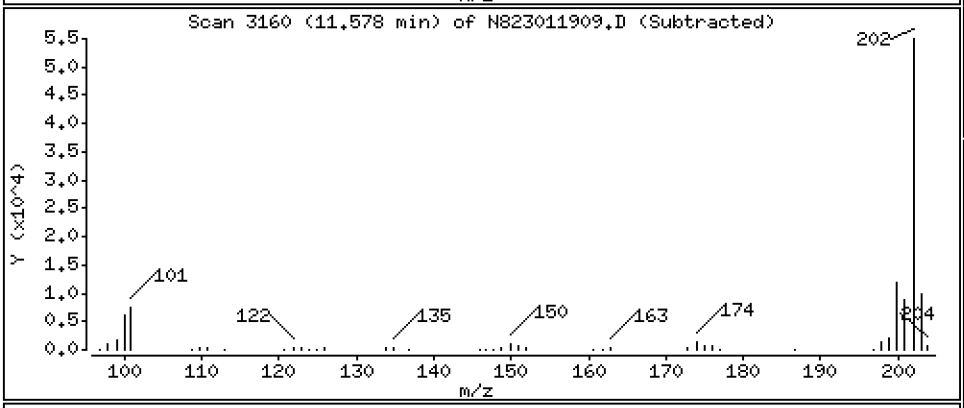
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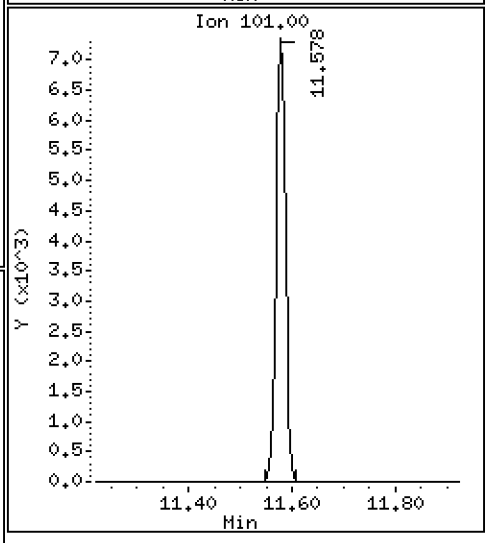
23 Pyrene

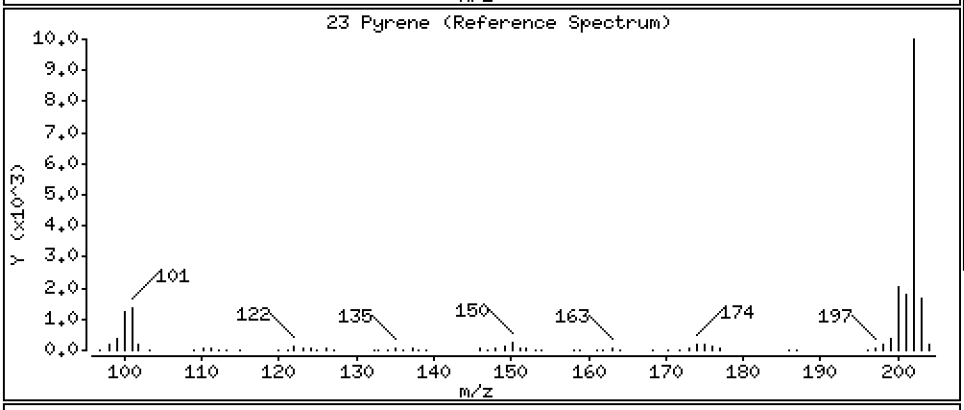
Concentration: 2.462 ug/L

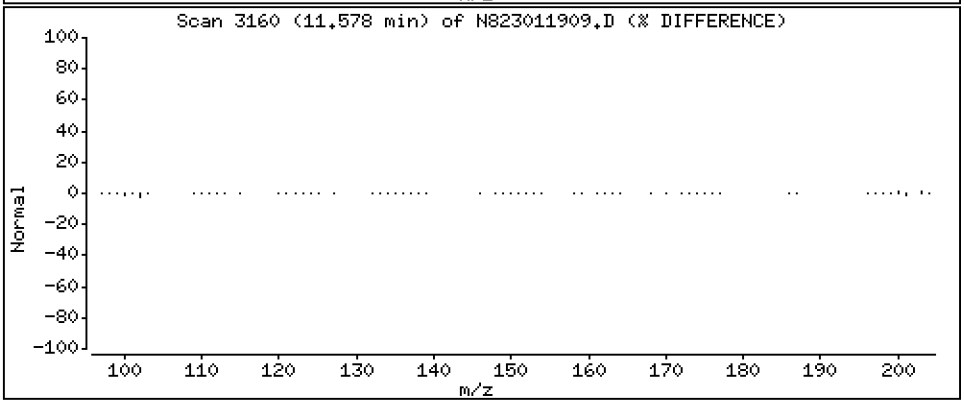












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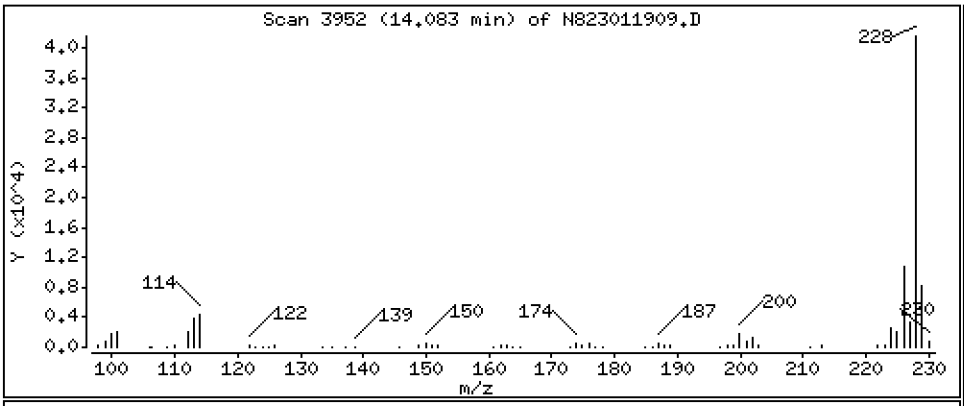
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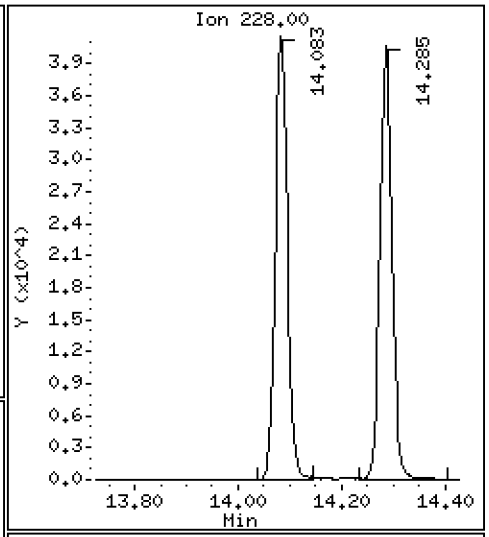
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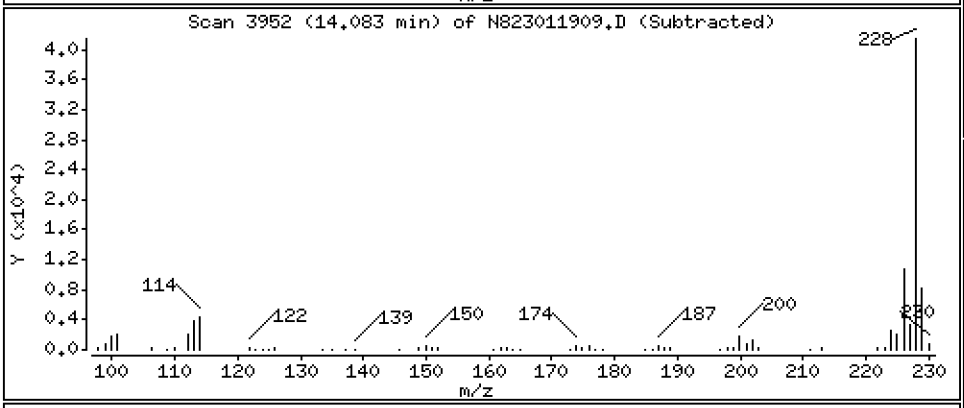
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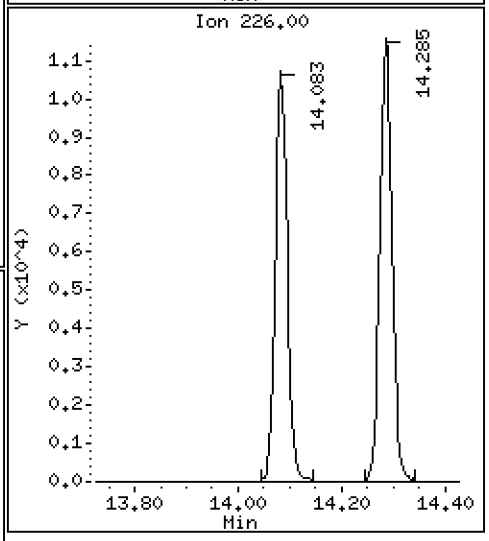
24 Benzo(a)anthracene

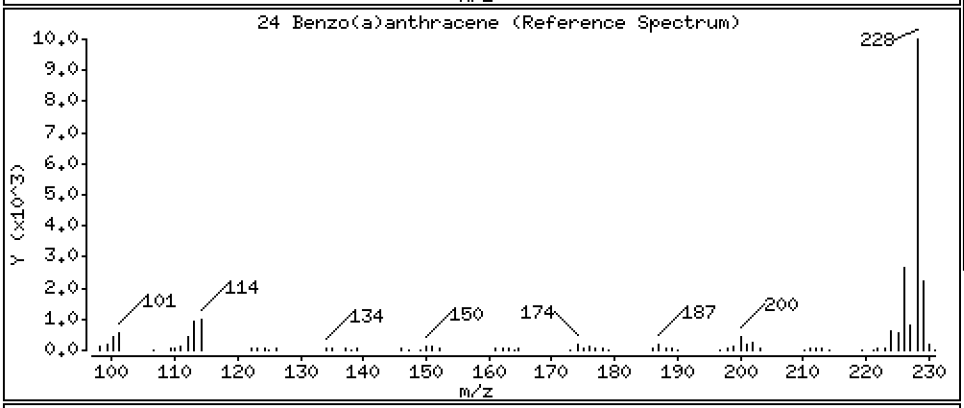
Concentration: 2.587 ug/L

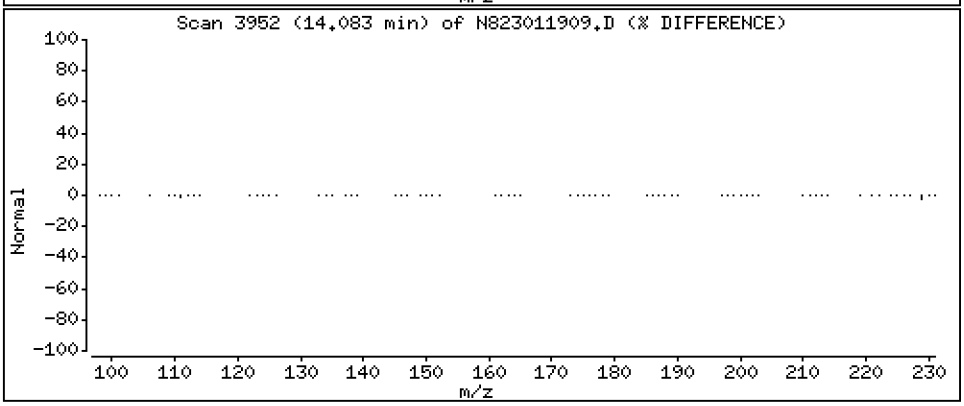












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Date : 19-JAN-2023 14:58

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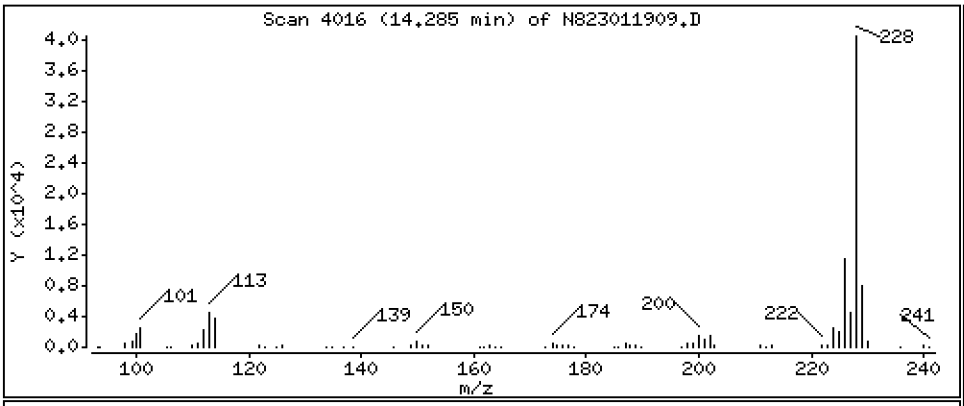
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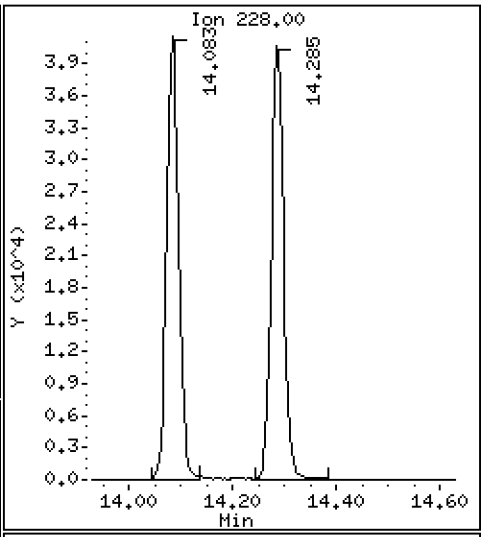
Column phase: Rxi-17sil

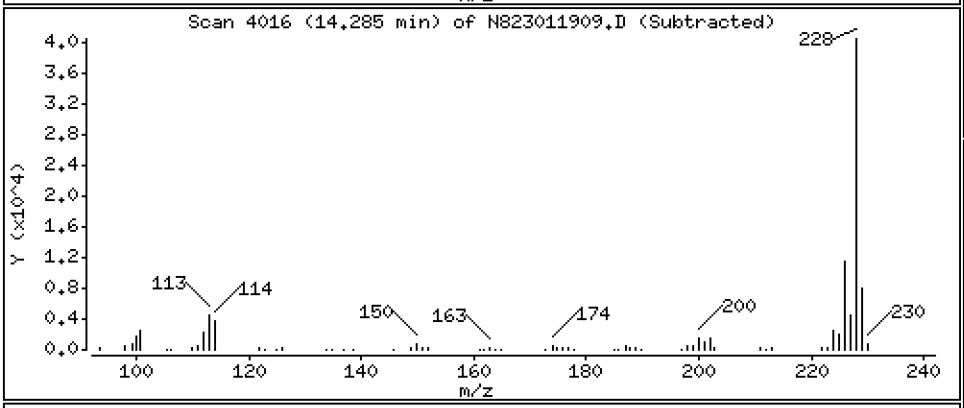
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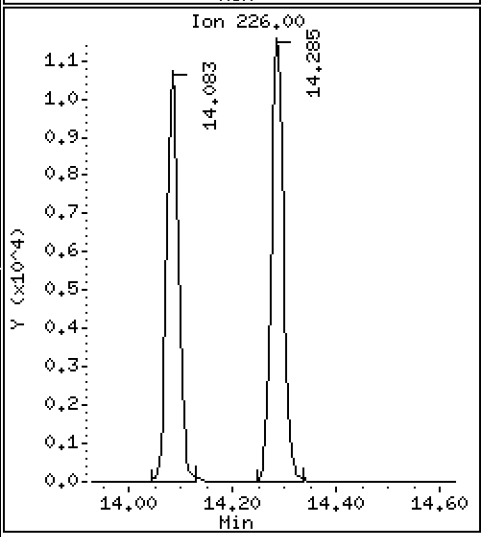
27 Chrysene

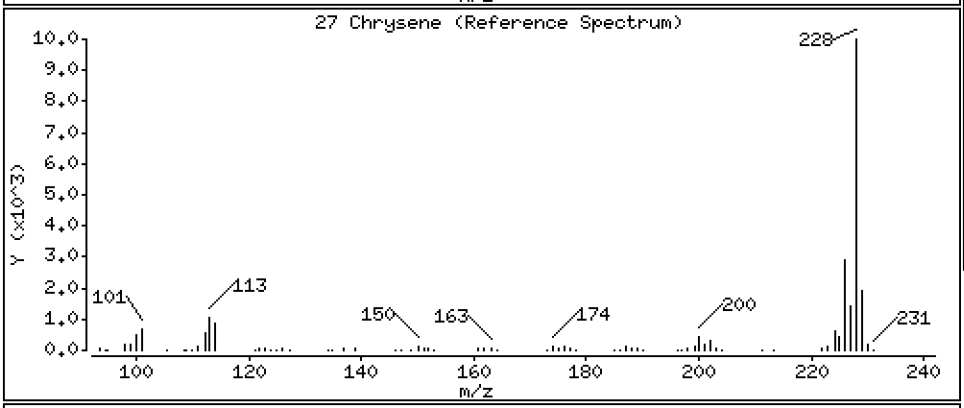
Concentration: 2.400 ug/L

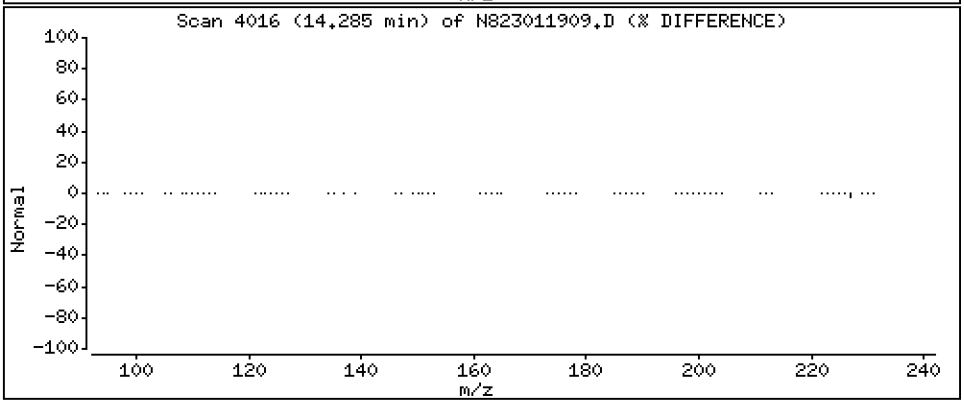












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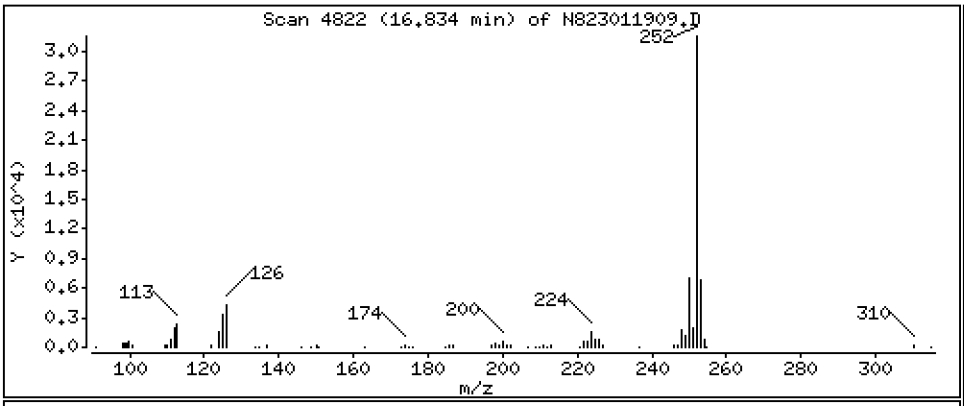
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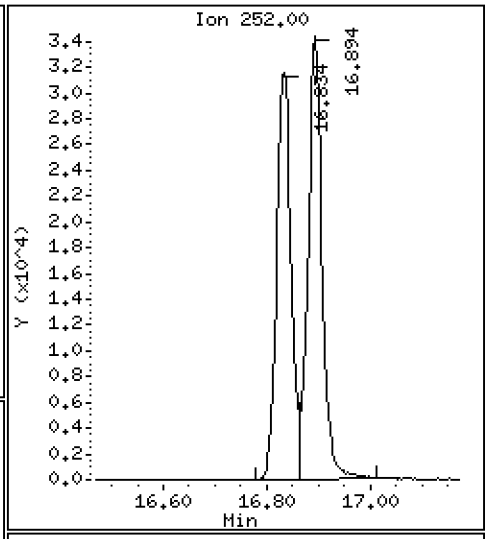
Column phase: Rxi-17sil

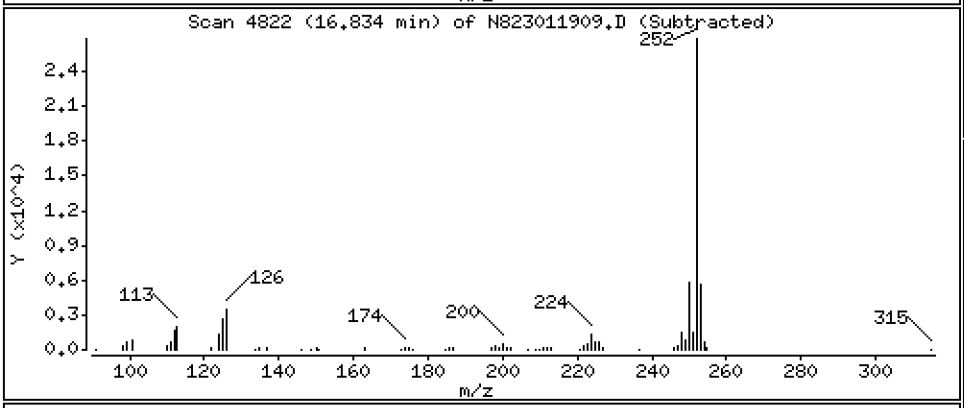
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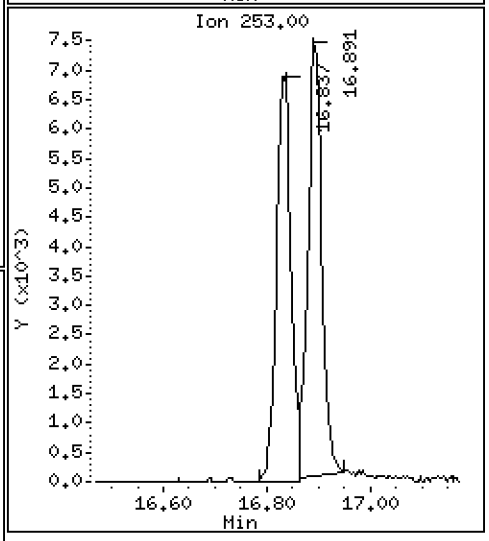
28 Benzo(b)fluoranthene

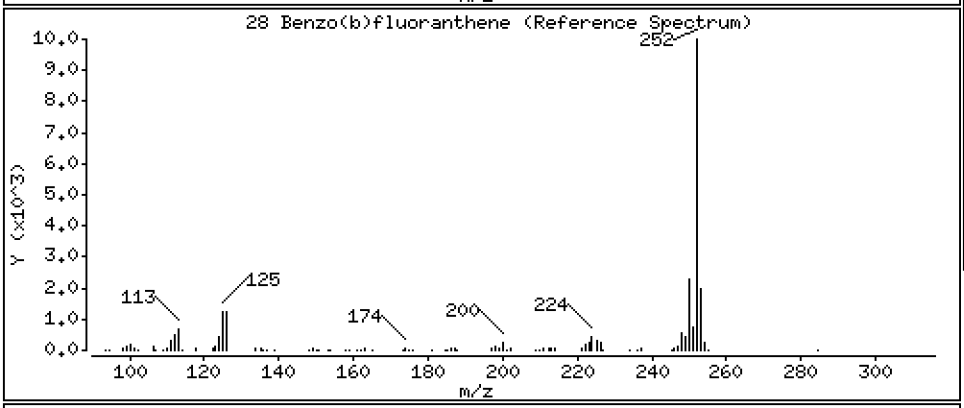
Concentration: 2.507 ug/L

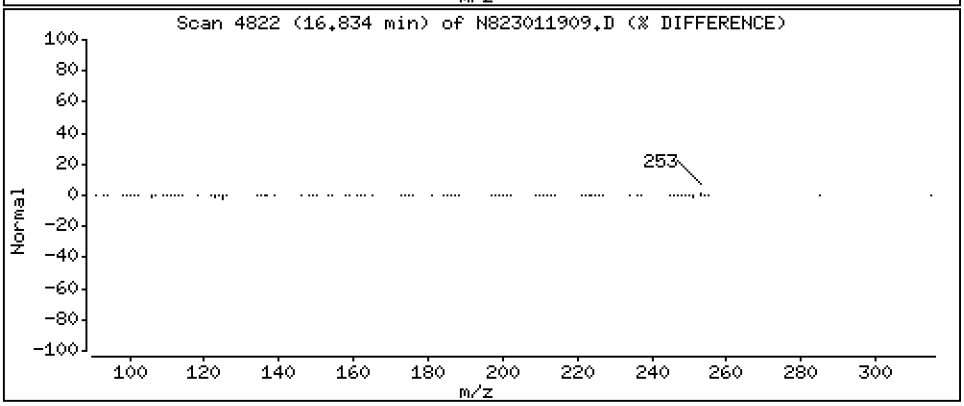












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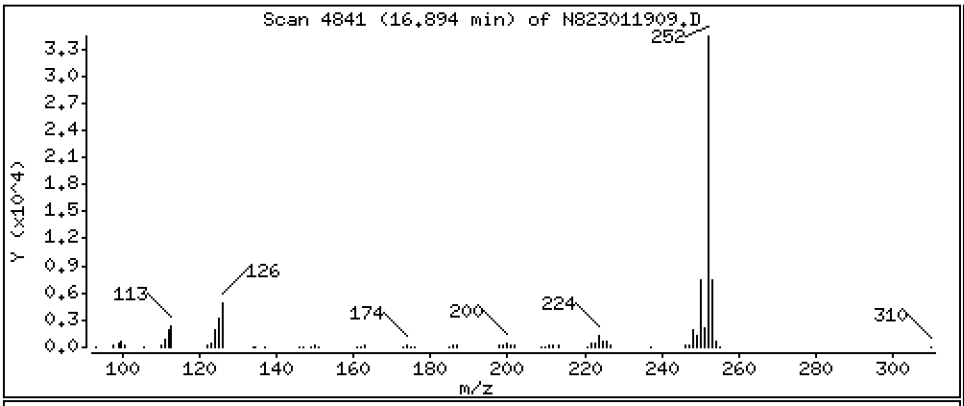
Operator: JZ

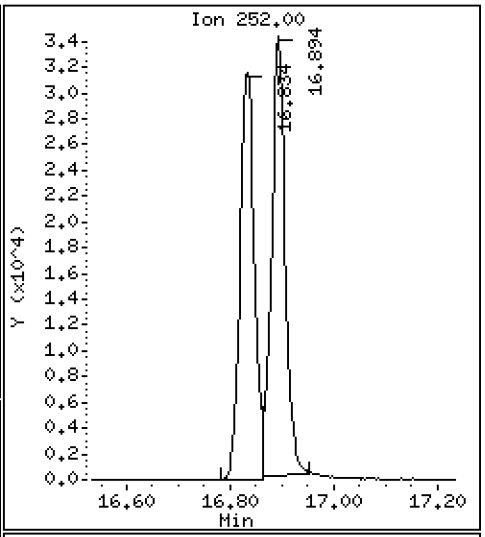
Column phase: Rxi-17sil

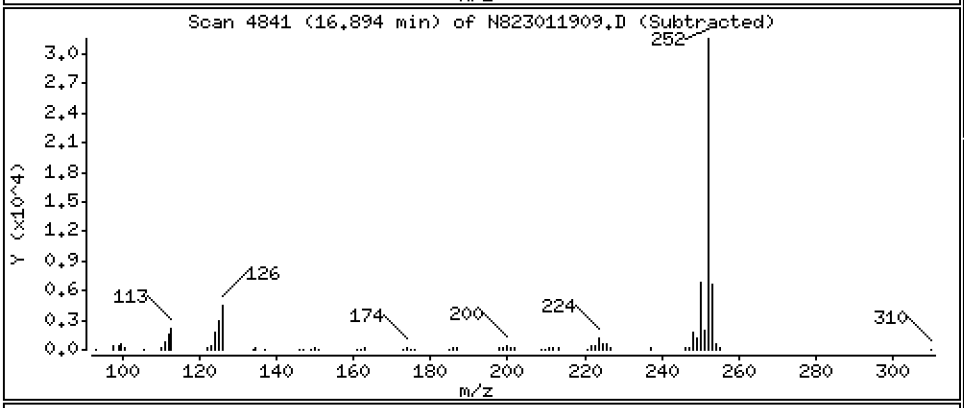
Column diameter: 0.25

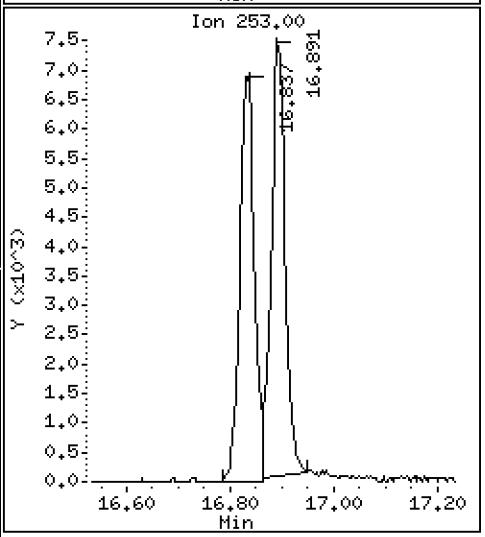
29 Benzo(k)fluoranthene

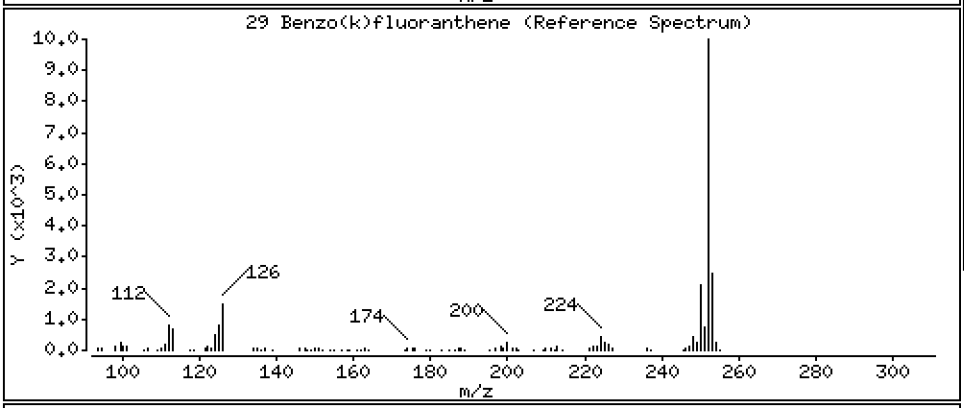
Concentration: 2.656 ug/L

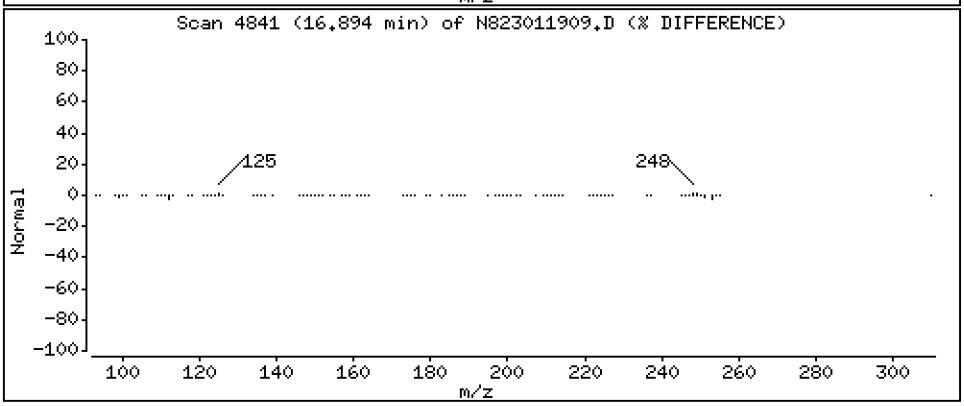












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

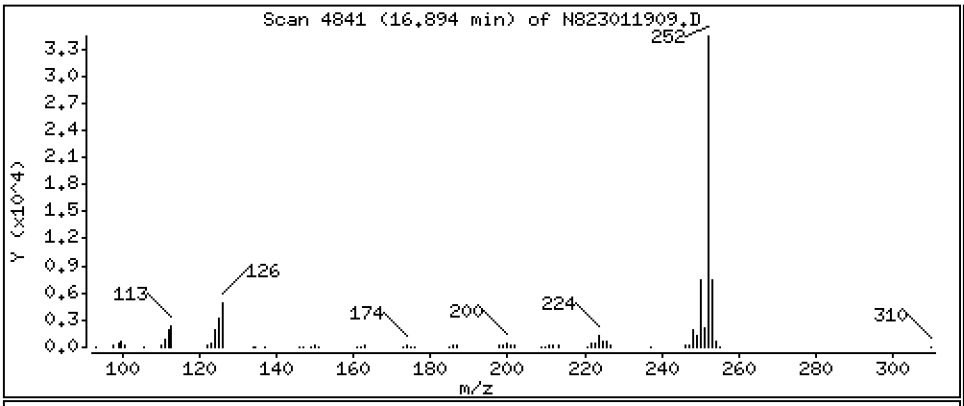
Operator: JZ

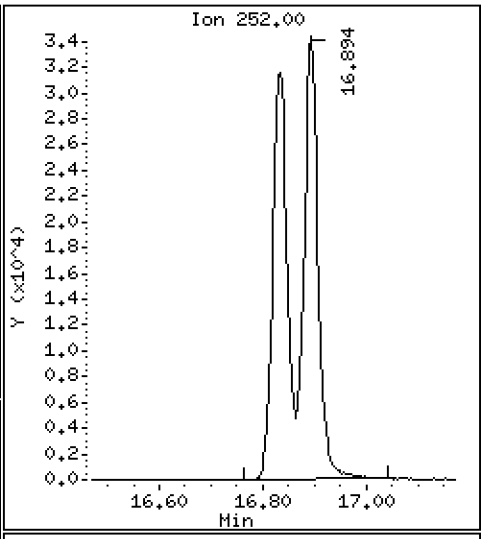
Column phase: Rxi-17sil

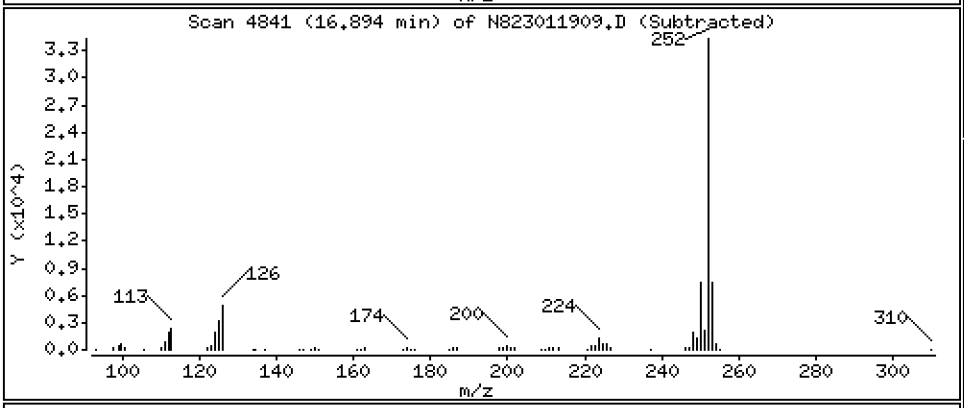
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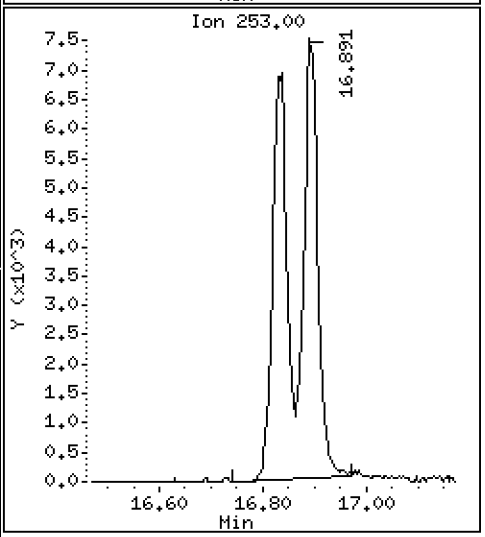
31 Total Benzofluoranthenes

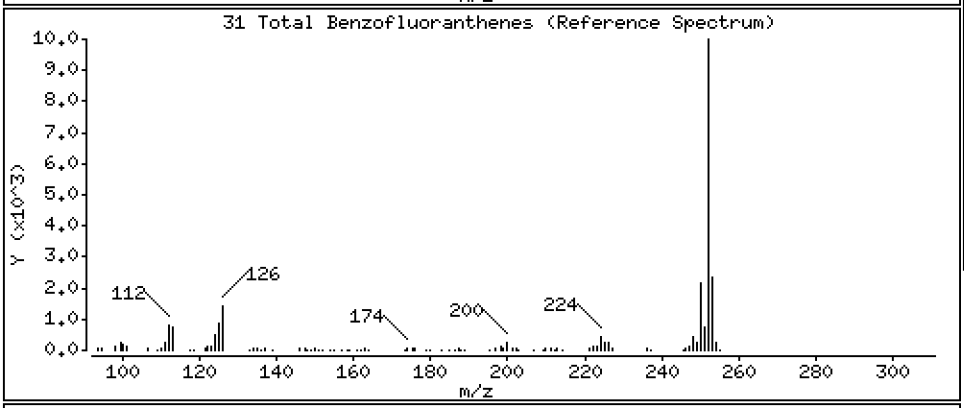
Concentration: 5.480 ug/L

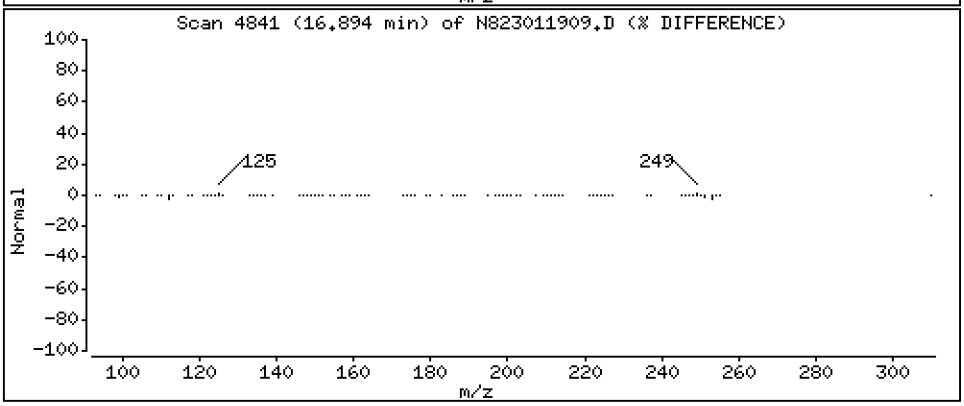












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

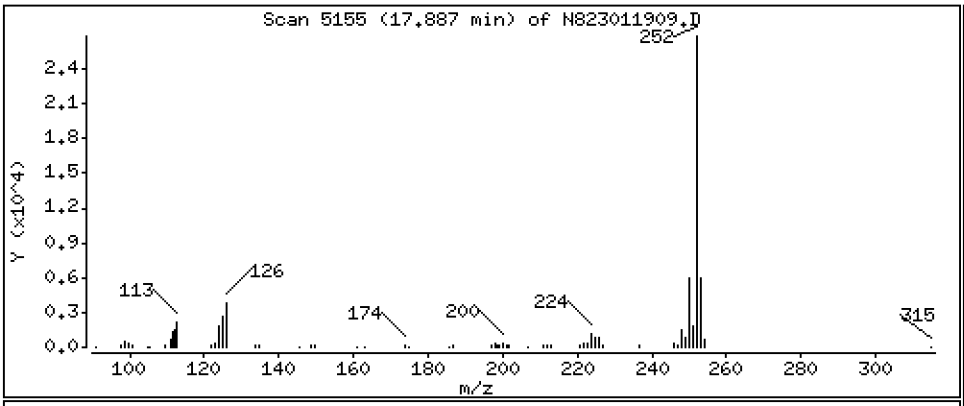
Operator: JZ

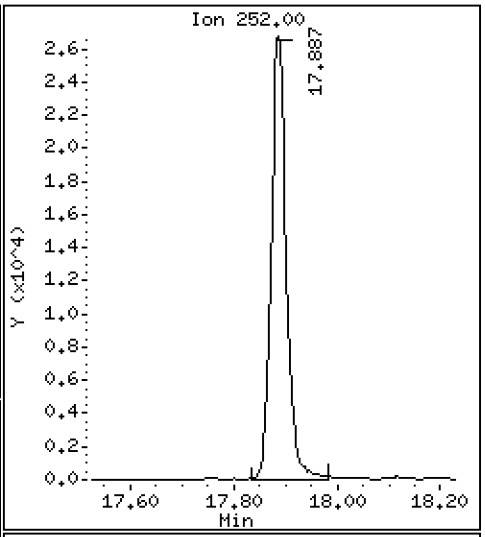
Column phase: Rxi-17sil

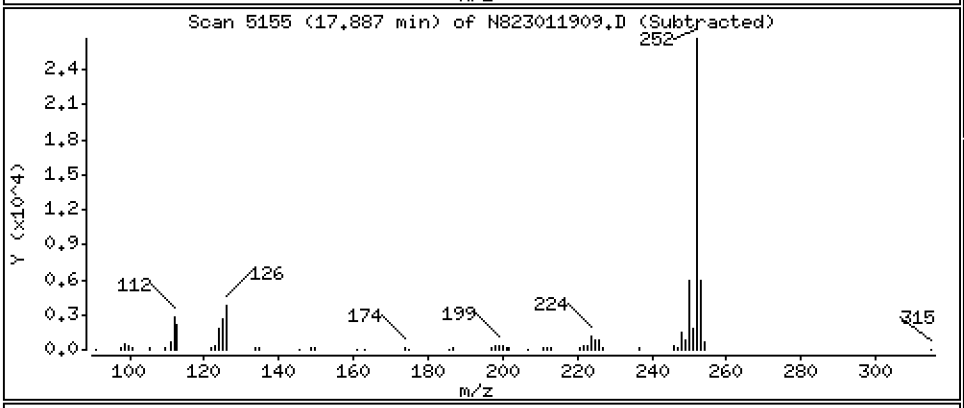
Column diameter: 0.25

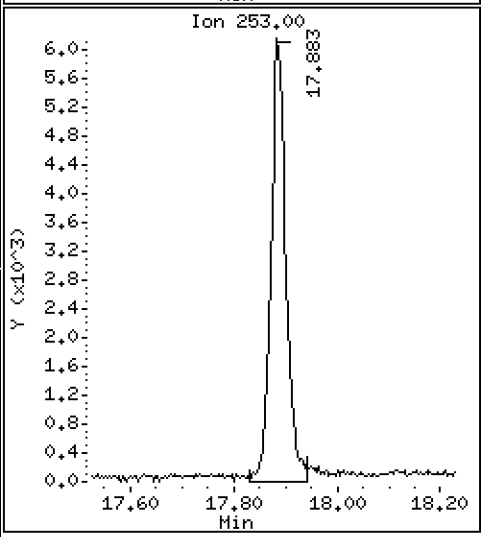
32 Benzo(a)pyrene

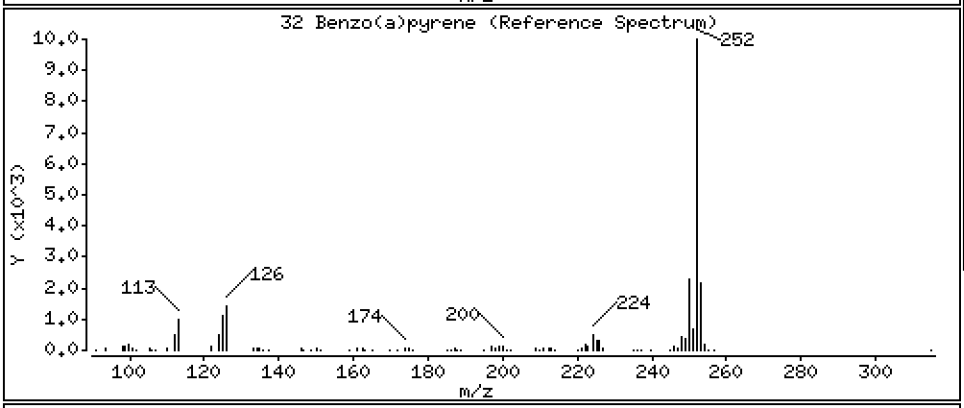
Concentration: 2.572 ug/L

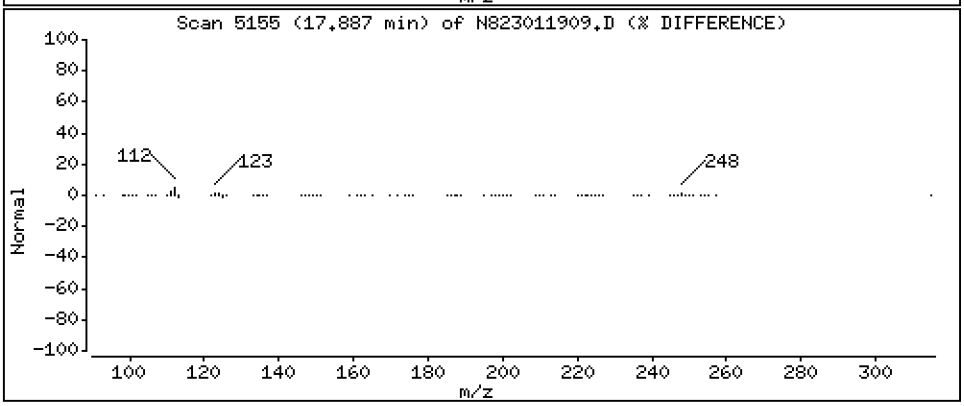












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

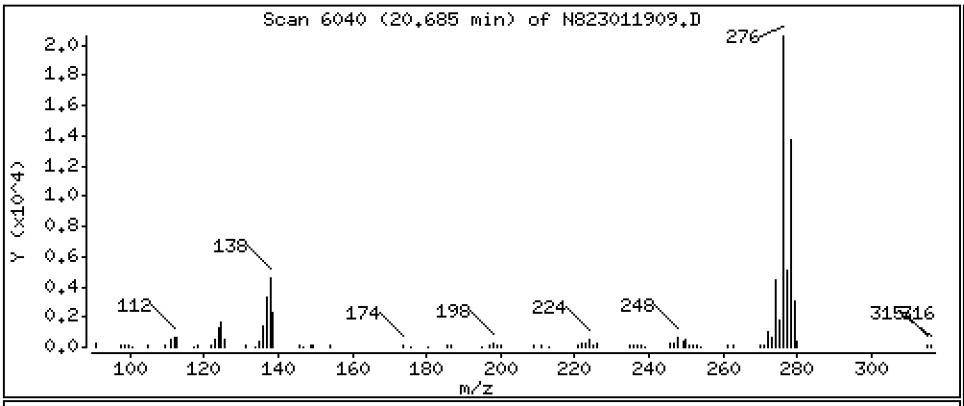
Operator: JZ

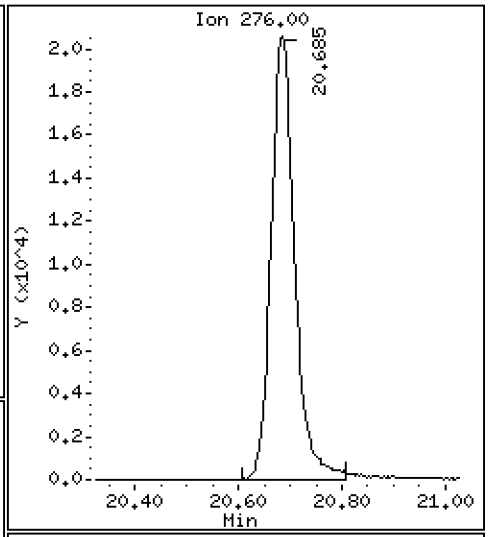
Column phase: Rxi-17sil

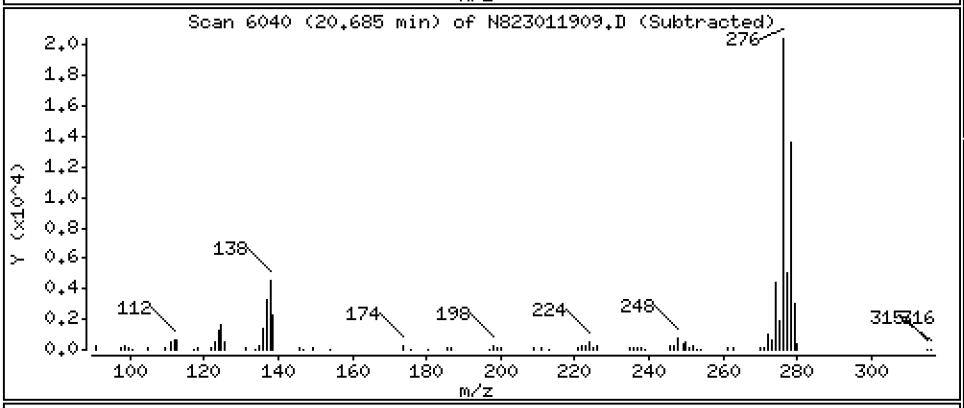
Column diameter: 0.25

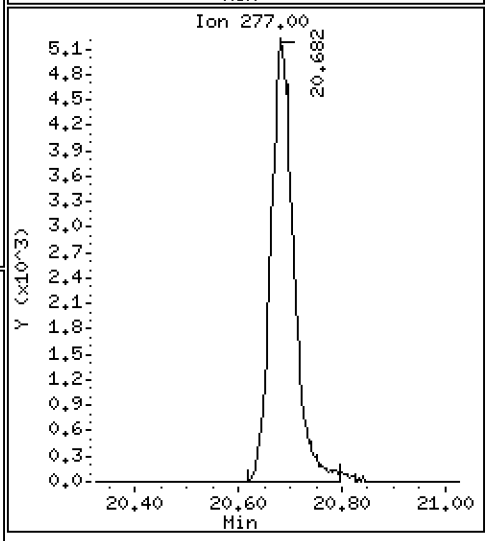
37 Indeno(1,2,3-cd)pyrene

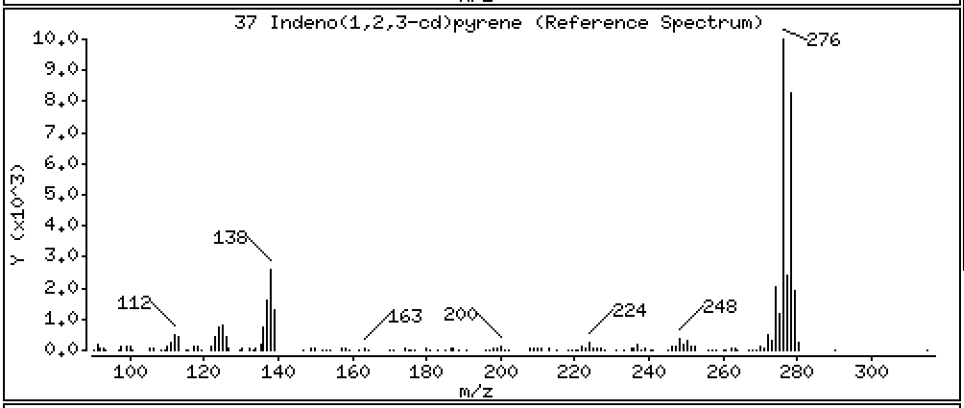
Concentration: 2.689 ug/L

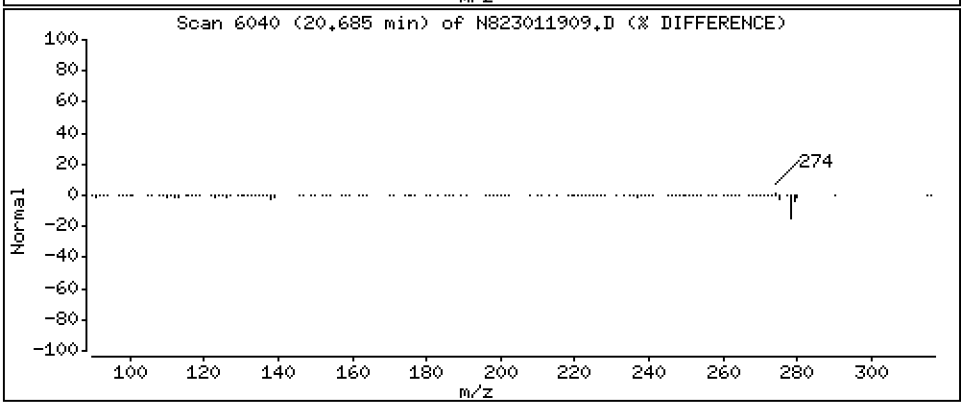












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

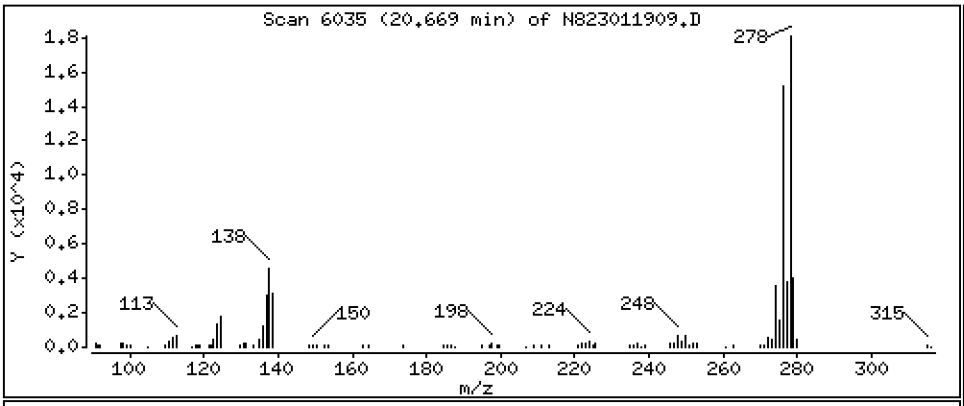
Operator: JZ

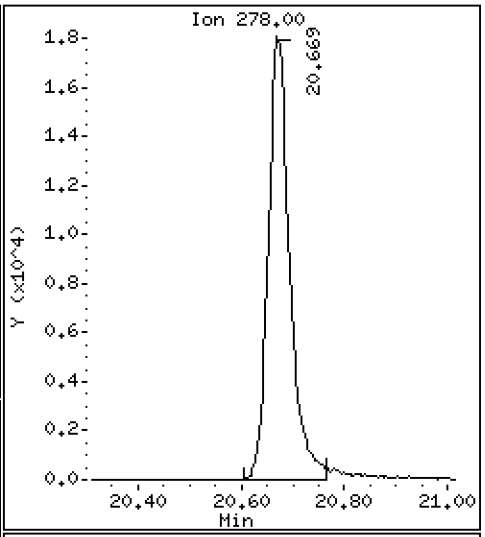
Column phase: Rxi-17sil

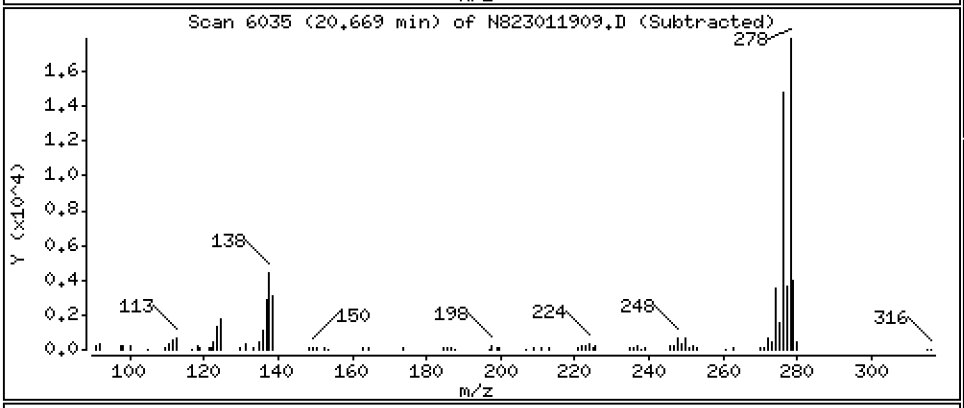
Column diameter: 0.25

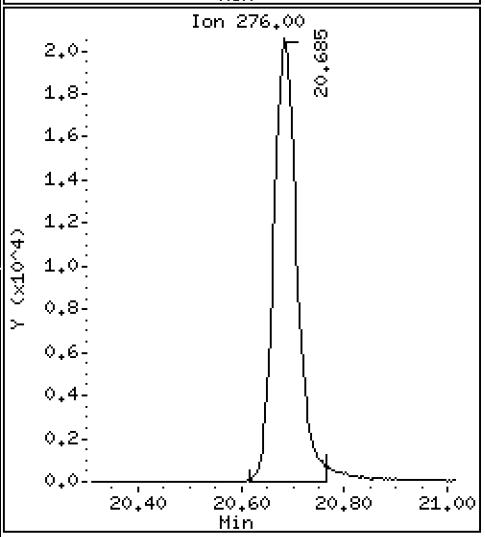
38 Dibenzo(a,h)anthracene

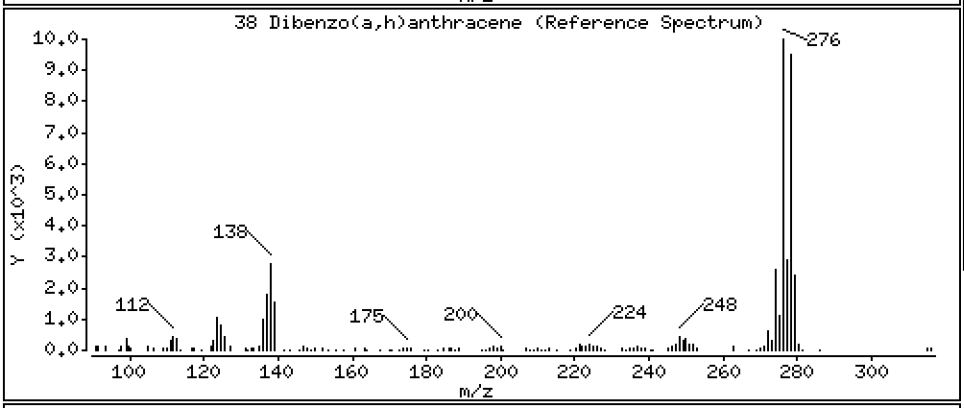
Concentration: 2.493 ug/L

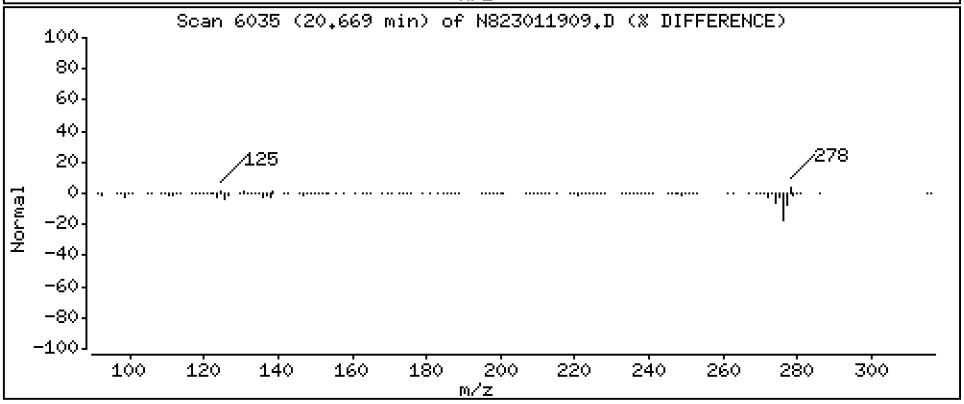












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

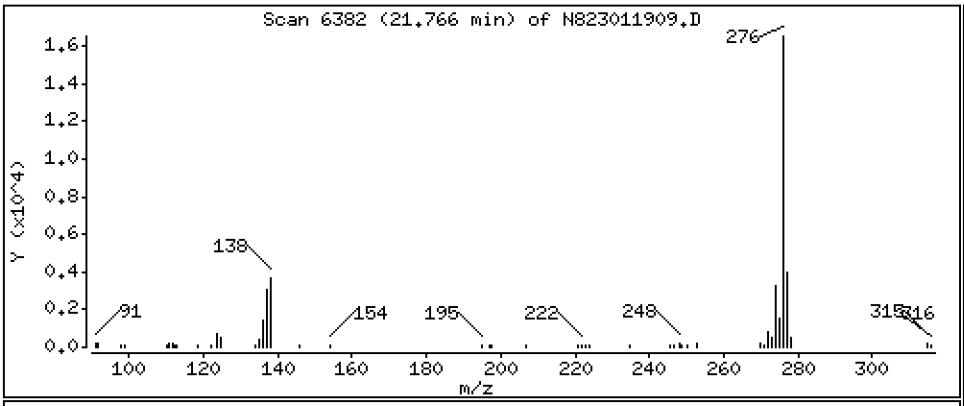
Operator: JZ

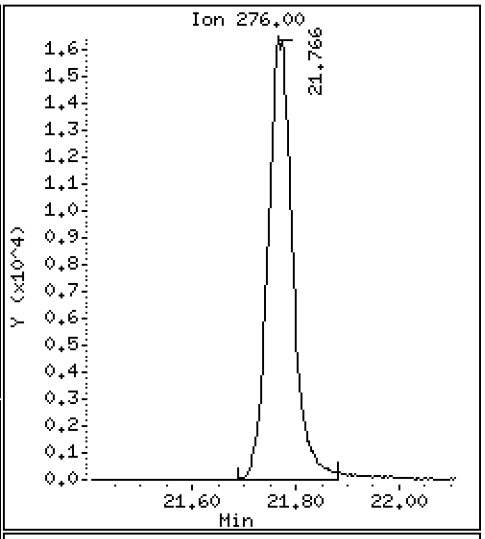
Column phase: Rxi-17sil

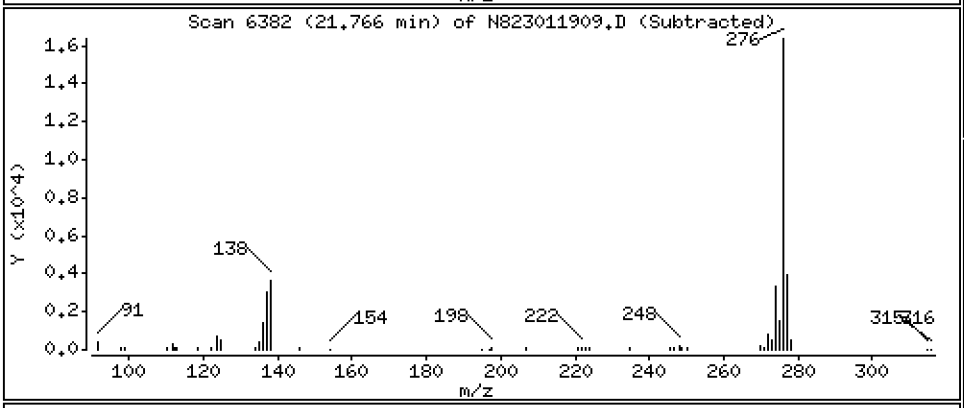
Column diameter: 0.25

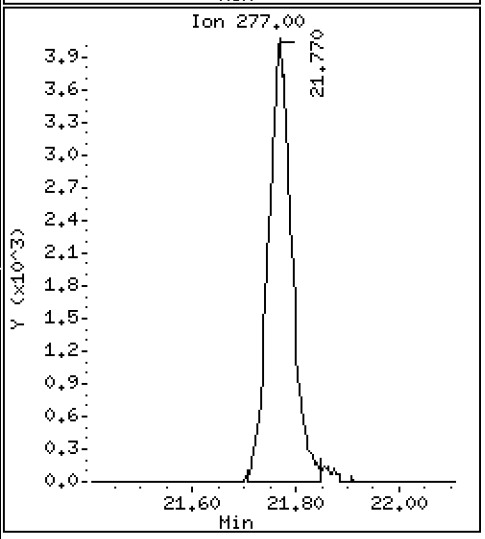
39 Benzo(g,h,i)perylene

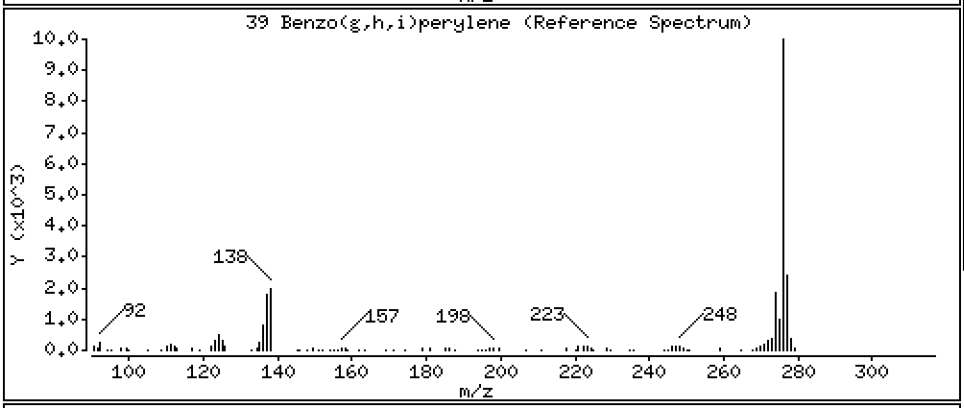
Concentration: 2.483 ug/L

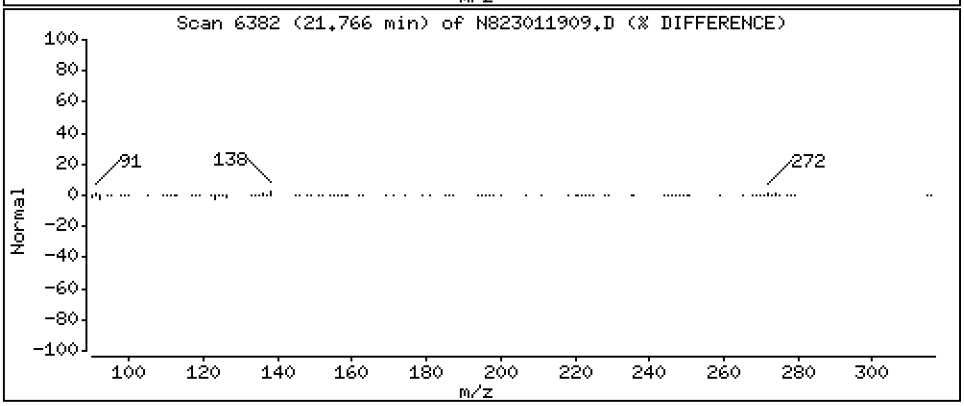












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 25-Jan-2023 21:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

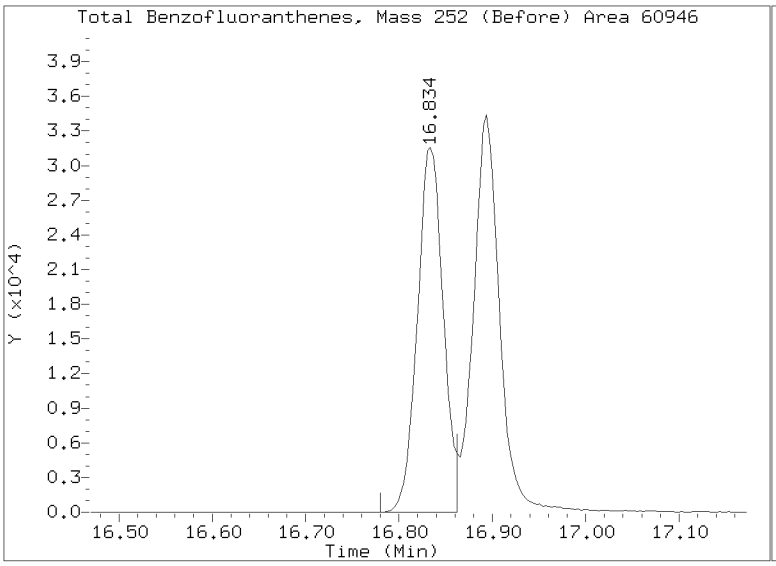
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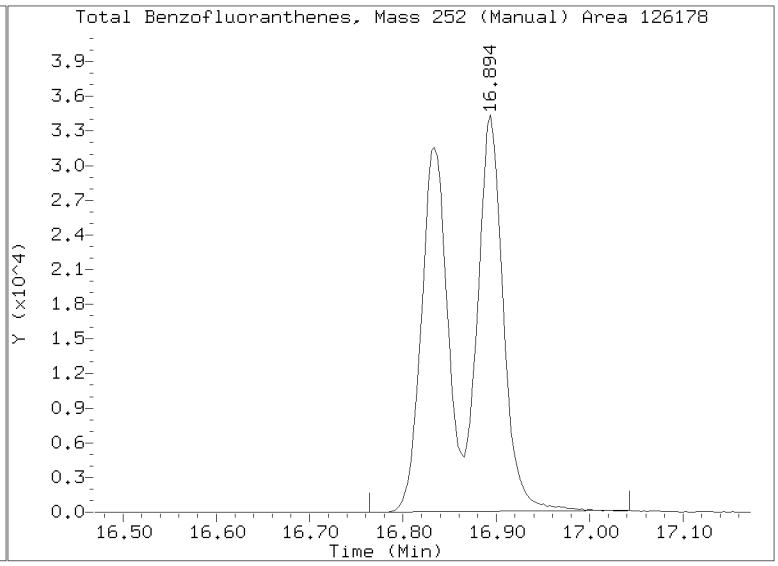
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/25/2023 22:00





SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8270E-SIM

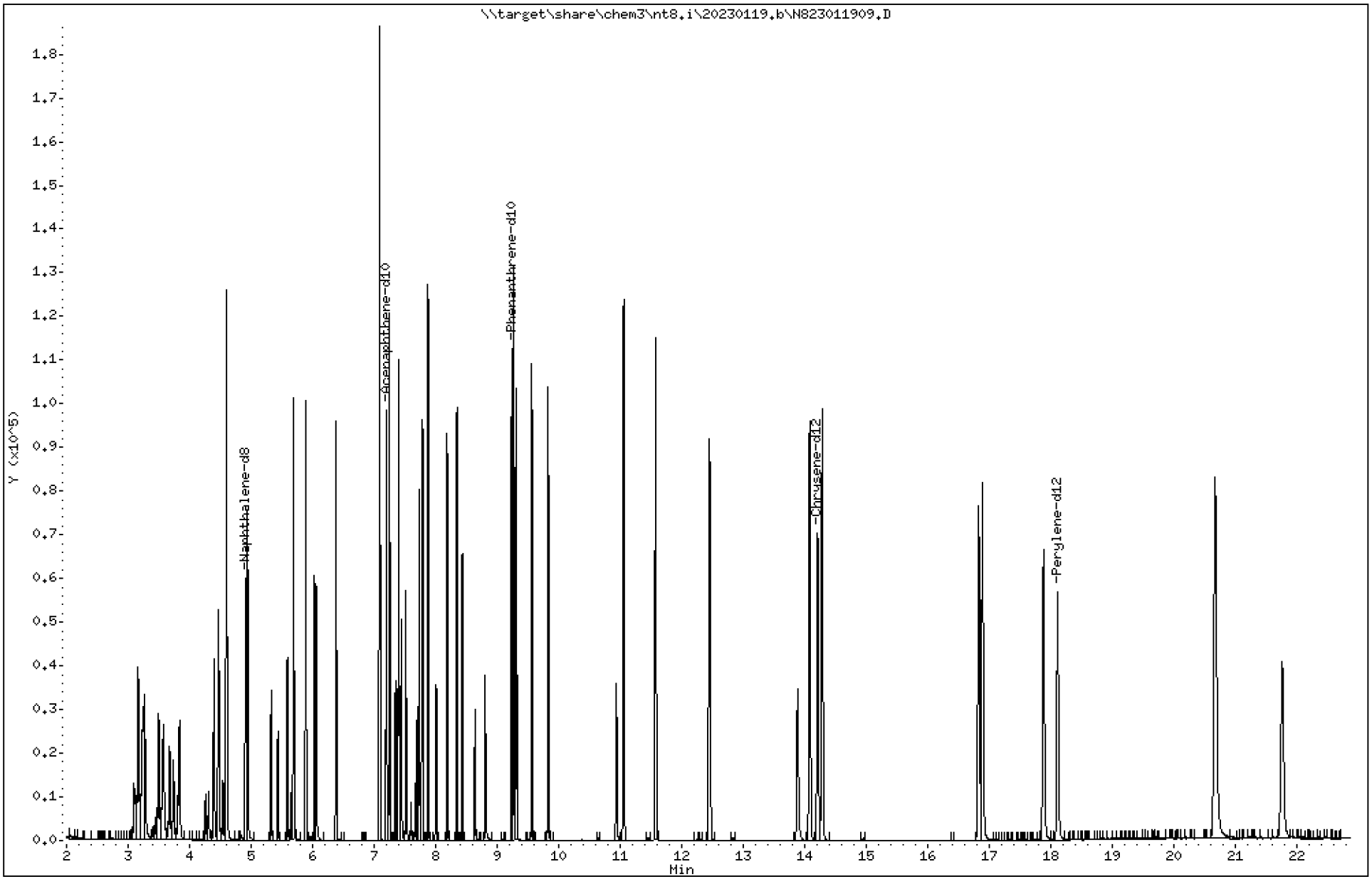
Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GA00050
Laboratory ID: SLA0213-SCV1
Sequence: SLA0213
Standard ID: L000686

ANALYTE	EXPECTED (ug/mL)	FOUND (ug/mL)	% DRIFT	QC LIMIT
Naphthalene	2.5000	2.63	5.0	
2-Methylnaphthalene	2.5000	2.67	6.8	
1-Methylnaphthalene	2.5000	2.65	6.0	
Acenaphthylene	2.5000	2.82	12.8	
Acenaphthene	2.5000	2.60	4.0	
Dibenzofuran	2.5000	2.86	14.4	
Fluorene	2.5000	2.63	5.2	
Phenanthrene	2.5000	2.45	-2.1	
Anthracene	2.5000	2.27	-9.2	
Fluoranthene	2.5000	2.65	6.1	
Pyrene	2.5000	2.46	-1.5	
Benzo(a)anthracene	2.5000	2.59	3.5	
Chrysene	2.5000	2.40	-4.0	
Benzo(b)fluoranthene	2.5000	2.51	0.3	
Benzo(k)fluoranthene	2.5000	2.66	6.2	
Benzofluoranthenes, Total	5.0000	5.48	9.6	
Benzo(a)pyrene	2.5000	2.57	2.9	
Indeno(1,2,3-cd)pyrene	2.5000	2.69	7.6	
Dibenzo(a,h)anthracene	2.5000	2.49	-0.3	
Benzo(g,h,i)perylene	2.5000	2.48	-0.7	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Date : 19-JAN-2023 14:58
Client ID:
Sample Info: SCV230119
Volume Injected (uL): 1.0
Column phase: Rxi-17sil

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25



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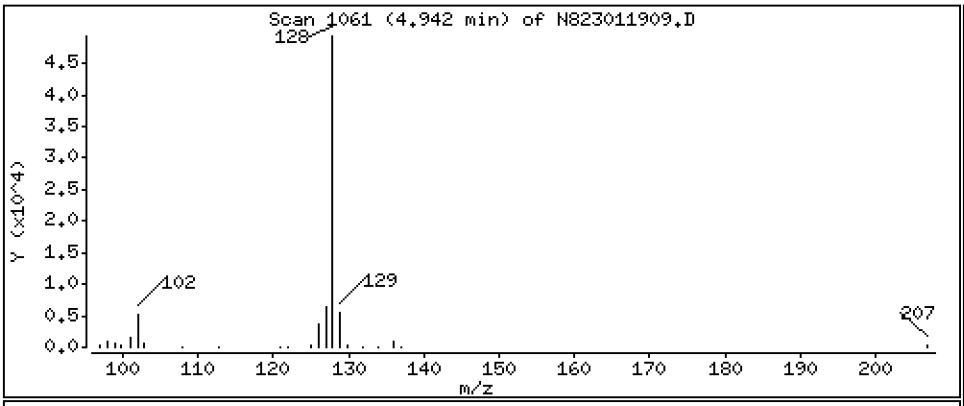
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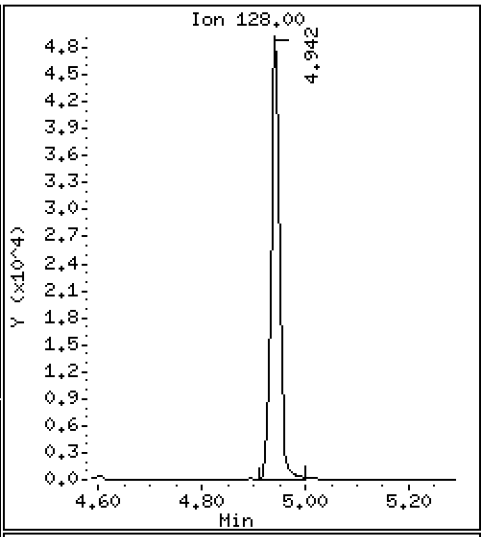
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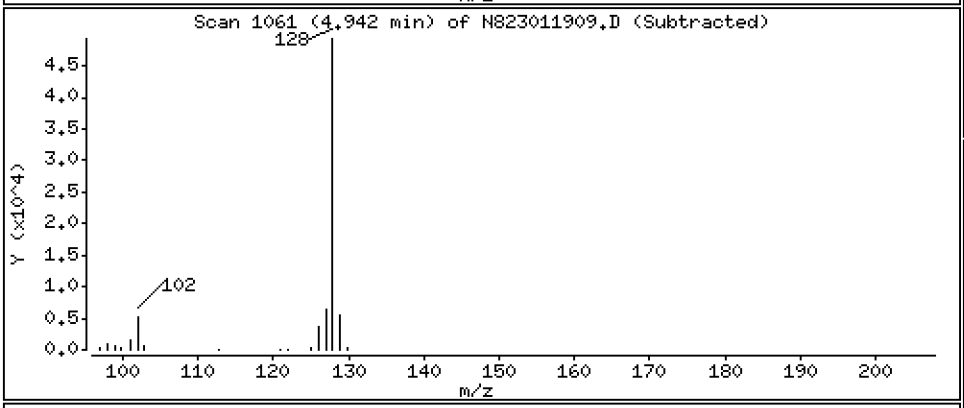
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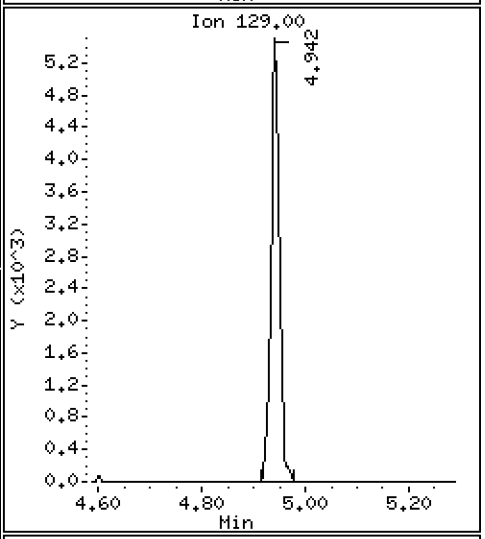
2 Naphthalene

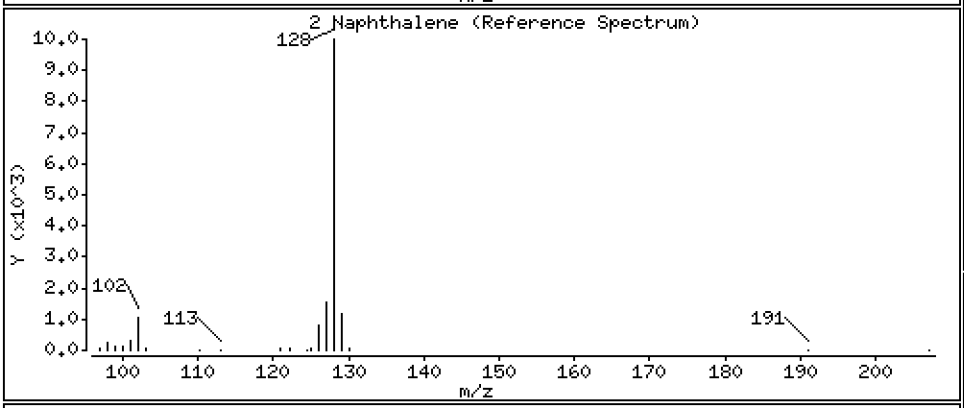
Concentration: 2.626 ug/L

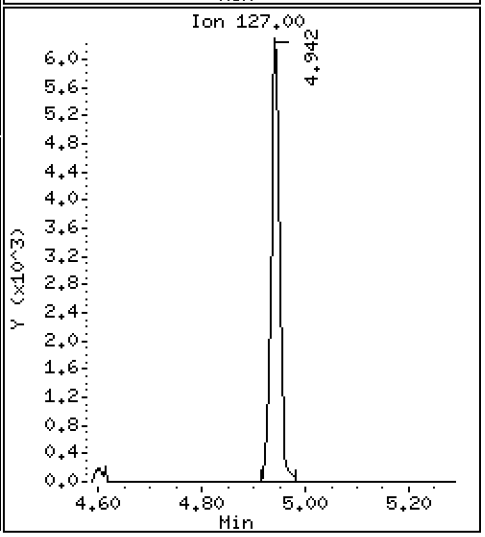


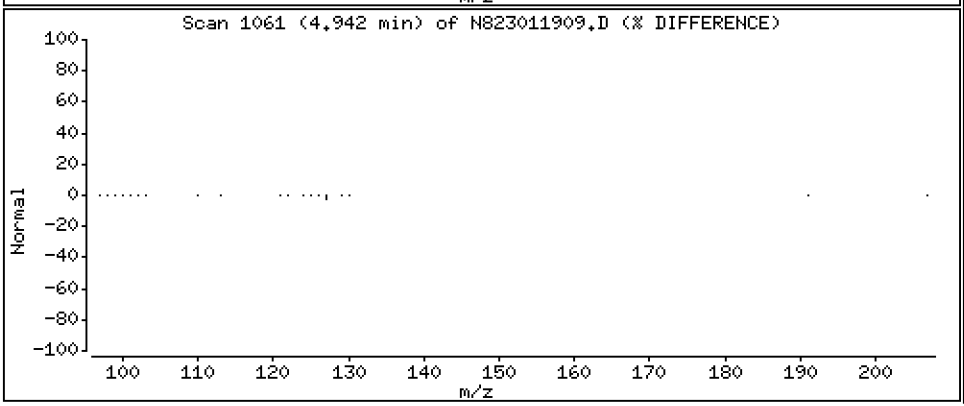












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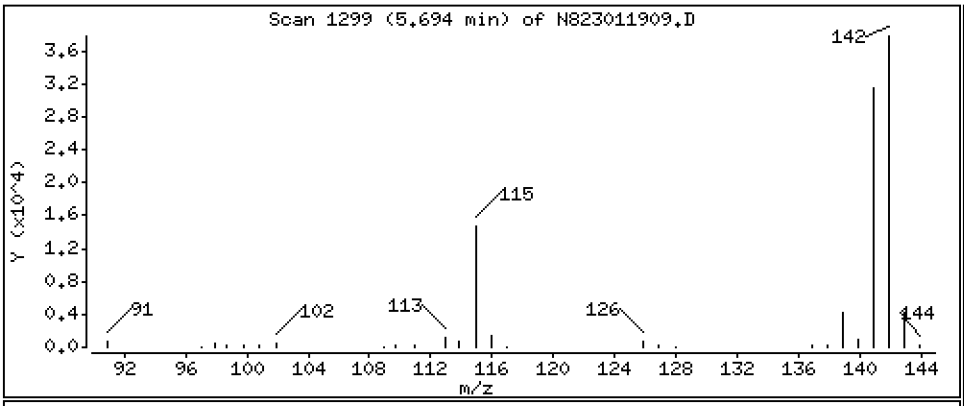
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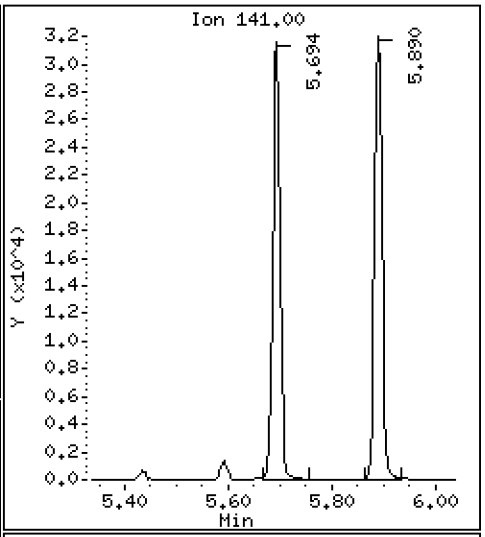
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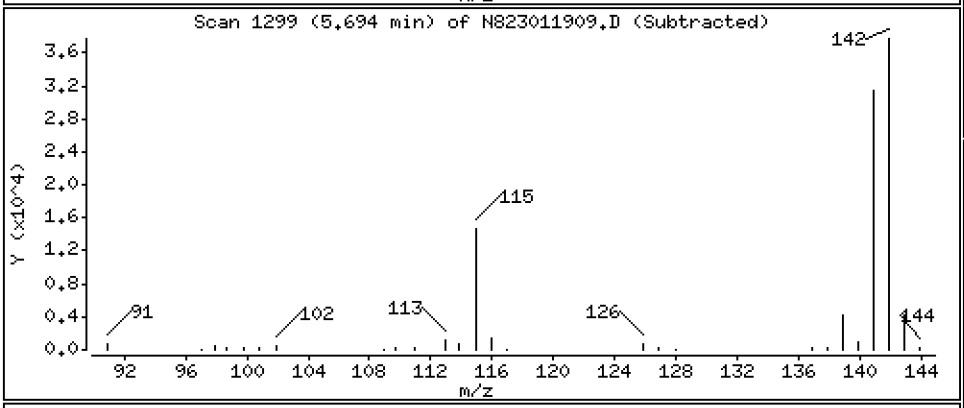
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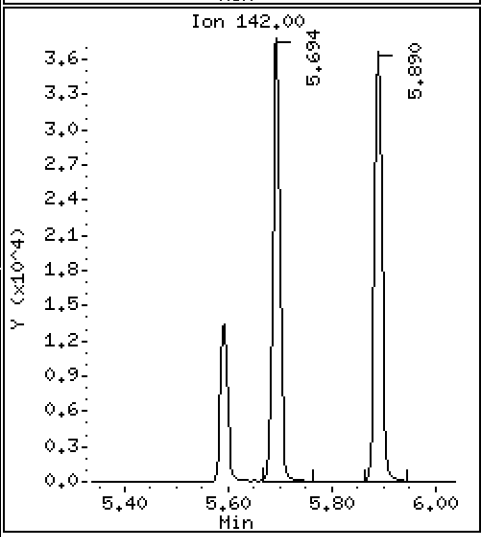
4 2-Methylnaphthalene

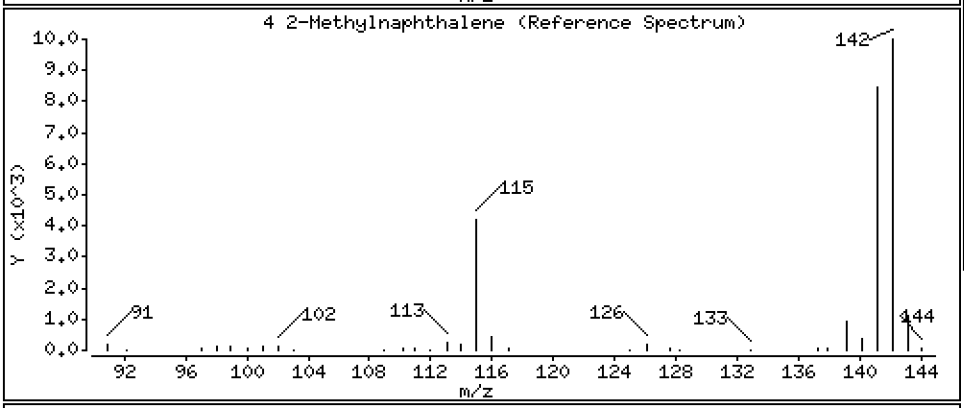
Concentration: 2.670 ug/L

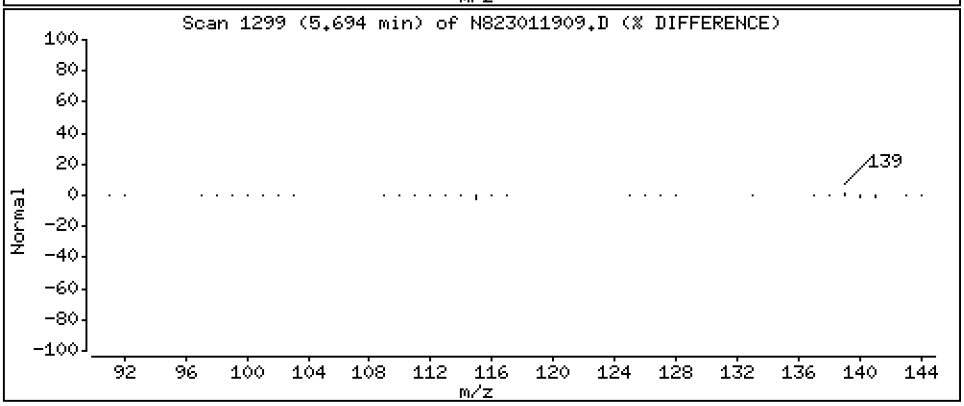












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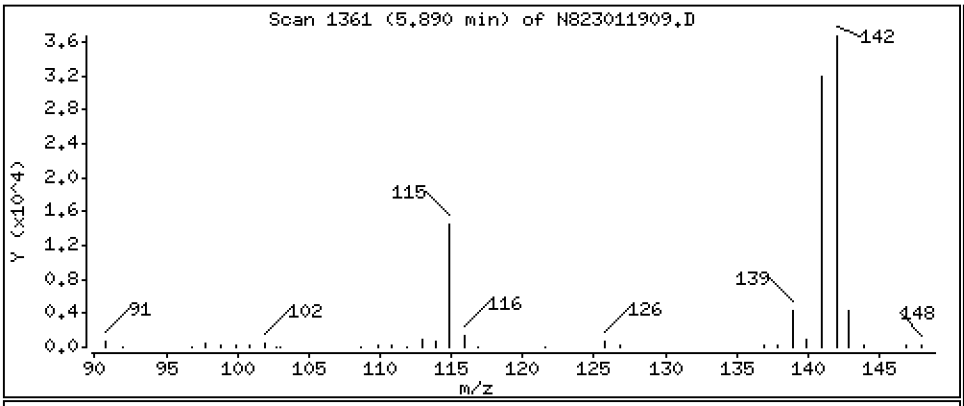
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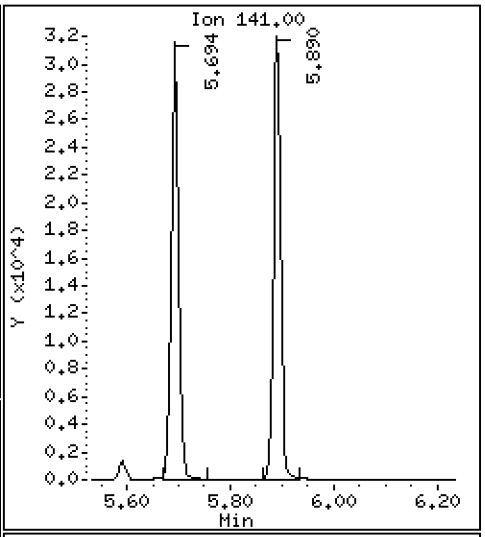
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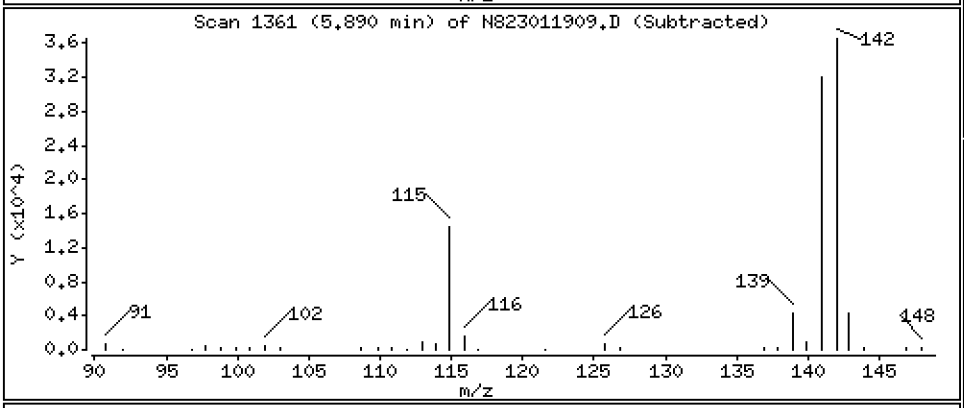
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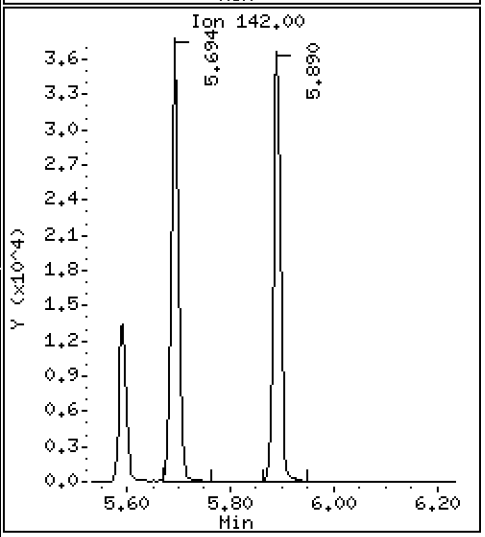
5 1-methylnaphthalene

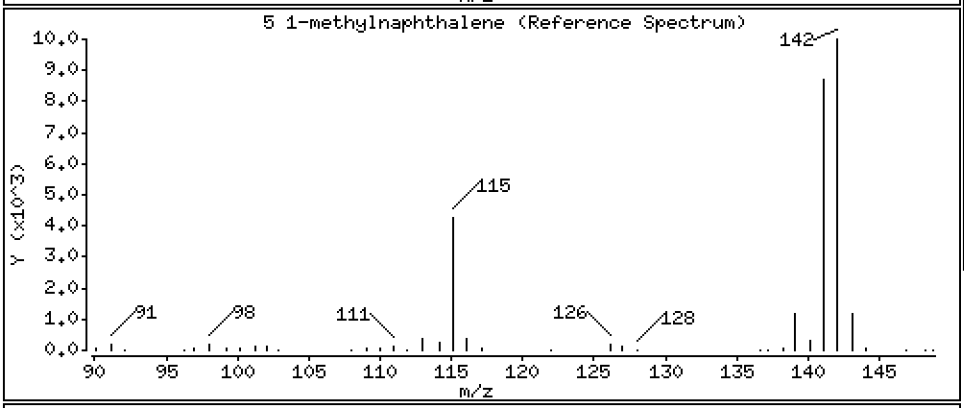
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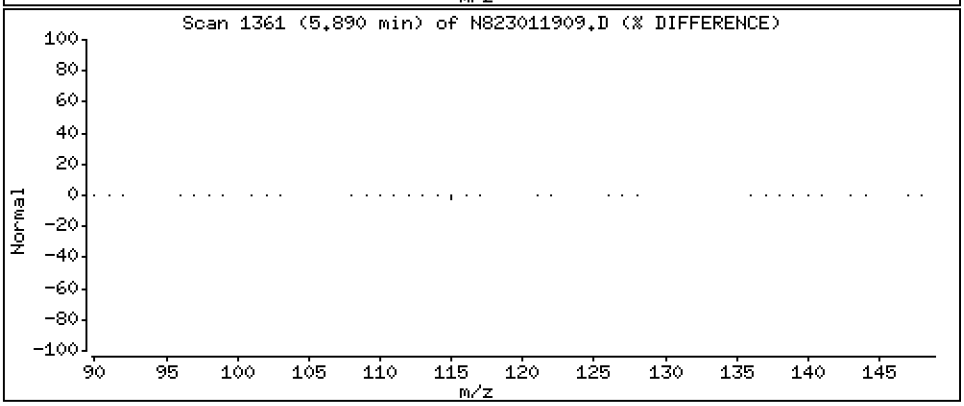












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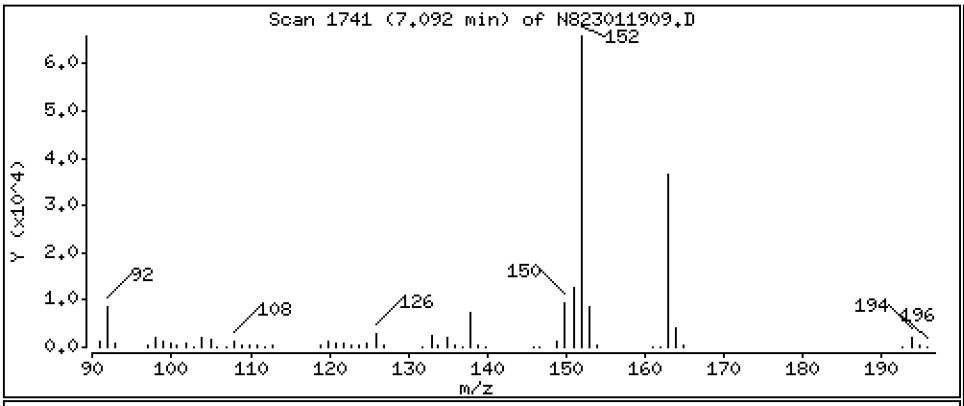
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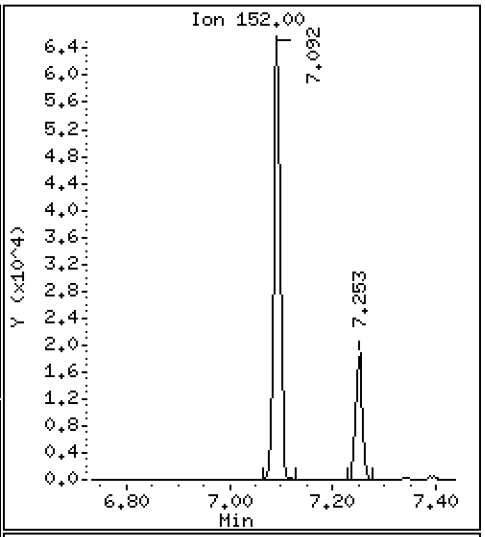
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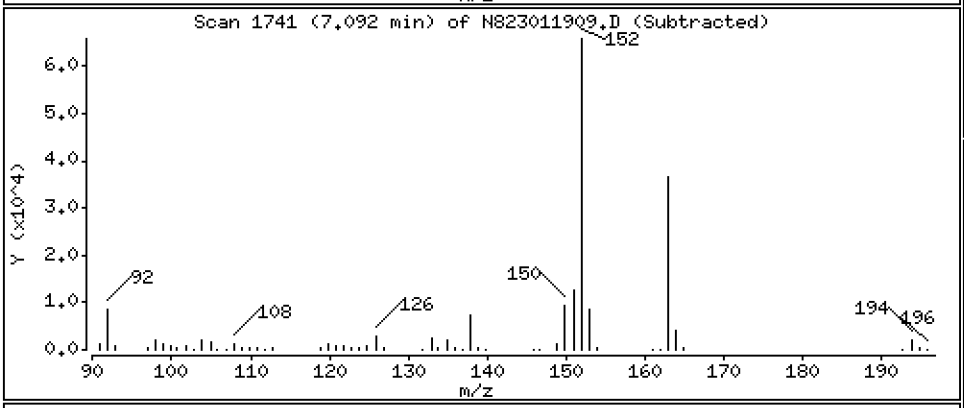
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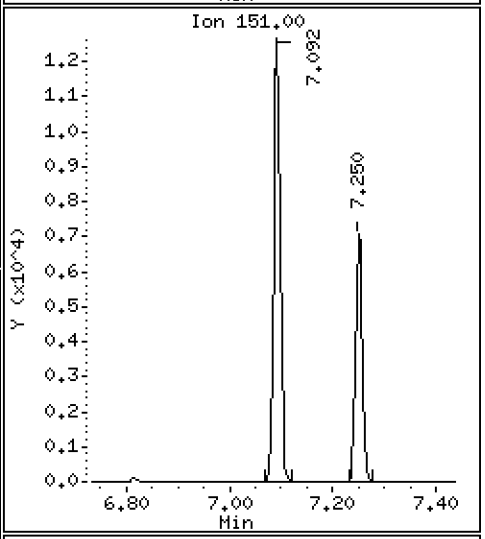
9 Acenaphthylene

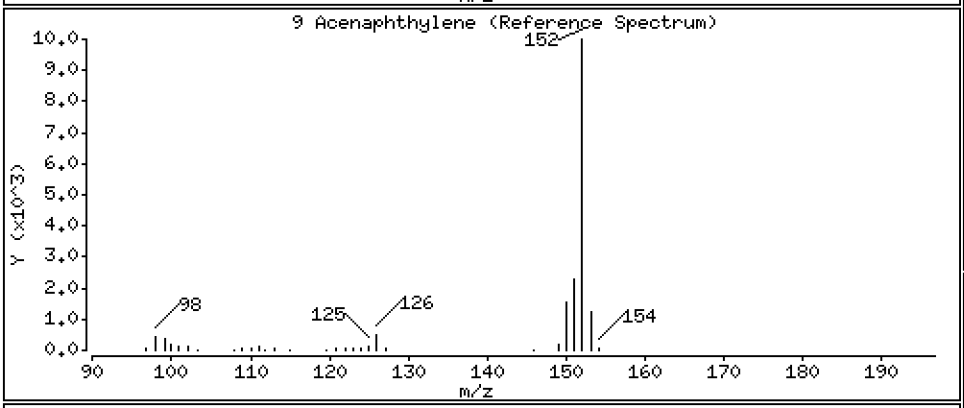
Concentration: 2.821 ug/L

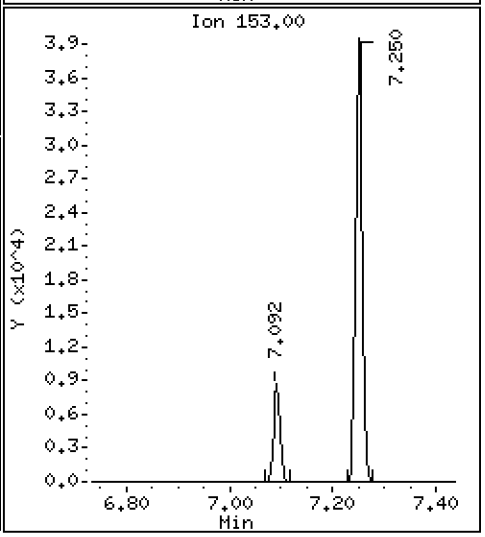


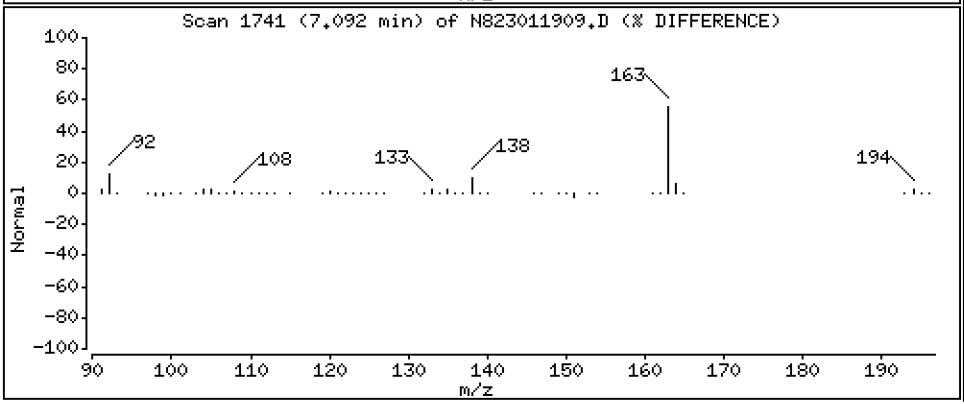












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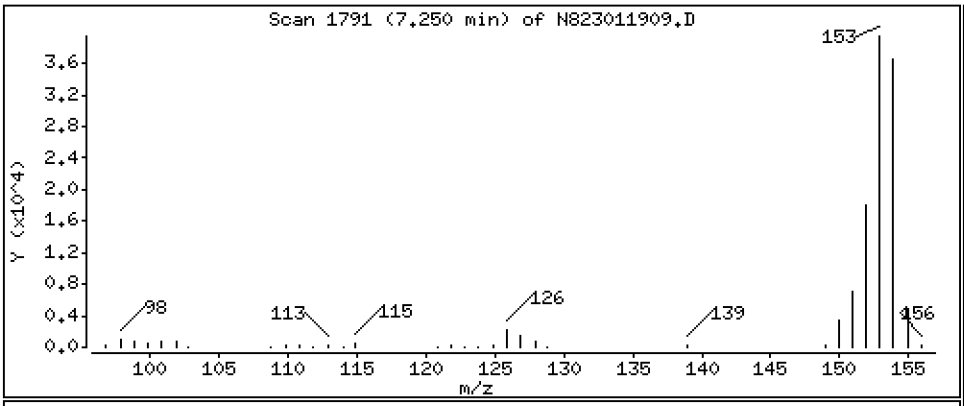
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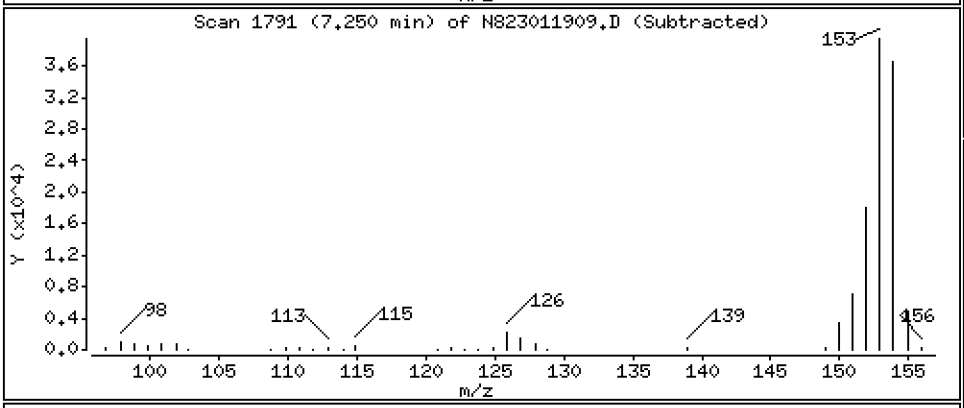
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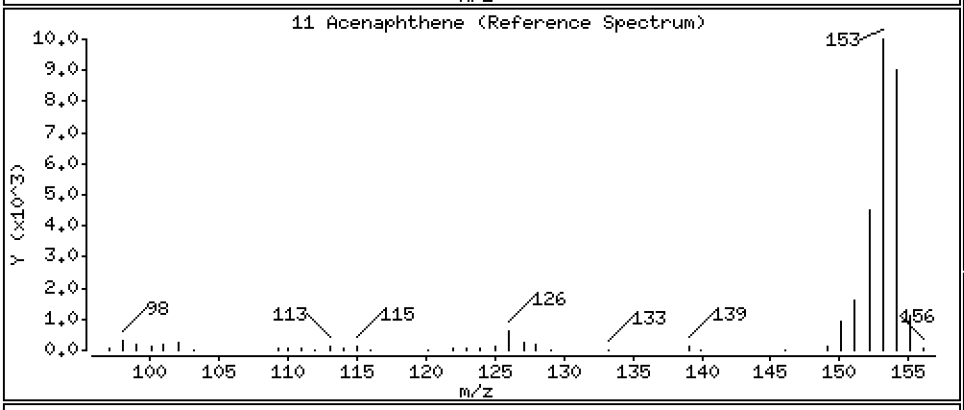
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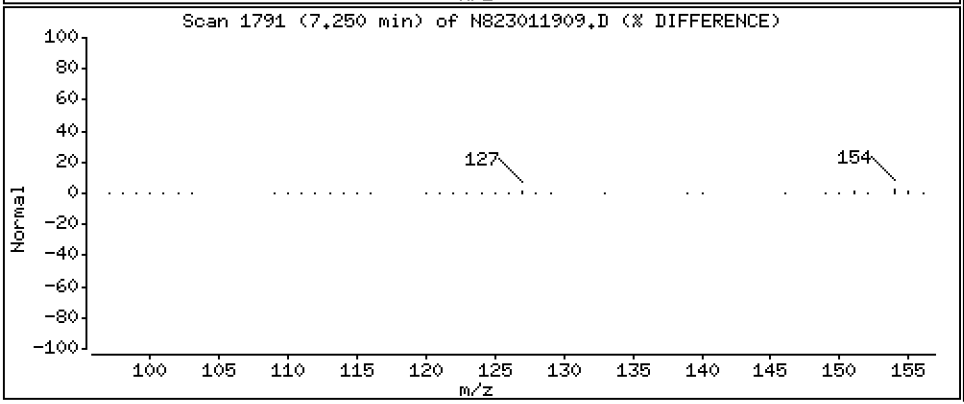
11 Acenaphthene

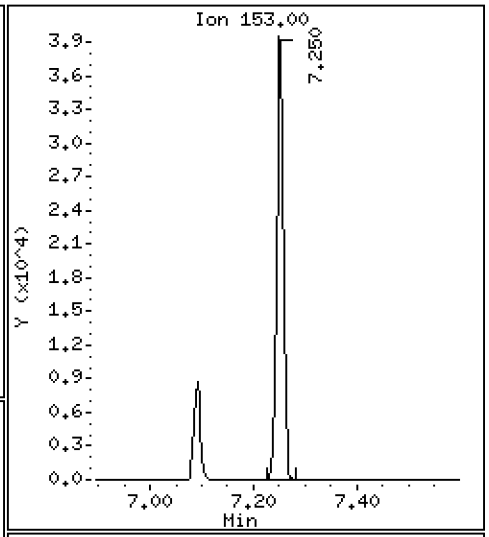
Concentration: 2.600 ug/L

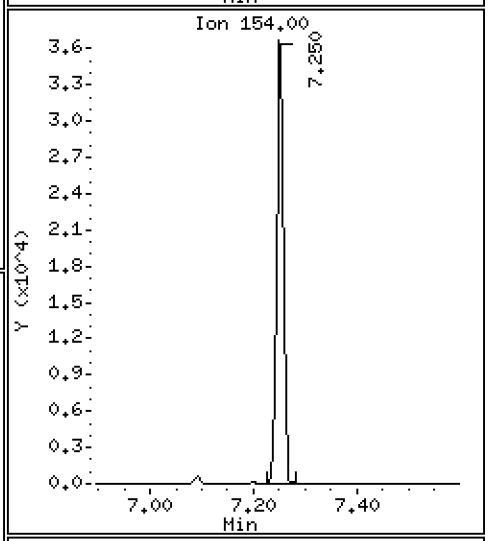


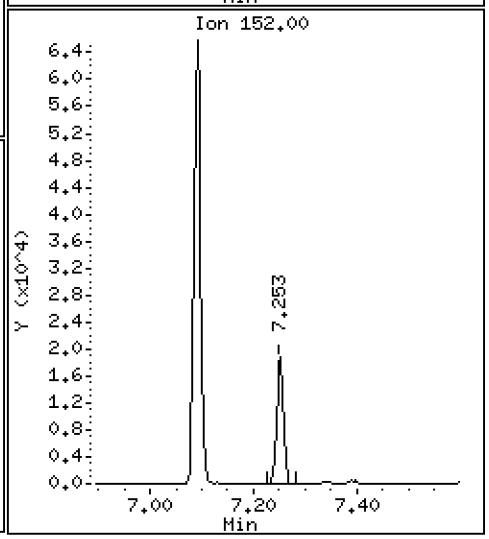












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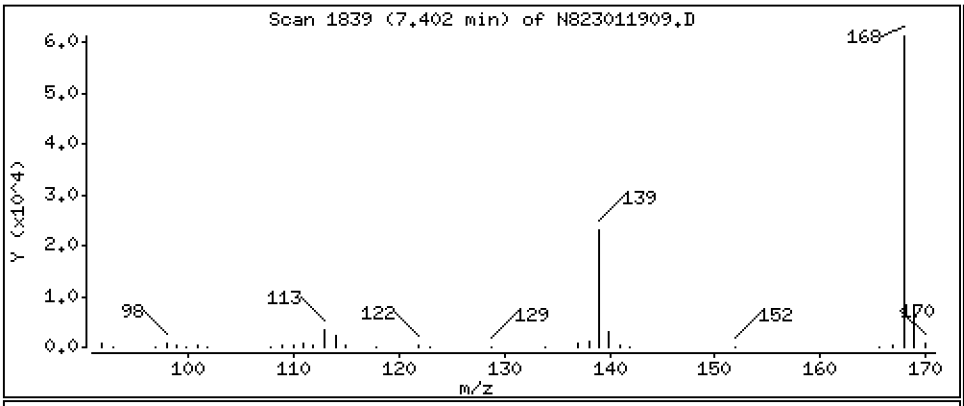
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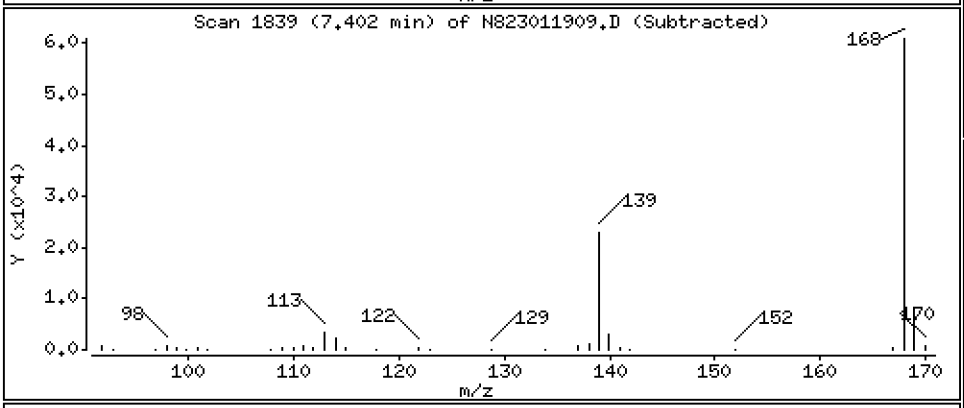
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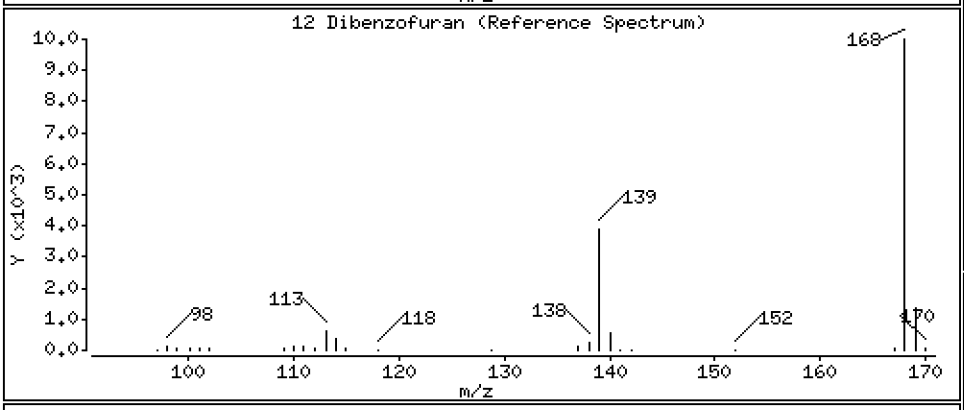
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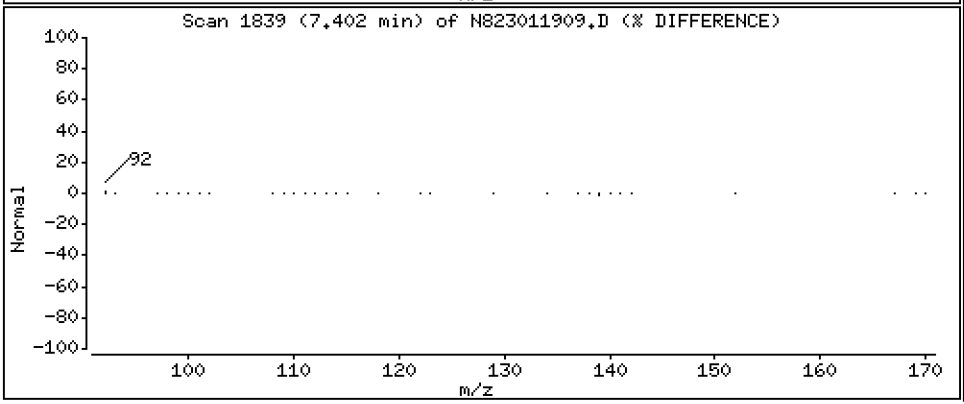
12 Dibenzofuran

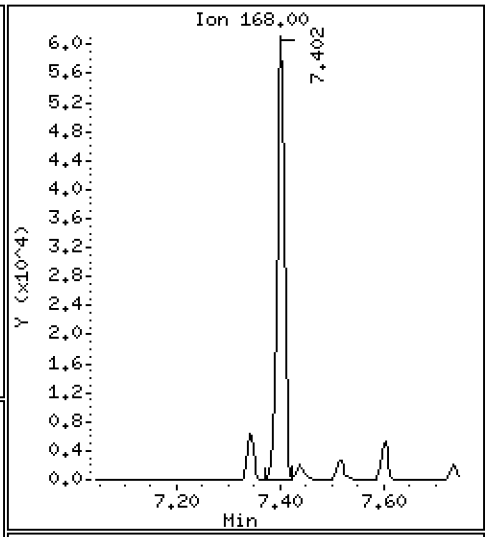
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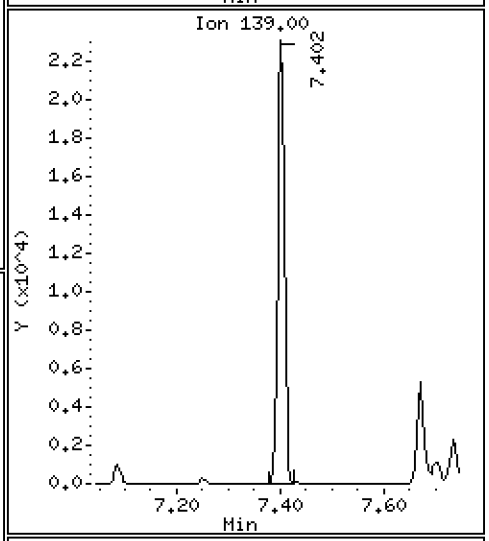


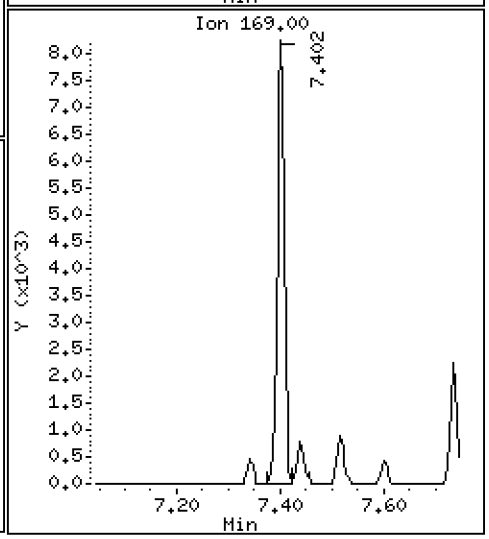












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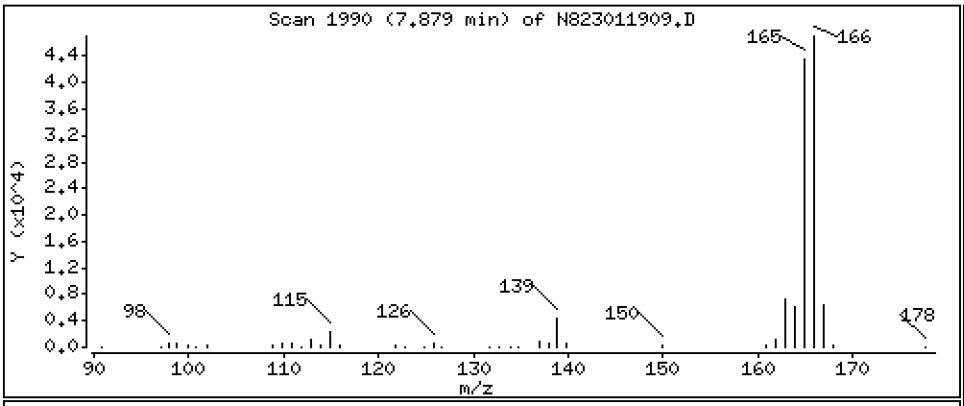
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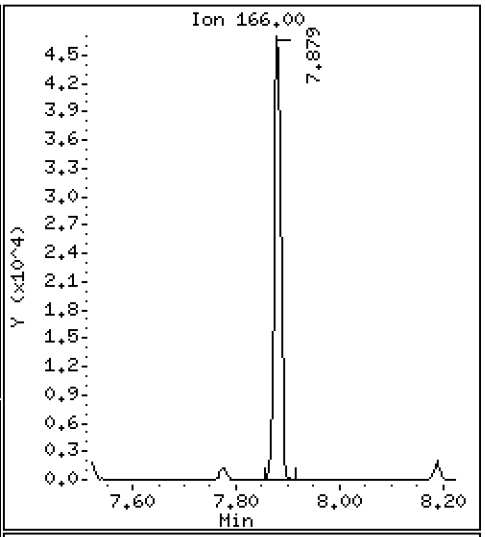
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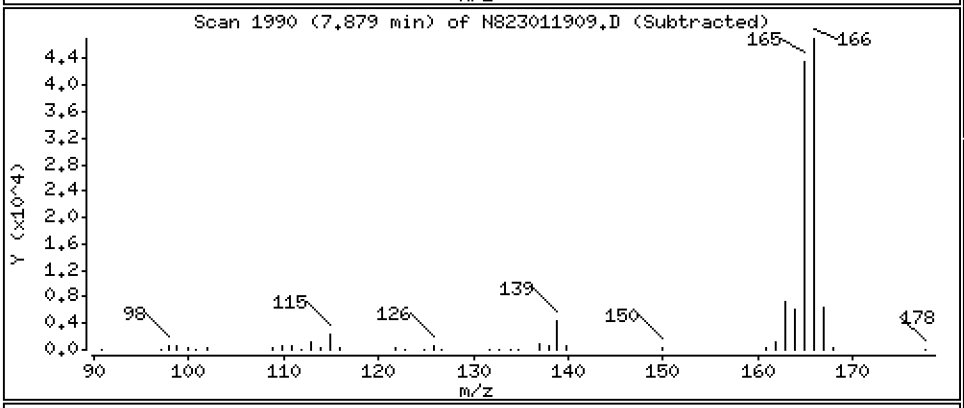
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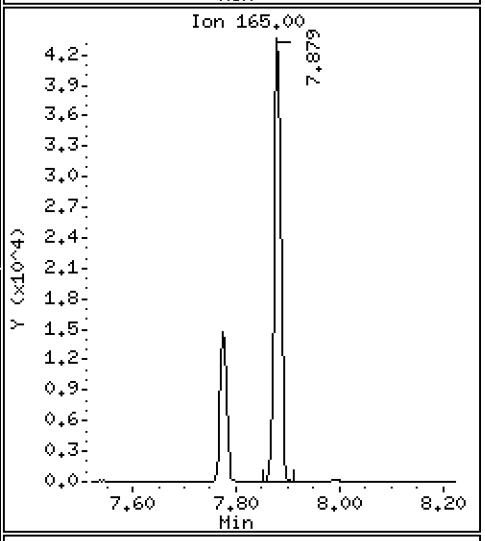
14 Fluorene

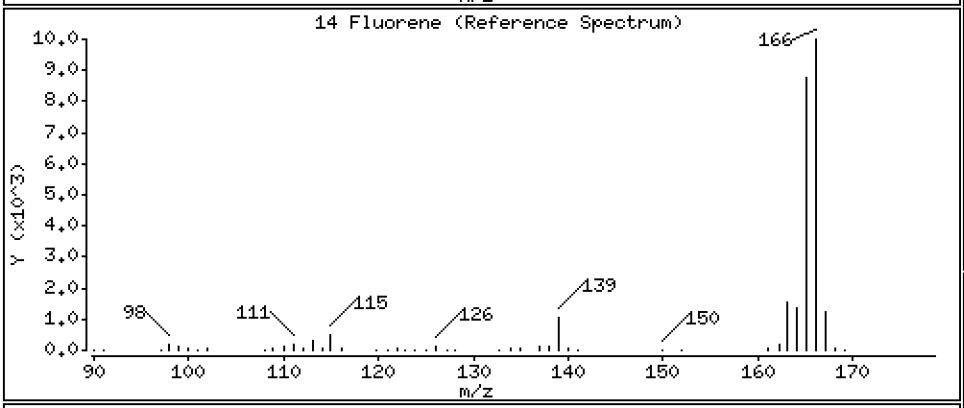
Concentration: 2.631 ug/L

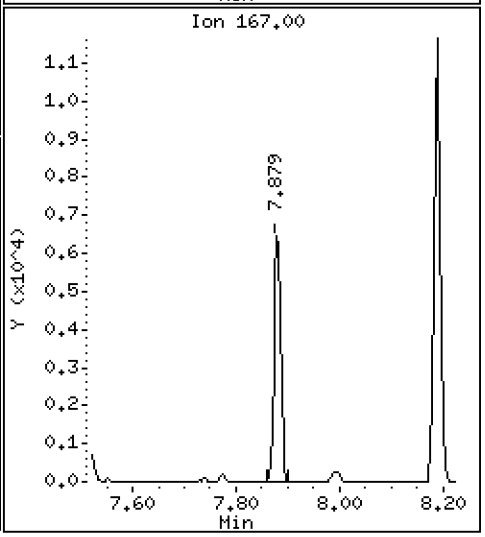


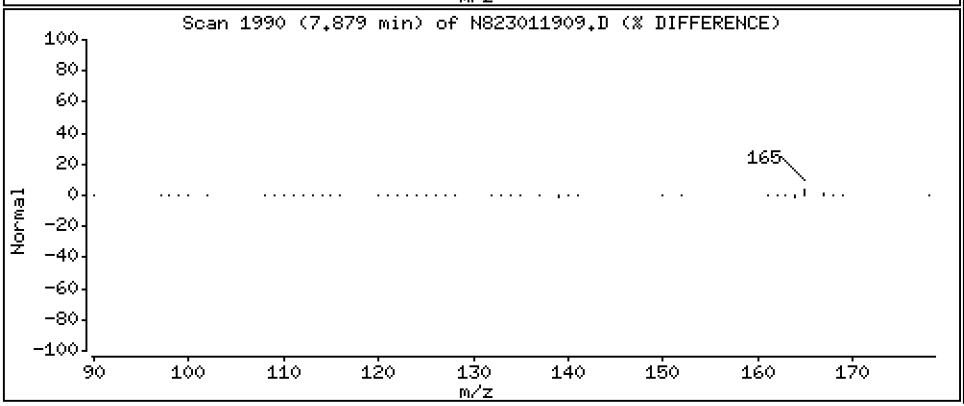












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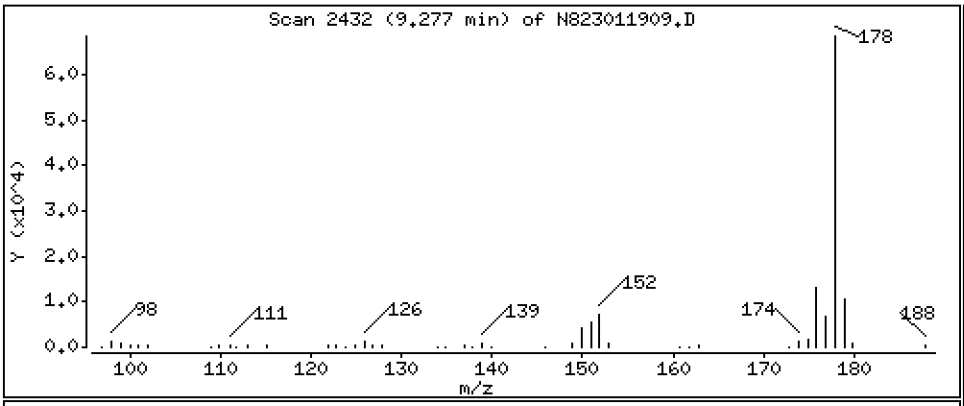
Operator: JZ

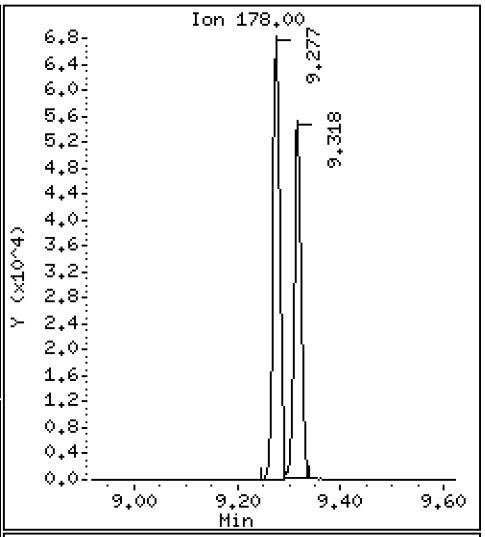
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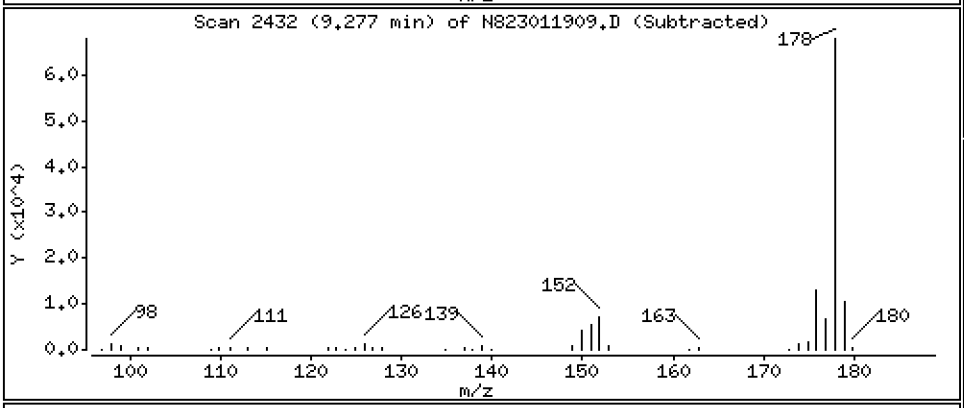
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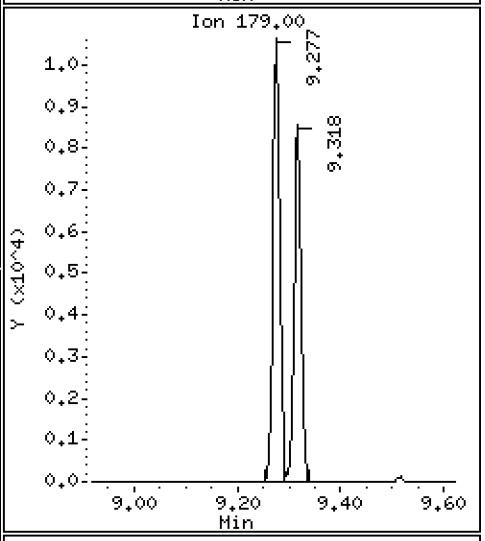
16 Phenanthrene

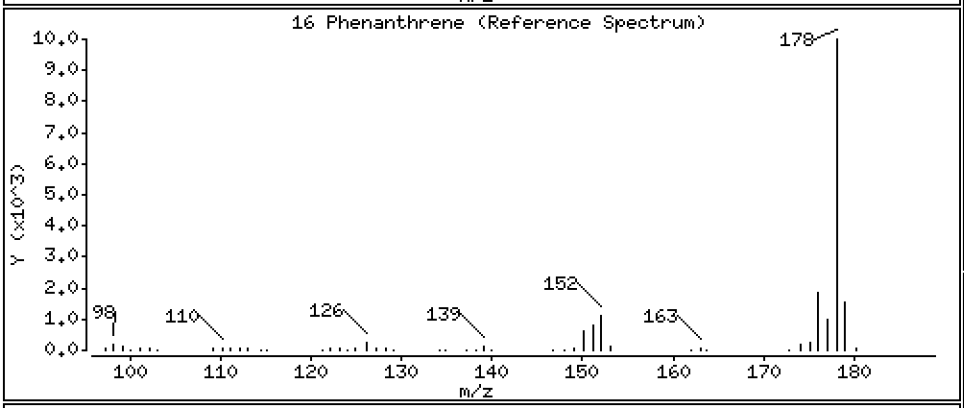
Concentration: 2.448 ug/L

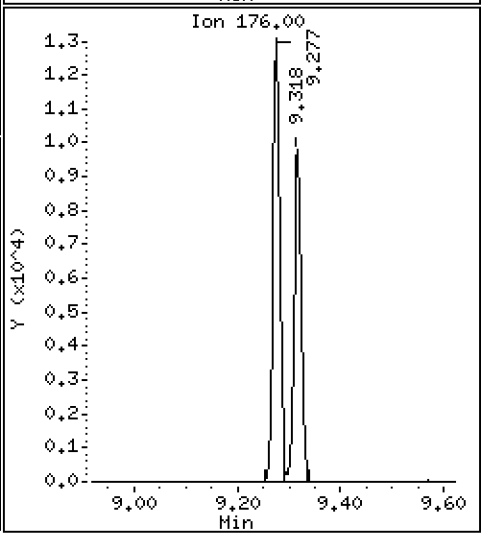


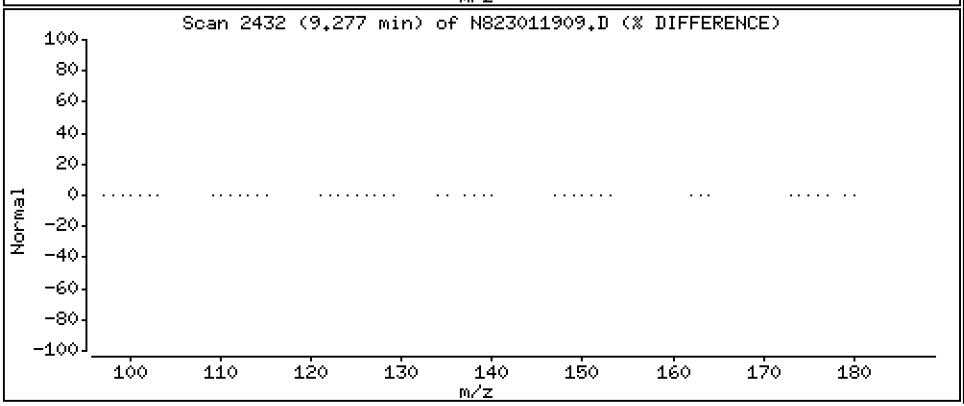












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

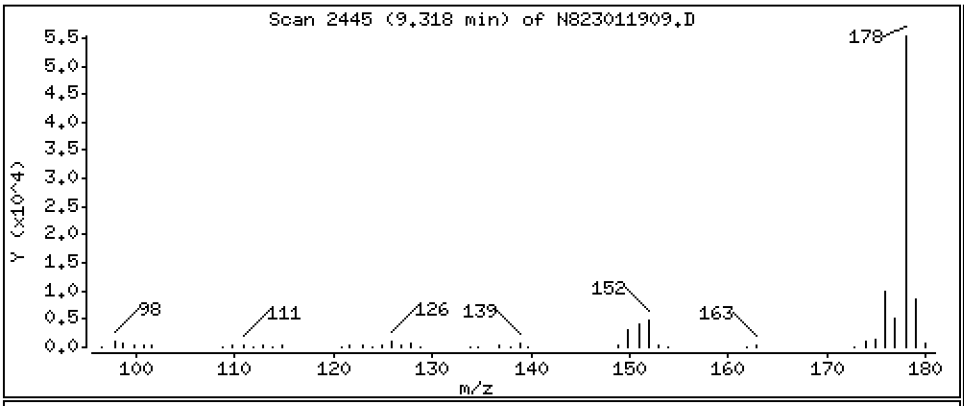
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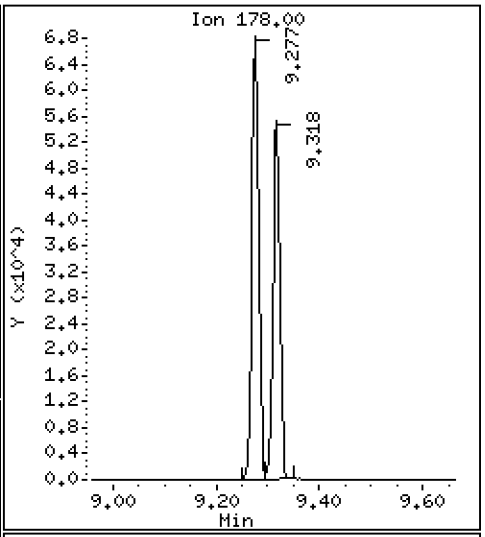
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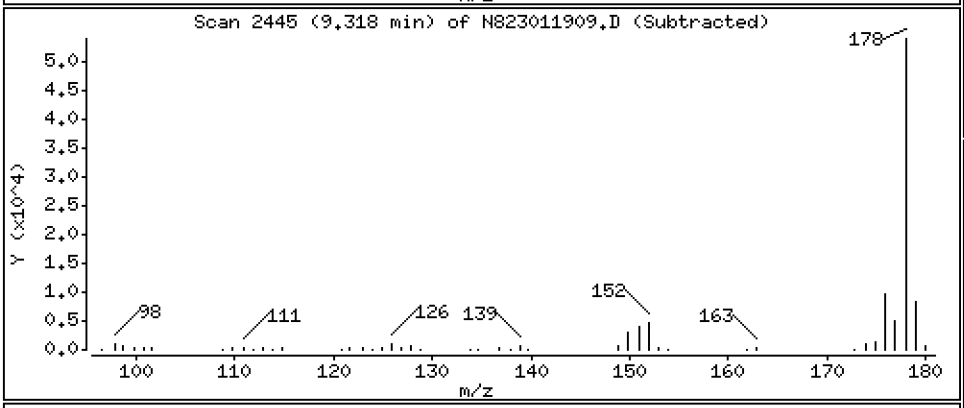
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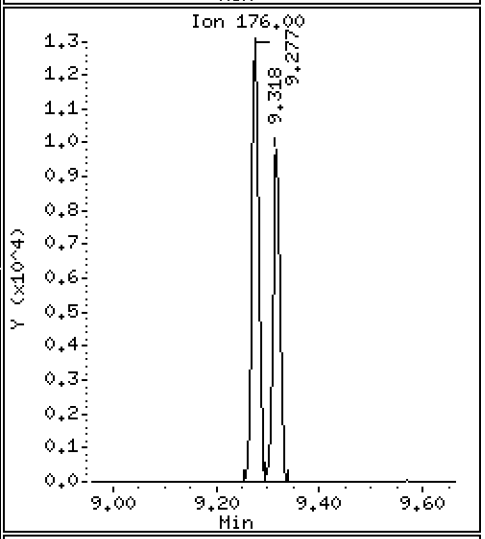
17 Anthracene

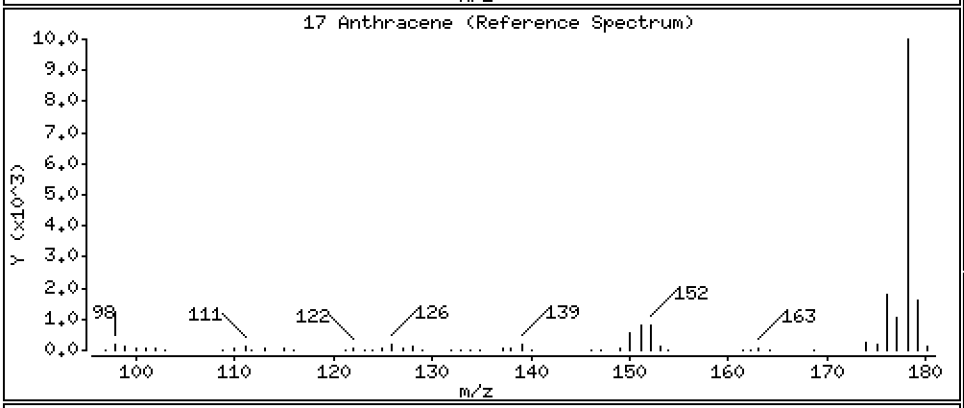
Concentration: 2.270 ug/L

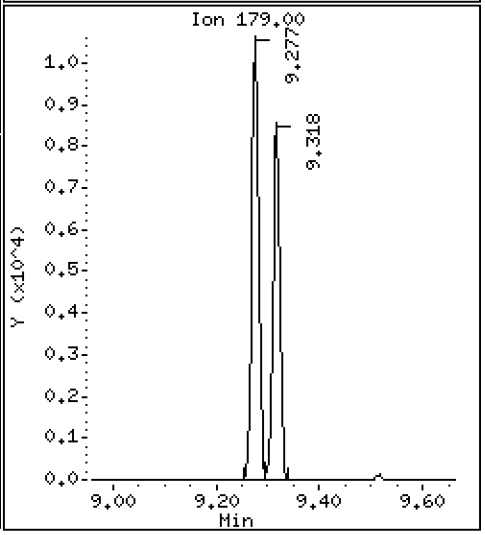


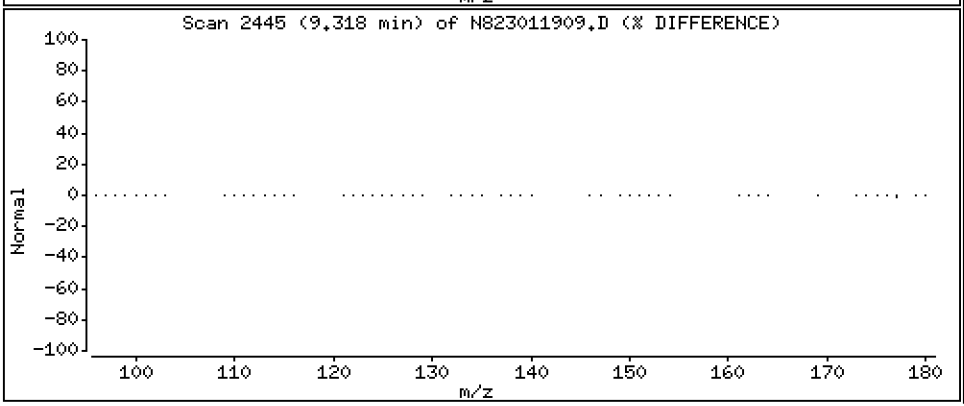












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Date : 19-JAN-2023 14:58

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Instrument: nt8.i

Sample Info: SCV230119

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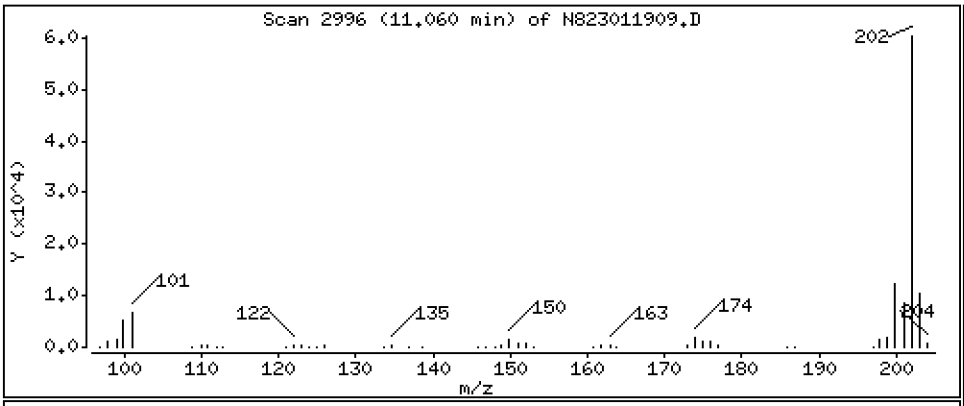
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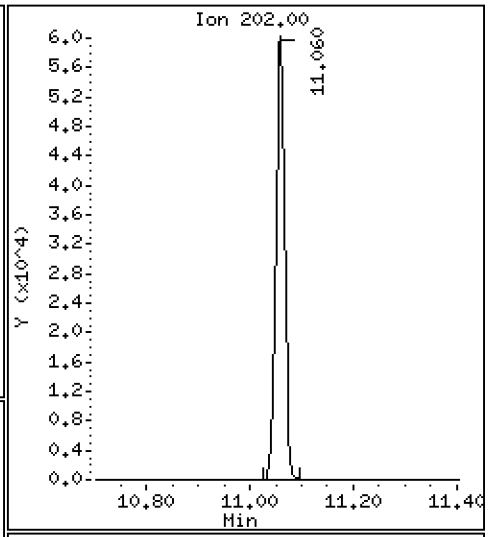
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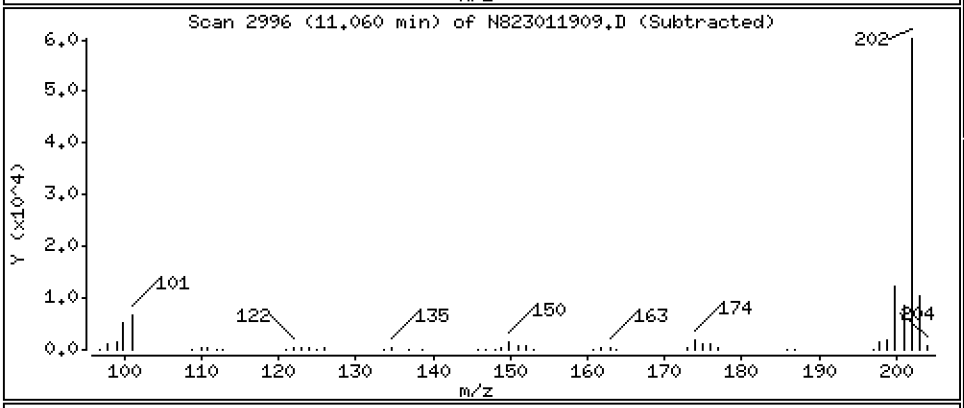
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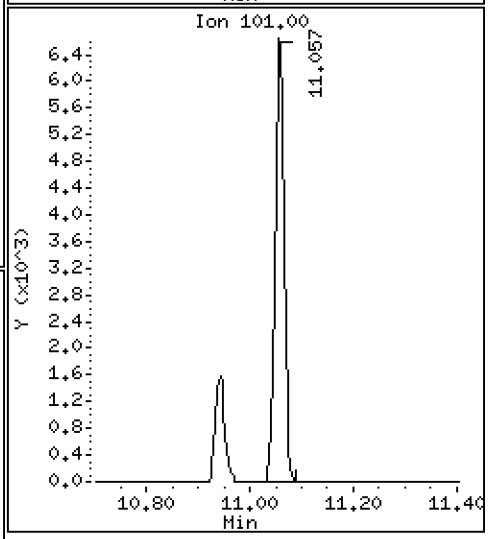
22 Fluoranthene

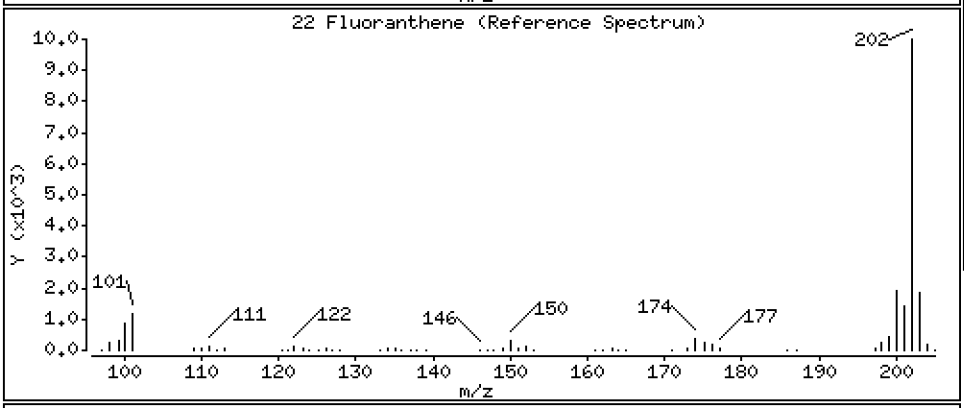
Concentration: 2.653 ug/L

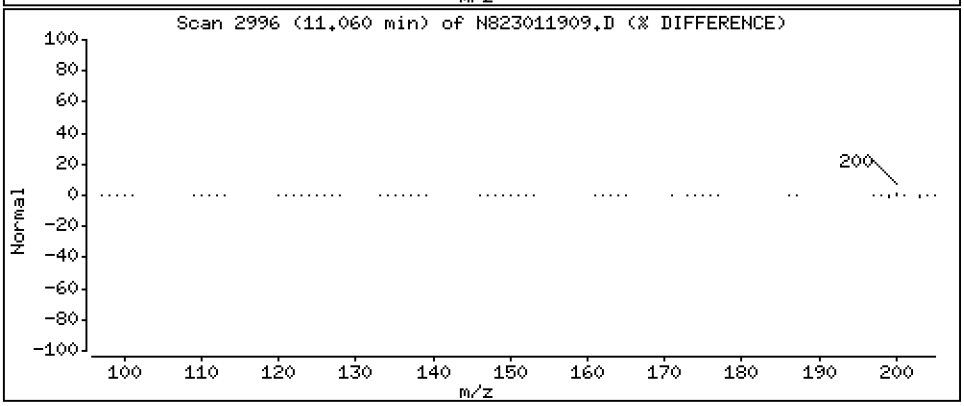












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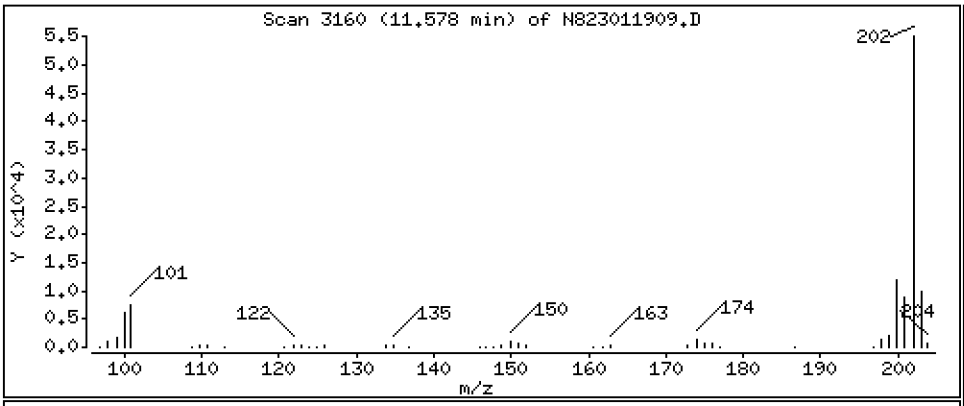
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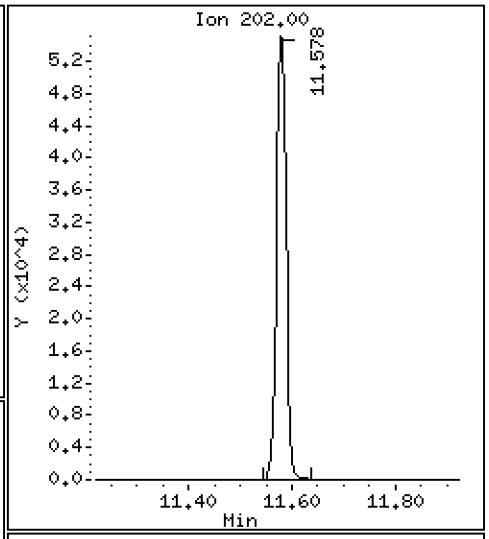
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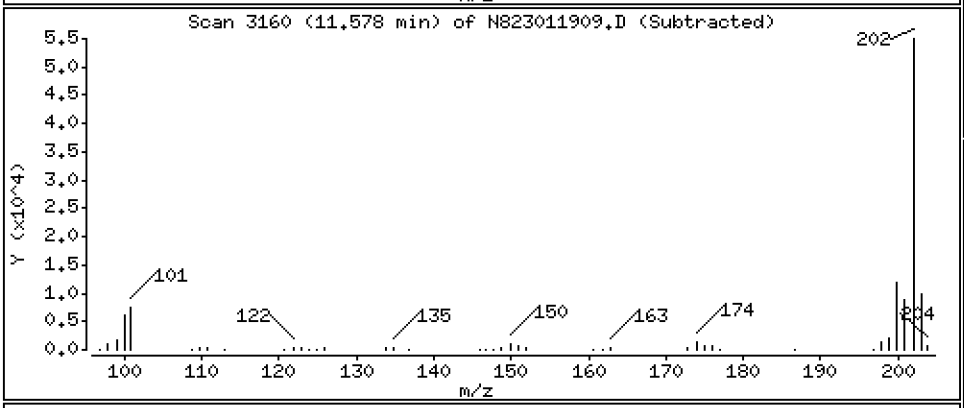
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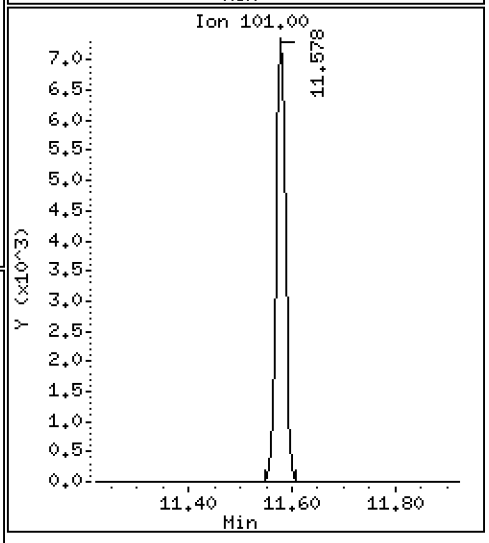
23 Pyrene

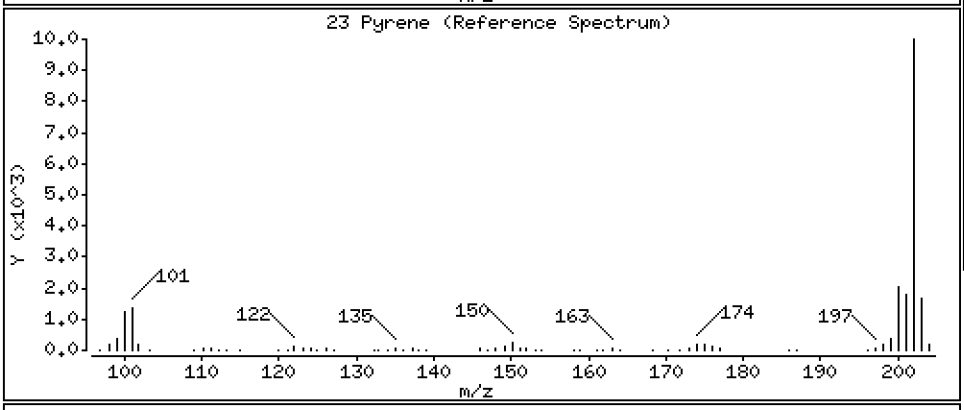
Concentration: 2.462 ug/L

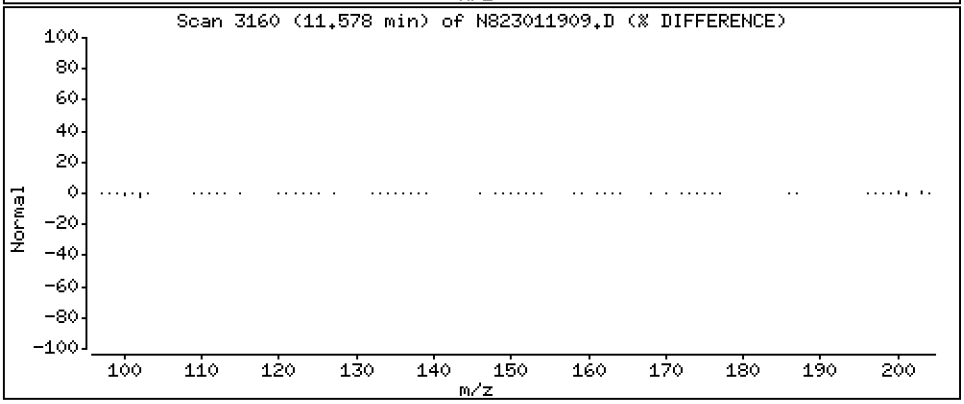












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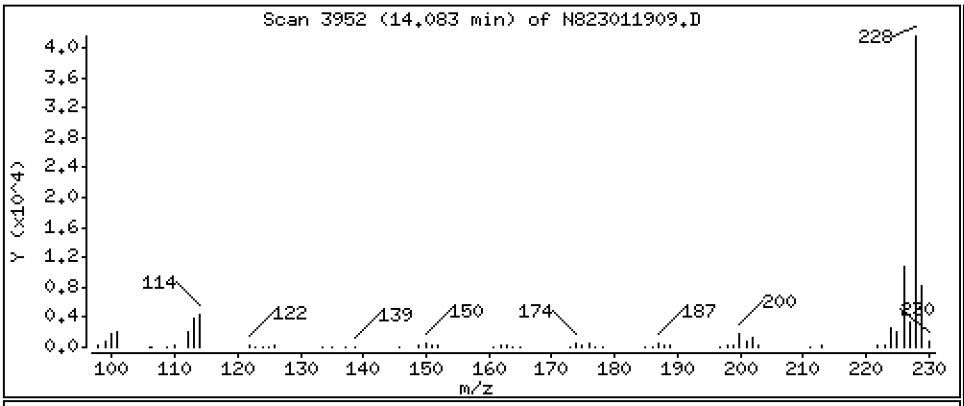
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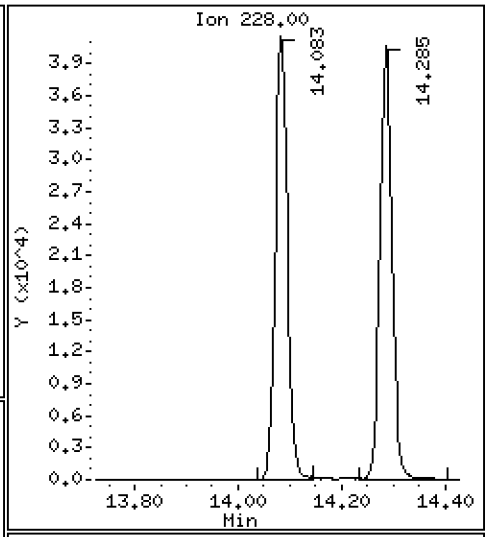
Column phase: Rxi-17sil

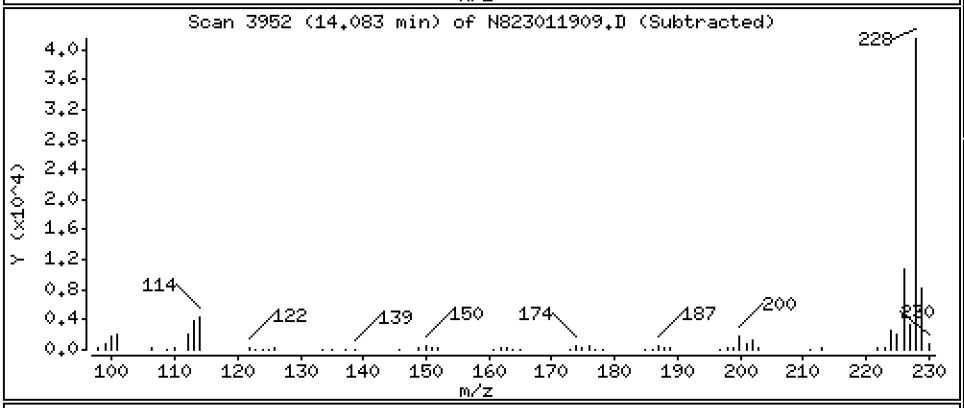
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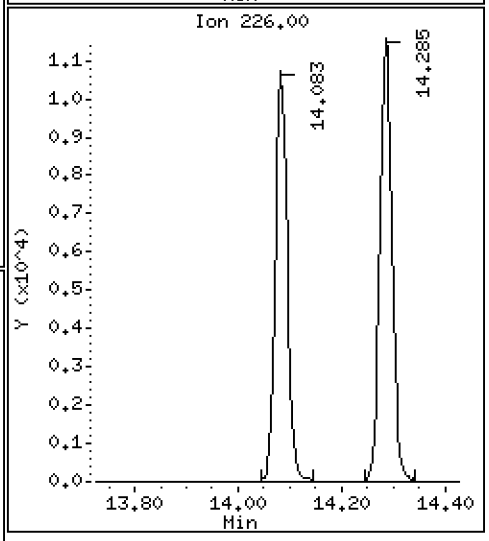
24 Benzo(a)anthracene

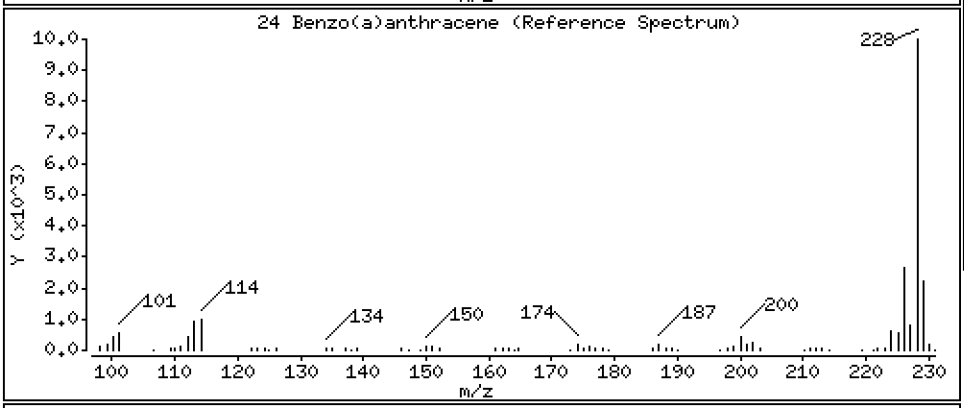
Concentration: 2.587 ug/L

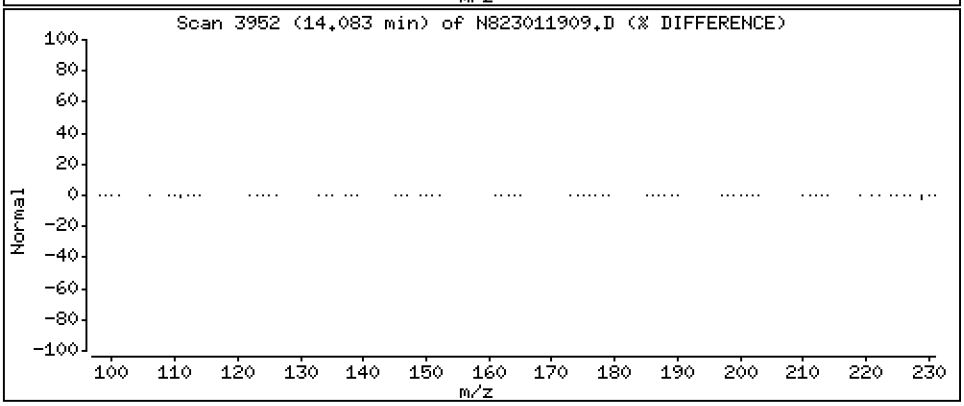












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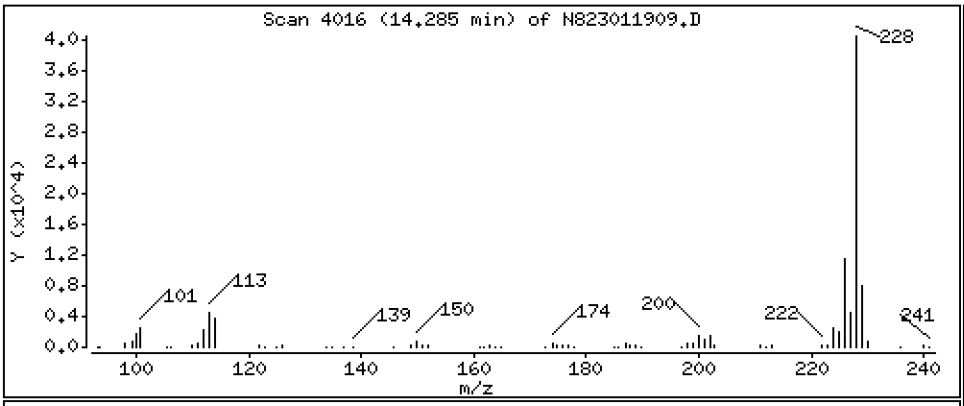
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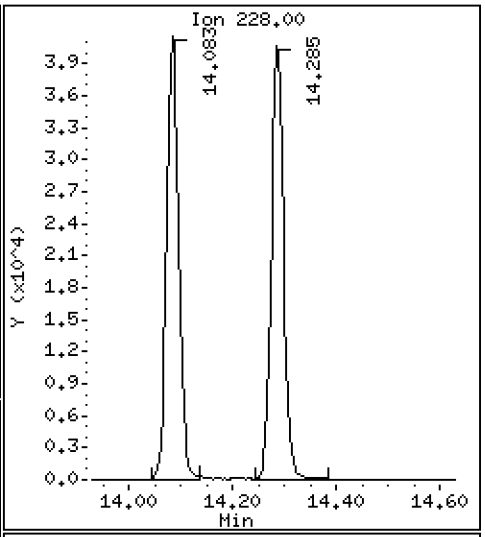
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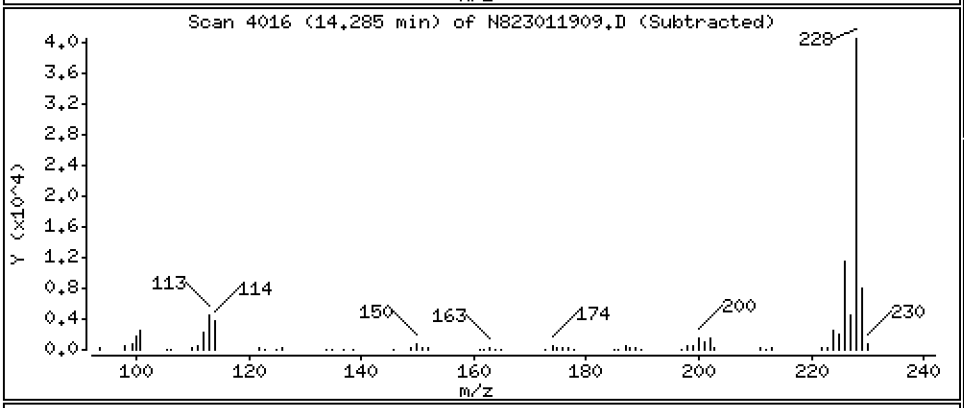
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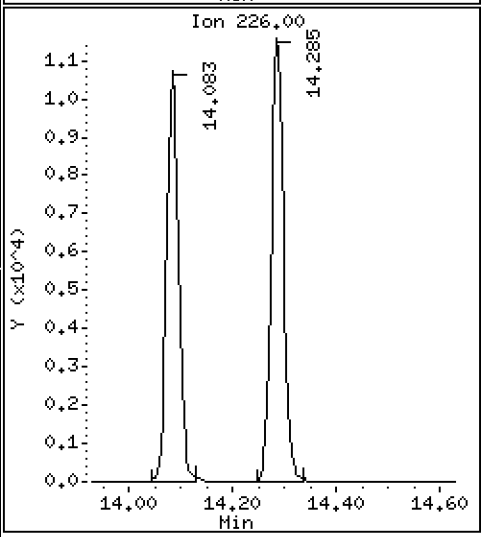
27 Chrysene

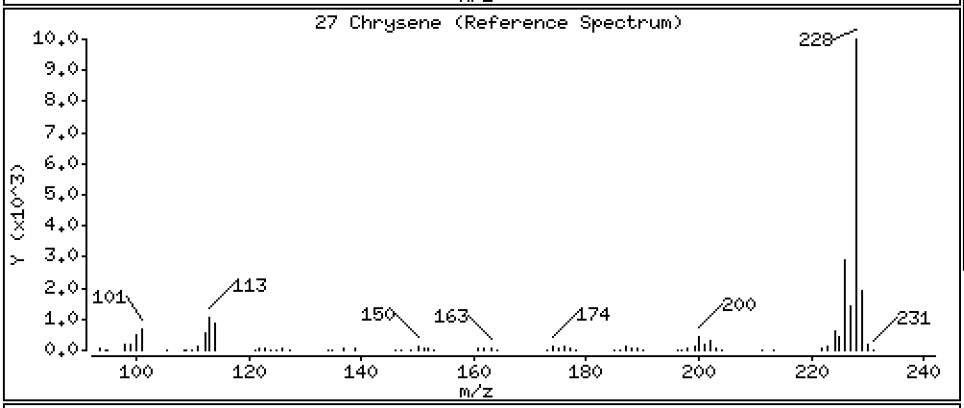
Concentration: 2.400 ug/L

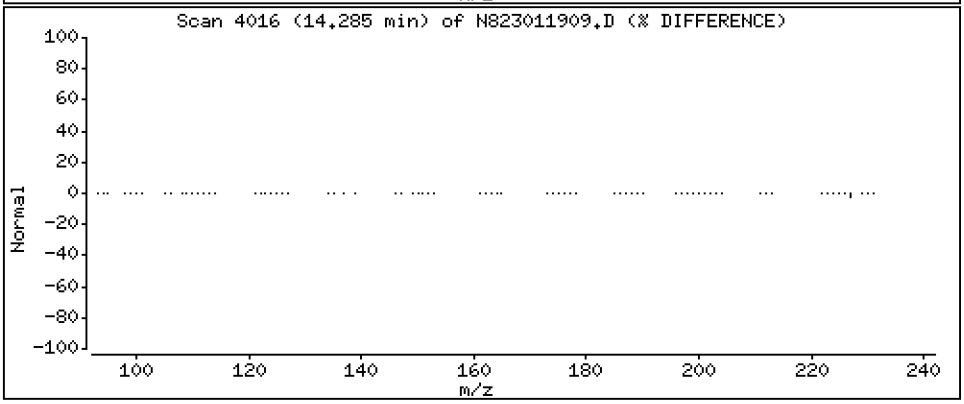












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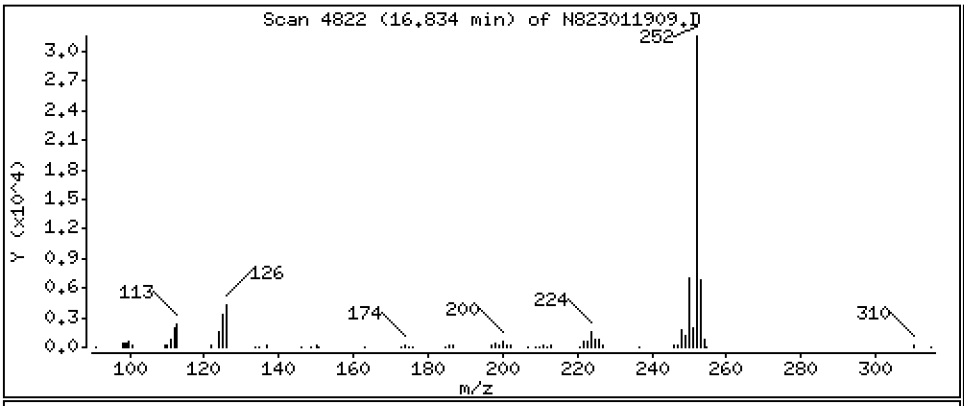
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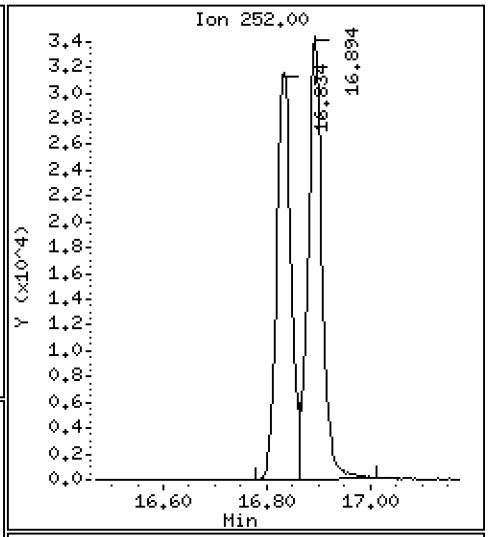
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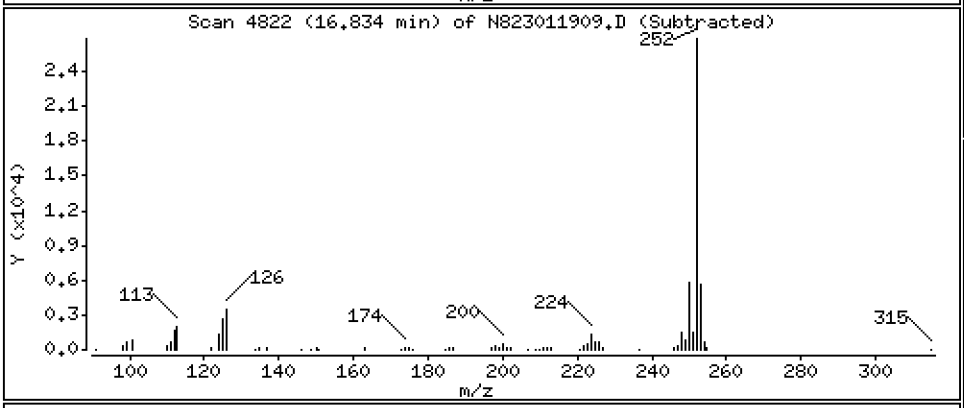
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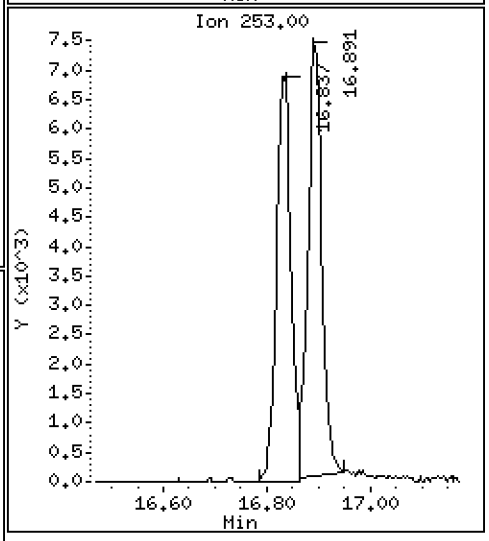
28 Benzo(b)fluoranthene

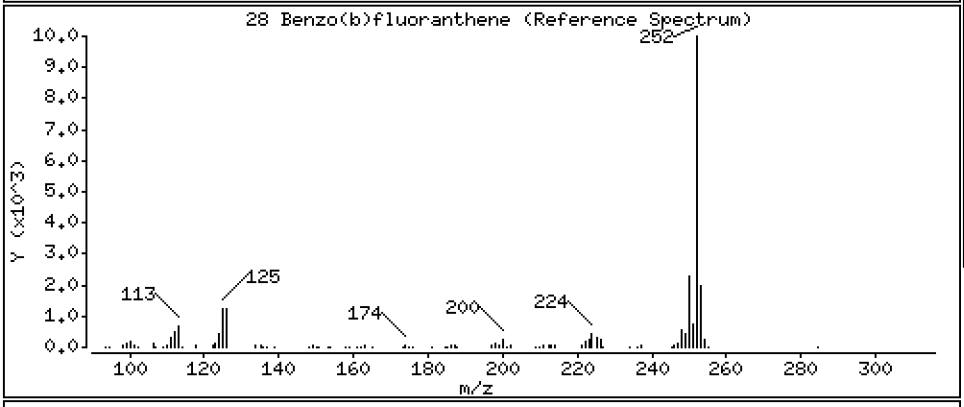
Concentration: 2.507 ug/L

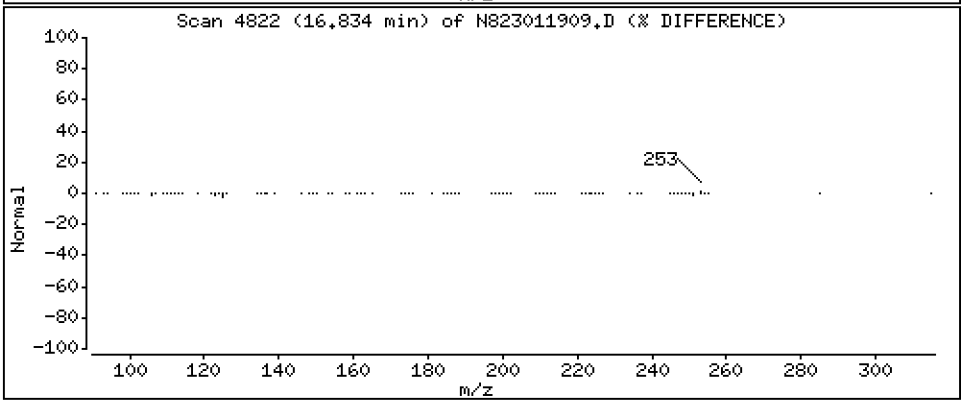












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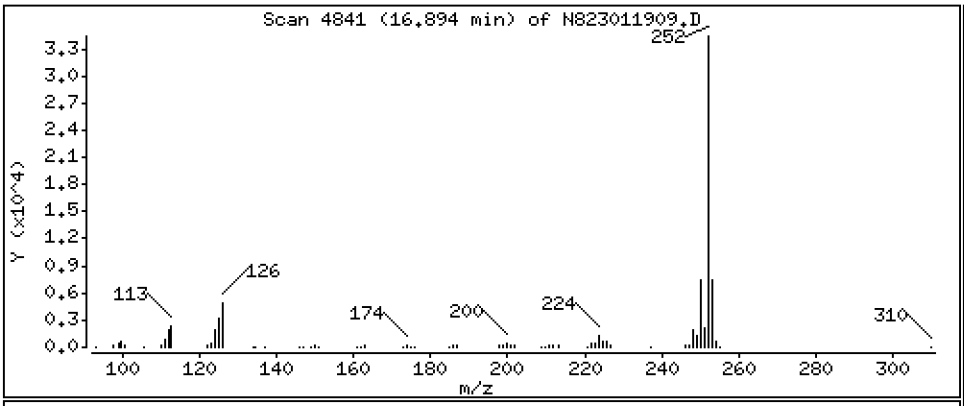
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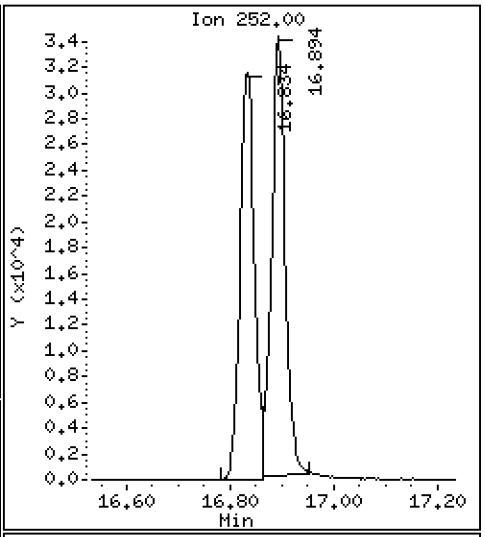
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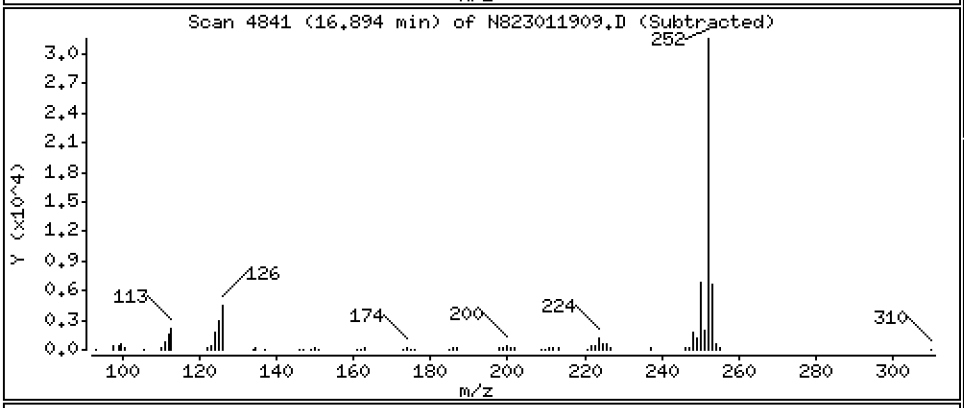
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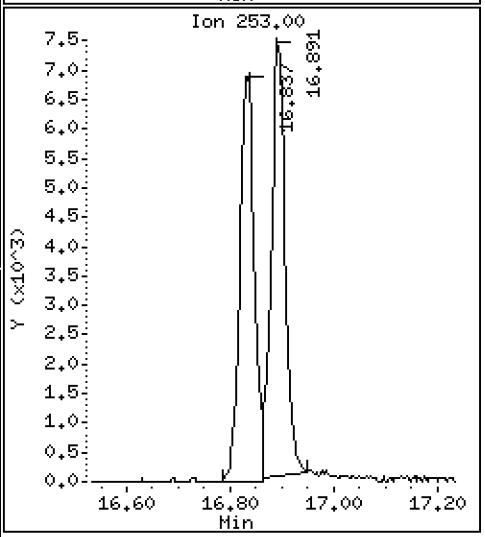
29 Benzo(k)fluoranthene

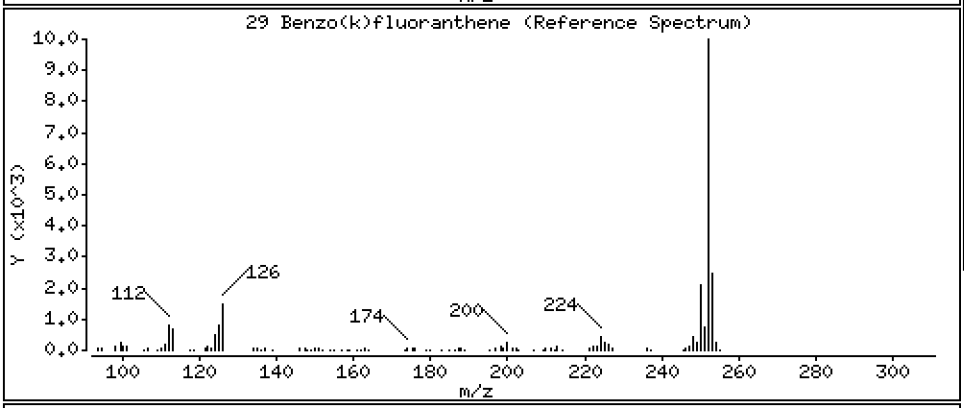
Concentration: 2.656 ug/L

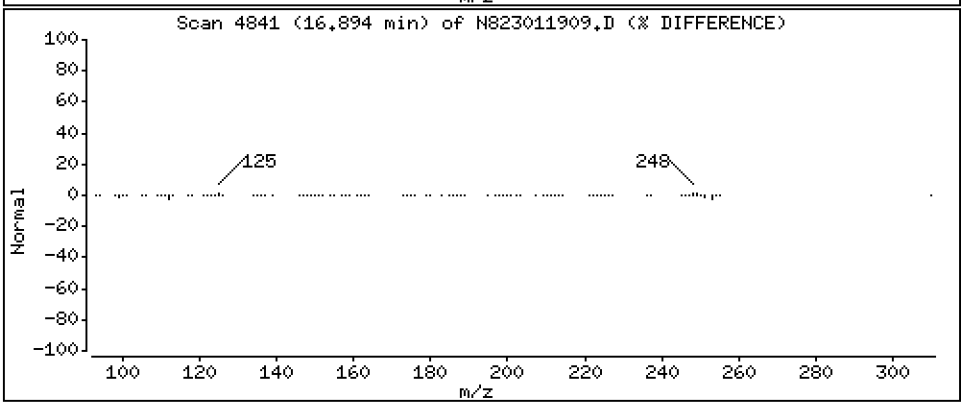












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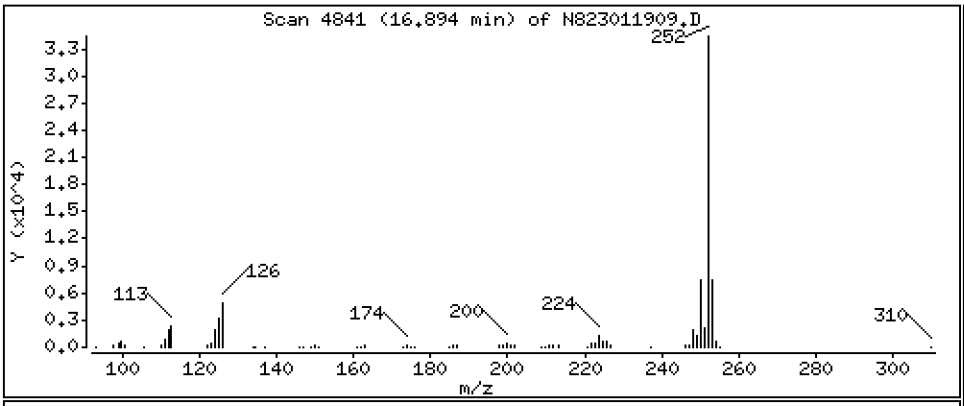
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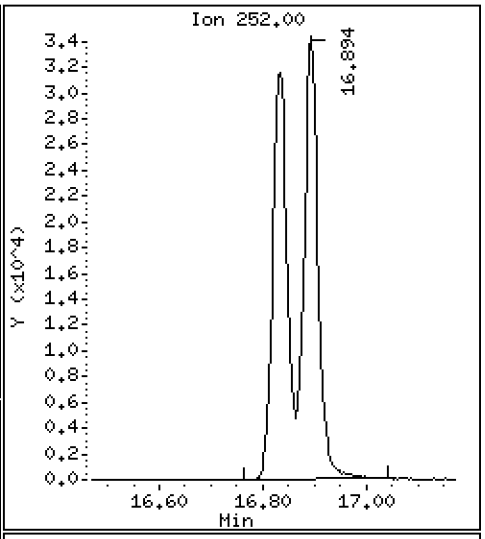
Column phase: Rxi-17sil

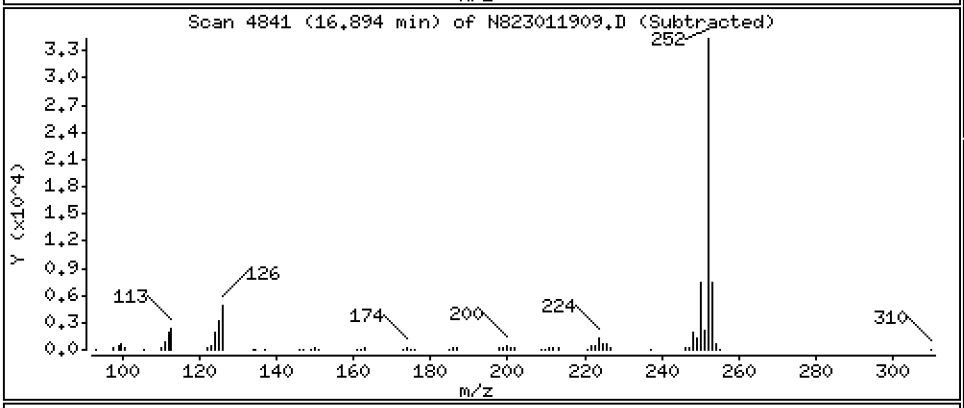
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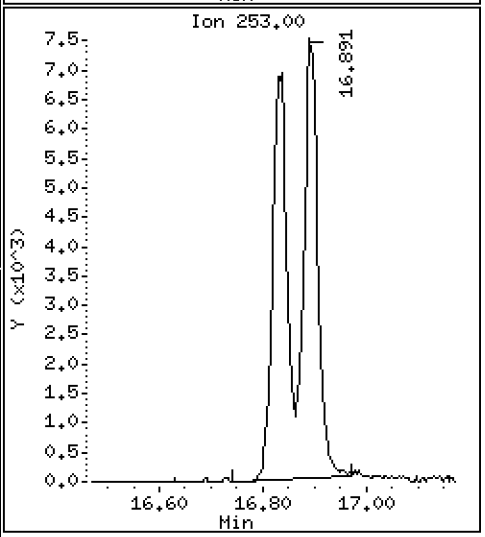
31 Total Benzofluoranthenes

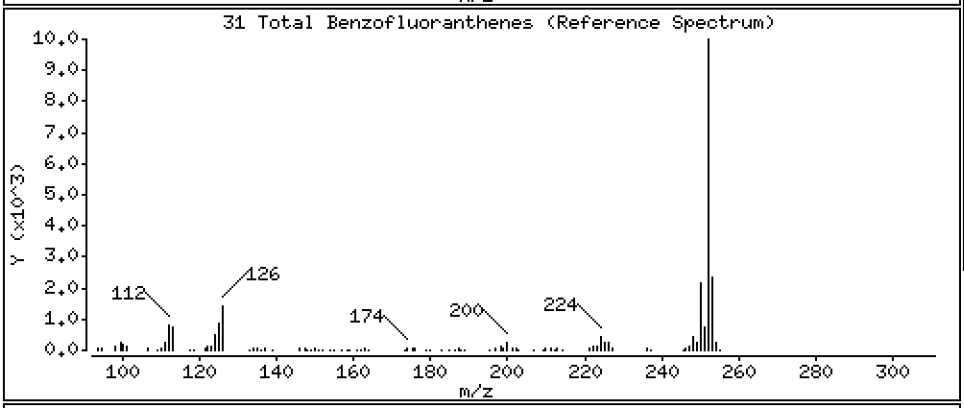
Concentration: 5.480 ug/L

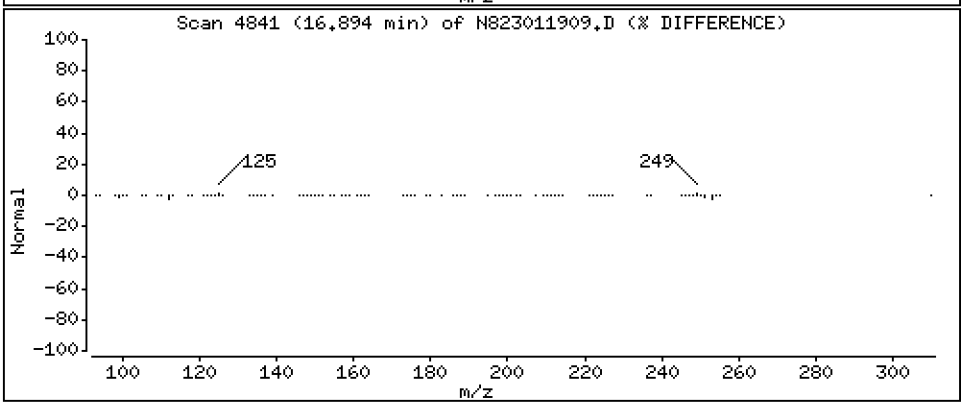












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

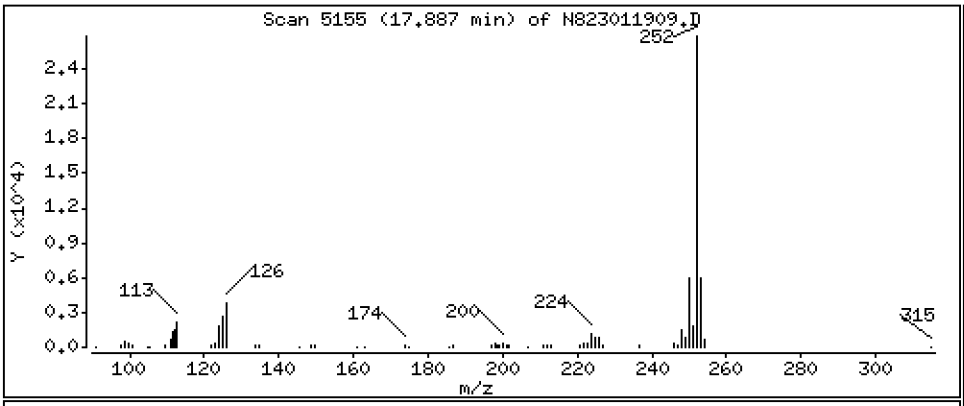
Operator: JZ

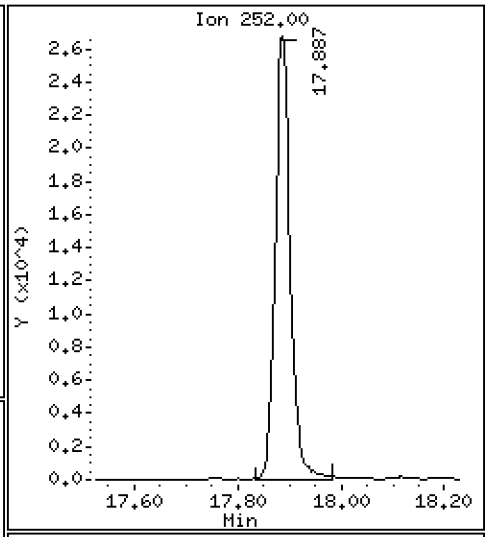
Column phase: Rxi-17sil

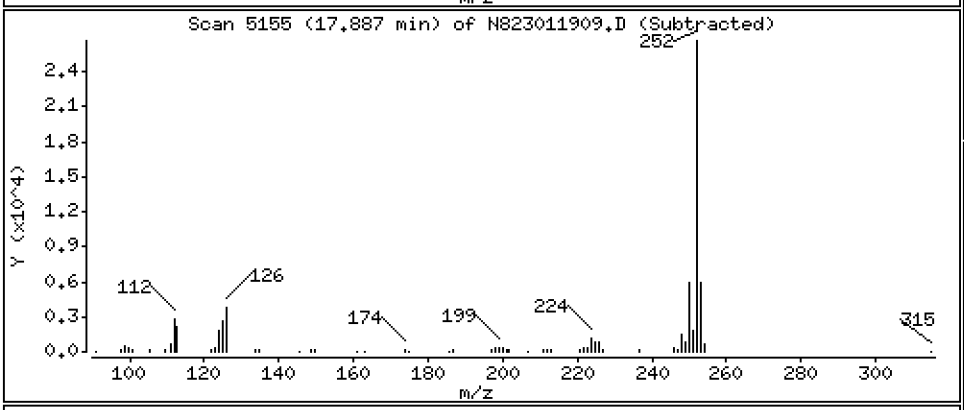
Column diameter: 0.25

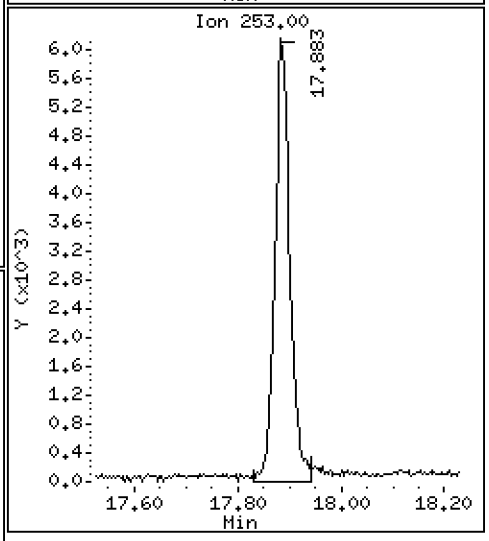
32 Benzo(a)pyrene

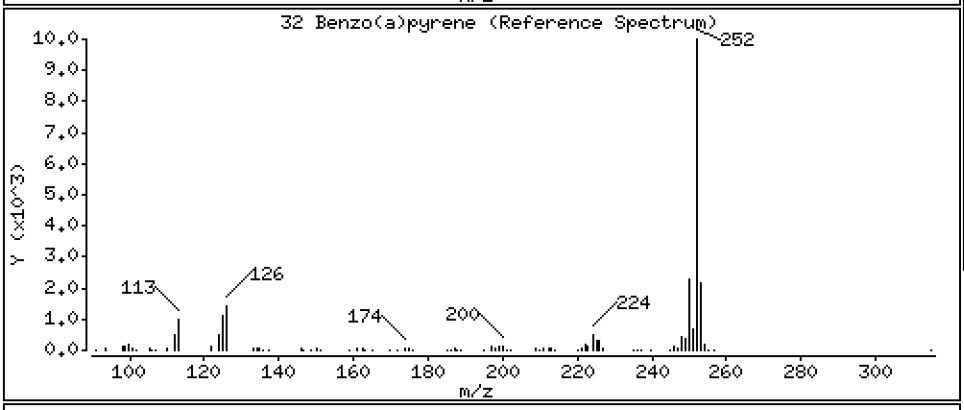
Concentration: 2.572 ug/L

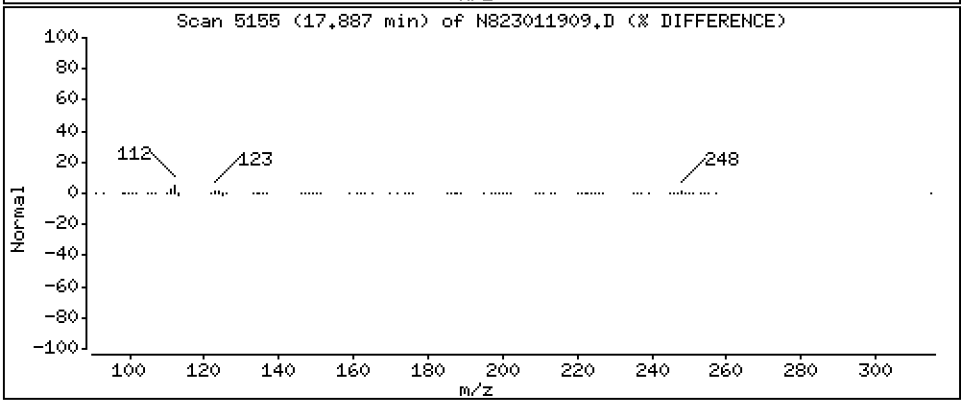












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

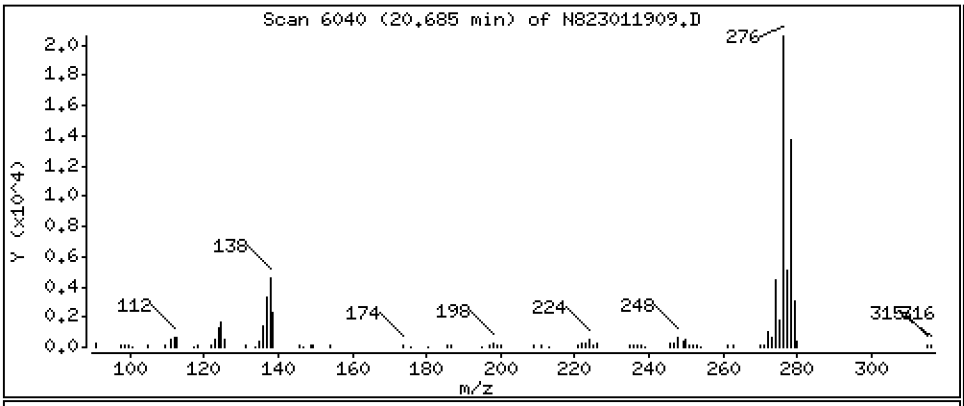
Operator: JZ

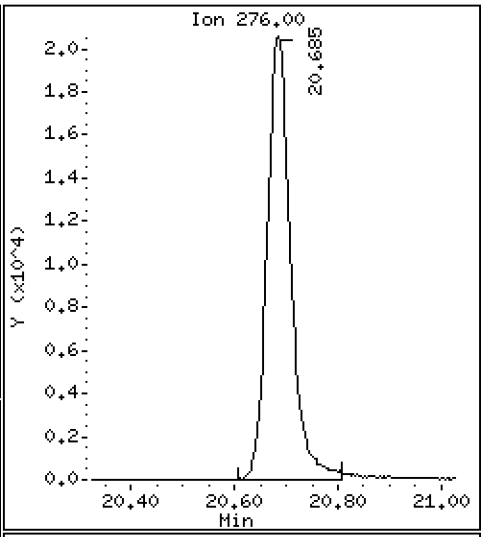
Column phase: Rxi-17sil

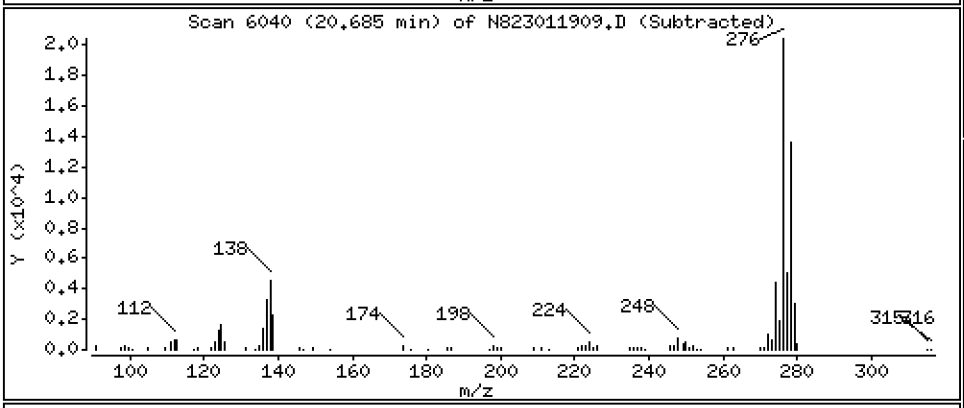
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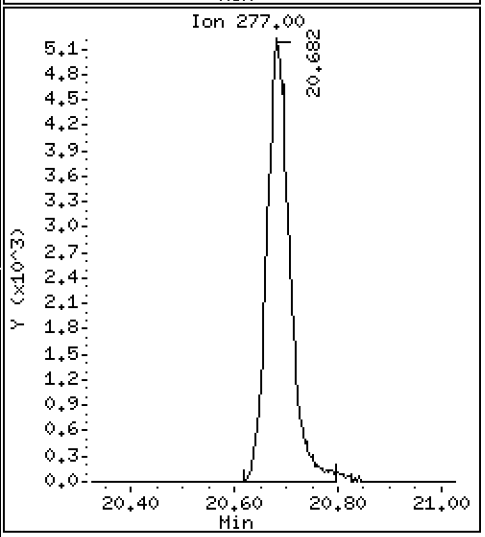
37 Indeno(1,2,3-cd)pyrene

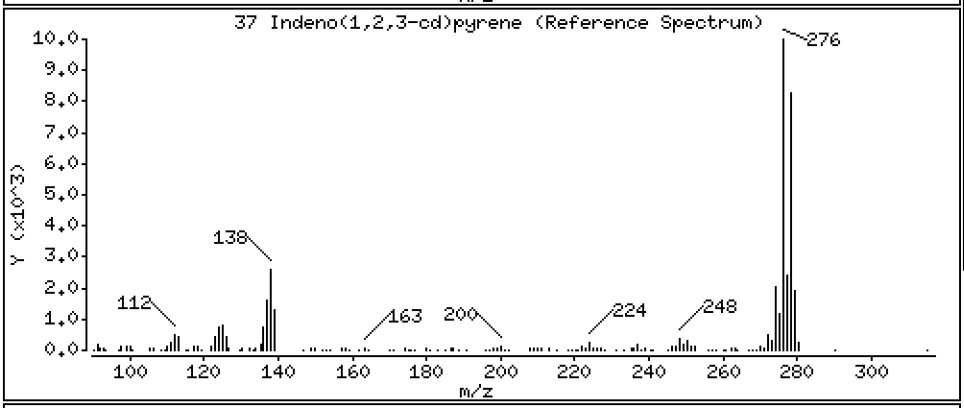
Concentration: 2.689 ug/L

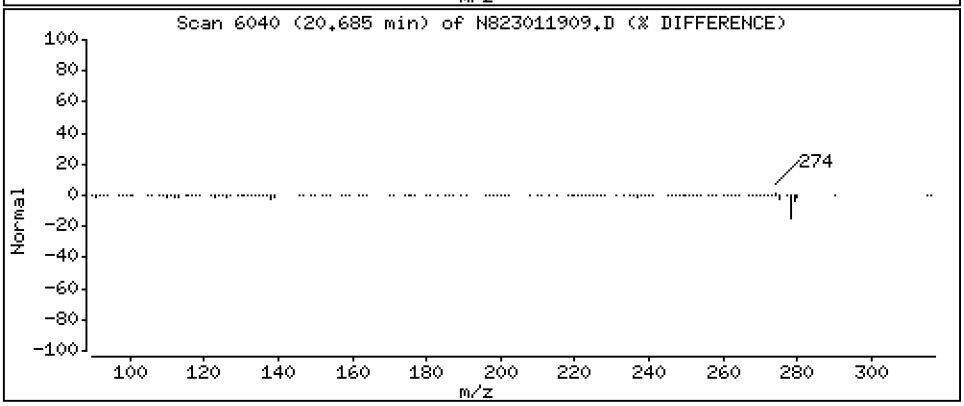












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

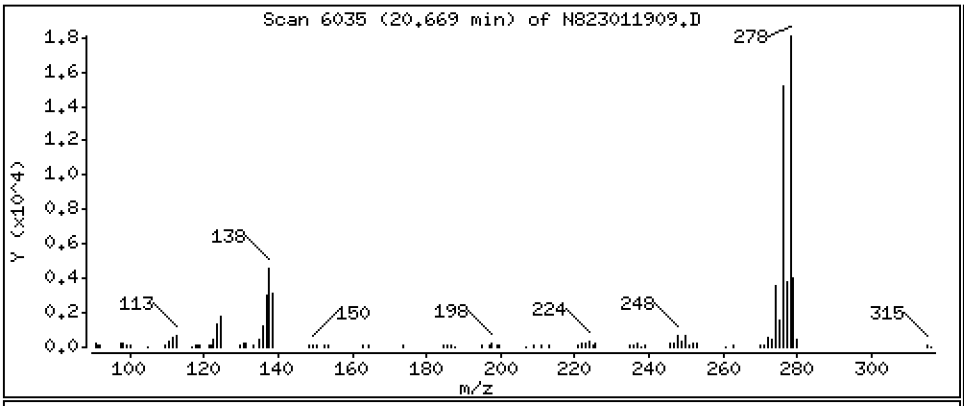
Operator: JZ

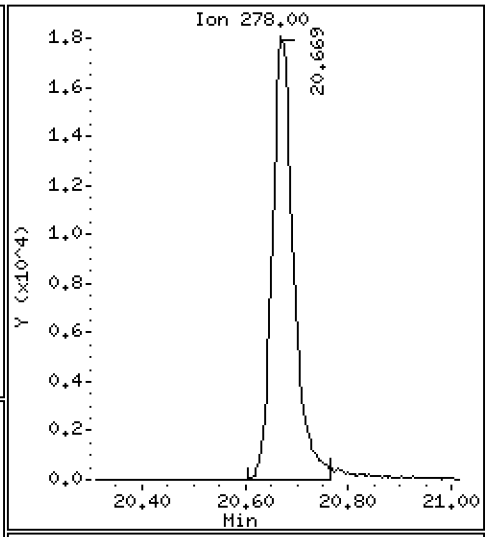
Column phase: Rxi-17sil

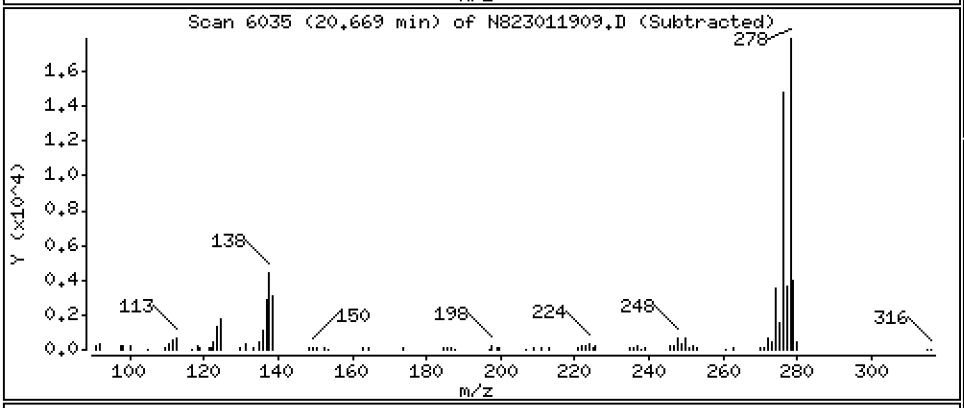
Column diameter: 0.25

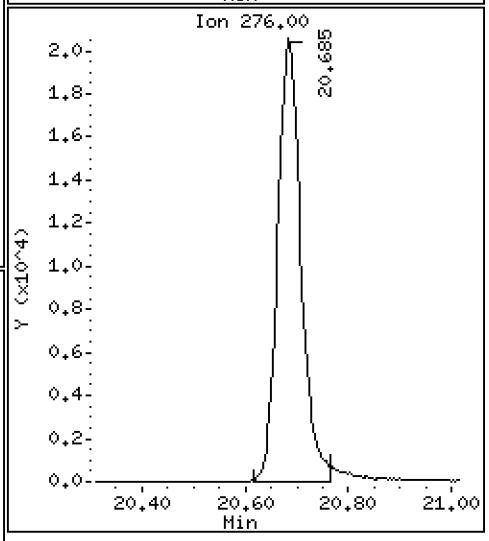
38 Dibenzo(a,h)anthracene

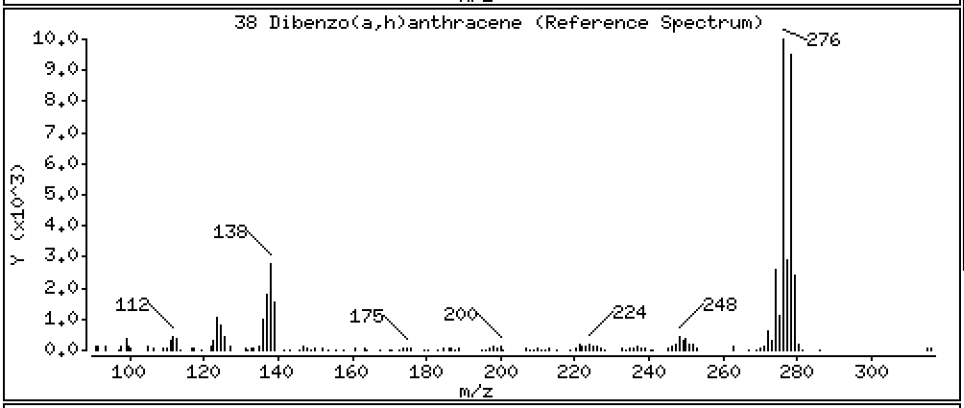
Concentration: 2.493 ug/L

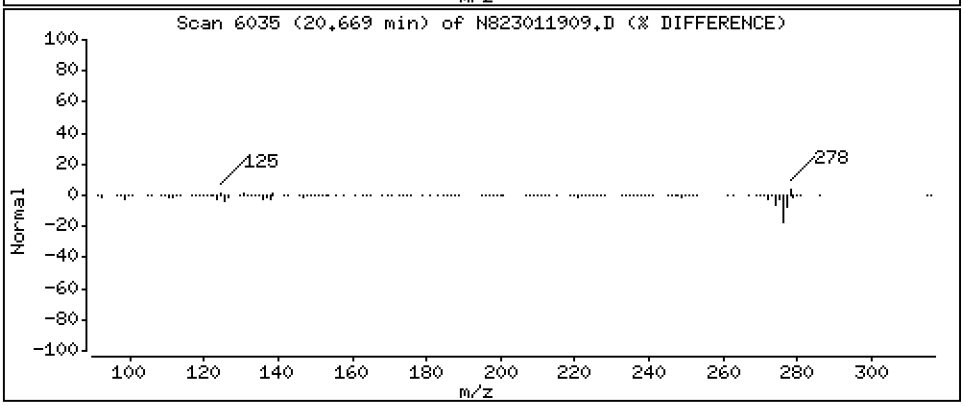












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

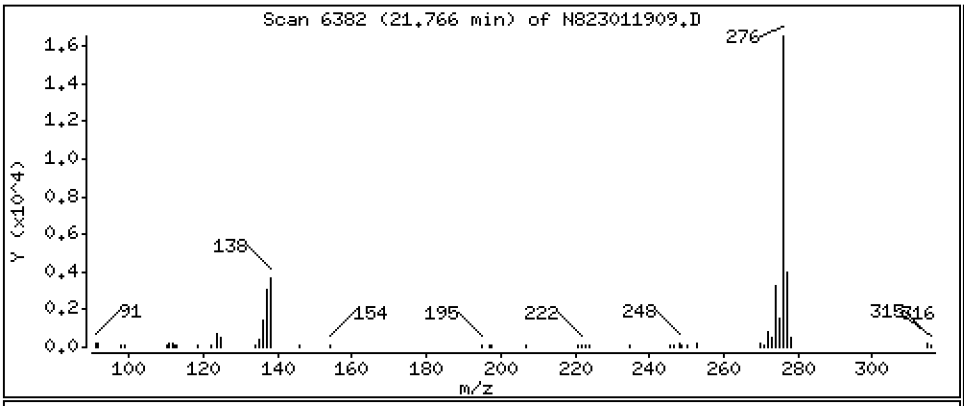
Operator: JZ

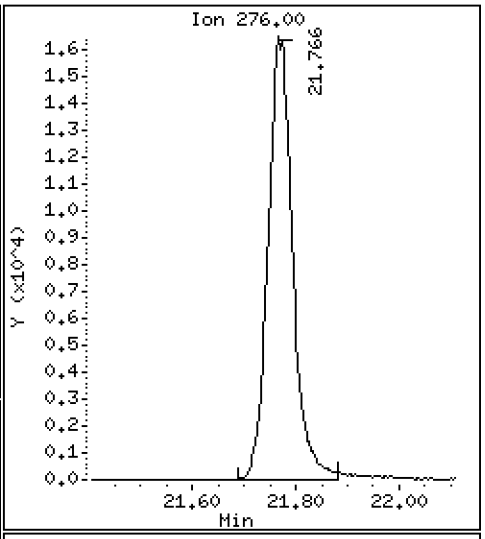
Column phase: Rxi-17sil

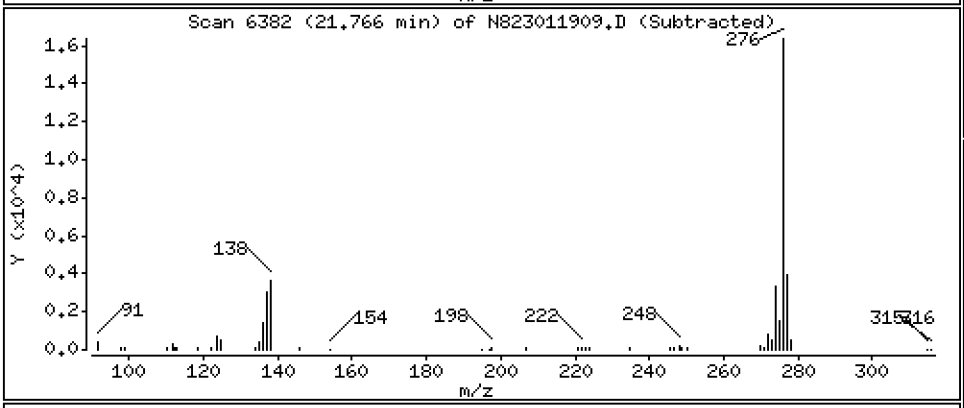
Column diameter: 0.25

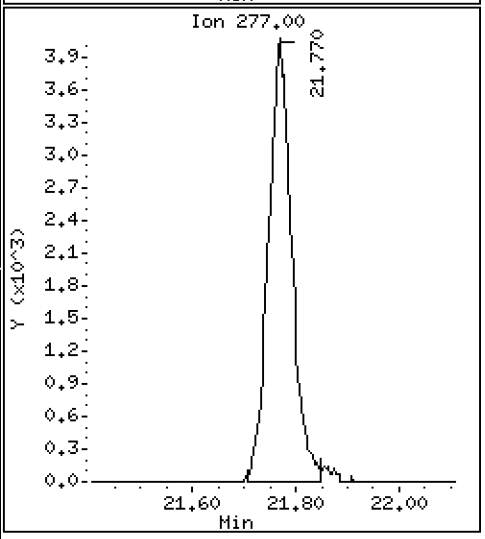
39 Benzo(g,h,i)perylene

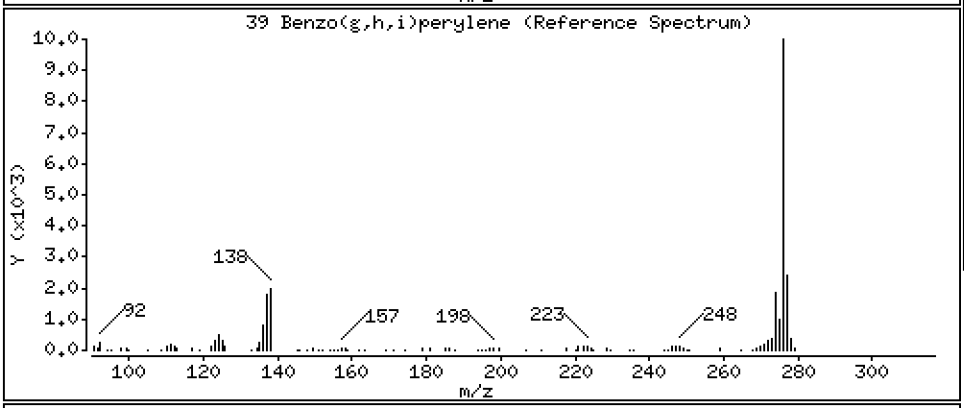
Concentration: 2.483 ug/L

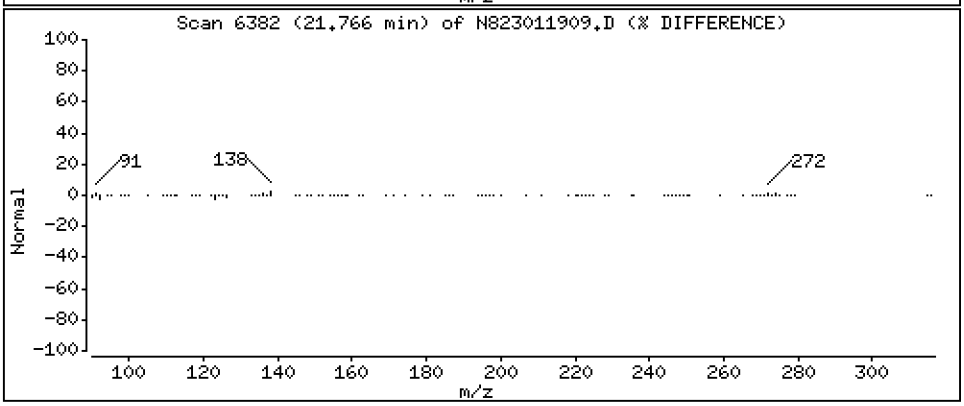












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 25-Jan-2023 21:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

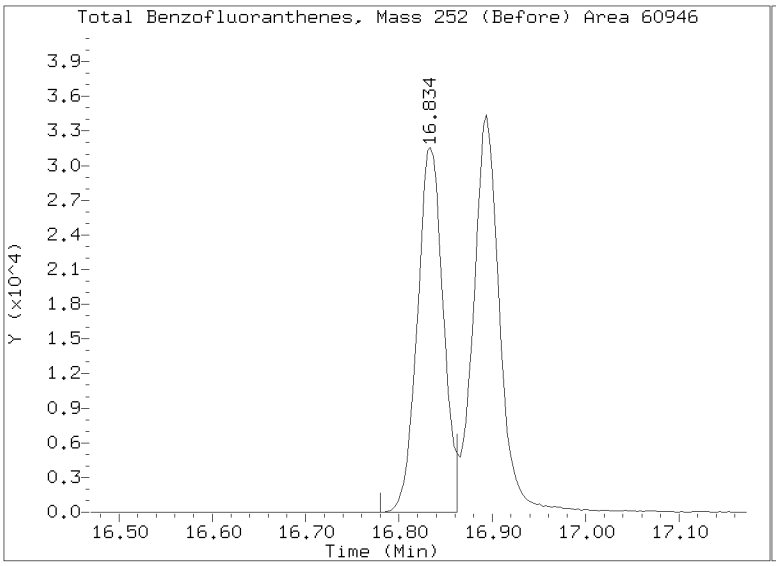
On Column LOD for nt8.i, 20230119.b\FSIMPNA230119.m, pnascv.sub = 0.0500

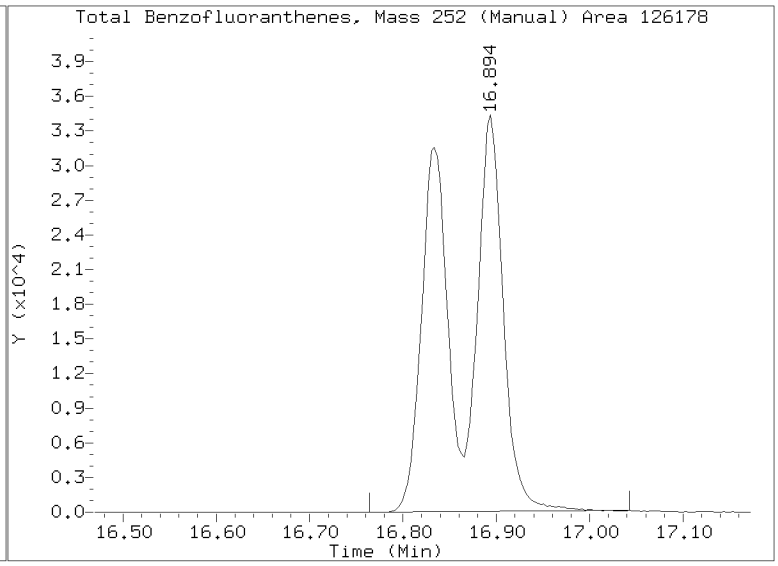
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/25/2023 22:00





Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823031302.D	Calibration Date:	01/19/2023
Sequence:	SLC0150	Injection Date:	03/13/23
Lab Sample ID:	SLC0150-ICV1	Injection Time:	12:08
Sequence Name:	Initial Cal Check		

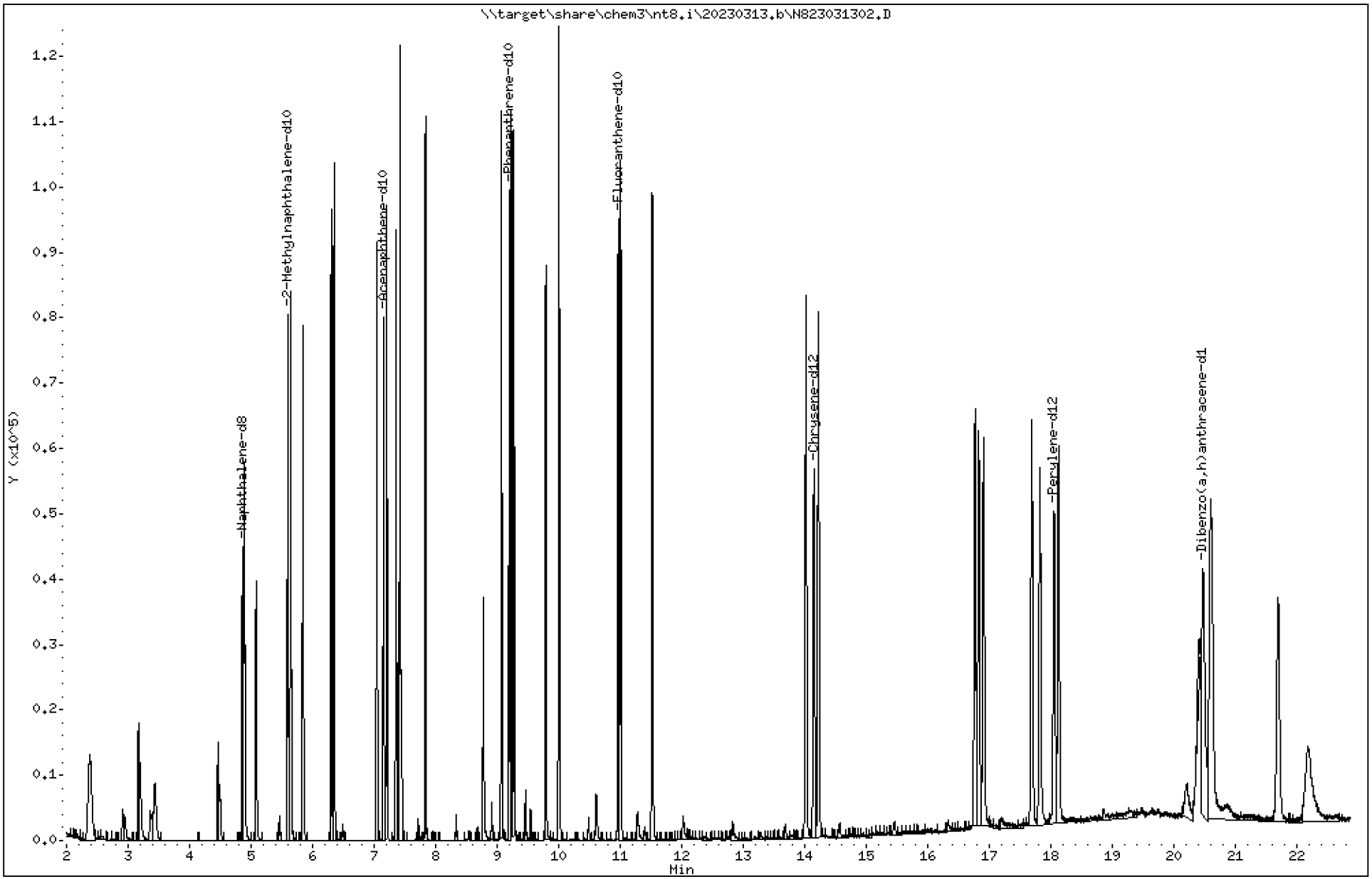
		CONC. (ug/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Naphthalene	A	2.5000	2.63	0.9299181	0.9770024		5.1	+/-20
2-Methylnaphthalene	A	2.5000	2.64	0.5115033	0.5407811		5.7	+/-20
1-Methylnaphthalene	A	2.5000	2.65	0.5191318	0.5492863		5.8	+/-20
Acenaphthylene	A	2.5000	2.76	1.5102600	1.6657530		10.3	+/-20
Acenaphthene	A	2.5000	2.56	1.0119150	1.0347930		2.3	+/-20
Dibenzofuran	A	2.5000	2.53	1.5369690	1.5578390		1.4	+/-20
Fluorene	A	2.5000	2.69	1.1937240	1.2822070		7.4	+/-20
Phenanthrene	A	2.5000	2.48	0.9769567	0.9677131		-1.0	+/-20
Anthracene	A	2.5000	2.67	0.8874960	0.9463014		6.6	+/-20
Fluoranthene	A	2.5000	2.58	1.0634260	1.0958010		3.0	+/-20
Pyrene	A	2.5000	2.73	1.2399700	1.3555900		9.3	+/-20
Benzo(a)anthracene	A	2.5000	2.83	1.1238870	1.2697750		13.0	+/-20
Chrysene	A	2.5000	2.47	1.1964350	1.1829030		-1.1	+/-20
Benzo(b)fluoranthene	A	2.5000	2.57	1.1648110	1.1961400		2.7	+/-20
Benzo(k)fluoranthene	A	2.5000	2.55	1.1409370	1.1643520		2.0	+/-20
Benzo(j)fluoranthene	A	2.5000	2.52	1.0271120	1.0355310		0.8	+/-20
Benzofluoranthenes, Total	A	7.5000	7.73	1.1031370	1.1361900		3.0	+/-20
Benzo(a)pyrene	A	2.5000	2.54	1.0250270	1.0401130		1.5	+/-20
Indeno(1,2,3-cd)pyrene	A	2.5000	2.23	1.1677520	1.0398690		-11.0	+/-20
Dibenzo(a,h)anthracene	A	2.5000	2.21	1.0049440	0.8868226		-11.8	+/-20
Benzo(g,h,i)perylene	A	2.5000	2.54	1.0580110	1.0761500		1.7	+/-20
2-Methylnaphthalene-d10	A	2.5000	2.67	0.5454499	0.5831285		6.9	+/-20
Dibenzo[a,h]anthracene-d14	A	2.5000	2.02	0.6679424	0.6337180		-19.1	+/-20
Fluoranthene-d10	A	2.5000	2.76	0.8823923	0.9741957		10.4	
Naphthalene-d8	A	2.0000	2.00	22973.6700	1.0000		0.0	
Acenaphthene-d10	A	2.0000	2.00	13579.2500	1.0000		0.0	
Phenanthrene-d10	A	2.0000	2.00	25616.1700	1.0000		0.0	
Chrysene-d12	A	2.0000	2.00	22313.2500	1.0000		0.0	
Perylene-d12	A	2.0000	2.00	21012.9200	1.0000		0.0	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230313.b\N823031302.D
Date : 13-MAR-2023 12:08
Client ID:
Sample Info: ICV230313

Instrument: nt8.i

Operator: JZ
Column phase: Rxi-17sil
Column diameter: 0.25



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ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031302.D
Lab Smp Id: SLC0150-ICV1
Inj Date : 13-MAR-2023 12:08
Operator : JZ Inst ID: nt8.i
Smp Info : ICV230313
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 14:34 Jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	1 Naphthalene-d8	136	4.862	4.862	(1.000)	40352	2.00000	
	2 Naphthalene	128	4.891	4.891	(1.006)	49280	2.50000	2.627
$	3 2-Methylnaphthalene-d10	152	5.599	5.599	(1.152)	29413	2.50000	2.673
	4 2-Methylnaphthalene	141	5.646	5.646	(1.161)	27277	2.50000	2.643
	5 1-methylnaphthalene	141	5.842	5.842	(1.202)	27706	2.50000	2.645
	7 Biphenyl	154	6.304	6.304	(0.881)	40913	2.50000	2.561
	8 2,6-Dimethylnaphthalene	156	6.348	6.348	(0.887)	30267	2.50000	2.677
	9 Acenaphthylene	152	7.047	7.047	(0.985)	50414	2.50000	2.757
*	10 Acenaphthene-d10	164	7.155	7.155	(1.000)	24212	2.00000	
	11 Acenaphthene	153	7.205	7.205	(1.007)	31318	2.50000	2.557
	12 Dibenzofuran	168	7.357	7.357	(1.028)	47148	2.50000	2.534
	13 1,6,7-Trimethylnaphthalene	170	7.423	7.423	(1.038)	31048	2.50000	2.646
	14 Fluorene	166	7.838	7.838	(1.095)	38806	2.50000	2.685
	18 Dibenzothiophene	184	9.071	9.071	(0.986)	52223	2.50000	2.567
*	15 Phenanthrene-d10	188	9.197	9.197	(1.000)	46031	2.00000	
	16 Phenanthrene	178	9.232	9.232	(1.004)	55681	2.50000	2.476
	17 Anthracene	178	9.273	9.273	(1.008)	54449	2.50000	2.666
	19 Carbazole	167	9.792	9.792	(1.065)	48704	2.50000	2.601
	20 1-Methylphenanthrene	192	10.007	10.007	(1.088)	42926	2.50000	2.649
	22 Fluoranthene	202	11.009	11.009	(1.197)	63051	2.50000	2.576
$	21 Fluoranthene-d10	212	10.971	10.971	(1.193)	56054	2.50000	2.760
	23 Pyrene	202	11.524	11.524	(0.814)	65414	2.50000	2.733
	24 Benzo(a)anthracene	228	14.025	14.025	(0.991)	61273	2.50000	2.825
*	25 Chrysene-d12	240	14.152	14.152	(1.000)	38604	2.00000	
	27 Chrysene	228	14.225	14.225	(1.005)	57081	2.50000	2.472
	28 Benzo(b)fluoranthene	252	16.773	16.773	(0.929)	53771	2.50000	2.567
	29 Benzo(k)fluoranthene	252	16.833	16.833	(0.932)	52342	2.50000	2.551
	30 Benzo(j)fluoranthene	252	16.912	16.912	(0.936)	46551	2.50000	2.520
	31 Total Benzofluoranthenes	252	16.773	16.773	(0.929)	153228	7.50000	7.725(M)
	34 Benzo(e)pyrene	252	17.697	17.697	(0.980)	51751	2.50000	2.478
	32 Benzo(a)pyrene	252	17.826	17.826	(0.987)	46757	2.50000	2.537
*	33 Perylene-d12	264	18.060	18.060	(1.000)	35963	2.00000	
	35 Perylene	252	18.130	18.130	(1.004)	46442	2.50000	2.348

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.482	20.482	(1.134)	28488	2.50000	2.022
37 Indeno(1,2,3-cd)pyrene	276	20.625	20.625	(1.142)	46746	2.50000	2.226
38 Dibenzo(a,h)anthracene	278	20.599	20.599	(1.141)	39866	2.50000	2.206
39 Benzo(g,h,i)perylene	276	21.696	21.696	(1.201)	48377	2.50000	2.543

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031302.D
Lab Smp Id: SLC0150-ICV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 09-MAR-2023
Calibration Time: 11:46
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	40352	-9.74
10 Acenaphthene-d10	26411	13206	52822	24212	-8.33
15 Phenanthrene-d10	49210	24605	98420	46031	-6.46
25 Chrysene-d12	42994	21497	85988	38604	-10.21
33 Perylene-d12	40520	20260	81040	35963	-11.25

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.86	0.00
10 Acenaphthene-d10	7.16	6.66	7.66	7.16	0.00
15 Phenanthrene-d10	9.20	8.70	9.70	9.20	0.00
25 Chrysene-d12	14.15	13.65	14.65	14.15	0.00
33 Perylene-d12	18.06	17.56	18.56	18.06	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031302.D

Lab ID: SLC0150-ICV1
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 12:08

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

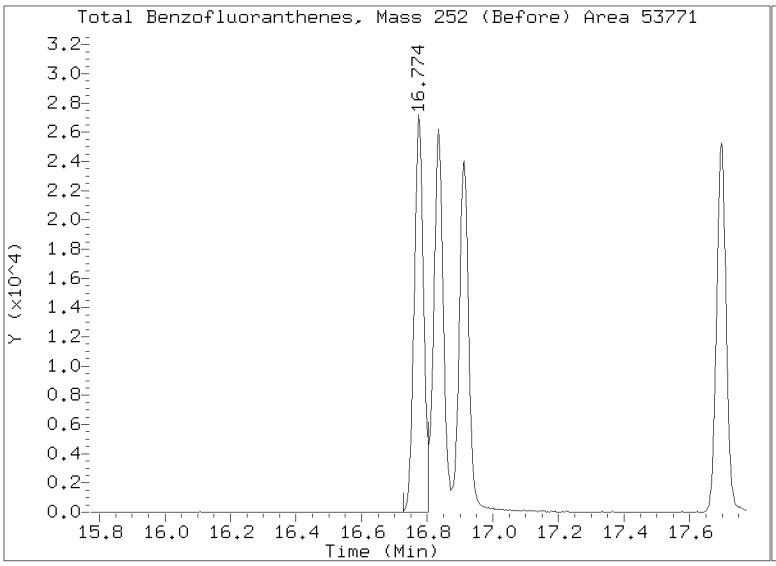
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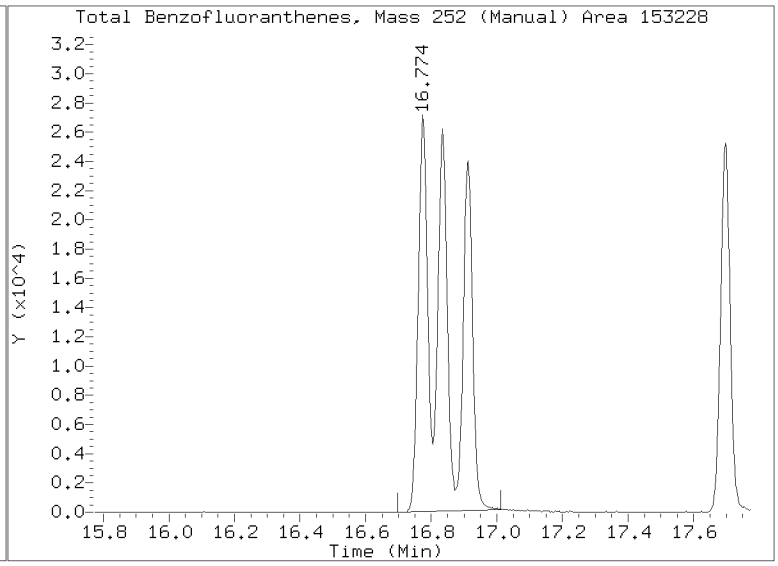
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* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031302.D
Injection Date: 13-MAR-2023 12:08
Lab ID:SLC0150-ICV1 Client ID:
Report Date: 03/13/2023 14:34





Q-FLAG SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230313.b

Instrument: nt8.i Date: 13-MAR-2023 Method: 20230313.b\FSIMPNA230119.m

INITIAL CAL: 19-JAN-2023

Compound	%RSD or R^2
NO Q-FLAGS	

ICV CAL: N823031302.D 13-MAR-2023 12:08

Compound	%D
NO Q-FLAGS	

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8270E-SIM

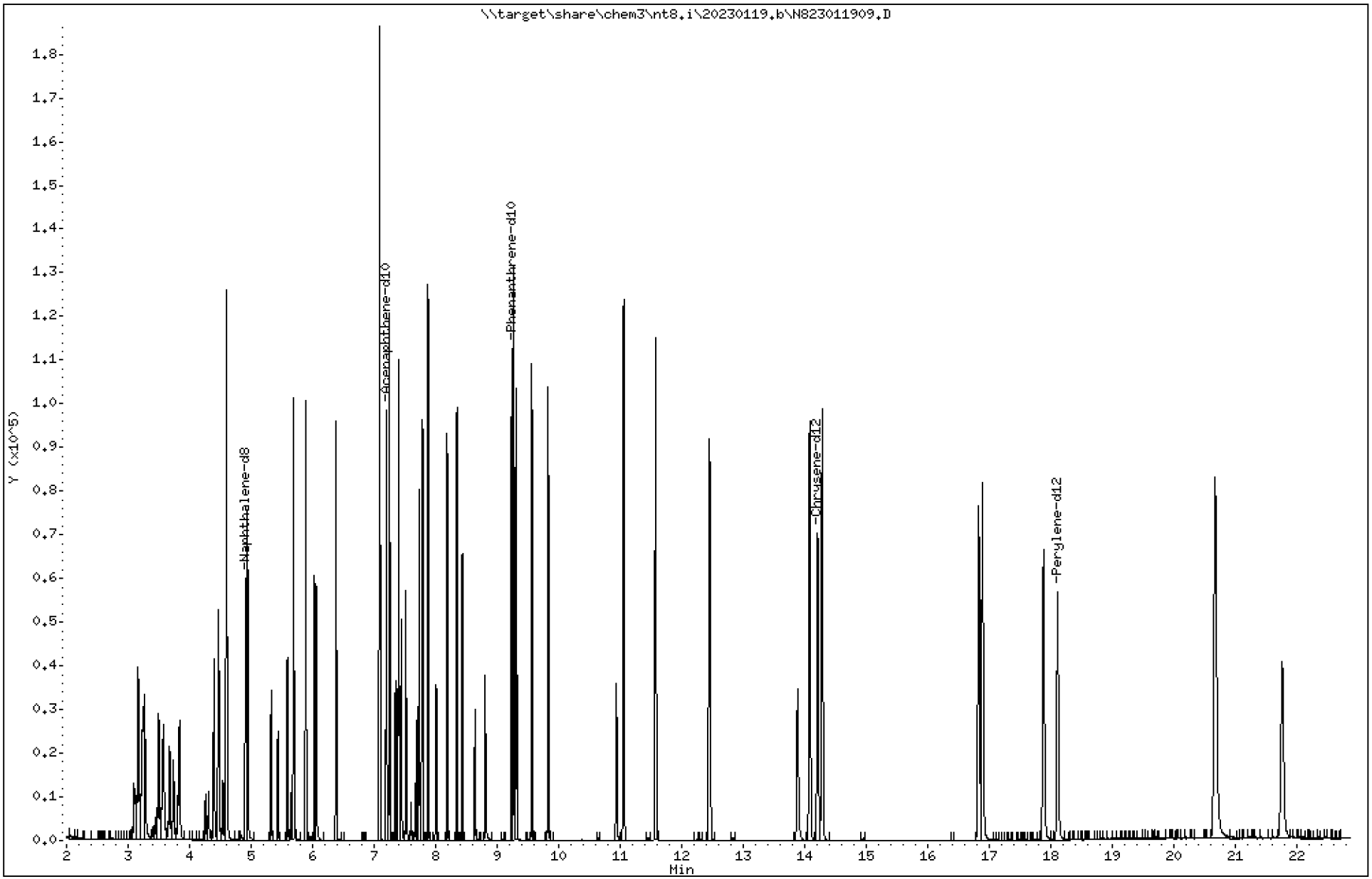
Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823011909.D	Calibration Date:	01/19/2023
Sequence:	SLA0213	Injection Date:	01/19/23
Lab Sample ID:	SLA0213-SCV1	Injection Time:	14:58
Sequence Name:	8270 SIM PNA SCV		

		CONC. (ug/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Naphthalene	A	2.5000	2.63	0.9299181	0.9767747		5.0	
2-Methylnaphthalene	A	2.5000	2.67	0.5115033	0.5463255		6.8	
1-Methylnaphthalene	A	2.5000	2.65	0.5191318	0.5501748		6.0	
Acenaphthylene	A	2.5000	2.82	1.5102600	1.7039370		12.8	
Acenaphthene	A	2.5000	2.60	1.0119150	1.0524810		4.0	
Dibenzofuran	A	2.5000	2.86	1.5369690	1.7582160		14.4	
Fluorene	A	2.5000	2.63	1.1937240	1.2561120		5.2	
Phenanthrene	A	2.5000	2.45	0.9769567	0.9567960		-2.1	
Anthracene	A	2.5000	2.27	0.8874960	0.8058663		-9.2	
Fluoranthene	A	2.5000	2.65	1.0634260	1.1284050		6.1	
Pyrene	A	2.5000	2.46	1.2399700	1.2213300		-1.5	
Benzo(a)anthracene	A	2.5000	2.59	1.1238870	1.1631100		3.5	
Chrysene	A	2.5000	2.40	1.1964350	1.1484610		-4.0	
Benzo(b)fluoranthene	A	2.5000	2.51	1.1648110	1.1680230		0.3	
Benzo(k)fluoranthene	A	2.5000	2.66	1.1409370	1.2121600		6.2	
Benzofluoranthenes, Total	A	5.0000	5.48	1.1031370	1.2090940		9.6	
Benzo(a)pyrene	A	2.5000	2.57	1.0250270	1.0545670		2.9	
Indeno(1,2,3-cd)pyrene	A	2.5000	2.69	1.1677520	1.2561630		7.6	
Dibenzo(a,h)anthracene	A	2.5000	2.49	1.0049440	1.0021900		-0.3	
Benzo(g,h,i)perylene	A	2.5000	2.48	1.0580110	1.0506380		-0.7	

* Values outside of QC limits

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Date : 19-JAN-2023 14:58
Client ID:
Sample Info: SCV230119
Volume Injected (uL): 1.0
Column phase: Rxi-17sil

Instrument: nt8.i
Operator: JZ
Column diameter: 0.25



Final Report 23C0064 03/17/2023 Page 367 of 833

Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

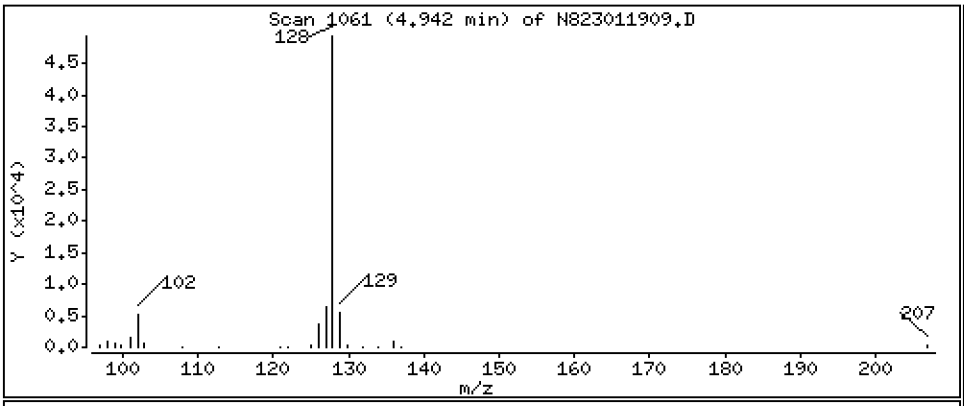
Operator: JZ

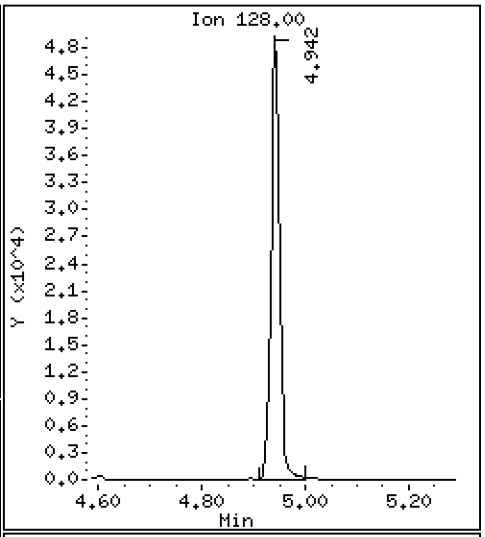
Column phase: Rxi-17sil

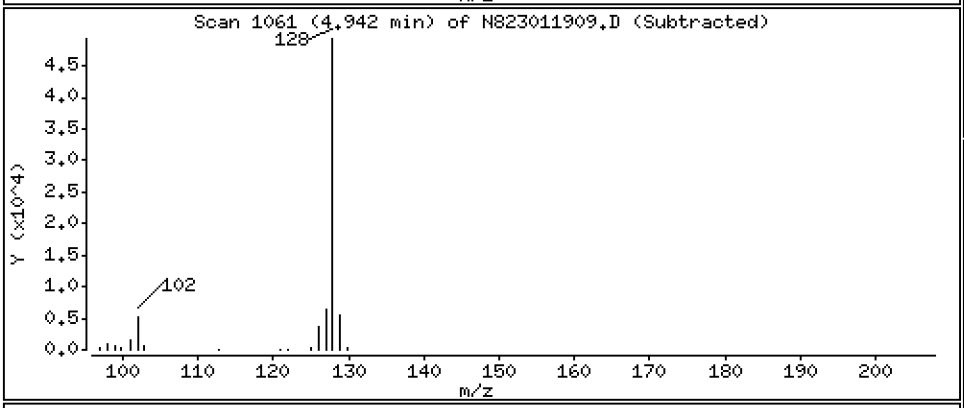
Column diameter: 0.25

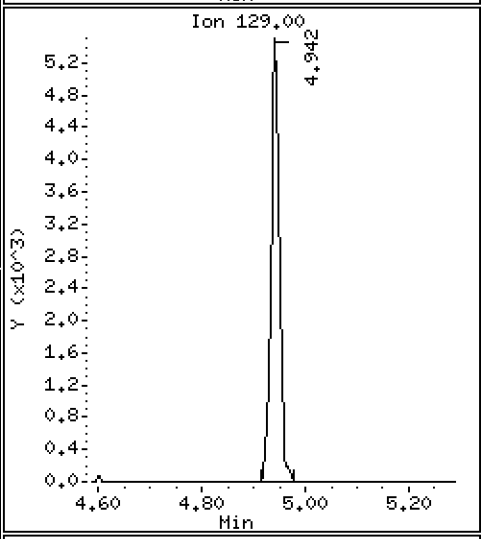
2 Naphthalene

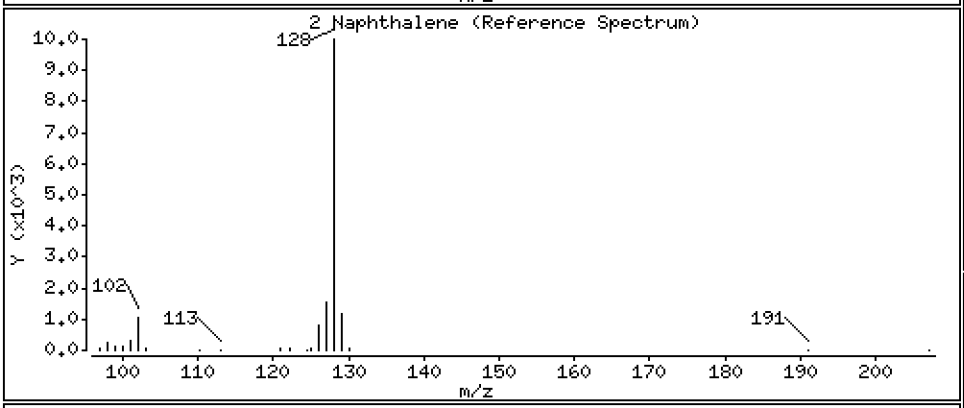
Concentration: 2.626 ug/L

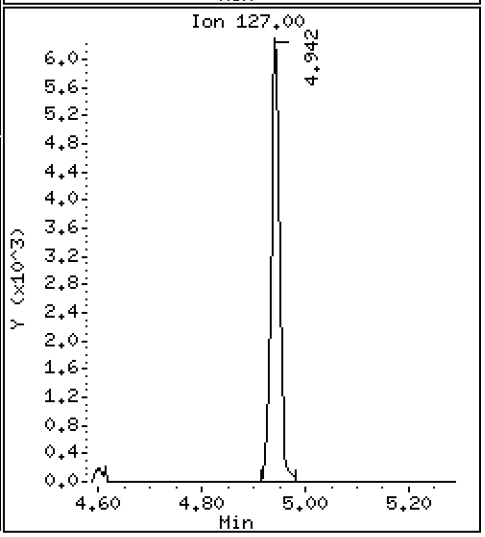


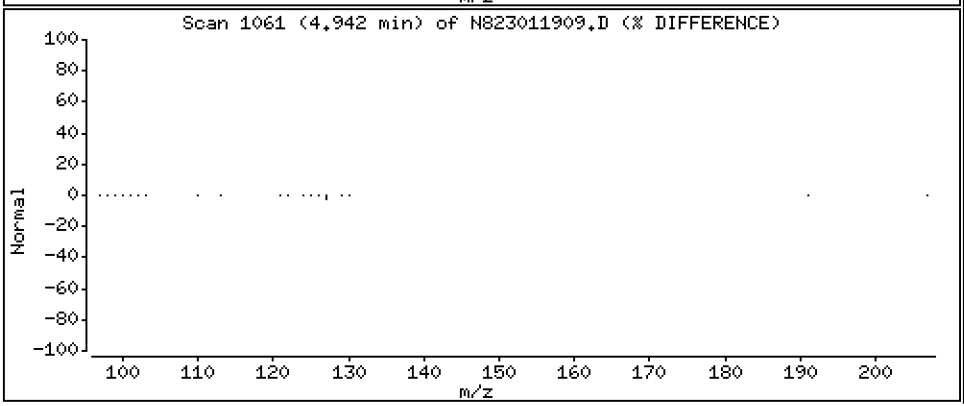












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

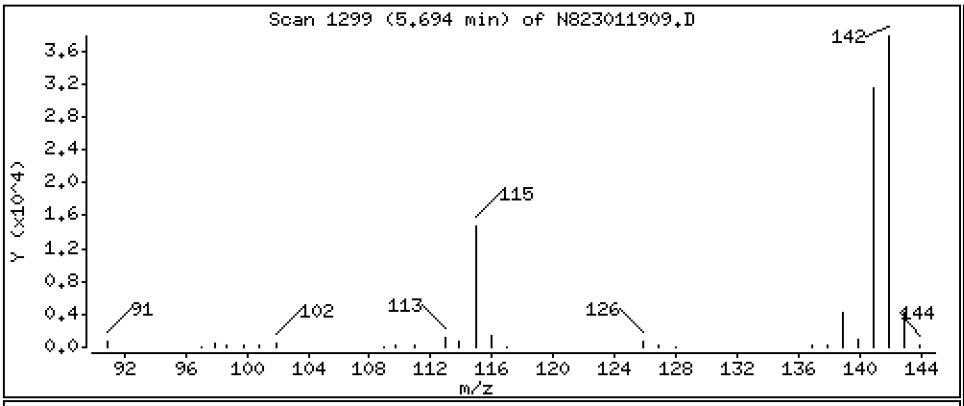
Operator: JZ

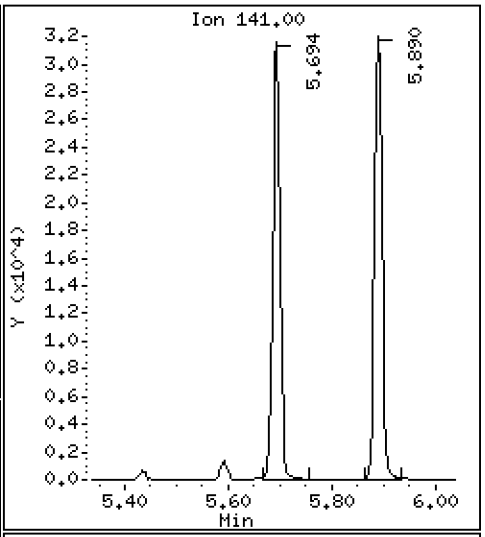
Column phase: Rxi-17sil

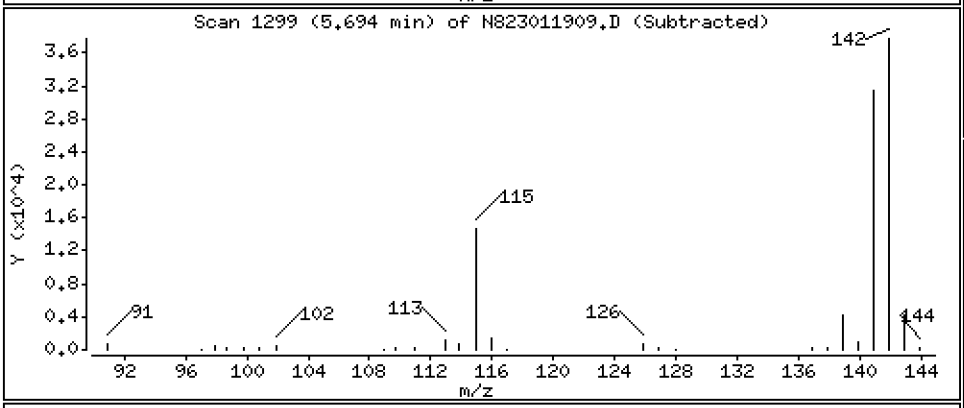
Column diameter: 0.25

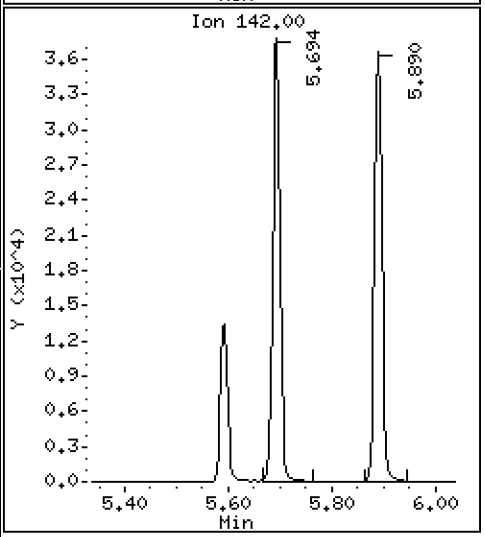
4 2-Methylnaphthalene

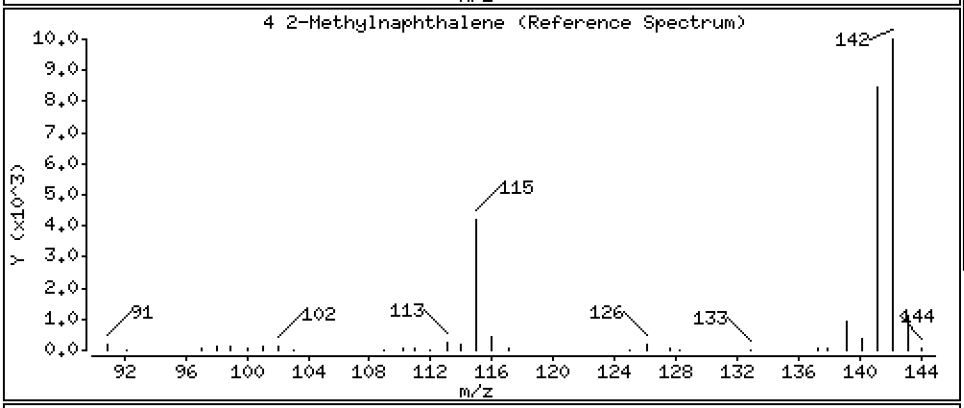
Concentration: 2.670 ug/L

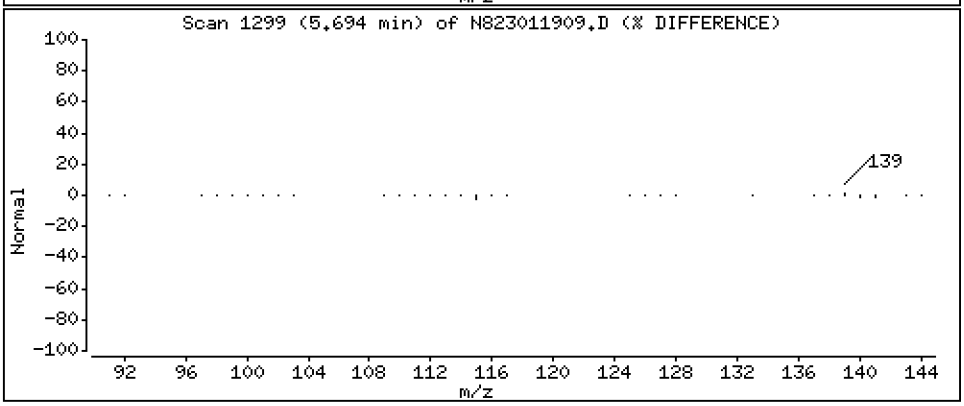












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

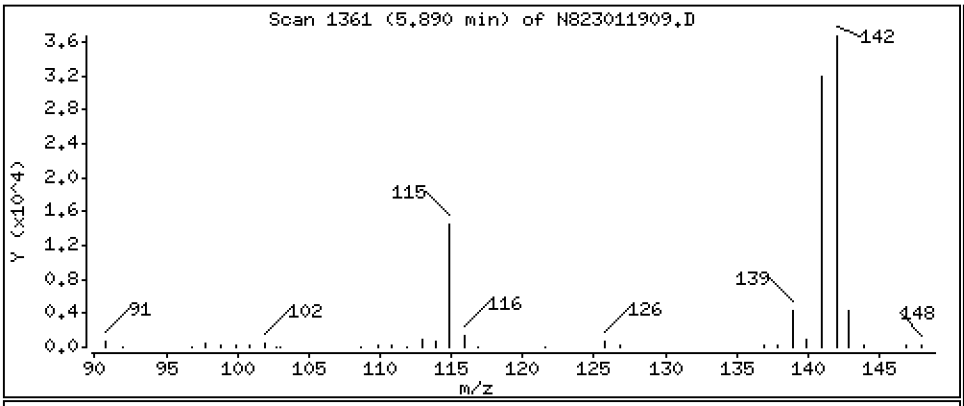
Operator: JZ

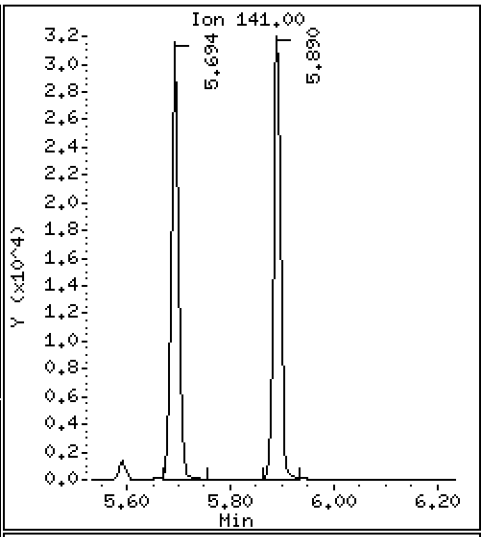
Column phase: Rxi-17sil

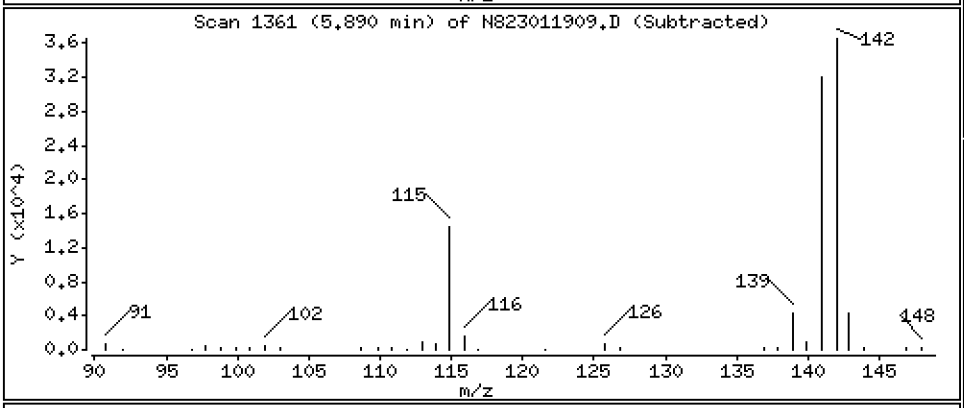
Column diameter: 0.25

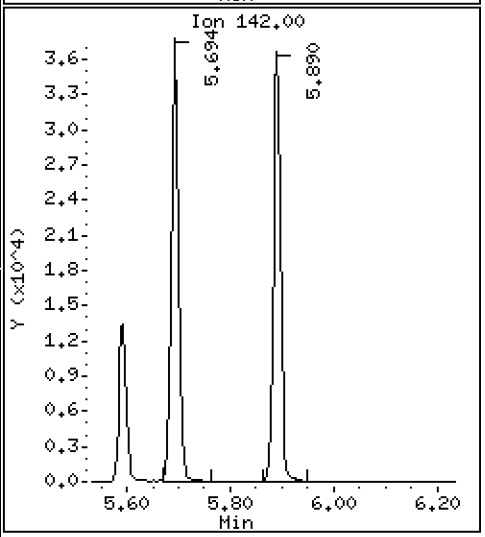
5 1-methylnaphthalene

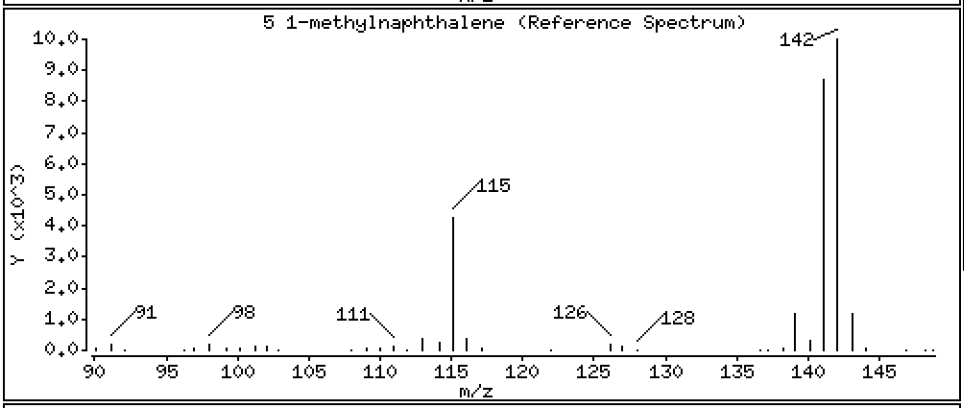
Concentration: 2.649 ug/L

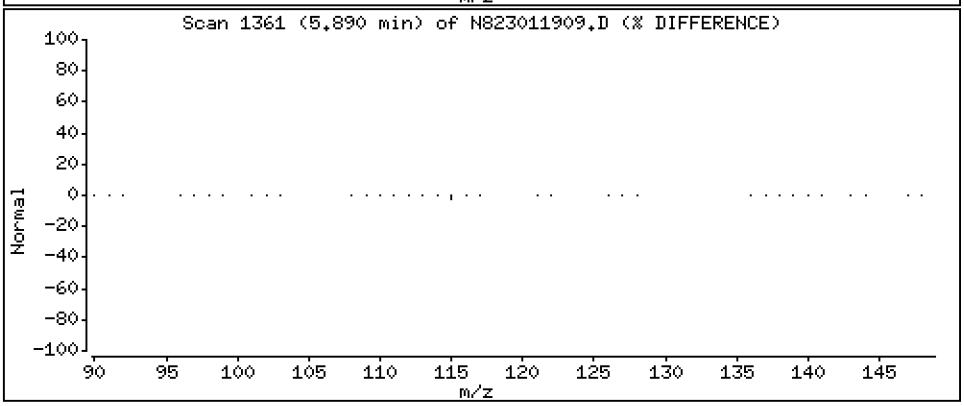












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

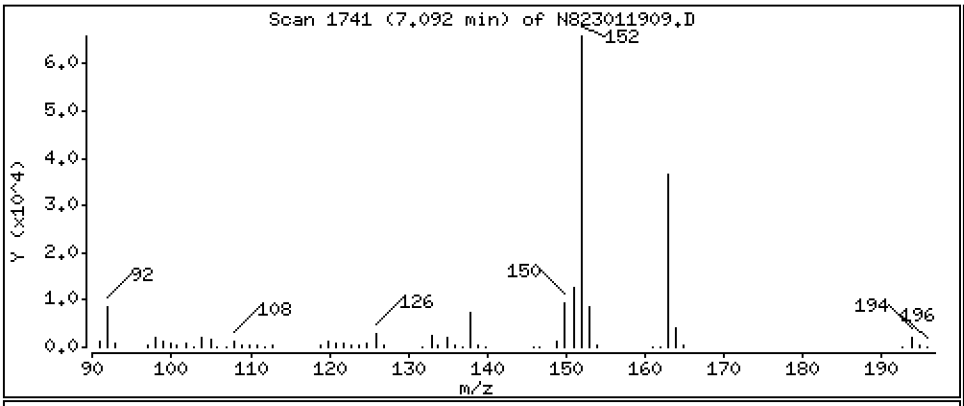
Operator: JZ

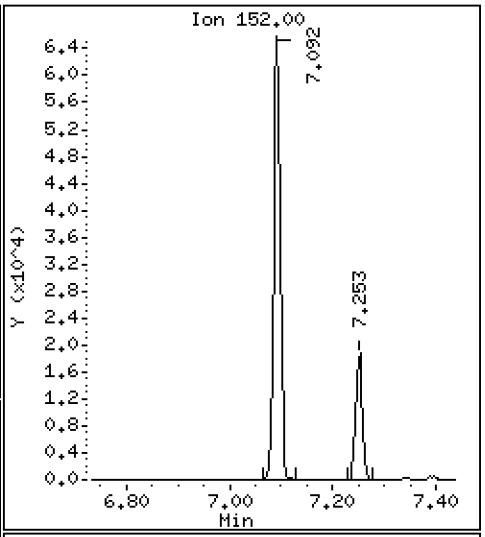
Column phase: Rxi-17sil

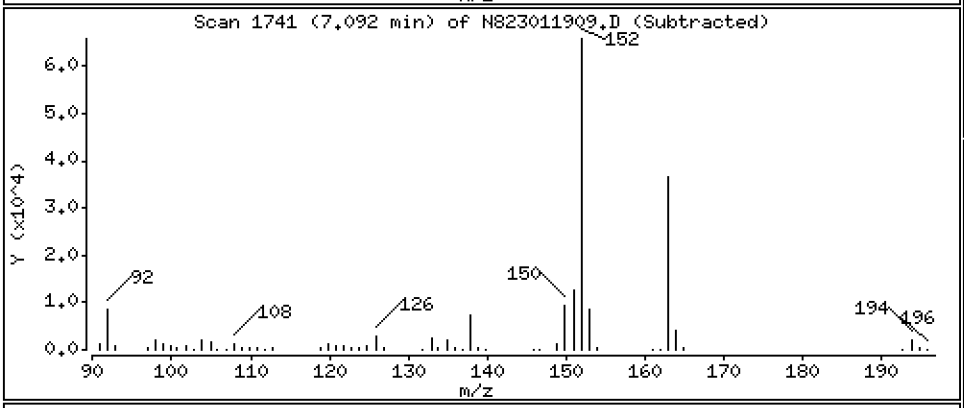
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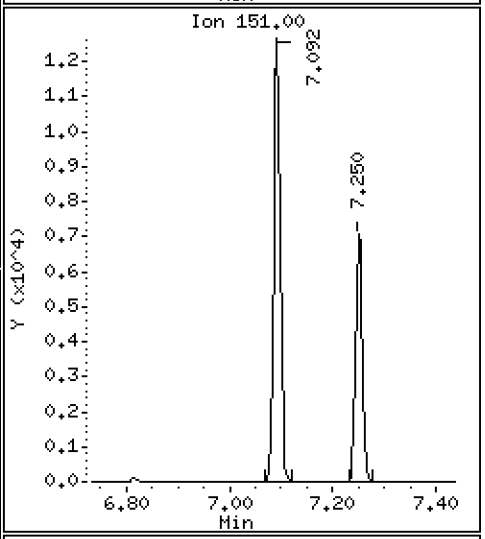
9 Acenaphthylene

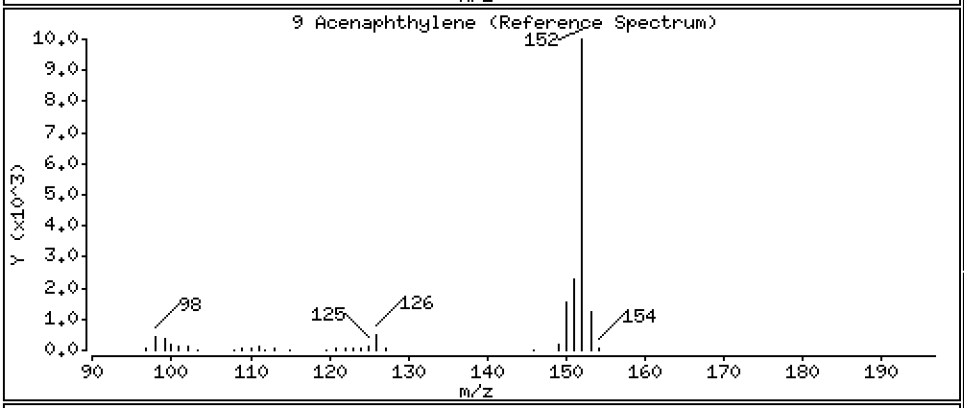
Concentration: 2.821 ug/L

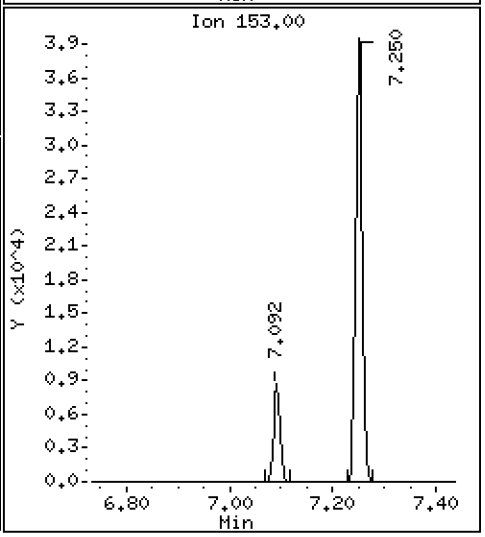


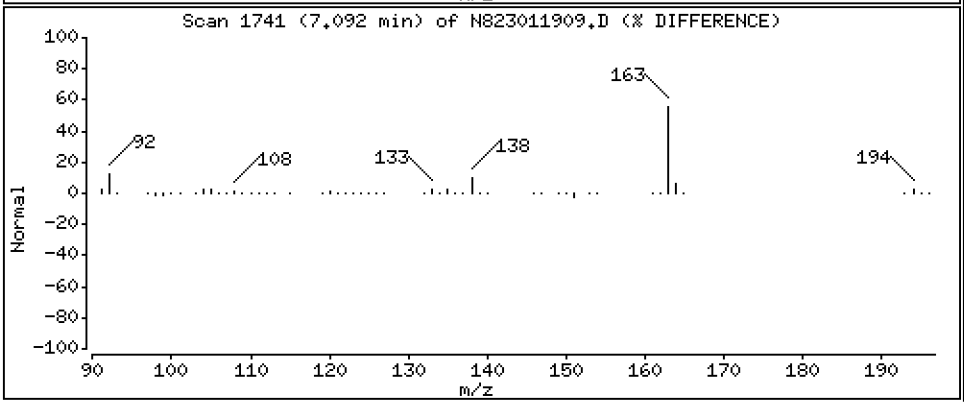












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

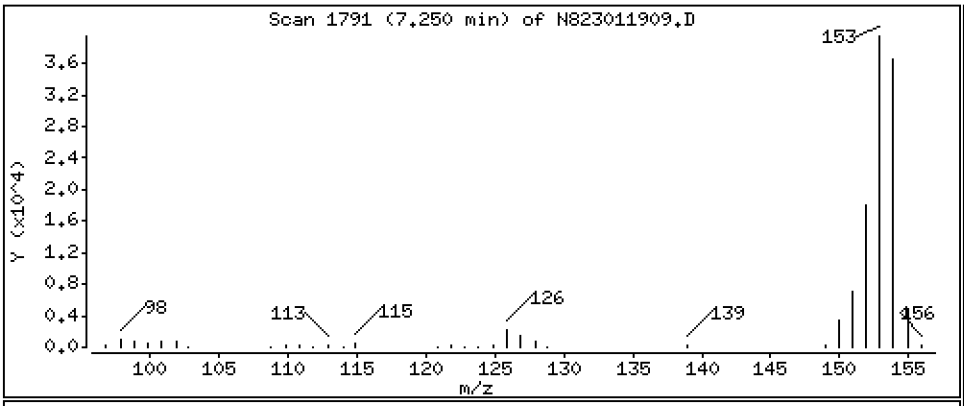
Operator: JZ

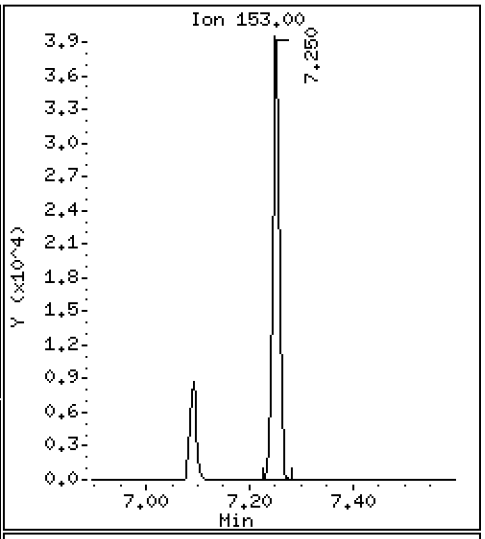
Column phase: Rxi-17sil

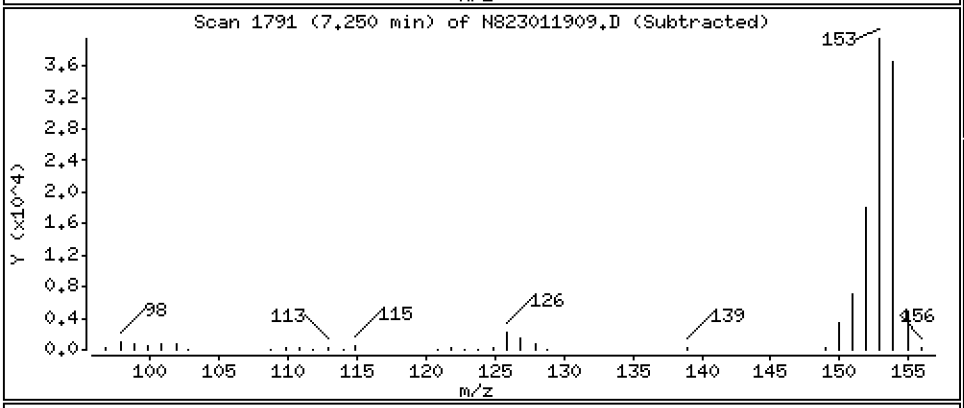
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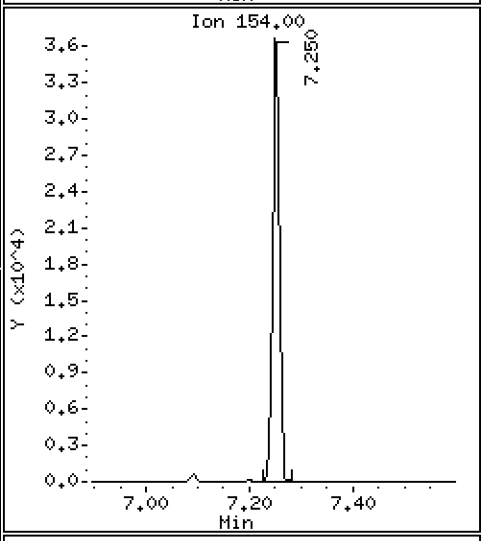
11 Acenaphthene

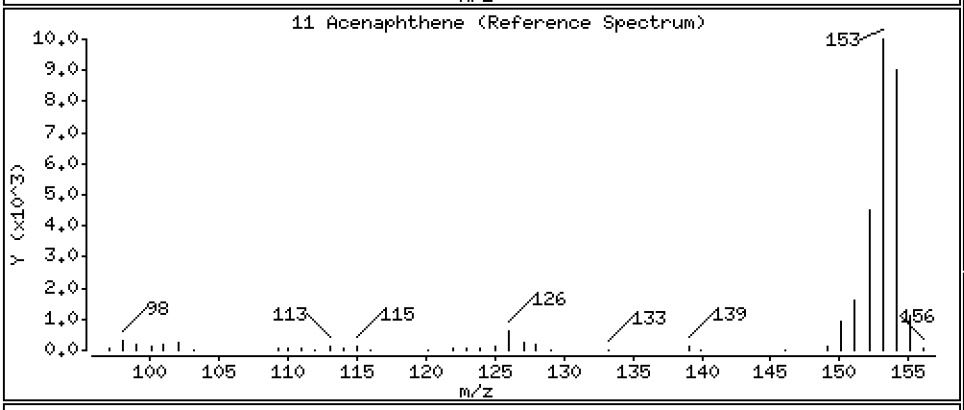
Concentration: 2.600 ug/L

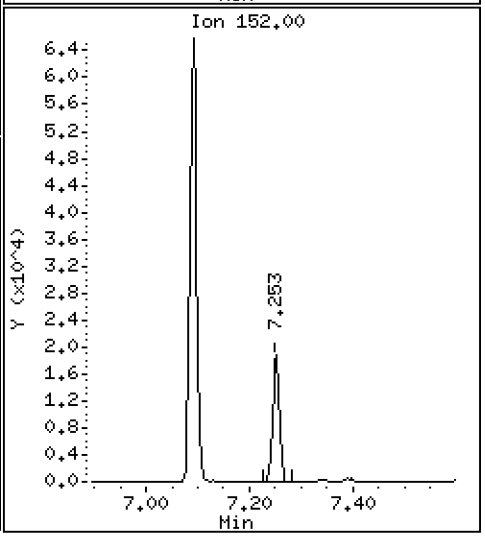


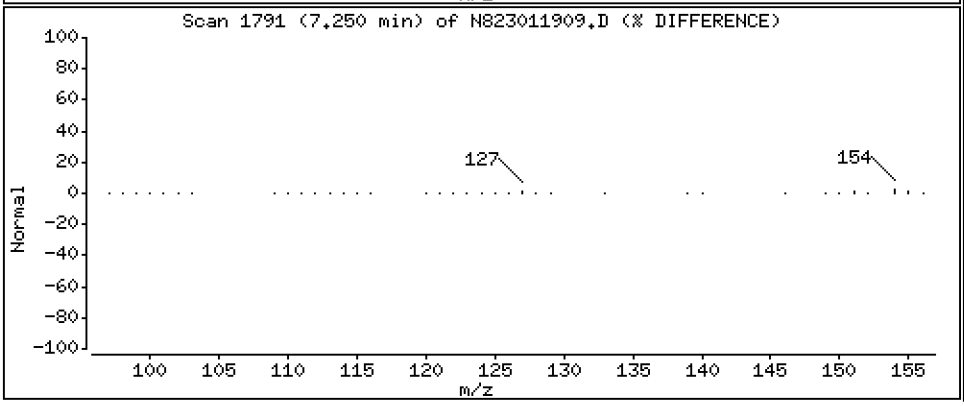












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

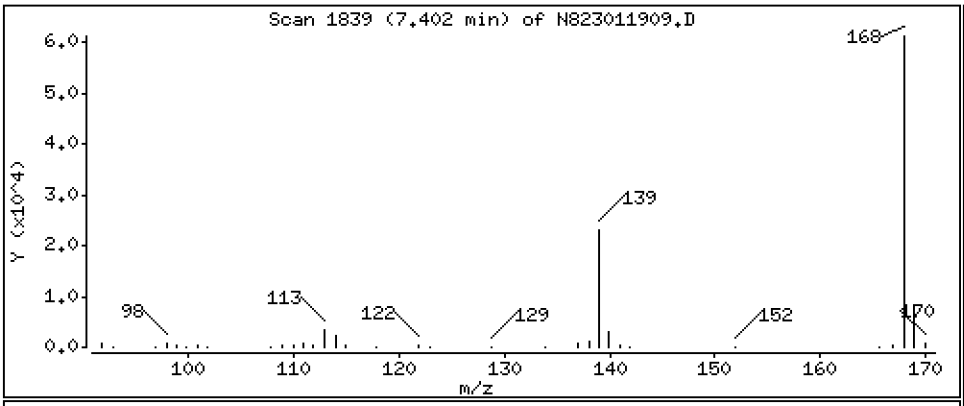
Operator: JZ

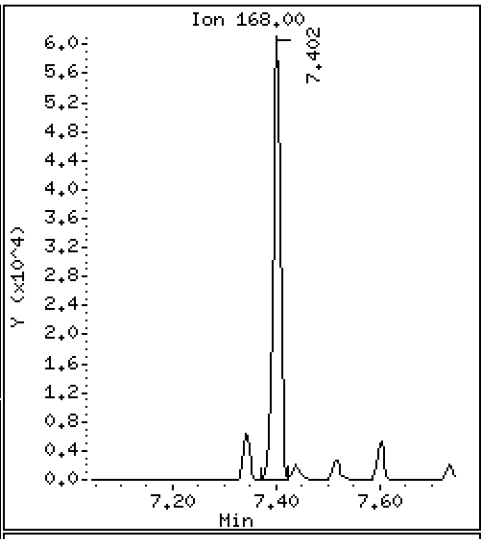
Column phase: Rxi-17sil

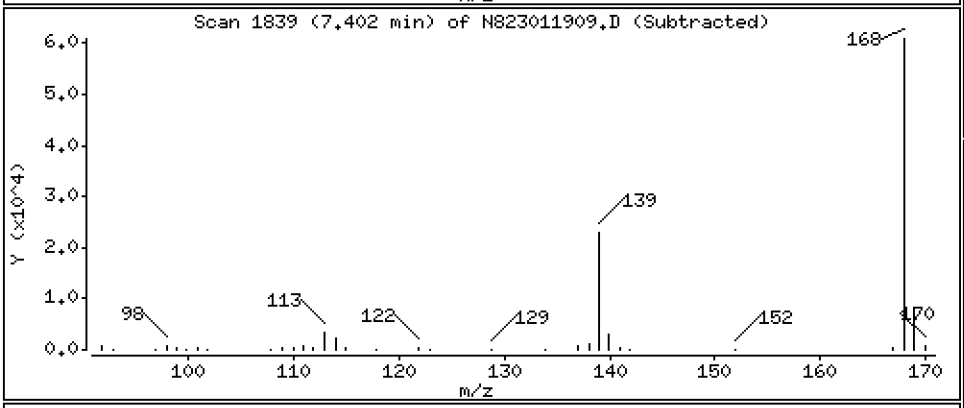
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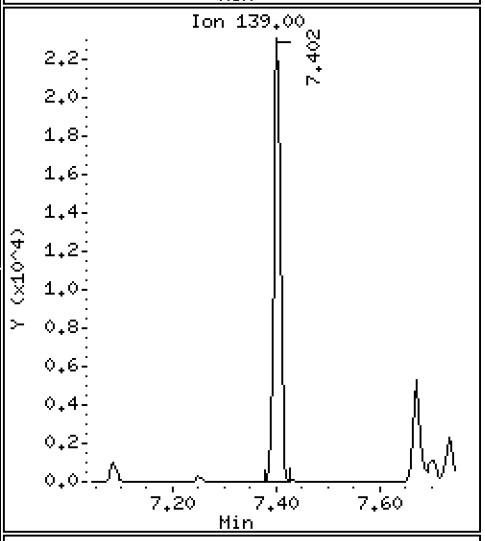
12 Dibenzofuran

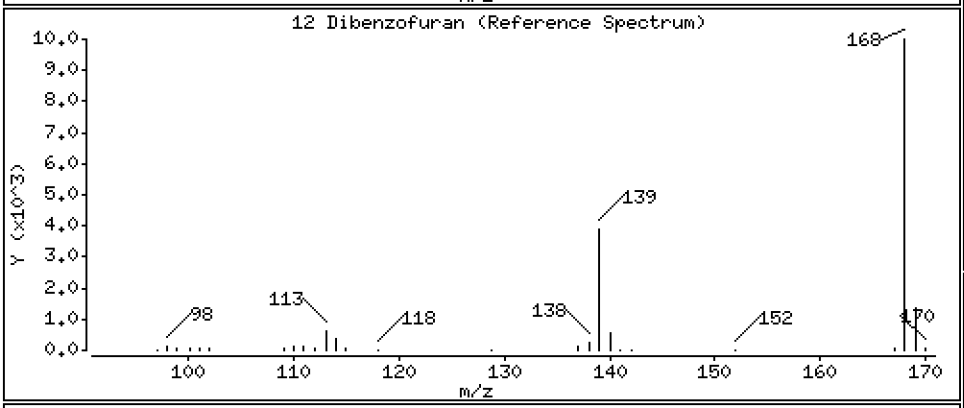
Concentration: 2.860 ug/L

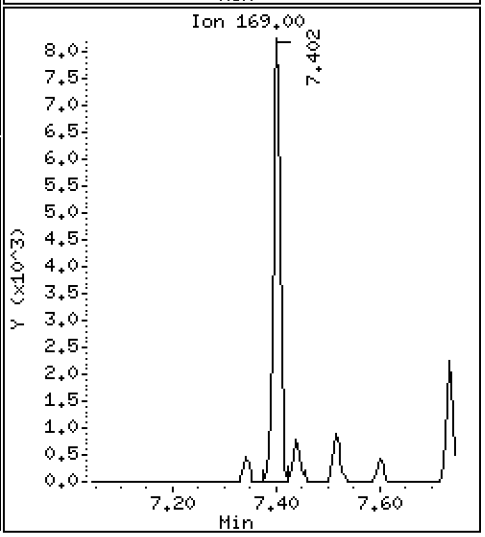


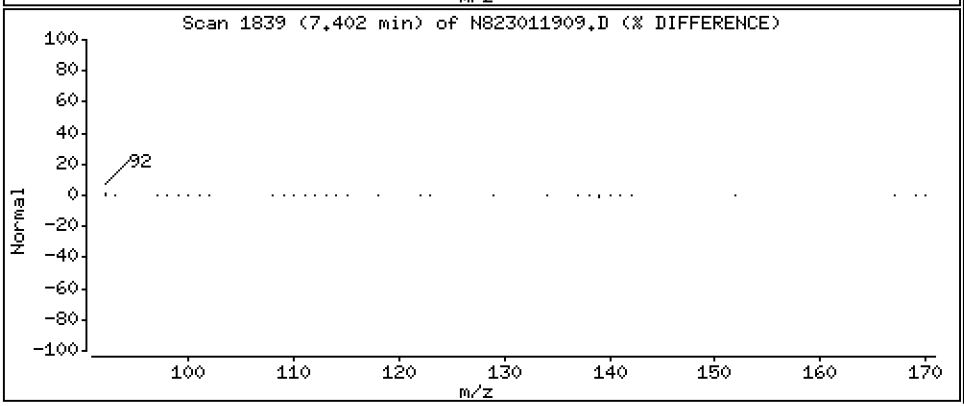












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

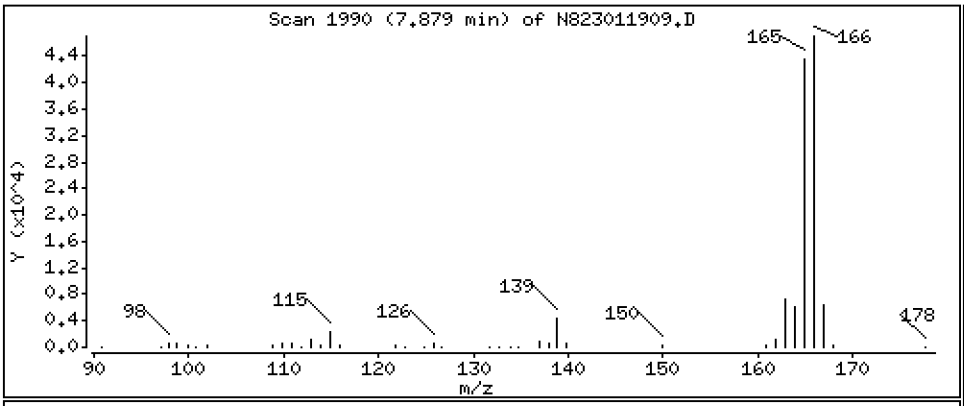
Operator: JZ

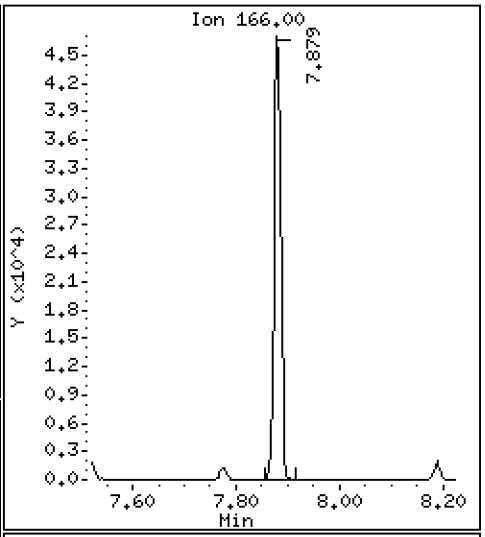
Column phase: Rxi-17sil

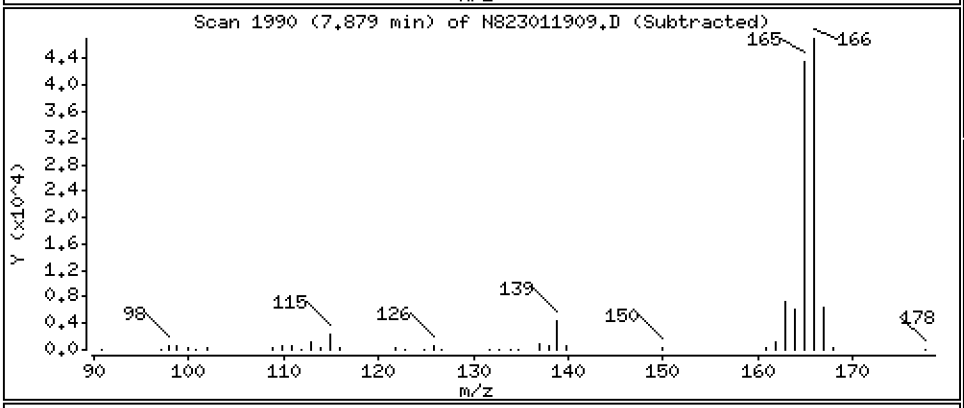
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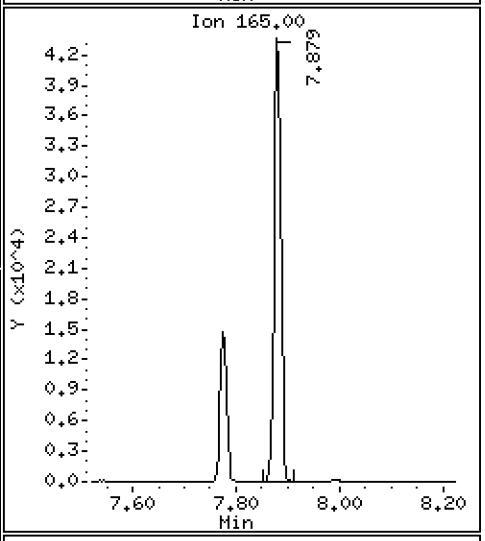
14 Fluorene

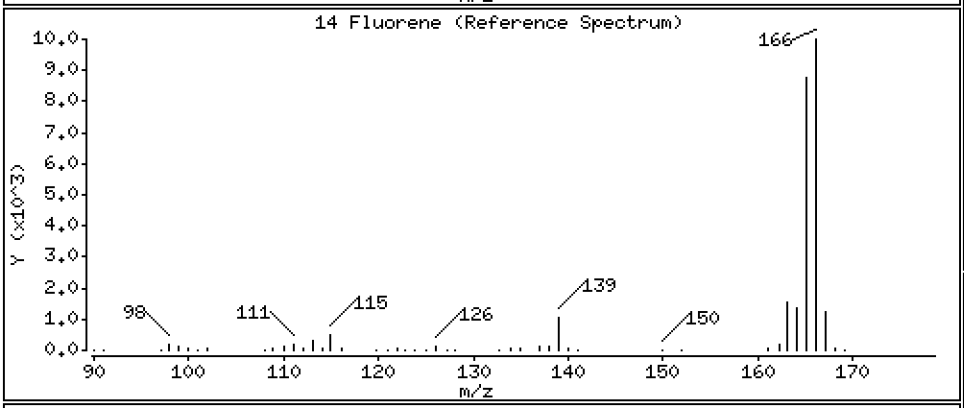
Concentration: 2.631 ug/L

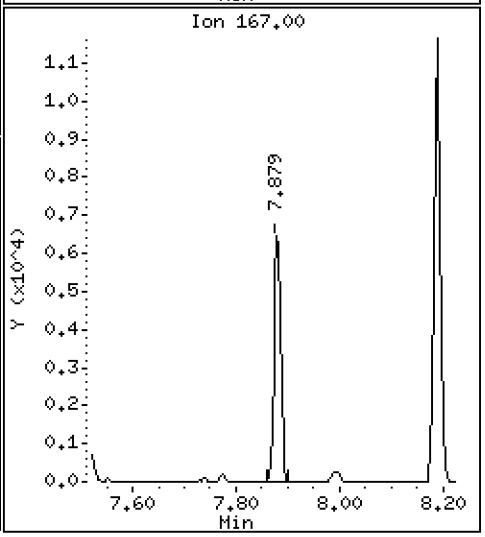


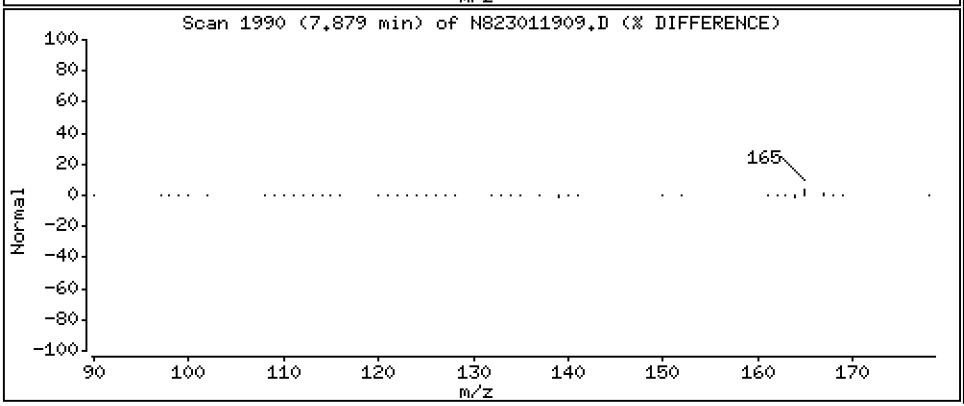












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

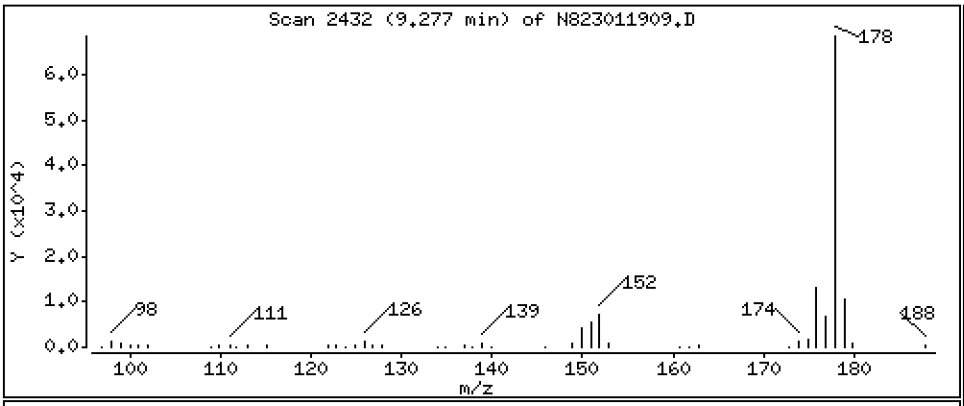
Operator: JZ

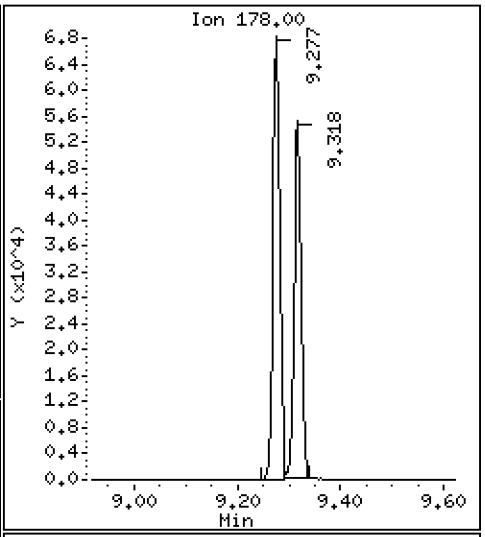
Column phase: Rxi-17sil

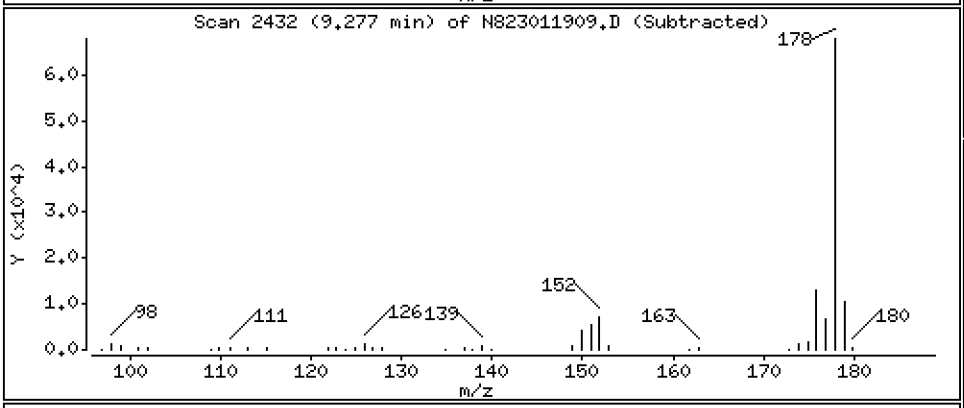
Column diameter: 0.25

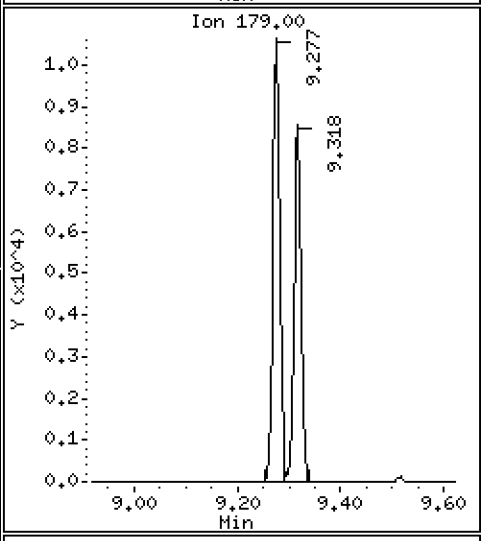
16 Phenanthrene

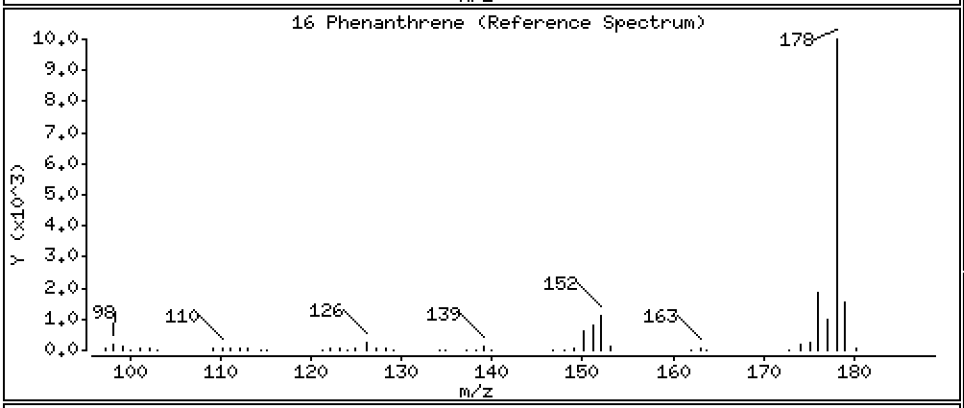
Concentration: 2.448 ug/L

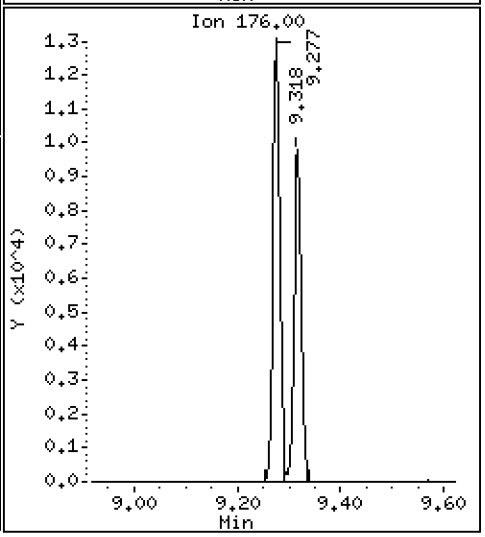


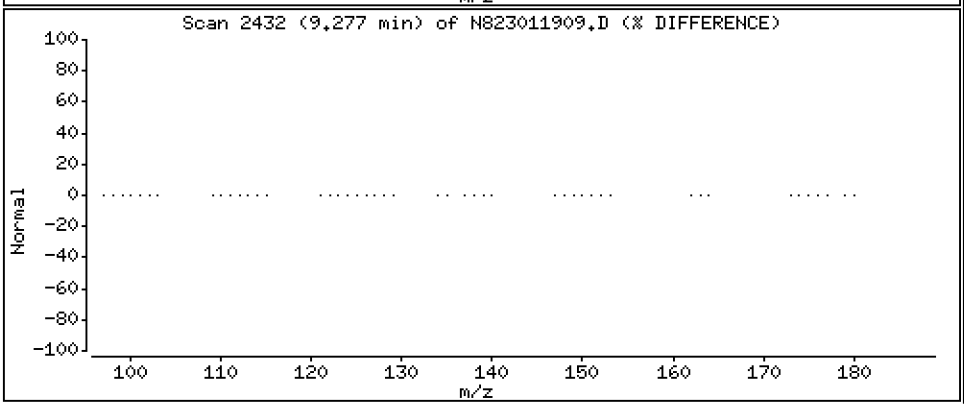












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

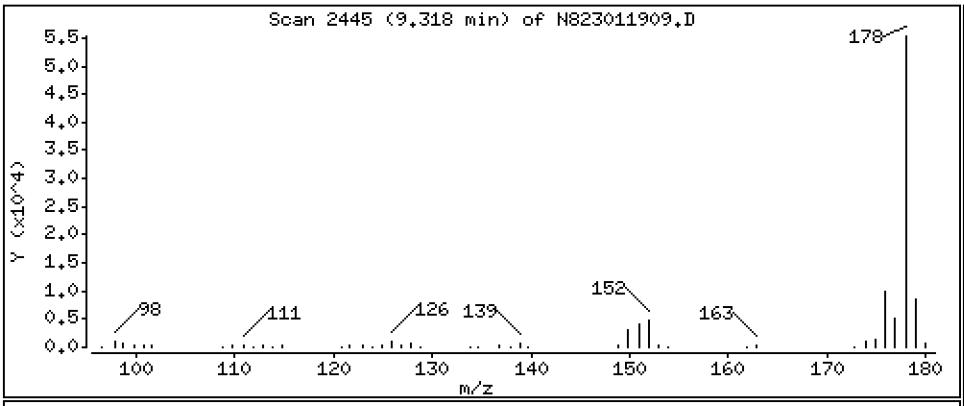
Operator: JZ

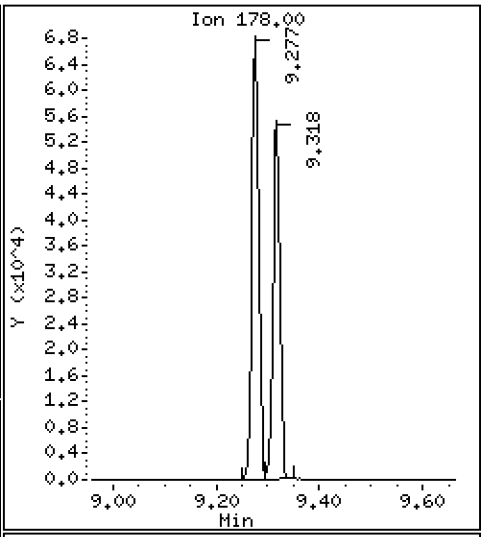
Column phase: Rxi-17sil

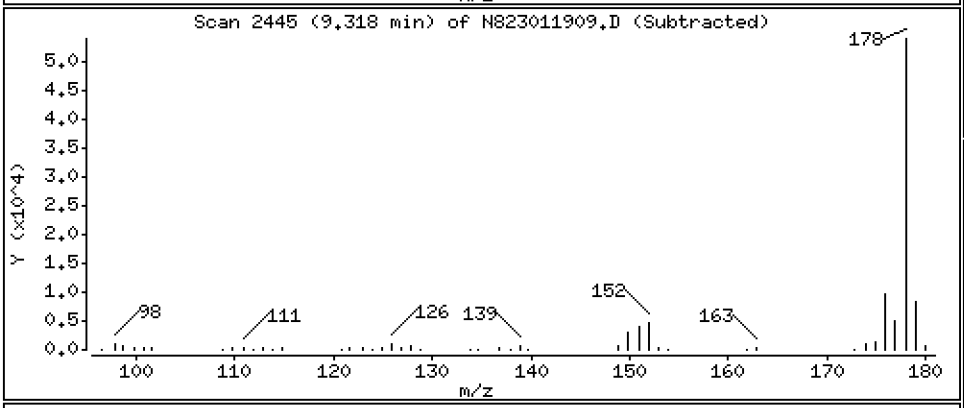
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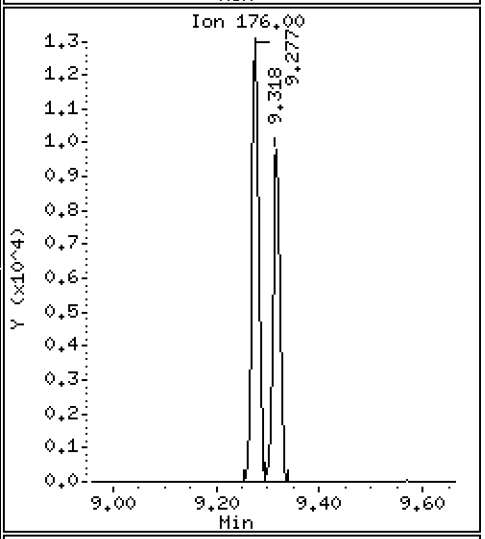
17 Anthracene

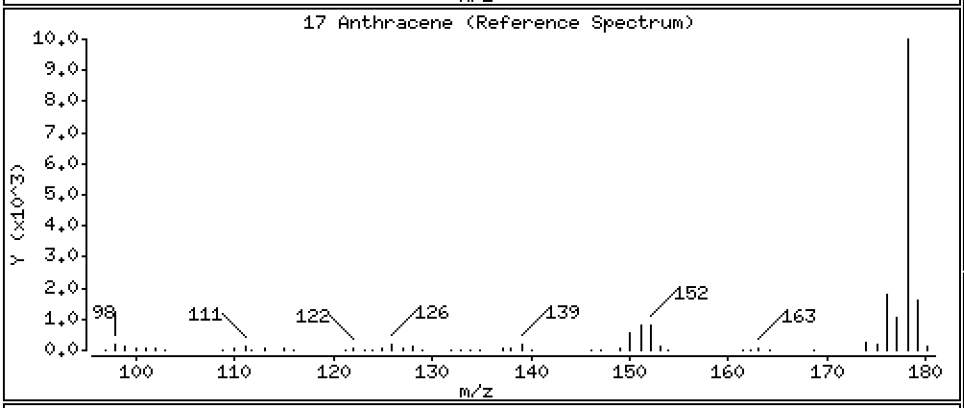
Concentration: 2.270 ug/L

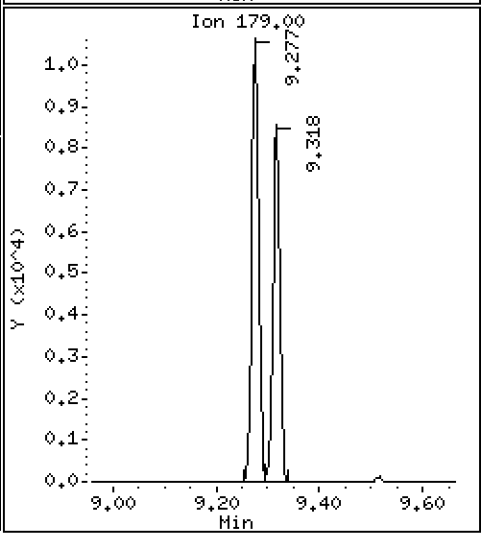


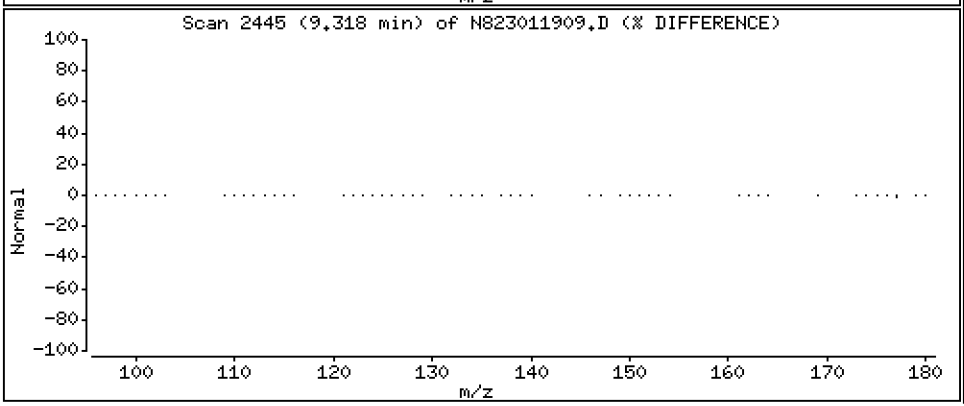












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

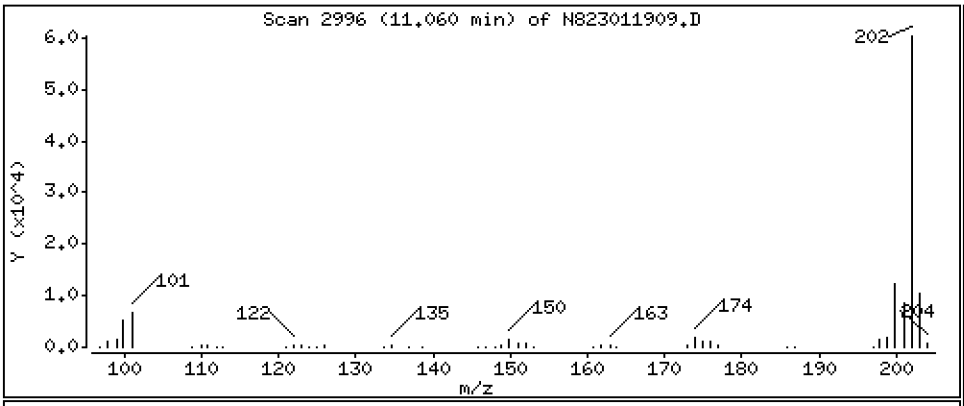
Operator: JZ

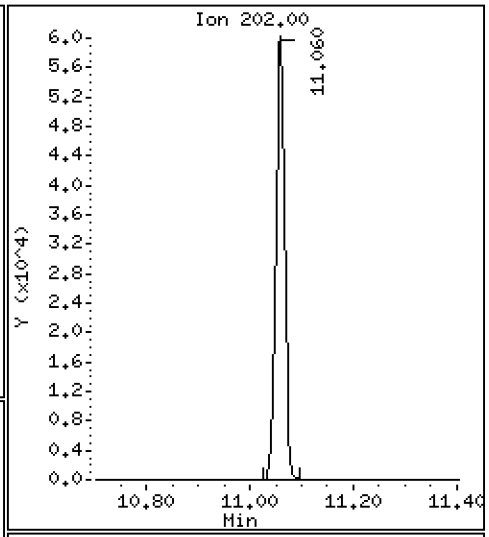
Column phase: Rxi-17sil

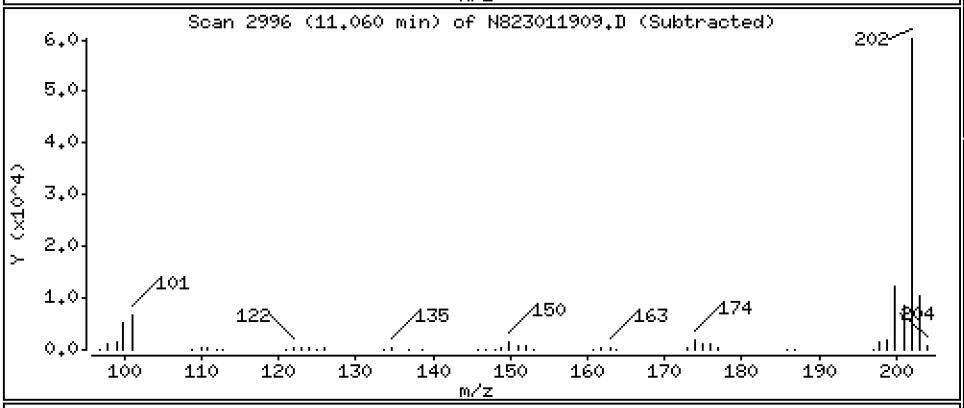
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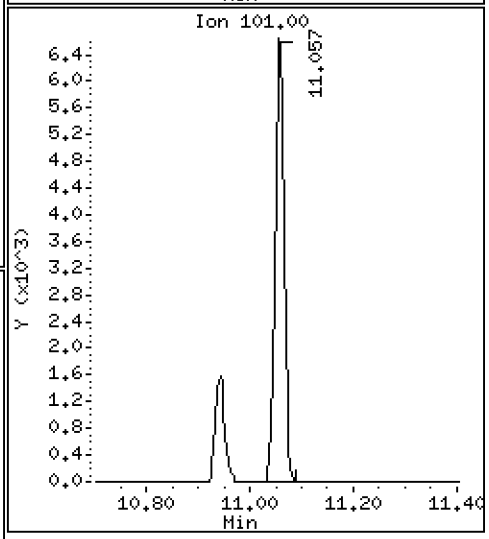
22 Fluoranthene

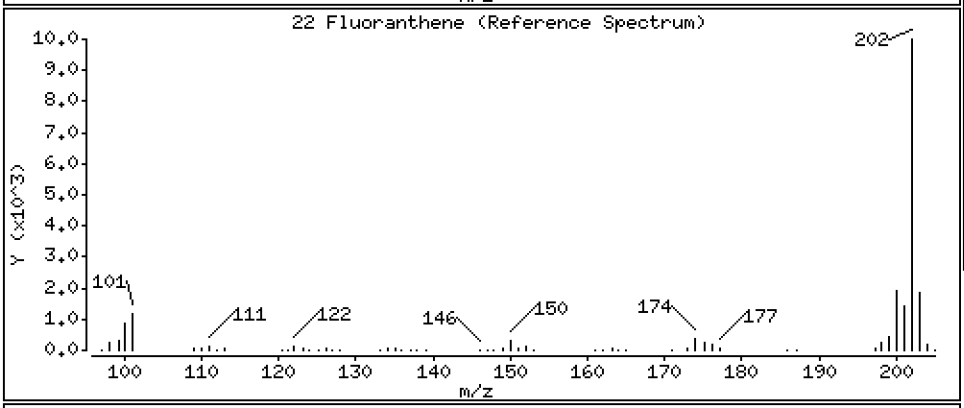
Concentration: 2.653 ug/L

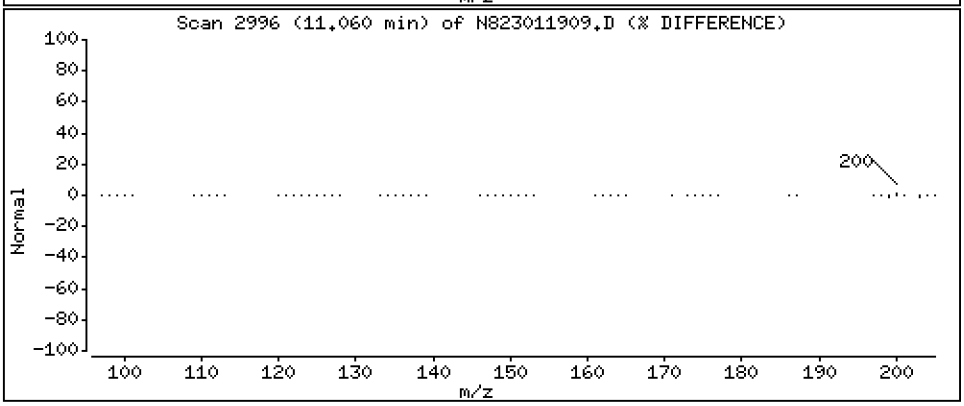












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

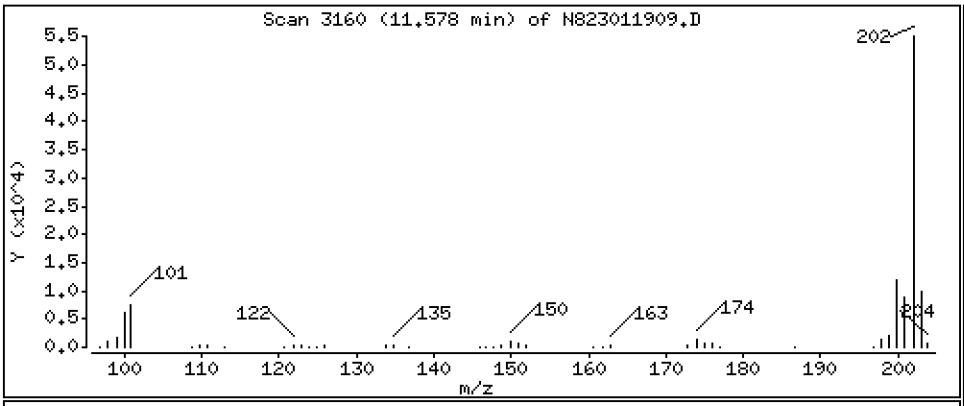
Operator: JZ

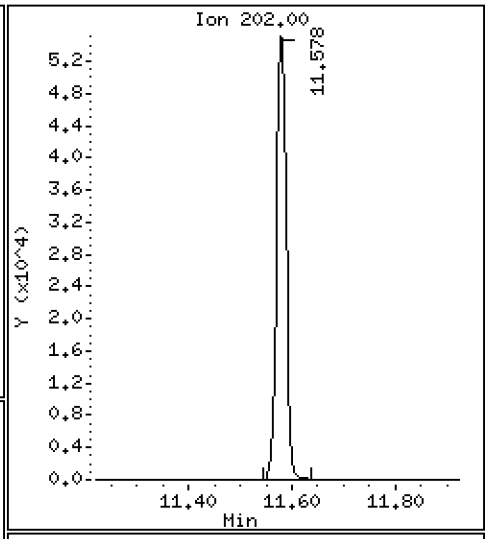
Column phase: Rxi-17sil

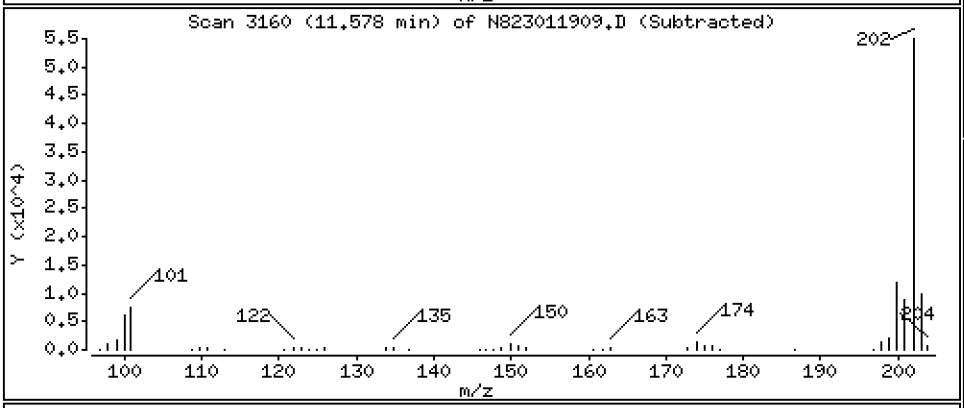
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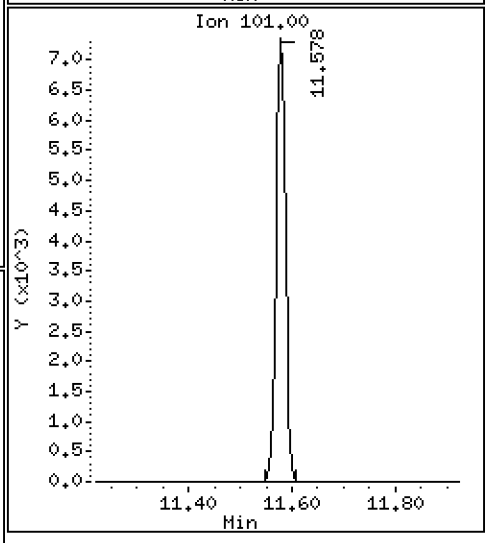
23 Pyrene

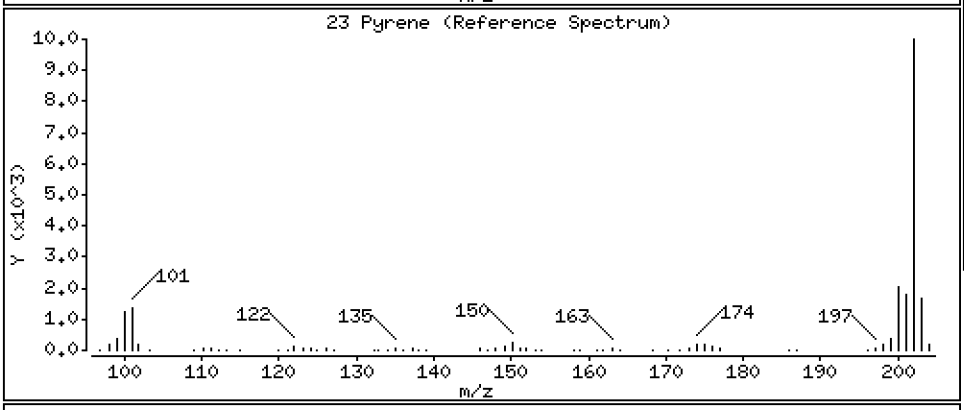
Concentration: 2.462 ug/L

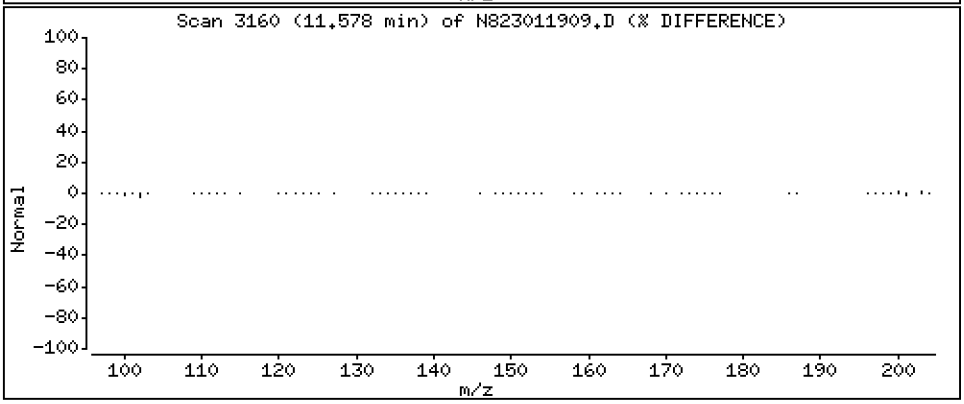












Data File: \\target\share\chem3\nt8.i\20230119.b\N823011909.D

Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

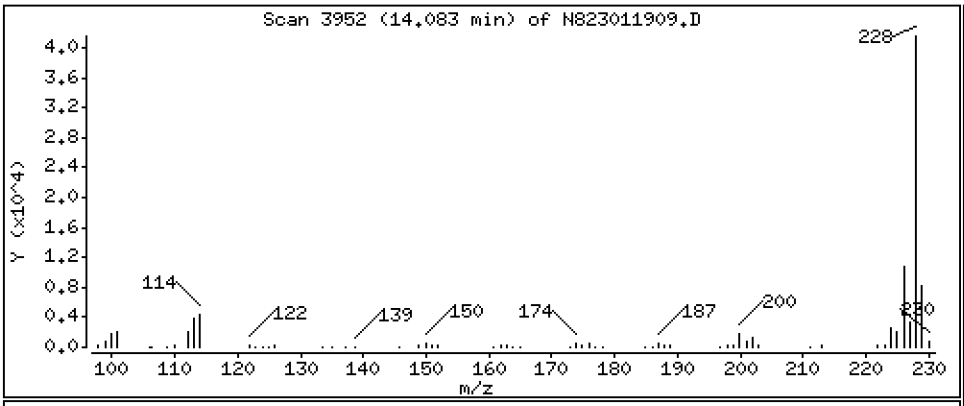
Operator: JZ

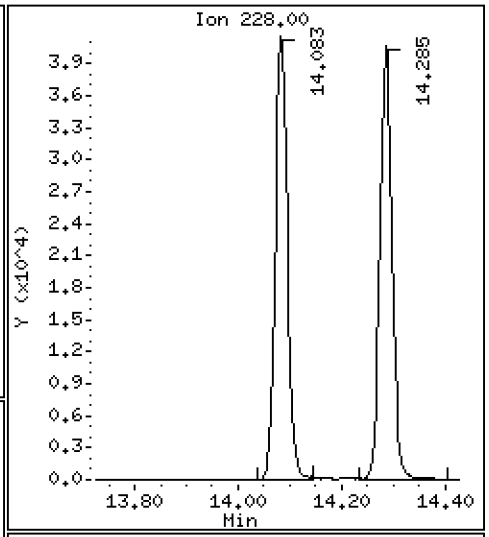
Column phase: Rxi-17sil

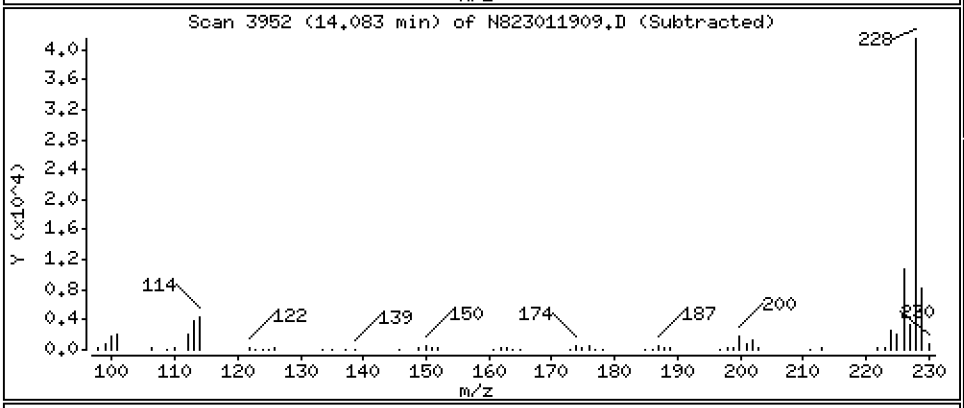
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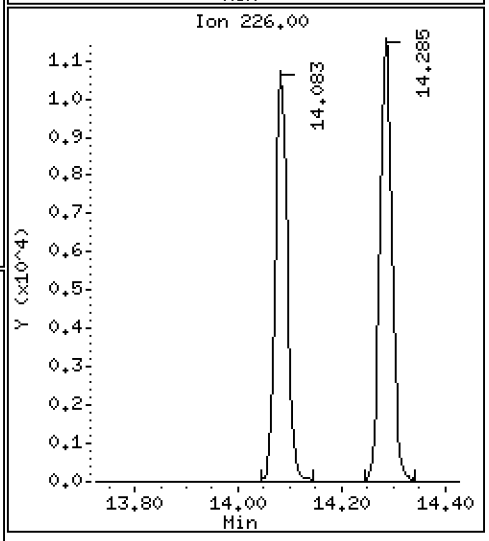
24 Benzo(a)anthracene

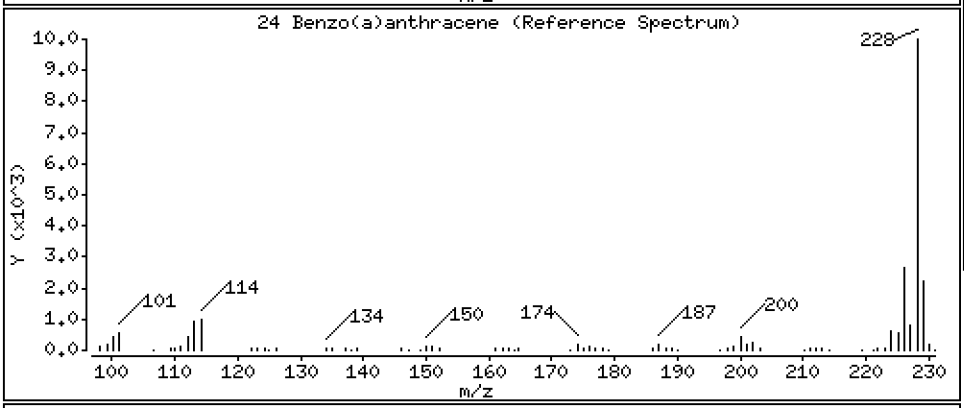
Concentration: 2.587 ug/L

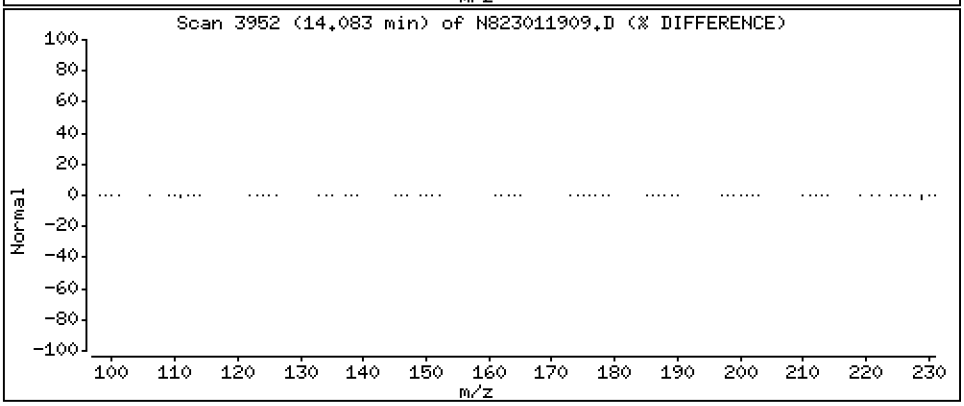












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

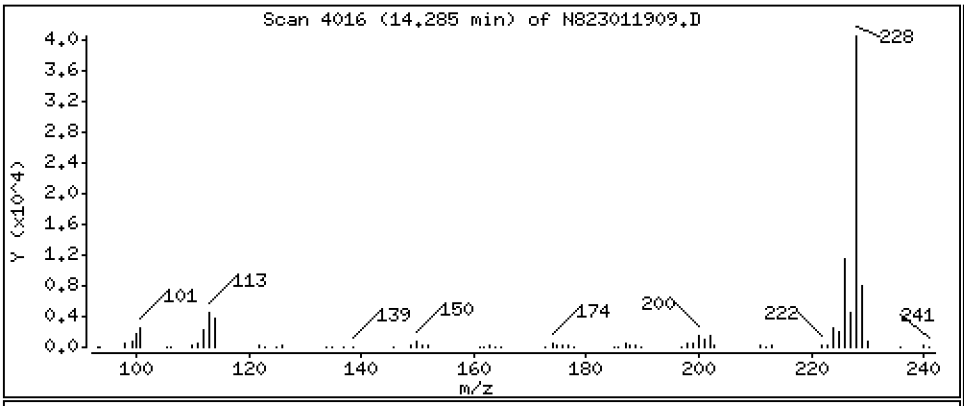
Operator: JZ

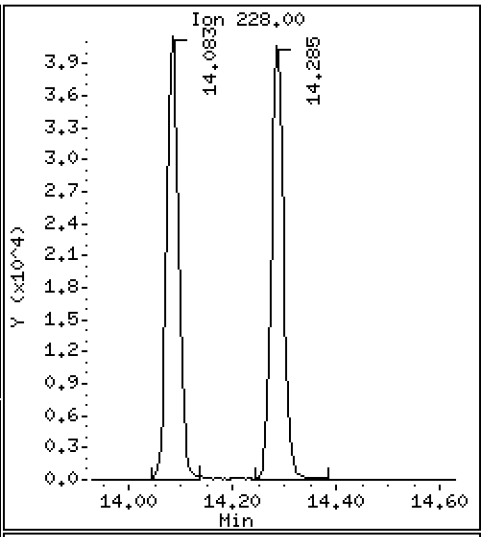
Column phase: Rxi-17sil

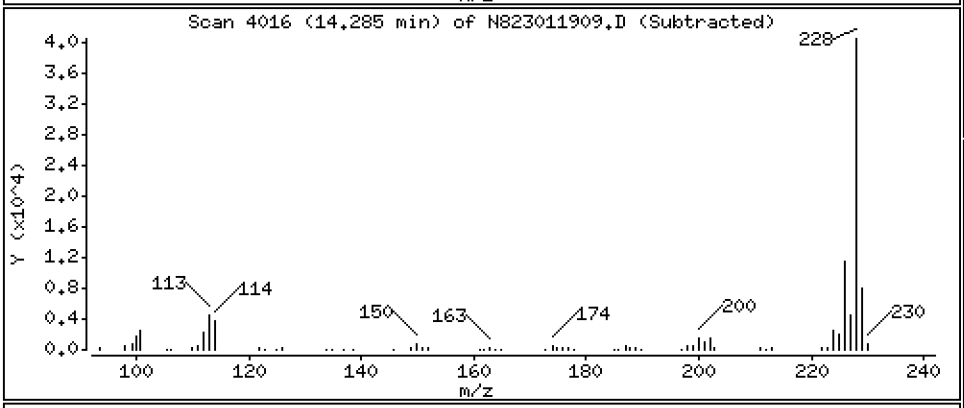
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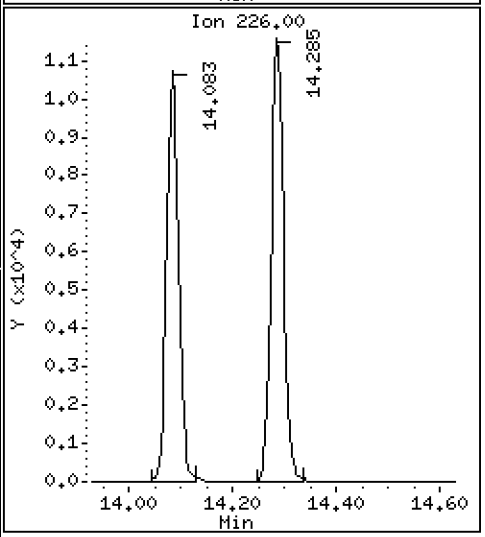
27 Chrysene

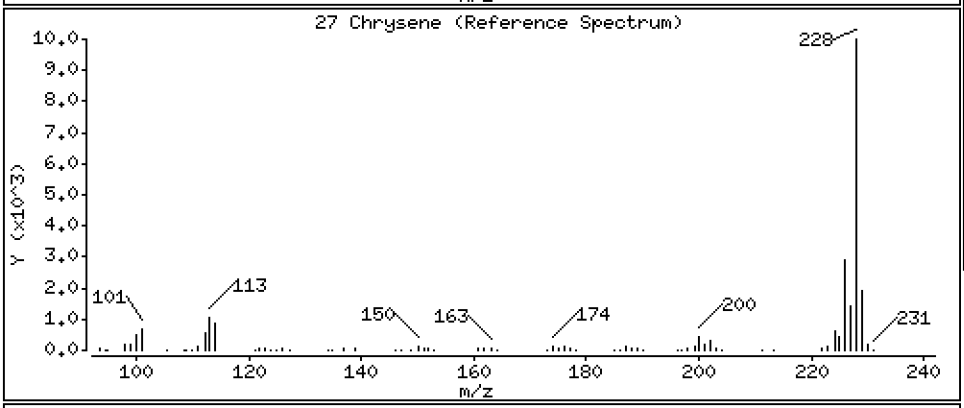
Concentration: 2.400 ug/L

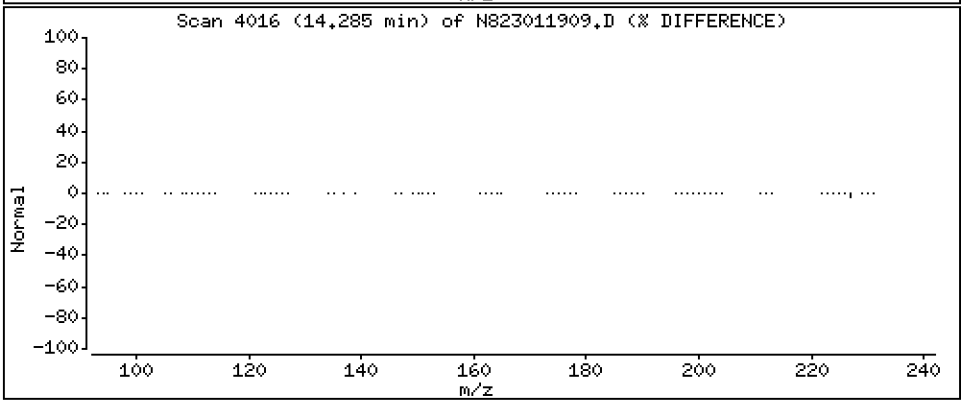












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

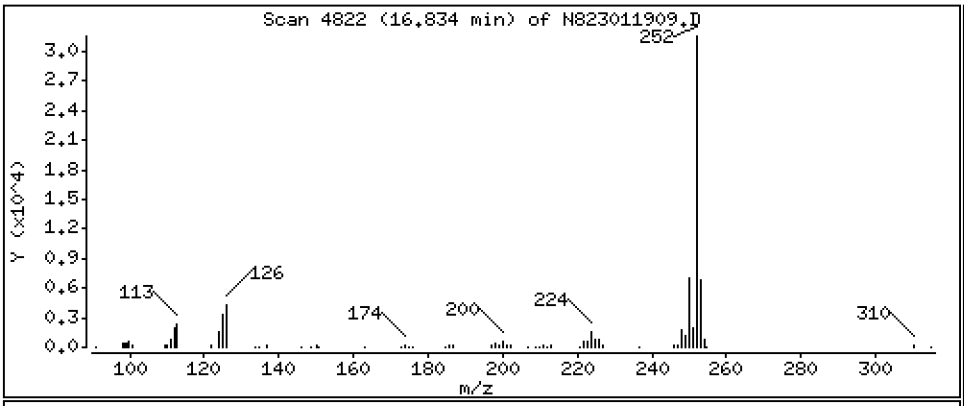
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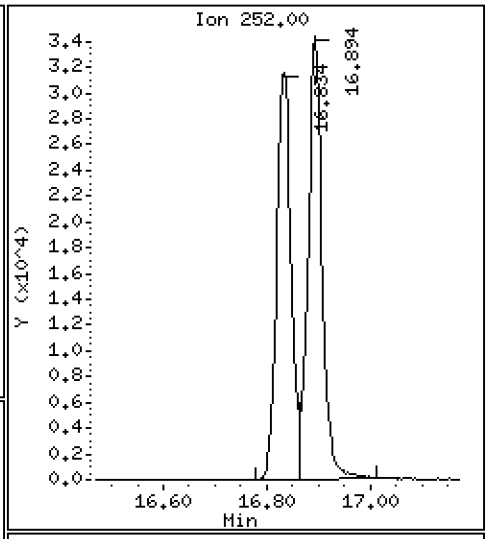
Column phase: Rxi-17sil

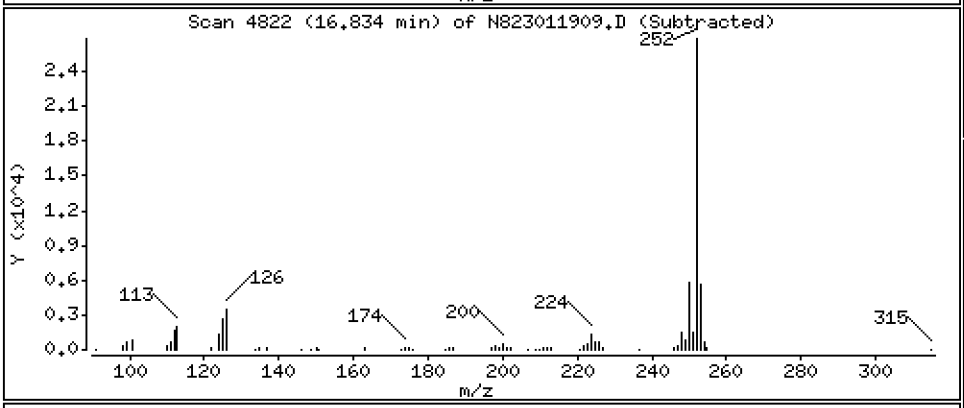
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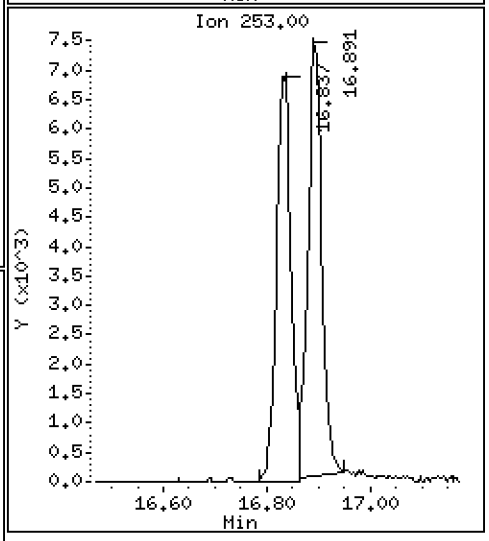
28 Benzo(b)fluoranthene

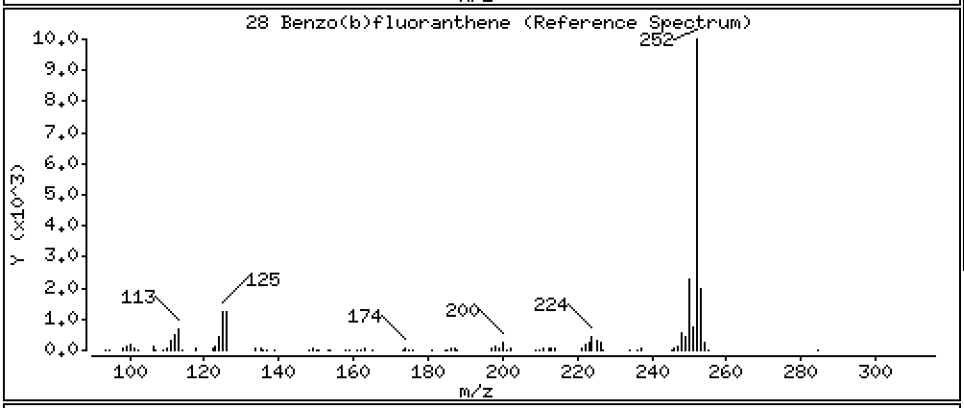
Concentration: 2.507 ug/L

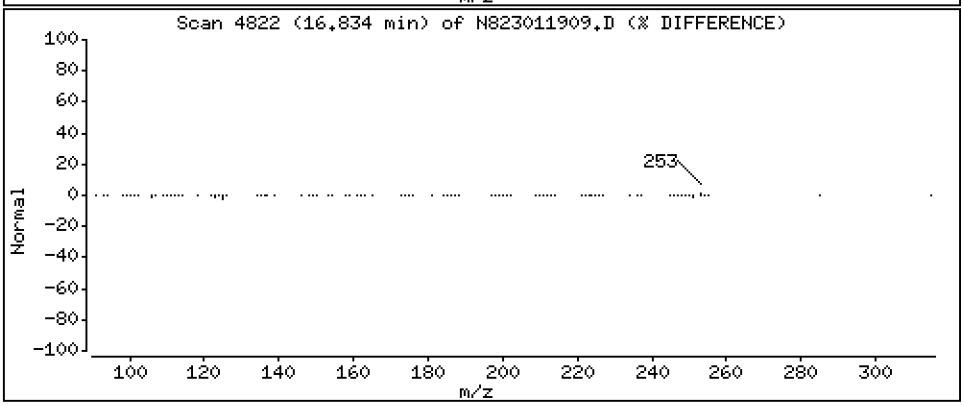












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

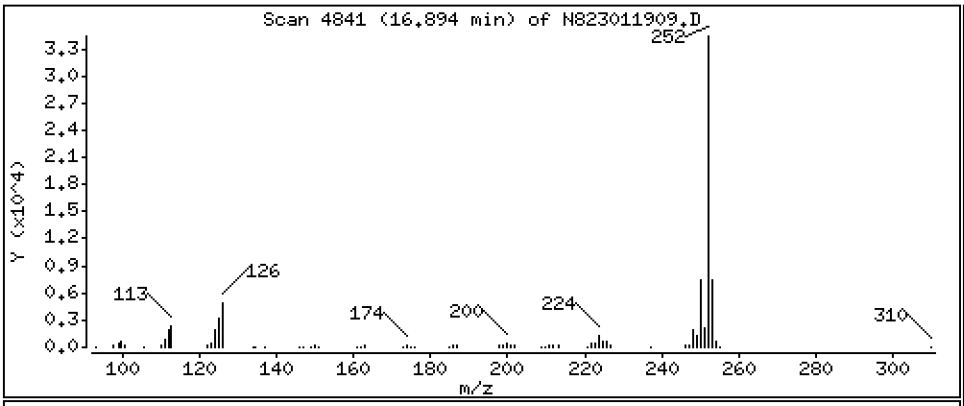
Operator: JZ

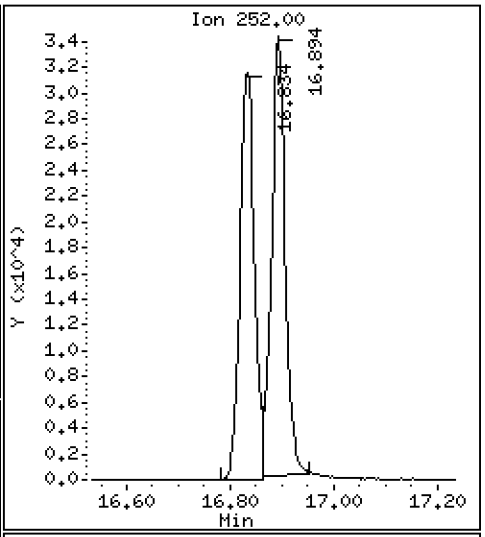
Column phase: Rxi-17sil

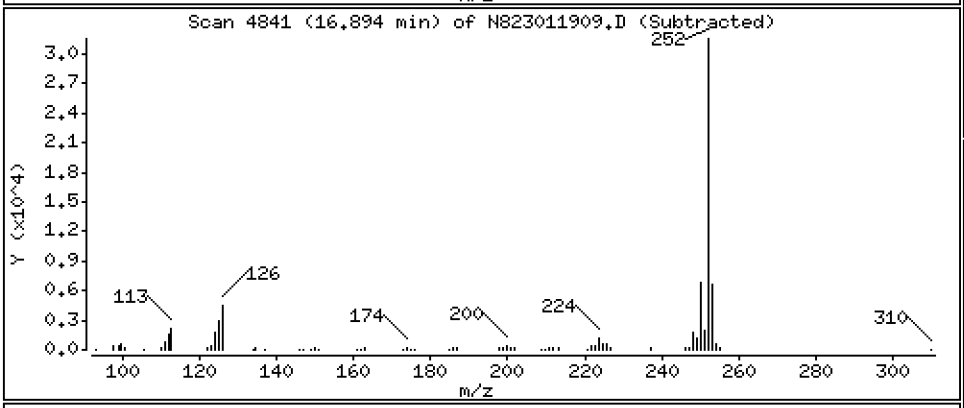
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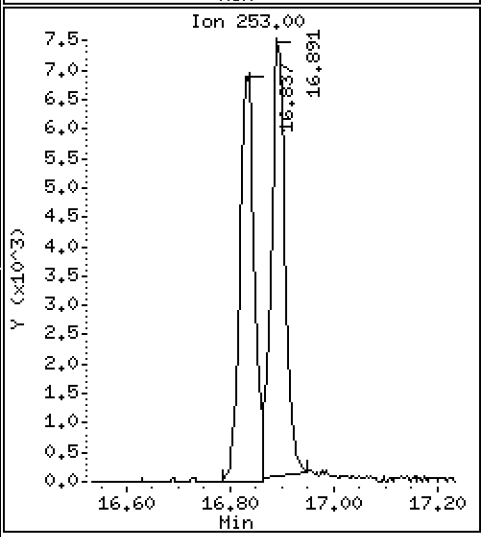
29 Benzo(k)fluoranthene

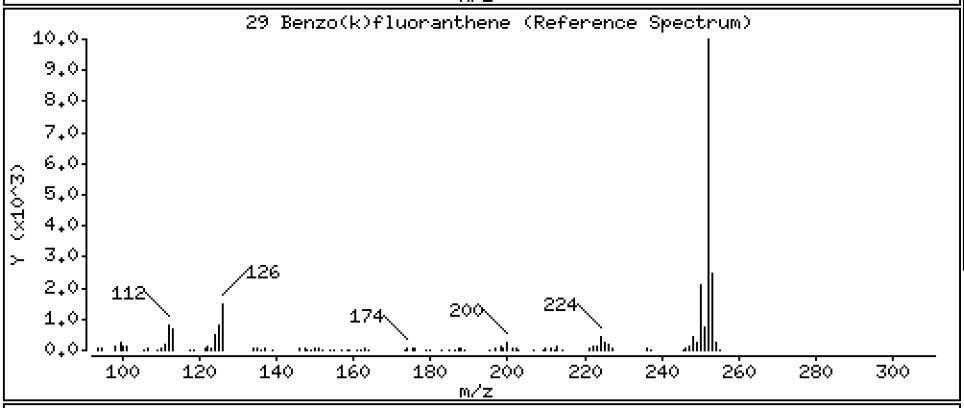
Concentration: 2.656 ug/L

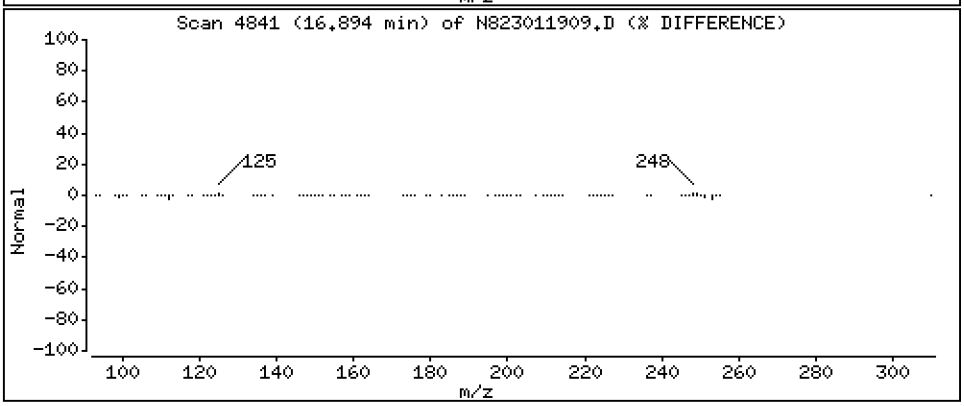












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

Sample Info: SCV230119

Volume Injected (uL): 1.0

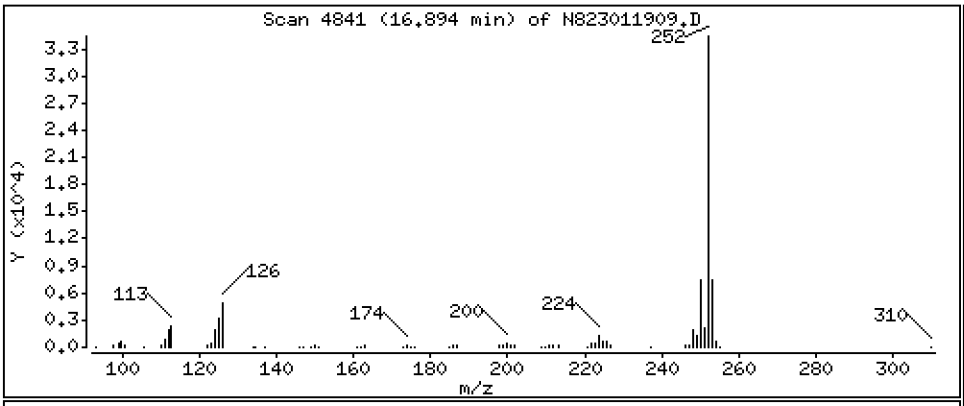
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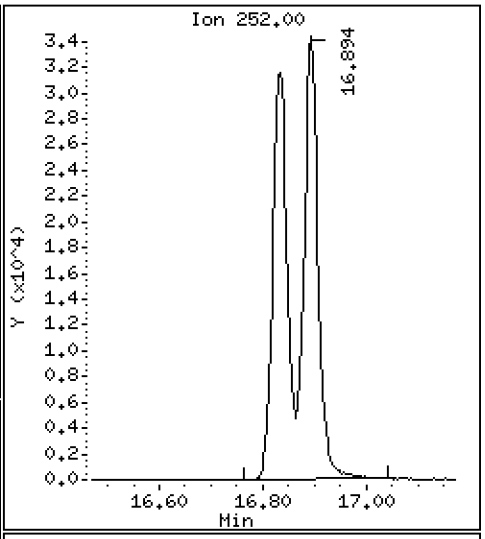
Column phase: Rxi-17sil

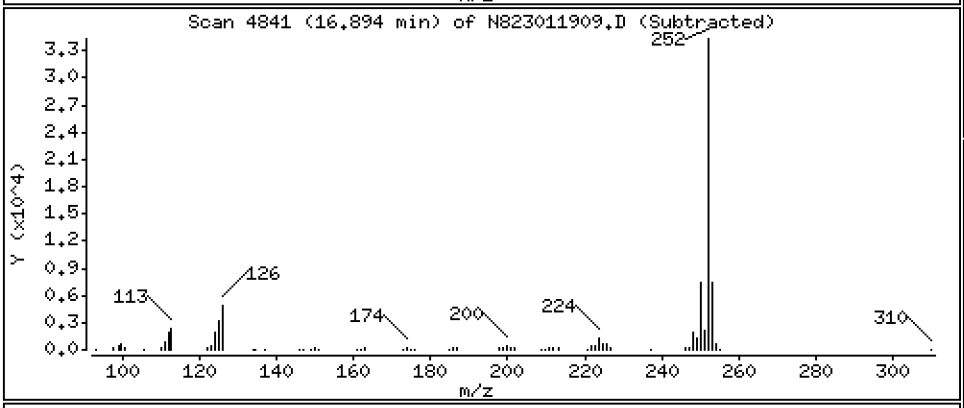
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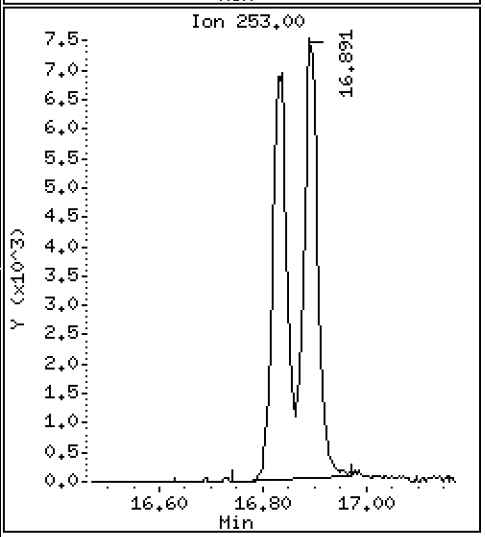
31 Total Benzofluoranthenes

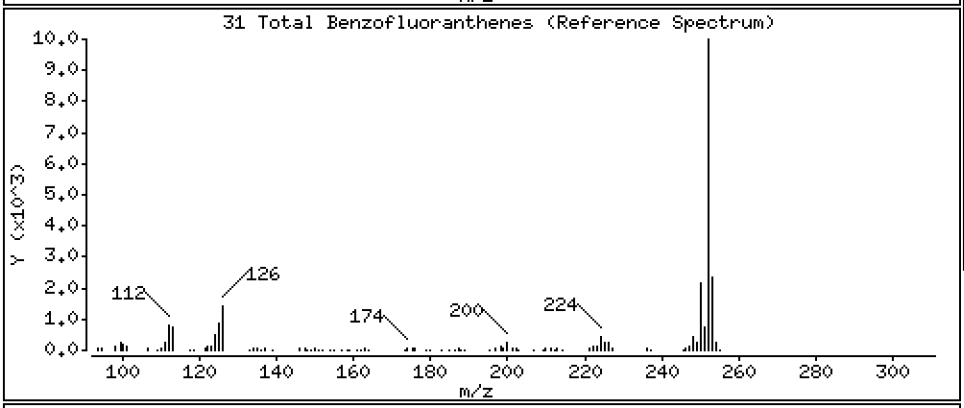
Concentration: 5.480 ug/L

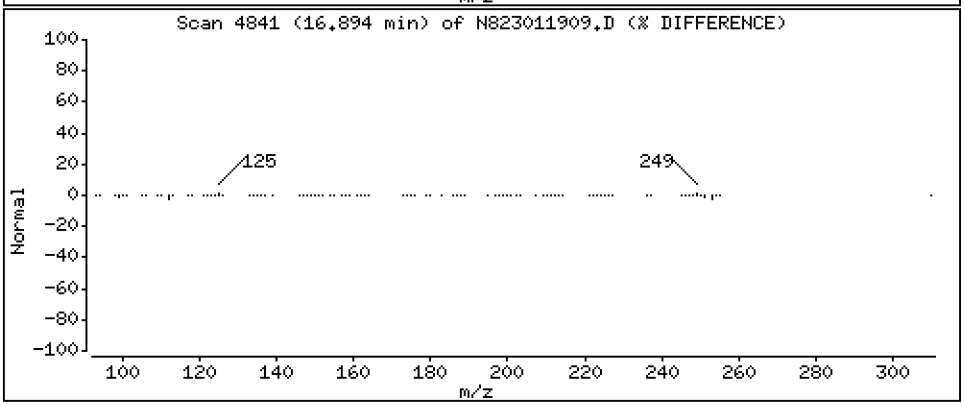












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

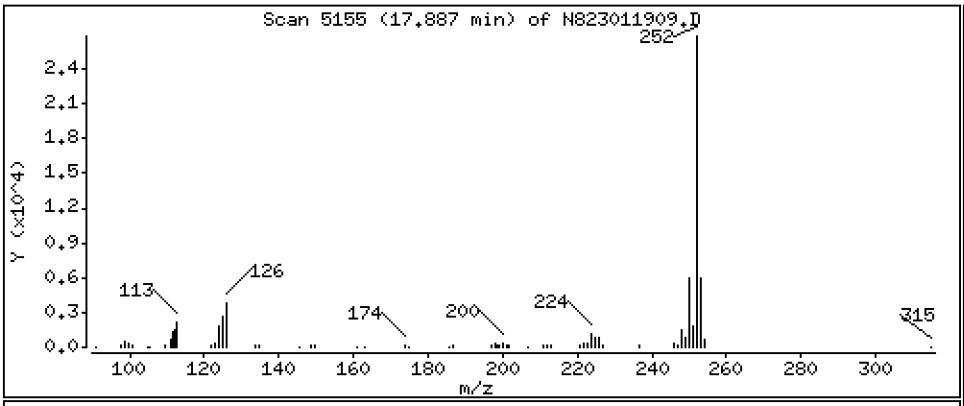
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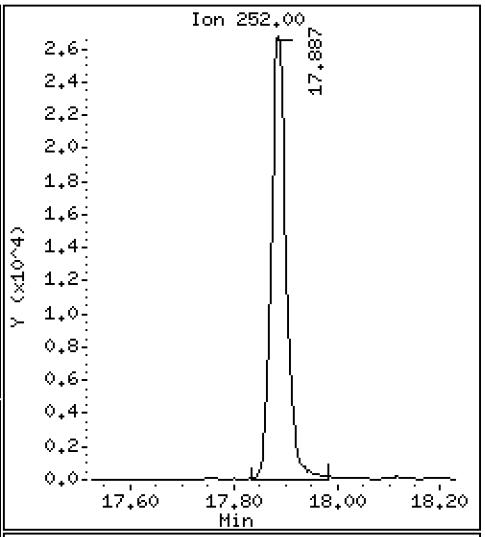
Column phase: Rxi-17sil

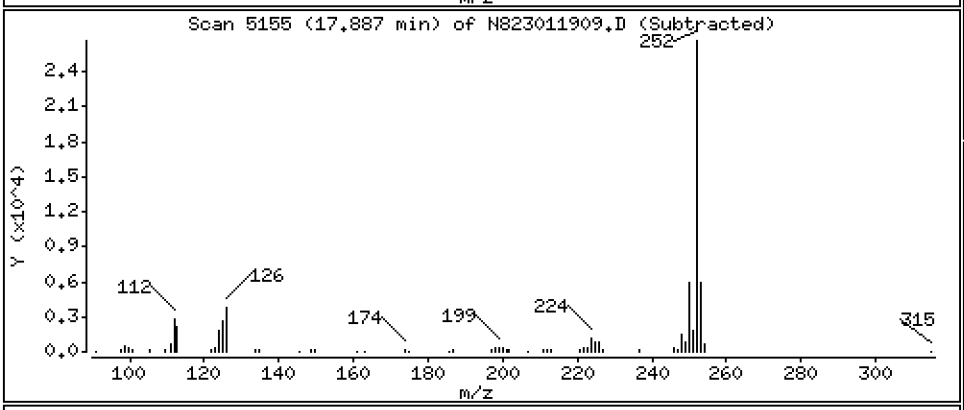
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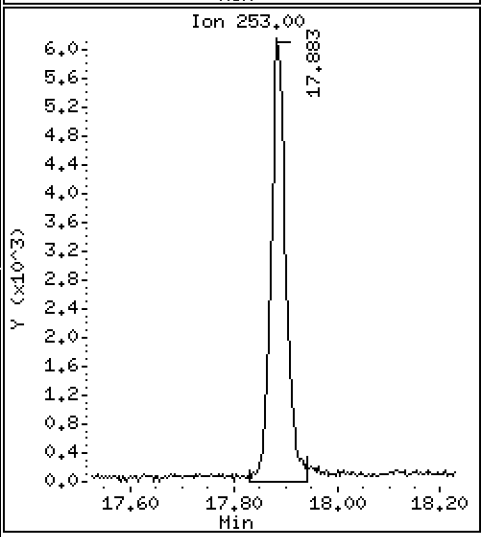
32 Benzo(a)pyrene

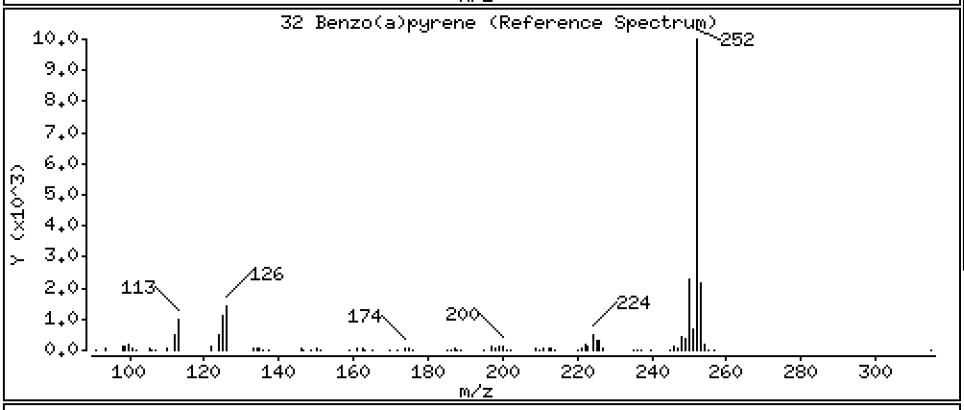
Concentration: 2.572 ug/L

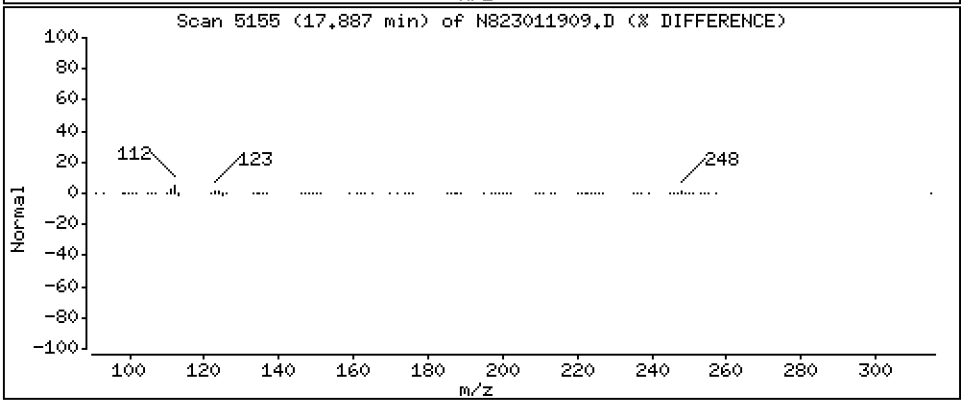












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Date : 19-JAN-2023 14:58

Client ID:

Instrument: nt8.i

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Volume Injected (uL): 1.0

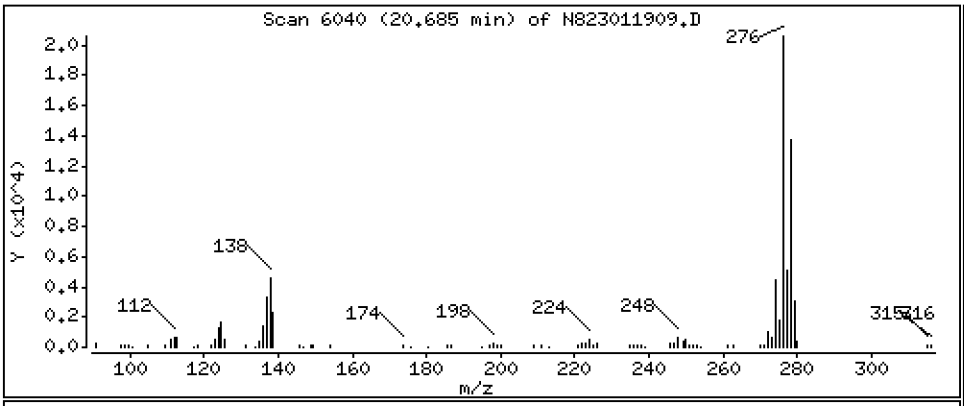
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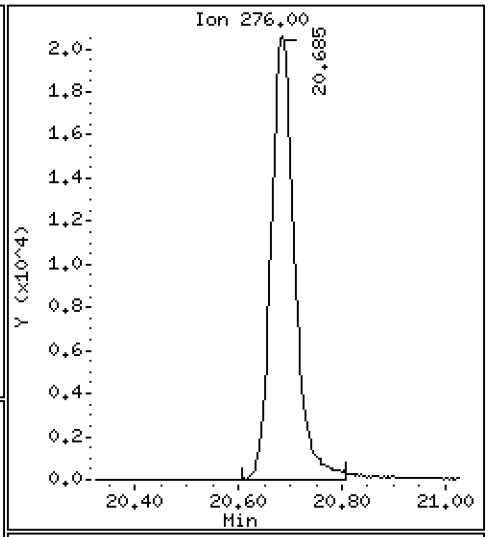
Column phase: Rxi-17sil

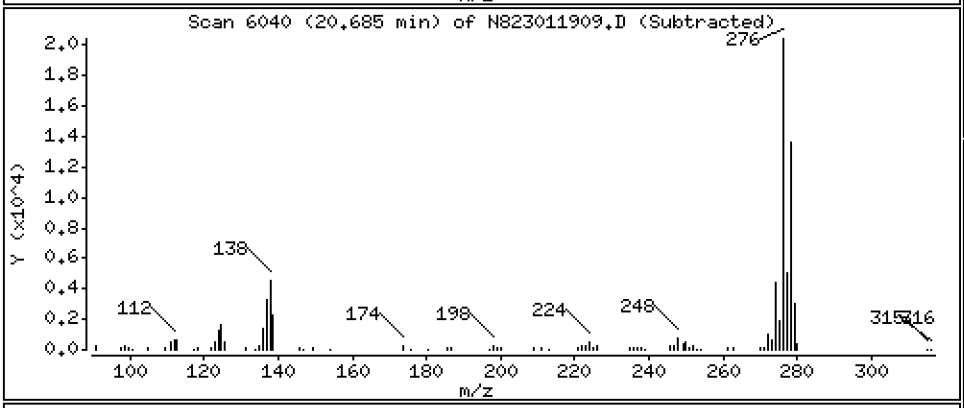
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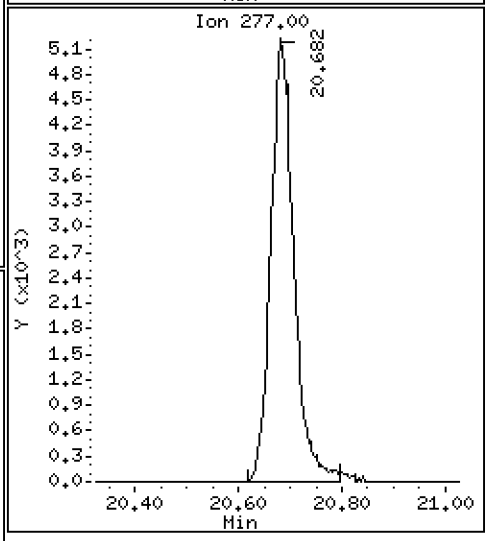
37 Indeno(1,2,3-cd)pyrene

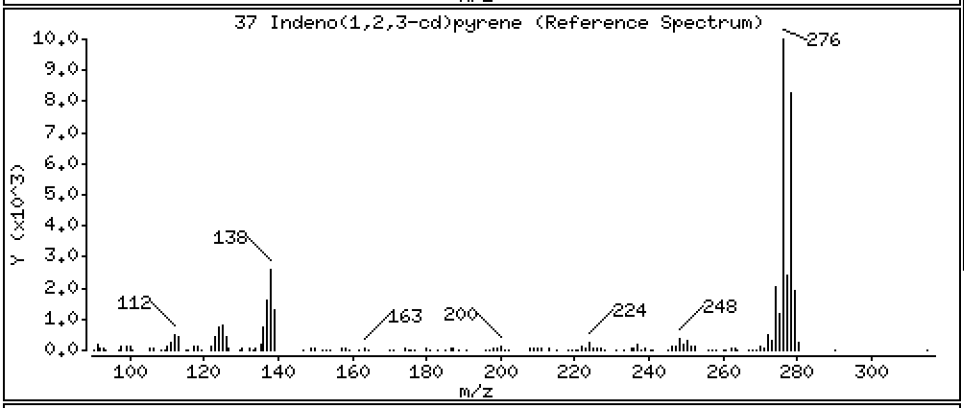
Concentration: 2.689 ug/L

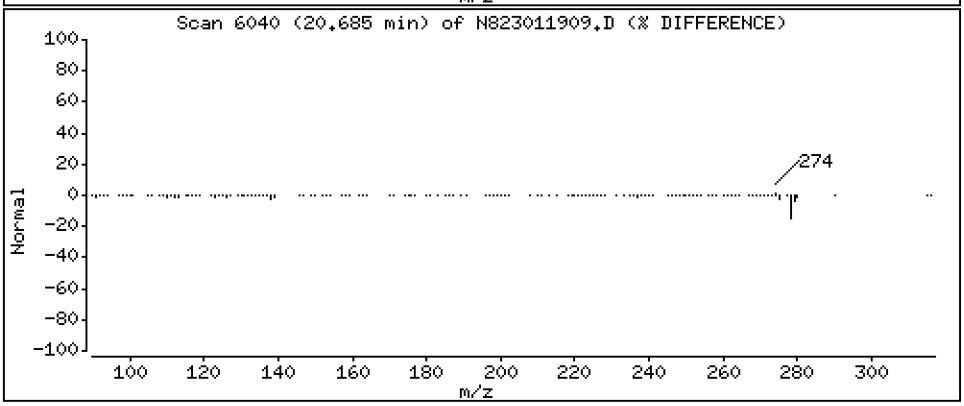












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Instrument: nt8.i

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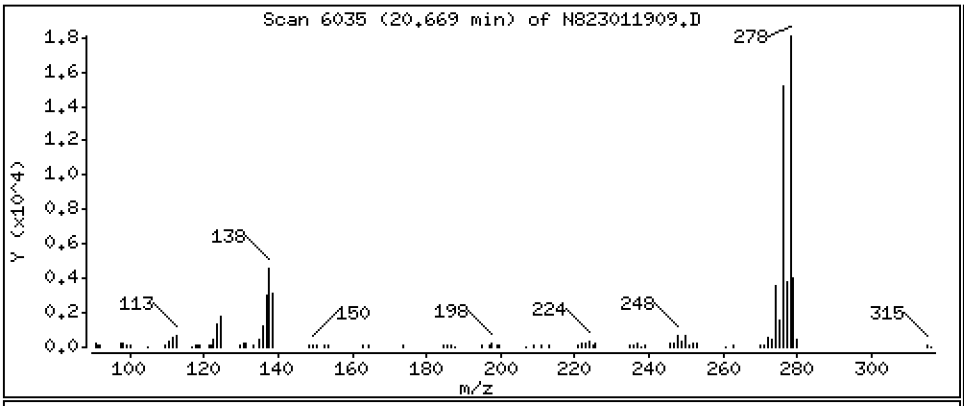
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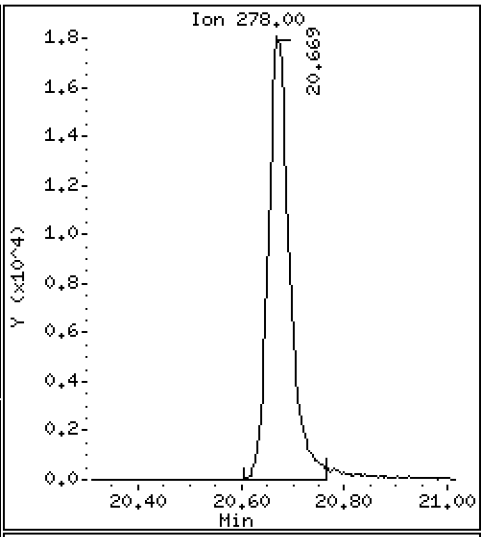
Column phase: Rxi-17sil

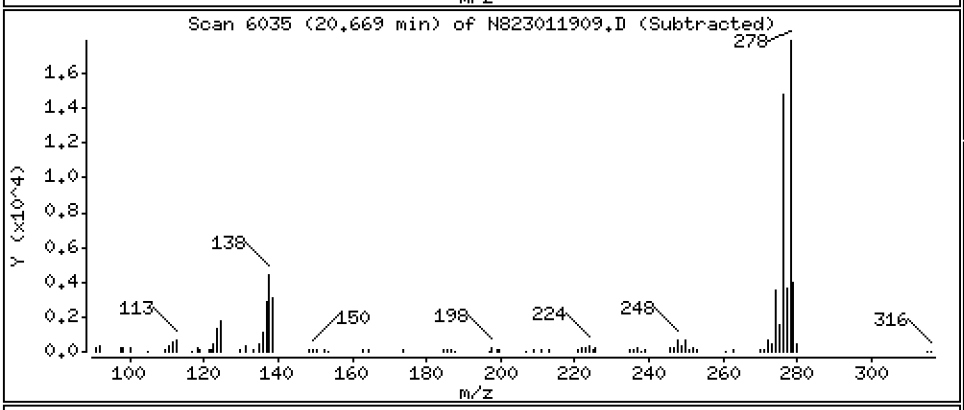
Column diameter: 0.25

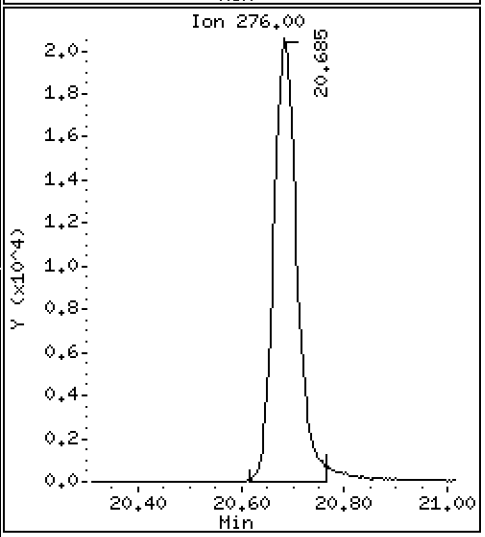
38 Dibenzo(a,h)anthracene

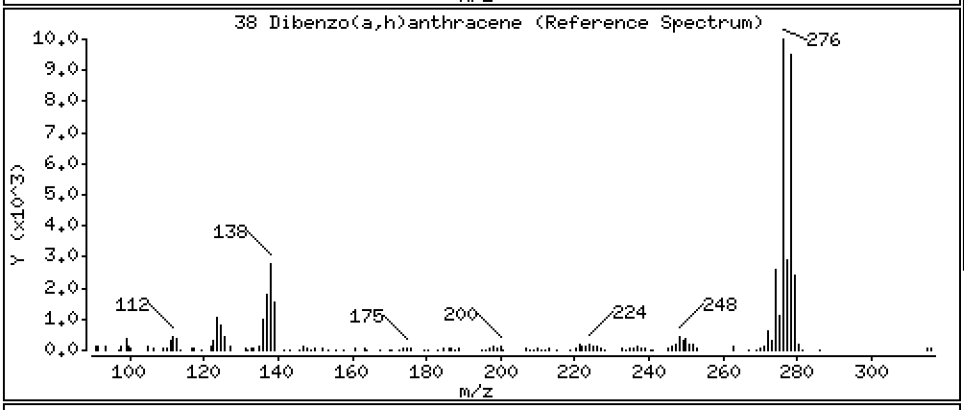
Concentration: 2.493 ug/L

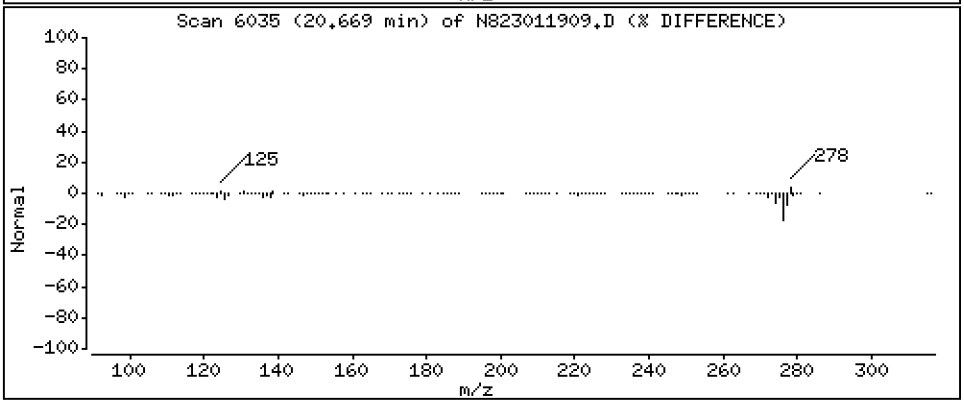












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Instrument: nt8.i

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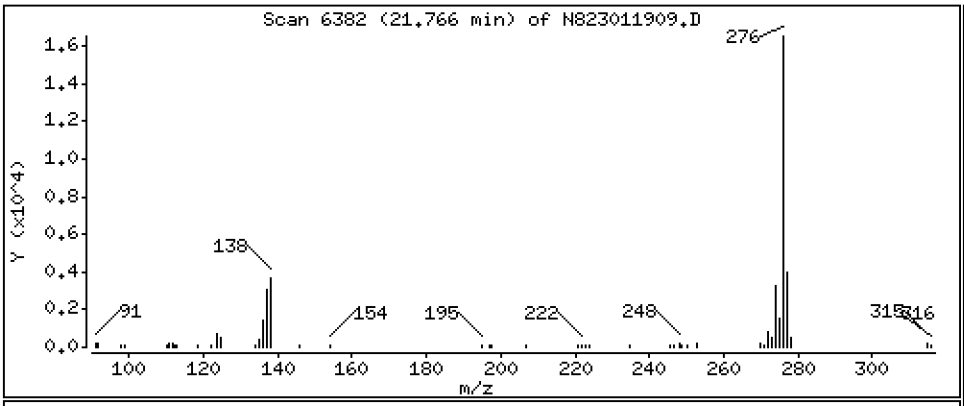
Operator: JZ

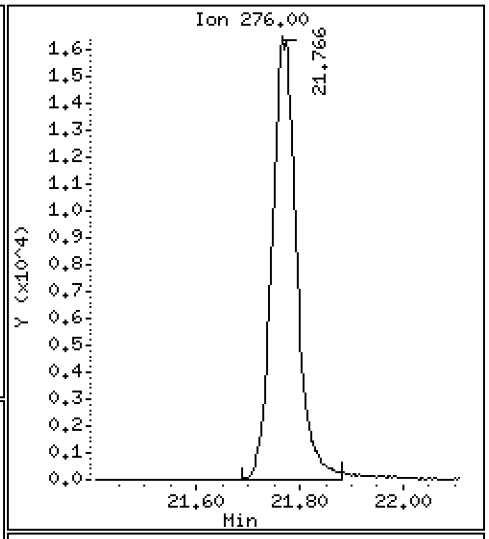
Column phase: Rxi-17sil

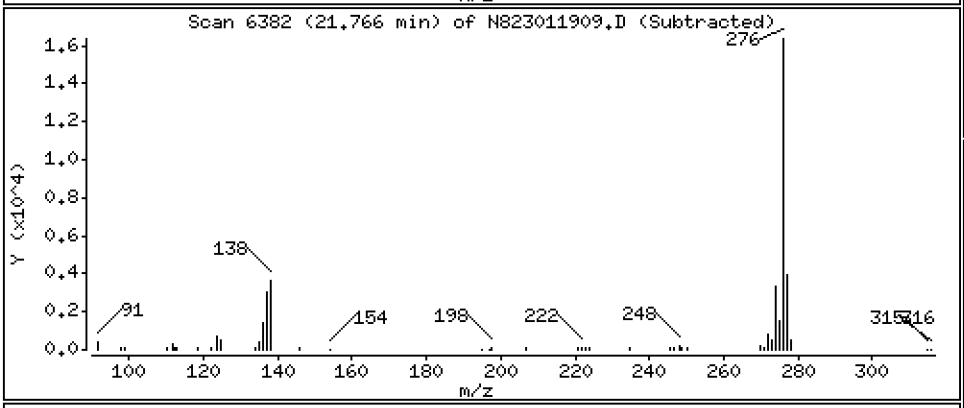
Column diameter: 0.25

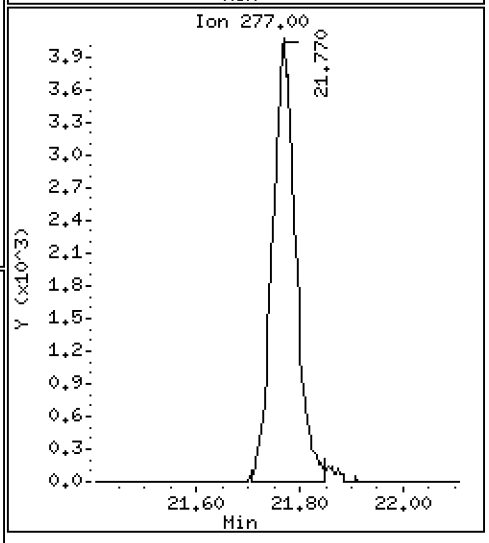
39 Benzo(g,h,i)perylene

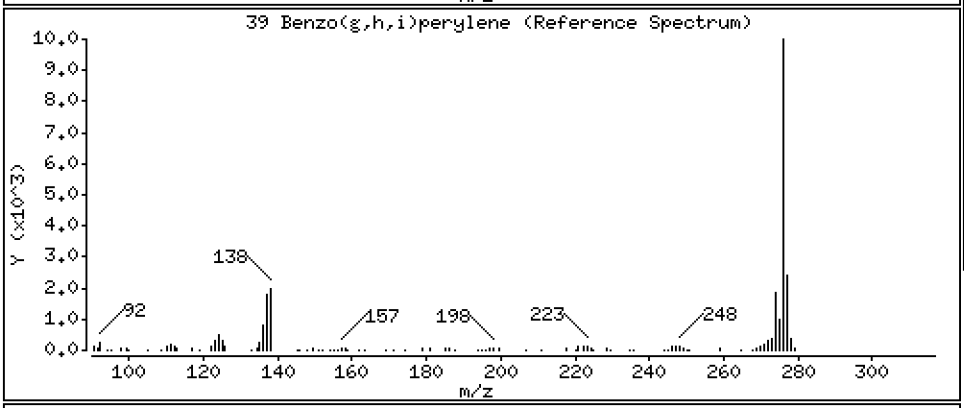
Concentration: 2.483 ug/L

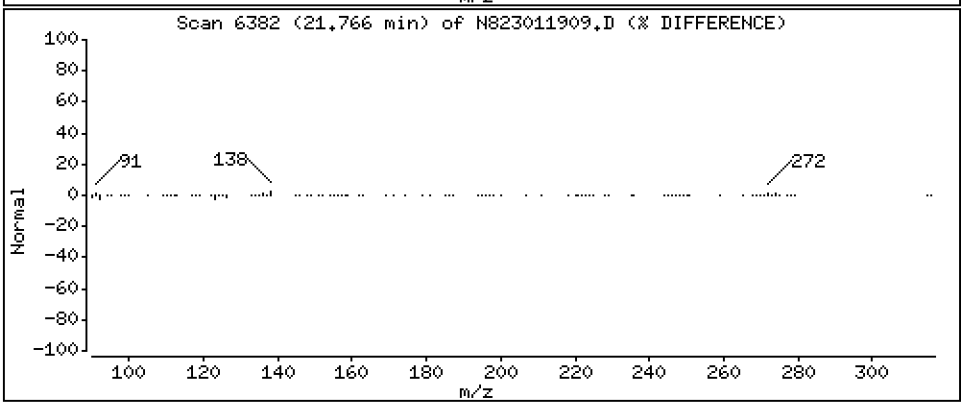












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230119.b\N823011909.D
Lab Smp Id: SLA0213-SCV1
Inj Date : 19-JAN-2023 14:58
Operator : JZ Inst ID: nt8.i
Smp Info : SCV230119
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Meth Date : 25-Jan-2023 21:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 9 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnascv.sub
Target Version: 4.14
Processing Host: JIANQING-202105

Concentration Formula: Amt * DF * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Vt	500.000	Volume of final extract (uL)
Vo	500.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/L)
*	1 Naphthalene-d8	136	4.913	4.906	(1.000)	46346	2.00000	
	2 Naphthalene	128	4.941	4.938	(1.006)	56587	2.62597	2.626
$	3 2-Methylnaphthalene-d10	152	Compound Not Detected.					
	4 2-Methylnaphthalene	141	5.694	5.687	(1.159)	31650	2.67019	2.670
	5 1-methylnaphthalene	141	5.890	5.883	(1.199)	31873	2.64949	2.649
	9 Acenaphthylene	152	7.091	7.085	(0.985)	59018	2.82060	2.821
*	10 Acenaphthene-d10	164	7.202	7.196	(1.000)	27709	2.00000	
	11 Acenaphthene	153	7.249	7.246	(1.007)	36454	2.60022	2.600
	12 Dibenzofuran	168	7.401	7.395	(1.028)	60898	2.85987	2.860
	14 Fluorene	166	7.878	7.872	(1.094)	43507	2.63066	2.631
*	15 Phenanthrene-d10	188	9.238	9.235	(1.000)	51685	2.00000	
	16 Phenanthrene	178	9.276	9.270	(1.004)	61815	2.44841	2.448
	17 Anthracene	178	9.317	9.311	(1.009)	52064	2.27006	2.270
	22 Fluoranthene	202	11.059	11.053	(1.197)	72902	2.65276	2.653
$	21 Fluoranthene-d10	212	Compound Not Detected.					
	23 Pyrene	202	11.578	11.572	(0.815)	71115	2.46242	2.462
	24 Benzo(a)anthracene	228	14.082	14.076	(0.991)	67725	2.58725	2.587
*	25 Chrysene-d12	240	14.212	14.202	(1.000)	46582	2.00000	
	27 Chrysene	228	14.285	14.278	(1.005)	66872	2.39976	2.400
	28 Benzo(b)fluoranthene	252	16.833	16.821	(0.929)	60946	2.50689	2.507
	29 Benzo(k)fluoranthene	252	16.893	16.884	(0.932)	63249	2.65606	2.656
	31 Total Benzofluoranthenes	252	16.893	16.821	(0.932)	126178	5.48025	5.480(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/L)
	32 Benzo(a)pyrene	252	17.886	17.877	(0.987)	55026	2.57205	2.572
*	33 Perylene-d12	264	18.117	18.111	(1.000)	41743	2.00000	
	37 Indeno(1,2,3-cd)pyrene	276	20.684	20.675	(1.142)	65545	2.68928	2.689
$	36 Dibenzo(a,h)anthracene-d14	292	Compound Not Detected.					
	38 Dibenzo(a,h)anthracene	278	20.669	20.662	(1.141)	52293	2.49315	2.493
	39 Benzo(g,h,i)perylene	276	21.766	21.756	(1.201)	54821	2.48258	2.483
	35 Perylene	252	Compound Not Detected.					

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823011909.D
Lab Smp Id: SLA0213-SCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230119.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 19-JAN-2023
Calibration Time: 12:52
Level: LOW
Sample Type: WATER

Test Mode:
Use Last Continuing Calibrator.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	44704	22352	89408	46346	3.67
10 Acenaphthene-d10	26411	13206	52822	27709	4.91
15 Phenanthrene-d10	49210	24605	98420	51685	5.03
25 Chrysene-d12	42994	21497	85988	46582	8.35
33 Perylene-d12	40520	20260	81040	41743	3.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.91	4.41	5.41	4.91	0.13
10 Acenaphthene-d10	7.20	6.70	7.70	7.20	0.09
15 Phenanthrene-d10	9.24	8.74	9.74	9.24	0.03
25 Chrysene-d12	14.20	13.70	14.70	14.21	0.07
33 Perylene-d12	18.11	17.61	18.61	18.12	0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823011909.D

Lab ID: SLA0213-SCV1
nt8.i, 20230119.b\FSIMPNA230119.m,   19-JAN-2023 14:58

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

** FIRST SURROGATE NOT FOUND. ICAL Check not performed **

No RRT check performed

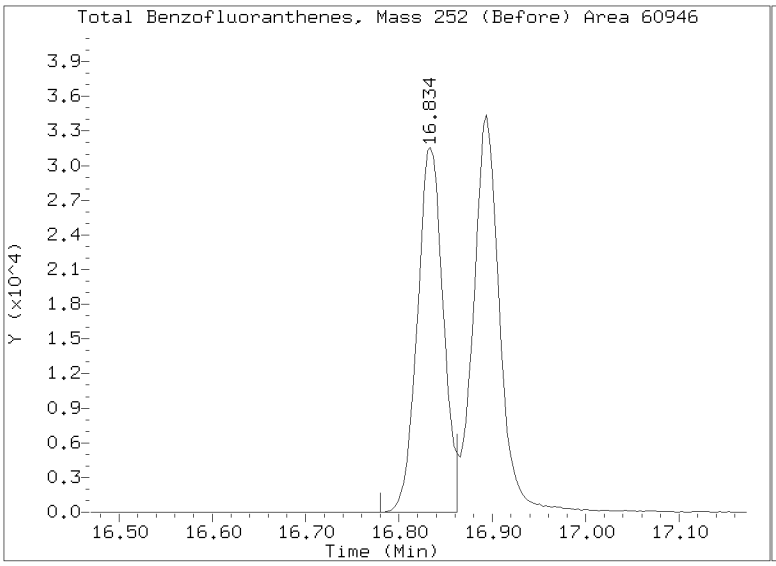
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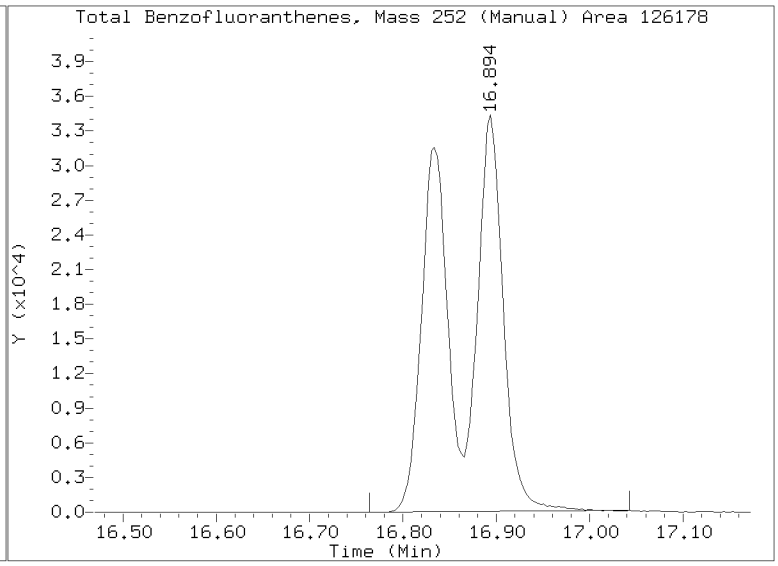
Exception: Benzo(b)fluoranthene 0.0300
Exception: Benzo(k)fluoranthene 0.0300
Exception: Total Benzofluoranthenes 0.0300
Exception: Fluoranthene-d10 (Surr) 0.0000

* Only compounds listed in the work order have been verified by the analyst *

Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230119.b/N823011909.D
Injection Date: 19-JAN-2023 14:58
Lab ID:SLA0213-SCV1 Client ID:
Report Date: 01/25/2023 22:00





Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	NT8	Calibration:	GA00050
Lab File ID:	N823031311.D	Calibration Date:	01/19/2023
Sequence:	SLC0150	Injection Date:	03/13/23
Lab Sample ID:	SLC0150-CCV1	Injection Time:	17:41
Sequence Name:	Calibration Check		

		CONC. (ug/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Naphthalene	A	2.5000	2.59	0.9299181	0.9651667		3.8	+/-50
2-Methylnaphthalene	A	2.5000	2.66	0.5115033	0.5444676		6.4	+/-50
1-Methylnaphthalene	A	2.5000	2.67	0.5191318	0.5535792		6.6	+/-50
Acenaphthylene	A	2.5000	2.74	1.5102600	1.6580340		9.8	+/-50
Acenaphthene	A	2.5000	2.57	1.0119150	1.0398900		2.8	+/-50
Dibenzofuran	A	2.5000	2.52	1.5369690	1.5516490		1.0	+/-50
Fluorene	A	2.5000	2.69	1.1937240	1.2840730		7.6	+/-50
Phenanthrene	A	2.5000	2.46	0.9769567	0.9617765		-1.6	+/-50
Anthracene	A	2.5000	2.66	0.8874960	0.9440978		6.4	+/-50
Fluoranthene	A	2.5000	2.63	1.0634260	1.1183540		5.2	+/-50
Pyrene	A	2.5000	2.72	1.2399700	1.3466560		8.6	+/-50
Benzo(a)anthracene	A	2.5000	2.76	1.1238870	1.2387930		10.2	+/-50
Chrysene	A	2.5000	2.53	1.1964350	1.2107840		1.2	+/-50
Benzo(b)fluoranthene	A	2.5000	2.50	1.1648110	1.1665600		0.2	+/-50
Benzo(k)fluoranthene	A	2.5000	2.49	1.1409370	1.1365440		-0.4	+/-50
Benzo(j)fluoranthene	A	2.5000	2.52	1.0271120	1.0354930		0.8	+/-50
Benzofluoranthenes, Total	A	7.5000	7.39	1.1031370	1.0871590		-1.4	+/-50
Benzo(a)pyrene	A	2.5000	2.54	1.0250270	1.0417770		1.6	+/-50
Indeno(1,2,3-cd)pyrene	A	2.5000	2.67	1.1677520	1.2451050		6.6	+/-50
Dibenzo(a,h)anthracene	A	2.5000	2.56	1.0049440	1.0279230		2.3	+/-50
Benzo(g,h,i)perylene	A	2.5000	2.63	1.0580110	1.1110250		5.0	+/-50
2-Methylnaphthalene-d10	A	2.5000	2.68	0.5454499	0.5856222		7.4	+/-50
Dibenzo[a,h]anthracene-d14	A	2.5000	2.43	0.6679424	0.7611495		-2.9	+/-50
Fluoranthene-d10	A	2.5000	2.78	0.8823923	0.9815036		11.2	

* Values outside of QC limits

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Page 1

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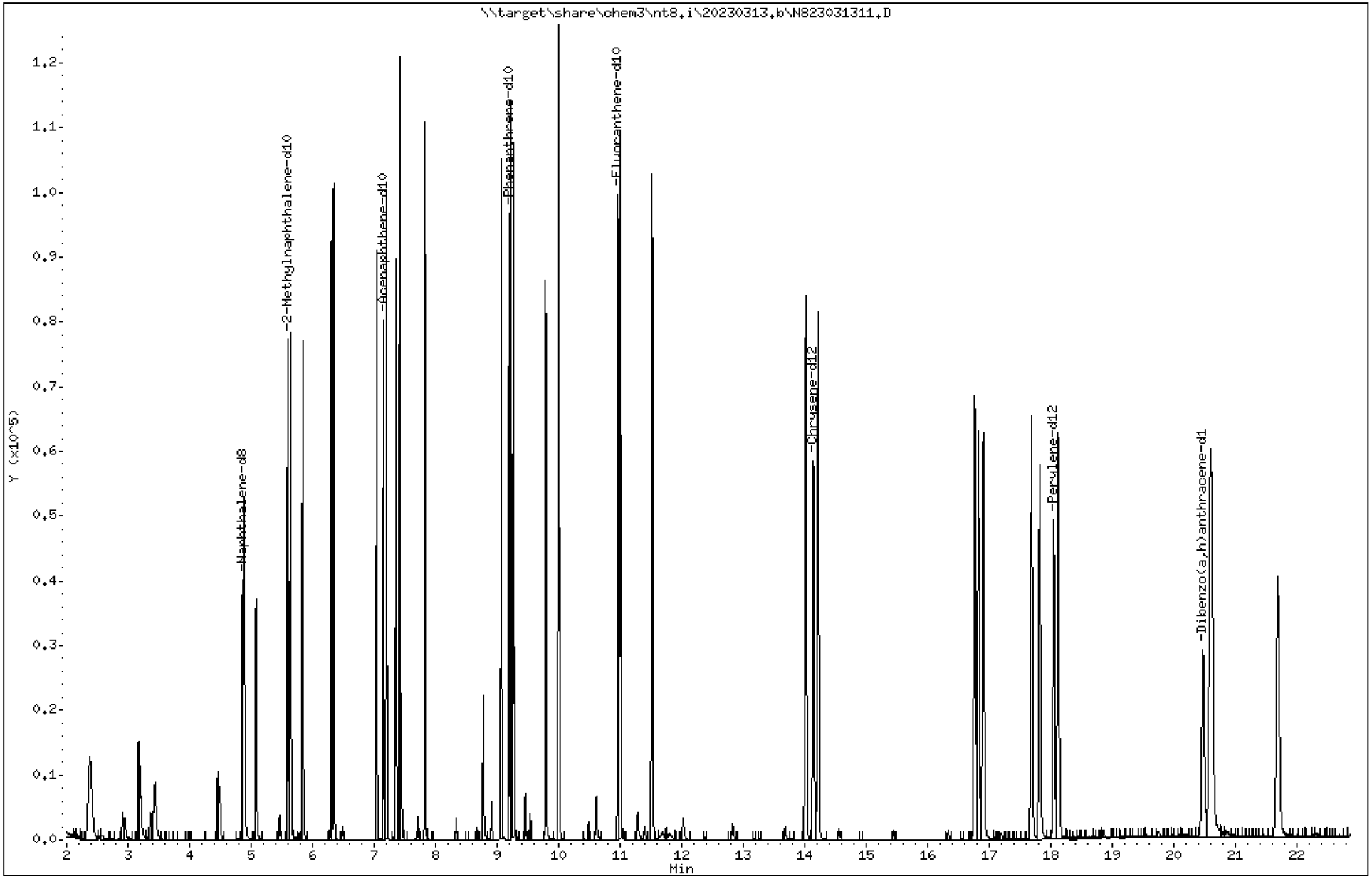
Instrument: nt8.i

Sample Info: CCV230313

Operator: JZ

Column phase: Rxi-17sil

Column diameter: 0.25



Final Report 23C0064 03/17/2023 Page 394 of 833

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Instrument: nt8.i

Sample Info: CCV230313

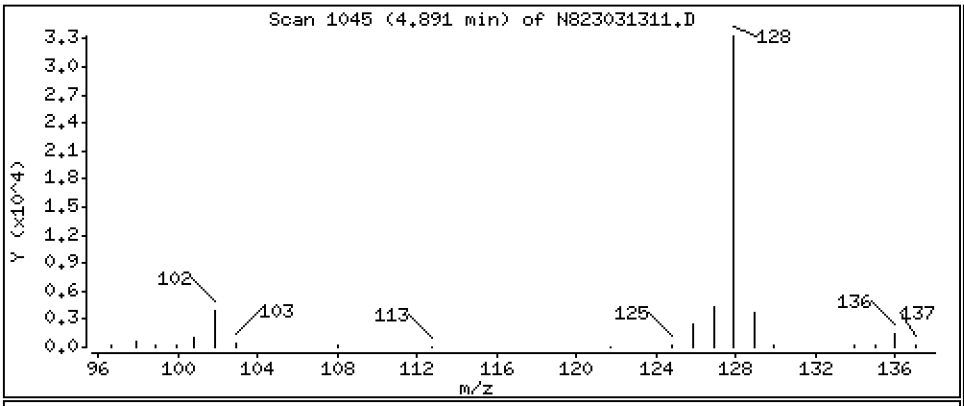
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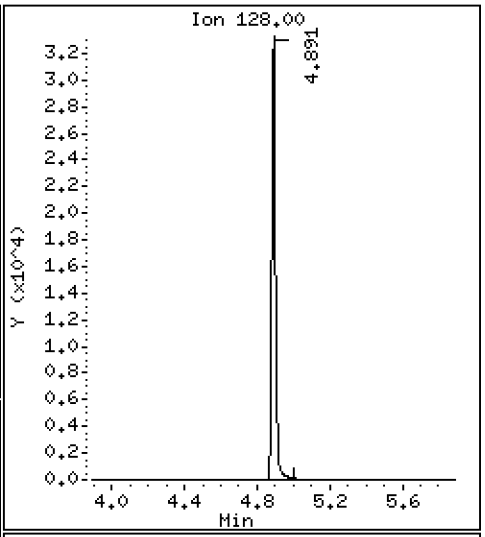
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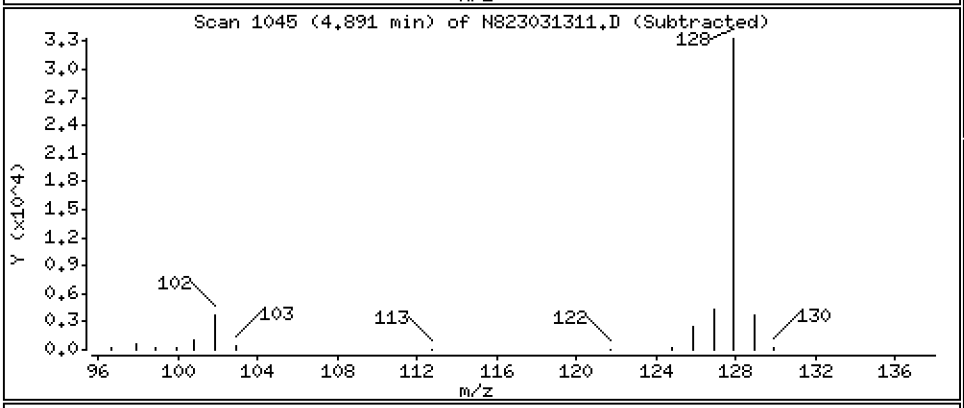
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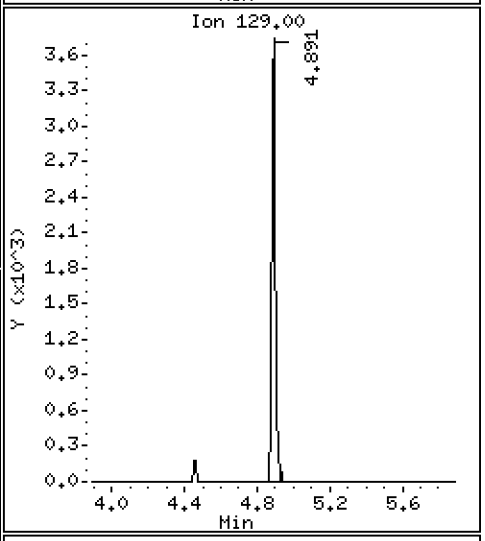
2 Naphthalene

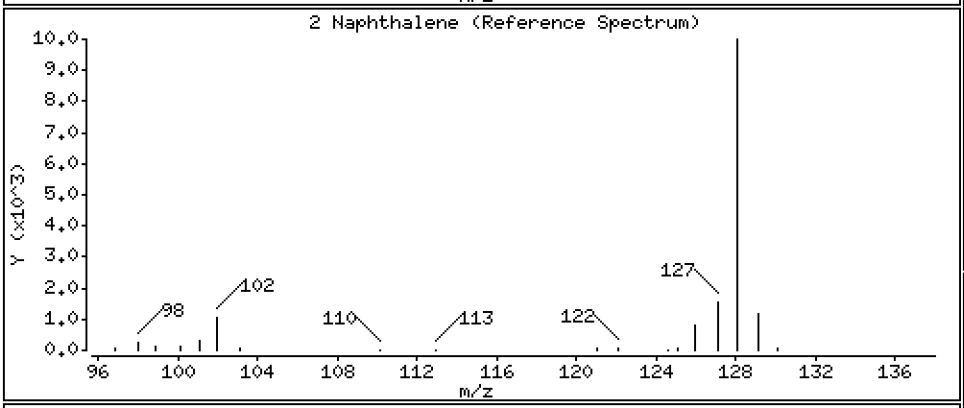
Concentration: 2.595 ug/mL

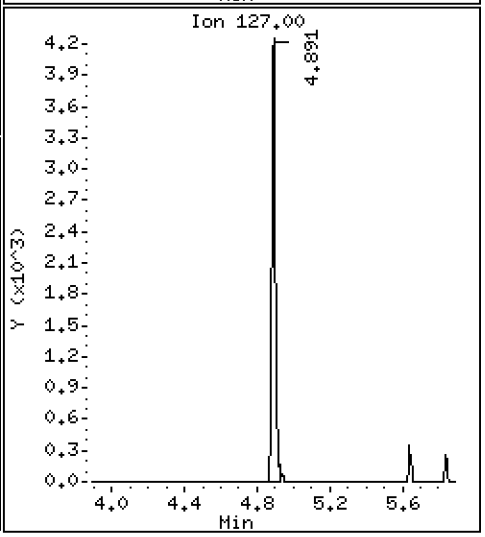


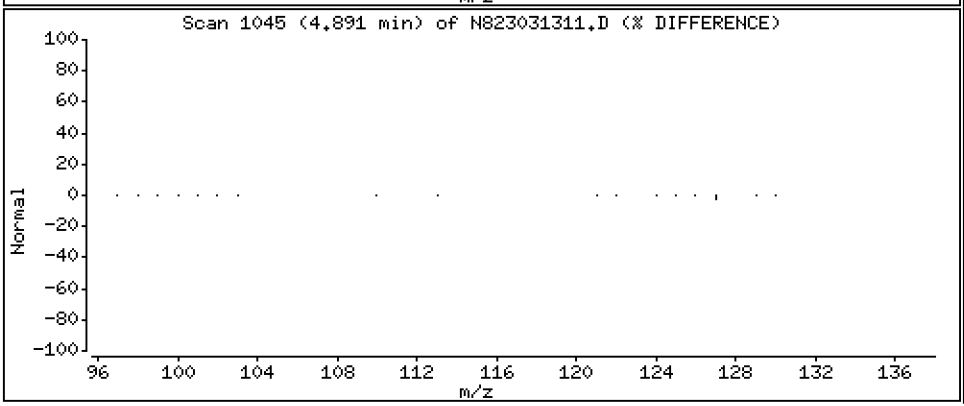












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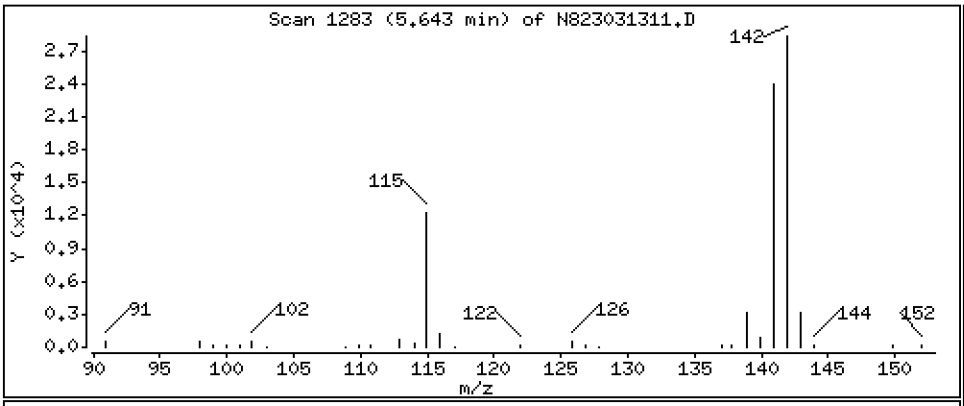
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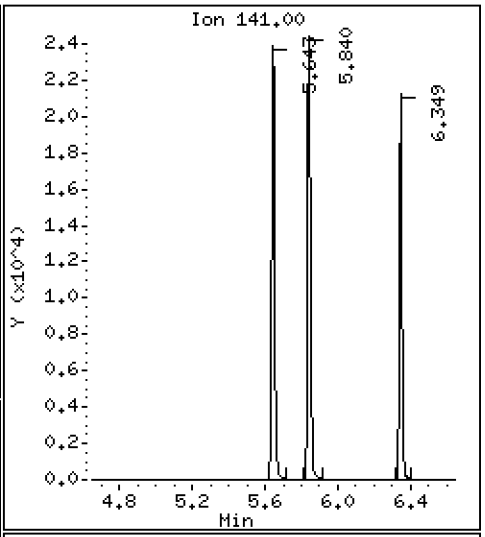
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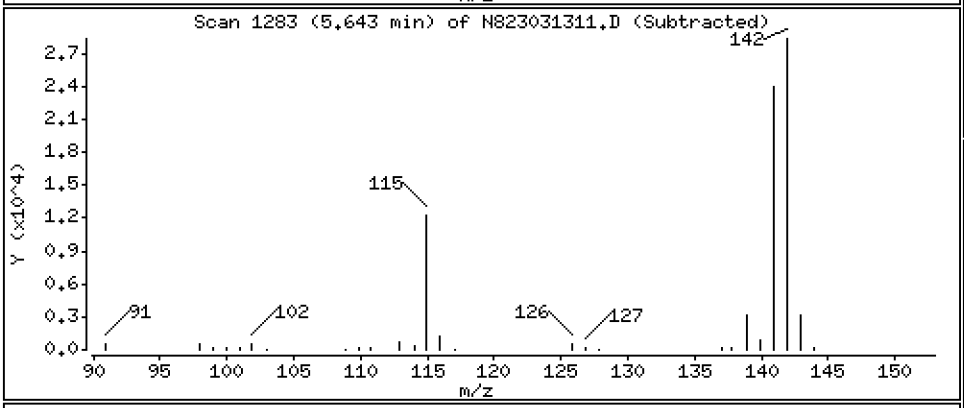
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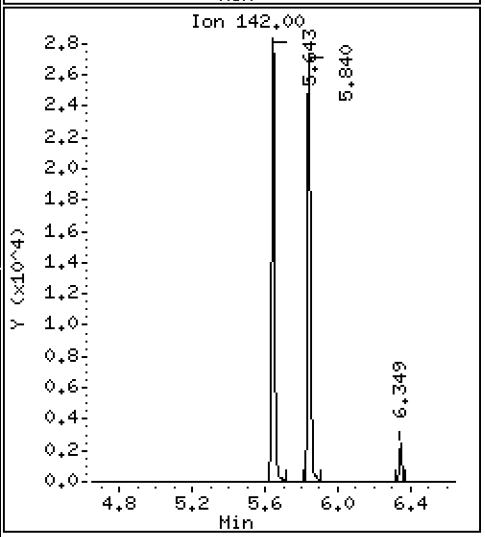
4 2-Methylnaphthalene

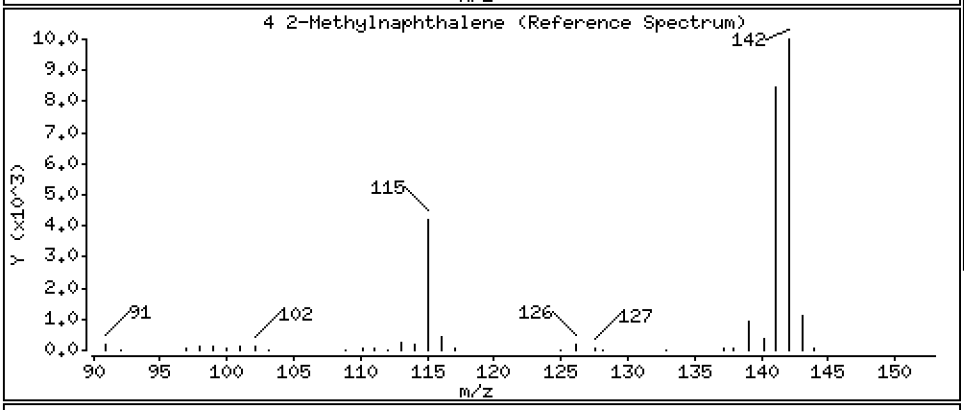
Concentration: 2.661 ug/mL

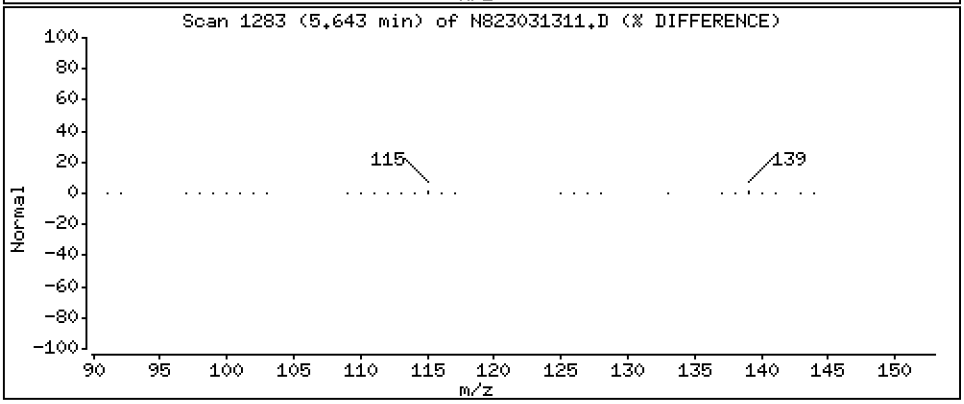












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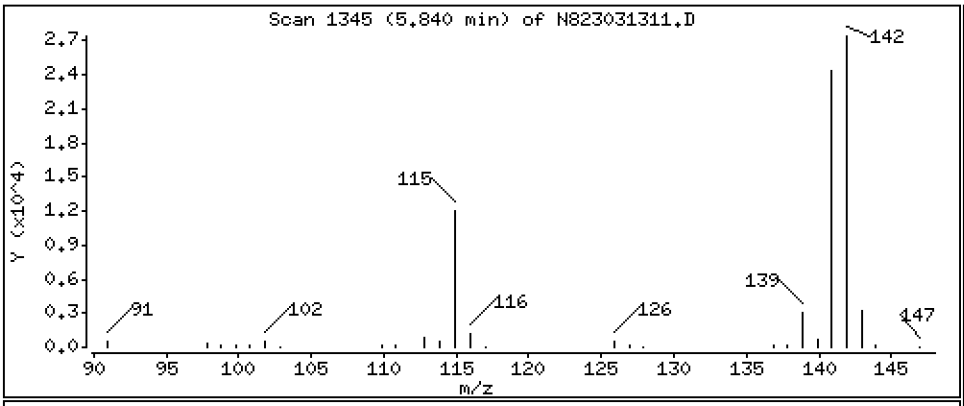
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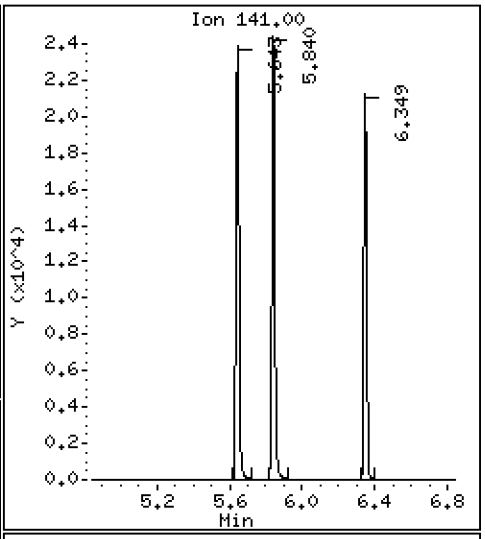
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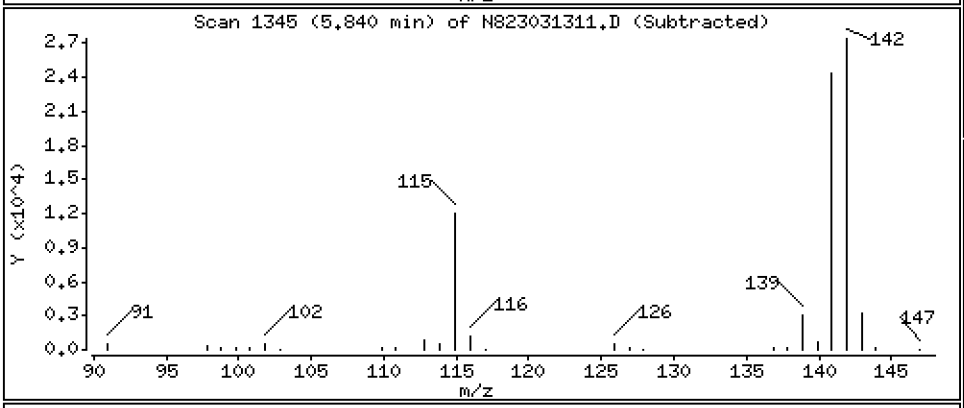
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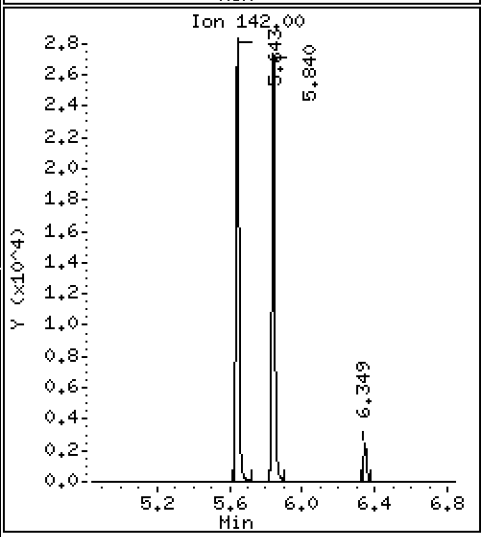
5 1-methylnaphthalene

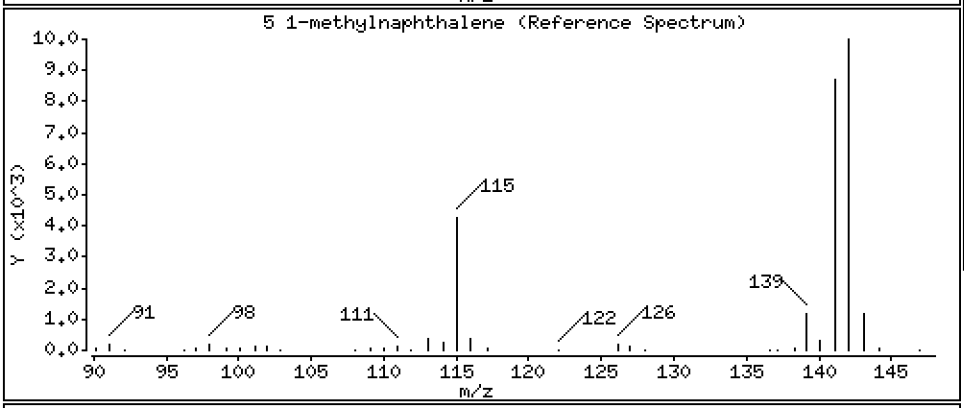
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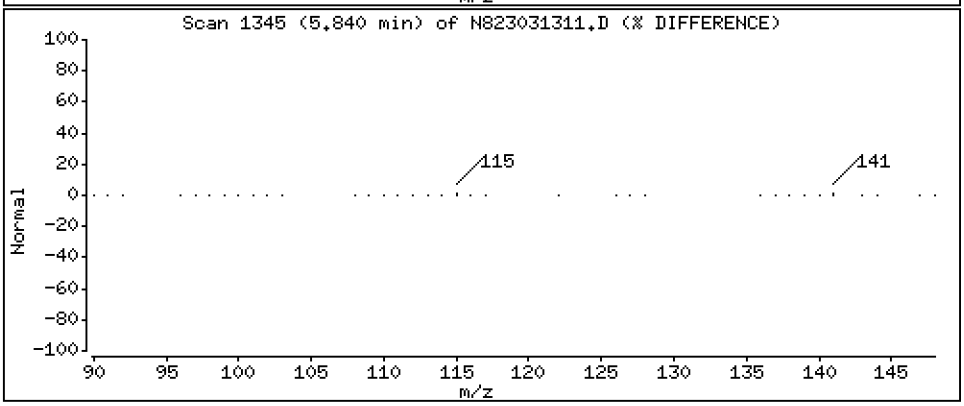












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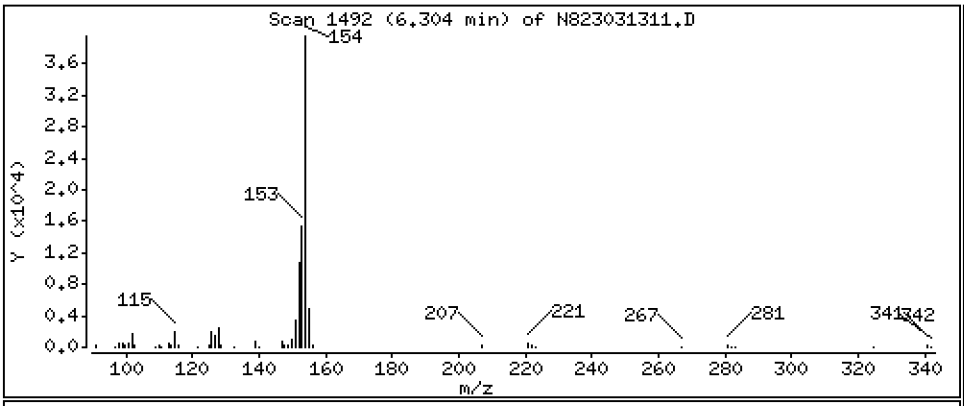
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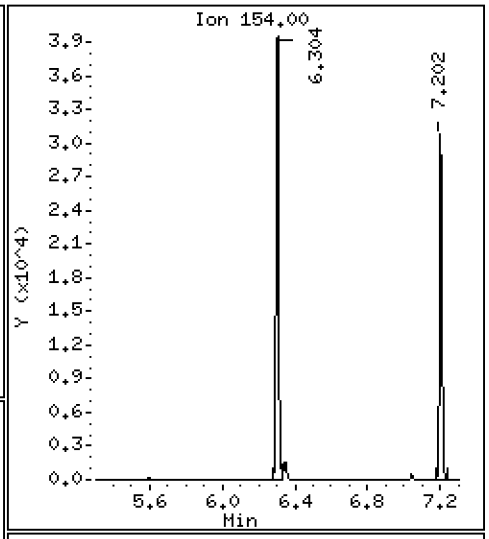
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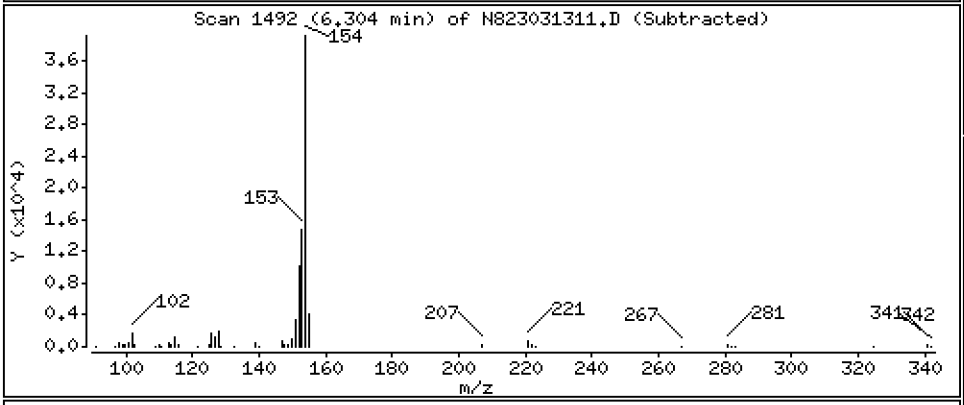
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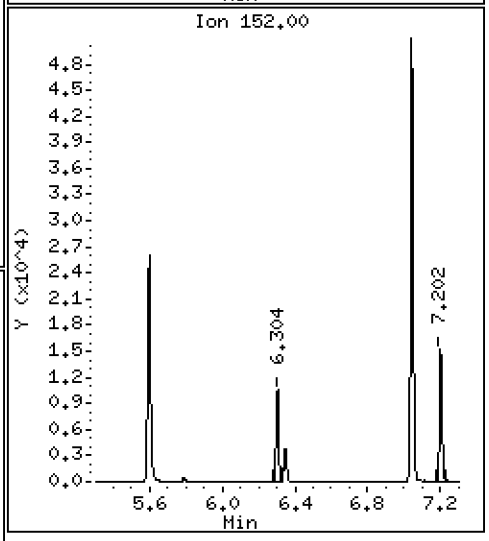
7 Biphenyl

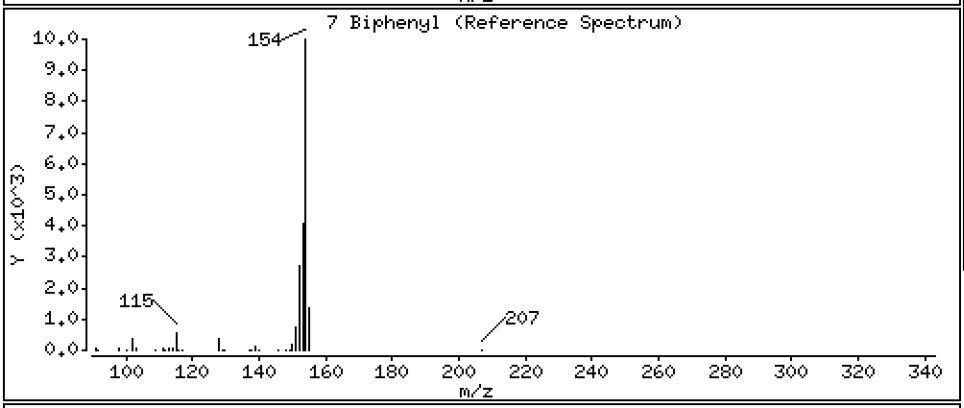
Concentration: 2.533 ug/mL

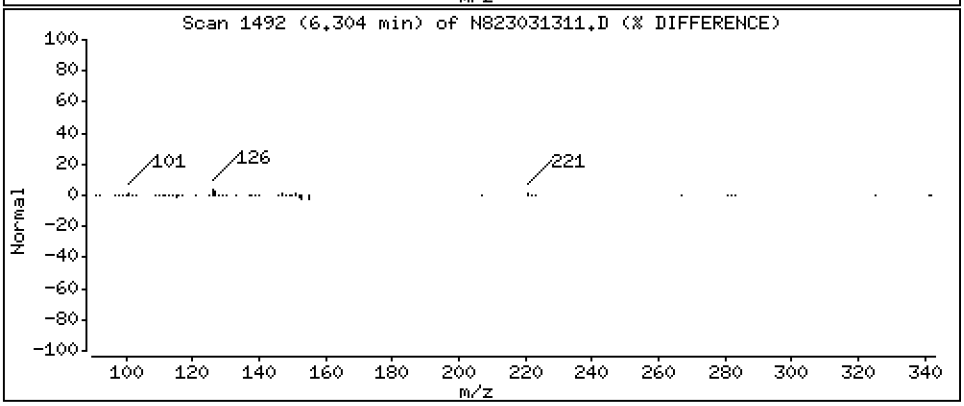












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Client ID:

Instrument: nt8.i

Sample Info: CCV230313

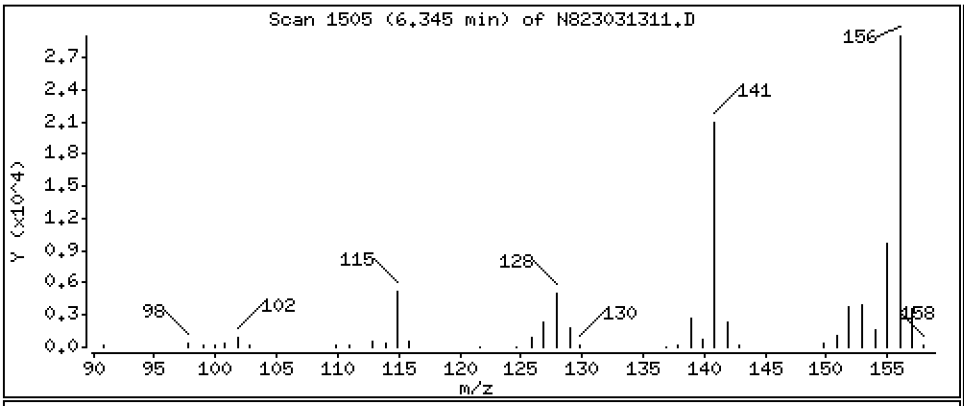
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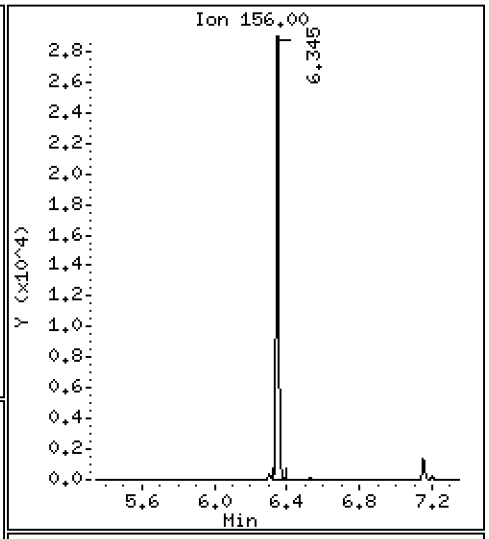
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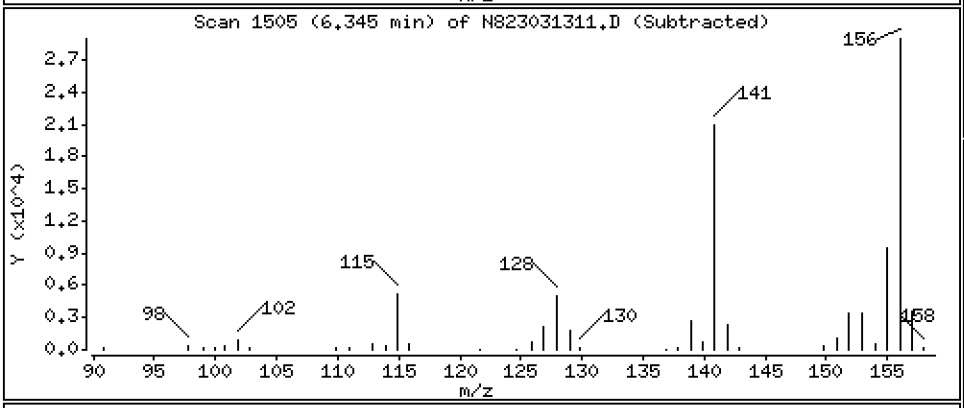
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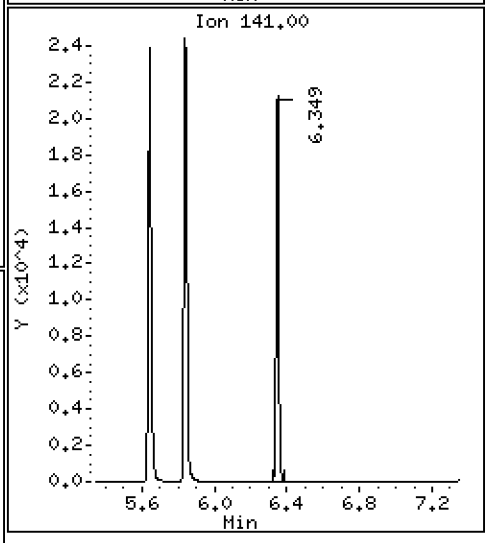
8 2,6-Dimethylnaphthalene

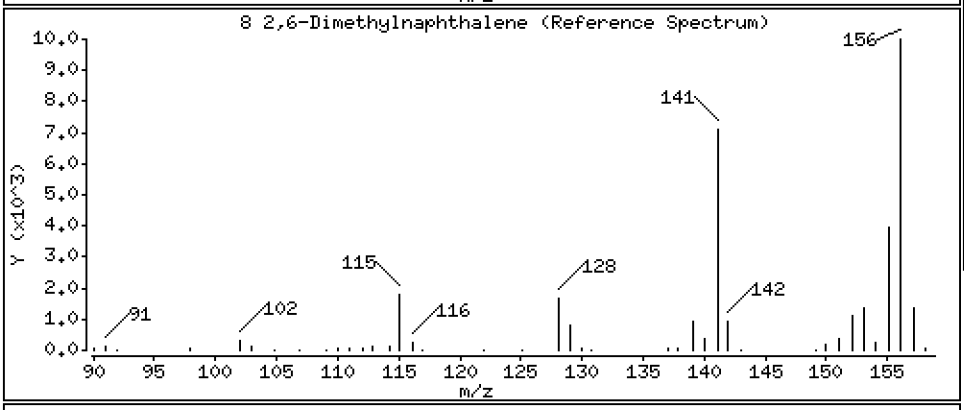
Concentration: 2.647 ug/mL

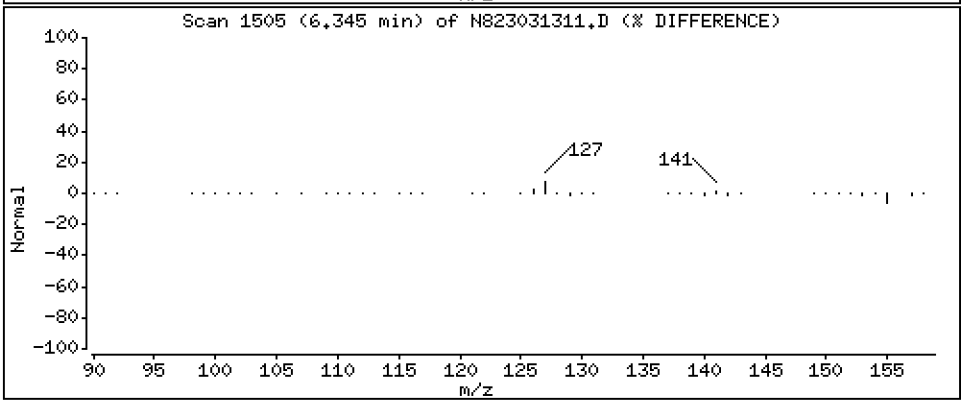












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

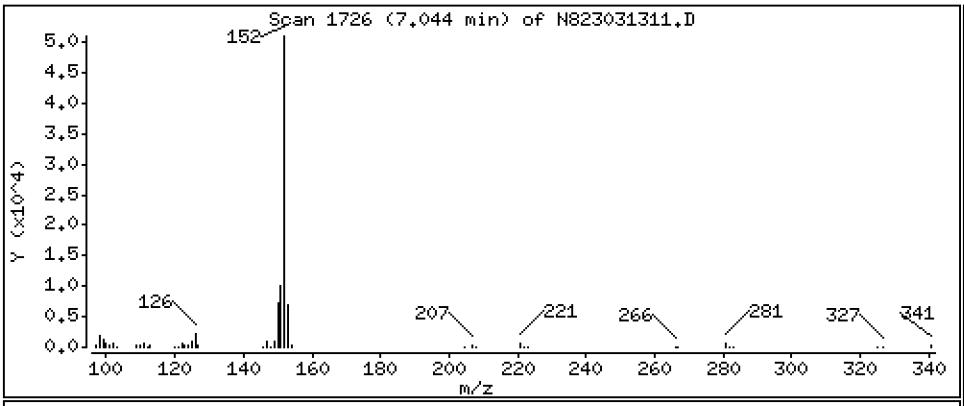
Operator: JZ

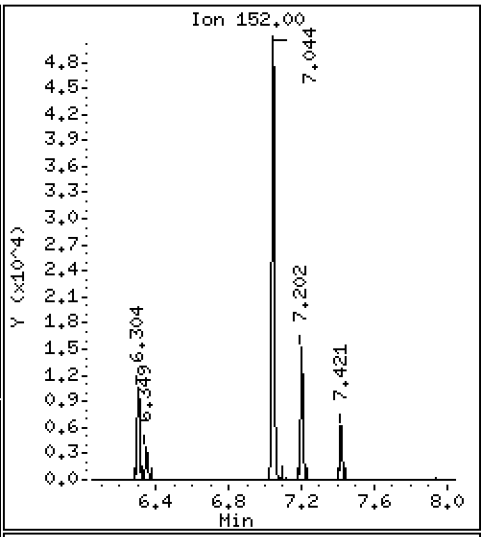
Column phase: Rxi-17sil

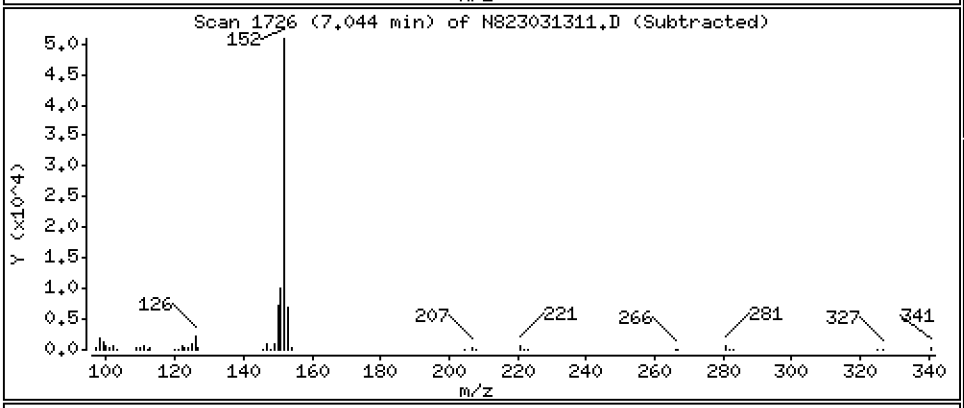
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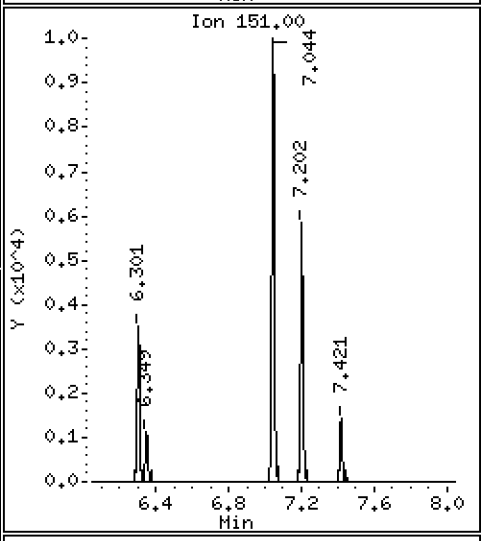
9 Acenaphthylene

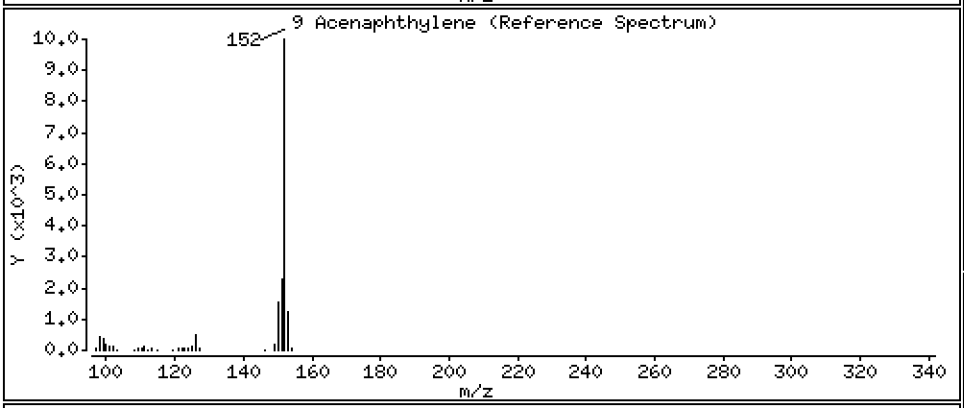
Concentration: 2.745 ug/mL

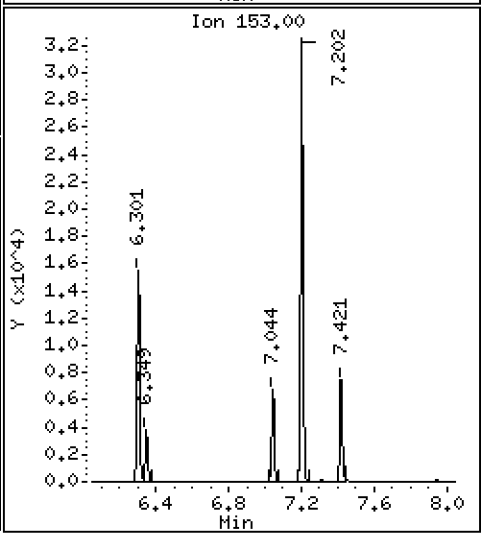


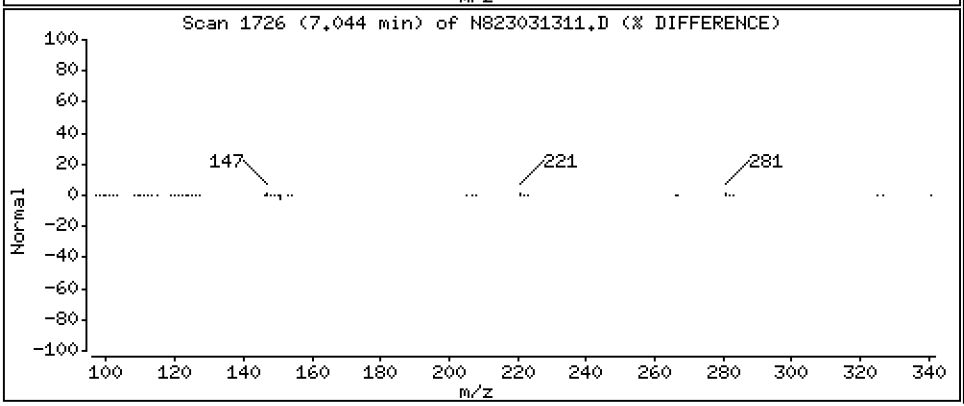












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031311.D

Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

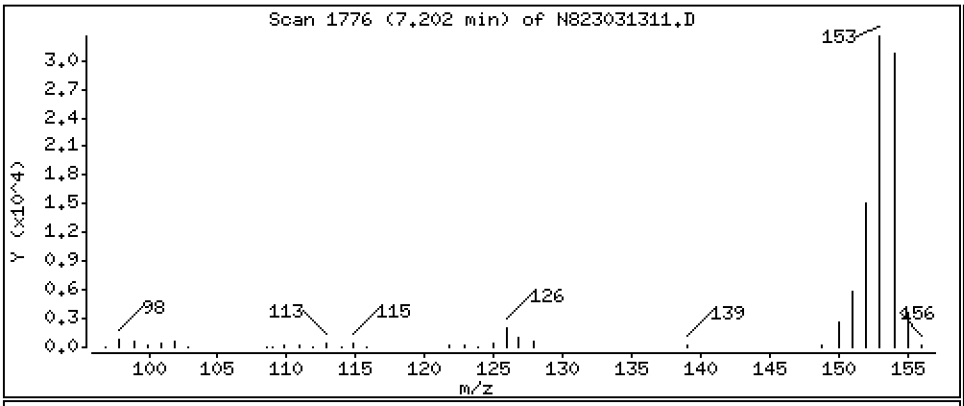
Operator: JZ

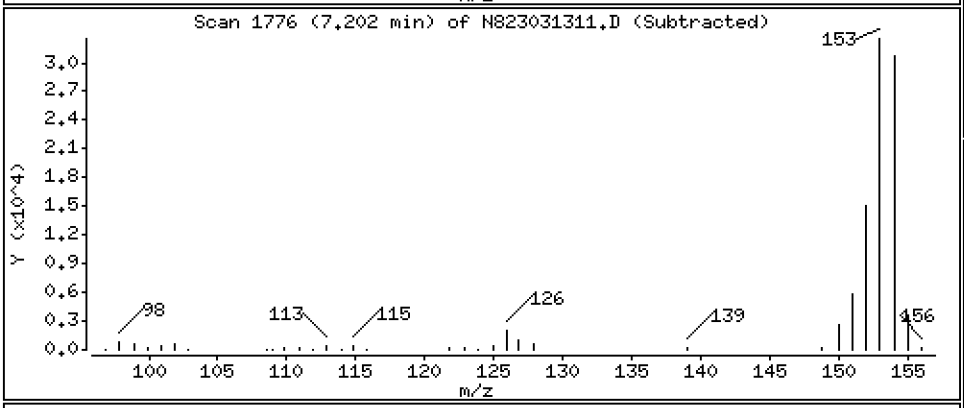
Column phase: Rxi-17sil

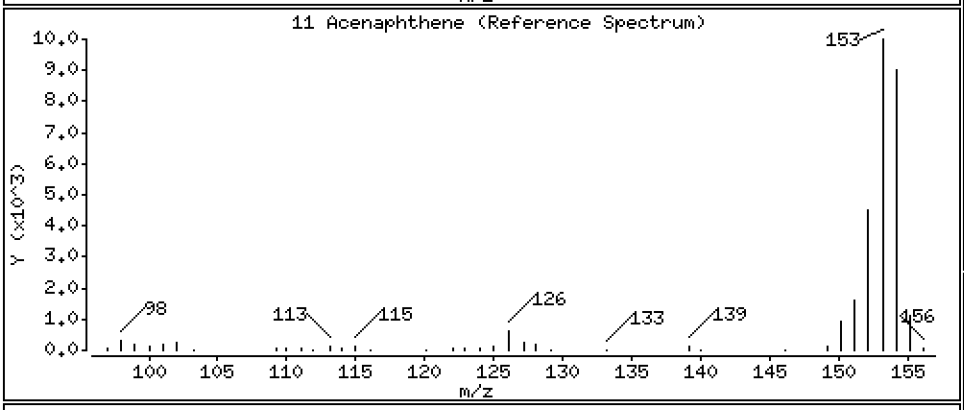
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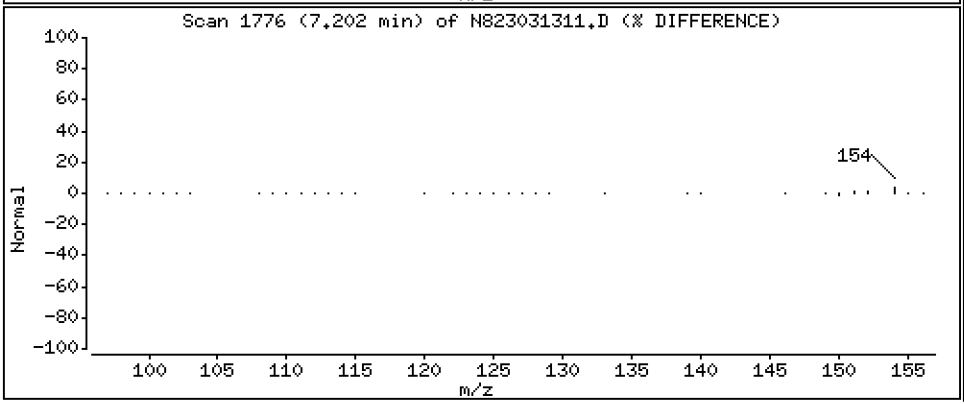
11 Acenaphthene

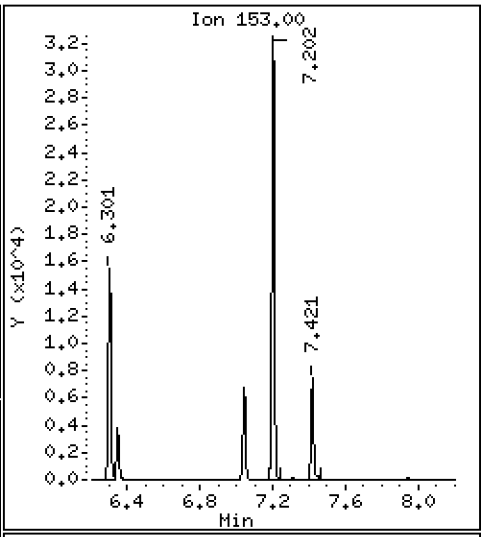
Concentration: 2.569 ug/mL

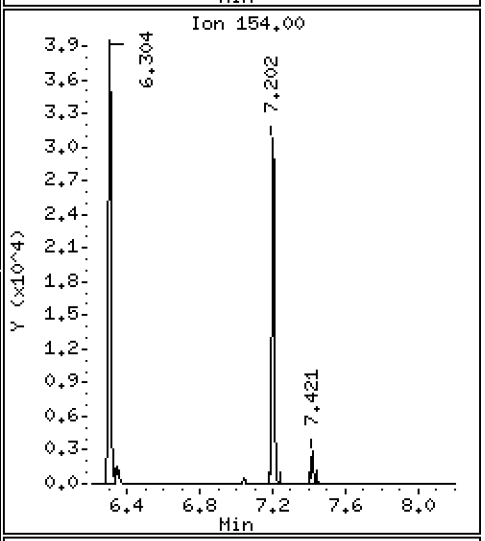


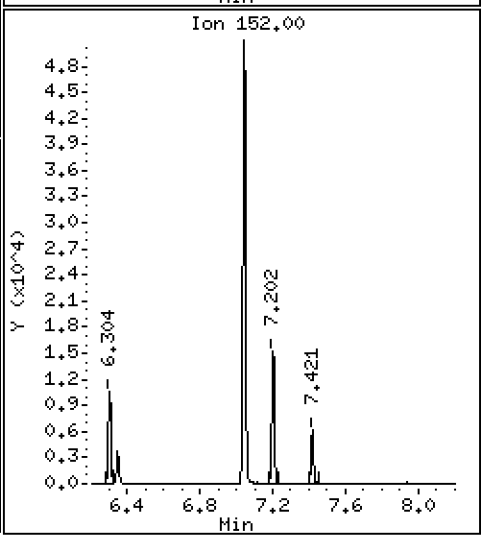












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

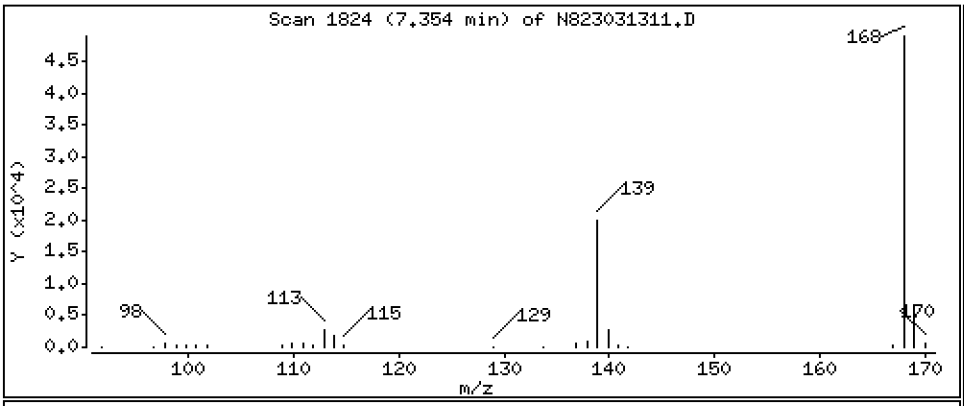
Operator: JZ

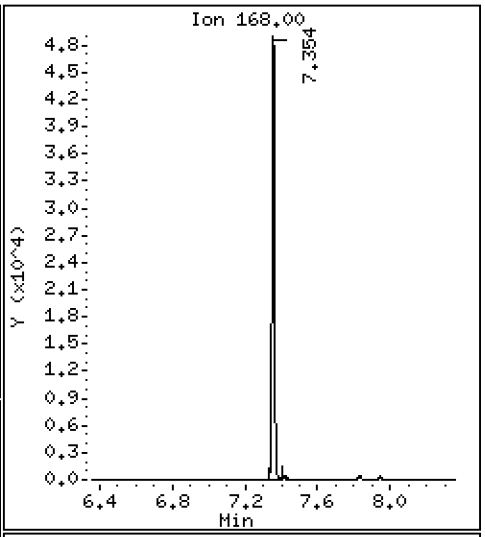
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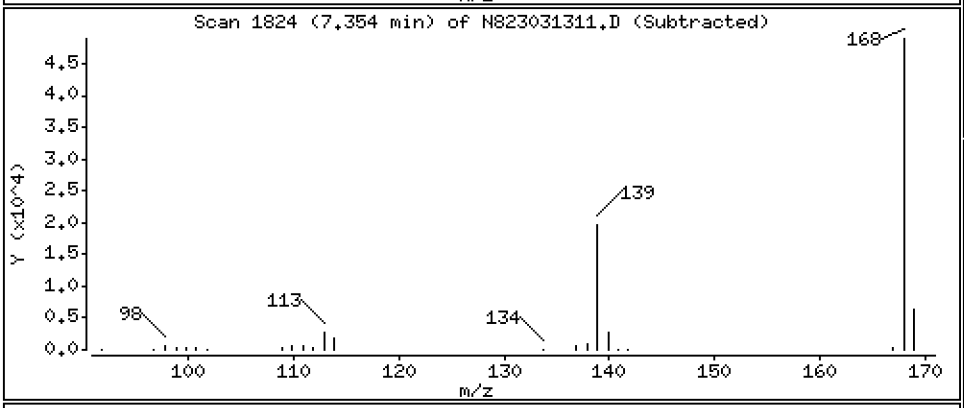
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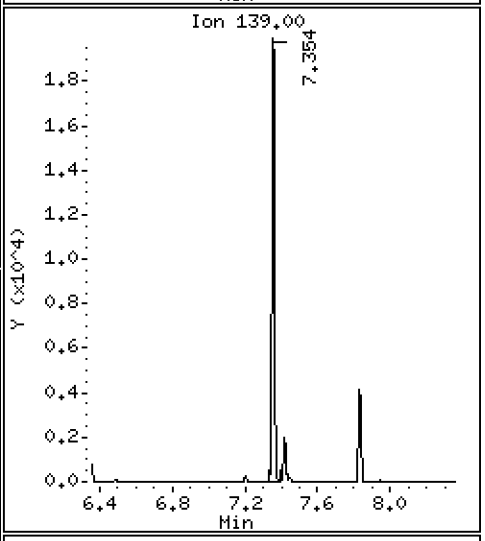
12 Dibenzofuran

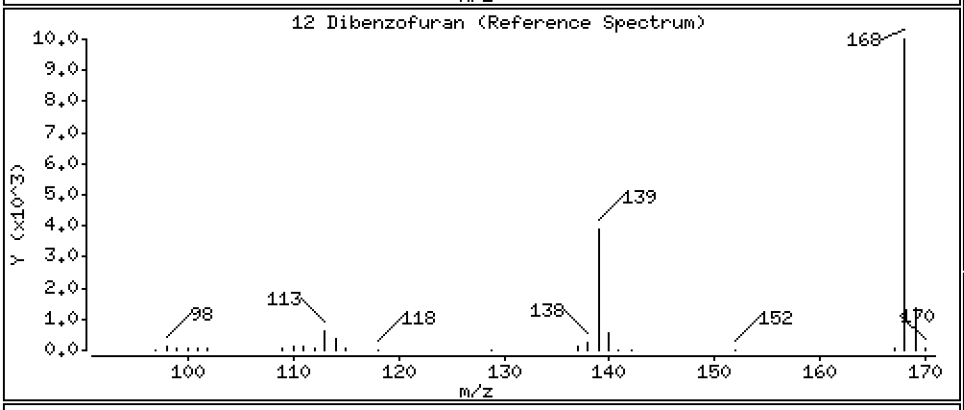
Concentration: 2.524 ug/mL

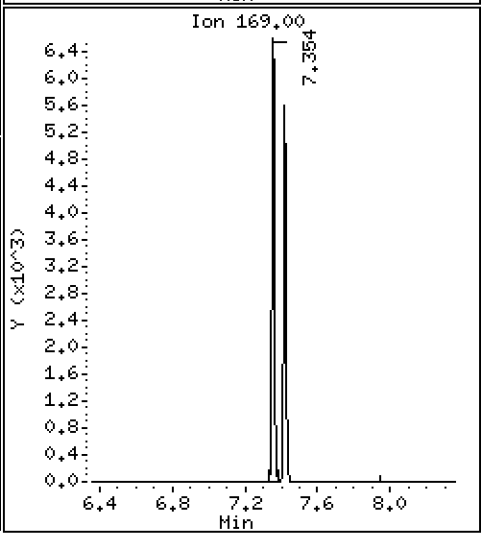


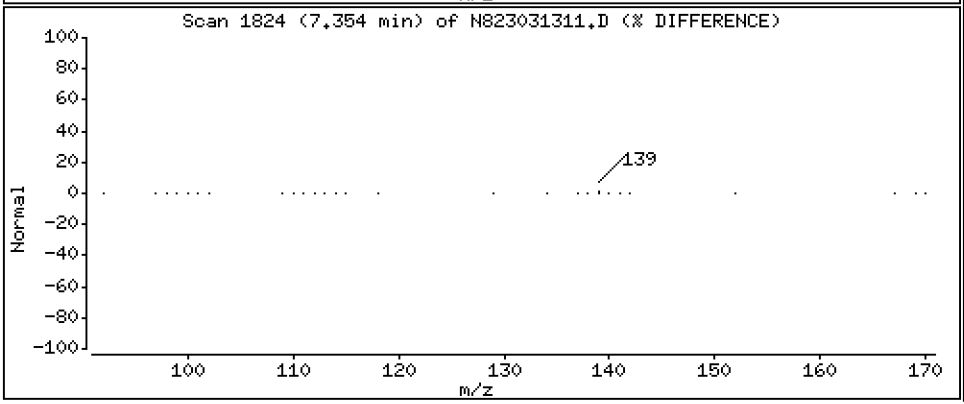












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

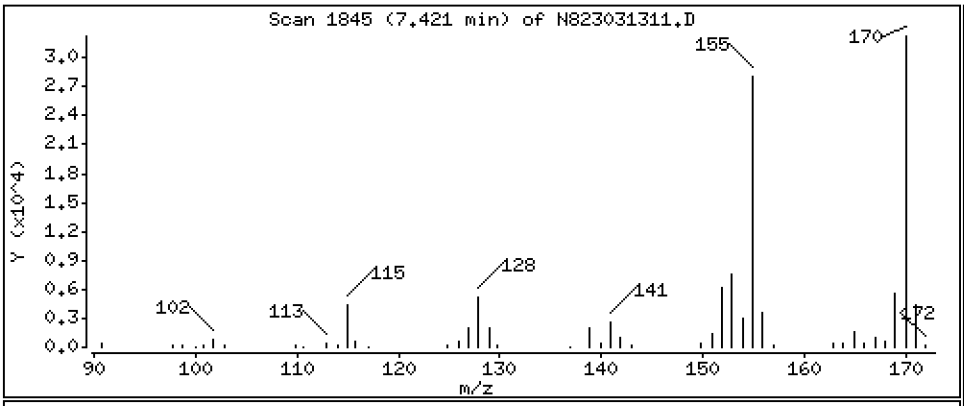
Operator: JZ

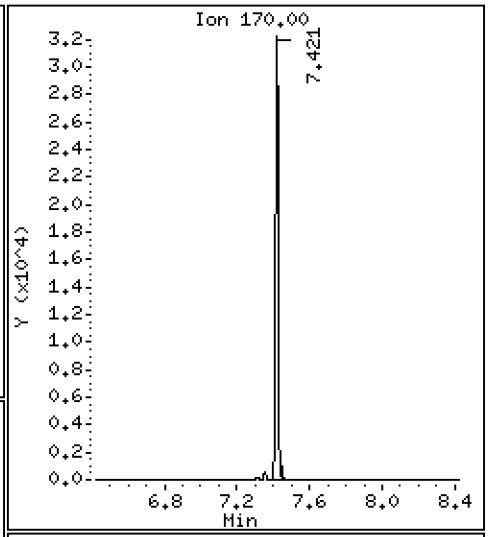
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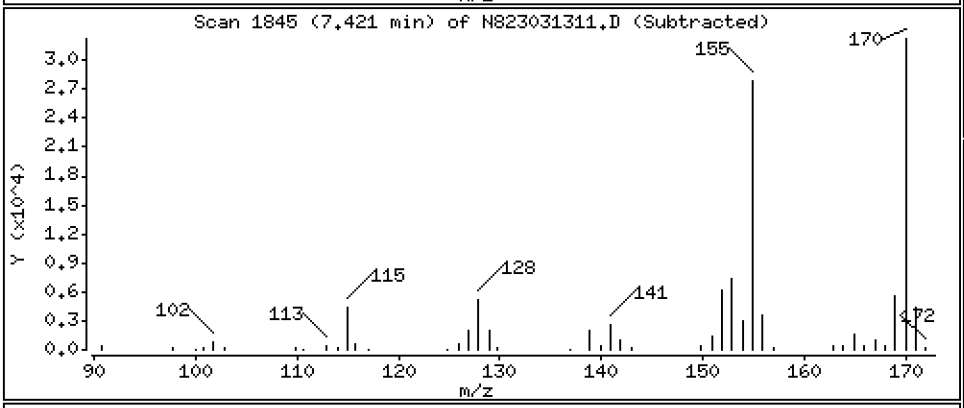
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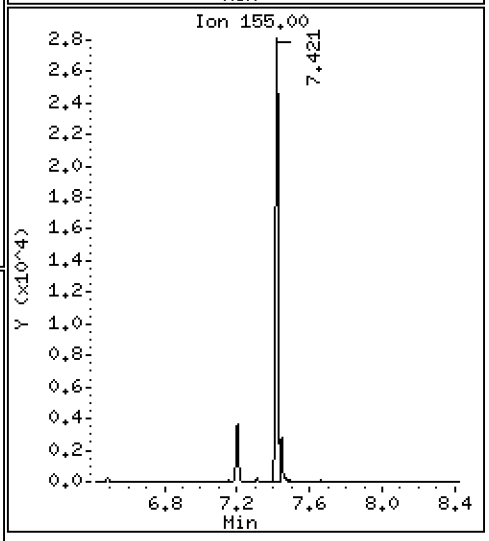
13 1,6,7-Trimethylnaphthalene

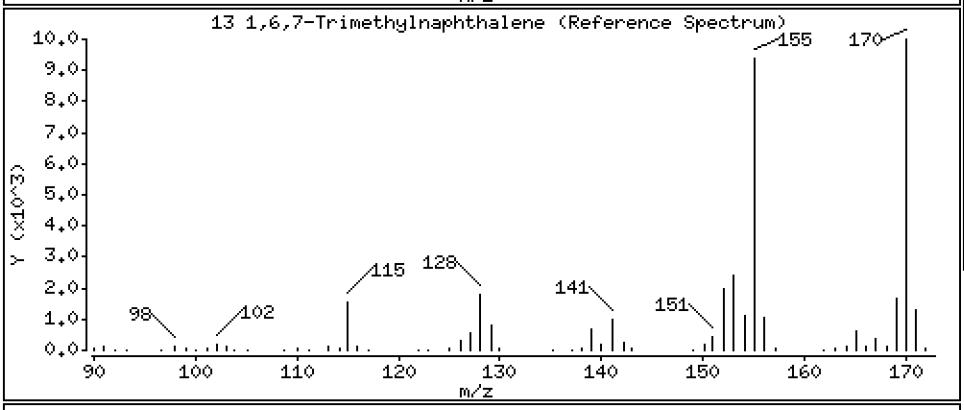
Concentration: 2.679 ug/mL

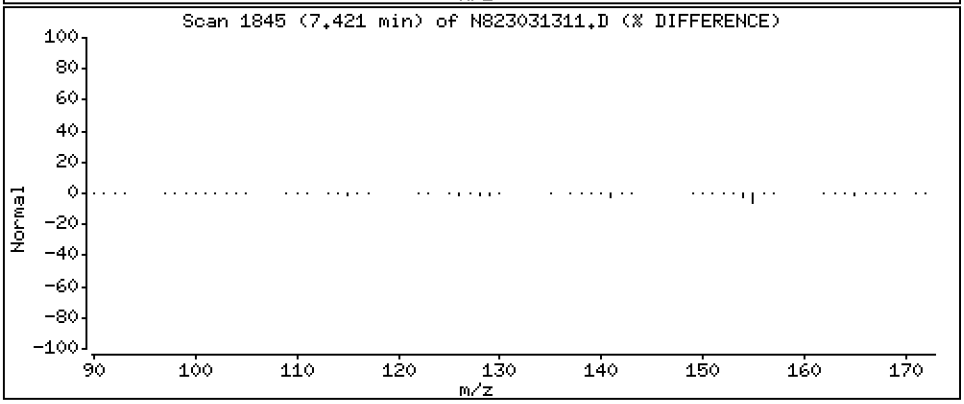












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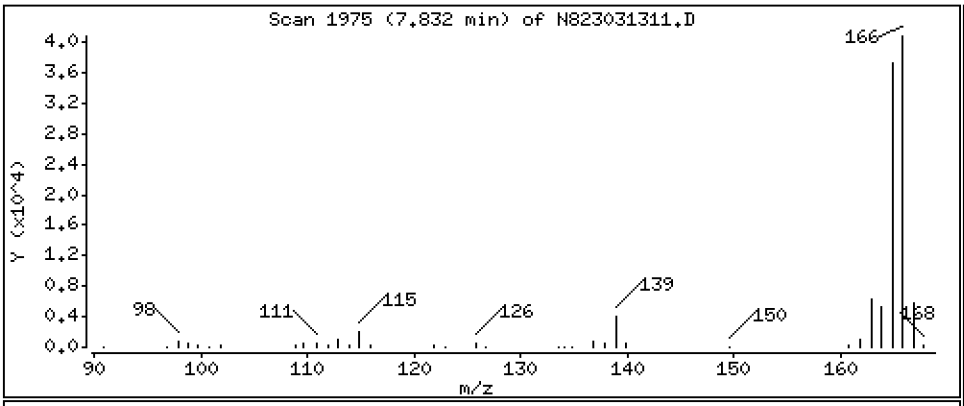
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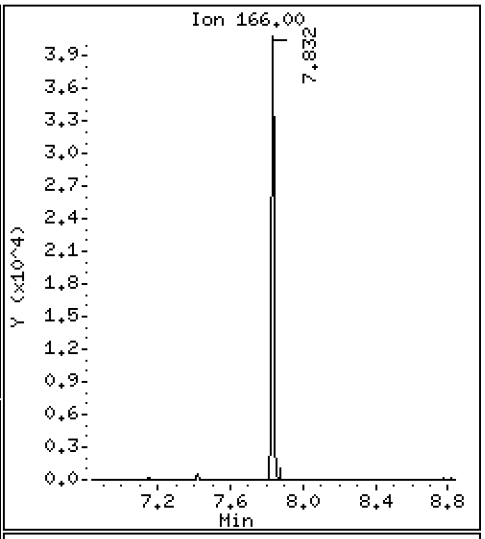
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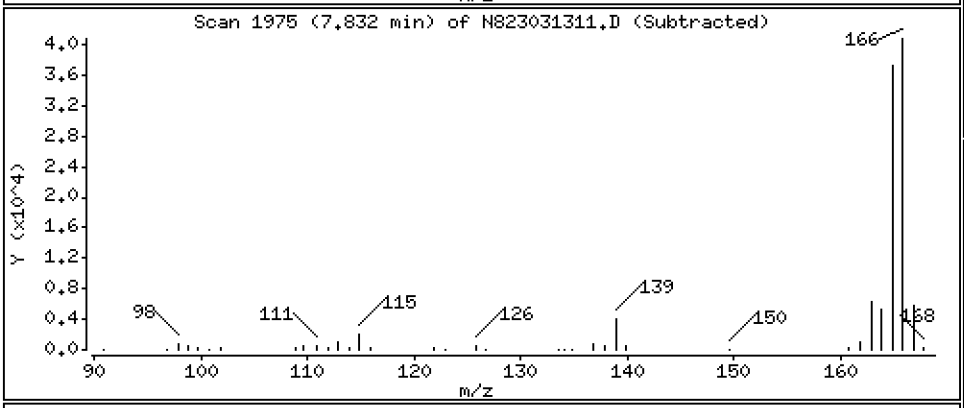
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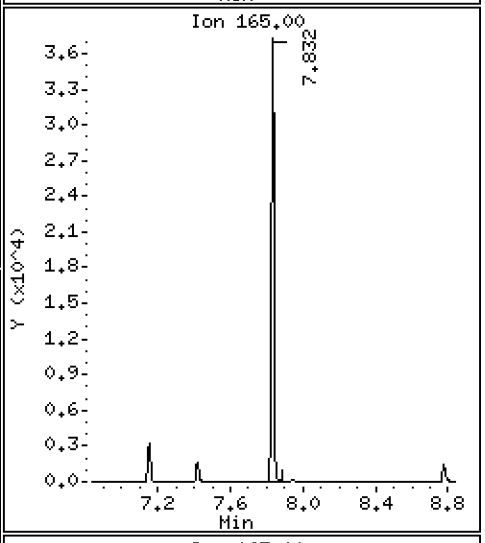
14 Fluorene

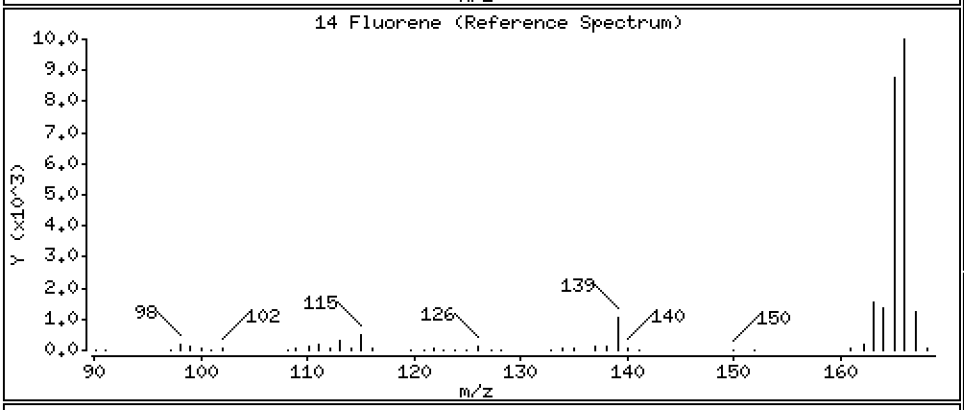
Concentration: 2.689 ug/mL

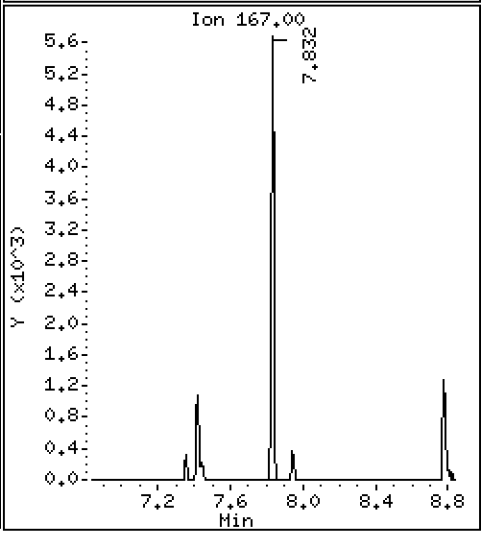


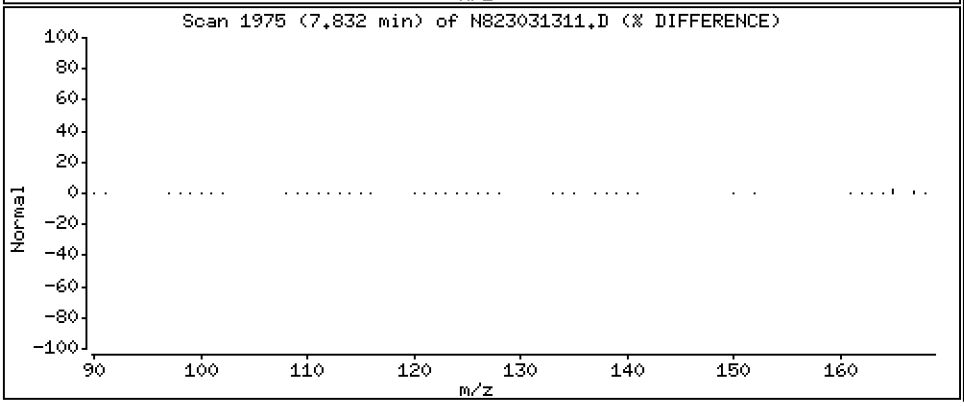












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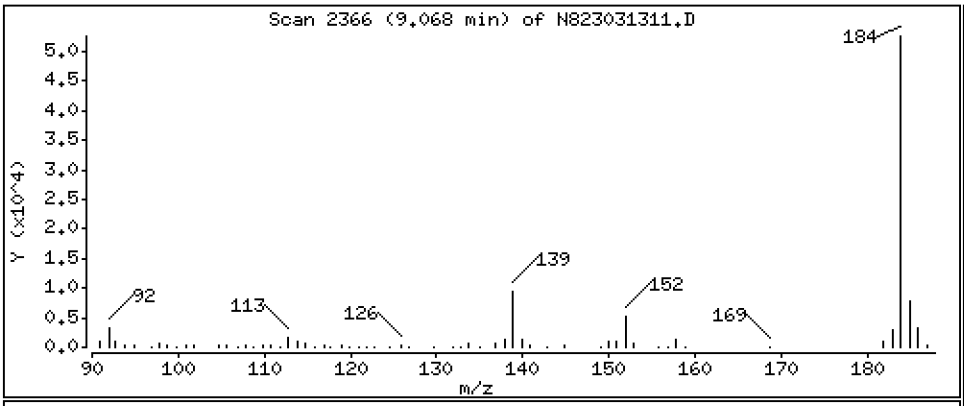
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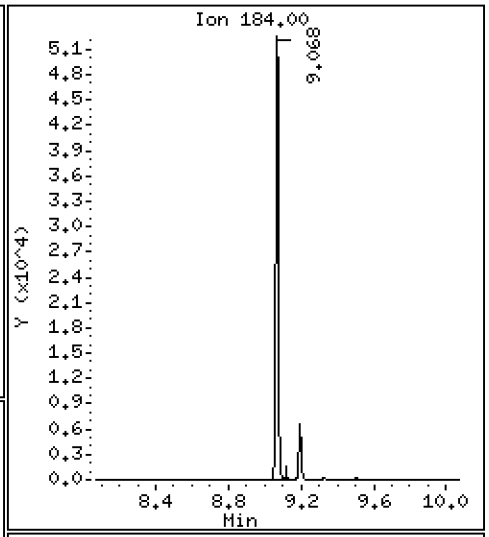
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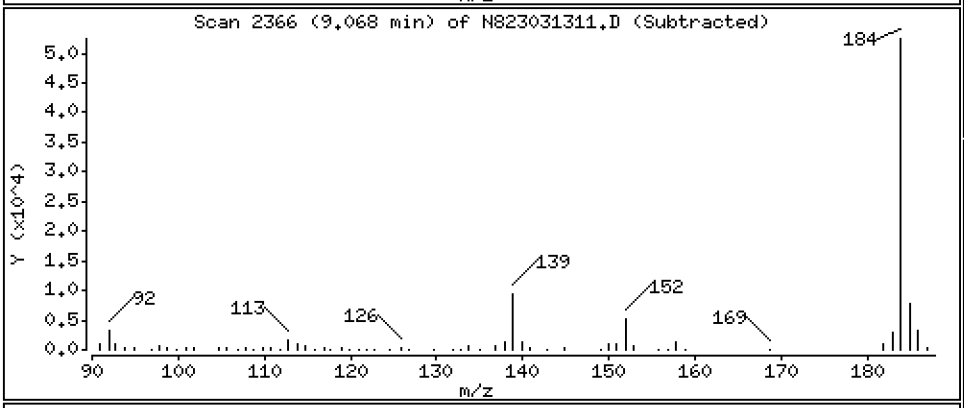
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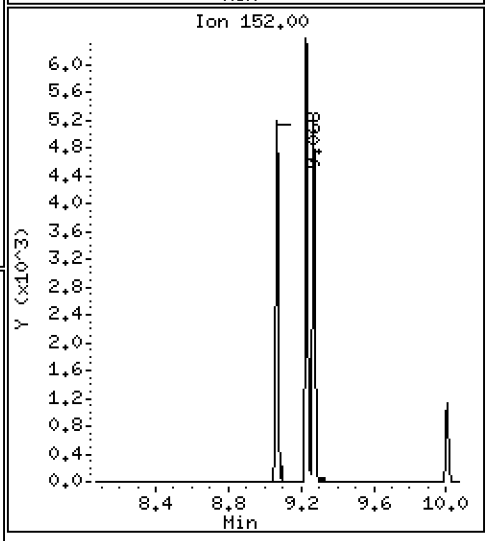
18 Dibenzothiophene

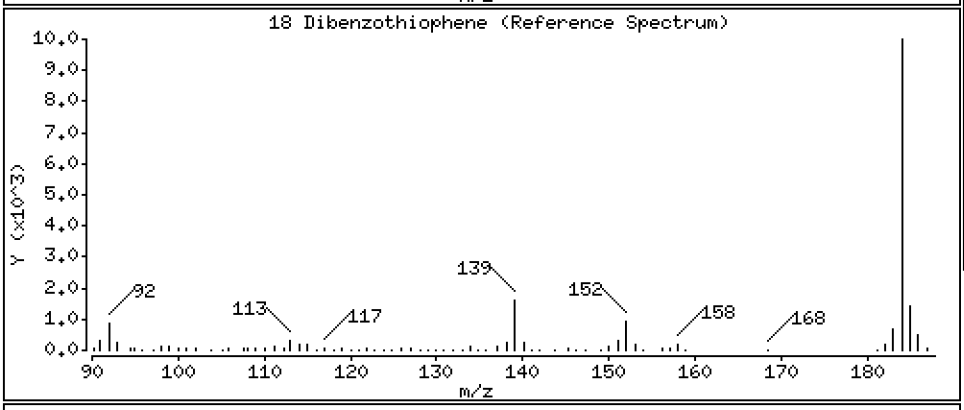
Concentration: 2.539 ug/mL

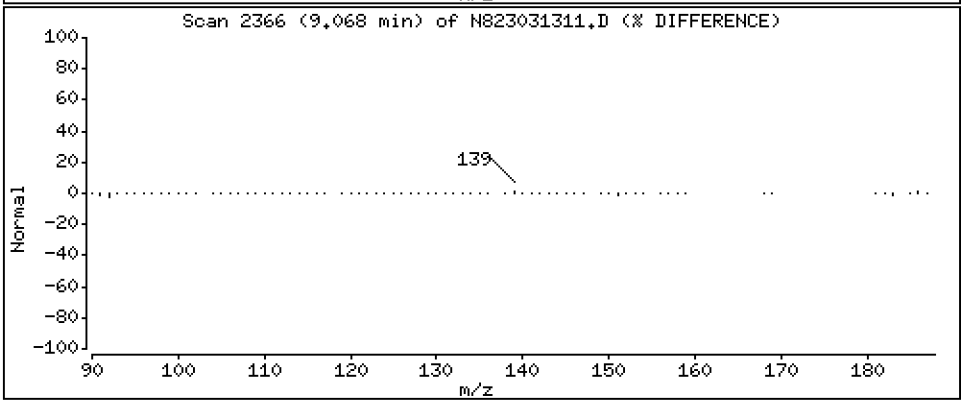












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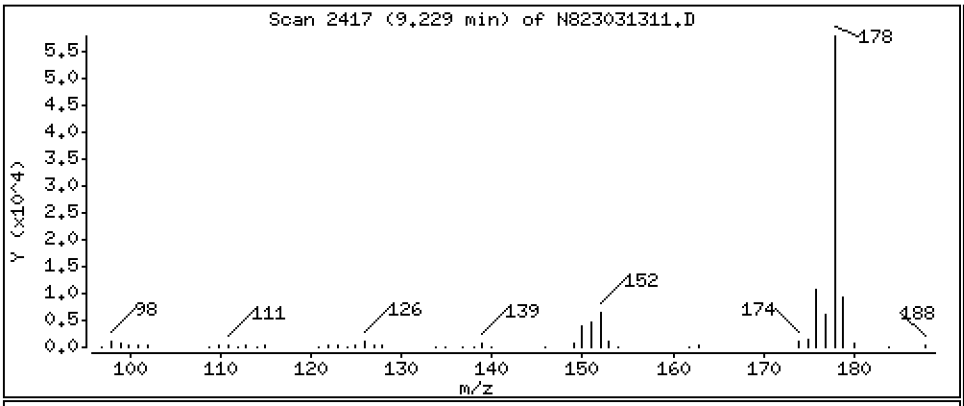
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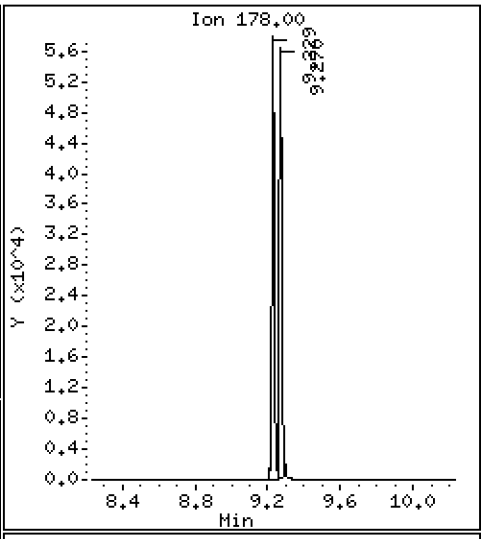
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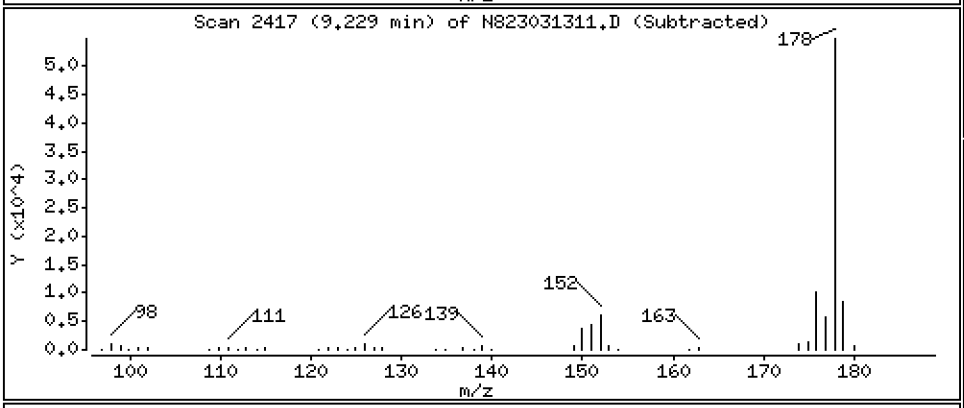
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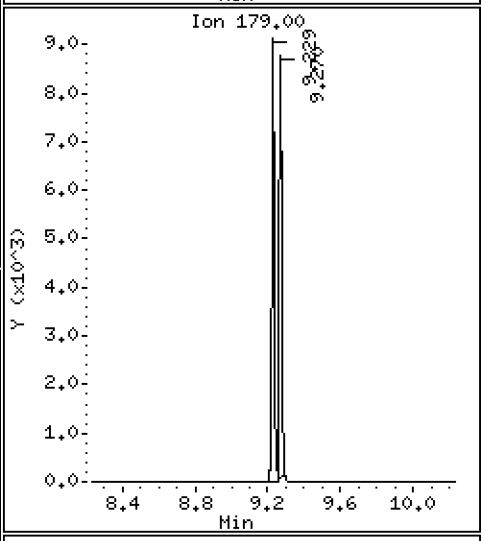
16 Phenanthrene

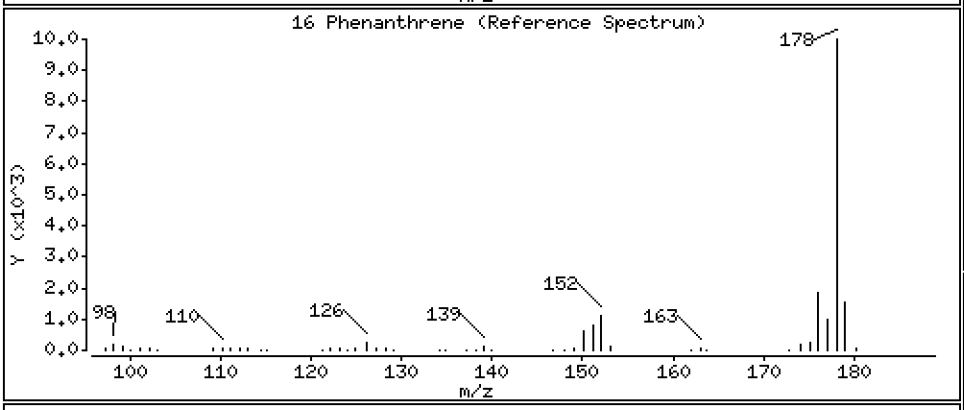
Concentration: 2.461 ug/mL

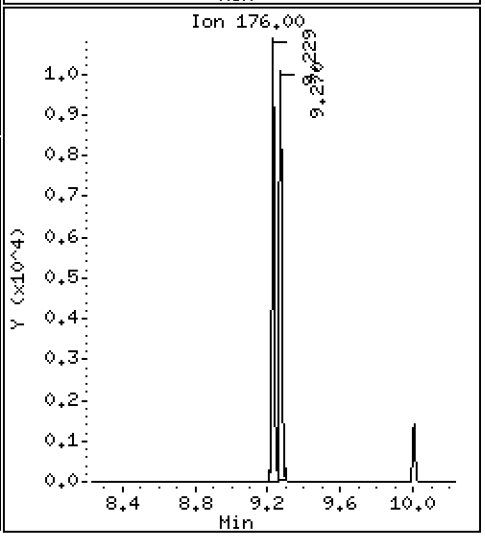


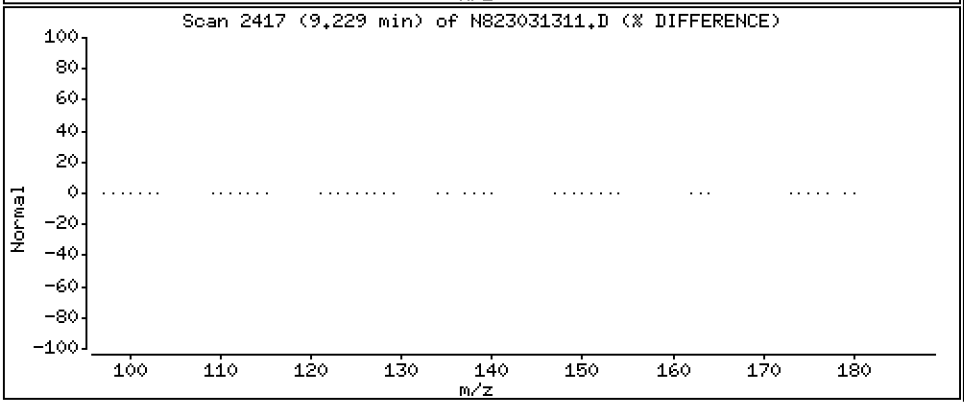












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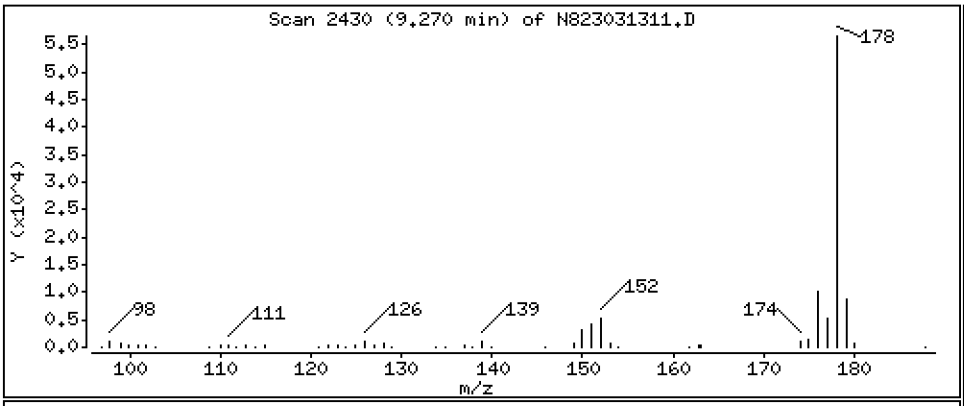
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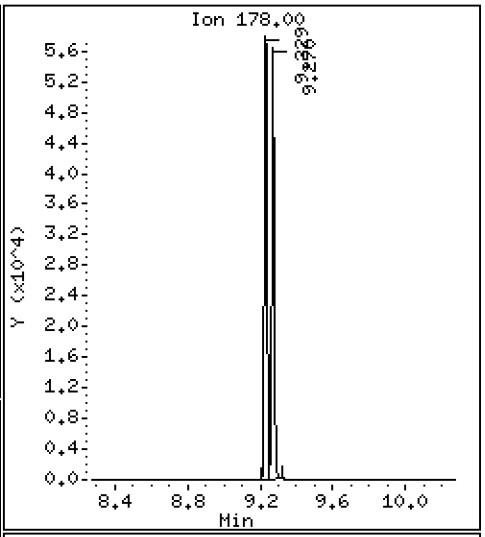
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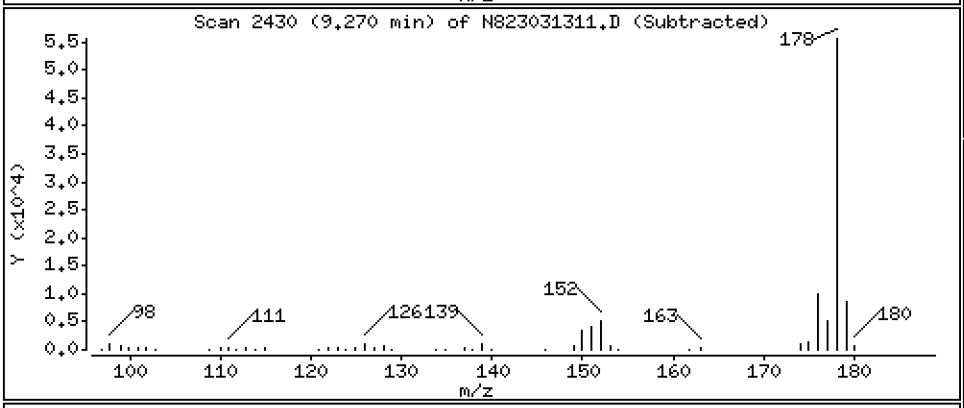
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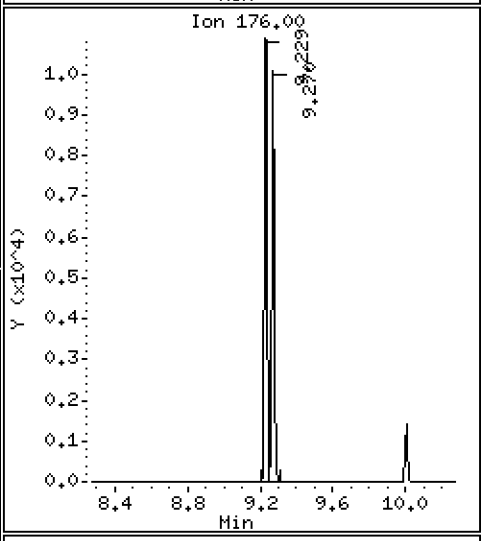
17 Anthracene

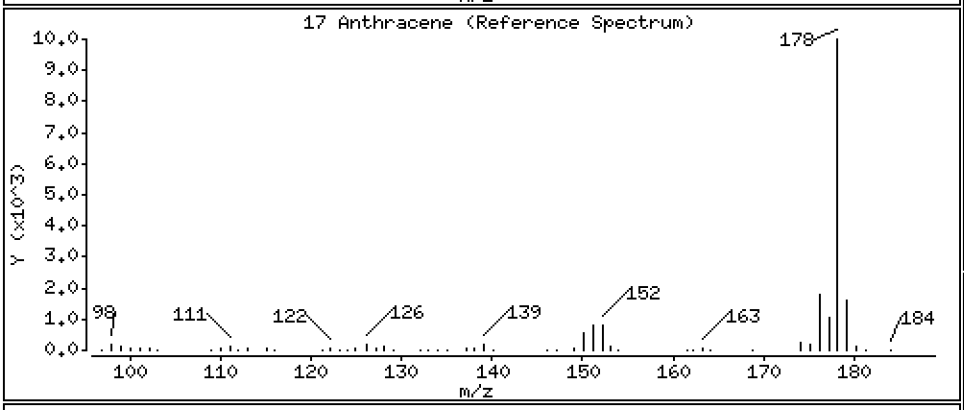
Concentration: 2.659 ug/mL

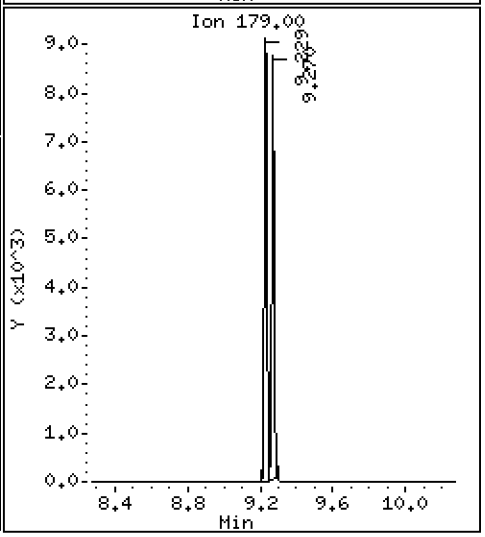


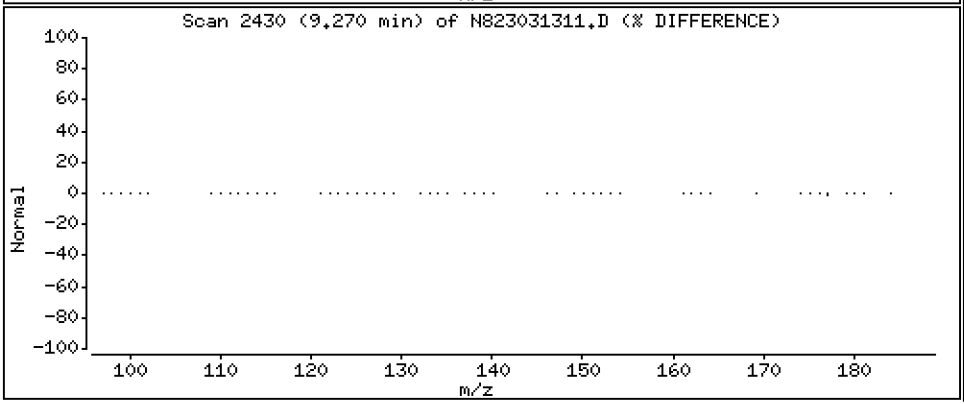












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Date : 13-MAR-2023 17:41

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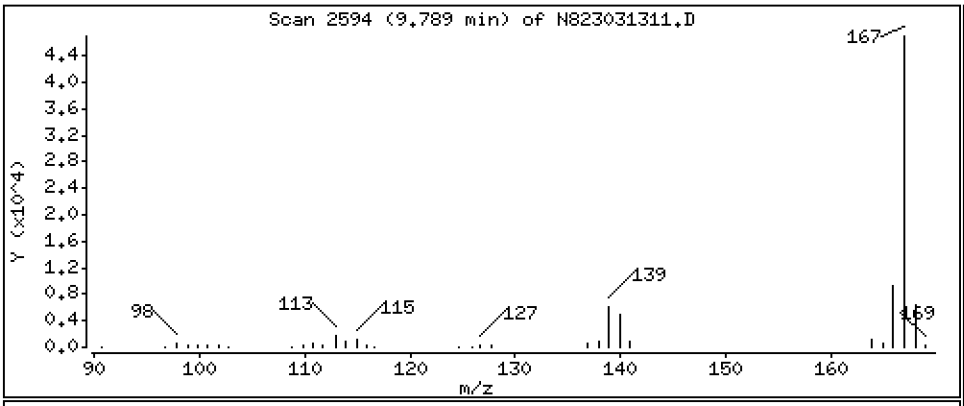
Operator: JZ

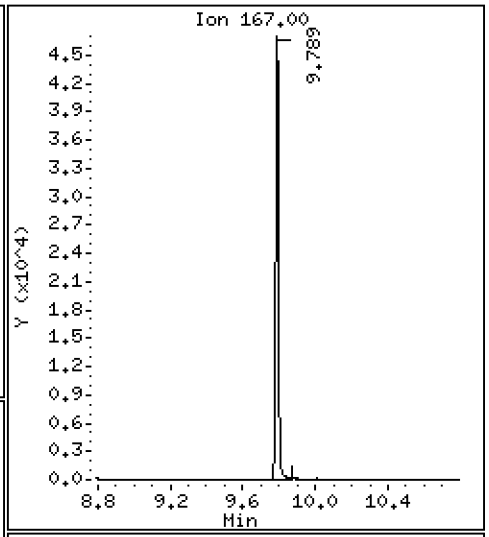
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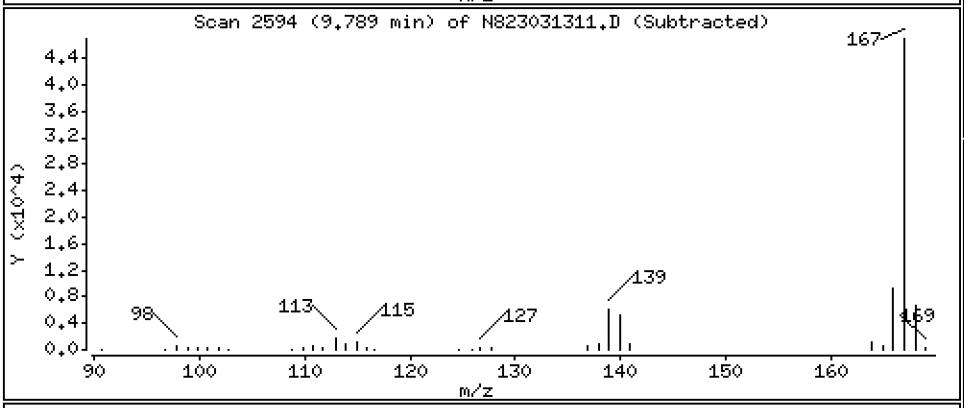
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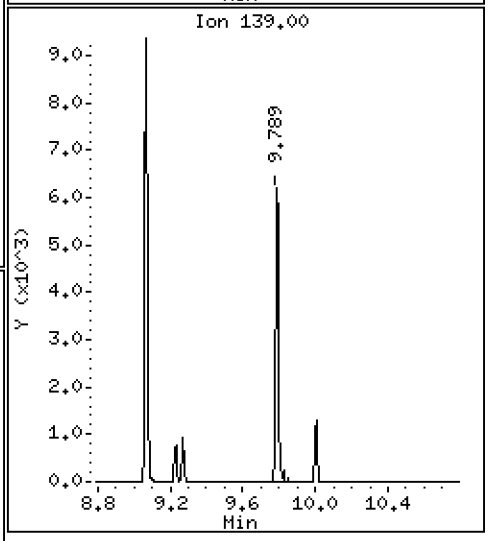
19 Carbazole

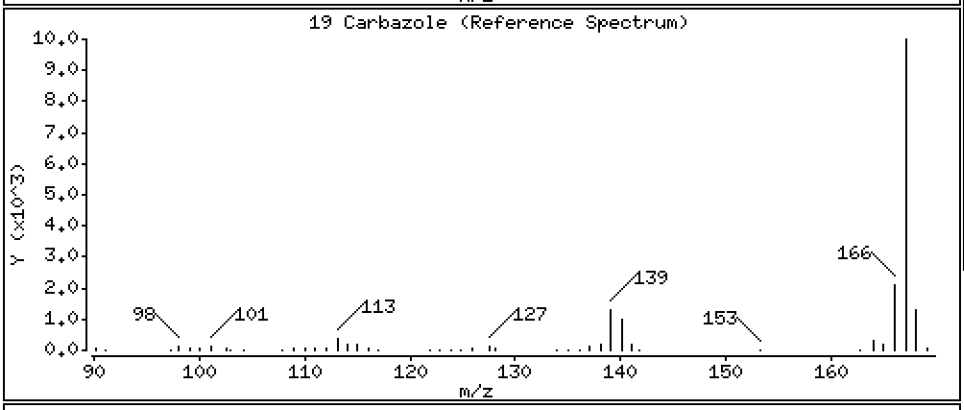
Concentration: 2.592 ug/mL

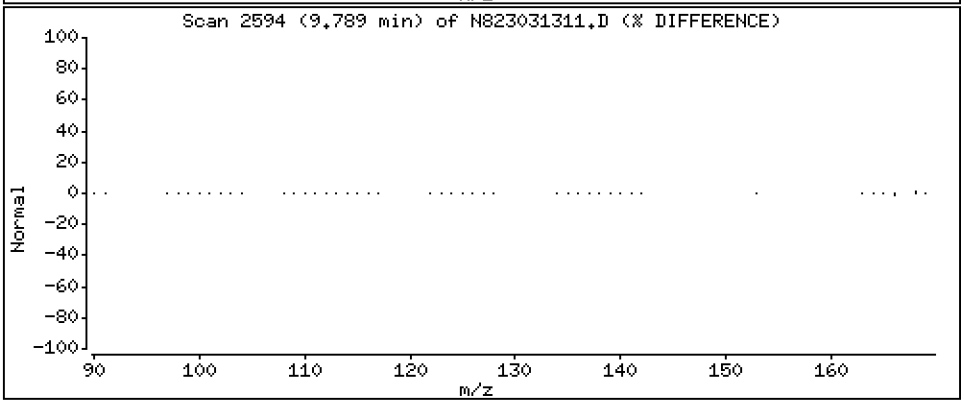












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

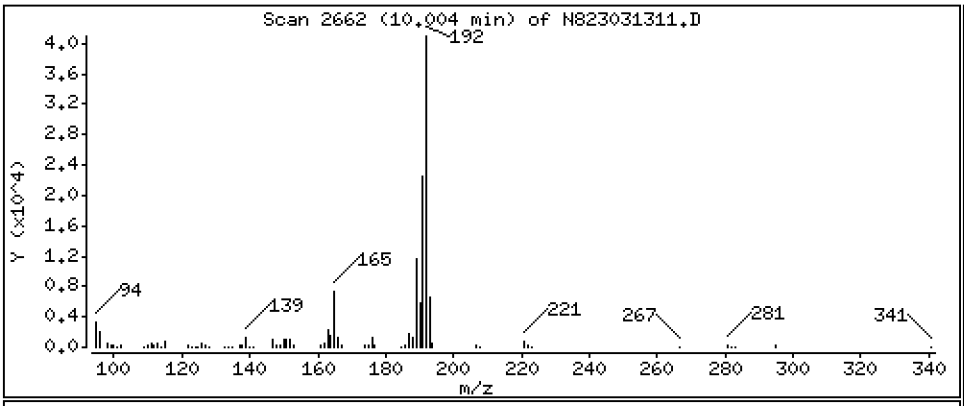
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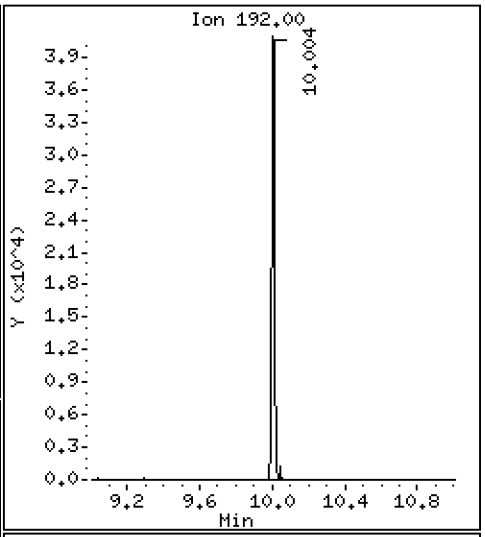
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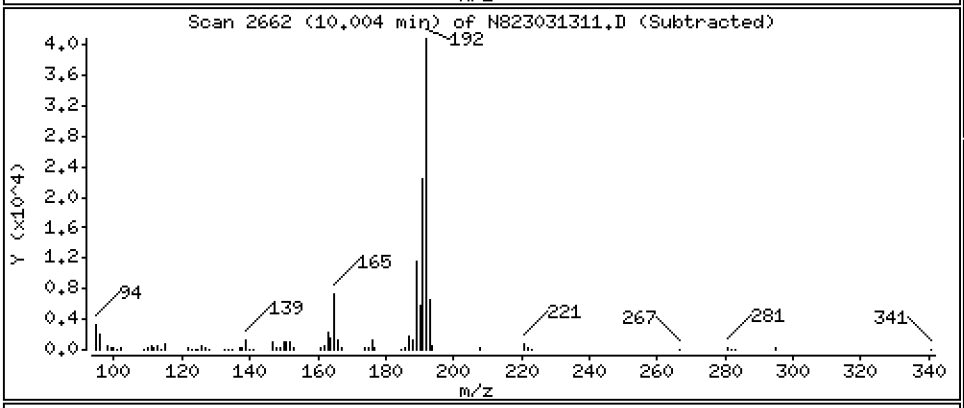
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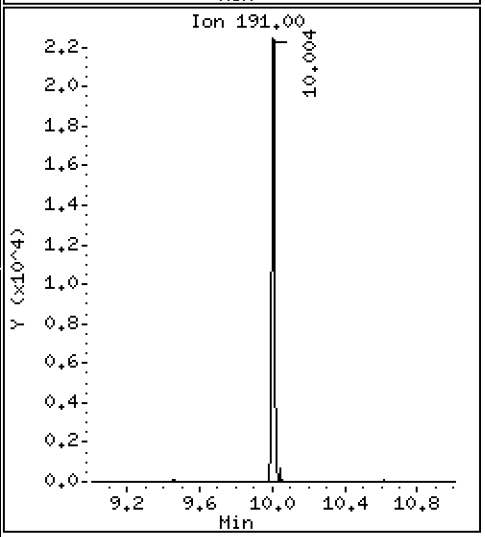
20 1-Methylphenanthrene

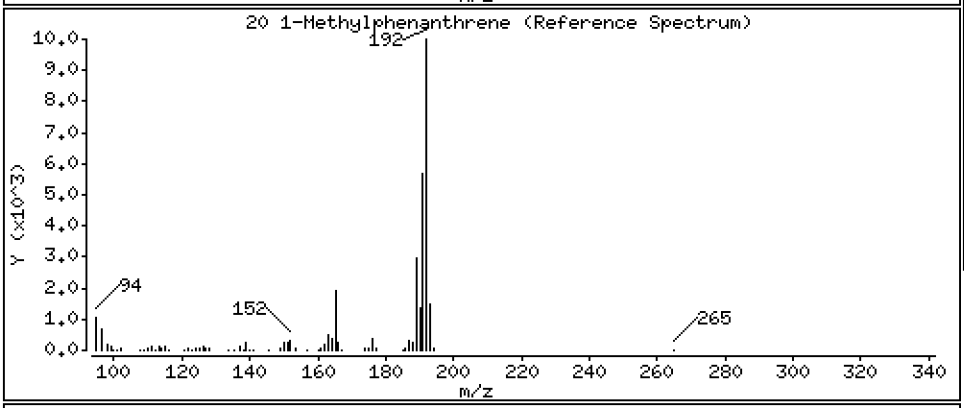
Concentration: 2.680 ug/mL

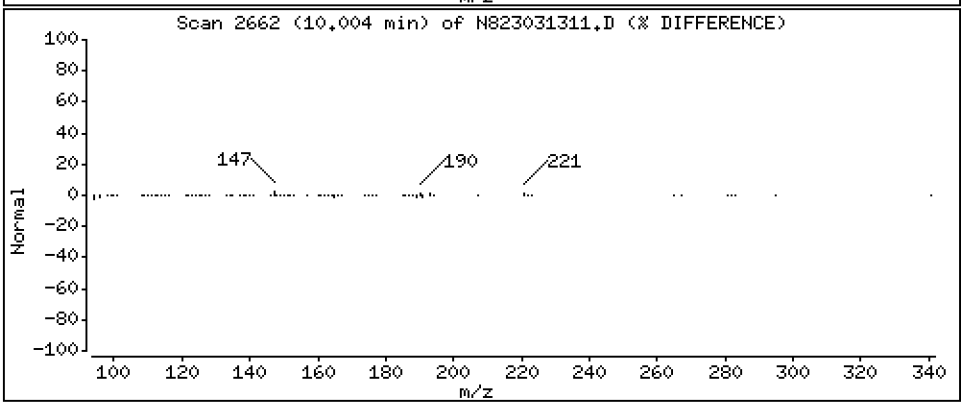












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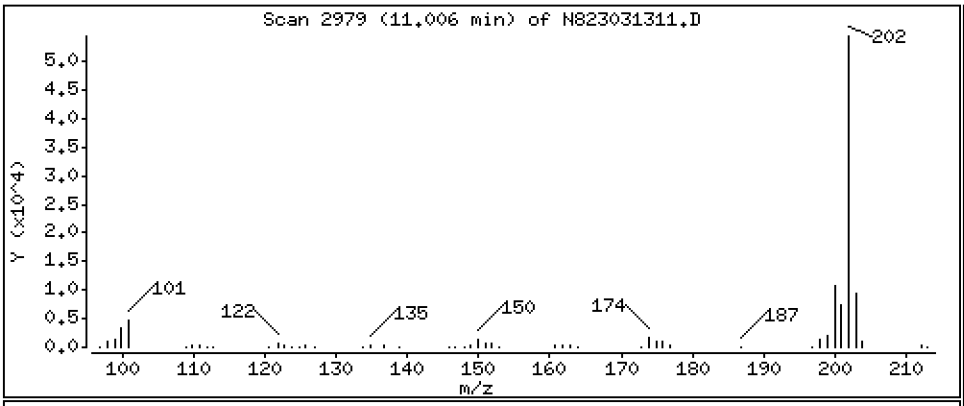
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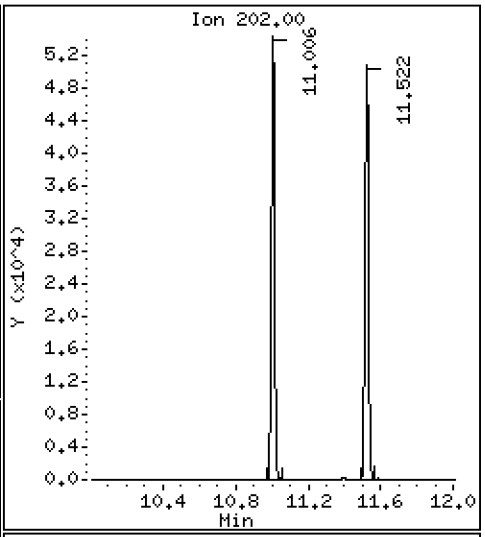
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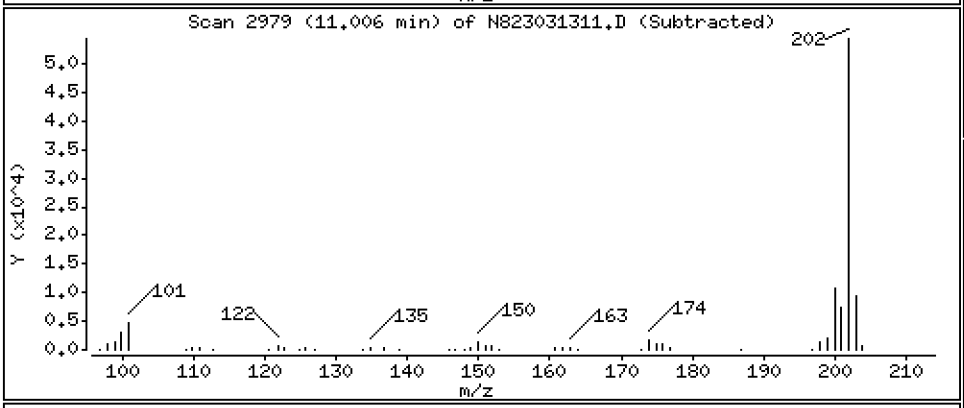
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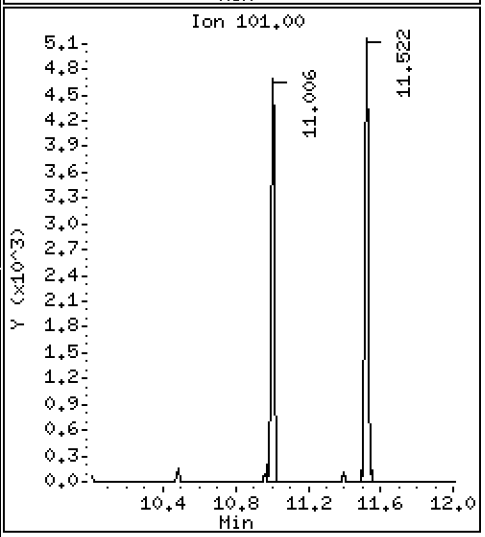
22 Fluoranthene

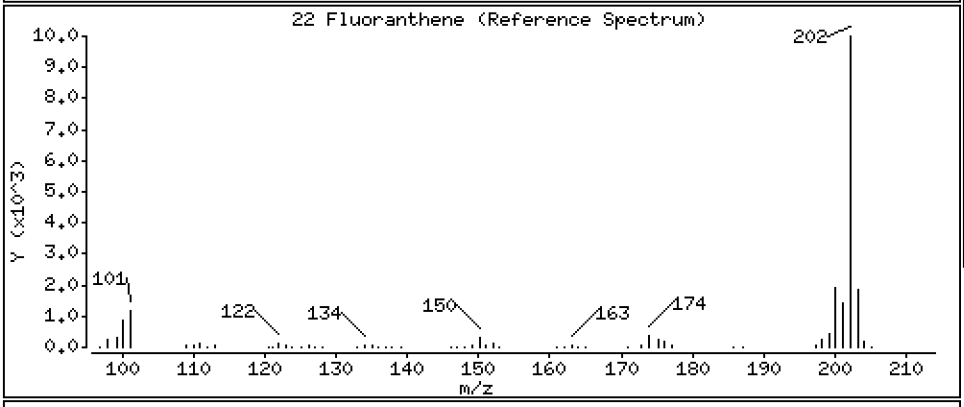
Concentration: 2.629 ug/mL

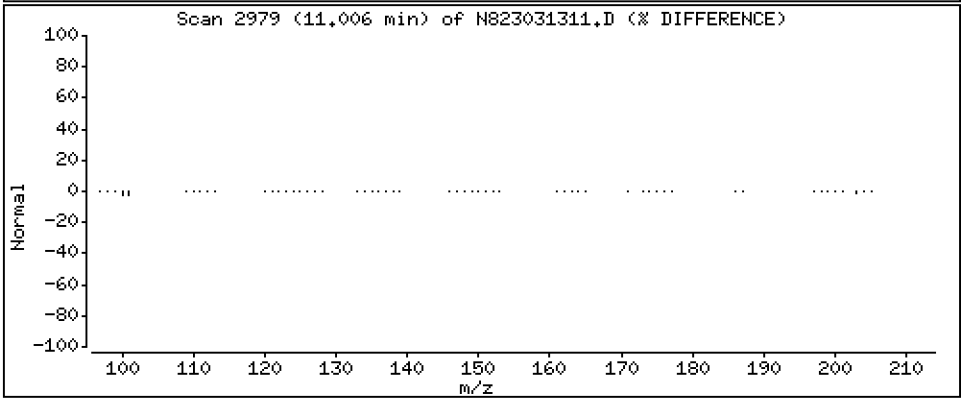












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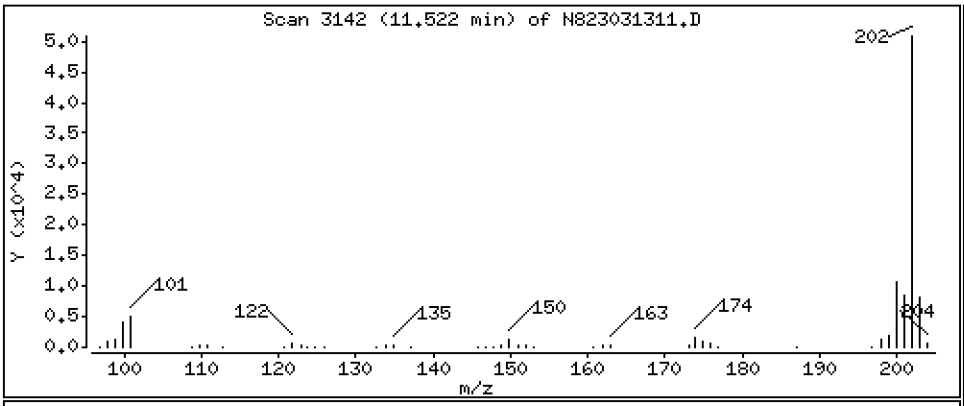
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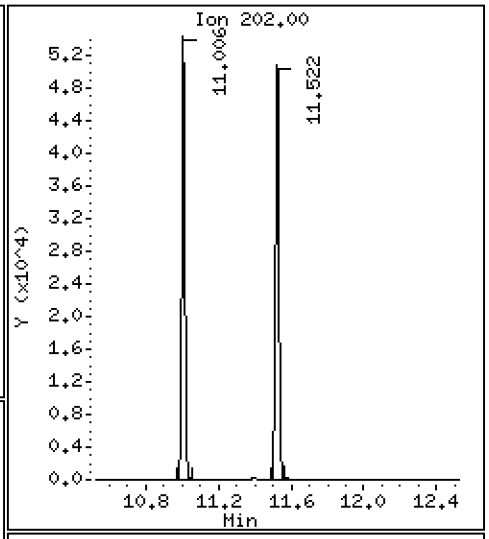
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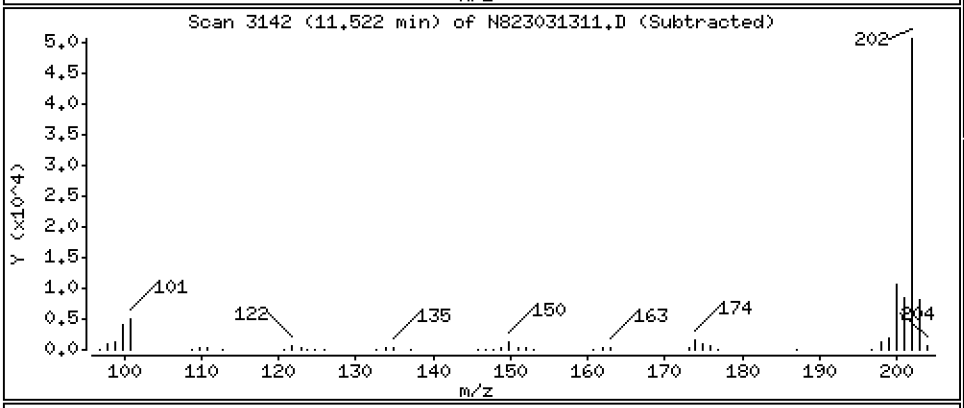
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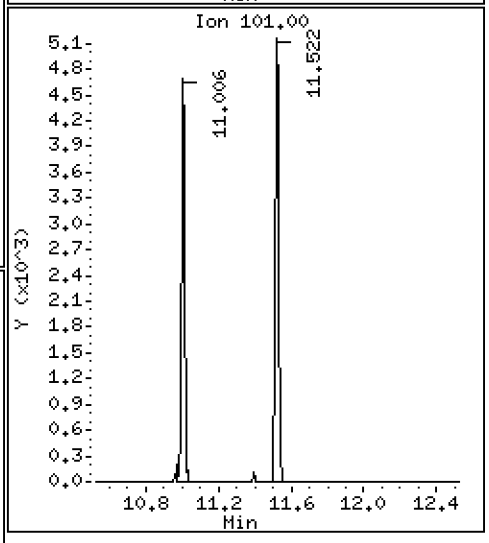
23 Pyrene

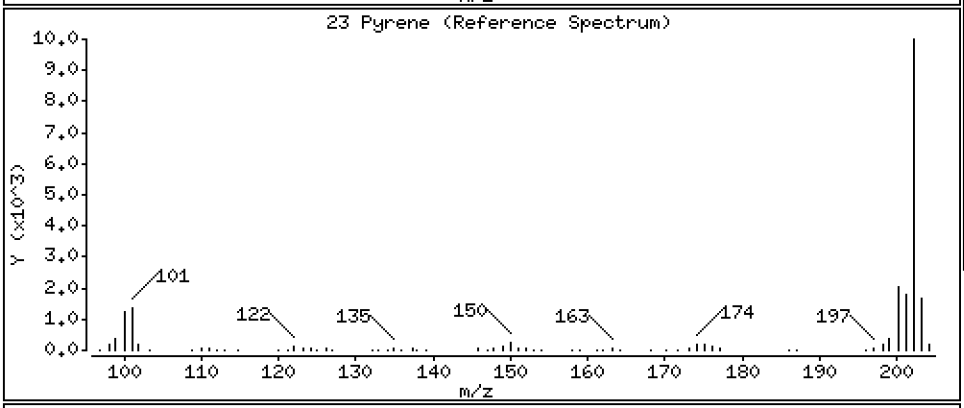
Concentration: 2.715 ug/mL

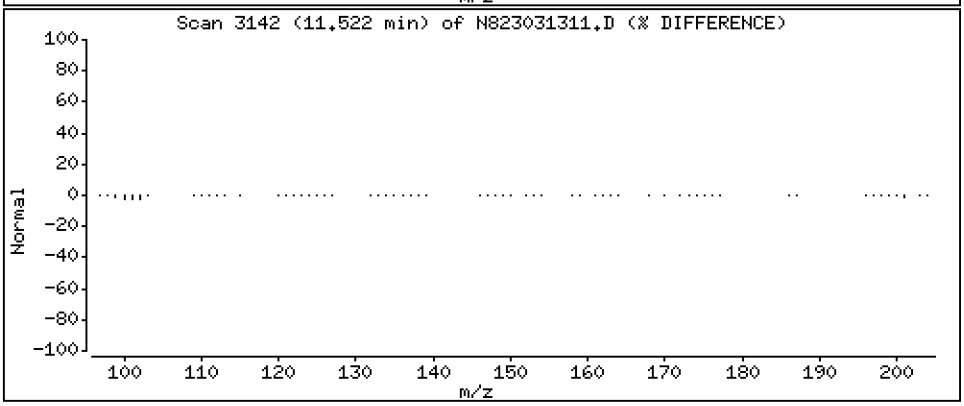












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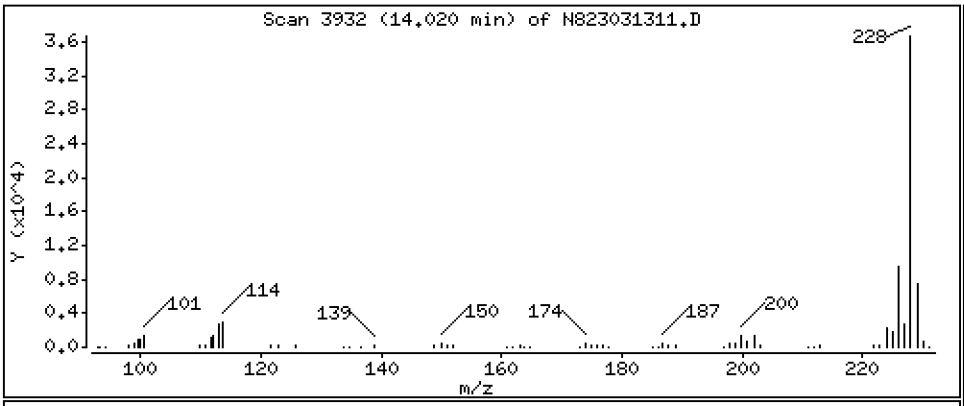
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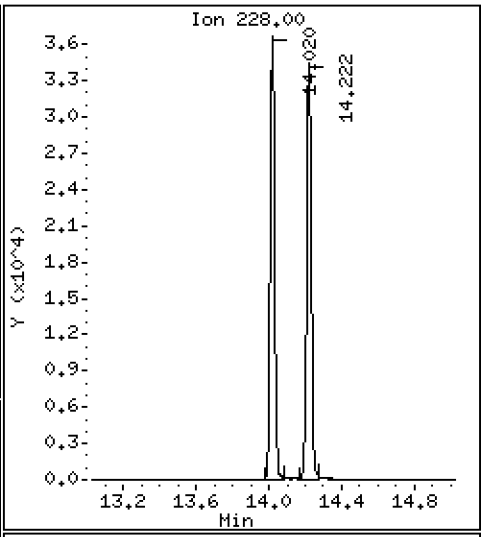
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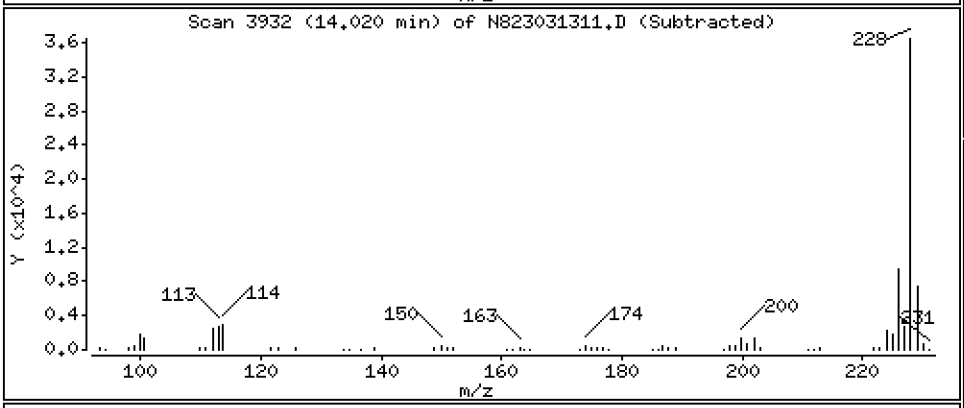
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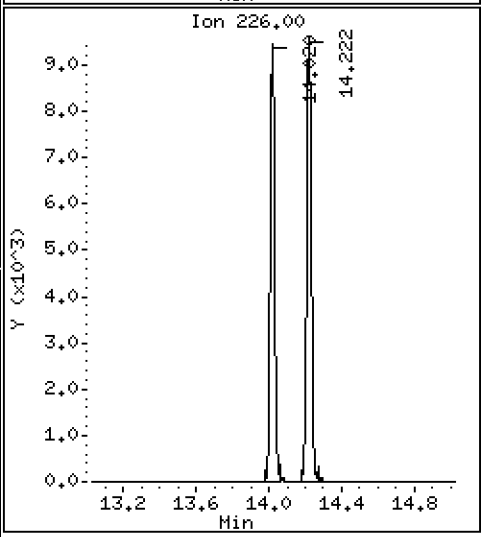
24 Benzo(a)anthracene

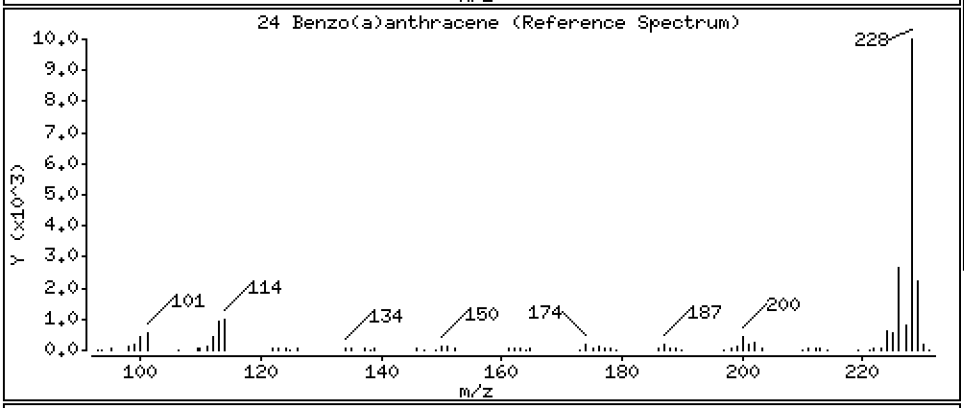
Concentration: 2.756 ug/mL

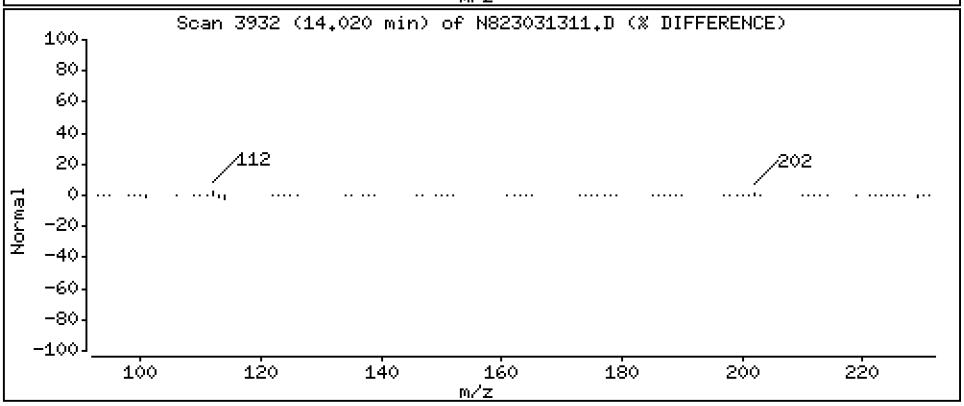












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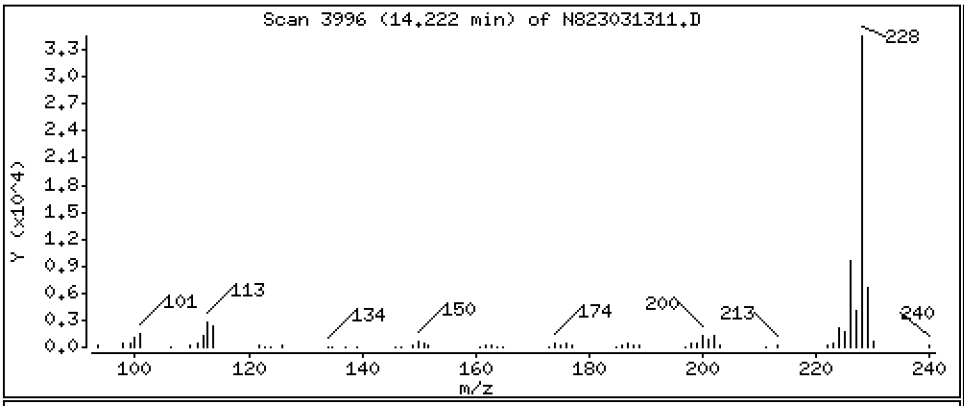
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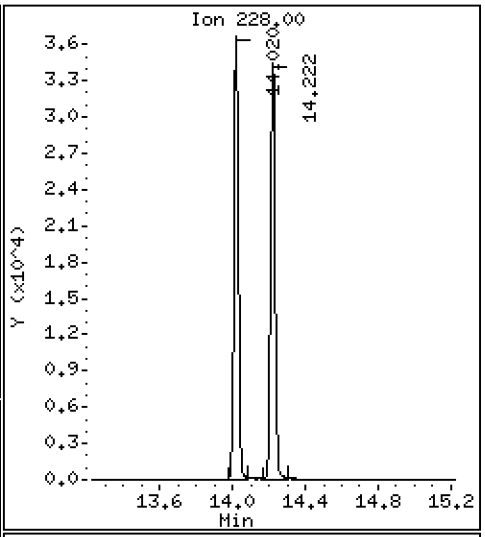
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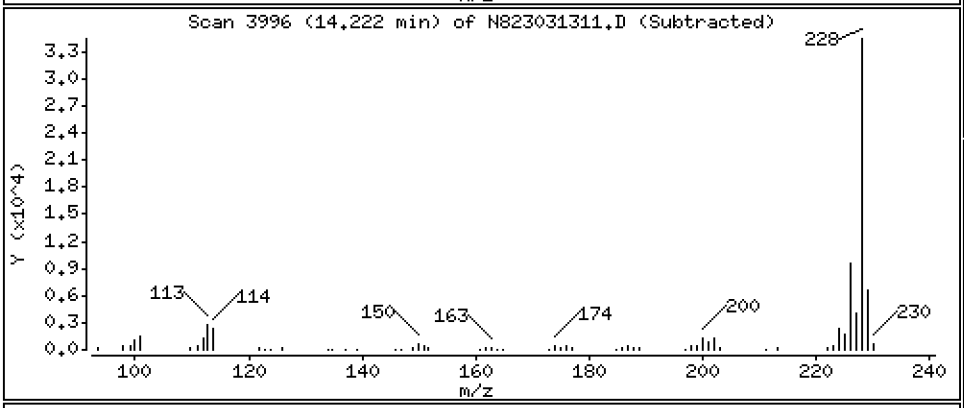
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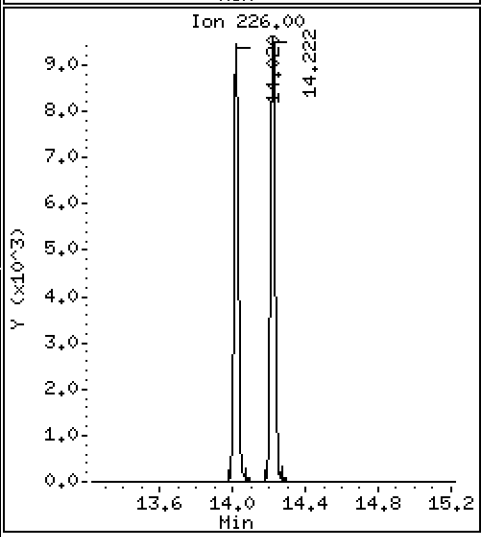
27 Chrysene

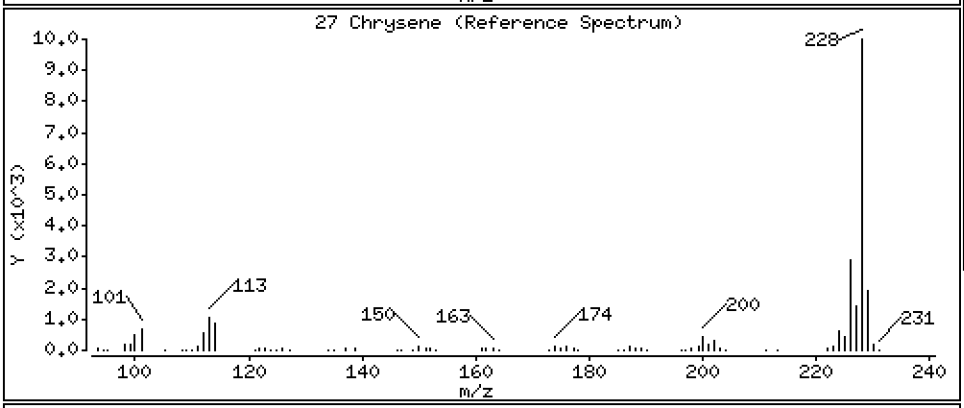
Concentration: 2.530 ug/mL

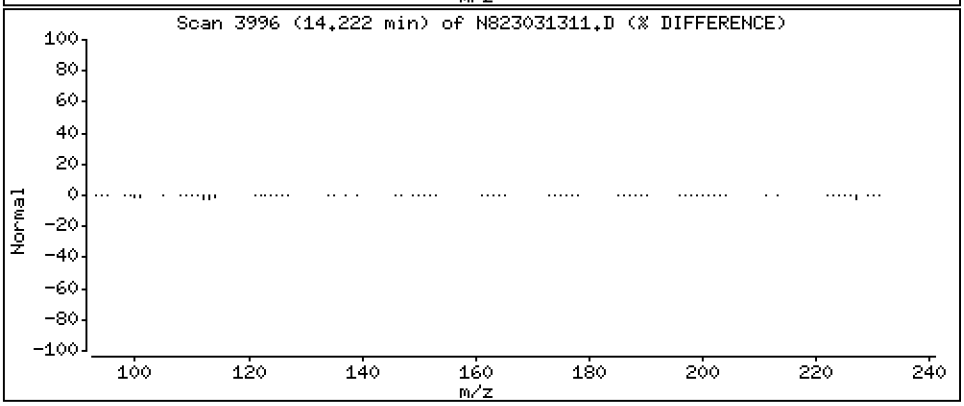












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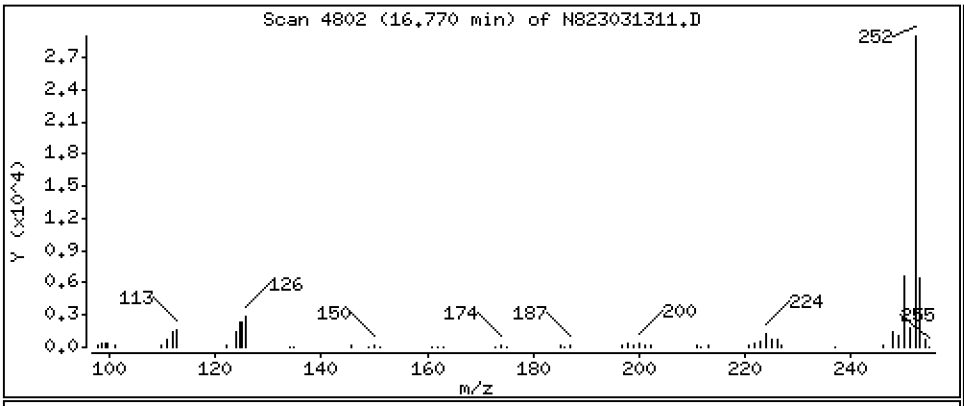
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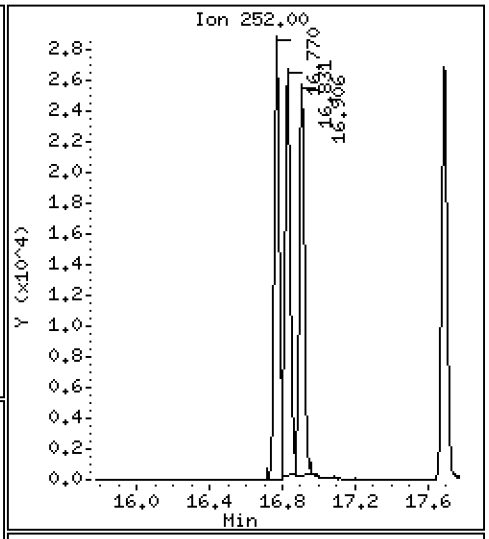
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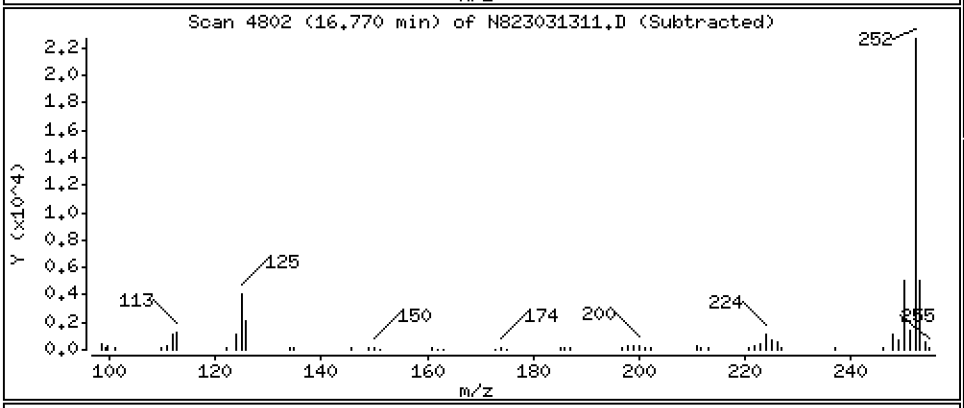
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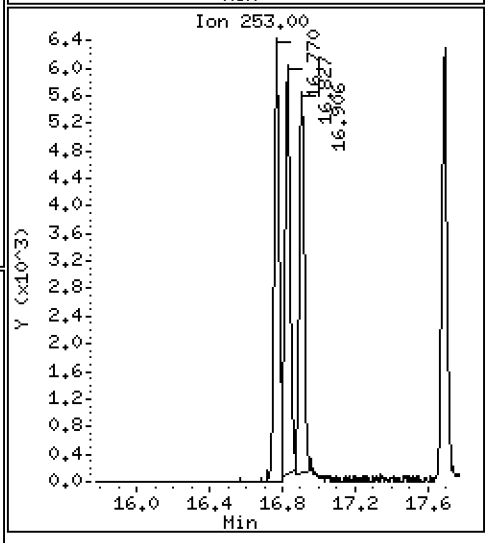
28 Benzo(b)fluoranthene

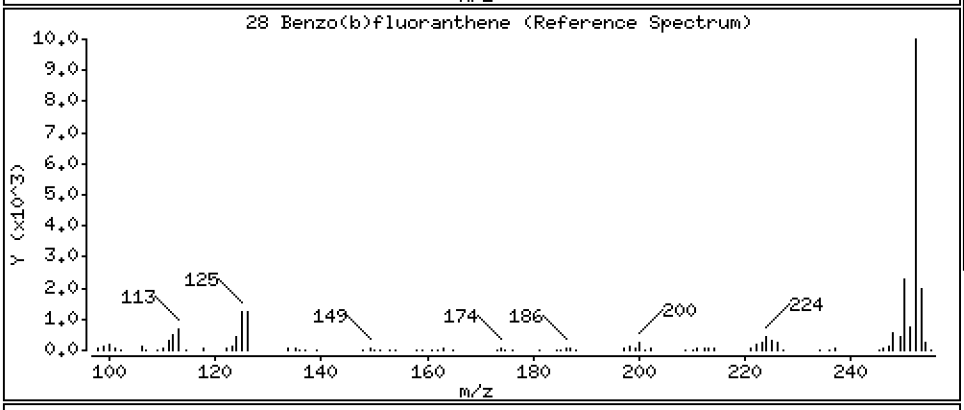
Concentration: 2.504 ug/mL

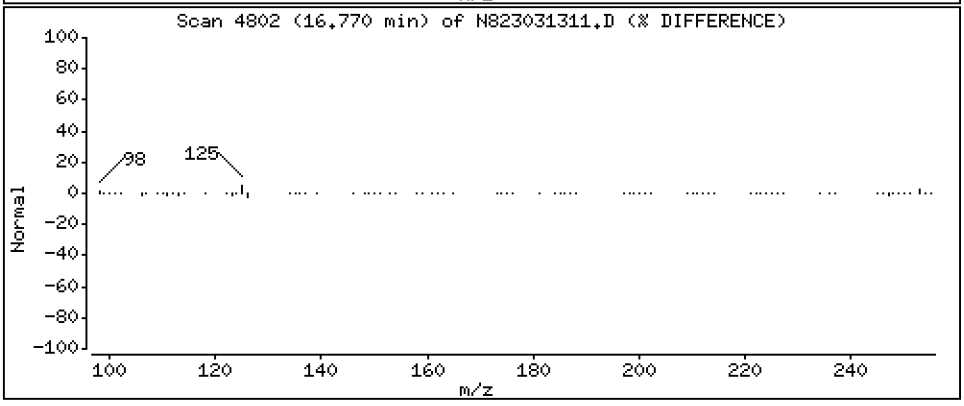












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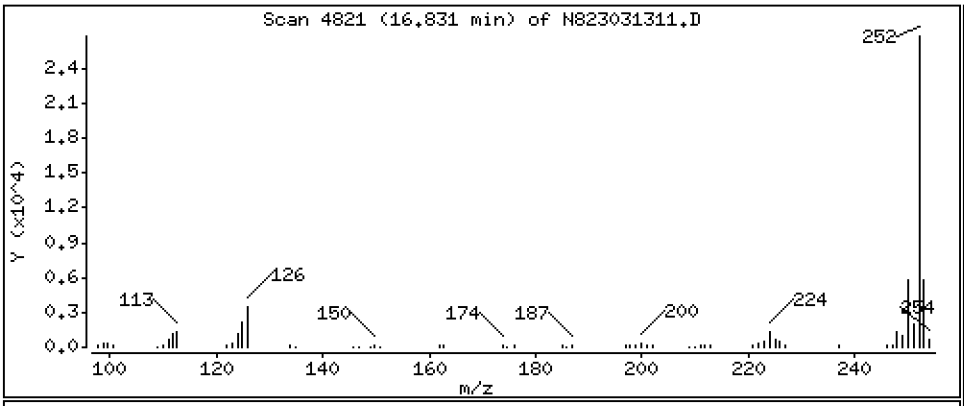
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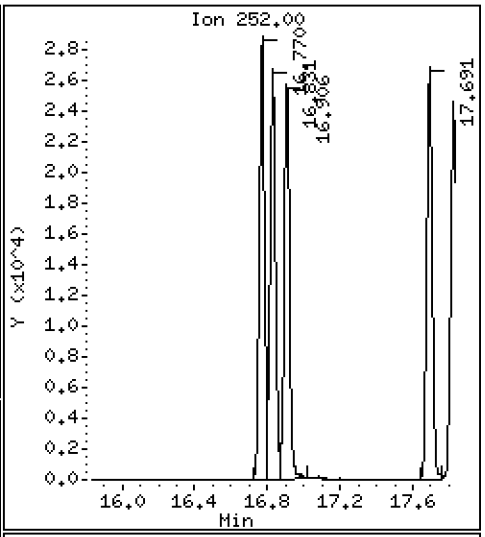
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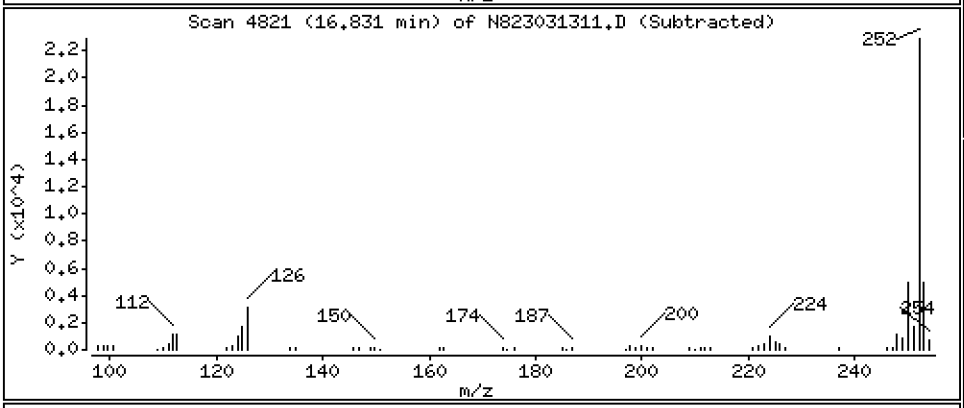
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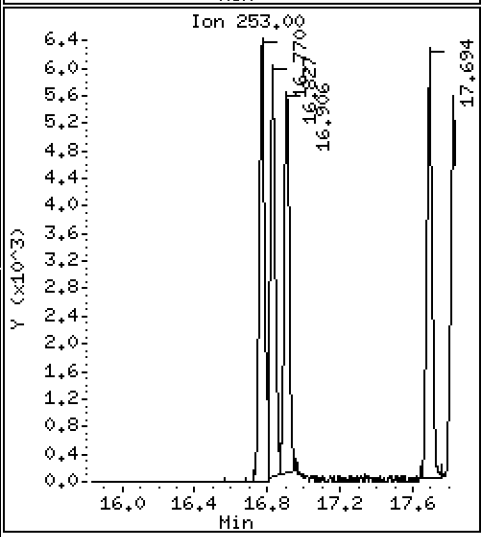
29 Benzo(k)fluoranthene

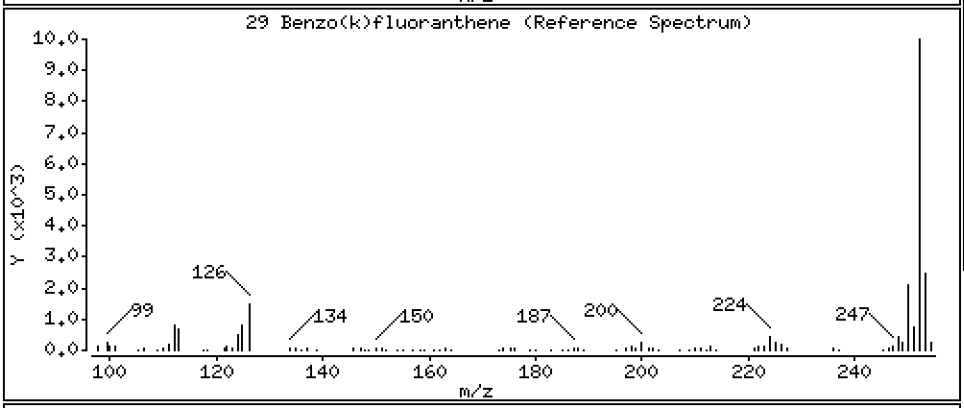
Concentration: 2.490 ug/mL

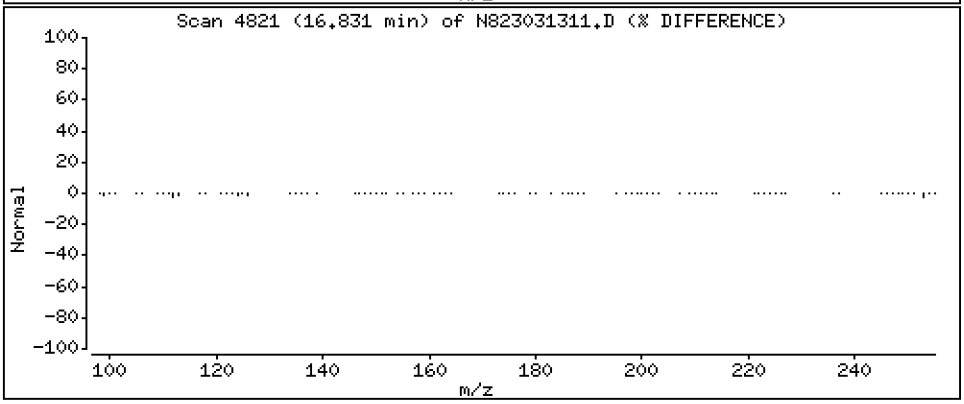












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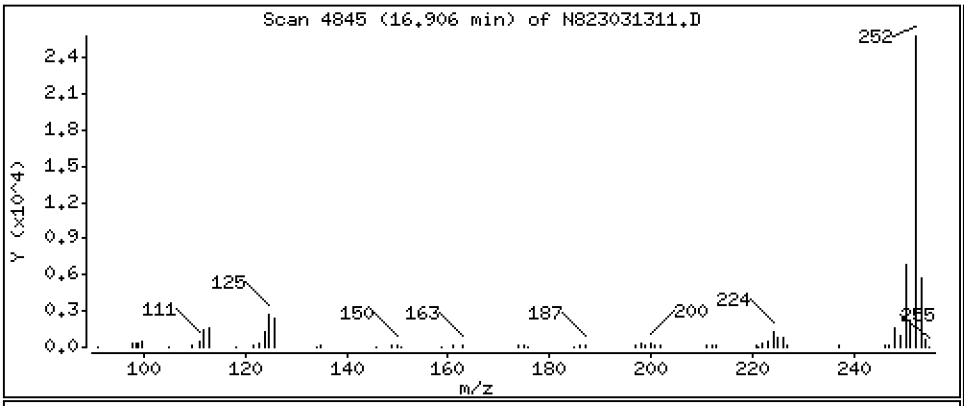
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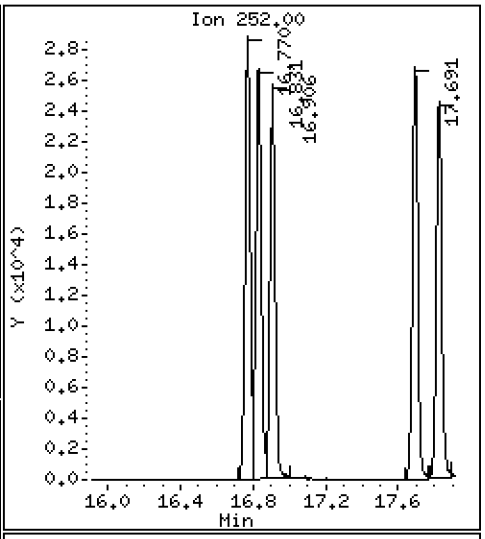
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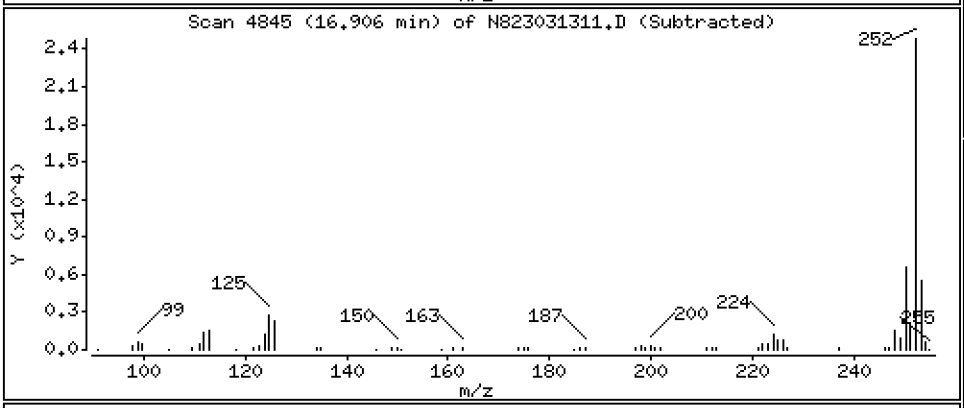
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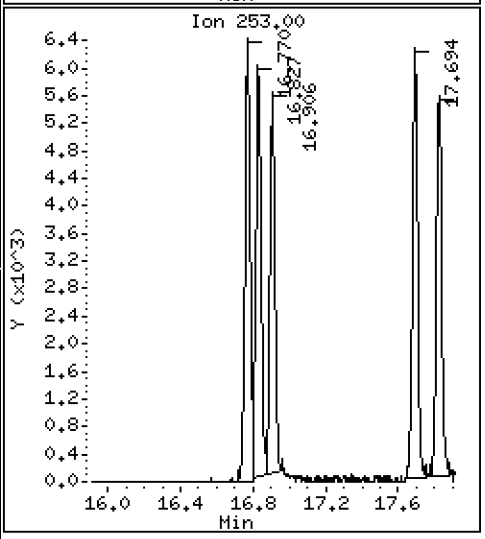
30 Benzo(j)fluoranthene

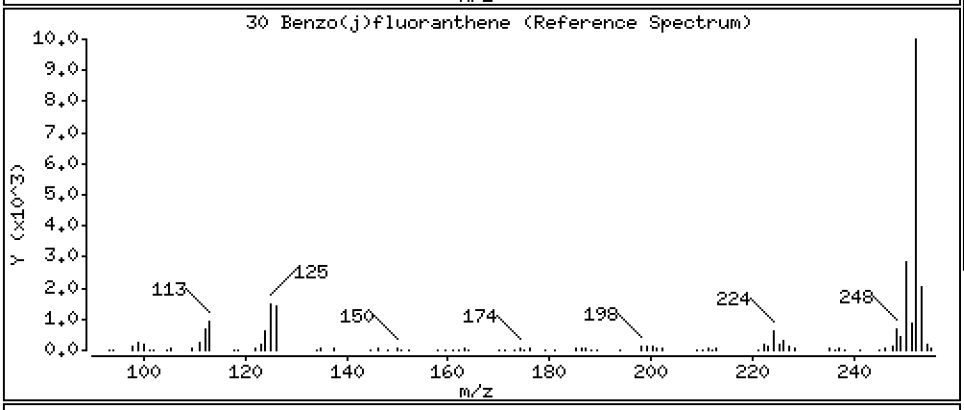
Concentration: 2.520 ug/mL

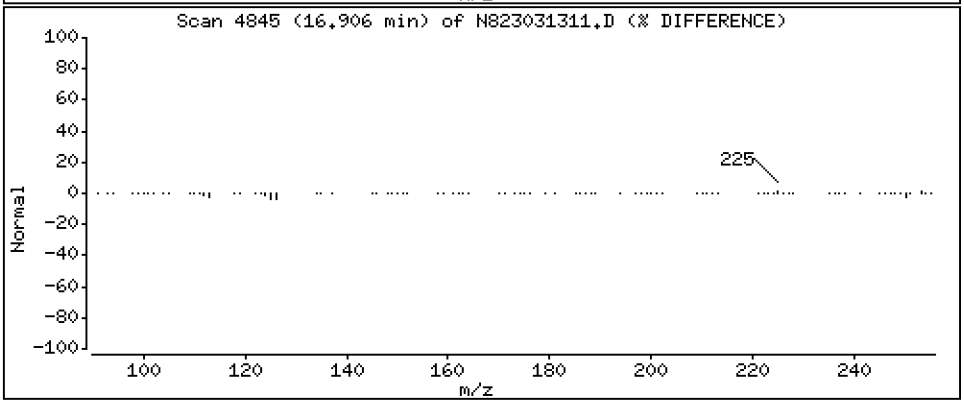












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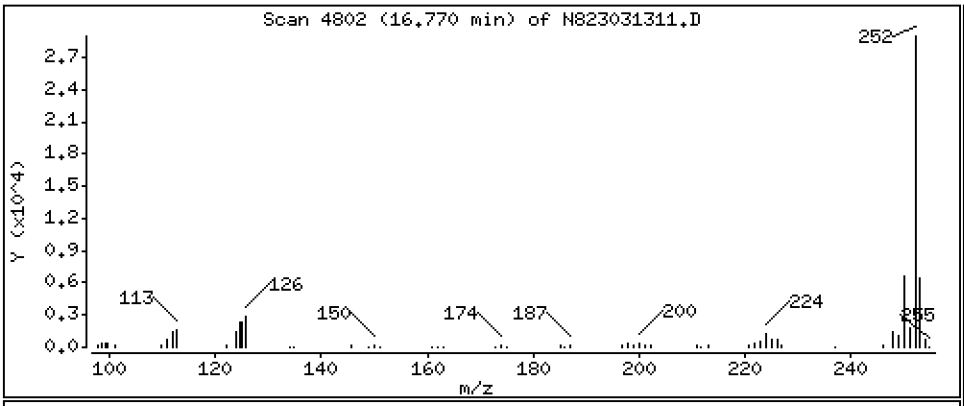
Operator: JZ

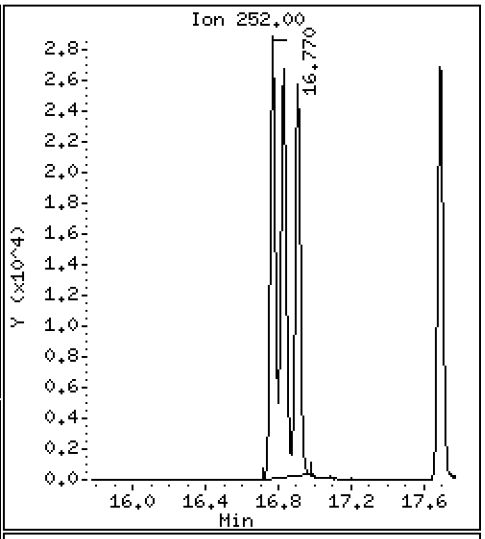
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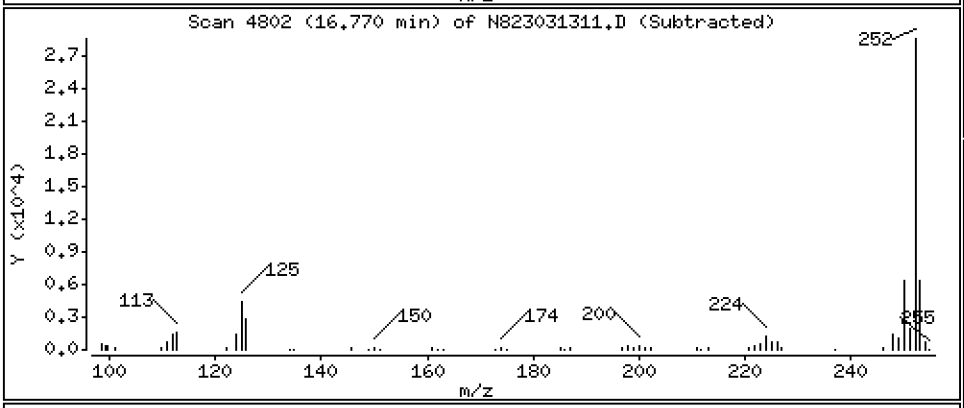
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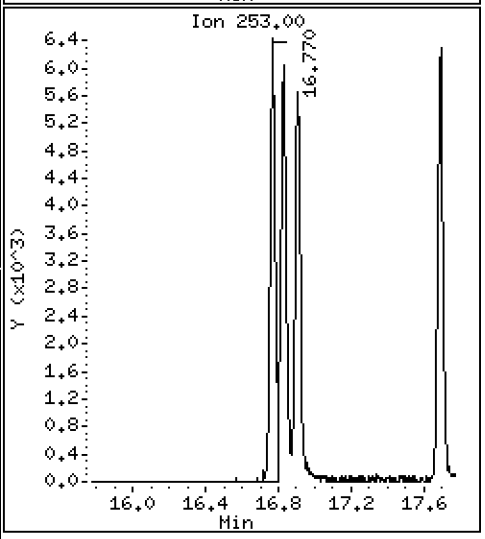
31 Total Benzofluoranthenes

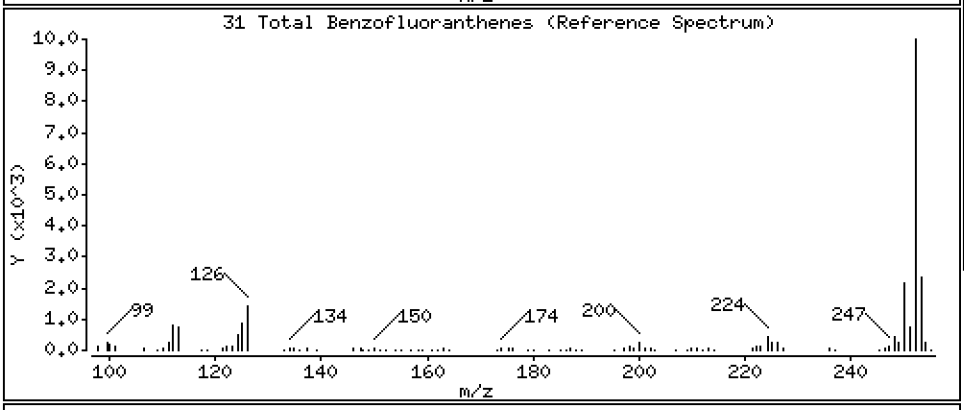
Concentration: 7.391 ug/mL

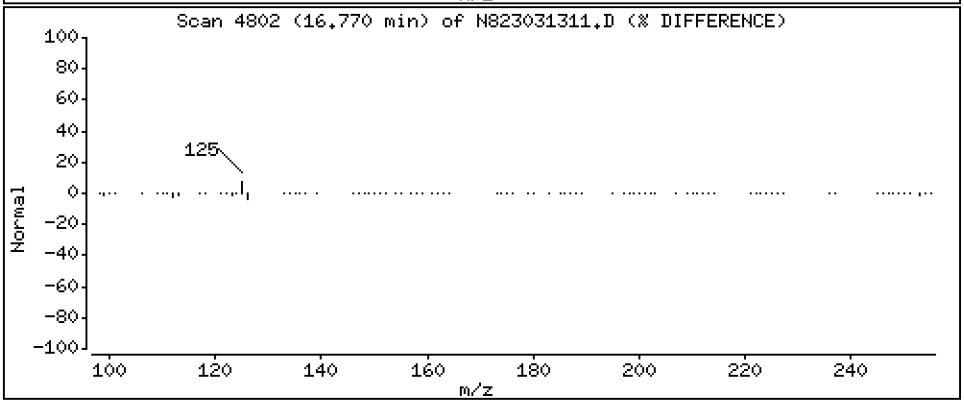












Date : 13-MAR-2023 17:41

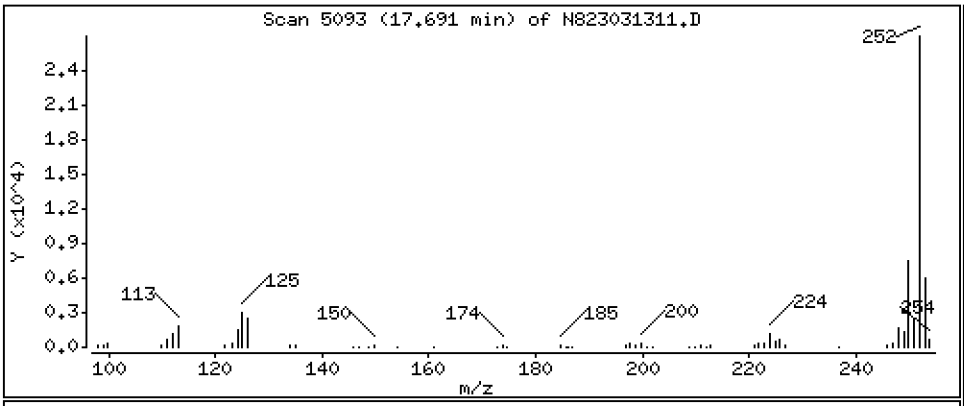
Client ID: Instrument: nt8.i

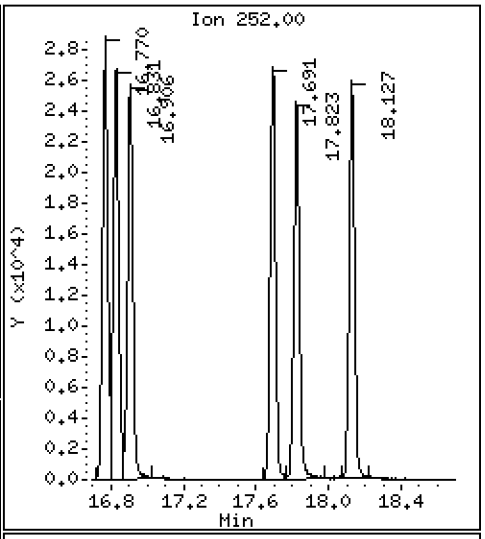
Sample Info: CCV230313

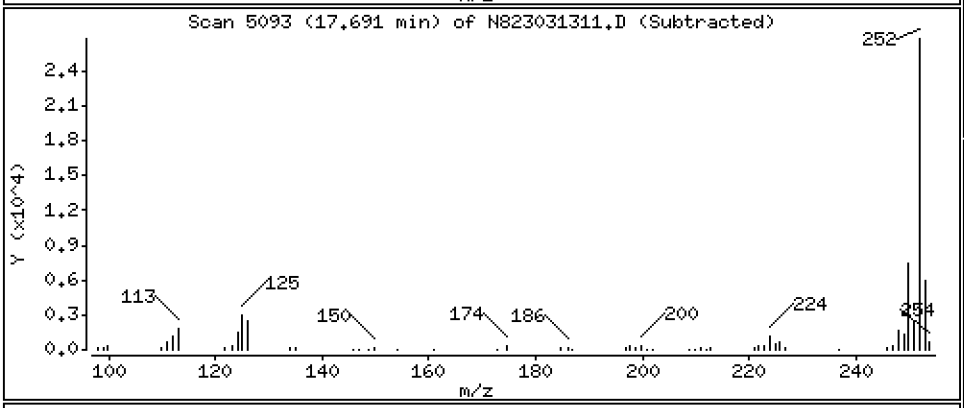
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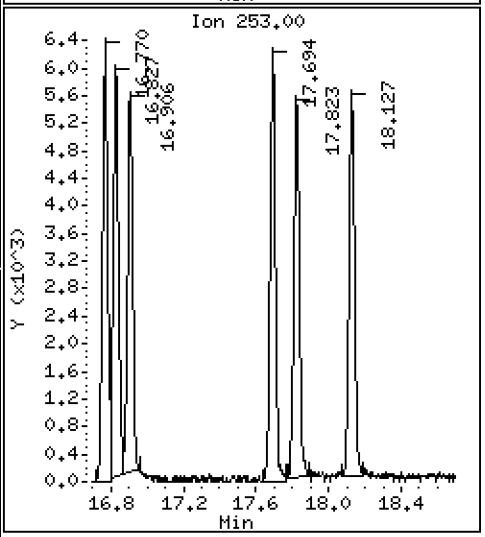
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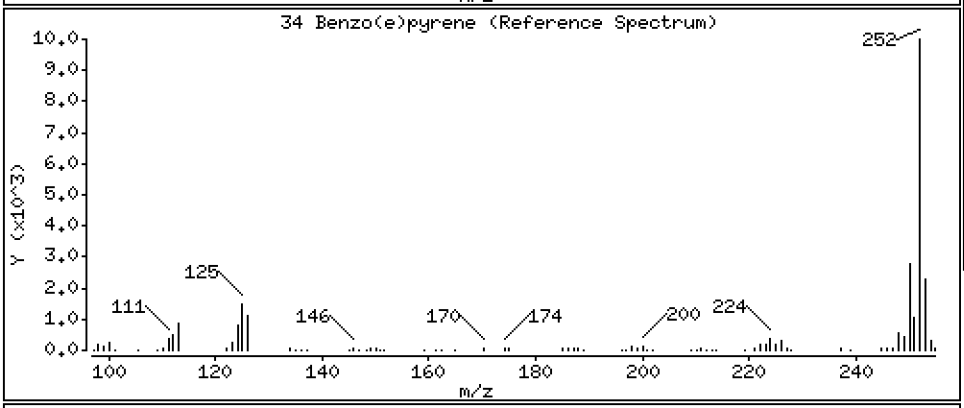
34 Benzo(e)pyrene Concentration: 2.430 ug/mL

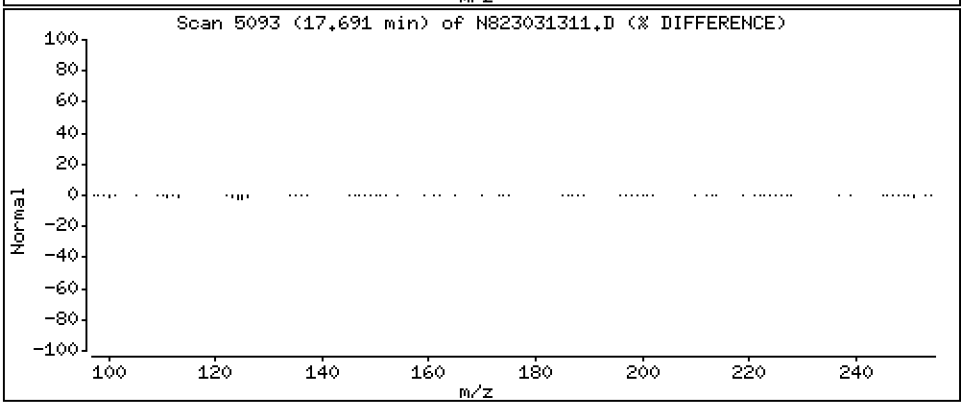












Data File: \\target\share\chem3\nt8.i\20230313.b\N823031311.D

Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

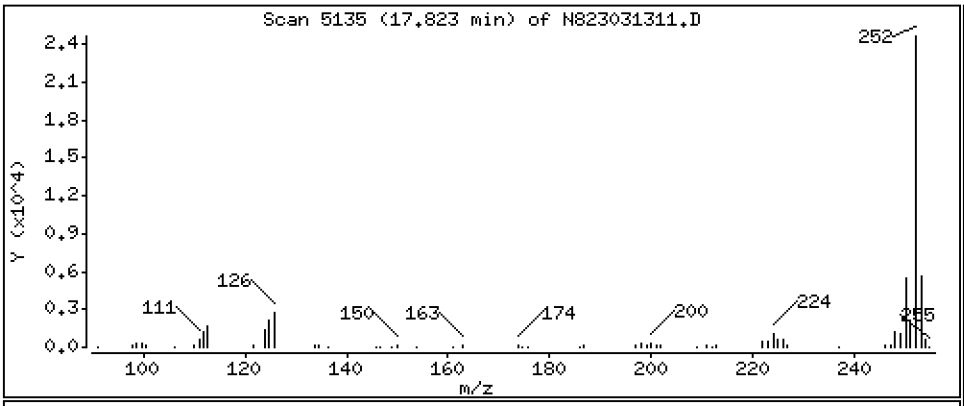
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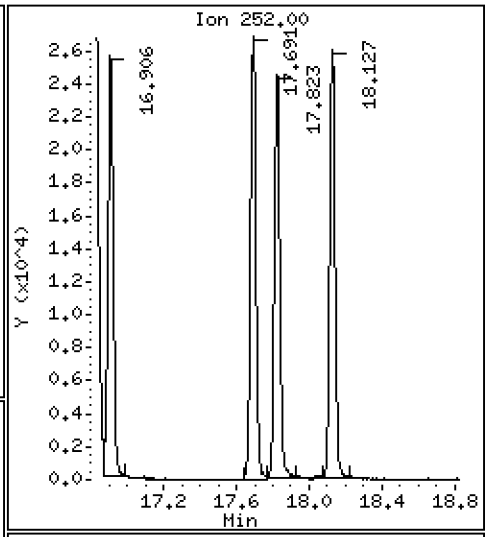
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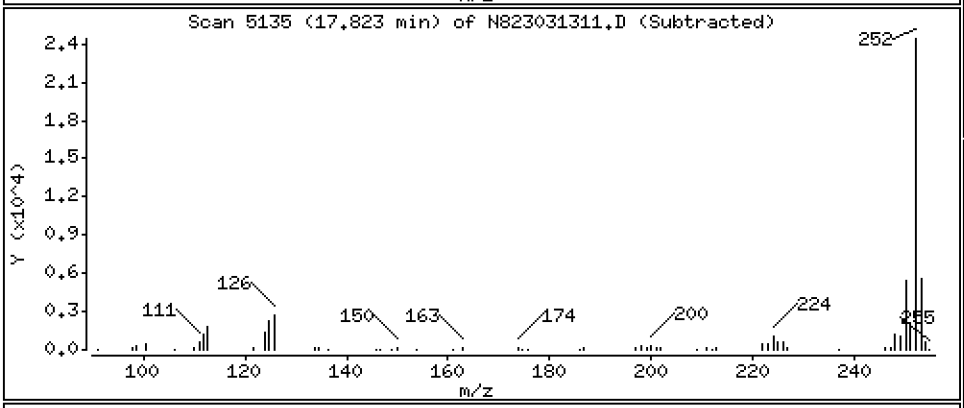
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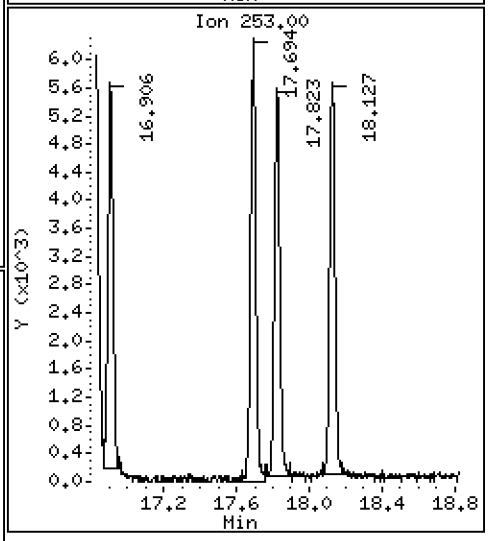
32 Benzo(a)pyrene

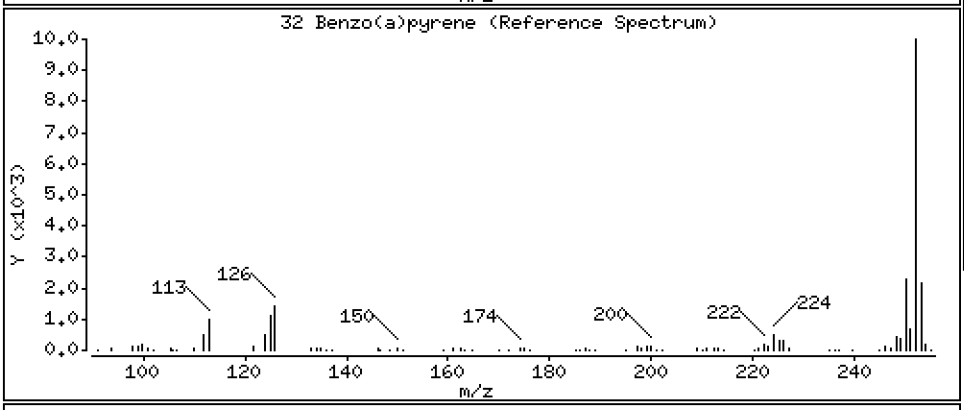
Concentration: 2.541 ug/mL

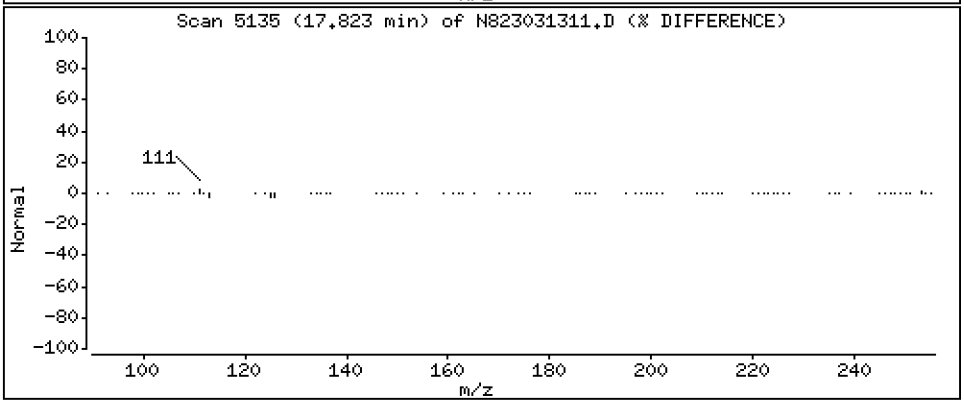












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

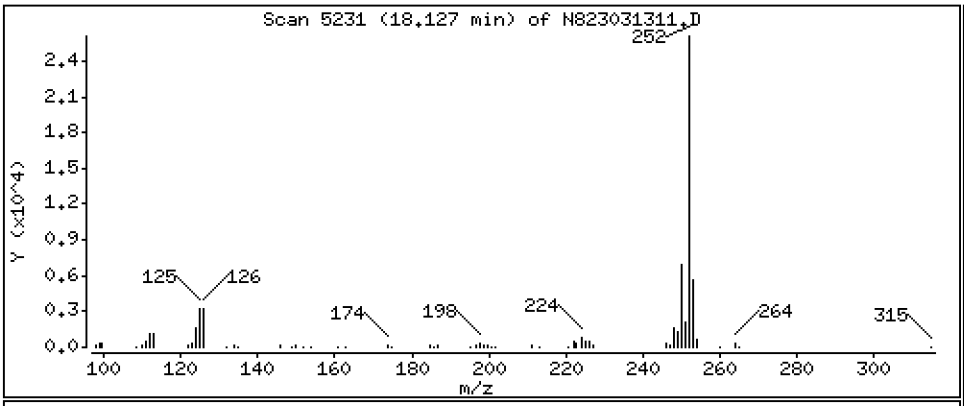
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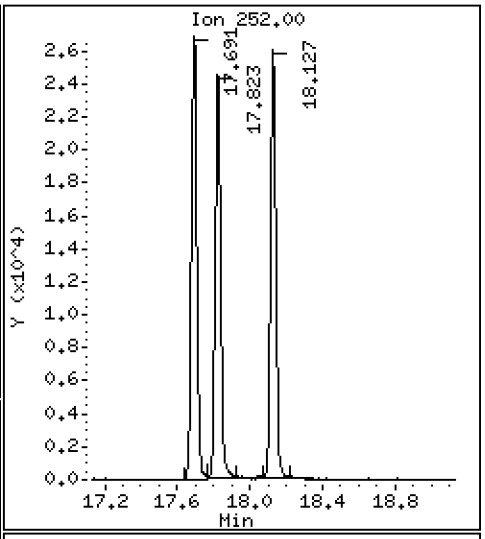
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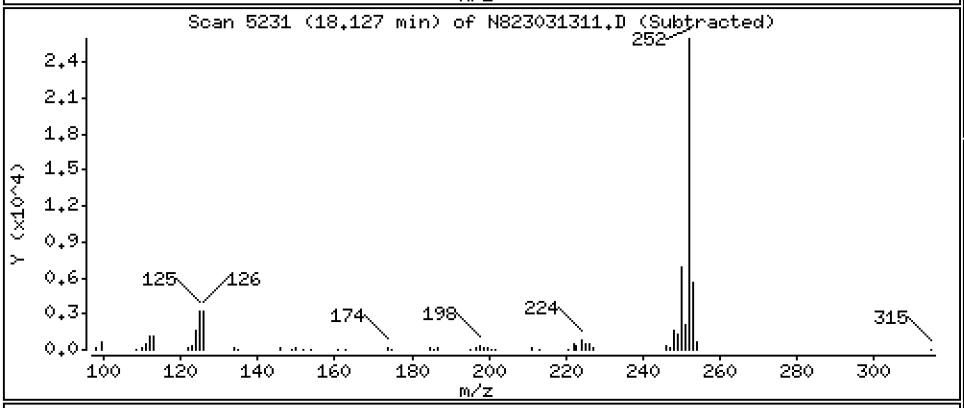
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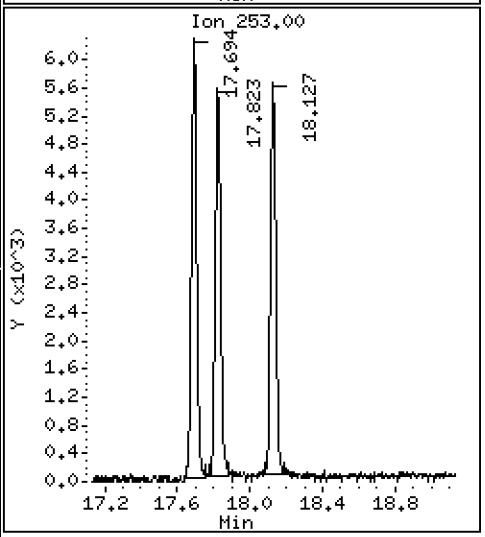
35 Perylene

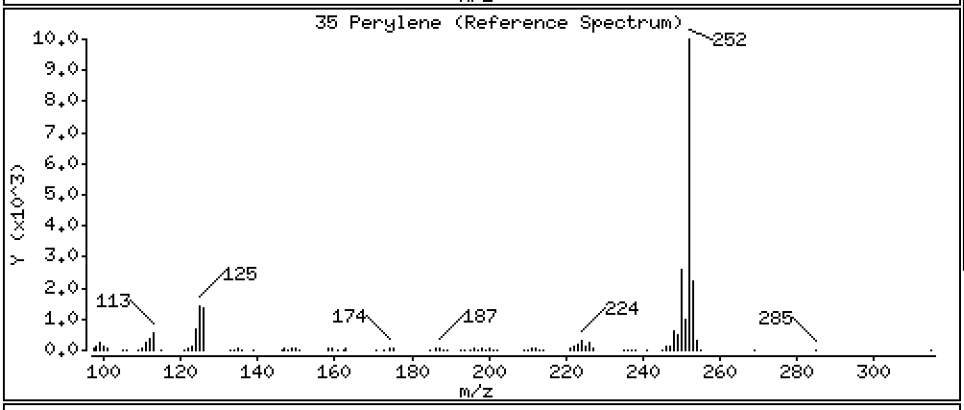
Concentration: 2.453 ug/mL

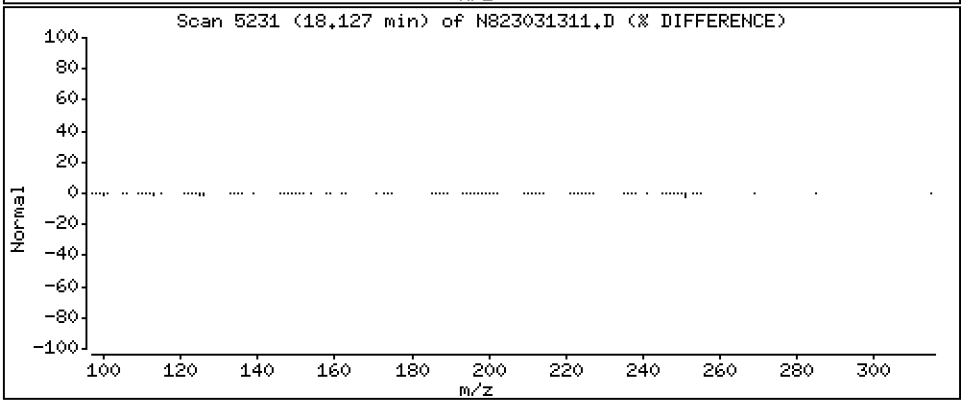












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

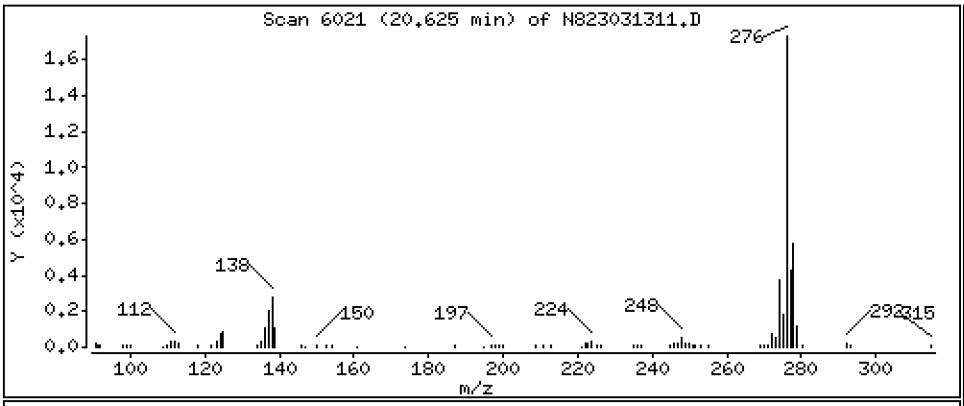
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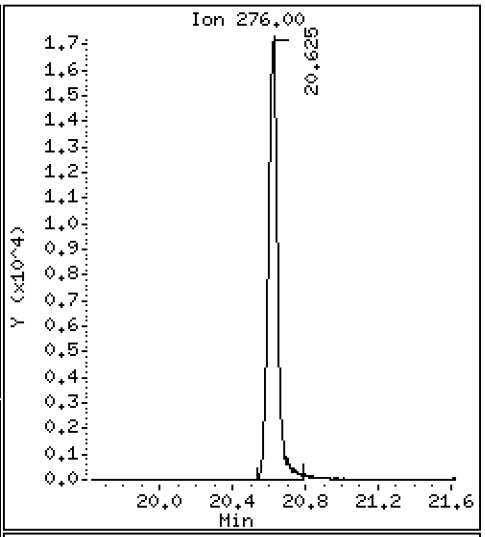
Column phase: Rxi-17sil

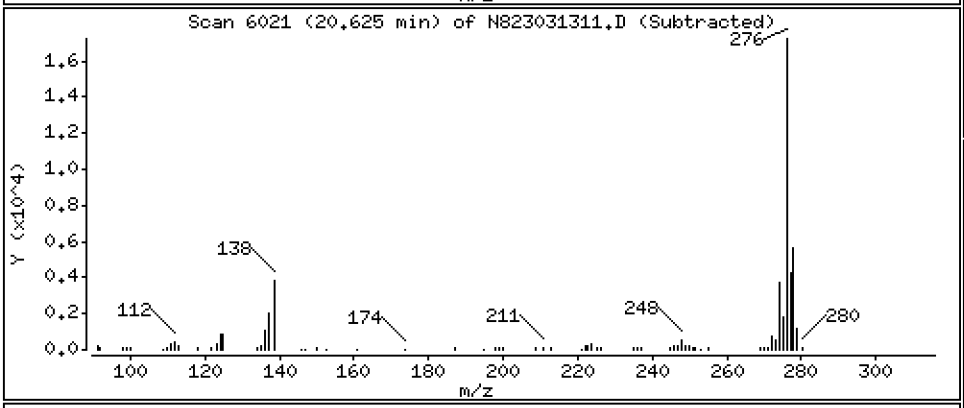
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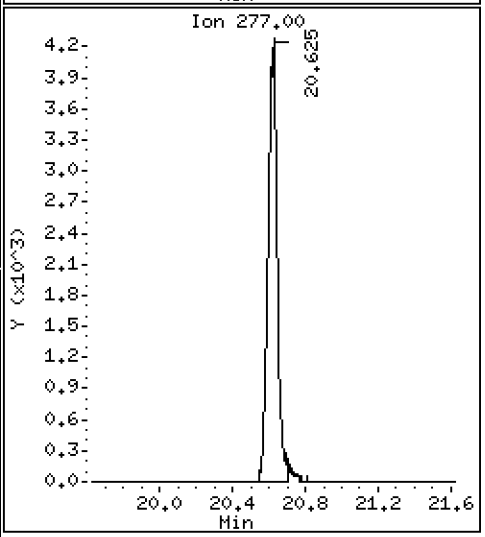
37 Indeno(1,2,3-cd)pyrene

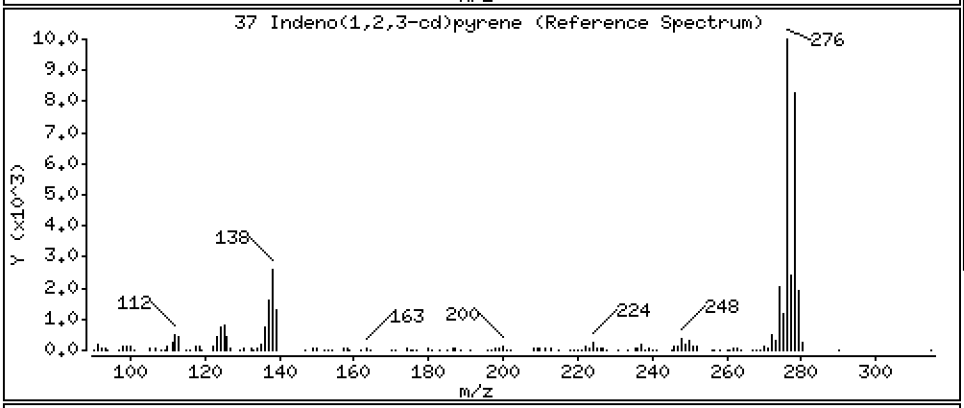
Concentration: 2.666 ug/mL

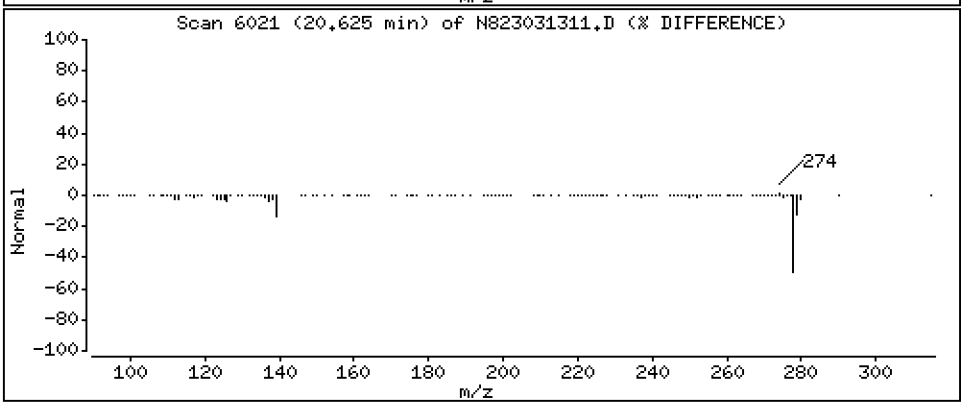












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

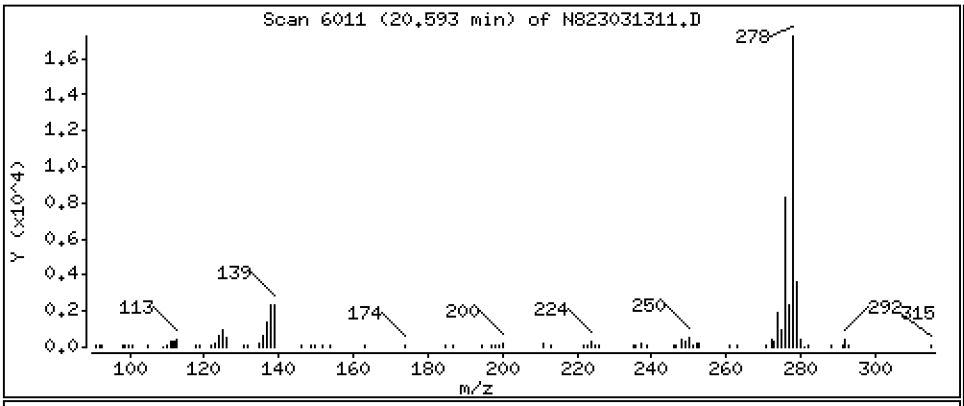
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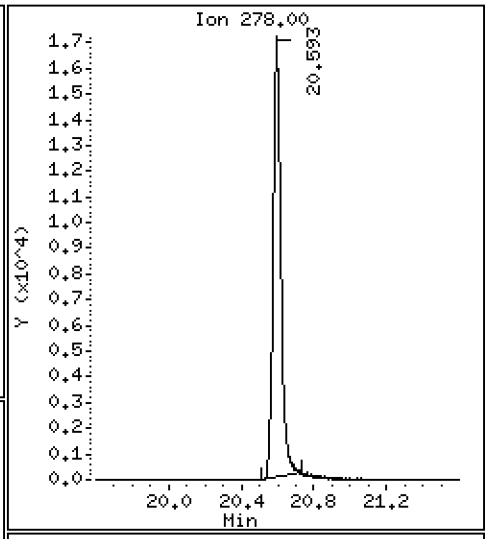
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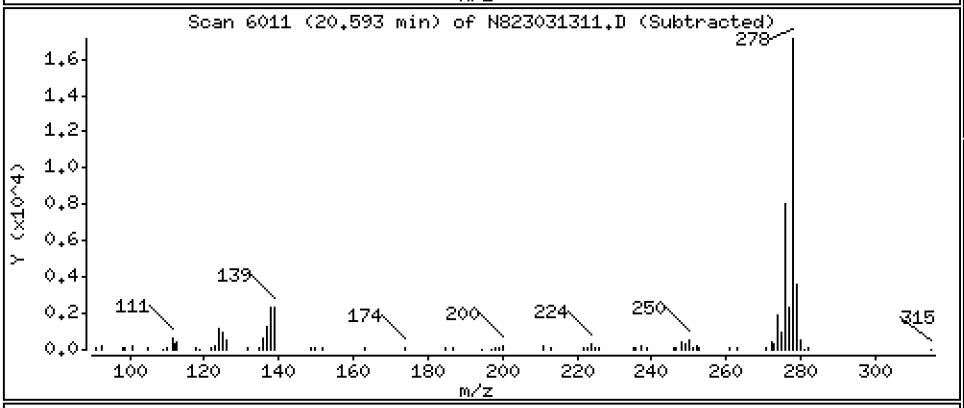
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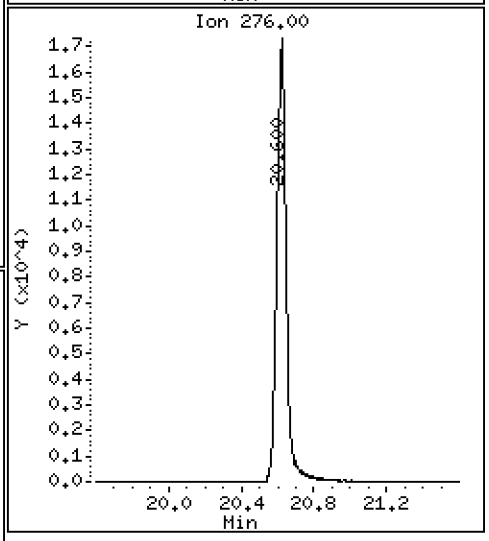
38 Dibenzo(a,h)anthracene

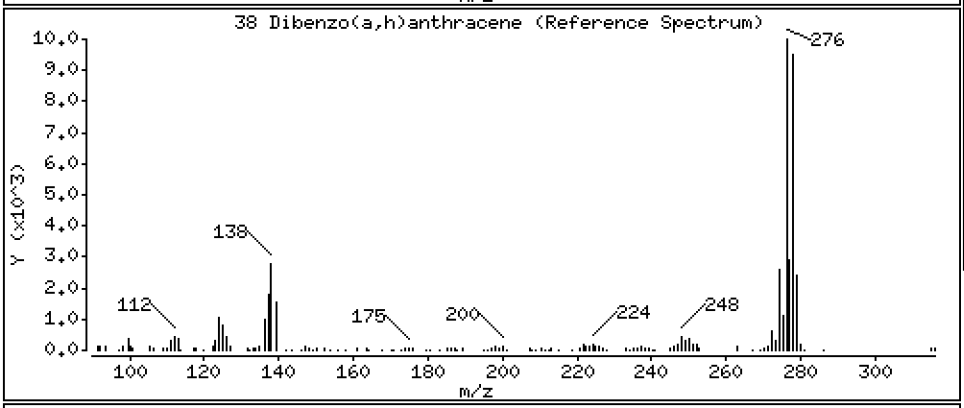
Concentration: 2.557 ug/mL

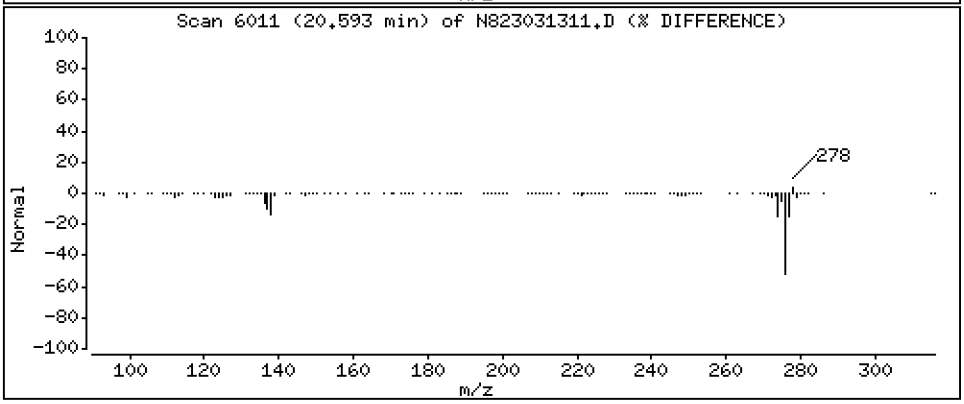












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Date : 13-MAR-2023 17:41

Client ID:

Instrument: nt8.i

Sample Info: CCV230313

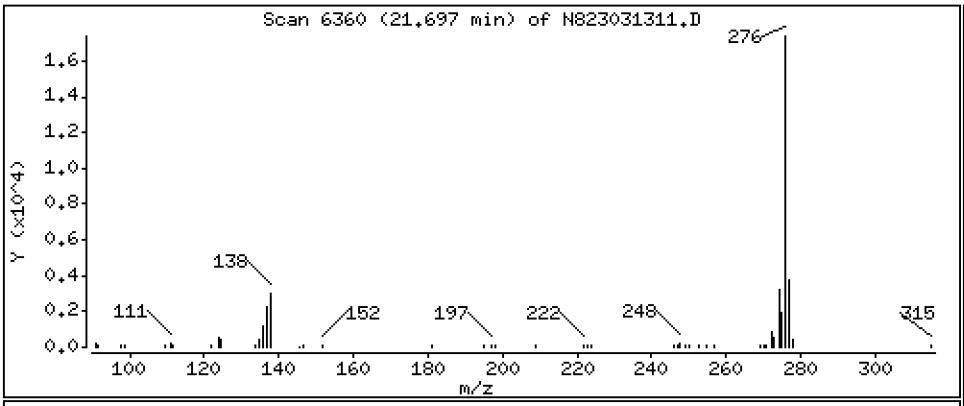
Operator: JZ

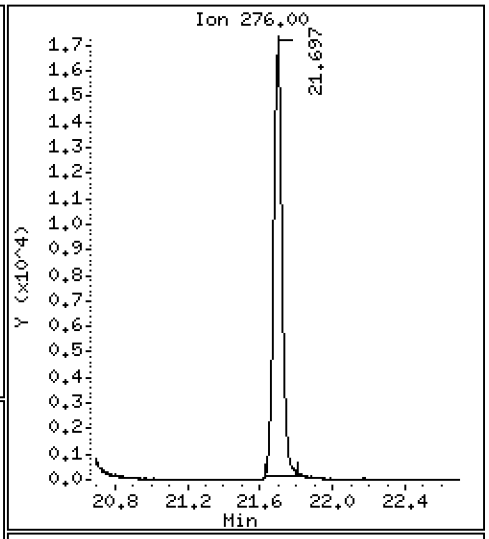
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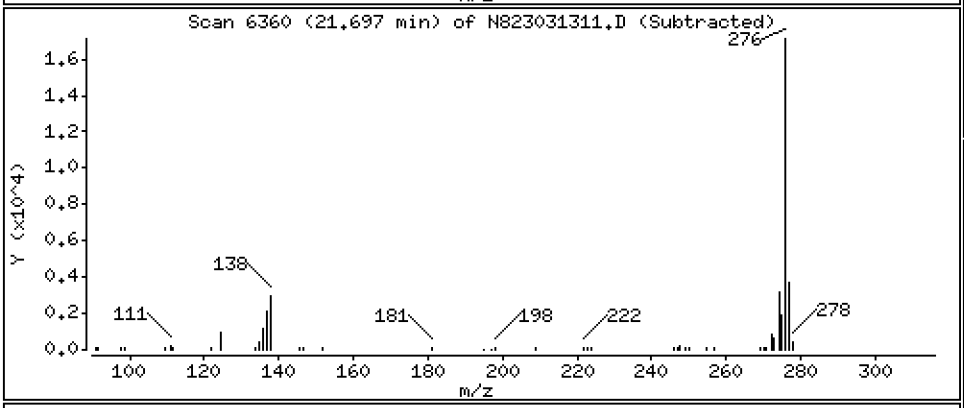
Column diameter: 0.25

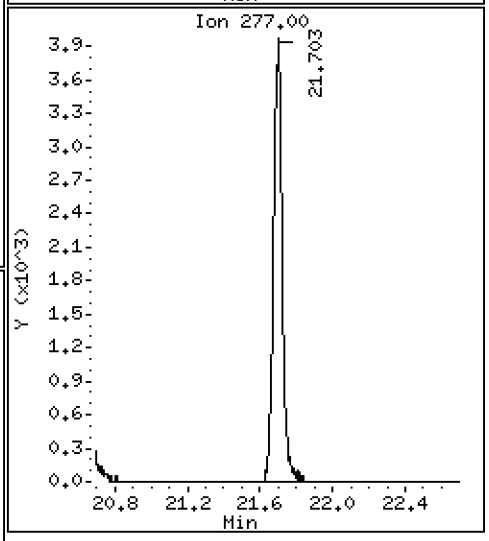
39 Benzo(g,h,i)perylene

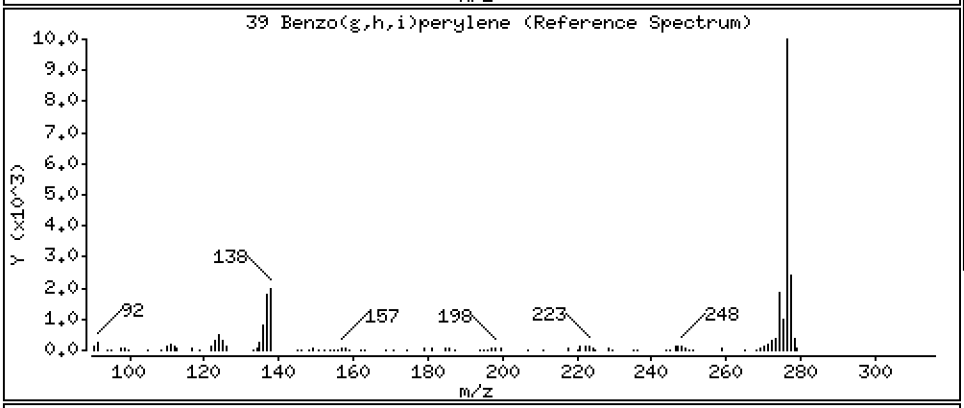
Concentration: 2.625 ug/mL

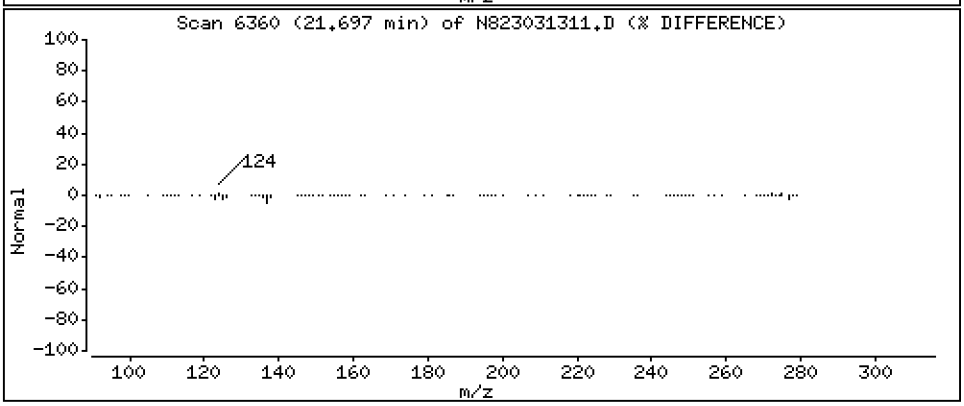












ARI Labs, Inc.

Semivolatile Report SW846 Method 8270D

Data file : \\target\share\chem3\nt8.i\20230313.b\N823031311.D
Lab Smp Id: SLC0150-CCV1
Inj Date : 13-MAR-2023 17:41
Operator : JZ Inst ID: nt8.i
Smp Info : CCV230313
Misc Info : 23-
Comment   : 1ul Injection
Method   : \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Meth Date : 13-Mar-2023 16:57 jianqing Quant Type: ISTD
Cal Date : 19-JAN-2023 13:46 Cal File: N823011908.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: FSIMPNAICLA.sub
Target Version: 4.14
Processing Host: JIANQING-202105

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/mL)
*	1 Naphthalene-d8	136	4.862	4.862	(1.000)	39422	2.00000	
	2 Naphthalene	128	4.890	4.891	(1.006)	47561	2.59476	2.595
$	3 2-Methylnaphthalene-d10	152	5.596	5.599	(1.151)	28858	2.68412	2.684
	4 2-Methylnaphthalene	141	5.643	5.646	(1.161)	26830	2.66111	2.661
	5 1-methylnaphthalene	141	5.839	5.842	(1.201)	27279	2.66589	2.666
	7 Biphenyl	154	6.304	6.304	(0.882)	40167	2.53257	2.533
	8 2,6-Dimethylnaphthalene	156	6.345	6.348	(0.887)	29709	2.64668	2.647
	9 Acenaphthylene	152	7.044	7.047	(0.985)	49826	2.74462	2.745
*	10 Acenaphthene-d10	164	7.151	7.155	(1.000)	24041	2.00000	
	11 Acenaphthene	153	7.202	7.205	(1.007)	31250	2.56911	2.569
	12 Dibenzofuran	168	7.354	7.357	(1.028)	46629	2.52388	2.524
	13 1,6,7-Trimethylnaphthalene	170	7.420	7.423	(1.038)	31215	2.67934	2.679
	14 Fluorene	166	7.831	7.838	(1.095)	38588	2.68922	2.689
	18 Dibenzothiophene	184	9.067	9.071	(0.986)	52138	2.53880	2.539
*	15 Phenanthrene-d10	188	9.194	9.197	(1.000)	46474	2.00000	
	16 Phenanthrene	178	9.229	9.232	(1.004)	55872	2.46115	2.461
	17 Anthracene	178	9.270	9.273	(1.008)	54845	2.65944	2.659
	19 Carbazole	167	9.788	9.792	(1.065)	49011	2.59237	2.592
	20 1-Methylphenanthrene	192	10.003	10.007	(1.088)	43849	2.68038	2.680
	22 Fluoranthene	202	11.006	11.009	(1.197)	64968	2.62913	2.629
$	21 Fluoranthene-d10	212	10.968	10.971	(1.193)	57018	2.78080	2.781
	23 Pyrene	202	11.521	11.524	(0.814)	67119	2.71510	2.715
	24 Benzo(a)anthracene	228	14.019	14.025	(0.991)	61743	2.75560	2.756
*	25 Chrysene-d12	240	14.146	14.152	(1.000)	39873	2.00000	
	27 Chrysene	228	14.221	14.225	(1.005)	60347	2.52998	2.530
	28 Benzo(b)fluoranthene	252	16.770	16.773	(0.929)	58102	2.50375	2.504
	29 Benzo(k)fluoranthene	252	16.830	16.833	(0.932)	56607	2.49038	2.490
	30 Benzo(j)fluoranthene	252	16.906	16.912	(0.936)	51574	2.52040	2.520
	31 Total Benzofluoranthenes	252	16.770	16.773	(0.929)	162442	7.39137	7.391(M)
	34 Benzo(e)pyrene	252	17.690	17.697	(0.980)	56221	2.42952	2.430
	32 Benzo(a)pyrene	252	17.823	17.826	(0.987)	51887	2.54085	2.541
*	33 Perylene-d12	264	18.054	18.060	(1.000)	39845	2.00000	
	35 Perylene	252	18.126	18.130	(1.004)	53749	2.45273	2.453

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/mL)
$ 36 Dibenzo(a,h)anthracene-d14	292	20.479	20.482	(1.134)	37910	2.42824	2.428
37 Indeno(1,2,3-cd)pyrene	276	20.624	20.625	(1.142)	62014	2.66560	2.666
38 Dibenzo(a,h)anthracene	278	20.593	20.599	(1.141)	51197	2.55717	2.557(M)
39 Benzo(g,h,i)perylene	276	21.696	21.696	(1.202)	55336	2.62527	2.625

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt8.i
Lab File ID: N823031311.D
Lab Smp Id: SLC0150-CCV1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: \\target\share\chem3\nt8.i\20230313.b\FSIMPNA230119.m
Misc Info: 23-

Calibration Date: 13-MAR-2023
Calibration Time: 12:08
Level:
Sample Type:

Test Mode:
Use Last Continuing Calibrator.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	40352	20176	80704	39422	-2.30
10 Acenaphthene-d10	24212	12106	48424	24041	-0.71
15 Phenanthrene-d10	46031	23016	92062	46474	0.96
25 Chrysene-d12	38604	19302	77208	39873	3.29
33 Perylene-d12	35963	17982	71926	39845	10.79

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
1 Naphthalene-d8	4.86	4.36	5.36	4.86	-0.00
10 Acenaphthene-d10	7.16	6.66	7.66	7.15	-0.05
15 Phenanthrene-d10	9.20	8.70	9.70	9.19	-0.04
25 Chrysene-d12	14.15	13.65	14.65	14.15	-0.05
33 Perylene-d12	18.06	17.56	18.56	18.05	-0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

REVIEW SUMMARY FOR FILE - N823031311.D

Lab ID: SLC0150-CCV1
nt8.i, 20230313.b\FSIMPNA230119.m,   13-MAR-2023 17:41

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Quant Method: ICAL

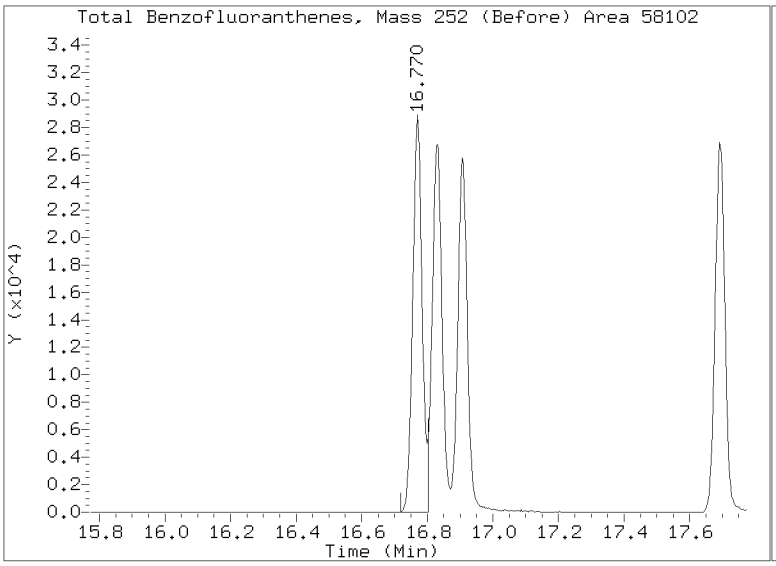
No RRT check performed

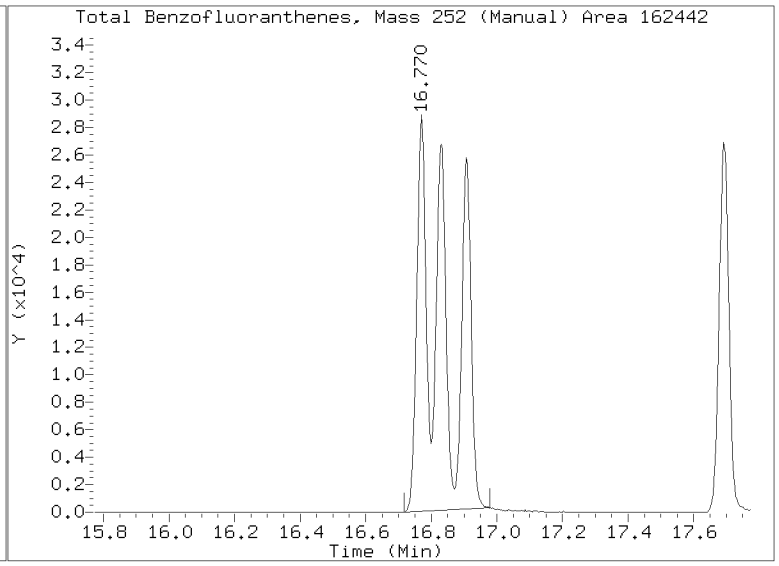
On Column LOD for nt8.i, 20230313.b\FSIMPNA230119.m, FSIMPNAICLA.sub = 0.0000

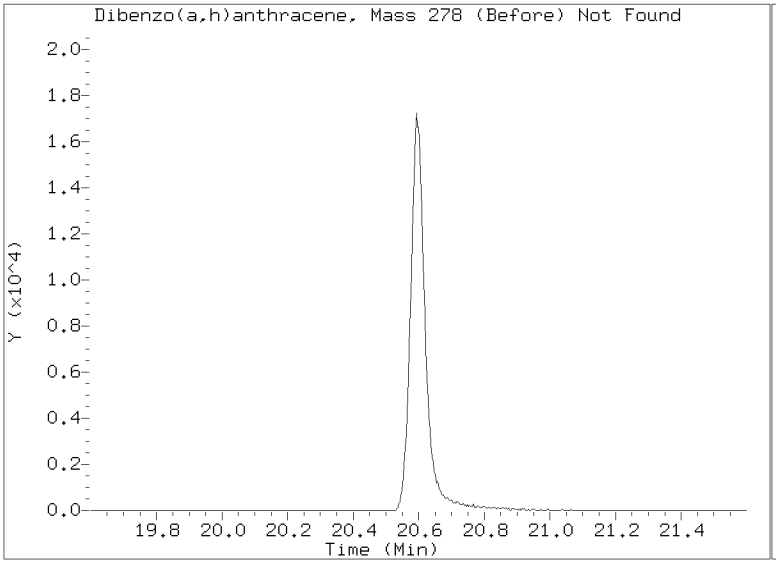
* Only compounds listed in the work order have been verified by the analyst *

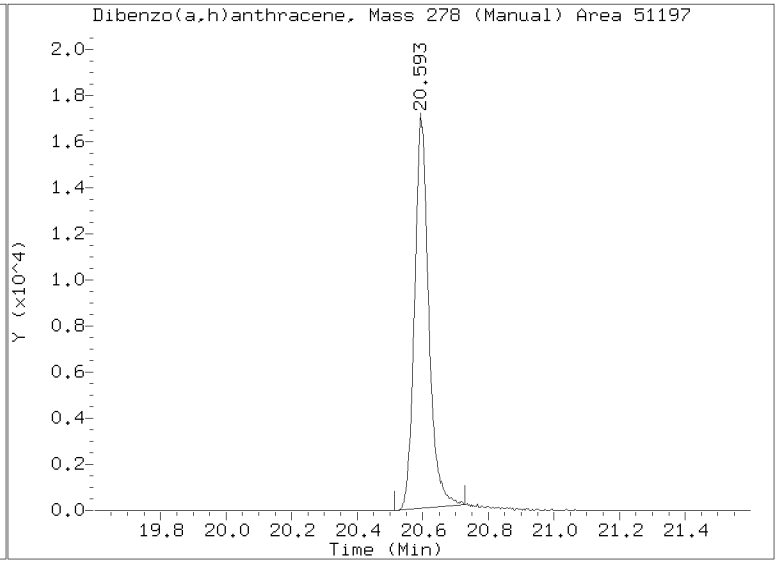
Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem3/nt8.i/20230313.b/N823031311.D
Injection Date: 13-MAR-2023 17:41
Lab ID:SLC0150-CCV1 Client ID:
Report Date: 03/13/2023 21:14









Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLA0213	Instrument:	NT8
		Calibration:	GA00050

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SLA0213-TUN1	N823011901.D	NA	01/19/23 10:28
Initial Cal Blank	SLA0213-ICB1	N823011902.D	NA	01/19/23 10:59
8270 SIM PNA 0.1	SLA0213-CAL1	N823011903.D	NA	01/19/23 11:26
8270 SIM PNA 0.5	SLA0213-CAL2	N823011904.D	NA	01/19/23 11:58
8270 SIM PNA 1.0	SLA0213-CAL3	N823011905.D	NA	01/19/23 12:25
8270 SIM PNA 2.5	SLA0213-CAL4	N823011906.D	NA	01/19/23 12:52
8270 SIM PNA 5	SLA0213-CAL5	N823011907.D	NA	01/19/23 13:19
8270 SIM PNA 10	SLA0213-CAL6	N823011908.D	NA	01/19/23 13:46
8270 SIM PNA SCV	SLA0213-SCV1	N823011909.D	NA	01/19/23 14:58

Printed: 1/19/2023 8:45:16PM

ANALYSIS SEQUENCE

SLA0213

Instrument: NT8 Element Column ID: J006458
Calibration ID: GA00050

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	Comments
SLA0213-TUN1	MS Tune	QC		1	K004775			
SLA0213-ICB1	Initial Cal Blank	QC		2		K008540		
SLA0213-CAL1	8270 SIM PNA 0.1	QC		3	L000603	K008540		
SLA0213-CAL2	8270 SIM PNA 0.5	QC		4	L000604	K008540		
SLA0213-CAL3	8270 SIM PNA 1.0	QC		5	L000605	K008540		
SLA0213-CAL4	8270 SIM PNA 2.5	QC		6	L000606	K008540		
SLA0213-CAL5	8270 SIM PNA 5	QC		7	L000607	K008540		
SLA0213-CAL6	8270 SIM PNA 10	QC		8	L000608	K008540		
SLA0213-SCV1	8270 SIM PNA SCV	QC		9	L000686	K008540		

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

	Time	Filename	LabID	ClientId	DF										
1	1028	N823011901.D	SLA0213-TUN1		1	|NO ISTDS FOUND||									
2	1059	N823011902.D	SLA0213-ICB1		1	| 4.92	52082||	7.20	30936||	9.24	59030||	14.22	50944||	18.12	47418|
3	1126	N823011903.D	SLA0213-CAL1		1	| 4.91	46132||	7.20	27261||	9.24	52158||	14.20	44953||	18.11	41635|
4	1158	N823011904.D	SLA0213-CAL2		1	| 4.91	45056||	7.20	26746||	9.24	50759||	14.21	44658||	18.11	42567|
5	1225	N823011905.D	SLA0213-CAL3		1	| 4.91	47180||	7.20	28206||	9.24	53233||	14.20	46493||	18.11	44587|
6	1252	N823011906.D	SLA0213-CAL4		1	| 4.91	44704||	7.20	26411||	9.24	49210||	14.20	42994||	18.11	40520|
7	1319	N823011907.D	SLA0213-CAL5		1	| 4.91	46542||	7.20	27638||	9.23	51351||	14.20	44781||	18.11	42187|
8	1346	N823011908.D	SLA0213-CAL6		1	| 4.91	46070||	7.20	26689||	9.24	50683||	14.21	43880||	18.11	40659|
9	1458	N823011909.D	SLA0213-SCV1		1	| 4.91	46346||	7.20	27709||	9.24	51685||	14.21	46582||	18.12	41743|

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230119.b

ARI Job No.: SLA0 Method: FSIMPNA230119.m Instrument: nt8.i Date: 19-JAN-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1059	N823011902.D	SLA0213-ICB1		1	NO MANUAL INTEGRATION
1126	N823011903.D	SLA0213-CAL1		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene-d14,
1158	N823011904.D	SLA0213-CAL2		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene, Dibenzo(a,h)anthracene-d14,
1225	N823011905.D	SLA0213-CAL3		1	Total Benzofluoranthenes,
1252	N823011906.D	SLA0213-CAL4		1	Total Benzofluoranthenes,
1319	N823011907.D	SLA0213-CAL5		1	Total Benzofluoranthenes,
1346	N823011908.D	SLA0213-CAL6		1	Total Benzofluoranthenes,
1458	N823011909.D	SLA0213-SCV1		1	Total Benzofluoranthenes,

Security Status Report

Date: 19-Jan-2023 20:43

N823011901.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011902.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011903.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011904.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011905.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011906.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011907.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011908.D	Data Locked	jianqing, 19-Jan-2023 20:43
N823011909.D	Data Locked	jianqing, 19-Jan-2023 20:43

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLC0150	Instrument:	NT8
		Calibration:	GA00050

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
MS Tune	SLC0150-TUN1	N823031301.D	NA	03/13/23 11:55
Initial Cal Check	SLC0150-ICV1	N823031302.D	NA	03/13/23 12:08
ZZZZZ	BLC0122-BLK1	N823031303.D	Water	03/13/23 13:41
Blank	BLC0106-BLK1	N823031304.D	Solid	03/13/23 14:30
LCS	BLC0106-BS1	N823031305.D	Solid	03/13/23 14:59
LY-28_2-3	23C0064-01	N823031306.D	Solid	03/13/23 15:26
LY-28_2-3	BLC0106-MS1	N823031307.D	Solid	03/13/23 15:53
LY-28_2-3	BLC0106-MSD1	N823031308.D	Solid	03/13/23 16:20
LY-31_0-10	23C0064-02	N823031309.D	Solid	03/13/23 16:47
LY-31_1-2	23C0064-03	N823031310.D	Solid	03/13/23 17:14
Calibration Check	SLC0150-CCV1	N823031311.D	NA	03/13/23 17:41

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLC0150

Instrument: NT8
Calibration ID: GA00050

Printed: 3/14/2023 5:23:15PM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLC0150-TUN1	QC		1		K004775			
SLC0150-ICV1	QC		2		L000606	K008540		
BLC0122-BLK1	QC		3			K008540		
BLC0106-BLK1	QC		4			K008540		
BLC0106-BS1	QC		5			K008540		
23C0064-01	0E-SIM PAH (0.1ug/L or 5ug	A 01	6			K008540	GeoEngineers	cPAH Version
BLC0106-MS1	QC		7			K008540		
BLC0106-MSD1	QC		8			K008540		
23C0064-02	0E-SIM PAH (0.1ug/L or 5ug	A 01	9			K008540	GeoEngineers	cPAH Version
23C0064-03	0E-SIM PAH (0.1ug/L or 5ug	A 01	10			K008540	GeoEngineers	cPAH Version
SLC0150-CCV1	QC		11		L000606	K008540		

Samples Loaded By Date

Data Processed By Date

INTERNAL STANDARD SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230313.b

	Time	Filename	LabID	ClientId	DF											
1	1155	N823031301.D	SLC0150-TUN1		1	NO ISTDS FOUND										
2	1208	N823031302.D	SLC0150-ICV1		1	4.86	40352	7.16	24212	9.20	46031	14.15	38604	18.06	35963	
3	1341	N823031303.D	BLC0122-BLK1		1	4.86	45591	7.16	28196	9.20	53898	14.16	44542	18.07	30970	
4	1430	N823031304.D	BLC0106-BLK1		1	4.86	40285	7.16	25374	9.20	48366	14.16	39738	18.06	39096	
5	1459	N823031305.D	BLC0106-BS1		1	4.86	36197	7.15	22077	9.20	43035	14.15	36500	18.06	30428	
6	1526	N823031306.D	23C0064-01		1	4.85	38063	7.15	23468	9.19	44176	14.15	34172	18.05	33616	
7	1553	N823031307.D	BLC0106-MS1		1	4.85	38694	7.15	24071	9.19	45490	14.15	34936	18.05	34504	
8	1620	N823031308.D	BLC0106-MSD1		1	4.85	39979	7.15	24432	9.19	46495	14.15	36645	18.05	37607	
9	1647	N823031309.D	23C0064-02		1	4.85	40595	7.15	25523	9.19	47322	14.15	37646	18.05	32672	
10	1714	N823031310.D	23C0064-03		1	4.85	40524	7.15	24839	9.19	47788	14.15	40273	18.05	36947	
11	1741	N823031311.D	SLC0150-CCV1		1	4.86	39422	7.15	24041	9.19	46474	14.15	39873	18.05	39845	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem3\nt8.i\20230313.b

ARI Job No.: SLC0 Method: FSIMPNA230119.m Instrument: nt8.i Date: 13-MAR-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1208	N823031302.D	SLC0150-ICV1		1	Total Benzofluoranthenes,
1341	N823031303.D	BLC0122-BLK1		1	NO MANUAL INTEGRATION
1430	N823031304.D	BLC0106-BLK1		1	Pyrene, Acenaphthylene, Fluorene, Phenanthrene,
1459	N823031305.D	BLC0106-BS1		1	Total Benzofluoranthenes,
1526	N823031306.D	23C0064-01		1	Dibenzo(a,h)anthracene, Fluoranthene, Total Benzofluoranthenes, Chrysene, Carbazole,
1553	N823031307.D	BLC0106-MS1		1	Total Benzofluoranthenes,
1620	N823031308.D	BLC0106-MSD1		1	Total Benzofluoranthenes,
1647	N823031309.D	23C0064-02		1	Dibenzo(a,h)anthracene, Acenaphthylene, Total Benzofluoranthenes, Chrysene,
1714	N823031310.D	23C0064-03		1	Benzo(a)pyrene, Benzo(g,h,i)perylene, Benzo(a)anthracene, Chrysene,
1741	N823031311.D	SLC0150-CCV1		1	Total Benzofluoranthenes, Dibenzo(a,h)anthracene,

Security Status Report

Date: 14-Mar-2023 17:25

N823031301.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031302.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031303.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031304.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031305.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031306.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031307.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031308.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031309.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031310.D	Data Locked	jianqing, 14-Mar-2023 17:25
N823031311.D	Data Locked	jianqing, 14-Mar-2023 17:25

SURROGATE RECOVERY AND RT SUMMARY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG/WO:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLA0213	Instrument:	NT8
Calibration:	GA00050	Calibration Date:	01/19/2023

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLA0213-ICB1 (Water)			Lab File ID: N823011902.D				Analyzed: 01/19/23 10:59	
2-Methylnaphthalene-d10			31 - 120		5.6415	-5.6415	N/A	
Dibenzo[a,h]anthracene-d14			10 - 125		20.5525	-20.5525	N/A	
Fluoranthene-d10			46 - 121		11.016	-11.0160	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

SURROGATE RECOVERY AND RT SUMMARY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG/WO:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLC0150	Instrument:	NT8
Calibration:	GA00050	Calibration Date:	01/19/2023

Surrogate Compound	Spike Level ug/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLC0150-ICV1 (Water)				Lab File ID: N823031302.D			Analyzed: 03/13/23 12:08	
2-Methylnaphthalene-d10	2.5000	107	80 - 120	5.599	5.6415	-0.0425	N/A	
Dibenzo[a,h]anthracene-d14	2.5000	80.9	80 - 120	20.482	20.5525	-0.0705	N/A	
Fluoranthene-d10	2.5000	110	0 - 200	10.971	11.016	-0.0450	N/A	
BLC0106-BLK1 (Solid)				Lab File ID: N823031304.D			Analyzed: 03/13/23 14:30	
2-Methylnaphthalene-d10	150.00	67.9	32 - 120	5.599	5.6415	-0.0425	N/A	
Dibenzo[a,h]anthracene-d14	150.00	88.7	21 - 133	20.492	20.5525	-0.0605	N/A	
Fluoranthene-d10	150.00	81.7	36 - 134	10.977	11.016	-0.0390	N/A	
BLC0106-BS1 (Solid)				Lab File ID: N823031305.D			Analyzed: 03/13/23 14:59	
2-Methylnaphthalene-d10	150.00	80.0	32 - 120	5.596	5.6415	-0.0455	N/A	
Dibenzo[a,h]anthracene-d14	150.00	128	21 - 133	20.488	20.5525	-0.0645	N/A	
Fluoranthene-d10	150.00	106	36 - 134	10.971	11.016	-0.0450	N/A	
23C0064-01 (Solid)				Lab File ID: N823031306.D			Analyzed: 03/13/23 15:26	
2-Methylnaphthalene-d10	149.46	80.4	32 - 120	5.593	5.6415	-0.0485	N/A	
Dibenzo[a,h]anthracene-d14	149.46	105	21 - 133	20.482	20.5525	-0.0705	N/A	
Fluoranthene-d10	149.46	97.6	36 - 134	10.968	11.016	-0.0480	N/A	
BLC0106-MS1 (Solid)				Lab File ID: N823031307.D			Analyzed: 03/13/23 15:53	
2-Methylnaphthalene-d10	149.70	83.7	32 - 120	5.593	5.6415	-0.0485	N/A	
Dibenzo[a,h]anthracene-d14	149.70	115	21 - 133	20.486	20.5525	-0.0665	N/A	
Fluoranthene-d10	149.70	104	36 - 134	10.971	11.016	-0.0450	N/A	
BLC0106-MSD1 (Solid)				Lab File ID: N823031308.D			Analyzed: 03/13/23 16:20	
2-Methylnaphthalene-d10	149.70	80.6	32 - 120	5.593	5.6415	-0.0485	N/A	
Dibenzo[a,h]anthracene-d14	149.70	104	21 - 133	20.485	20.5525	-0.0675	N/A	
Fluoranthene-d10	149.70	102	36 - 134	10.971	11.016	-0.0450	N/A	
23C0064-02 (Solid)				Lab File ID: N823031309.D			Analyzed: 03/13/23 16:47	
2-Methylnaphthalene-d10	149.19	68.2	32 - 120	5.593	5.6415	-0.0485	N/A	
Dibenzo[a,h]anthracene-d14	149.19	104	21 - 133	20.479	20.5525	-0.0735	N/A	
Fluoranthene-d10	149.19	86.6	36 - 134	10.968	11.016	-0.0480	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG/WO:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLC0150	Instrument:	NT8
Calibration:	GA00050	Calibration Date:	01/19/2023

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
23C0064-03 (Solid)			Lab File ID: N823031310.D				Analyzed: 03/13/23 17:14	
2-Methylnaphthalene-d10	149.36	75.4	32 - 120	5.592	5.6415	-0.0495	N/A	
Dibenzo[a,h]anthracene-d14	149.36	97.1	21 - 133	20.476	20.5525	-0.0765	N/A	
Fluoranthene-d10	149.36	90.6	36 - 134	10.968	11.016	-0.0480	N/A	
SLC0150-CCV1 (Water)			Lab File ID: N823031311.D				Analyzed: 03/13/23 17:41	
2-Methylnaphthalene-d10	2.5000	107	50 - 150	5.596	5.6415	-0.0455	N/A	
Dibenzo[a,h]anthracene-d14	2.5000	97.1	50 - 150	20.479	20.5525	-0.0735	N/A	
Fluoranthene-d10	2.5000	111	0 - 200	10.968	11.016	-0.0480	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLA0213	Instrument:	NT8
		Calibration:	GA00050

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Blank (SLA0213-ICB1)		(Water)		Lab File ID: N823011902.D				Analyzed: 01/19/23 10:59	
Naphthalene-d8	52082	4.916	44704	4.906	117	50 - 200	0.010	+/-0.50	
Acenaphthene-d10	30936	7.202	26411	7.196	117	50 - 200	0.006	+/-0.50	
Phenanthrene-d10	59030	9.241	49210	9.235	120	50 - 200	0.006	+/-0.50	
Chrysene-d12	50944	14.215	42994	14.202	118	50 - 200	0.013	+/-0.50	
Perylene-d12	47418	18.12	40520	18.111	117	50 - 200	0.009	+/-0.50	
Secondary Cal Check (SLA0213-SCV1)		(Water)		Lab File ID: N823011909.D				Analyzed: 01/19/23 14:58	
Naphthalene-d8	46346	4.913	44704	4.906	104	50 - 200	0.007	+/-0.50	
Acenaphthene-d10	27709	7.202	26411	7.196	105	50 - 200	0.006	+/-0.50	
Phenanthrene-d10	51685	9.238	49210	9.235	105	50 - 200	0.003	+/-0.50	
Chrysene-d12	46582	14.212	42994	14.202	108	50 - 200	0.010	+/-0.50	
Perylene-d12	41743	18.117	40520	18.111	103	50 - 200	0.006	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270E-SIM

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLC0150	Instrument:	NT8
		Calibration:	GA00050

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SLC0150-ICV1)		(Water)		Lab File ID: N823031302.D				Analyzed: 03/13/23 12:08	
Naphthalene-d8	40352	4.862	40352	4.862	100	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	24212	7.155	24212	7.155	100	50 - 200	0.000	+/-0.50	
Phenanthrene-d10	46031	9.197	46031	9.197	100	50 - 200	0.000	+/-0.50	
Chrysene-d12	38604	14.152	38604	14.152	100	50 - 200	0.000	+/-0.50	
Perylene-d12	35963	18.06	35963	18.06	100	50 - 200	0.000	+/-0.50	
Blank (BLC0106-BLK1)		(Solid)		Lab File ID: N823031304.D				Analyzed: 03/13/23 14:30	
Naphthalene-d8	40285	4.859	40352	4.862	100	50 - 200	-0.003	+/-0.50	
Acenaphthene-d10	25374	7.158	24212	7.155	105	50 - 200	0.003	+/-0.50	
Phenanthrene-d10	48366	9.2	46031	9.197	105	50 - 200	0.003	+/-0.50	
Chrysene-d12	39738	14.158	38604	14.152	103	50 - 200	0.006	+/-0.50	
Perylene-d12	39096	18.063	35963	18.06	109	50 - 200	0.003	+/-0.50	
LCS (BLC0106-BS1)		(Solid)		Lab File ID: N823031305.D				Analyzed: 03/13/23 14:59	
Naphthalene-d8	36197	4.856	40352	4.862	90	50 - 200	-0.006	+/-0.50	
Acenaphthene-d10	22077	7.154	24212	7.155	91	50 - 200	-0.001	+/-0.50	
Phenanthrene-d10	43035	9.197	46031	9.197	93	50 - 200	0.000	+/-0.50	
Chrysene-d12	36500	14.152	38604	14.152	95	50 - 200	0.000	+/-0.50	
Perylene-d12	30428	18.057	35963	18.06	85	50 - 200	-0.003	+/-0.50	
LY-28_2-3 (23C0064-01)		(Solid)		Lab File ID: N823031306.D				Analyzed: 03/13/23 15:26	
Naphthalene-d8	38063	4.853	40352	4.862	94	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	23468	7.151	24212	7.155	97	50 - 200	-0.004	+/-0.50	
Phenanthrene-d10	44176	9.194	46031	9.197	96	50 - 200	-0.003	+/-0.50	
Chrysene-d12	34172	14.146	38604	14.152	89	50 - 200	-0.006	+/-0.50	
Perylene-d12	33616	18.051	35963	18.06	93	50 - 200	-0.009	+/-0.50	
Matrix Spike (BLC0106-MS1)		(Solid)		Lab File ID: N823031307.D				Analyzed: 03/13/23 15:53	
Naphthalene-d8	38694	4.853	40352	4.862	96	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	24071	7.151	24212	7.155	99	50 - 200	-0.004	+/-0.50	
Phenanthrene-d10	45490	9.194	46031	9.197	99	50 - 200	-0.003	+/-0.50	
Chrysene-d12	34936	14.149	38604	14.152	90	50 - 200	-0.003	+/-0.50	
Perylene-d12	34504	18.054	35963	18.06	96	50 - 200	-0.006	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLC0150
Instrument: NT8
Calibration: GA00050

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (BLC0106-MSD1)		(Solid)		Lab File ID: N823031308.D				Analyzed: 03/13/23 16:20	
Naphthalene-d8	39979	4.853	40352	4.862	99	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	24432	7.151	24212	7.155	101	50 - 200	-0.004	+/-0.50	
Phenanthrene-d10	46495	9.194	46031	9.197	101	50 - 200	-0.003	+/-0.50	
Chrysene-d12	36645	14.149	38604	14.152	95	50 - 200	-0.003	+/-0.50	
Perylene-d12	37607	18.051	35963	18.06	105	50 - 200	-0.009	+/-0.50	
LY-31_0-10 (23C0064-02)		(Solid)		Lab File ID: N823031309.D				Analyzed: 03/13/23 16:47	
Naphthalene-d8	40595	4.853	40352	4.862	101	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	25523	7.151	24212	7.155	105	50 - 200	-0.004	+/-0.50	
Phenanthrene-d10	47322	9.194	46031	9.197	103	50 - 200	-0.003	+/-0.50	
Chrysene-d12	37646	14.146	38604	14.152	98	50 - 200	-0.006	+/-0.50	
Perylene-d12	32672	18.054	35963	18.06	91	50 - 200	-0.006	+/-0.50	
LY-31_1-2 (23C0064-03)		(Solid)		Lab File ID: N823031310.D				Analyzed: 03/13/23 17:14	
Naphthalene-d8	40524	4.853	40352	4.862	100	50 - 200	-0.009	+/-0.50	
Acenaphthene-d10	24839	7.151	24212	7.155	103	50 - 200	-0.004	+/-0.50	
Phenanthrene-d10	47788	9.194	46031	9.197	104	50 - 200	-0.003	+/-0.50	
Chrysene-d12	40273	14.146	38604	14.152	104	50 - 200	-0.006	+/-0.50	
Perylene-d12	36947	18.051	35963	18.06	103	50 - 200	-0.009	+/-0.50	
Calibration Check (SLC0150-CCV1)		(Water)		Lab File ID: N823031311.D				Analyzed: 03/13/23 17:41	
Naphthalene-d8	39422	4.862	40352	4.862	98	50 - 200	0.000	+/-0.50	
Acenaphthene-d10	24041	7.151	24212	7.155	99	50 - 200	-0.004	+/-0.50	
Phenanthrene-d10	46474	9.194	46031	9.197	101	50 - 200	-0.003	+/-0.50	
Chrysene-d12	39873	14.146	38604	14.152	103	50 - 200	-0.006	+/-0.50	
Perylene-d12	39845	18.054	35963	18.06	111	50 - 200	-0.006	+/-0.50	

HOLDING TIME SUMMARY

Analysis: EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LY-28_2-3 23C0064-01	01/27/23 10:50	01/30/23 13:24	03/08/23 12:03	40	365	03/13/23 15:26	5	40	
LY-31_0-10 23C0064-02	01/26/23 11:25	01/30/23 13:24	03/08/23 12:03	41	365	03/13/23 16:47	5	40	
LY-31_1-2 23C0064-03	01/27/23 11:40	01/30/23 13:24	03/08/23 12:03	40	365	03/13/23 17:14	5	40	
Matrix Spike BLC0106-MS1	01/27/23 10:50	01/30/23 13:24	03/08/23 12:03	40	365	03/13/23 15:53	5	40	
Matrix Spike Dup BLC0106-MSD1	01/27/23 10:50	01/30/23 13:24	03/08/23 12:03	40	365	03/13/23 16:20	5	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8270E-SIM

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Matrix: Solid
Instrument: NT8

Analyte	MDL	RL	Units
Benzo(a)anthracene	0.82	5.00	ug/kg
Chrysene	1.05	5.00	ug/kg
Benzo(b)fluoranthene	1.37	5.00	ug/kg
Benzo(k)fluoranthene	0.76	5.00	ug/kg
Benzo(a)pyrene	0.61	5.00	ug/kg
Indeno(1,2,3-cd)pyrene	1.05	5.00	ug/kg
Dibenzo(a,h)anthracene	0.89	5.00	ug/kg
Benzo(g,h,i)perylene	1.07	5.00	ug/kg

I-8227

Certificate of Analysis

SIGMA-ALDRICH

Product Name	Pentachlorophenol, 97%
Product Number	P2604
Product Brand	ALDRICH
CAS Number	87-86-5
Molecular Formula	C_6Cl_5OH
Molecular Weight	266.34

TEST	SPECIFICATION	LOT 07119HO RESULTS
APPEARANCE	WHITE TO OFF-WHITE OR LIGHT BLUE POWDER	OFF-WHITE POWDER
INFRARED SPECTRUM	CONFORMS TO STRUCTURE.	CONFORMS TO STRUCTURE AND STANDARD
TITRATION	97.5% - 102.5% (WITH AGNO3 AFTER OXYGEN	100.5 % (WITH AGNO3 AFTER OXYGEN COMBUSTION)
GAS LIQUID CHROMATOGRAPHY	97.5% (MINIMUM)	99.9 %
SOLUBILITY		100 MG/ML, 95% ETOH: VERY HAZY, FAINT YELLOW SOLUTION
QUALITY CONTROL ACCEPTANCE DATE		JUNE 2001

Barbara Rajzer, Supervisor
Quality Control
Milwaukee, Wisconsin USA

Cambridge Isotope Laboratories, Inc.

50 Frontage Road, Andover, MA 01810-5413 USA
800.322.1174 (N.AMERICA) 978.749.8000 (INTERNATIONAL)
www.isotope.com

CERTIFICATE OF ANALYSIS

Product Name: DIBENZ[A,H]ANTHRACENE
(Isotopic Label & Enrichment Specification) (D14, 97%)

Lot Number: PR-14764/09163DA2

Catalog Number: DLM-677-0

I295

Product Information

Chemical Purity Specification:	≥ 98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	53-70-3
Molecular Weight:	292.5
Chemical Formula:	C22D14
Storage:	Store at room temperature away from light and moisture.
Stability:	Stable if stored under recommended conditions.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible.

Approved by: Deborah E. Costa

Deborah E. Costa, Quality Assurance

Quality Control Tests and Results

GC/MS for Chemical Purity	99.3%
GC/MS for Isotopic Enrichment	97.4%
Melting Point Range Determination	263-265°C
1H NMR for Chemical Purity	Pass

E006466

SVOA-d14-Dibenz(a,h)anthracene-NEAT
Solvent / Lot: NA
Prep: 11/9/2016 by VS
Exp: 5/8/2030
Location:

660 Tower Lane • P.O. Box 599 • West Chester, PA 19381-0599
1-800-452-9994 • 1-610-692-3026 • Fax 1-610-692-8729
info@chemservice.com • www.chemservice.com

CERTIFICATE OF ANALYSIS

2-Chloronaphthalene

CATALOG NUMBER	N-10323-100MG
LOT NUMBER	10816400
DATE CERTIFIED	05/22/18
EXPIRATION DATE	05/31/24
CAS NUMBER	91-58-7
MOLECULAR FORMULA	C10H7Cl
MOLECULAR WEIGHT	162.62
STORAGE	Store at room temperature (20 - 25 °C).
HANDLING	See Safety Data Sheet
INTENDED USE	For laboratory use only.

I010152
2-Chloronaphthalene NEAT
Expires 12/31/2079
Prepared By Joshua Rains 10/29/2020

Analytical Test	Value
% PURITY (GC/FID)	99.5

Chem Service, Inc. guarantees the purity to be +/- 0.5% deviation prior to the expiration date shown on the label and exclusive of any customer contamination.

Certified By:

Mary Beth O'Donnell

Mary Beth O'Donnell
CSM/TC

Chem Service is accredited to ISO 17034:2016, ISO/IEC 17025:2017 and certified to ISO 9001:2015

COA Form
Revision 3 (3/2015)

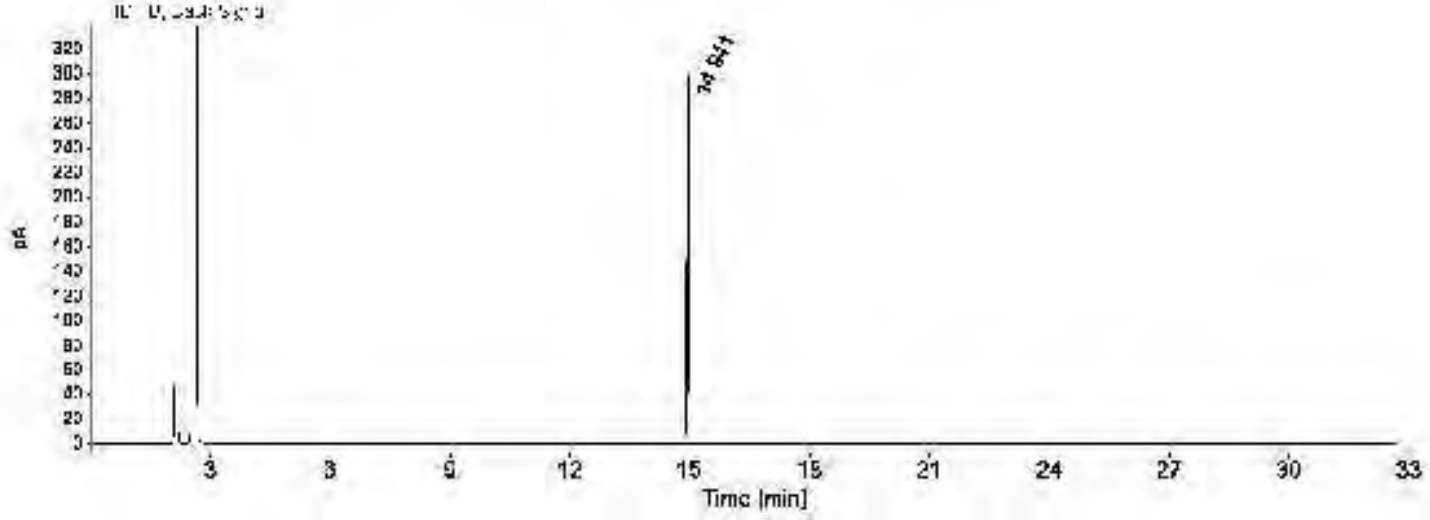
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1-800-452-9994 • 1-610-692-3026 • Fax 1-610-692-8729
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CERTIFICATE OF ANALYSIS

Gas Chromatography / Flame Ionization Detector (GC/FID)

Data file: C:\Chem32\1\Data\2018 Data\0518\2-Chloronaphtthalene.D
Sample name: 2-Chloronaphthalene

Instrument: GC3
Injection date: 5/22/2018 1:12:52 PM
Acq. method: REAR_SCREEN.M
Location: 209
Injection volume: 1.0uL
Col Type: pn# 7HG-G006-17-C **Diameter** 250.000 **Length** 30.000



Signal: FID1 B, Back Signal

RT [min]	Type	Width [min]	Area	Height	Area%
14.941	BB	0.0410	808.8124	308.5675	100.0000
		Sum	808.8124		

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: **70476**
Lot Number: 092220
Description: Benzo(j)fluoranthene

Expiration Date: 092225
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 23060

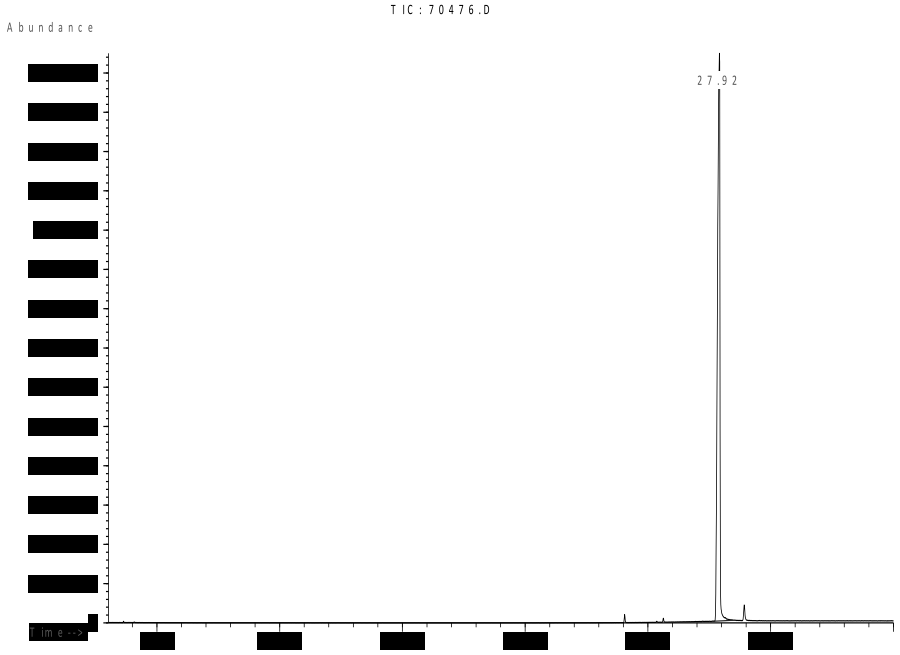
Solvent(s): **Lot#**
Methylene chloride 104929

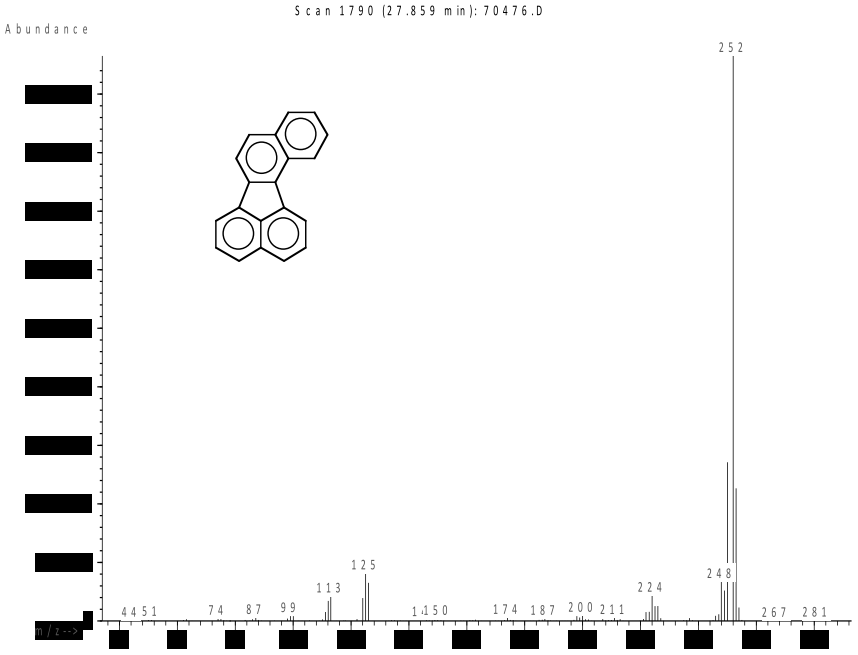
		092220
Formulated By:	Benson Chan	DATE
		092220
Reviewed By:	Pedro L. Rentas	DATE

5E-05 Balance Uncertainty
Weight(s) shown below were combined and diluted to (mL): 25.0 0.001 Flask Uncertainty

	Compound	RM#	Lot Number	Nominal Conc (µg/mL)	Purity (%)	Uncertainty Purity	Target Weight(g)	Actual Weight(g)	Actual Conc (µg/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1.	Benzo(j)fluoranthene	476	3-CSZ-153-20	1000	98.1	0.2	0.02547	0.02552	1001.8	5.7	205-82-3	0.2mg/m3	N/A

Method GC8MSD1M: Column:SBB-5 (30m X 0.25mm ID X 0.25µm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (9 min.), Rate = 10°C/min., Injector B= 200°C, Detector B = 290°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by Candice Warren.





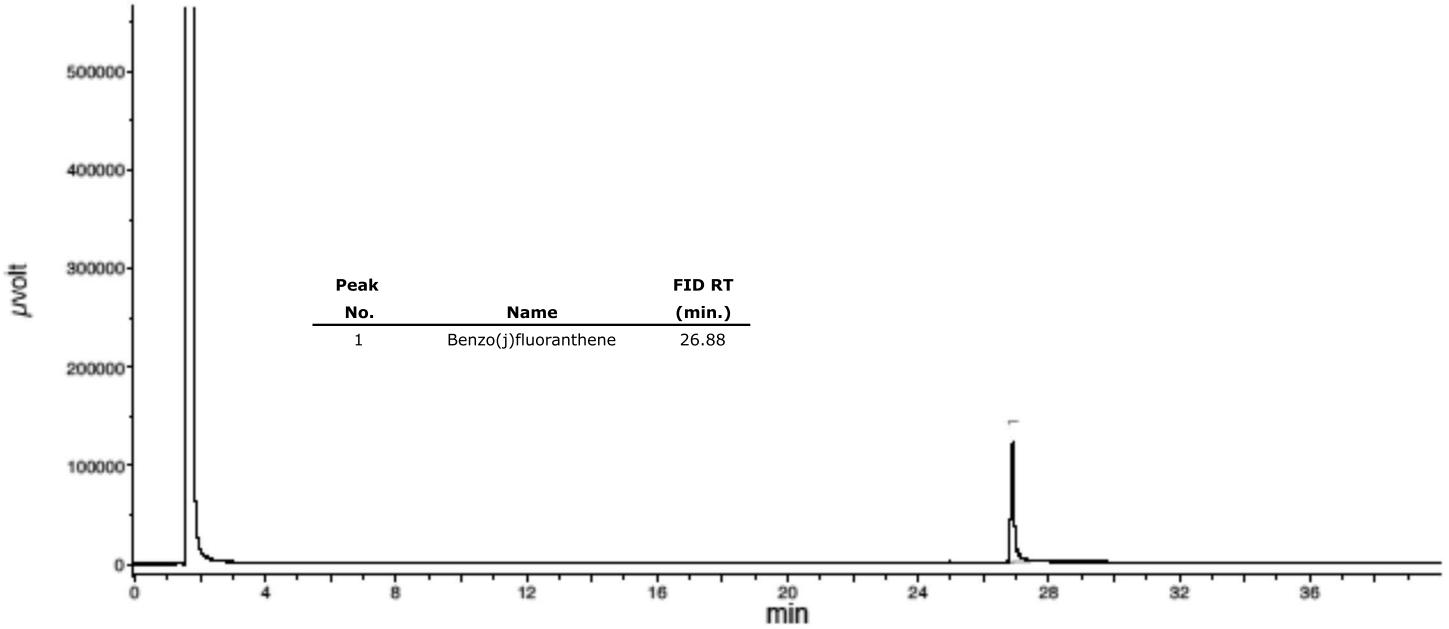
- **The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.**
- **Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).**
- **Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.**
- **All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.**
- **Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).**

Run 31, "P70476 L092220 [1000µg/mL in MeCl2]"

Run Length: 40.00 min, 23999 points at 10 points/second.
Created: Thu, Sep 24, 2020 at 2:33:43 AM.
Sampled: Sequence "092120-GC9M2", Method "GC9-M2".
Analyzed using Method "GC9-M2".

Comments

GC9-M2 Analysis by Melissa Stonier
Column ID SPB-5 30 meter x 0.53mm x 1.5um Film Thickness.
Flow rates; Total Flow = 300 ml/min, Helium (carrier) = 6.5 mL, Helium (make-up) = 25 mL.
Hydrogen (detector) = 30 mL, Air (detector) =360 mLOven Temp 1 = 50°C (1 min).
Rate = 10°C/min, Oven Temp 2 = 300°C (14 min), Total Run Time = 40 Minutes. Injector Temp = 250°C.
FID Temp = 300°C, FID Signal = eDaq Channel 1.
Gas Chromatograph = HP 5890, Auto Sampler = HP 7673, Standard Injection = 0.5 uL, Range = 3



Peak No.	Name	FID RT (min.)
1	Benzo(j)fluoranthene	26.88

Certificate of Analysis

Sigma-Aldrich.

Product Name:	2,4,6-Tribromophenol
Product Description:	99%
Product Brand:	Sigma-Aldrich
Product Number:	137715
Molecular Weight:	330.80
Molecular Formula:	$Br_3C_6H_2OH$
CAS Number:	118-79-6

TEST	SPECIFICATION	LOT 05110PD RESULTS
APPEARANCE:	WHITE TO OFF-WHITE TO PINK FLAKES, CHUNKS,	PINK BEADS
INFRARED SPECTRUM:		CONFORMS TO STRUCTURE.
GAS LIQUID:	98.5% (MINIMUM)	99.9%
QUALITY CONTROL:		NOVEMBER 2005

Barbara Rajzer

Barbara Rajzer, Supervisor
Quality Control
Milwaukee, Wisconsin USA

J010541
SVOA-Tribromophenol-NEAT
Solvent / Lot: 05110PD
Prep: 10/1/2021 by VS
Exp: 3/30/2040
Location: voa freezer

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Certified Reference Material CRM

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT

Part Number: 93462
Lot Number: 081021
Description: PAH Standard
30 components
Expiration Date: 081026
Recommended Storage: Refrigerate (4 °C)
Nominal Concentration (µg/mL): 1000
NIST Test ID#: 6UTB

Solvent(s): Methylene chloride **Lot#** 105345

K3587

5E-05 Balance Uncertainty
Volume(s) shown below were combined and diluted to (mL): 20.0 0.001 Flask Uncertainty

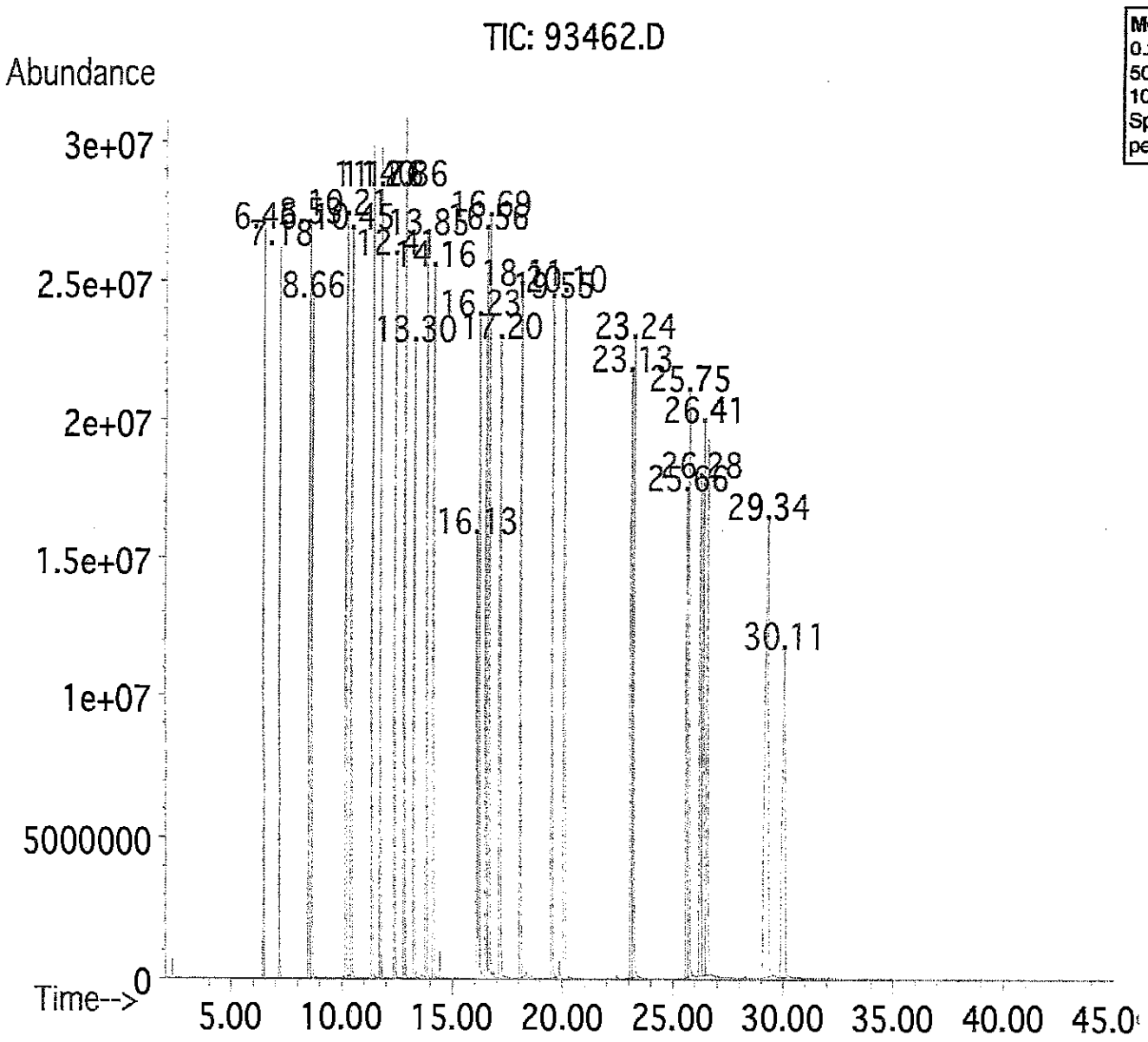
Formulated By:	Prashant Chauhan	081021 DATE
Reviewed By:	Pedro L. Rentas	081021 DATE

Compound	Part Number	Lot Number	Dil. Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Initial Conc.(ug/mL)	Final Conc.(ug/mL)	Expanded Uncertainty (+/-) (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50
1. Acenaphthene	10007	042420	0.50	10.00	0.042	2001.2	1000.4	9.4	83-32-9	N/A	ipr-rat 600mg/kg
2. Acenaphthylene	10007	042420	0.50	10.00	0.042	2000.2	999.9	9.4	208-96-8	N/A	N/A
3. Anthracene	10007	042420	0.50	10.00	0.042	2000.3	999.9	9.3	120-12-7	0.2mg/m3 (8H)	ipr-mus 430mg/kg
4. Benzo(a)anthracene	10007	042420	0.50	10.00	0.042	2001.3	1000.4	9.4	56-55-3	N/A	N/A
5. Benzo(a)pyrene	10007	042420	0.50	10.00	0.042	2000.0	999.8	9.3	50-32-8	0.2mg/m3 (8H)	scu-rat 50mg/kg
6. Benzo(b)fluoranthene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.3	205-99-2	N/A	N/A
7. Benzo(k)fluoranthene	10007	042420	0.50	10.00	0.042	2001.2	1000.4	9.4	207-08-9	N/A	N/A
8. Benzo(g,h,i)perylene	10007	042420	0.50	10.00	0.042	2000.0	999.8	9.3	191-24-2	N/A	N/A
9. Carbazole	10007	042420	0.50	10.00	0.042	2000.3	999.9	9.4	86-74-8	N/A	ipr-mus 200mg/kg
10. Chrysene	10007	042420	0.50	10.00	0.042	2000.8	1000.2	9.4	218-01-9	0.2mg/m3	N/A
11. Dibenzo(a,h)anthracene	10007	042420	0.50	10.00	0.042	2000.8	1000.2	9.4	53-70-3	0.2mg/m3	N/A
12. Fluoranthene	10007	042420	0.50	10.00	0.042	2000.3	999.9	9.4	206-44-0	N/A	orl-rat 2000mg/kg
13. Fluorene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.4	86-73-7	N/A	ipr-mus 2 g/kg
14. Indeno(1,2,3-cd)pyrene	10007	042420	0.50	10.00	0.042	2000.1	999.8	9.3	193-39-5	N/A	N/A
15. Naphthalene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.3	91-20-3	10 ppm (50mg/m3/8H)	orl-rat 490mg/kg
16. Phenanthrene	10007	042420	0.50	10.00	0.042	2000.9	1000.2	9.4	85-01-8	0.2mg/m3/8H	orl-mus 700mg/kg
17. Pyrene	10007	042420	0.50	10.00	0.042	2001.0	1000.3	9.4	129-00-0	0.2mg/m3/8H	orl-rat 2700mg/kg
18. Benzo(e)pyrene	94851	081021	0.50	10.00	0.042	2002.1	1000.8	9.4	192-97-2	N/A	N/A
19. Biphenyl	94851	081021	0.50	10.00	0.042	2001.5	1000.5	9.4	92-52-4	0.2 ppm(1mg/m3/8H)	orl-rat 2400mg/kg
20. Decalin (49% cis, 51% trans)	94851	081021	0.50	10.00	0.042	2002.5	1001.0	9.4	91-17-8	N/A	N/A
21. Dibenzofuran	94851	081021	0.50	10.00	0.042	2002.3	1000.9	9.4	132-64-9	N/A	N/A
22. Dibenzothiophene	94851	081021	0.50	10.00	0.042	2002.5	1001.0	9.4	132-65-0	N/A	orl-mus 470 mg/kg
23. 2,6-Dimethylnaphthalene	94851	081021	0.50	10.00	0.042	2001.9	1000.7	9.4	581-42-0	N/A	N/A
24. 1-Methylnaphthalene	94851	081021	0.50	10.00	0.042	2002.2	1000.9	9.4	90-12-0	N/A	orl-rat 1840mg/kg
25. 2-Methylnaphthalene	94851	081021	0.50	10.00	0.042	2000.6	1000.1	9.4	91-57-6	N/A	orl-rat 1630mg/kg
26. 1-Methylphenanthrene	94851	081021	0.50	10.00	0.042	2002.3	1000.9	13.2	832-69-9	N/A	N/A
27. Pentachlorophenol	94851	081021	0.50	10.00	0.042	3961.5	1980.3	18.6	87-86-5	0.5mg/m3/8H (skin)	orl-rat 27mg/kg
28. Perylene	94851	081021	0.50	10.00	0.042	2001.9	1000.7	9.4	198-55-0	N/A	N/A
29. Thianaphthene	94851	081021	0.50	10.00	0.042	2003.1	1001.3	9.4	95-15-8	N/A	N/A
30. 2,3,5-Trimethylnaphthalene	94851	081021	0.50	10.00	0.042	2003.1	1001.3	9.5	2245-38-7	N/A	N/A

- The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
- All Standards, after opening ampule, should be stored with caps tight and under appropriate laboratory conditions.
- Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, DC, (1994).

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Method GC8MSD-2Long: Column:SPB-5 (30m X 0.25mm ID X 0.25μm film thickness) Temp 1 = 50°C (1min.), Temp 2 = 300°C (14min.), Rate = 10°C/min., Injector B= 250°C, Detector B = 275°C, Split Ratio = 100:1, Scan Rate = 2. Analysis performed by: Gina McLane.

Retention Time (min.)	
Decahydronaphthalene (Decalin) (isomer)	6.46
Decahydronaphthalene (Decalin) (isomer)	7.18
Naphthalene	8.53
Thianaphthene	8.66
2-Methylnaphthalene	10.21
1-Methylnaphthalene	10.45
Biphenyl	11.4
2,6-Dimethylnaphthalene	11.76
Acenaphthylene	12.41
Acenaphthene	12.86
Dibenzofuran	13.3
2,3,5-Trimethylnaphthalene	13.85
Fluorene	14.16
Pentachlorophenol	16.13
Dibenzothiophene	16.23
Phenanthrene	16.56
Anthracene	16.69
Carbazole	17.2
1-Methylphenanthrene	18.11
Fluoranthene	19.55
Pyrene	20.1
Benzo(a)anthracene	23.13
Chrysene	23.24
Benzo(b)fluoranthene	25.66
Benzo(k)fluoranthene	25.75
Perylene	26.28
Benzo(a)pyrene	26.41
Benzo(e)pyrene	26.61
Indeno(1,2,3-cd)pyrene	29.34
Dibenzo(a,h)anthracene	29.34
Benzo(g,h,i)perylene	30.11

Certificate of Analysis

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Access your MSDS and digital C of A at **www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards**

Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101291	**Lot Number:**	CL11000
Description:	GC/MS Tuning Mix	**Certification Date:**	May 9, 2014
Storage:	4 °C	**Expiration Date:**	December 31, 2023
Provided As:	1 mL in 2 mL Ampoule in Methylene chloride	**Revision Date:**	August 5, 2015

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty (%)
Benzidine	92-87-5	1000	± 0.208%
Decafluorotriphenylphosphine (DFTPP)	5074-71-5	1000	± 0.057%
4,4'-DDT	50-29-3	1000	± 0.056%
Pentachlorophenol	87-86-5	1000	± 0.061%

K003891
GC/MS Tune solution-1000ug/ml
Solvent / Lot: CL11000
Prep: 4/22/2022 by VS
Exp: 12/31/2023
Location:

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

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Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

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Chemical Testing Laboratory
Certificate No. 2427.03

IL111106/3_us

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CERTIFIED REFERENCE MATERIAL

Certificate of Analysis

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ISO 17034 Accredited
Reference Material Producer
Certificate #3222.01

ACCREDITED
ISO/IEC 17025 Accredited
Testing Laboratory
Certificate #3222.02

FOR LABORATORY USE ONLY-READ SDS PRIOR TO USE.

This Reference Material is intended for Laboratory Use Only as a standard for the qualitative and/or quantitative determination of the analyte(s) listed.

Catalog No. : 33913 **Lot No.:** A0183500

Description : SOM01.0 SIM Analysis Standard

SOM01.0 SIM Analysis Standard 2000µg/mL, Methylene chloride, 1mL /ampul

Container Size : 2 mL **Pkg Amt:** > 1 mL

Expiration Date : February 29, 2028 **Storage:** 10°C or colder

Handling: Sonication required. Mix is photosensitive. **Ship:** Ambient

CERTIFIED VALUES

Elution Order	Compound	Grav. Conc. (weight/volume)	Expanded Uncertainty (95% C.L.; K=2)		
1	2-Methylnaphthalene-d10	2,003.5 µg/mL	+/- 11.7578	µg/mL	Gravimetric
	CAS # 7297-45-2 (Lot EF-135)		+/- 90.2539	µg/mL	Unstressed
	Purity 96%		+/- 100.1449	µg/mL	Stressed
2	Fluoranthene-d10	2,006.0 µg/mL	+/- 11.7723	µg/mL	Gravimetric
	CAS # 93951-69-0 (Lot PR-20668)		+/- 90.3656	µg/mL	Unstressed
	Purity 99%		+/- 100.2689	µg/mL	Stressed

Solvent: Methylene chloride
CAS # 75-09-2
Purity 99%

K004605
SOMO 1.0 SIM DMC
Solvent / Lot: A0183500
Prep: 5/14/2022 by VS
Exp: 2/29/2028
Location:

Column:
30m x 0.25mm x 0.25µm
Rtx-5 (cat.#10223)

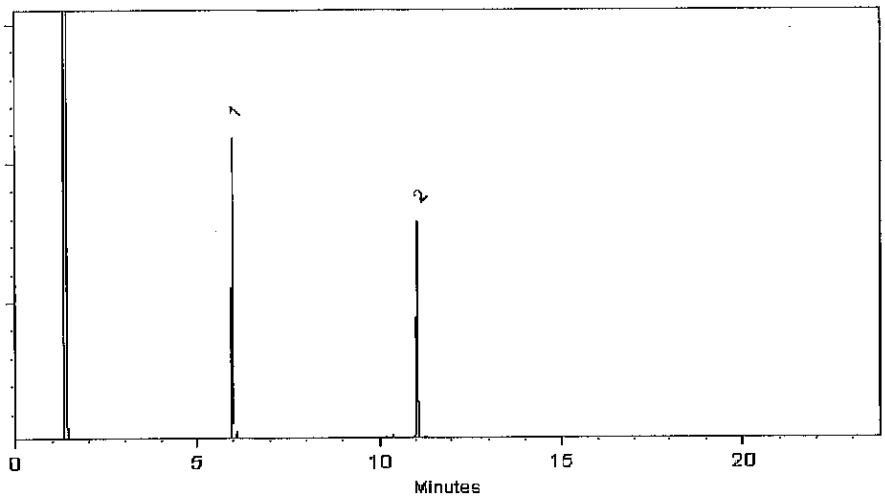
Carrier Gas:
hydrogen-constant pressure 10 psi.

Temp. Program:
75°C (hold 1 min.) to 330°C
@ 20°C/min. (hold 10 min.)

Inj. Temp:
250°C

Det. Temp:
330°C

Det. Type:
FID



This chromatogram represents a general set of testing conditions chosen for product acceptance. For optimal results in your lab, conditions should be adjusted for your specific instrument, method, and application.

Cathleen Soltis - Mix Technician

Date Mixed: 29-Mar-2022 **Balance:** B345965662

Clara Windle - Operations Technician I

Date Passed: 01-Apr-2022

Manufactured under Restek's ISO 9001:2015 Registered Quality System Certificate #FM 80397

General Certified Reference Material Notes

Expiration Notes:

- Expiration date valid for unopened ampul stored in compliance with the recommended conditions.
- Uncertainty, concentration, and expiration of the CRM are based on the unopened product being stored according to the recommended condition found in the storage field.

Purity Notes:

- Purity and/or chemical identity are determined by one or more of the following techniques: GC/FID, HPLC, GC/μECD, GC/MS, LC/MS, RI, and/or melting point.
- Compounds with a listed purity of less than 99% have been weight corrected to compensate for impurities and/or salts. A correction factor is used to calculate the amount of compound necessary to achieve the desired concentration of the parent compound in solution.
- Purity of isomeric compounds is reported as the sum of the isomers.
- Purity values are rounded to the nearest whole number.

Certified Uncertainty Value Notes:

- The uncertainties are determined in accordance with ISO 17034 and Guide 35. The certified combined stressed uncertainty value (includes gravimetric uncertainty, homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty and were combined using the following formula:

$$U_{combined\ stressed} = k\sqrt{U^2_{gravimetric} + U^2_{homogeneity} + U^2_{storage\ stability} + U^2_{shipping\ stability}}$$

k is a coverage factor of 2, which gives a level of confidence of approximately 95%.

- It is important to note that the shipping stability uncertainty was obtained under temperature extremes for specific time intervals; therefore, the certified combined stressed uncertainty value should only be applied to the product if it was stored at non-standard temperature conditions up to and including 7 days. Contact Restek Technical Service at www.restek.com/Contact-Us for use recommendations if your shipment was in-transit for more than 7 days at non-standard temperature conditions.
- Apply the certified combined unstressed uncertainty value if the product was received under standard shipping conditions. Apply the certified combined stressed uncertainty value if the product was received under non-standard conditions as specified below.

Label Conditions	Standard Conditions	Non-Standard Conditions
25°C Nominal (Room Temperature)	< 60°C	≥ 60°C up to 7 days
10°C or colder (Refrigerate)	< 40°C	≥ 40°C up to 7 days
0°C or colder (Freezer) -20°C or colder (Deep Freezer)	< 25°C	≥ 25°C up to 7 days

- Separate (not combined) uncertainty values for gravimetric uncertainty are also displayed on the certificate, if needed, separate homogeneity between-ampul uncertainty, storage stability uncertainty and shipping stability uncertainty values are available by contacting Restek Technical Service at www.restek.com/Contact-Us.
- The packaged amount is the minimum sample size for which uncertainty is valid. The ampules are over-filled to ensure that the minimum packaged amount can be sufficiently transferred.

Manufacturing Notes:

- Concentration is based upon gravimetric preparation using either a balance whose calibration has been verified daily using NIST traceable weights, and/or dilutions with Class A glassware.

Handling Notes:

- Stability of the unopened product, when stored in compliance with the recommended conditions, is guaranteed through the expiration displayed on the product label and certificate. Contact Restek for additional opened product stability information, with the knowledge/understanding that open product stability is subject to the specific handling and environmental conditions to which the product is exposed. For your convenience Restek supplies deactivated vials with most standards packed in 2mL ampules. Larger volume deactivated vials are available through Restek as a custom ordered item. Additionally, Restek sells DMDCS for the purpose of glassware deactivation as catalog number 31861, which includes complete instructions.

Certificate of Analysis

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101444
Description: 8270 Calibration Standard
Storage: -18 °C
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Lot Number: CL18355
Certification Date: July 25, 2022
Expiration Date: August 31, 2023

K007995
SVOA-8270 LCS MIX 1000ug/ml
Solvent / Lot: N/A
Prep: 8/29/2022 by JZ
Exp: 8/31/2023
Location: FREEZER 44

Aaron Dukes, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Acenaphthene	83-32-9	1000	± 0.300%
Acenaphthylene	208-96-8	1000	± 0.225%
Anthracene	120-12-7	1000	± 6.858%
Azobenzene	103-33-3	1000	± 0.224%
Benzo(a)anthracene	56-55-3	1000	± 0.247%
Benzo(a)pyrene	50-32-8	1000	± 0.270%
Benzo(b)fluoranthene	205-99-2	1000	± 0.635%
Benzo(k)fluoranthene	207-08-9	1000	± 0.682%
Benzo(g,h,i)perylene	191-24-2	1000	± 0.272%
Benzyl alcohol	100-51-6	1000	± 0.231%
Benzyl butyl phthalate	85-68-7	1000	± 0.480%
bis(2-Chloroethoxy)methane	111-91-1	1000	± 0.479%
bis(2-Chloroethyl) ether	111-44-4	1000	± 0.479%
bis(2-Chloroisopropyl) ether	108-60-1	1000	± 0.550%
bis(2-Ethylhexyl) adipate	103-23-1	1000	± 0.479%
bis(2-Ethylhexyl) phthalate	117-81-7	1000	± 0.479%
4-Bromophenyl phenyl ether	101-55-3	1000	± 0.479%
Carbazole	86-74-8	1000	± 0.146%

ACCREDITED
Reference Material Producer
Certicate No. 2427.02

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Phenova is an accredited ISO/IEC 17034 Reference Material Producer and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ACCREDITED
Chemical Testing Laboratory
Certicate No. 2427.03

IL64991018_us

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Catalog No.: AL0-101444
Description: 8270 Calibration Standard
Storage: -18 °C
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Lot Number: CL18355
Certification Date: July 25, 2022
Expiration Date: August 31, 2023

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
4-Chloroaniline	106-47-8	1000	± 0.300%
4-Chloro-3-methylphenol	59-50-7	1000	± 0.545%
2-Chloronaphthalene	91-58-7	1000	± 0.224%
2-Chlorophenol	95-57-8	1000	± 0.507%
4-Chlorophenyl phenyl ether	7005-72-3	1000	± 0.479%
Chrysene	218-01-9	1000	± 0.145%
Dibenz(a,h)anthracene	53-70-3	1000	± 1.058%
Dibenzofuran	132-64-9	1000	± 0.302%
Di-n-butyl phthalate	84-74-2	1000	± 0.518%
1,2-Dichlorobenzene	95-50-1	1000	± 0.247%
1,3-Dichlorobenzene	541-73-1	1000	± 0.225%
1,4-Dichlorobenzene	106-46-7	1000	± 0.224%
2,4-Dichlorophenol	120-83-2	1000	± 0.545%
Diethyl phthalate	84-66-2	1000	± 0.518%
2,4-Dimethylphenol	105-67-9	1000	± 0.507%
Dimethyl phthalate	131-11-3	1000	± 0.518%
1,2-Dinitrobenzene	528-29-0	1000	± 0.361%
1,3-Dinitrobenzene	99-65-0	1000	± 0.300%
1,4-Dinitrobenzene	100-25-4	1000	± 0.242%
2,4-Dinitrophenol	51-28-5	1000	± 0.545%
2,4-Dinitrotoluene	121-14-2	1000	± 1.128%

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Catalog No.: AL0-101444
Lot Number: CL18355
Description: 8270 Calibration Standard
Certification Date: July 25, 2022
Storage: -18 °C
Expiration Date: August 31, 2023
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
2,6-Dinitrotoluene	606-20-2	1000	± 0.224%
Di-n-octyl phthalate	117-84-0	1000	± 0.486%
Fluoranthene	206-44-0	1000	± 0.224%
Fluorene	86-73-7	1000	± 0.224%
Hexachlorobenzene	118-74-1	1000	± 0.152%
Hexachlorobutadiene	87-68-3	1000	± 0.746%
Hexachlorocyclopentadiene	77-47-4	1000	± 0.153%
Hexachloroethane	67-72-1	1000	± 0.300%
Indeno(1,2,3-cd)pyrene	193-39-5	1000	± 0.883%
Isophorone	78-59-1	1000	± 0.145%
2-Methyl-4,6-dinitrophenol	534-52-1	1000	± 0.508%
1-Methylnaphthalene	90-12-0	1000	± 0.479%
2-Methylnaphthalene	91-57-6	1000	± 0.487%
2-Methylphenol	95-48-7	1000	± 0.545%
3-Methylphenol	108-39-4	500	± 0.279%
4-Methylphenol	106-44-5	500	± 0.399%
Naphthalene	91-20-3	1000	± 0.226%
2-Nitroaniline	88-74-4	1000	± 0.224%
3-Nitroaniline	99-09-2	1000	± 0.235%
4-Nitroaniline	100-01-6	1000	± 0.300%
Nitrobenzene	98-95-3	1000	± 0.300%

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This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101444
Lot Number: CL18355
Description: 8270 Calibration Standard
Certification Date: July 25, 2022
Storage: -18 °C
Expiration Date: August 31, 2023
Provided As: 1 mL in 2 mL Ampoule in MeCl2/Methanol (97:3)

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
2-Nitrophenol	88-75-5	1000	± 0.514%
4-Nitrophenol	100-02-7	1000	± 0.519%
N-Nitrosodimethylamine	62-75-9	1000	± 0.503%
N-Nitrosodiphenylamine	86-30-6	1000	± 0.476%
N-Nitrosodi-n-propylamine	621-64-7	1000	± 0.461%
Pentachlorophenol	87-86-5	1000	± 0.202%
Phenanthrene	85-01-8	1000	± 0.145%
Phenol	108-95-2	1000	± 0.545%
Pyrene	129-00-0	1000	± 0.147%
Pyridine	110-86-1	1000	± 0.503%
2,3,4,6-Tetrachlorophenol	58-90-2	1000	± 0.247%
2,3,5,6-Tetrachlorophenol	935-95-5	1000	± 0.247%
1,2,4-Trichlorobenzene	120-82-1	1000	± 0.224%
2,4,5-Trichlorophenol	95-95-4	1000	± 0.507%
2,4,6-Trichlorophenol	88-06-2	1000	± 0.509%

Notes: The proper chemical name for Bis(2-Chloroiospropyl) ether is 2,2'-oxybis(1-chloropropane). The analytical uncertainty contribution to the expanded uncertainty for 3 and 4-Methylphenol is measured as the total of the two analytes. N-Nitrosodiphenylamine presents as Diphenylamine at 854 µg/mL.

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $u_{CRM} = k\sqrt{u_M^2 + u_H^2 + u_{LTS}^2}$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-28_2-3

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23C0064
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23C0064-01 A	File ID:	03142322ECD7.D
Sampled:	01/27/23 10:50	Prepared:	03/07/23 13:30	Analyzed:	03/14/23 16:48
% Solids:	79.65	Preparation:	EPA 3546 (Microwave)	Initial/Final:	15.75 g Wet / 2.5 mL
Batch:	BLC0124	Sequence:	SLC0203	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9714*	*7.46*	*93.6*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9714*	*6.08*	*76.3*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142322ECD7.D
Data file 2: /230314.b/230314.b/03142322ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23C0064-01
Client ID:
Injection Date: 14-MAR-2023 16:48
Report Date: 03/14/2023 17:27
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	221582	5.688	-0.002	175100	30.5	30.7	0.5	Tetrachloro-m-xylene
13.890	-0.003	254992	14.117	-0.003	290780	37.4	35.0	6.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	486502	-27.8
Hexabromobiphenyl	1429847	691908	-51.6 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	389133	23.4
Hexabromobiphenyl	513946	545761	6.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.907 - 13.794) = 366348 Col1 Total PCB = 0.1 ppm*

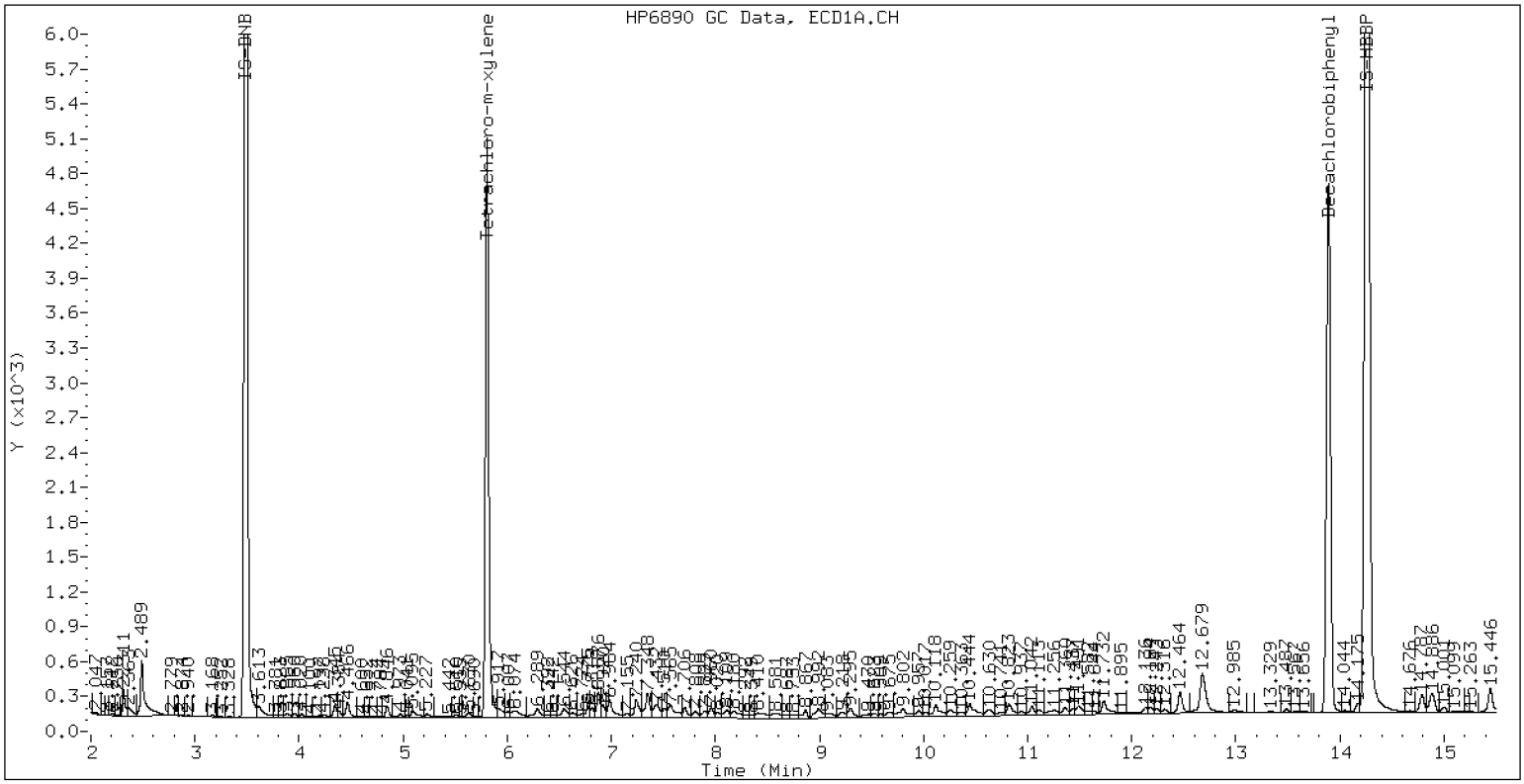
Total PCB Area Col2 (5.790 - 14.019) = 229456 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

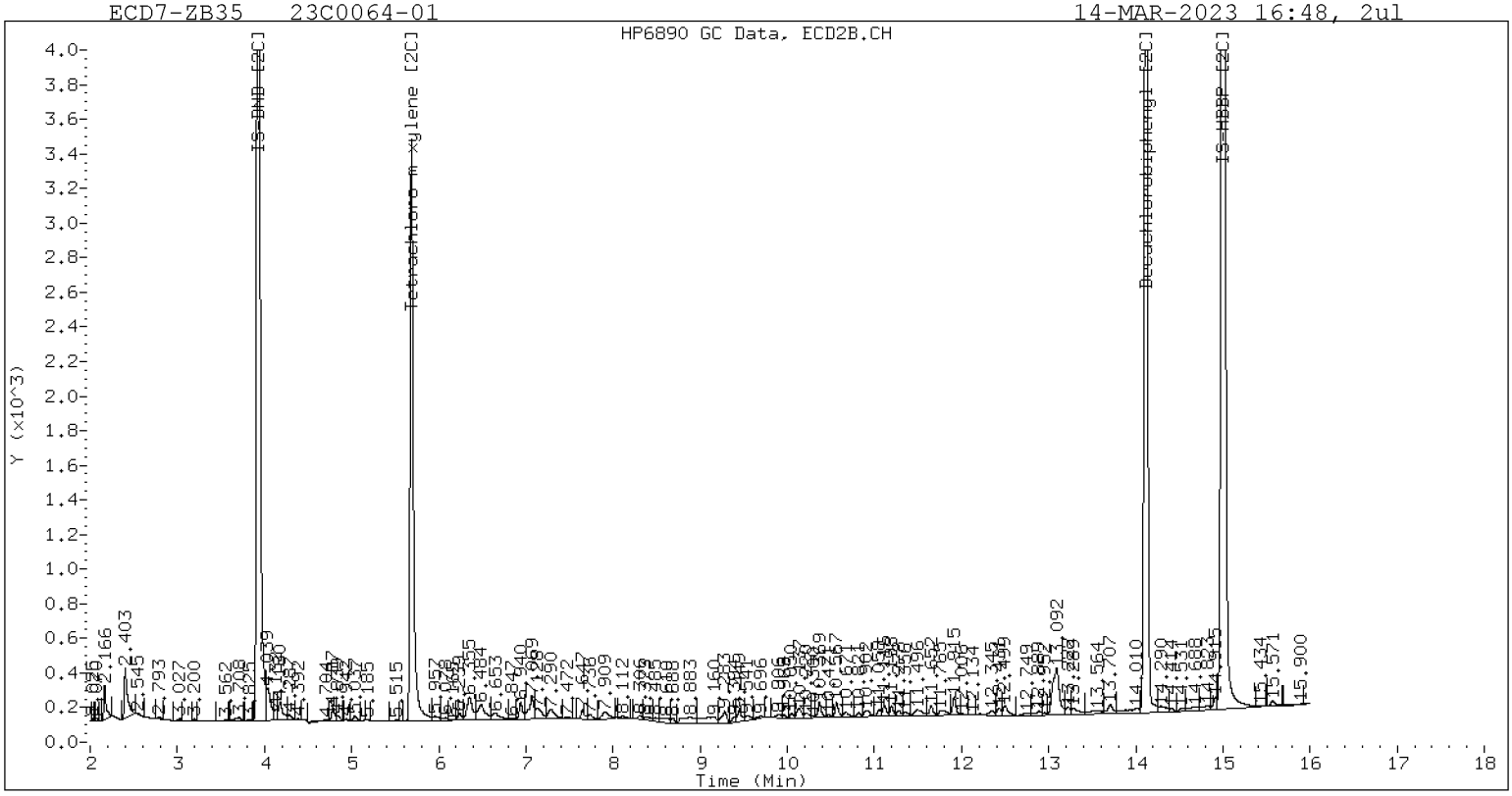
PCB Dual Column Chromatograms

ECD7-ZB5 23C0064-01 14-MAR-2023 16:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23C0064-01 14-MAR-2023 16:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-31_0-10

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23C0064
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23C0064-02 A	File ID:	03142323ECD7.D
Sampled:	01/26/23 11:25	Prepared:	03/07/23 13:30	Analyzed:	03/14/23 17:09
% Solids:	76.46	Preparation:	EPA 3546 (Microwave)	Initial/Final:	16.39 g Wet / 2.5 mL
Batch:	BLC0124	Sequence:	SLC0203	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9797*	*7.11*	*89.1*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9797*	*6.61*	*82.8*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142323ECD7.D
Data file 2: /230314.b/230314.b/03142323ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23C0064-02
Client ID:
Injection Date: 14-MAR-2023 17:09
Report Date: 03/15/2023 09:06
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.001	236084	5.688	-0.001	184077	33.1	31.6	4.6	Tetrachloro-m-xylene
13.890	-0.005	265500	14.117	-0.002	314837	35.6	36.4	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	477508	-29.1
Hexabromobiphenyl	1429847	756372	-47.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	396881	25.9
Hexabromobiphenyl	513946	568018	10.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.907 - 13.795) = 156815 Col1 Total PCB = 0.0 ppm*

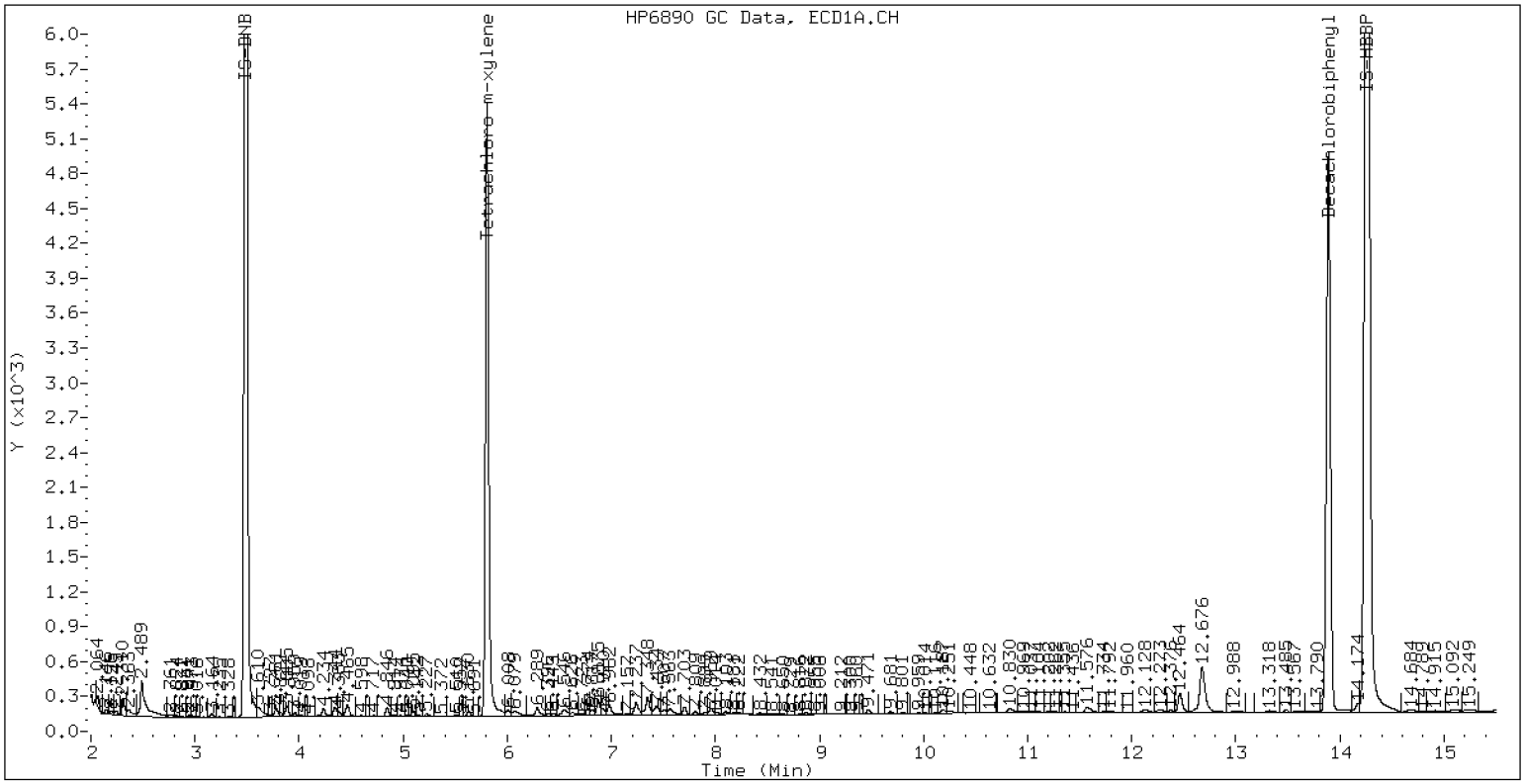
Total PCB Area Col2 (5.788 - 14.019) = 161568 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

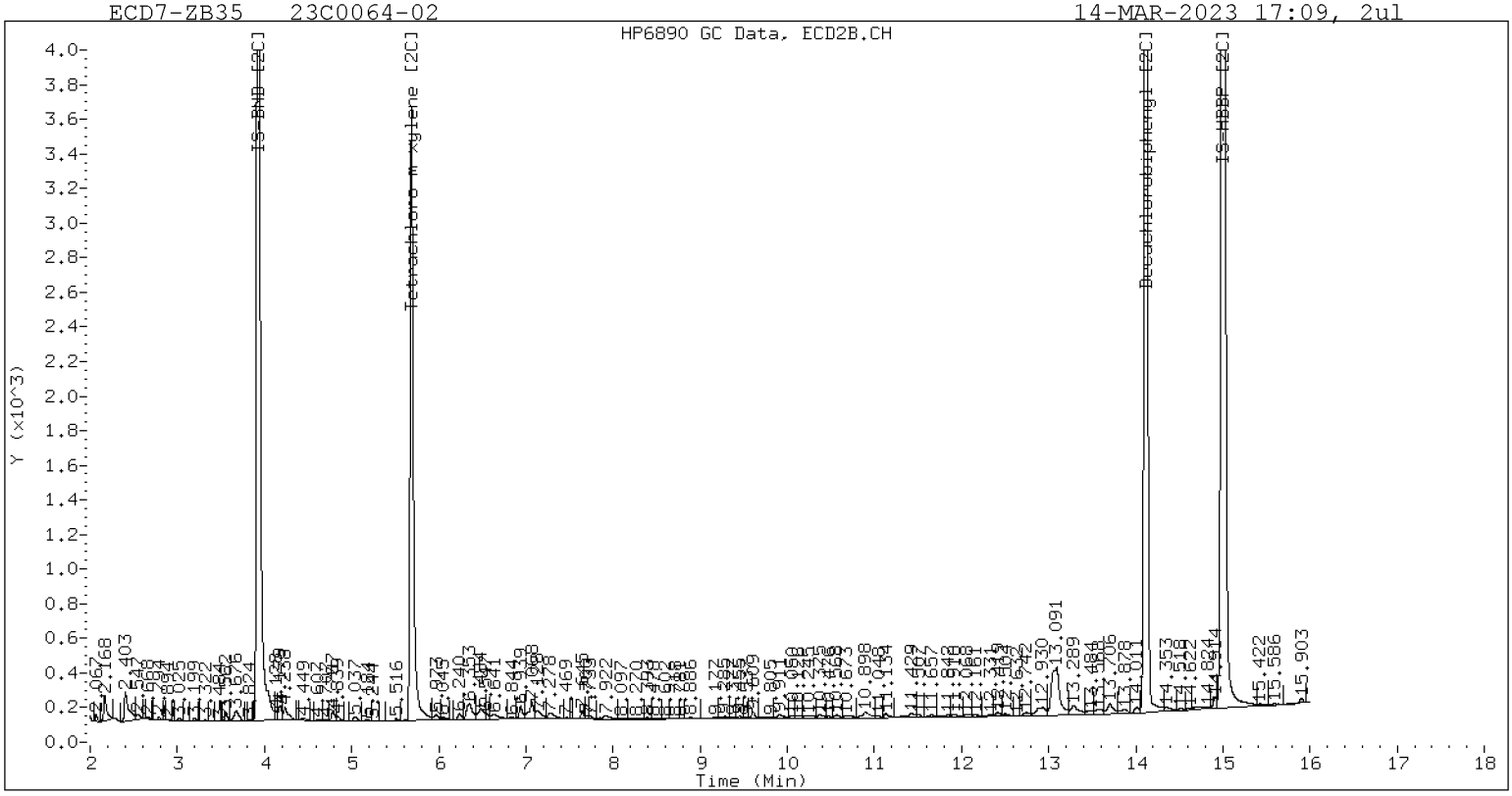
PCB Dual Column Chromatograms

ECD7-ZB5 23C0064-02 14-MAR-2023 17:09, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23C0064-02 14-MAR-2023 17:09, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-31_1-2

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23C0064
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23C0064-03 A	File ID:	03142324ECD7.D
Sampled:	01/27/23 11:40	Prepared:	03/07/23 13:30	Analyzed:	03/14/23 17:30
% Solids:	77.49	Preparation:	EPA 3546 (Microwave)	Initial/Final:	16.16 g Wet / 2.5 mL
Batch:	BLC0124	Sequence:	SLC0203	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9857*	*7.45*	*93.3*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9857*	*6.50*	*81.4*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142324ECD7.D
Data file 2: /230314.b/230314.b/03142324ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23C0064-03
Client ID:
Injection Date: 14-MAR-2023 17:30
Report Date: 03/15/2023 09:06
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.001	233947	5.689	0.000	175582	32.6	31.3	4.0	Tetrachloro-m-xylene
13.892	-0.003	302680	14.119	0.000	323606	37.3	36.6	1.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	481099	-28.6
Hexabromobiphenyl	1429847	823676	-42.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	382288	21.3
Hexabromobiphenyl	513946	580430	12.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.907 - 13.795) = 785335 Col1 Total PCB = 0.1 ppm*

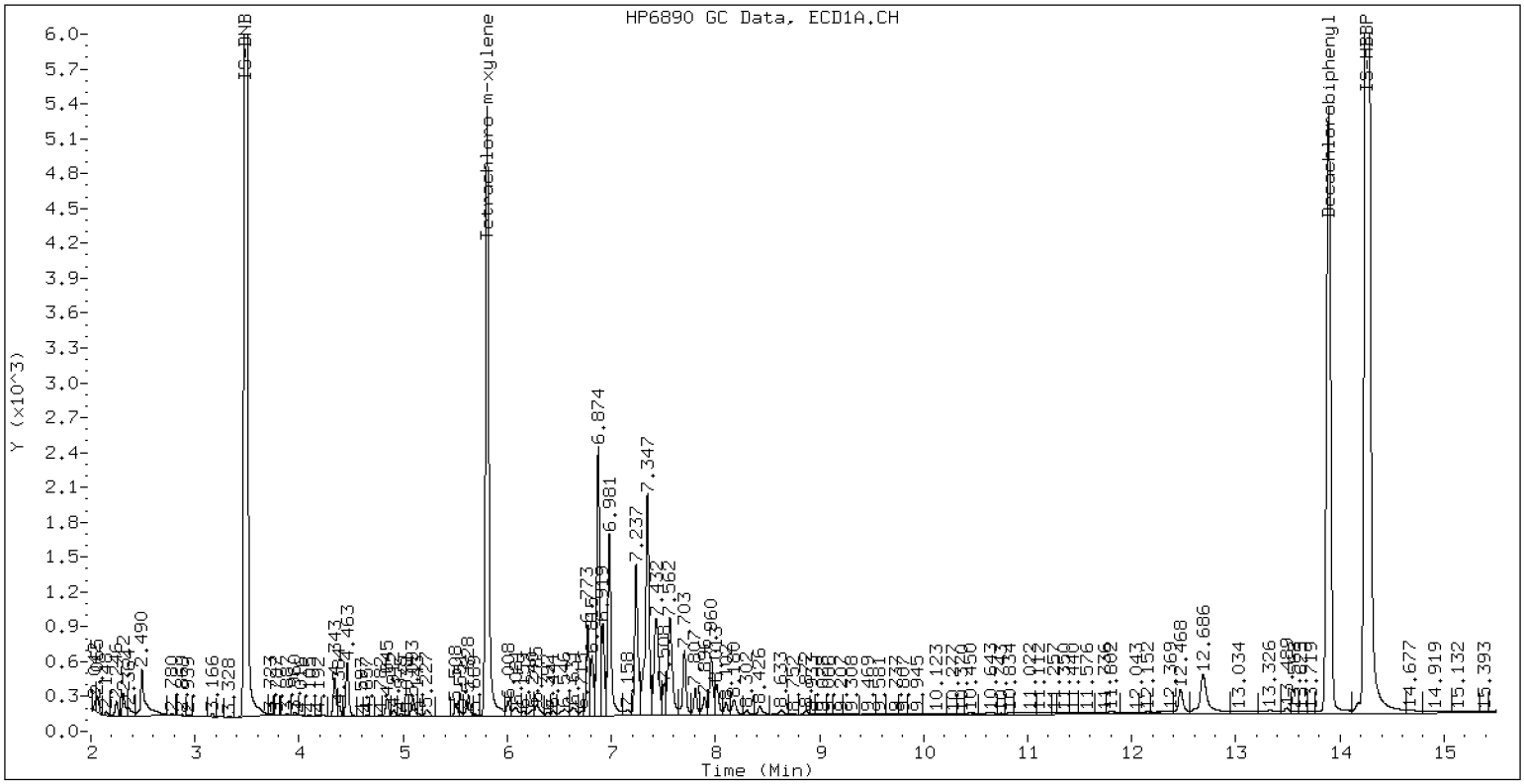
Total PCB Area Col2 (5.788 - 14.019) = 525274 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

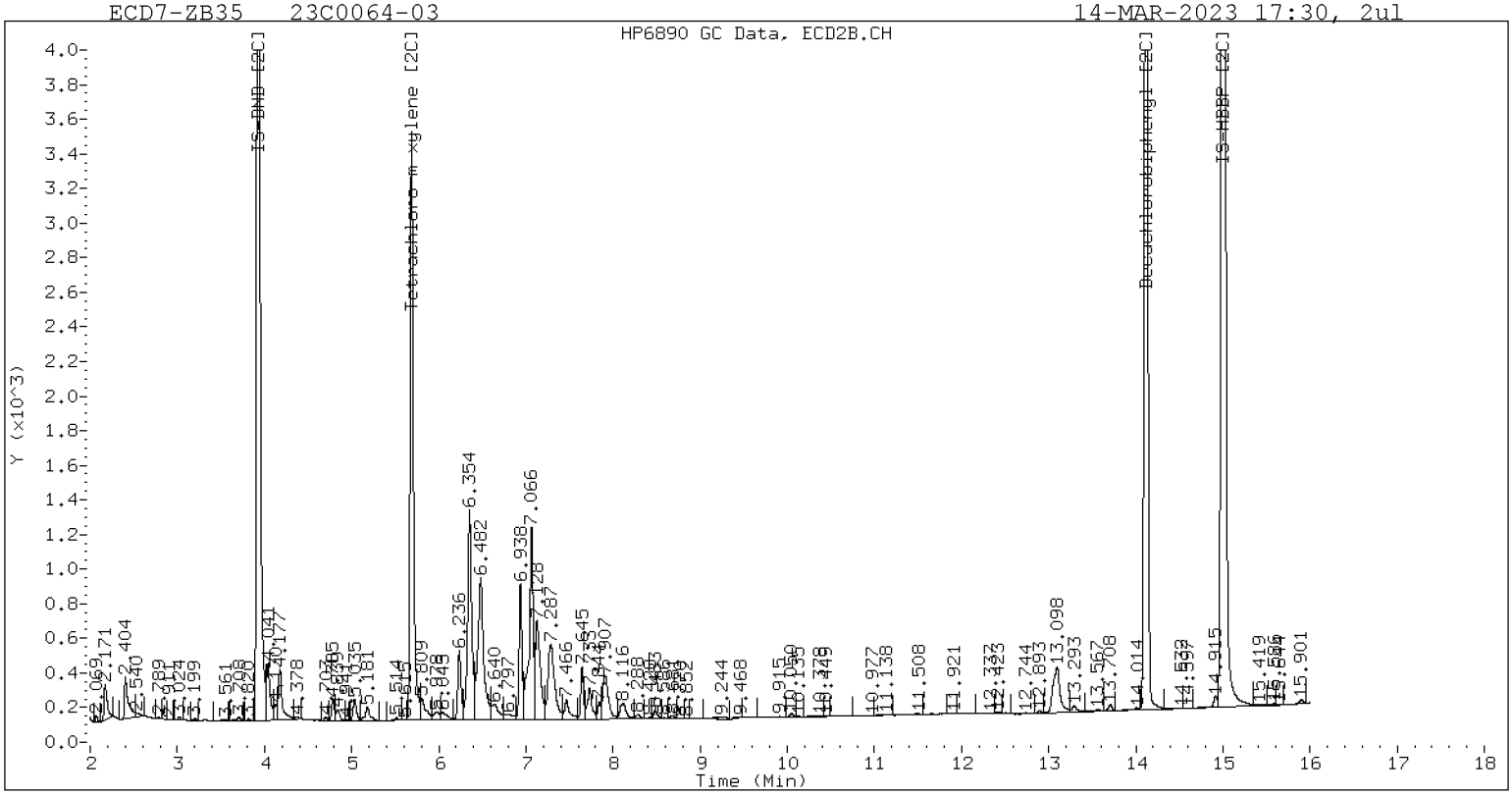
PCB Dual Column Chromatograms

ECD7-ZB5 23C0064-03 14-MAR-2023 17:30, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23C0064-03 14-MAR-2023 17:30, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

Dual Column

LY-32_0-10

ORGANIC ANALYSIS DATA SHEET
EPA 8082A

Laboratory:	Analytical Resources, LLC			SDG:	23C0064
Client:	GeoEngineers				
Project:	Anacortes Log Yard				
Matrix:	Solid	Laboratory ID:	23C0064-04 A	File ID:	03142325ECD7.D
Sampled:	01/26/23 09:40	Prepared:	03/07/23 13:30	Analyzed:	03/14/23 17:51
% Solids:	77.93	Preparation:	EPA 3546 (Microwave)	Initial/Final:	16.12 g Wet / 2.5 mL
Batch:	BLC0124	Sequence:	SLC0203	Calibration:	GB00069
Instrument:	ECD7	Column 1:	ZB5	Column 2:	ZB35

CAS NO.	COMPOUND	Col #	DILUTION	CONC. (ug/kg dry)	MDL	MRL	Q
12674-11-2	Aroclor 1016	1	1	4.0	1.6	4.0	U
11104-28-2	Aroclor 1221	1	1	4.0	1.6	4.0	U
11141-16-5	Aroclor 1232	1	1	4.0	1.6	4.0	U
53469-21-9	Aroclor 1242	1	1	4.0	1.6	4.0	U
12672-29-6	Aroclor 1248	1	1	4.0	1.6	4.0	U
11097-69-1	Aroclor 1254	1	1	4.0	1.6	4.0	U
11096-82-5	Aroclor 1260	1	1	4.0	0.6	4.0	U
37324-23-5	Aroclor 1262	1	1	4.0	0.6	4.0	U
11100-14-4	Aroclor 1268	1	1	4.0	0.6	4.0	U

SURROGATES	Col #	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC	QC LIMITS	Q
Decachlorobiphenyl	*1*	*7.9603*	*6.84*	*85.9*	*40 - 126*	
Tetrachlorometaxylene	*1*	*7.9603*	*6.37*	*80.0*	*44 - 120*	

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142325ECD7.D
Data file 2: /230314.b/230314.b/03142325ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 23C0064-04
Client ID:
Injection Date: 14-MAR-2023 17:51
Report Date: 03/15/2023 09:06
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	228716	5.687	-0.001	178716	32.0	31.0	3.3	Tetrachloro-m-xylene
13.891	-0.004	268048	14.117	-0.002	310199	34.3	34.0	1.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	478718	-29.0
Hexabromobiphenyl	1429847	792387	-44.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	393470	24.8
Hexabromobiphenyl	513946	599094	16.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	ZB5 Col Shift	Area	Amount	Peak#	RT	ZB35 Col Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.907 - 13.795) = 157936 Col1 Total PCB = 0.0 ppm*

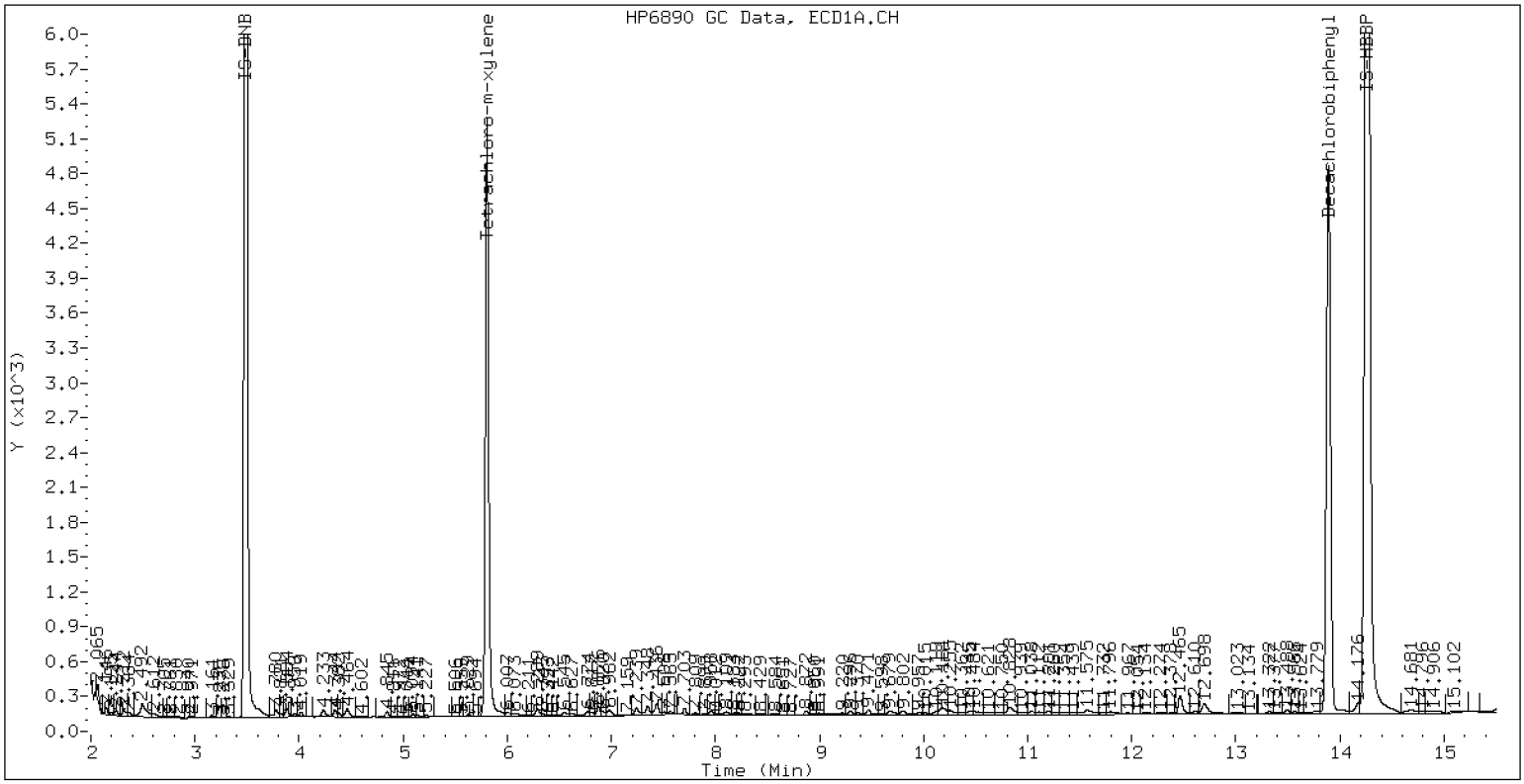
Total PCB Area Col2 (5.788 - 14.019) = 105739 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

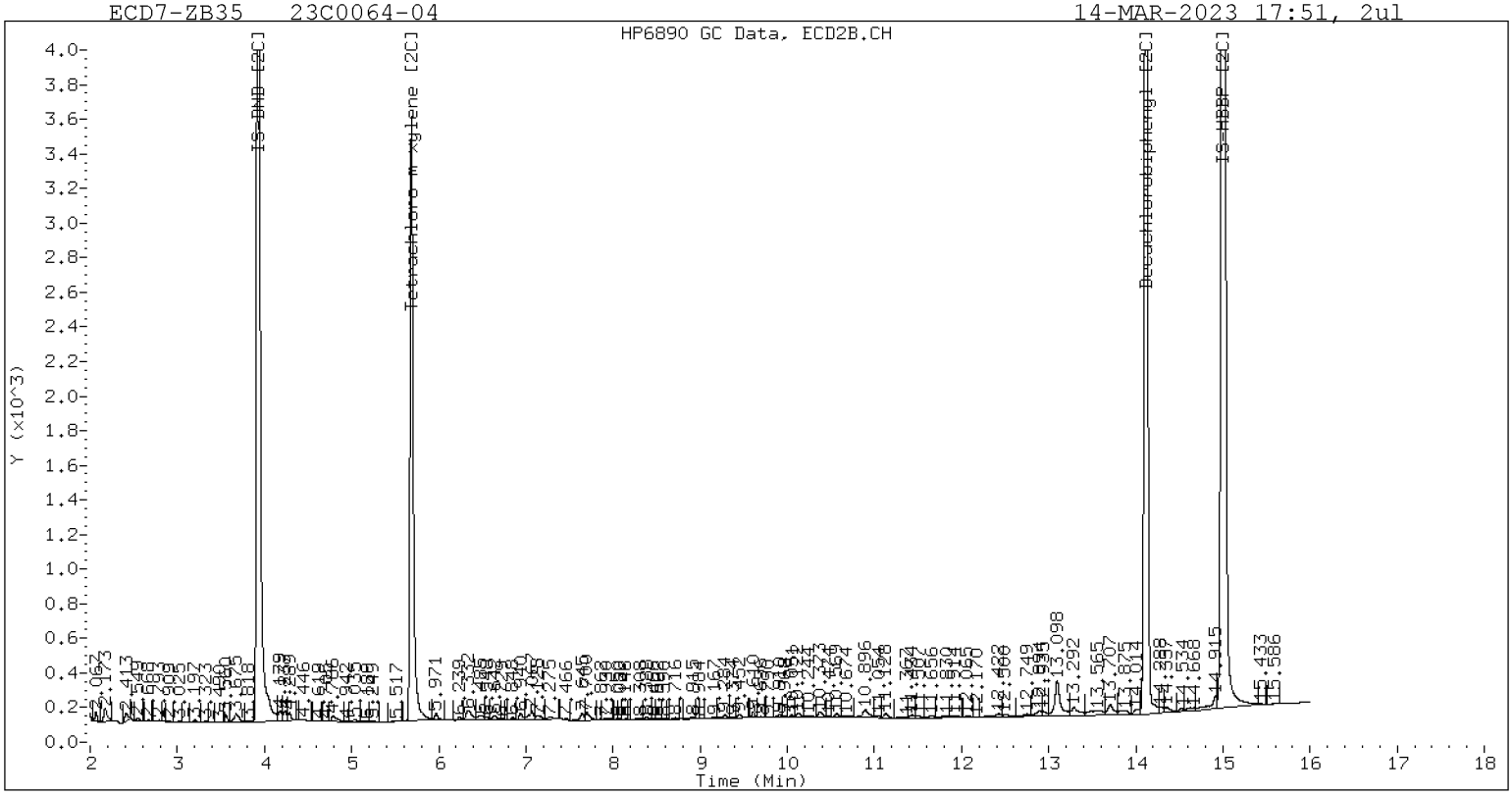
PCB Dual Column Chromatograms

ECD7-ZB5 23C0064-04 14-MAR-2023 17:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 23C0064-04 14-MAR-2023 17:51, 2ul



ZB-35 Manual Integration: NO

PREPARATION BATCH SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC SDG: 23C0064

Client: GeoEngineers Project: Anacortes Log Yard

Batch: BLC0124 Batch Matrix: Solid Preparation: EPA 3546 (Microwave)

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-28_2-3	23C0064-01	03142322ECD7.D	03/07/23 13:30	
LY-31_0-10	23C0064-02	03142323ECD7.D	03/07/23 13:30	
LY-31_1-2	23C0064-03	03142324ECD7.D	03/07/23 13:30	
LY-32_0-10	23C0064-04	03142325ECD7.D	03/07/23 13:30	
Blank	BLC0124-BLK1	03142318ECD7.D	03/07/23 13:30	
LCS	BLC0124-BS1	03142319ECD7.D	03/07/23 13:30	
LCS Dup	BLC0124-BSD1	03142320ECD7.D	03/07/23 13:30	
Reference	BLC0124-SRM1	03142321ECD7.D	03/07/23 13:30	

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLC0124

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid (Version:7 Aroclors)
8082A PCB Solid 4 in Solid

Matrix: Solid **Date Prepared:** 03/07/23 **Balance ID:** B1464626 14 **Set Up By:** GO 3/6/23

WO Comments

23C0064: Copy/Relog from 23A0626. Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

23C0071: <C>BPR SRM, MS, DUP </C> <M>BPR PS, MS/MSD </M> <E>BPR 8270E RM K000591, SIM PAH RM I009127 PCB RM J006840-43, 7935-36,K011477-79, MS/MSD </E>
<H>BPR J006840-43, 7935-36, K011477-79, Dup </H> Store in freezer (except GS)

The following standards may be missing from this batch!

Designator	Description
QLS 5	QLS Spike

Analysis: 8082A PCB Solid 4

Lab Number & Container	% Solids	Initial (g) Target Dry: 12.5 (Wet)	Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
23C0064-01 A	79.7	(15.69)	15.75	5mL	5mL	2mL	2.5	1.0	
23C0064-02 A	76.5	(16.35)	16.39	5mL	5mL	2mL	2.5	1.0	
23C0064-03 A	77.5	(16.13)	16.16	5mL	5mL	2mL	2.5	1.0	
23C0064-04 A	77.9	(16.04)	16.12	5mL	5mL	2mL	2.5	1.0	
23C0071-01 A	46.2	(27.03)	27.11	5mL	5mL	2mL	2.5	1.0	
23C0071-02 A	50.8	(24.63)	24.74	5mL	5mL	2mL	2.5	1.0	
23C0071-03 A	47.6	(26.28)	26.35	5mL	5mL	2mL	2.5	1.0	
23C0071-04 A	47.8	(26.16)	26.21	5mL	5mL	2mL	2.5	1.0	
23C0071-05 A	50.0	(25.00)	25.04	5mL	5mL	2mL	2.5	1.0	
23C0071-06 A	50.4	(24.79)	24.84	5mL	5mL	2mL	2.5	1.0	
23C0071-08 A	55.5	(22.53)	22.61	5mL	5mL	2mL	2.5	1.0	
23C0071-09 A	51.4	(24.32)	24.44	5mL	5mL	2mL	2.5	1.0	
23C0071-10 A	58.7	(21.31)	21.32	5mL	5mL	2mL	2.5	1.0	

Batch QC

Lab Number	% Solids	Initial (g) Target Dry: 12.5 (Wet)	Actual	(REQ) Acid C/U (5mL)	(REQ) Sulfur C/U (5mL) 1 2 3	(REQ) Silica Gel C/U (2:5)	Final Effective Vol (mL)	Vol (mL) to Lab	Extraction Comments
BLC0124-BLK1	100.0	(12.50)	12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLC0124-BS1	100.0	(12.50)	12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLC0124-BSD1	100.0	(12.50)	12.50	5mL	5mL	2mL	2.5	1.0	(10g Actual Wt.)
BLC0124-MS1	58.7	(21.31)	21.31	5mL	5mL	2mL	2.5	1.0	Use 23C0071-10
BLC0124-MSD1	58.7	(21.31)	21.31	5mL	5mL	2mL	2.5	1.0	Use 23C0071-10
BLC0124-SRM1	100.0	~~(12.50)~~ (2.50)	2.54	5mL	5mL	2mL	2.5	1.0	Use K003527

+1g DI WATER

Client ID Verified By 03/07/23 Date

LJ 3/14/23
Preparation Reviewed By Date

03/07/23 15:34
Extraction Date and Time

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLC0124

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid (Version:7 Aroclors)
8082A PCB Solid 4 in Solid

WO Comments

23C0064: Copy/Relog from 23A0626. Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

23C0071: <C>BPR SRM, MS, DUP </C> <M>BPR PS, MS/MSD </M> <E>BPR 8270E RM K000591, SIM PAH RM I009127 PCB RM J006840-43, 7935-36,K011477-79, MS/MSD </E>
<H>BPR J006840-43, 7935-36, K011477-79, Dup </H> Store in freezer (except GS)

Prep Steps

Microwave
1 2 3
CT 03/07/23
Analyst/Date

KD
100°C
Hexane Exchange
(2 X 20 mL)
1 2 3 4 (5) 6
LD 3-8
Analyst/Date

TurboVap
Pre Cleanups
1 2 (3) (4) 5
LJ 3/14/23
Analyst/Date

TurboVap
Post Cleanups
1 2 (3) 4 5
LJ 3/14/23
Analyst/Date

Vialing
LJ 3/14/23
Analyst/Date

Reagents Used

Station/Reagent	Standard ID
Microwave Analyst: CT/ Date:	03/07/23
Neutral Glass Wool	L000497
1:1 Hexane/Acetone	L001751
Hexane	L001957
Anhydrous Sodium Sulfate	L002114
KD Analyst: LD Date:	3-8-23
Anhydrous Sodium Sulfate	
Hexane	L000889
Vialing Analyst: LJ Date:	3/14/23
Hexane	L000889
Concentrated Sulfuric Acid	L000331
Silica Gel (SPE) Darts	L002256
Sodium Sulfite	L002437
Tetrabutylammonium hydrogensulfate (TBAS)	L002438

Surrogates & Spike Standards Used

Type	Vial ID / Standard ID	Vol uL	Analyst	Witness
Surrogate N 2µg/mL	L000773 ✓ Exp Date: 7/21/2023	50µL	CT	✓
Spike 1 20µg/mL	L001587 ✓ Exp Date: 8/13/2023	63µL	CT	✓

MANUALLY ENTER EXPIRATION DATES!

(V) indicates a virtual standard combining two or more physical standards. In these cases the Standard ID refers to the virtual standard, not the parent standards.

If a Standard ID is missing, but should be present, check the standard definition in Element LIMS to be sure Standard Info 6 has the correct letter or number designator matching the vial designator inthe Standard ID column. If it is correct, check the batch and bench sheet in Element LIMS to be sure the correct standards are selected for surrogate(s) and spike(s).

Analytical Resources, LLC
Analytical Chemists and Consultants

ORGANICS PREPARATION BENCH SHEET

Batch: BLC0124

Prepared using: EPA 3546 (Microwave)

8082A PCB Solid 4 in Solid (Version:7 Aroclors)
8082A PCB Solid 4 in Solid

WO Comments

23C0064: Copy/Relog from 23A0626. Matrix QC with <6 samples full analysis fee. 7-12 sample 1/2 analysis fee. SRM full analysis fee. Level IV

23C0071: <C>BPR SRM, MS, DUP </C> <M>BPR PS, MS/MSD </M> <E>BPR 8270E RM K000591, SIM PAH RM I009127 PCB RM J006840-43, 7935-36,K011477-79, MS/MSD </E>
<H>BPR J006840-43, 7935-36, K011477-79, Dup </H> Store in freezer (except GS)

Prep Instructions	
SPECIAL INSTRUCTIONS: 1. Weigh soil/sed into beakers-lightly dry with sodium sulfate. 2. Transfer to microwave vessel(s). Note: (do not fill vessels more than 2/3rd full. Some samples may require two vessels). 3. Add 1:1 Hexane/Acetone until the solvent layer is 3 inches above the soil layer after homogenization. 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-Re-homogenize while hot then cool vessels in R-05 15 minutes. Re-homogenize while cool. 7. Decant 1:1 Hex/Ace into Erlenmeyer flask with sodium sulfate in bottom and funnel with neutral glasswool plug. 8. Re-homogenize and rinse with 1:1 Hexane/Acetone. 9. Let cool and decant solvent then empty the soil into the funnel and rinse with Hexane. 10. KD on 100° bath. 11. Exchange (2 X with 20mL) Hexane. 12. TurboVap. 13. Clean-ups. 14. TurboVap. 15. Vial with Hexane. A. Need Total Solids Y/ N B. Archive/Freeze Y/ N	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: PAH Extraction Batch: BLC0124

Total Solids Batch: BLC0084 Work Order(s): 23C0064

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
[X] No Anomalies (standard soil/wet sediment/sand/gravel)= Φ1, Φ3.	M Φ3/Φ3/23
[X] Standing Water Decanted (Not shared)= Φ1, Φ3, Φ4.	M Φ3/Φ3/23
[ ] Standing Water Homogenized (Shared samples)=	
[ ] Clay/Clumps (Difficult to homogenize)=	
[ ] Rocks (%+size)?	
[ ] Organics (Leaves/sticks/grass)=	
[ ] Oily, obvious fuel/sulfur odors=	
[ ] Received in 32oz jar(s)=Homogenized in Pyrex dish=	
[ ] Previously Frozen =	
[X] Other (Details)= shell pieces 70.1% =Φ2. 40.1% =Φ4.	M Φ3/Φ3/23
Aqueous:	
[ ] No Anomalies	
[ ] Turbid/Color=	
[ ] Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
[ ] Emulsions (%)=	
[ ] Oily, obvious fuel/sulfur odors=	
[ ] Other (Details)=	
[ ] Received in 1.0L Bottle(s)=No Bottle Rinse=	
[ ] Other Notes/Comments= (Note problems, concerns, corrective actions).	
small amount of 064-01 lost while vortexing during sulfur C/U	
[X] Share Samples Y / (N)	M Φ3/Φ3/23
[X] Multiple Jars Y / (N)	M Φ3/Φ3/23
[ ] Sample Pre-Screens indicate analyte activity=	
[ ] Sample weights/volumes reduced based on Pre-Screen=	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: PCB Extraction Batch: BLC0124

Total Solids Batch: BLC0085 Work Order(s): 23C0071

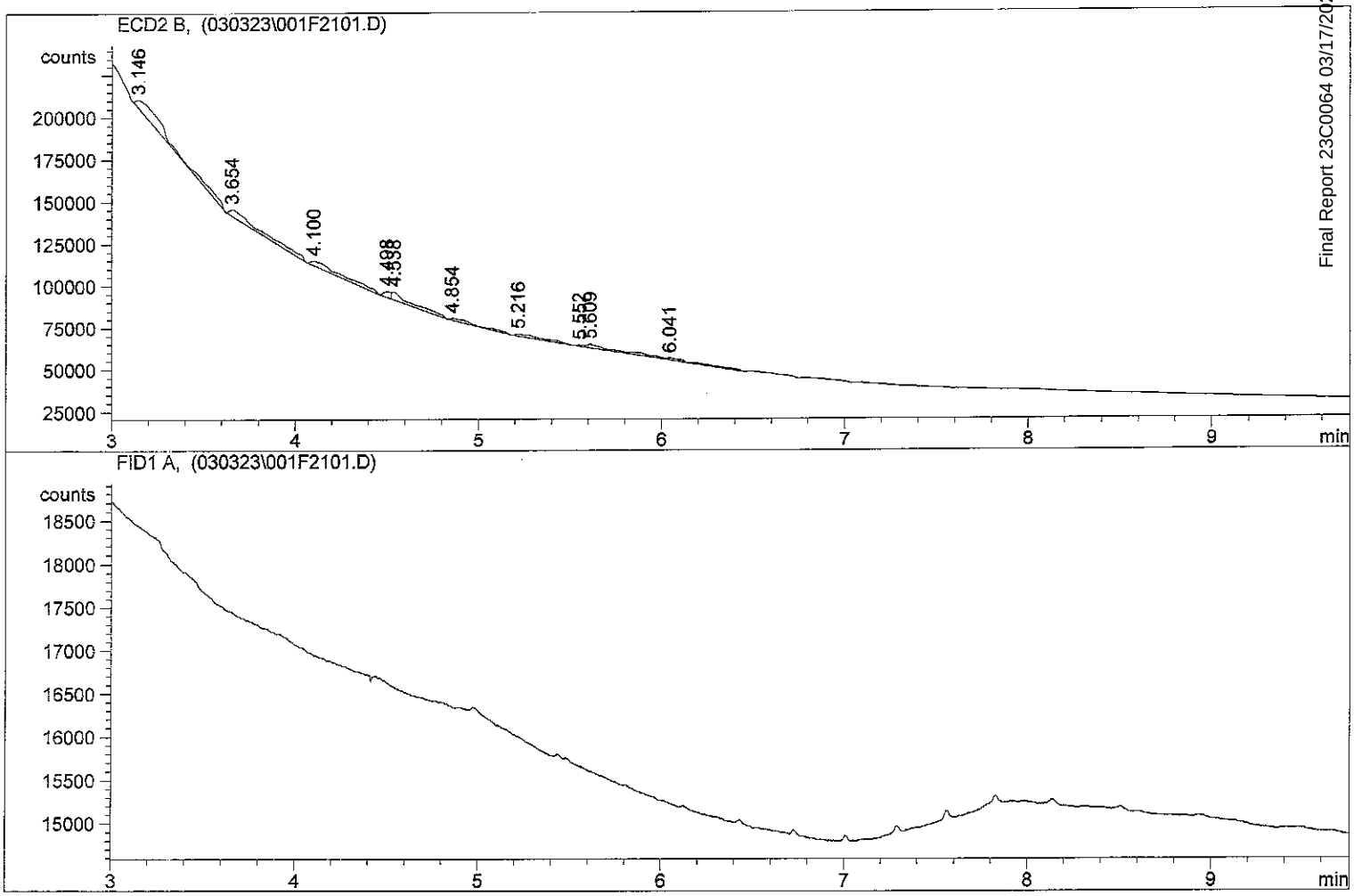
Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= 01-06, 08-10	CR 3/31/23
☒ Standing Water Decanted (Not shared)= 01-06, 08-10	CR 3/31/23
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Received in 32oz jar(s)=Homogenized in Pyrex dish=	
☒ Previously Frozen = 01-06, 08-10	CR 3/31/23
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
☐ Received in 1.0L Bottle(s)=No Bottle Rinse=	
☐ Other Notes/Comments= (Note problems, concerns, corrective actions).	
☒ Share Samples (Y) / N 01-06, 08-10	CR 3/31/23
☒ Multiple Jars Y / (N)	CR 3/31/23
☐ Sample Pre-Screens indicate analyte activity=	
☐ Sample weights/volumes reduced based on Pre-Screen=	

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Injection Date : 3/3/2023 10:08:56 PM Seq. Line : 21
Sample Name : DCM RINSE Location : Vial 1
Acq. Operator : CR Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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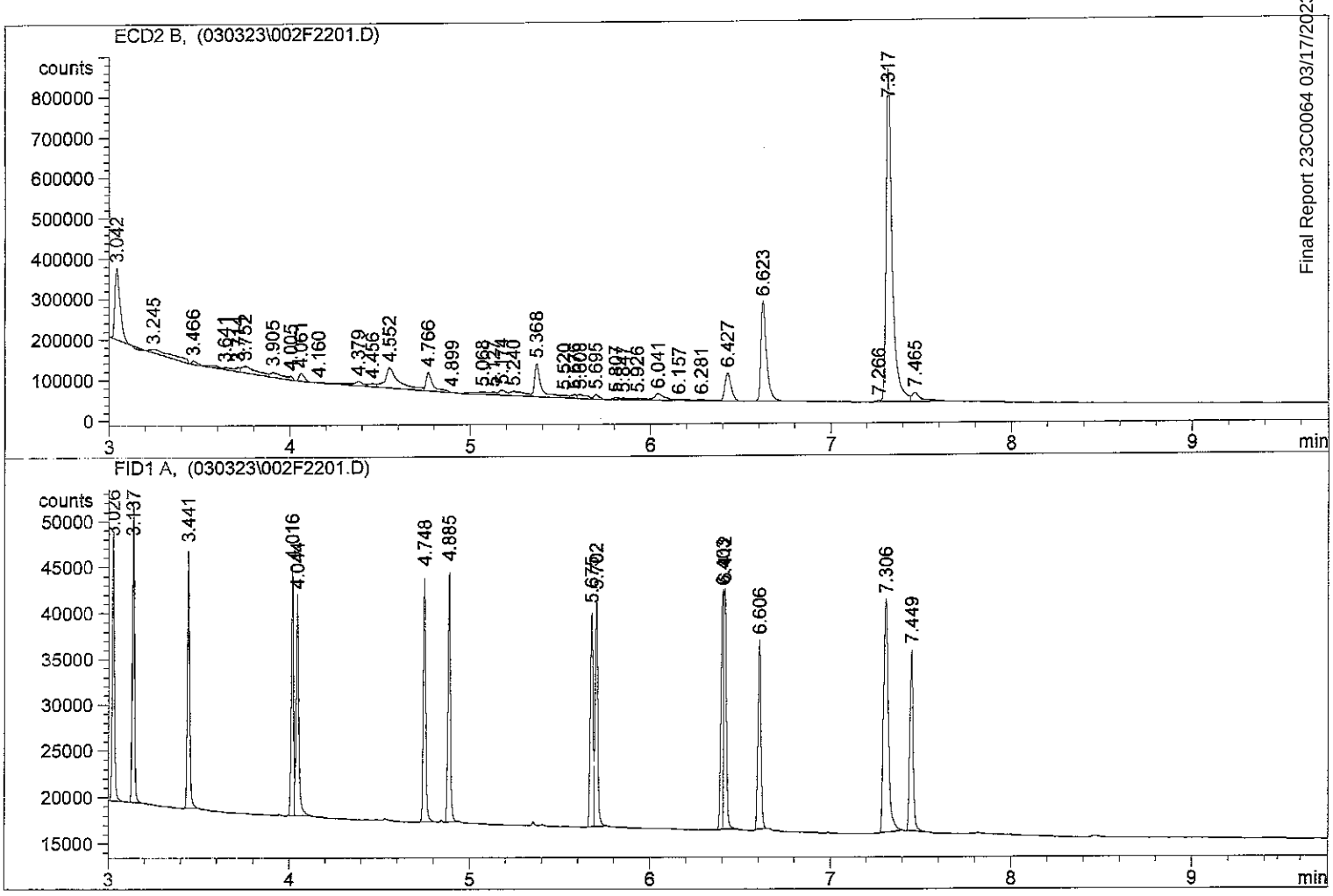
*** End of Report ***

Injection Date : 3/3/2023 10:22:56 PM
Sample Name : PNA STD 10PPM
Acq. Operator : CR

Seq. Line : 22
Location : Vial 2
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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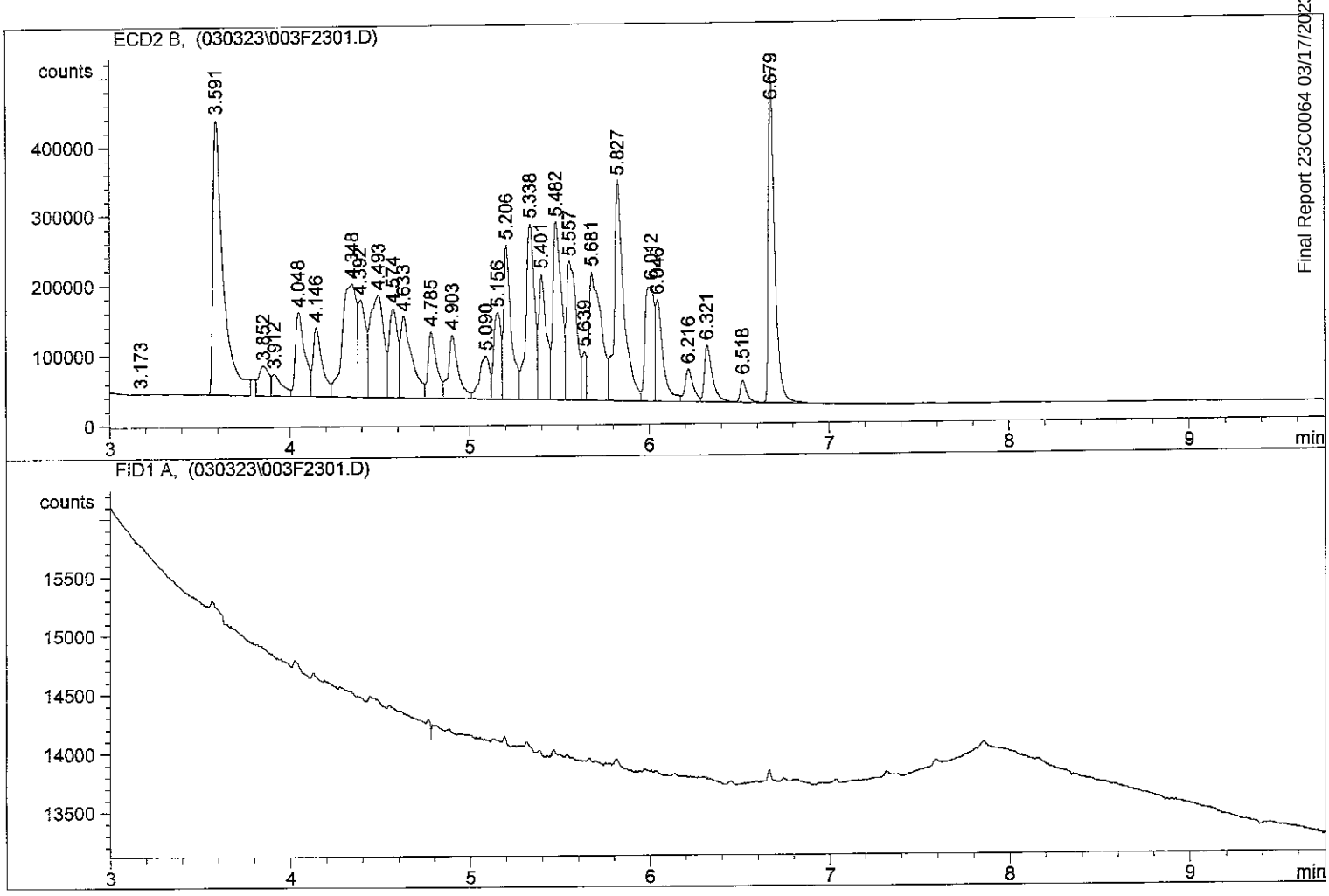
*** End of Report ***

Injection Date : 3/3/2023 10:37:16 PM
Sample Name : AR1660 1PPM
Acq. Operator : CR

Seq. Line : 23
Location : Vial 3
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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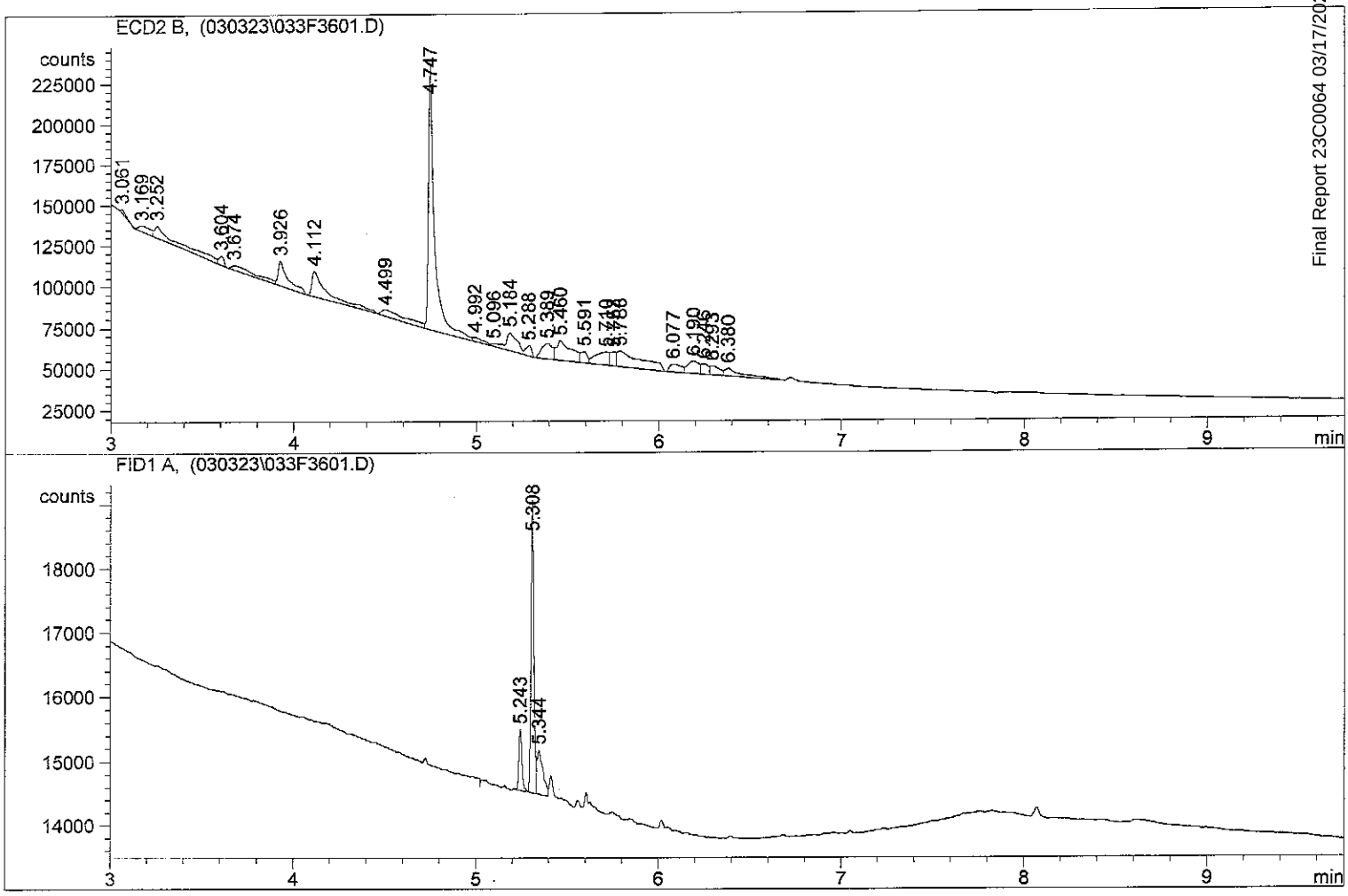
*** End of Report ***

Injection Date : 3/4/2023 1:41:42 AM
Sample Name : 23C0064 01
Acq. Operator : CR

Seq. Line : 36
Location : Vial 33
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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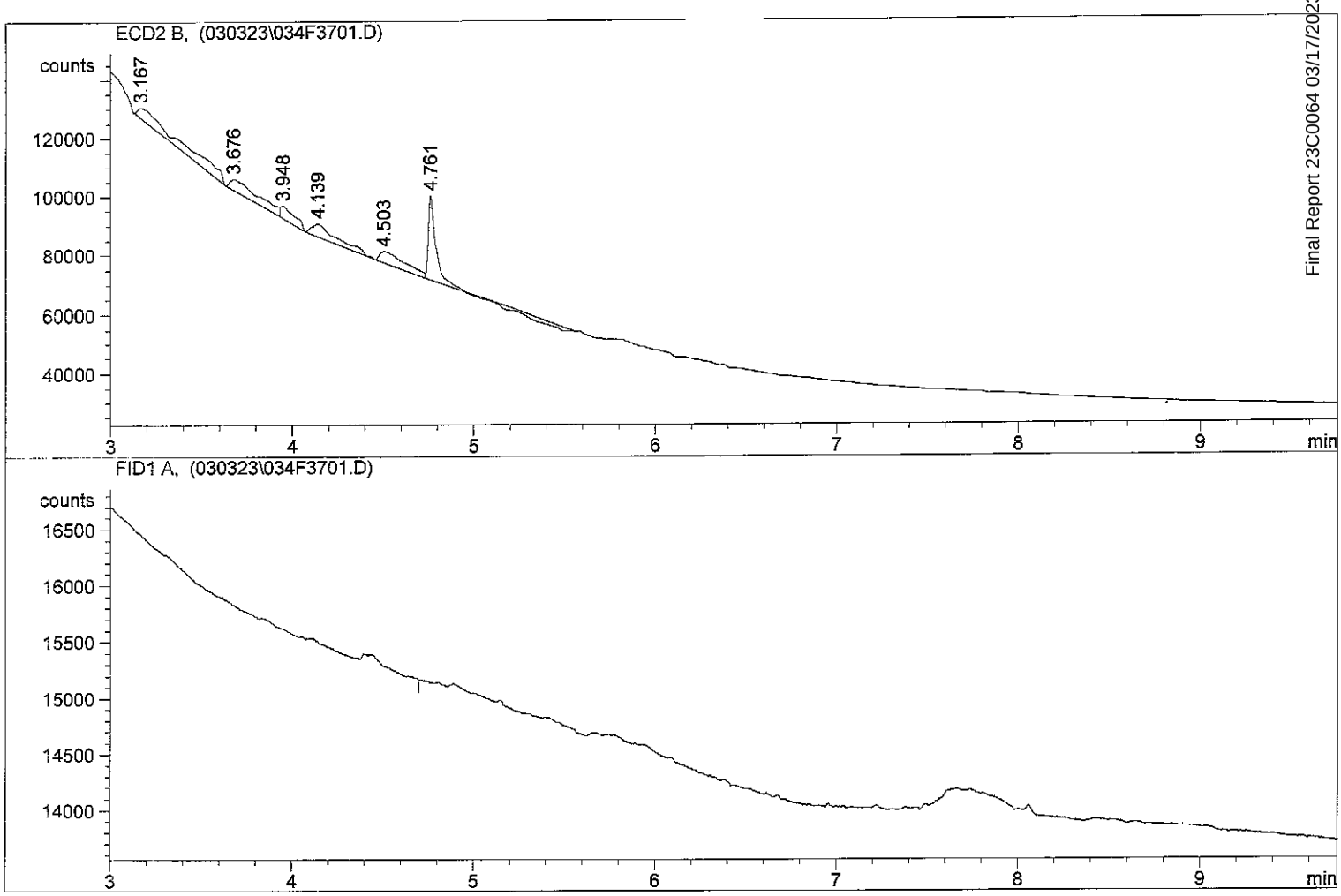
*** End of Report ***

Injection Date : 3/4/2023 1:55:40 AM
Sample Name : 23C0064 02
Acq. Operator : CR

Seq. Line : 37
Location : Vial 34
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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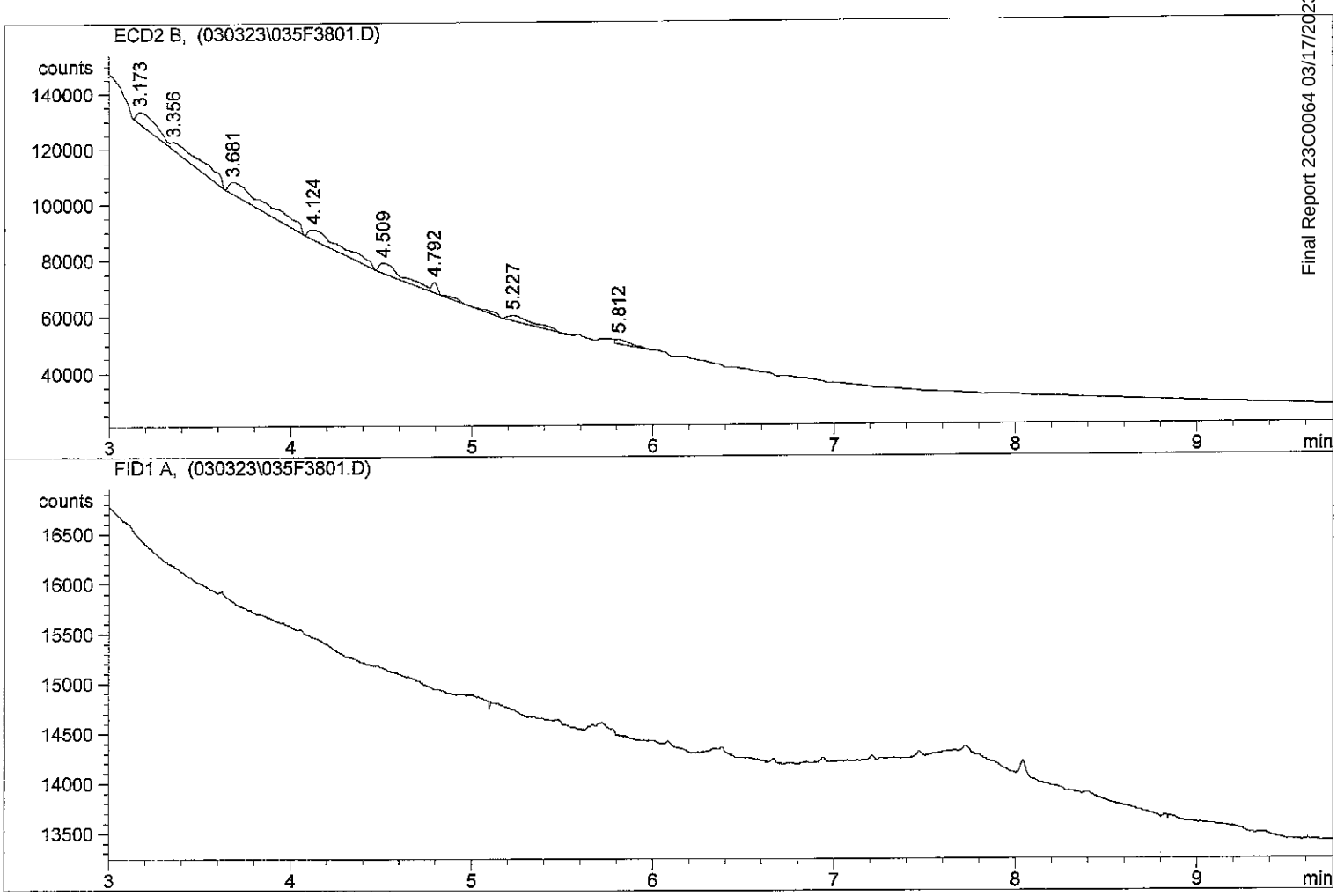
*** End of Report ***

Injection Date : 3/4/2023 2:09:55 AM
Sample Name : 23C0064 03
Acq. Operator : CR

Seq. Line : 38
Location : Vial 35
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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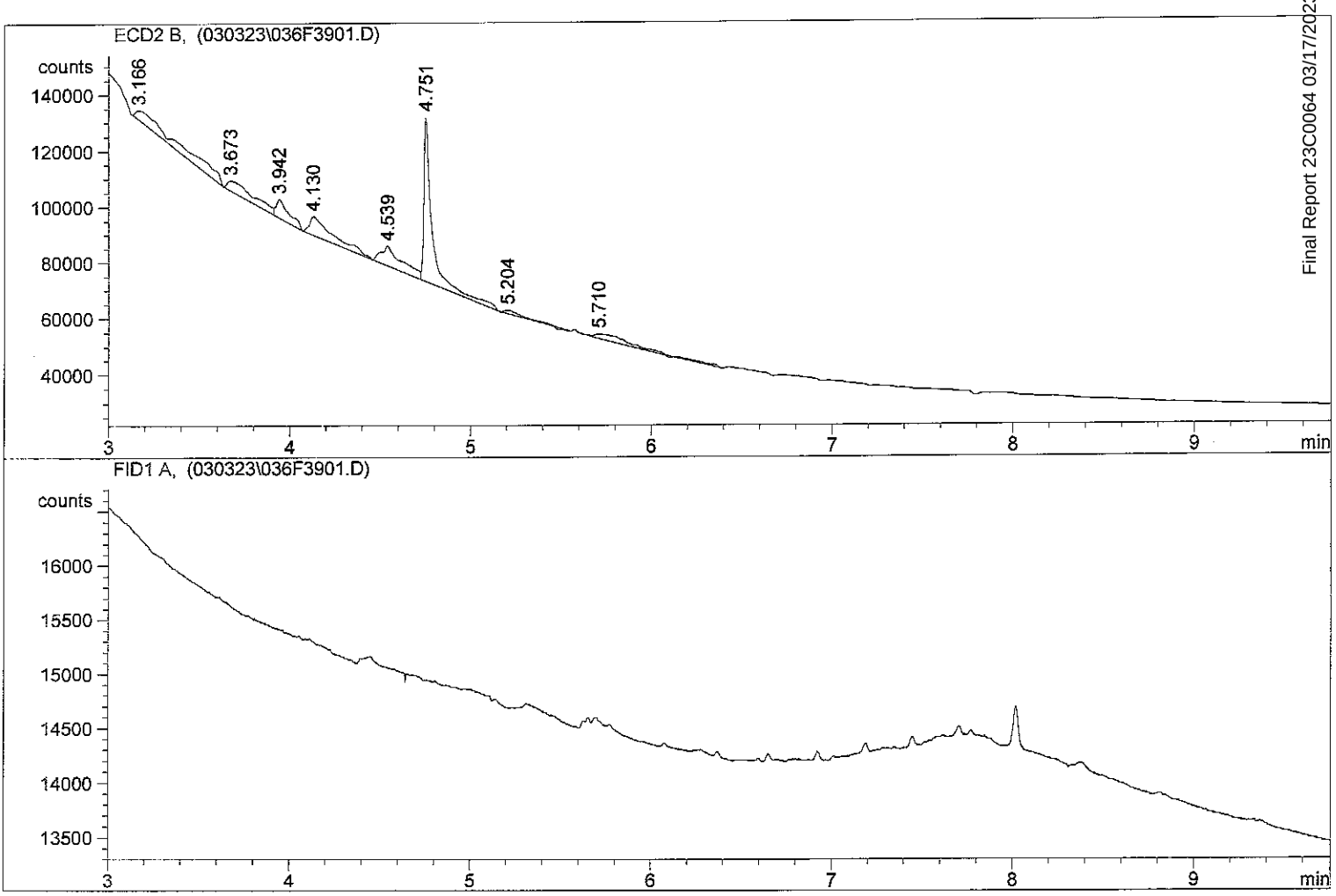
*** End of Report ***

Injection Date : 3/4/2023 2:23:55 AM
Sample Name : 23C0064 04
Acq. Operator : CR

Seq. Line : 39
Location : Vial 36
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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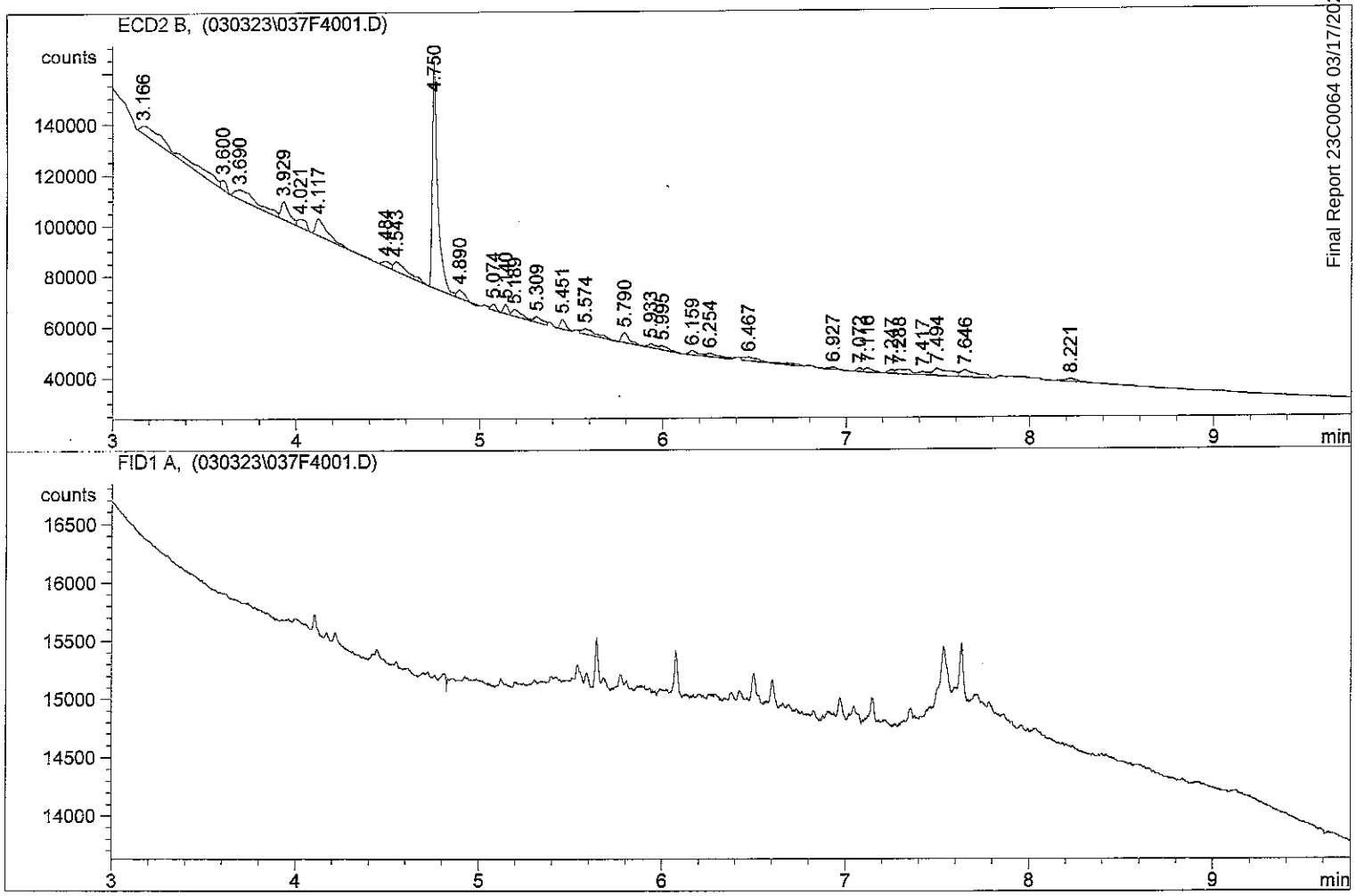
*** End of Report ***

Injection Date : 3/4/2023 2:38:09 AM
Sample Name : 23C0071 01
Acq. Operator : CR

Seq. Line : 40
Location : Vial 37
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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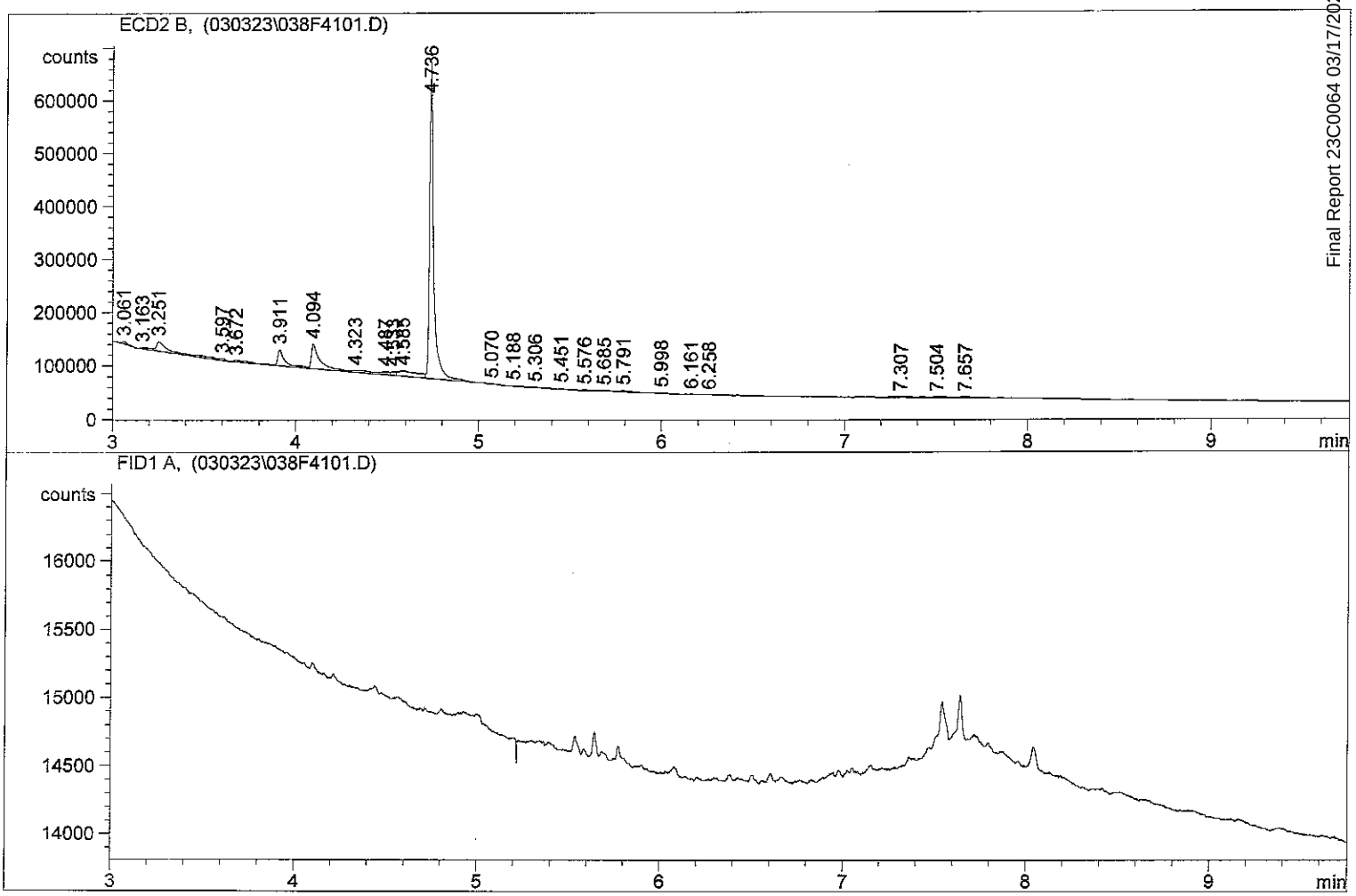


*** End of Report ***

Injection Date : 3/4/2023 2:52:11 AM Seq. Line : 41
Sample Name : 23C0071 02 Location : Vial 38
Acq. Operator : CR Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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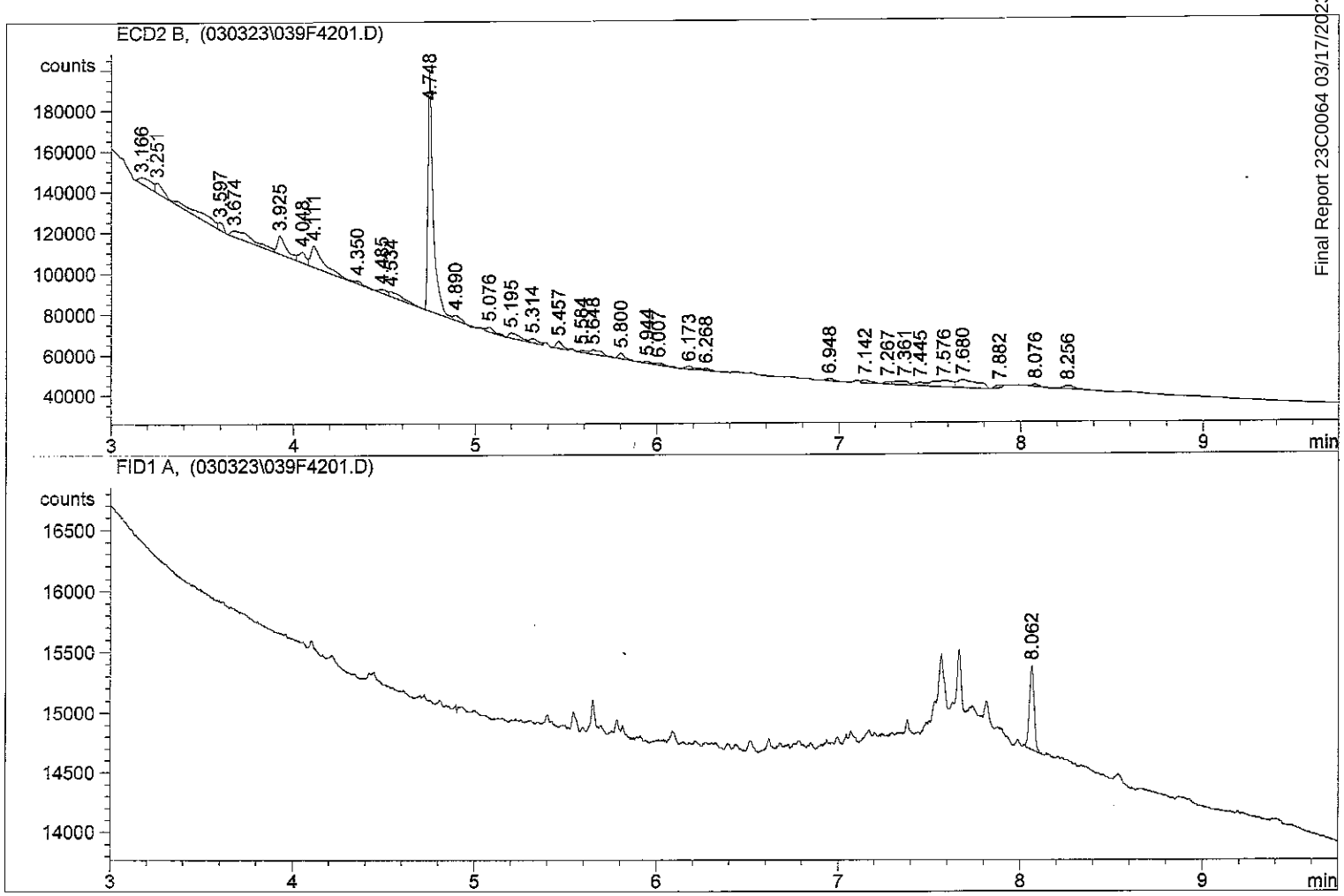
*** End of Report ***

Injection Date : 3/4/2023 3:06:30 AM
Sample Name : 23C0071 03
Acq. Operator : CR

Seq. Line : 42
Location : Vial 39
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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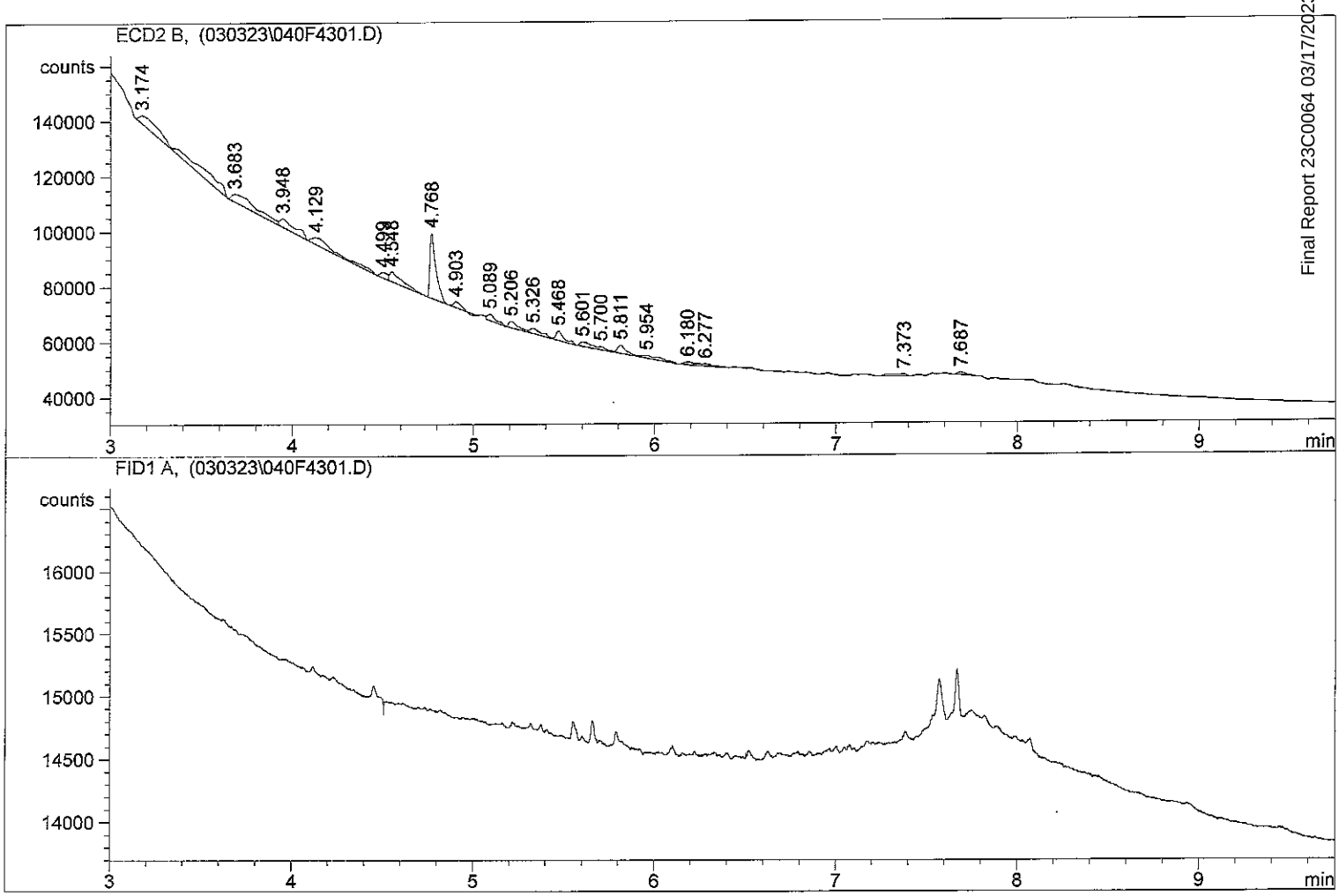
*** End of Report ***

Injection Date : 3/4/2023 3:20:28 AM
Sample Name : 23C0071 04
Acq. Operator : CR

Seq. Line : 43
Location : Vial 40
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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*** End of Report ***

Data File C:\HPCHEM\1\DATA\030323\001F4401.D

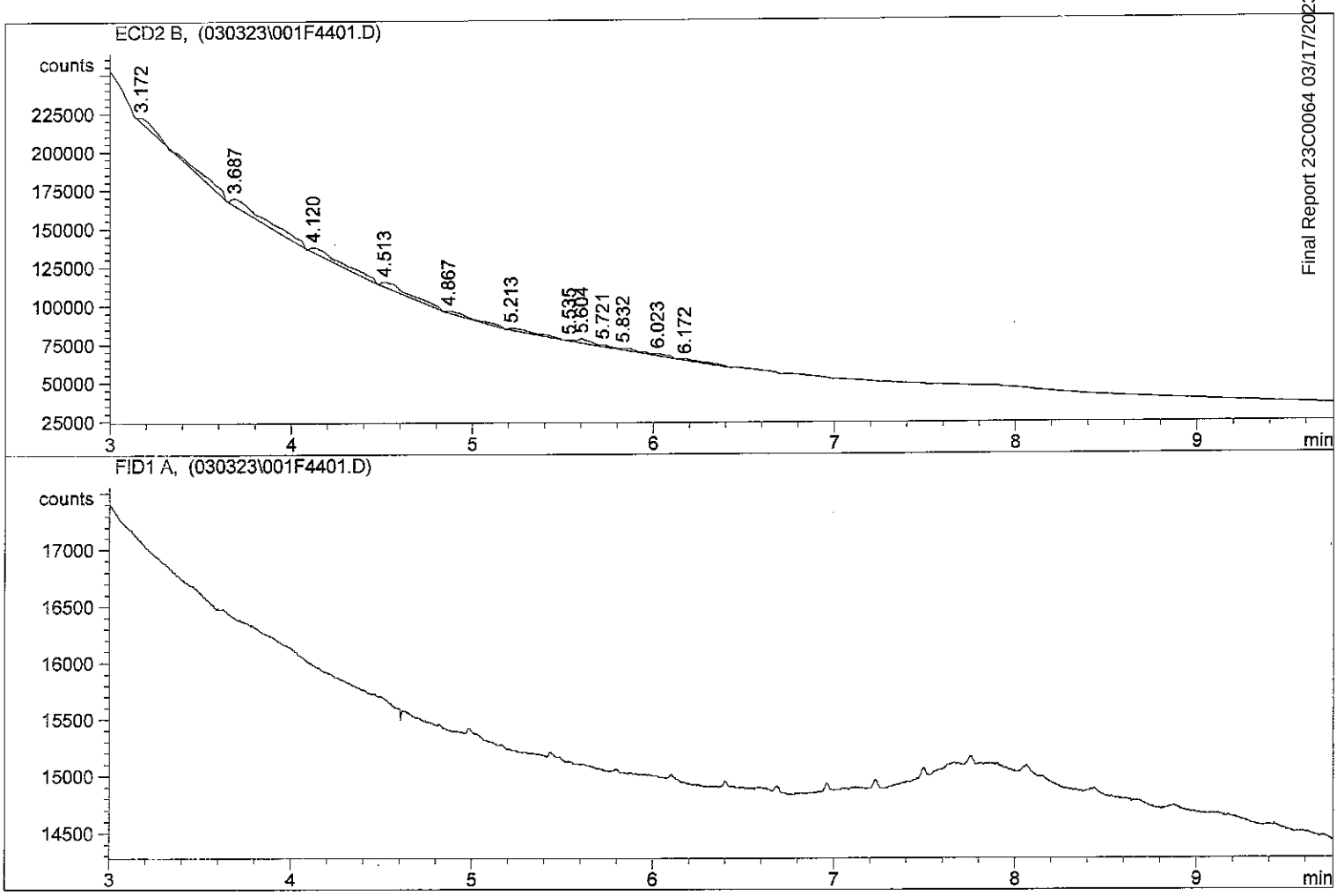
Sample Name: DCM RINSE

Injection Date : 3/4/2023 3:34:45 AM
Sample Name : DCM RINSE
Acq. Operator : CR

Seq. Line : 44
Location : Vial 1
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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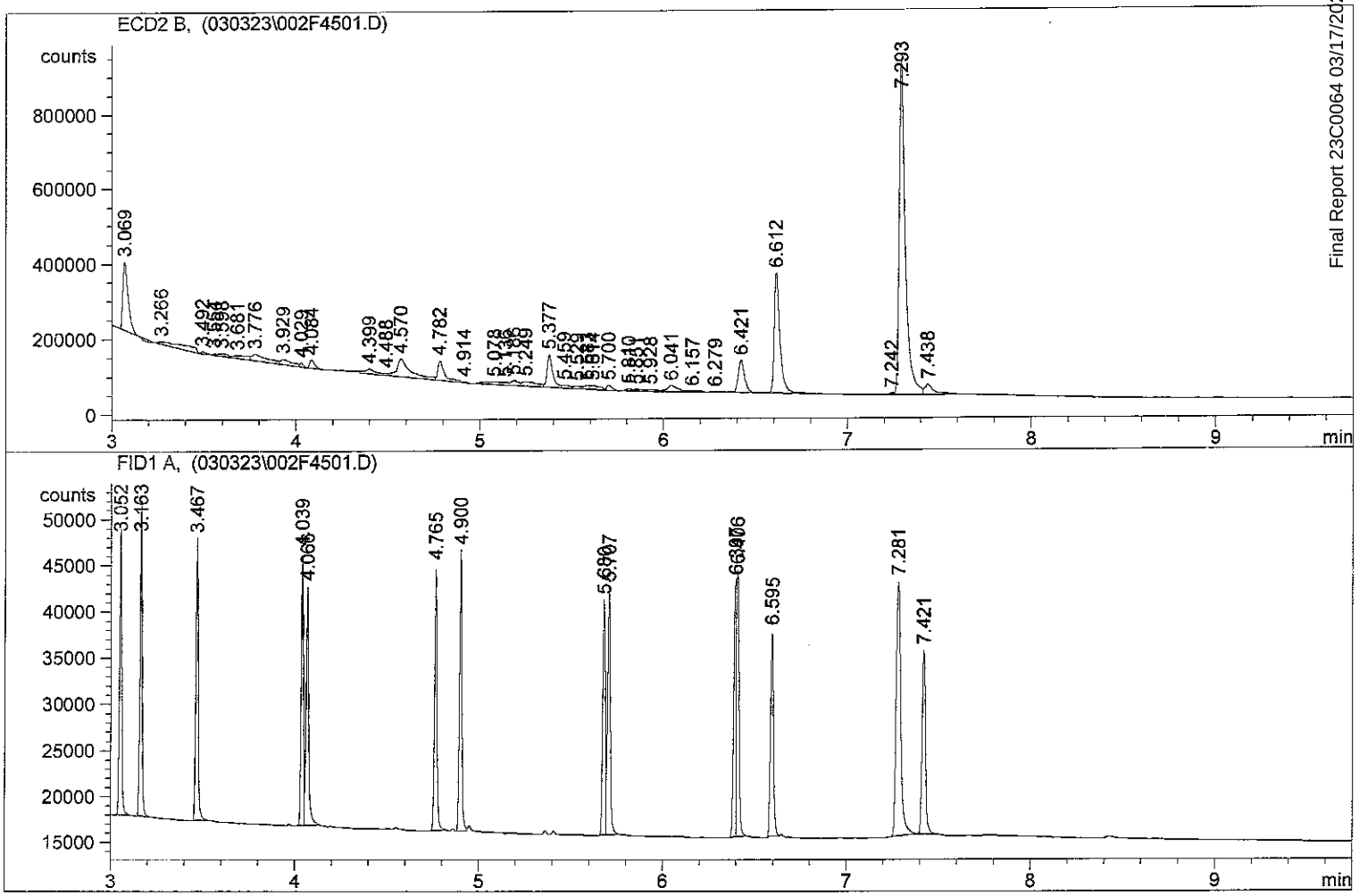


*** End of Report ***

Injection Date : 3/4/2023 3:48:47 AM Seq. Line : 45
Sample Name : PNA STD 10PPM Location : Vial 2
Acq. Operator : CR Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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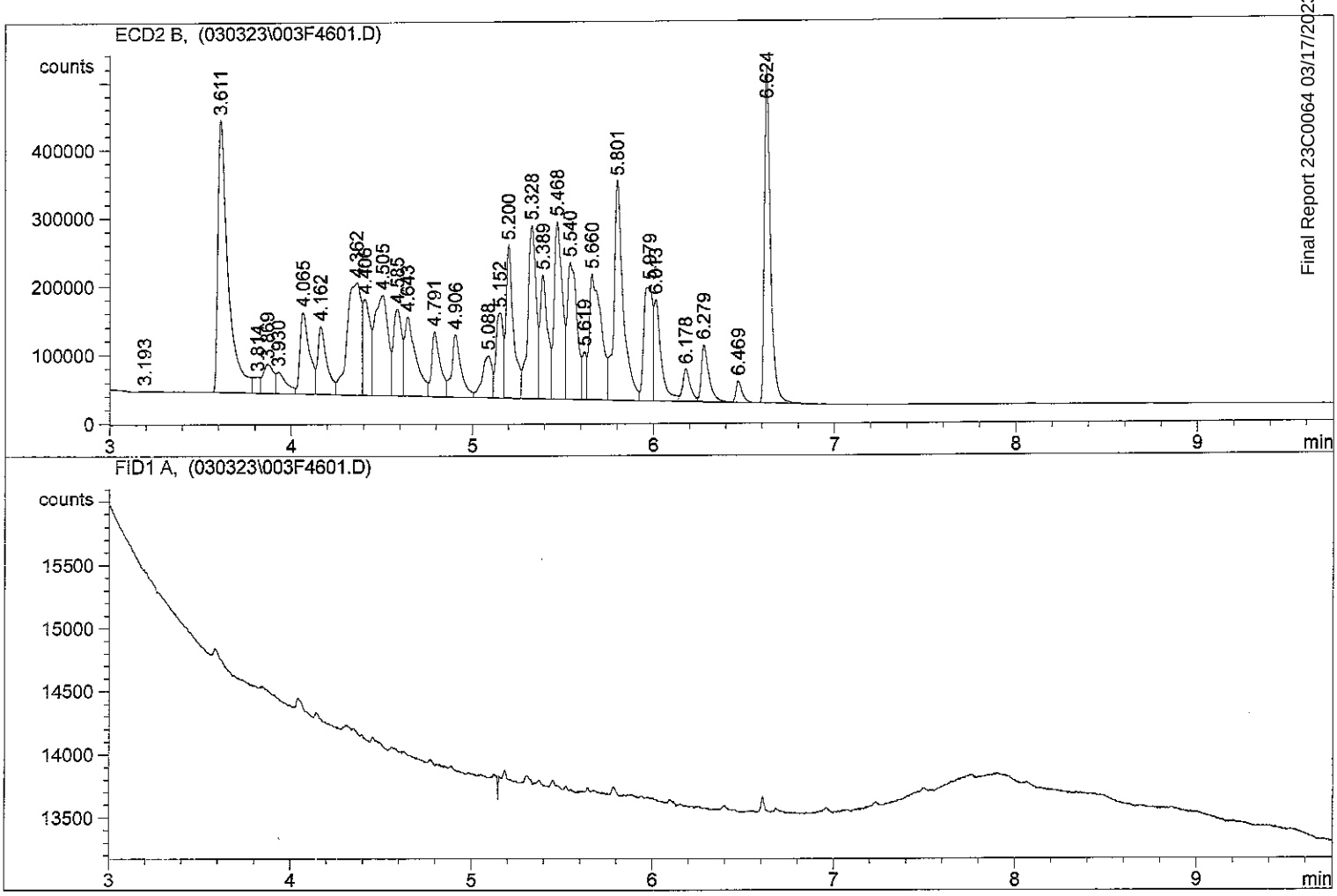


*** End of Report ***

Injection Date : 3/4/2023 4:03:02 AM Seq. Line : 46
Sample Name : AR1660 1PPM Location : Vial 3
Acq. Operator : CR Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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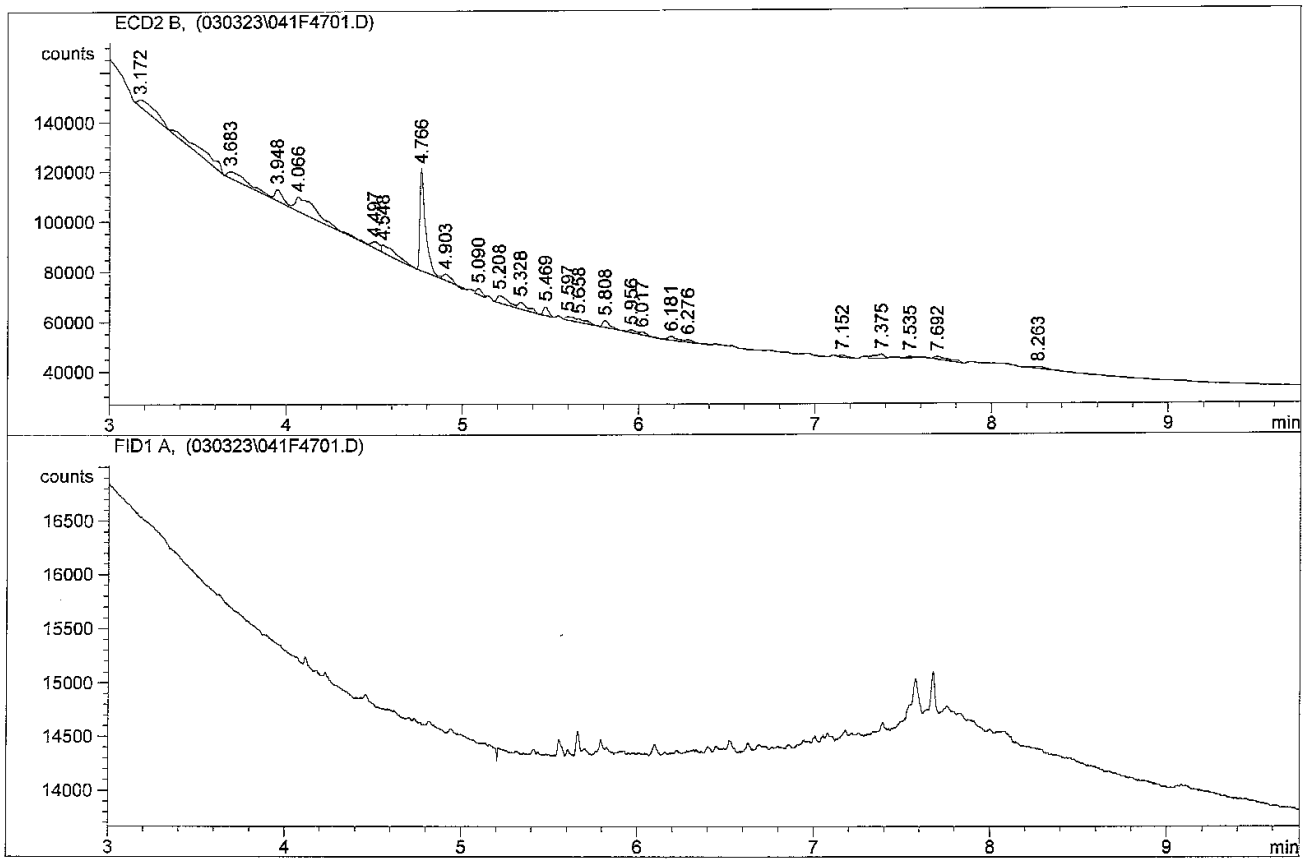
*** End of Report ***

Data File C:\HPCHEM\1\DATA\030323\042F4801.D Sample Name: 23C0071 06

Injection Date	: 3/4/2023 4:31:17 AM	Seq. Line	: 48
Sample Name	: 23C0071 06	Location	: Vial 42
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\030323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			

Data File C:\HPCHEM\1\DATA\030323\041F4701.D Sample Name: 23C0071 05

Injection Date	: 3/4/2023 4:16:57 AM	Seq. Line	: 47
Sample Name	: 23C0071 05	Location	: Vial 41
Acq. Operator	: CR	Inj	: 1
		Inj Volume	: 1 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\030323.S		
Method	: C:\HPCHEM\1\METHODS\SCREEN.M		
Last changed	: 7/9/2021 3:37:33 AM by TW		
SCREEN METHOD			



*** End of Report ***

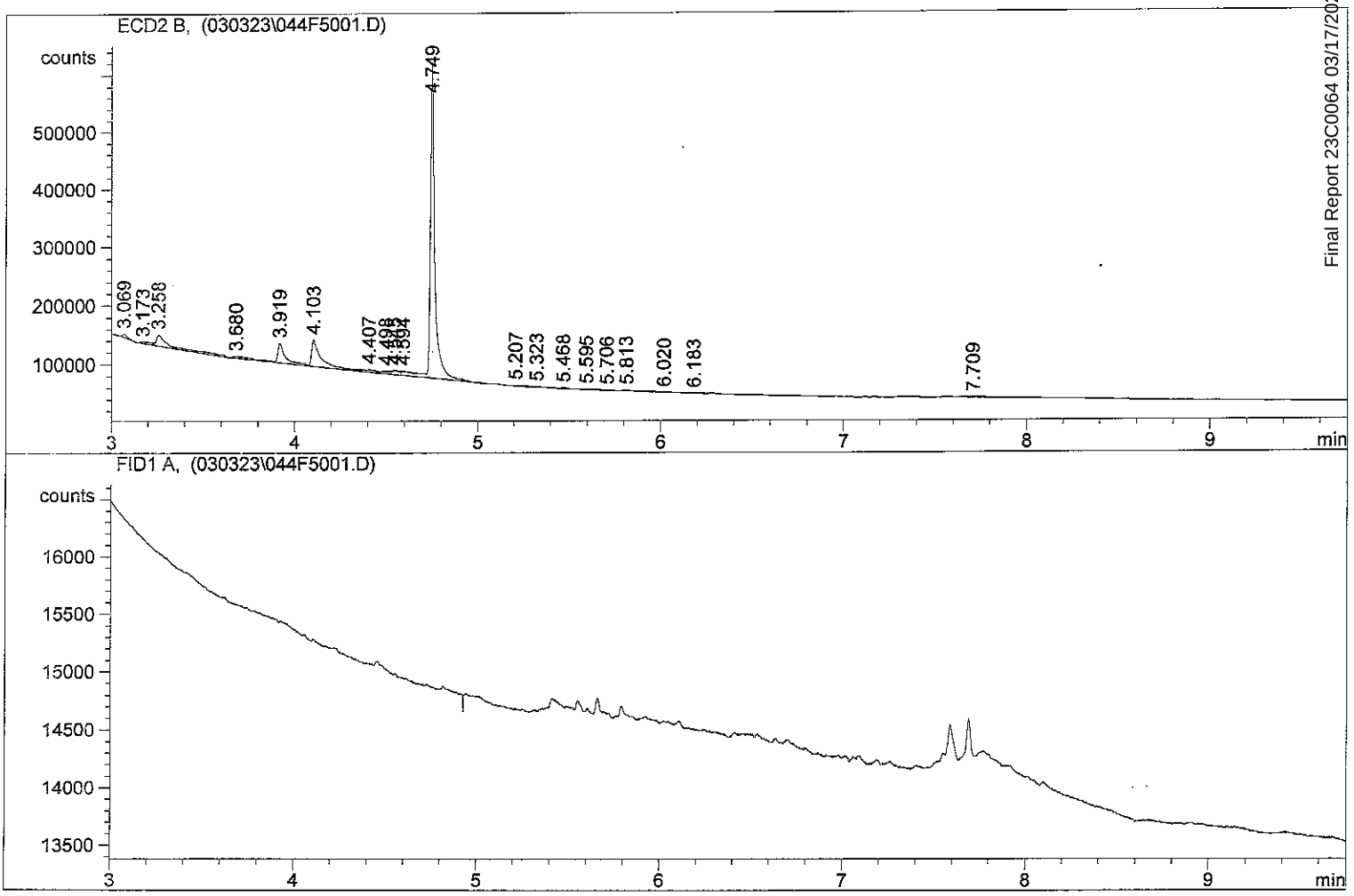
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Injection Date : 3/4/2023 4:59:34 AM
Sample Name : 23C0071 09
Acq. Operator : CR

Seq. Line : 50
Location : Vial 44
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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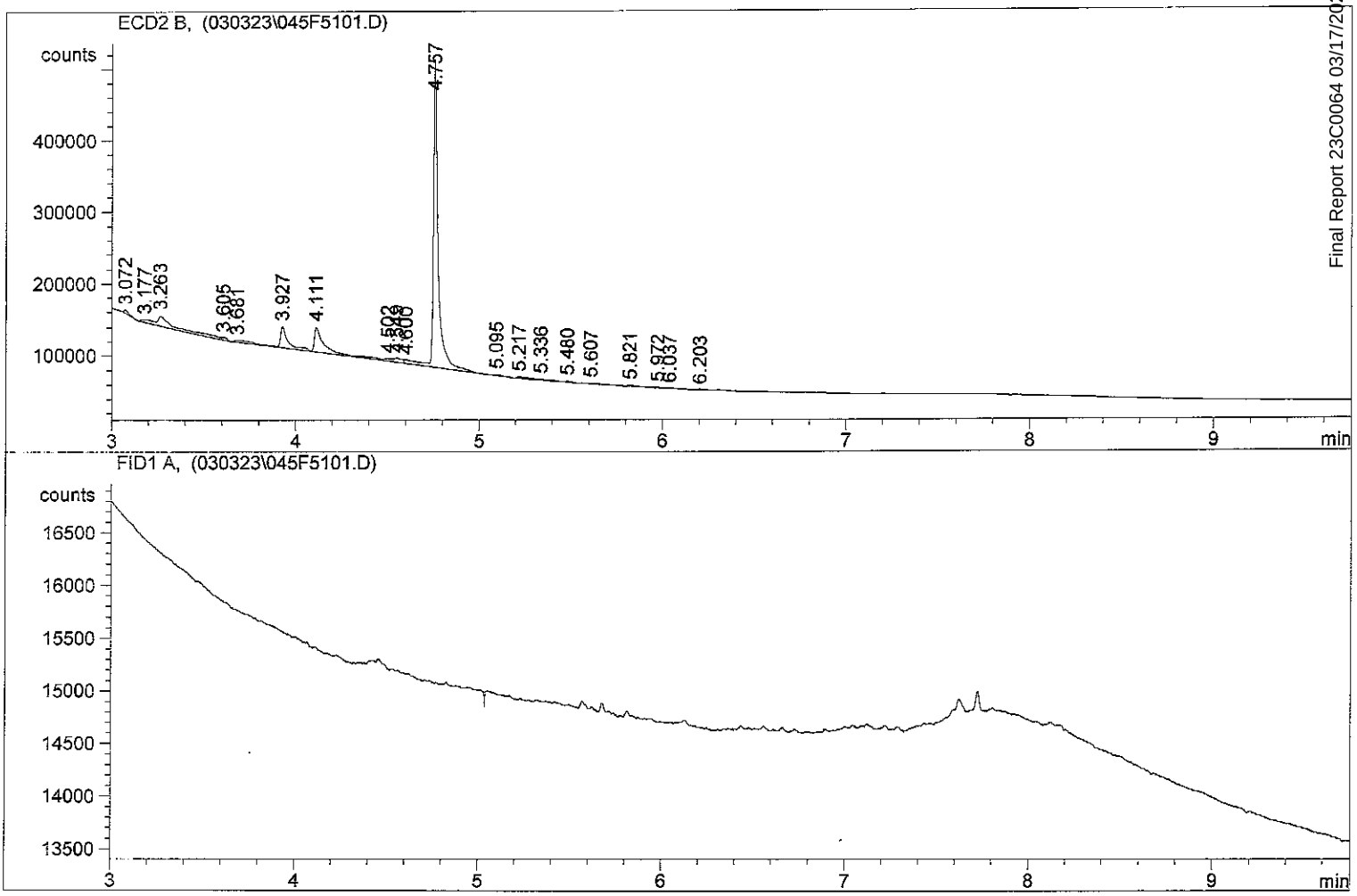


*** End of Report ***

Injection Date : 3/4/2023 5:13:33 AM
Sample Name : 23C0071 10
Acq. Operator : CR

Seq. Line : 51
Location : Vial 45
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD



*** End of Report ***

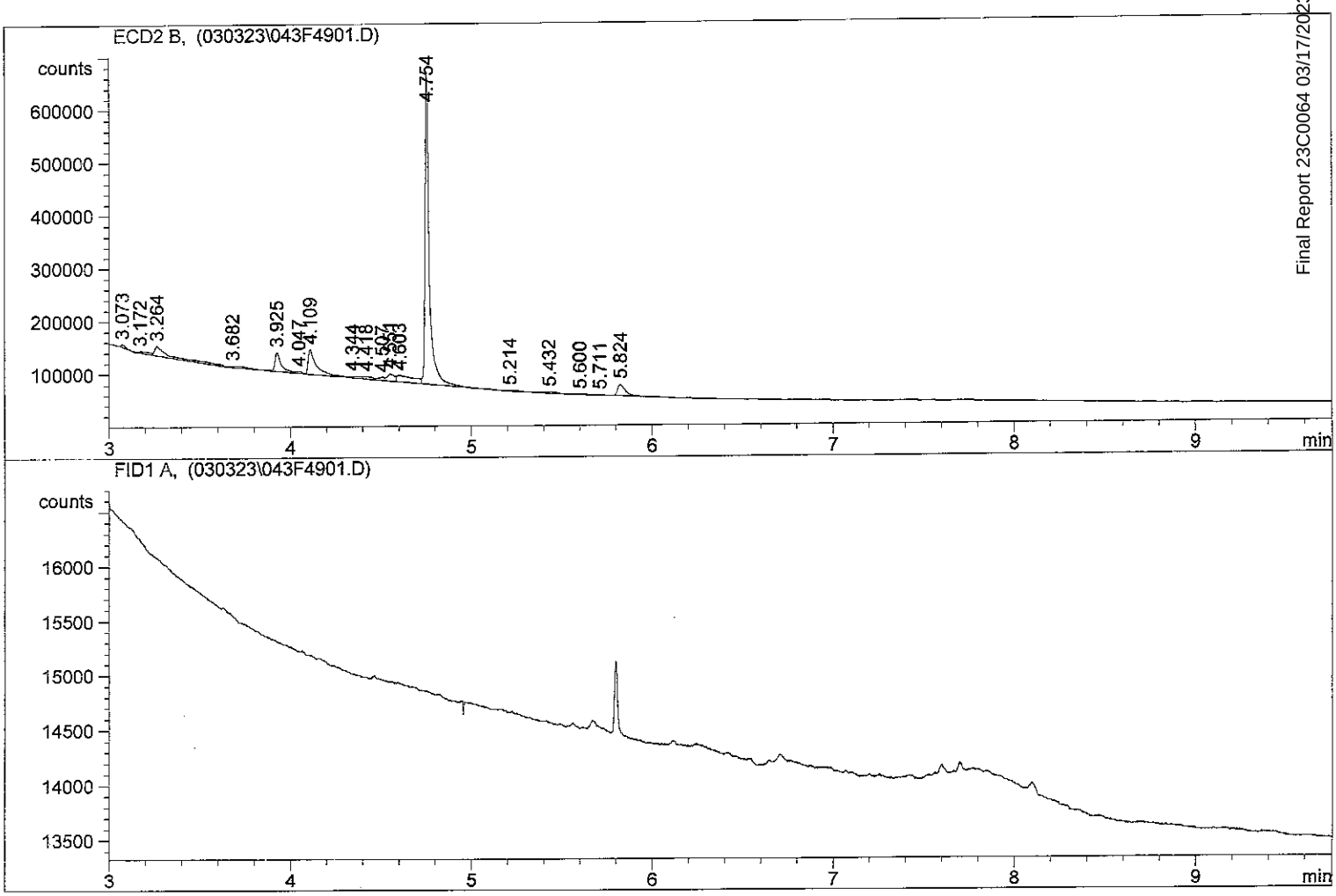
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Injection Date : 3/4/2023 4:45:17 AM
Sample Name : 23C0071 08
Acq. Operator : CR

Seq. Line : 49
Location : Vial 43
Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\1\SEQUENCE\030323.S
Method : C:\HPCHEM\1\METHODS\SCREEN.M
Last changed : 7/9/2021 3:37:33 AM by TW
SCREEN METHOD

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*** End of Report ***

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLC0113	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-32_0-10	23C0064-04	03142325ECD7.D	03/14/2023	
LY-31_0-10	23C0064-02	03142323ECD7.D	03/14/2023	
LY-31_1-2	23C0064-03	03142324ECD7.D	03/14/2023	
Blank	BLC0124-BLK1	03142318ECD7.D	03/14/2023	
LCS	BLC0124-BS1	03142319ECD7.D	03/14/2023	
LCS Dup	BLC0124-BSD1	03142320ECD7.D	03/14/2023	
Reference	BLC0124-SRM1	03142321ECD7.D	03/14/2023	
LY-28_2-3	23C0064-01	03142322ECD7.D	03/14/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0113

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 3/14/2023 2:32:19PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23C0064-01	A	LY-28_2-3	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-02	A	LY-31_0-10	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-03	A	LY-31_1-2	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-04	A	LY-32_0-10	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-01	A	LDW23-SS1000	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-02	A	LDW23-SS1037	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-03	A	LDW23-SS1036	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-04	A	LDW23-SS1044	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-05	A	LDW23-SS1048	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-06	A	LDW23-SS1054	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-08	A	LDW23-SC1054	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-09	A	LDW23-SC1048	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-10	A	LDW23-SC1036	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
BLC0124-BLK1	-	Blank	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-BS1	-	LCS	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-BSD1	-	LCS Dup	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-MS1	-	Matrix Spike	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-SRM1	-	Reference	-	2.5	2.5	-	3/14/2023	LMJ	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLC0114	Cleanup Type:	Sulfur
Cleanup Method:	EPA 3660B Sulfur Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LCS	BLC0124-BS1	03142319ECD7.D	03/14/2023	
LCS Dup	BLC0124-BSD1	03142320ECD7.D	03/14/2023	
LY-32_0-10	23C0064-04	03142325ECD7.D	03/14/2023	
Reference	BLC0124-SRM1	03142321ECD7.D	03/14/2023	
Blank	BLC0124-BLK1	03142318ECD7.D	03/14/2023	
LY-31_1-2	23C0064-03	03142324ECD7.D	03/14/2023	
LY-31_0-10	23C0064-02	03142323ECD7.D	03/14/2023	
LY-28_2-3	23C0064-01	03142322ECD7.D	03/14/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0114

Matrix: Solid **Cleanup using: Organics - EPA 3660B Sulfur Cleanup - uL** **Printed: 3/14/2023 2:32:55PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23C0064-01	A	LY-28_2-3	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-02	A	LY-31_0-10	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-03	A	LY-31_1-2	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-04	A	LY-32_0-10	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-01	A	LDW23-SS1000	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-02	A	LDW23-SS1037	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-03	A	LDW23-SS1036	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-04	A	LDW23-SS1044	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-05	A	LDW23-SS1048	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-06	A	LDW23-SS1054	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-08	A	LDW23-SC1054	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-09	A	LDW23-SC1048	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-10	A	LDW23-SC1036	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
BLC0124-BLK1	-	Blank	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-BS1	-	LCS	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-BSD1	-	LCS Dup	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-MS1	-	Matrix Spike	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-SRM1	-	Reference	-	2.5	2.5	-	3/14/2023	LMJ	

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Cleanup Batch:	CLC0115	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 8082A

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
LY-28_2-3	23C0064-01	03142322ECD7.D	03/14/2023	
Reference	BLC0124-SRM1	03142321ECD7.D	03/14/2023	
Blank	BLC0124-BLK1	03142318ECD7.D	03/14/2023	
LY-31_1-2	23C0064-03	03142324ECD7.D	03/14/2023	
LY-31_0-10	23C0064-02	03142323ECD7.D	03/14/2023	
LY-32_0-10	23C0064-04	03142325ECD7.D	03/14/2023	
LCS	BLC0124-BS1	03142319ECD7.D	03/14/2023	
LCS Dup	BLC0124-BSD1	03142320ECD7.D	03/14/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLC0115

Matrix: Solid **Cleanup using: Organics - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 3/14/2023 2:33:32PM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23C0064-01	A	LY-28_2-3	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-02	A	LY-31_0-10	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-03	A	LY-31_1-2	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0064-04	A	LY-32_0-10	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-01	A	LDW23-SS1000	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-02	A	LDW23-SS1037	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-03	A	LDW23-SS1036	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-04	A	LDW23-SS1044	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-05	A	LDW23-SS1048	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-06	A	LDW23-SS1054	A 03	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-08	A	LDW23-SC1054	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-09	A	LDW23-SC1048	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
23C0071-10	A	LDW23-SC1036	A 01	2.5	2.5	8082A PCB Solid 4	3/14/2023	LMJ	
BLC0124-BLK1	-	Blank	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-BS1	-	LCS	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-BSD1	-	LCS Dup	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-MS1	-	Matrix Spike	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-MSD1	-	Matrix Spike Dup	-	2.5	2.5	-	3/14/2023	LMJ	
BLC0124-SRM1	-	Reference	-	2.5	2.5	-	3/14/2023	LMJ	

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I

METHOD BLANK DATA SHEET

EPA 8082A

Blank

Laboratory:	Analytical Resources, LLC			SDG:	23C0064
Client:	GeoEngineers			Project:	Anacortes Log Yard
Matrix:	Solid	Laboratory ID:	BLC0124-BLK1	File ID:	03142318ECD7.D
Sampled:	N/A	Prepared:	03/07/23 13:30	Analyzed:	03/14/23 15:24
Solids:		Preparation:	EPA 3546 (Microwave)	Initial/Final:	12.5 g / 2.5 mL
Batch:	BLC0124	Sequence:	SLC0203	Calibration:	GB00069
Instrument:	ECD7	Column:	ZB5	Cleanups:	Silica Gel, Sulfur, Sulfuric Acid

CAS NO.	COMPOUND	DILUTION	CONC: (ug/kg wet)	Q	DL	RL
12674-11-2	Aroclor 1016	1	4.0	U	1.6	4.0
11104-28-2	Aroclor 1221	1	4.0	U	1.6	4.0
11141-16-5	Aroclor 1232	1	4.0	U	1.6	4.0
53469-21-9	Aroclor 1242	1	4.0	U	1.6	4.0
12672-29-6	Aroclor 1248	1	4.0	U	1.6	4.0
11097-69-1	Aroclor 1254	1	4.0	U	1.6	4.0
11096-82-5	Aroclor 1260	1	4.0	U	0.6	4.0
37324-23-5	Aroclor 1262	1	4.0	U	0.6	4.0
11100-14-4	Aroclor 1268	1	4.0	U	0.6	4.0

SURROGATES	ADDED: (ug/kg wet)	FOUND: (ug/kg wet)	% REC	QC LIMITS	Q
Decachlorobiphenyl	8.0000	7.97	99.6	40 - 126	
Tetrachlorometaxylene	8.0000	6.83	85.3	44 - 120	
Decachlorobiphenyl [2C]	8.0000	7.94	99.3	40 - 126	
Tetrachlorometaxylene [2C]	8.0000	6.58	82.2	44 - 120	

[2C] indicates second-column analyte, present if quantification on any batch samples used second column data.

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

BLC0124

Data file 1: /230314.b/03142318ECD7.D
Data file 2: /230314.b/230314.b/03142318ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLC0~~123~~-BLK1
Client ID:
Injection Date: 14-MAR-2023 15:24
Report Date: 03/14/2023 16:24
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	239087	5.688	-0.002	185926	34.1	32.9	3.7	Tetrachloro-m-xylene
13.894	0.000	272606	14.119	0.000	300670	39.8	39.7	0.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	469052	-30.4
Hexabromobiphenyl	1429847	694888	-51.4 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	385225	22.2
Hexabromobiphenyl	513946	497244	-3.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	---			0.0
Aroclor-1221	3	---			0.0	3	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	---			0.0	3	---			0.0
Aroclor-1232	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	---			0.0	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	---			0.0	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	---			0.0	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	---			0.0	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	---			0.0	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	---			0.0	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	---			0.0	3	---			0.0
Aroclor-1268	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.907 - 13.793) = 34045 Col1 Total PCB = 0.0 ppm*

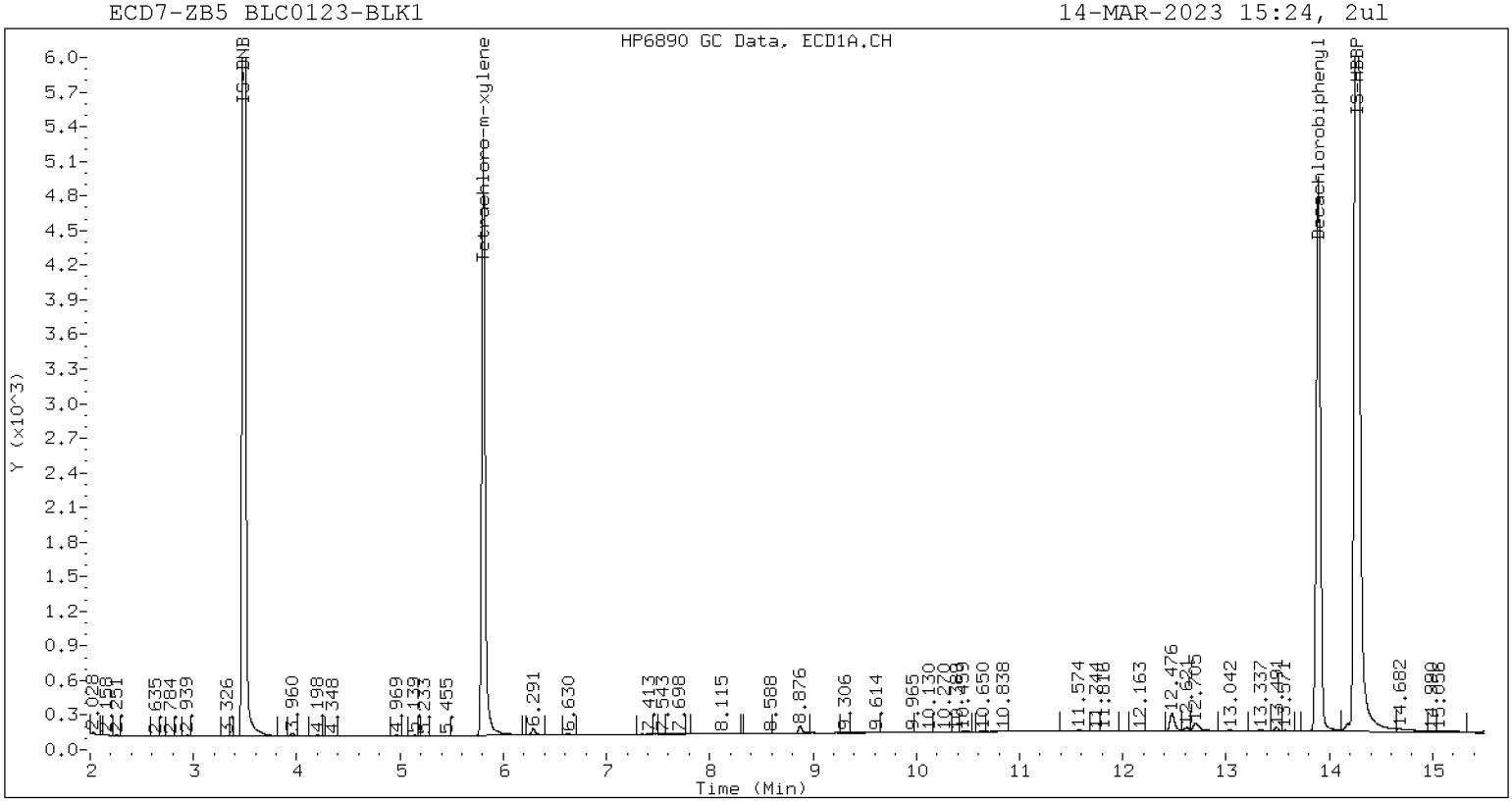
Total PCB Area Col2 (5.790 - 14.019) = 24651 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

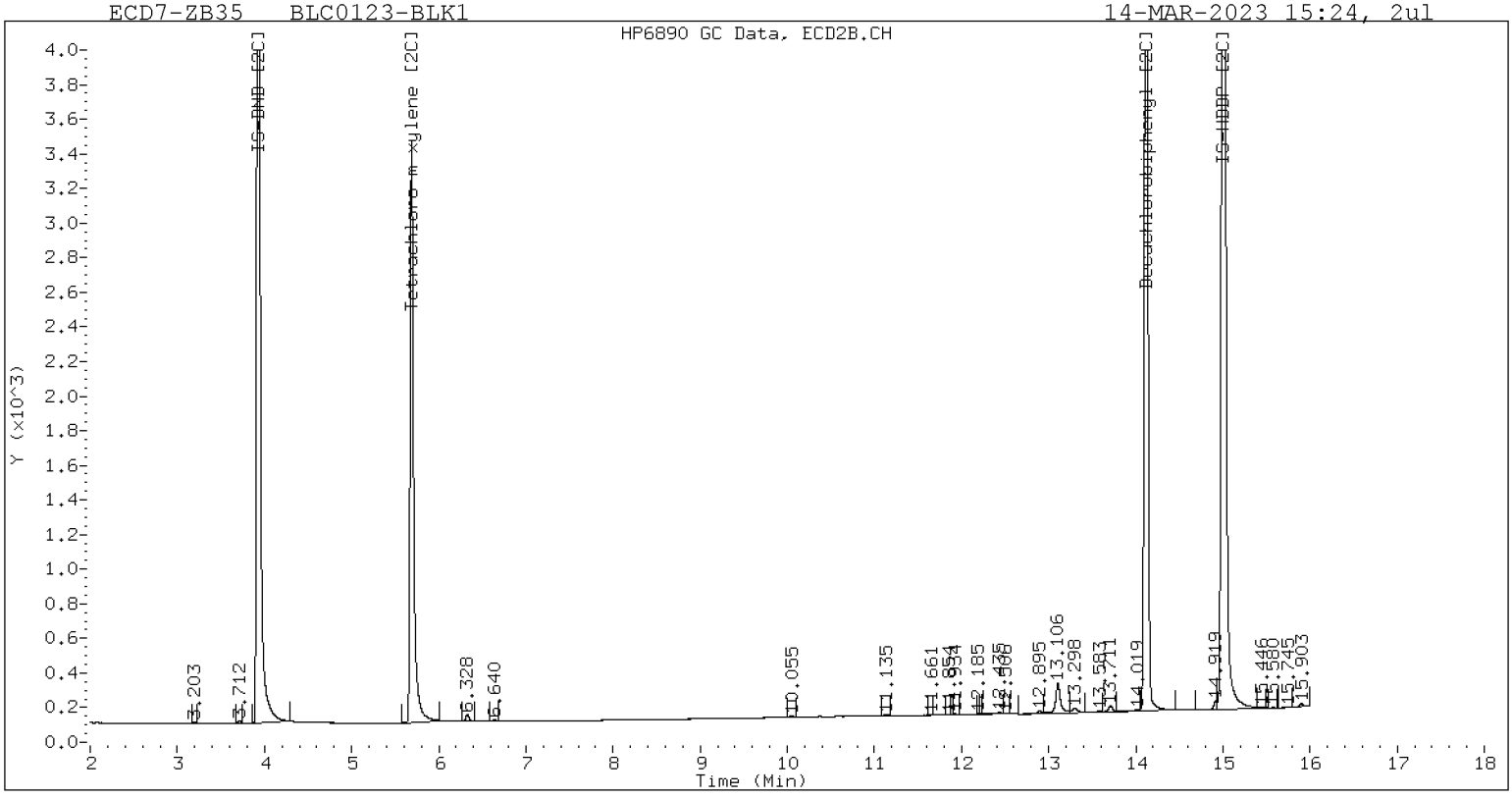
PCB Dual Column Chromatograms

ECD7-ZB5 BLC0123-BLK1 14-MAR-2023 15:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLC0123-BLK1 14-MAR-2023 15:24, 2ul



ZB-35 Manual Integration: NO

LCS / LCS DUPLICATE RECOVERY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Matrix:	Solid	Analyzed:	03/14/23 15:45
Batch:	BLC0124	Laboratory ID:	BLC0124-BS1
Preparation:	EPA 3546 (Microwave)	Sequence Name:	LCS
Initial/Final:	12.5 g / 2.5 mL		

COMPOUND	SPIKE ADDED (ug/kg wet)	LCS CONCENTRATION (ug/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Aroclor 1016	101	78.3		77.7	56 - 120
Aroclor 1260	101	113		112	58 - 120

* Indicates values outside of QC limits

COMPOUND	SPIKE ADDED (ug/kg wet)	LCSD CONCENTRATION (ug/kg wet)	Q	LCSD % REC. #	% RPD #	QC LIMITS	
						RPD	REC.
Aroclor 1016	101	75.5		74.9	3.74	30	56 - 120
Aroclor 1260	101	108		108	4.30	30	58 - 120

* Indicates values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

BLC0124

Data file 1: /230314.b/03142319ECD7.D
Data file 2: /230314.b/230314.b/03142319ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLC0123-BS1
Client ID:
Injection Date: 14-MAR-2023 15:45
Report Date: 03/14/2023 16:17
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	235241	5.689	0.001	172068	32.8	29.9	9.2	Tetrachloro-m-xylene
13.893	-0.000	286269	14.119	-0.000	317419	38.3	38.5	0.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	480282	-28.7
Hexabromobiphenyl	1429847	758464	-47.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	391878	24.3
Hexabromobiphenyl	513946	540905	5.2

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col					ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.001	69506	381.0	1	7.255	-0.001	81526	355.4
Aroclor-1016	2	7.656	-0.006	224453	403.6	2	7.860	-0.007	186197	400.3
Aroclor-1016	3	7.792	-0.003	104647	385.5	3	8.059	-0.005	79213	377.0
Aroclor-1016	4	8.406	-0.004	69602	396.6	4	8.308	-0.003	62141	377.0
Total Col1Ave (4 peaks):					391.7	Total Col2Ave (4 peaks):				377.4 RPD = 4
Corrected Ave (3 peaks):					387.7	Corrected Ave (3 peaks):				369.8 RPD = 5
Aroclor-1221	1	4.732	0.001	353	8.2	1	---			0.0
Aroclor-1221	2	6.130	-0.002	7897	102.7	2	6.300	0.004	7798	111.1
Aroclor-1221	3	6.382	-0.000	41783	233.9	3	6.624	0.002	35960	314.6
Total Col1Ave (3 peaks):					114.9	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.732	0.002	353	13.7	1	---			0.0
Aroclor-1232	2	6.130	-0.001	7897	154.8	2	7.255	0.001	81526	818.2
Aroclor-1232	3	7.656	-0.000	224453	971.7	3	7.860	-0.001	186197	934.6
Aroclor-1232	4	8.580	-0.001	88805	904.5	4	8.714	-0.000	59124	1031.2
Total Col1Ave (4 peaks):					511.2	Total Col2Ave (3 peaks):				928.0 RPD = 58*
Corrected Ave (3 peaks):					357.7	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	-0.001	69506	467.0	1	7.255	-0.000	81526	447.8
Aroclor-1242	2	7.656	-0.000	224453	496.6	2	7.860	-0.007	186197	486.5
Aroclor-1242	3	8.406	0.000	69602	494.9	3	9.168	-0.009	11727	98.5
Aroclor-1242	4	8.580	0.000	88805	427.2	4	9.591	-0.018	4804	33.1
Total Col1Ave (4 peaks):					471.4	Total Col2Ave (4 peaks):				266.5 RPD = 56*
Corrected Ave (3 peaks):					463.0	Corrected Ave (3 peaks):				193.1 RPD = 82*
Aroclor-1248	1	8.406	-0.003	69602	297.0	1	8.308	0.000	62141	332.1
Aroclor-1248	2	8.580	-0.004	88805	298.1	2	8.714	0.000	59124	305.6
Aroclor-1248	3	8.993	-0.003	97372	173.3	3	9.168	0.002	11727	52.7
Aroclor-1248	4	9.301	0.011	77445	270.7	4	9.591	0.001	4804	18.0
Total Col1Ave (4 peaks):					259.8	Total Col2Ave (4 peaks):				177.1 RPD = 38
Corrected Ave (3 peaks):					247.0	Corrected Ave (3 peaks):				125.4 RPD = 65*
Aroclor-1254	1	9.301	0.002	77445	160.6	1	9.452	-0.003	54893	184.3
Aroclor-1254	2	---			0.0	2	9.972	-0.002	12648	52.8
Aroclor-1254	3	9.670	0.002	14374	46.4	3	10.147	0.017	115561	222.9
Aroclor-1254	4	9.808	0.001	41492	68.8	4	10.372	-0.006	149499	295.8
Aroclor-1254	5	10.120	-0.057	197689	523.2	5	10.569	-0.005	201745	655.6
Total Col1Ave (4 peaks):					199.7	Total Col2Ave (5 peaks):				282.3 RPD = 34
Corrected Ave (3 peaks):					91.9	Corrected Ave (4 peaks):				188.9 RPD = 69*
Aroclor-1260	1	11.045	-0.004	162396	595.2	1	11.654	-0.002	147289	463.1
Aroclor-1260	2	11.362	-0.003	165408	580.2	2	11.919	-0.002	372784	459.3
Aroclor-1260	3	11.735	-0.005	415854	550.0	3	12.436	-0.002	97574	453.0
Aroclor-1260	4	12.140	-0.007	214214	562.6	4	12.503	-0.003	246299	450.2
Aroclor-1260	5	12.244	-0.002	88878	542.3	NS	---			----
Total Col1Ave (5 peaks):					566.1	Total Col2Ave (4 peaks):				456.4 RPD = 21
Corrected Ave (4 peaks):					558.8	Corrected Ave (3 peaks):				454.1 RPD = 21
Aroclor-1262	1	10.827	-0.002	318226	1367.7	1	11.201	0.001	142111	307.7
Aroclor-1262	2	12.244	0.000	88878	234.8	2	11.654	0.003	147289	374.4
Aroclor-1262	3	12.319	0.001	106865	262.6	3	12.436	0.003	97574	218.6
Aroclor-1262	4	12.989	0.001	94564	254.2	4	12.503	0.001	246299	352.3
Total Col1Ave (4 peaks):					529.8	Total Col2Ave (4 peaks):				313.3 RPD = 51*
Corrected Ave (3 peaks):					250.5	Corrected Ave (3 peaks):				292.9 RPD = 16
Aroclor-1268	1	12.244	-0.002	88878	91.5	1	12.436	0.004	97574	89.6
Aroclor-1268	2	12.319	0.002	106865	111.0	2	12.503	0.003	246299	210.3
Aroclor-1268	3	12.723	0.024	67676	82.2	3	12.892	-0.000	7952	8.0
Aroclor-1268	4	13.488	-0.002	25477	9.4	4	13.708	-0.001	28862	9.0
Total Col1Ave (4 peaks):					73.5	Total Col2Ave (4 peaks):				79.2 RPD = 7
Corrected Ave (3 peaks):					61.0	Corrected Ave (3 peaks):				35.5 RPD = 53*

Total PCB Area Col1 (5.907 - 13.793) = 4437080 Col1 Total PCB = 0.8 ppm*

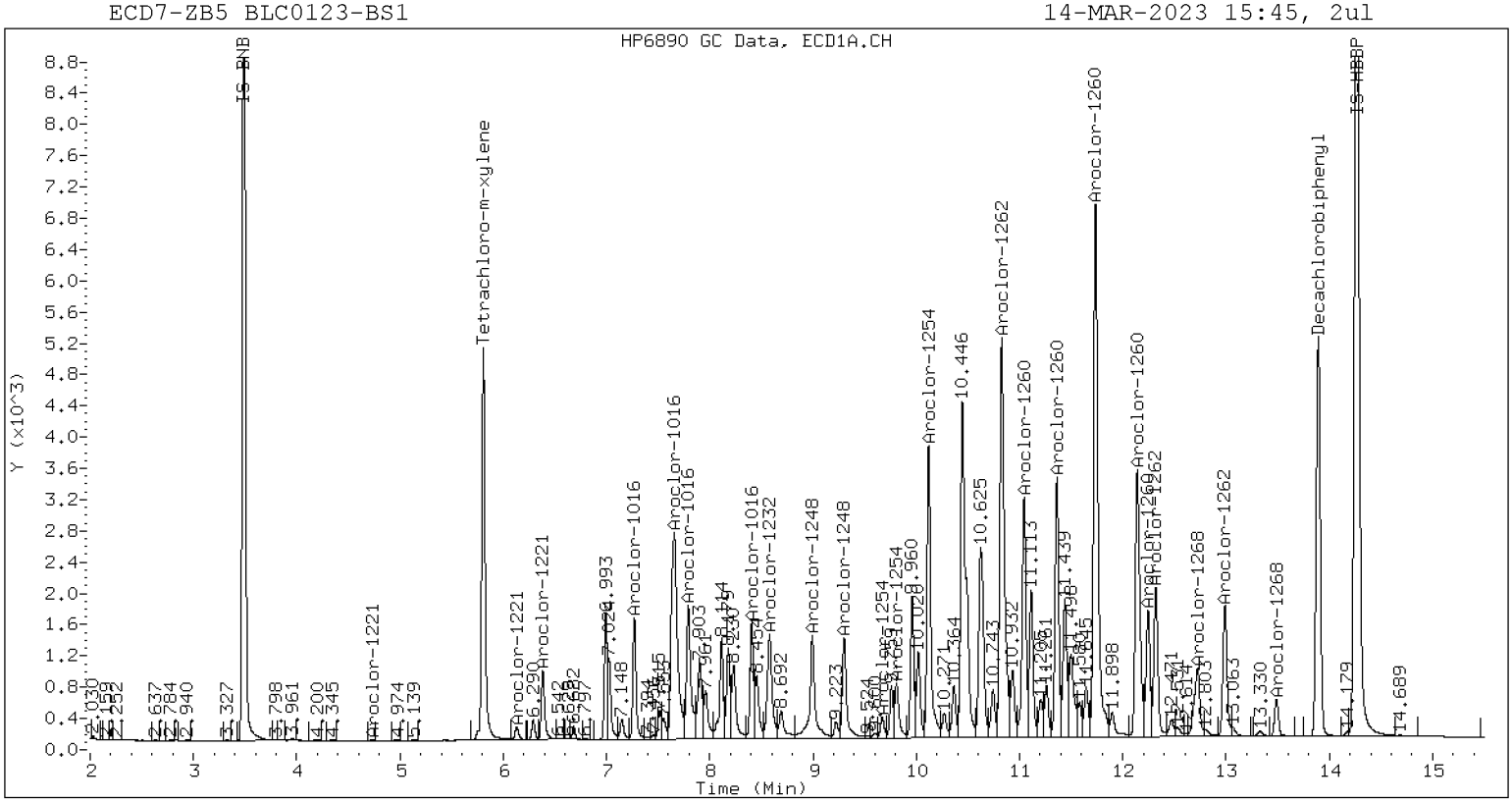
Total PCB Area Col2 (5.788 - 14.019) = 3578937 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

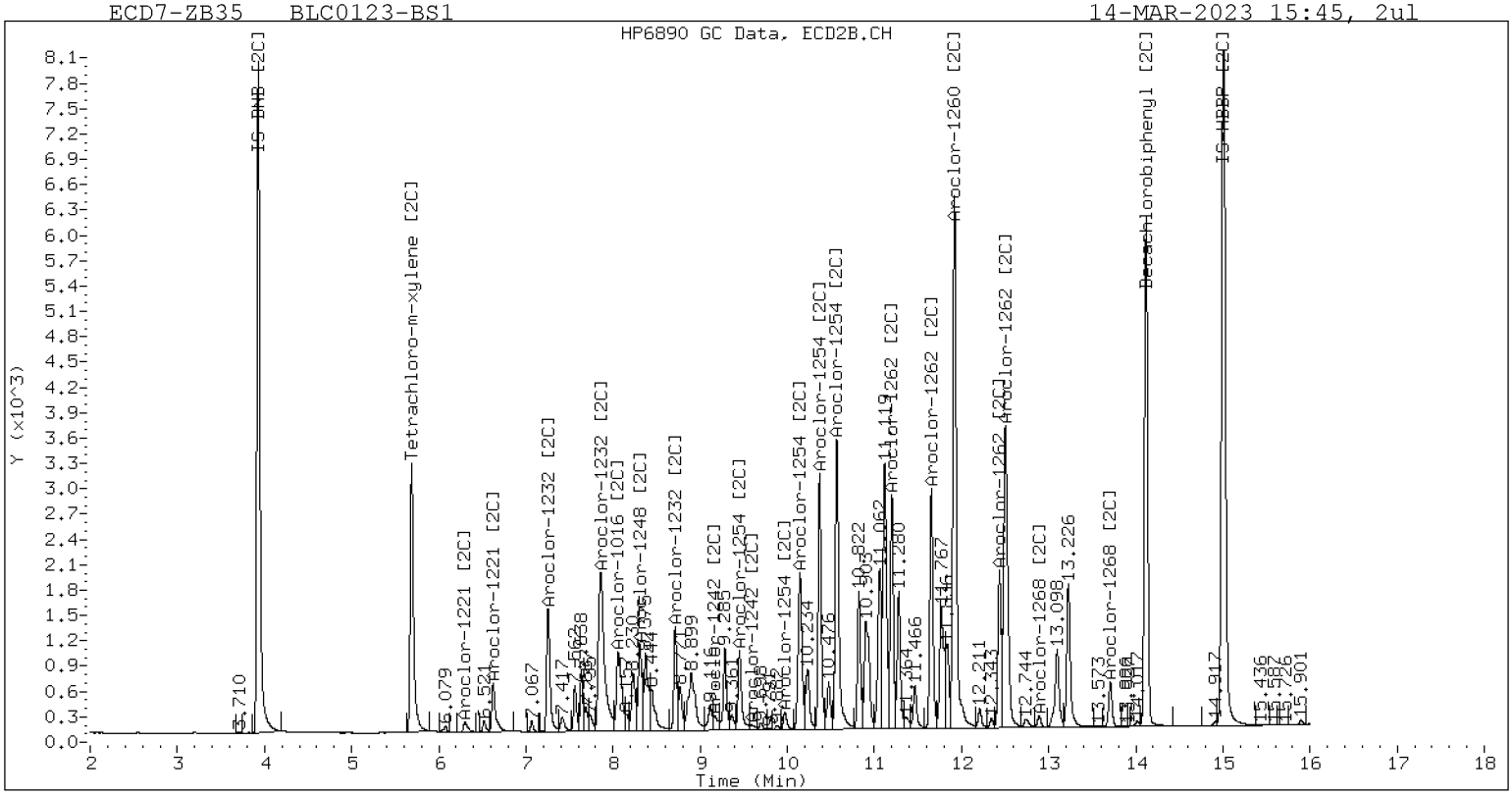
PCB Dual Column Chromatograms

ECD7-ZB5 BLC0123-BS1 14-MAR-2023 15:45, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLC0123-BS1 14-MAR-2023 15:45, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

BLC0124

Data file 1: /230314.b/03142320ECD7.D
Data file 2: /230314.b/230314.b/03142320ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLC0123-BSD1
Client ID:
Injection Date: 14-MAR-2023 16:06
Report Date: 03/14/2023 16:40
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	-0.000	225720	5.689	-0.001	166346	31.0	28.6	7.7	Tetrachloro-m-xylene
13.892	-0.002	293176	14.117	-0.002	326050	36.8	37.6	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	488354	-27.5
Hexabromobiphenyl	1429847	808973	-43.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	395768	25.5
Hexabromobiphenyl	513946	569500	10.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.002	67896	366.0	1	7.254	-0.002	79477	343.0
Aroclor-1016	2	7.655	-0.008	219872	388.8	2	7.860	-0.009	182033	387.5
Aroclor-1016	3	7.791	-0.005	102228	370.4	3	8.058	-0.010	77876	367.0
Aroclor-1016	4	8.404	-0.004	68513	384.0	4	8.308	-0.004	60955	366.1
Total Col1Ave (4 peaks):					377.3	Total Col2Ave (4 peaks):				365.9 RPD = 3
Corrected Ave (3 peaks):					373.5	Corrected Ave (3 peaks):				358.7 RPD = 4
Aroclor-1221	1	4.729	-0.002	461	10.5	1	---			0.0
Aroclor-1221	2	6.130	-0.002	8251	105.5	2	6.299	0.003	7556	106.6
Aroclor-1221	3	6.382	-0.000	42136	232.0	3	6.624	0.002	34909	302.4
Total Col1Ave (3 peaks):					116.0	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.729	-0.001	461	17.6	1	---			0.0
Aroclor-1232	2	6.130	-0.001	8251	159.0	2	7.254	0.001	79477	789.8
Aroclor-1232	3	7.655	-0.001	219872	936.1	3	7.860	-0.001	182033	904.7
Aroclor-1232	4	8.579	-0.002	87813	879.6	4	8.714	-0.001	57899	999.9
Total Col1Ave (4 peaks):					498.1	Total Col2Ave (3 peaks):				898.1 RPD = 57*
Corrected Ave (3 peaks):					352.1	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	-0.002	67896	448.6	1	7.254	-0.002	79477	432.2
Aroclor-1242	2	7.655	-0.009	219872	478.4	2	7.860	-0.009	182033	470.9
Aroclor-1242	3	8.404	-0.005	68513	479.1	3	9.167	-0.013	11782	98.0
Aroclor-1242	4	8.579	-0.007	87813	415.4	4	9.588	-0.024	4583	31.3
Total Col1Ave (4 peaks):					455.4	Total Col2Ave (4 peaks):				258.1 RPD = 55*
Corrected Ave (3 peaks):					447.5	Corrected Ave (3 peaks):				187.2 RPD = 82*
Aroclor-1248	1	8.404	-0.004	68513	287.5	1	8.308	-0.004	60955	322.6
Aroclor-1248	2	8.579	-0.005	87813	289.9	2	8.714	-0.004	57899	296.3
Aroclor-1248	3	8.992	-0.004	97134	170.0	3	9.167	-0.012	11782	52.4
Aroclor-1248	4	9.300	0.010	76256	262.1	4	9.588	-0.014	4583	17.0
Total Col1Ave (4 peaks):					252.4	Total Col2Ave (4 peaks):				172.1 RPD = 38
Corrected Ave (3 peaks):					239.9	Corrected Ave (3 peaks):				121.9 RPD = 65*
Aroclor-1254	1	9.300	-0.002	76256	155.5	1	9.451	-0.002	54341	180.6
Aroclor-1254	2	---			0.0	2	9.972	-0.001	12483	51.6
Aroclor-1254	3	9.668	-0.004	14205	45.1	3	10.147	0.019	115801	221.2
Aroclor-1254	4	9.806	-0.005	40965	66.8	4	10.371	-0.005	149875	293.6
Aroclor-1254	5	10.119	-0.062	196979	512.7	5	10.569	-0.004	202927	653.0
Total Col1Ave (4 peaks):					195.0	Total Col2Ave (5 peaks):				280.0 RPD = 36
Corrected Ave (3 peaks):					89.1	Corrected Ave (4 peaks):				186.8 RPD = 71*
Aroclor-1260	1	11.043	-0.005	164189	564.2	1	11.655	-0.002	151358	452.0
Aroclor-1260	2	11.362	-0.003	169972	559.0	2	11.919	-0.005	380687	445.4
Aroclor-1260	3	11.735	-0.005	426504	528.9	3	12.436	-0.004	93378	411.7
Aroclor-1260	4	12.139	-0.006	219661	540.9	4	12.502	-0.005	231319	401.5
Aroclor-1260	5	12.244	-0.003	90586	518.2	NS	---			----
Total Col1Ave (5 peaks):					542.2	Total Col2Ave (4 peaks):				427.7 RPD = 24
Corrected Ave (4 peaks):					536.7	Corrected Ave (3 peaks):				419.6 RPD = 25
Aroclor-1262	1	10.827	-0.001	317252	1278.4	1	11.200	0.000	144511	297.2
Aroclor-1262	2	12.244	0.000	90586	224.3	2	11.655	0.003	151358	365.5
Aroclor-1262	3	12.319	0.000	109692	252.7	3	12.436	0.002	93378	198.7
Aroclor-1262	4	12.988	0.001	97984	247.0	4	12.502	0.000	231319	314.2
Total Col1Ave (4 peaks):					500.6	Total Col2Ave (4 peaks):				293.9 RPD = 52*
Corrected Ave (3 peaks):					241.3	Corrected Ave (3 peaks):				270.0 RPD = 11
Aroclor-1268	1	12.244	-0.002	90586	87.4	1	12.436	0.004	93378	81.4
Aroclor-1268	2	12.319	0.002	109692	106.9	2	12.502	0.002	231319	187.6
Aroclor-1268	3	12.720	0.021	55339	63.0	3	12.891	-0.000	7674	7.3
Aroclor-1268	4	13.486	-0.004	22100	7.6	4	13.708	-0.001	30067	8.9
Total Col1Ave (4 peaks):					66.2	Total Col2Ave (4 peaks):				71.3 RPD = 7
Corrected Ave (3 peaks):					52.7	Corrected Ave (3 peaks):				32.6 RPD = 47*

Total PCB Area Col1 (5.907 - 13.794) = 4493203 Col1 Total PCB = 0.8 ppm*

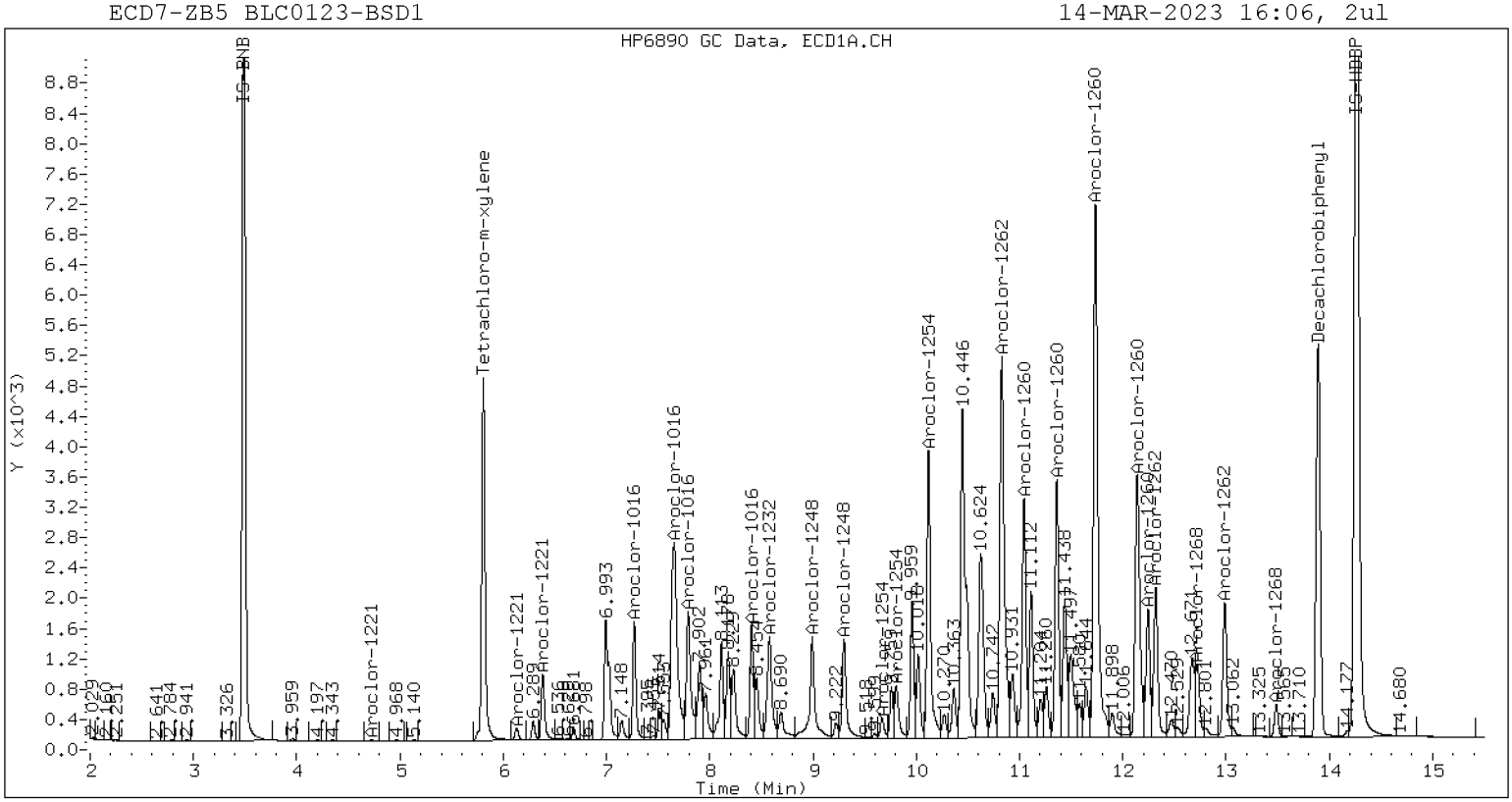
Total PCB Area Col2 (5.790 - 14.019) = 3610399 Col2 Total PCB = 0.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

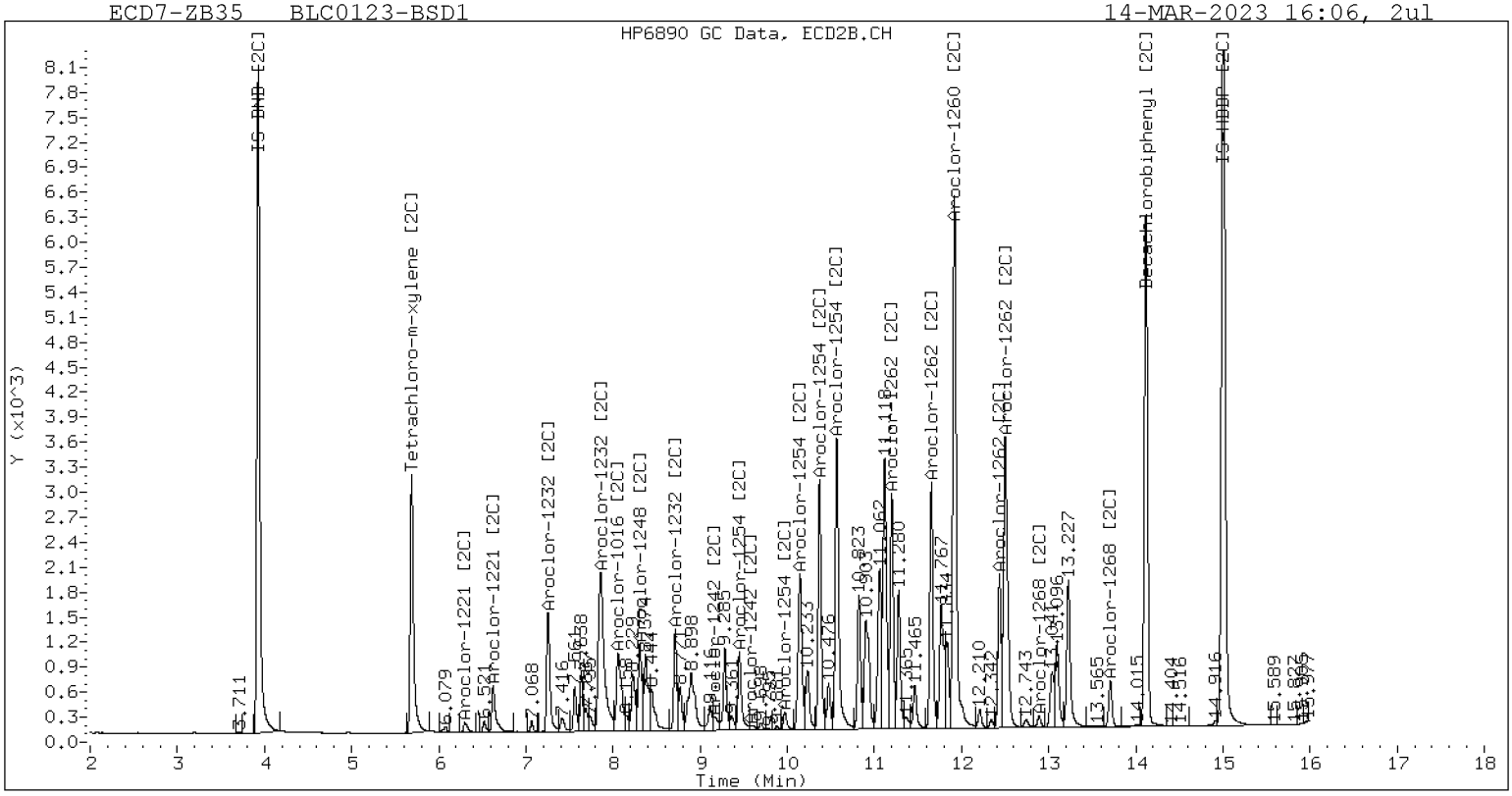
PCB Dual Column Chromatograms

ECD7-ZB5 BLC0123-BSD1 14-MAR-2023 16:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLC0123-BSD1 14-MAR-2023 16:06, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Matrix: Solid
Laboratory ID: BLC0124-SRM1
Batch: BLC0124
Initial/Final: 2.5 g / 2.5 mL
Preparation: EPA 3546 (Microwave)
Analyzed: 03/14/2023 16:27
Standard ID: K003527
Expires: 04/12/2023
Standard Lot#: PSRM0150
Description: Puget Sound reference-SRM

ANALYTE	TRUE (ug/kg wet)	FOUND (ug/kg wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
Aroclor 1260	108.00	133	2.9	20.0		123	38 - 167
Aroclor 1260 [2C]	108.00	111	2.9	20.0		103	38 - 167

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

BLC0124

Data file 1: /230314.b/03142321ECD7.D
Data file 2: /230314.b/230314.b/03142321ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: BLC0~~123~~-SRM1
Client ID:
Injection Date: 14-MAR-2023 16:27
Report Date: 03/14/2023 17:27
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.002	210638	5.687	-0.003	164060	29.4	29.6	0.6	Tetrachloro-m-xylene
13.887	-0.007	212136	14.114	-0.005	241955	34.9	31.9	9.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	479121	-28.9
Hexabromobiphenyl	1429847	616918	-56.9 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	377331	19.7
Hexabromobiphenyl	513946	498712	-3.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.237	-0.033	19564	107.5	1	7.269	0.013	14356	65.0
Aroclor-1016	2	7.650	-0.013	7820	14.1	2	7.854	-0.015	6066	13.5
Aroclor-1016	3	7.802	0.006	5763	21.3	3	8.052	-0.016	1377	6.8
Aroclor-1016	4	8.402	-0.007	6786	38.8	4	8.304	-0.007	6843	43.1
Total Col1Ave (4 peaks):					45.4	Total Col2Ave (4 peaks):				32.1 RPD = 34
Corrected Ave (3 peaks):					24.7	Corrected Ave (3 peaks):				21.2 RPD = 16
Aroclor-1221	1	4.735	0.004	474	11.0	1	4.944	-0.013	783	21.9
Aroclor-1221	2	6.065	-0.067	11728	152.8	2	6.351	0.055	23328	345.1
Aroclor-1221	3	6.394	0.012	2291	12.9	3	6.641	0.019	8745	79.5
Total Col1Ave (3 peaks):					58.9	Total Col2Ave (3 peaks):				148.8 RPD = 87*
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.735	0.005	474	18.5	1	4.944	-0.013	783	40.6
Aroclor-1232	2	6.065	-0.066	11728	230.4	2	7.269	0.015	14356	149.6
Aroclor-1232	3	7.650	-0.006	7820	33.9	3	7.854	-0.007	6066	31.6
Aroclor-1232	4	8.573	-0.008	6007	61.3	4	8.711	-0.004	4811	87.1
Total Col1Ave (4 peaks):					86.0	Total Col2Ave (4 peaks):				77.2 RPD = 11
Corrected Ave (3 peaks):					37.9	Corrected Ave (3 peaks):				53.1 RPD = 33
Aroclor-1242	1	7.237	-0.033	19564	131.8	1	7.269	0.013	14356	81.9
Aroclor-1242	2	7.650	-0.014	7820	17.3	2	7.854	-0.015	6066	16.5
Aroclor-1242	3	8.402	-0.007	6786	48.4	3	9.152	-0.028	6110	53.3
Aroclor-1242	4	8.573	-0.013	6007	29.0	4	9.573	-0.039	5342	38.2
Total Col1Ave (4 peaks):					56.6	Total Col2Ave (4 peaks):				47.5 RPD = 18
Corrected Ave (3 peaks):					31.6	Corrected Ave (3 peaks):				36.0 RPD = 13
Aroclor-1248	1	8.402	-0.006	6786	29.0	1	8.304	-0.007	6843	38.0
Aroclor-1248	2	8.573	-0.011	6007	20.2	2	8.711	-0.007	4811	25.8
Aroclor-1248	3	8.989	-0.007	19116	34.1	3	9.152	-0.027	6110	28.5
Aroclor-1248	4	9.291	0.002	26606	93.2	4	9.573	-0.030	5342	20.8
Total Col1Ave (4 peaks):					44.1	Total Col2Ave (4 peaks):				28.3 RPD = 44*
Corrected Ave (3 peaks):					27.8	Corrected Ave (3 peaks):				25.0 RPD = 10
Aroclor-1254	1	9.291	-0.010	26606	55.3	1	9.445	-0.008	19423	67.7
Aroclor-1254	2	9.367	-0.013	9586	44.3	2	9.963	-0.011	9264	40.2
Aroclor-1254	3	9.661	-0.012	15471	50.0	3	10.118	-0.010	38762	77.6
Aroclor-1254	4	9.794	-0.017	39174	65.1	4	10.363	-0.014	49212	101.1
Aroclor-1254	5	10.113	-0.067	56851	150.8	5	10.559	-0.013	49811	168.1
Total Col1Ave (5 peaks):					73.1	Total Col2Ave (5 peaks):				91.0 RPD = 22
Corrected Ave (4 peaks):					53.7	Corrected Ave (4 peaks):				71.7 RPD = 29
Aroclor-1260	1	11.036	-0.012	33717	151.9	1	11.647	-0.010	35335	120.5
Aroclor-1260	2	11.349	-0.015	27472	118.5	2	11.909	-0.014	77611	103.7
Aroclor-1260	3	11.722	-0.018	82390	134.0	3	12.428	-0.012	24452	123.1
Aroclor-1260	4	12.125	-0.020	42920	138.6	4	12.492	-0.015	49055	97.2
Aroclor-1260	5	12.237	-0.010	16296	122.2	NS	---			----
Total Col1Ave (5 peaks):					133.0	Total Col2Ave (4 peaks):				111.1 RPD = 18
Corrected Ave (4 peaks):					128.3	Corrected Ave (3 peaks):				107.1 RPD = 18
Aroclor-1262	1	10.814	-0.015	75596	399.5	1	11.193	-0.007	30948	72.7
Aroclor-1262	2	12.237	-0.007	16296	52.9	2	11.647	-0.004	35335	97.4
Aroclor-1262	3	12.310	-0.008	20243	61.1	3	12.428	-0.006	24452	59.4
Aroclor-1262	4	12.976	-0.011	21822	72.1	4	12.492	-0.010	49055	76.1
Total Col1Ave (4 peaks):					146.4	Total Col2Ave (4 peaks):				76.4 RPD = 63*
Corrected Ave (3 peaks):					62.1	Corrected Ave (3 peaks):				69.4 RPD = 11
Aroclor-1268	1	12.237	-0.010	16296	20.6	1	12.428	-0.004	24452	24.3
Aroclor-1268	2	12.310	-0.007	20243	25.9	2	12.492	-0.008	49055	45.4
Aroclor-1268	3	12.657	-0.042	64900	96.9	3	12.888	-0.003	1828	2.0
Aroclor-1268	4	13.481	-0.009	4696	2.1	4	13.702	-0.007	8049	2.7
Total Col1Ave (4 peaks):					36.4	Total Col2Ave (4 peaks):				18.6 RPD = 65*

Corrected Ave (3 peaks): 16.2 Corrected Ave (3 peaks): 9.7 RPD = 50*

Total PCB Area Col1 (5.907 - 13.794) = 1150289 Col1 Total PCB = 0.2 ppm*

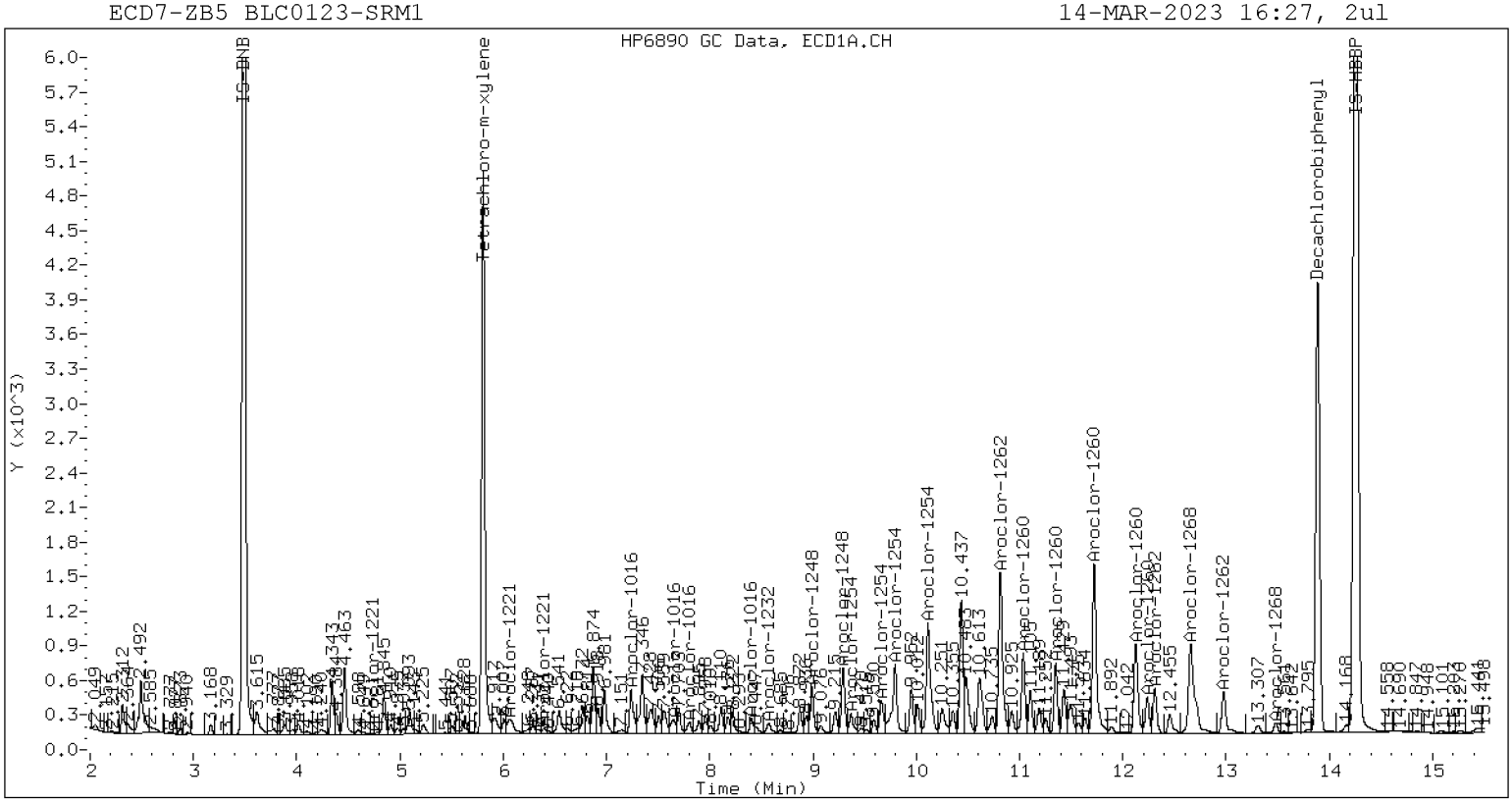
Total PCB Area Col2 (5.790 - 14.019) = 995139 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

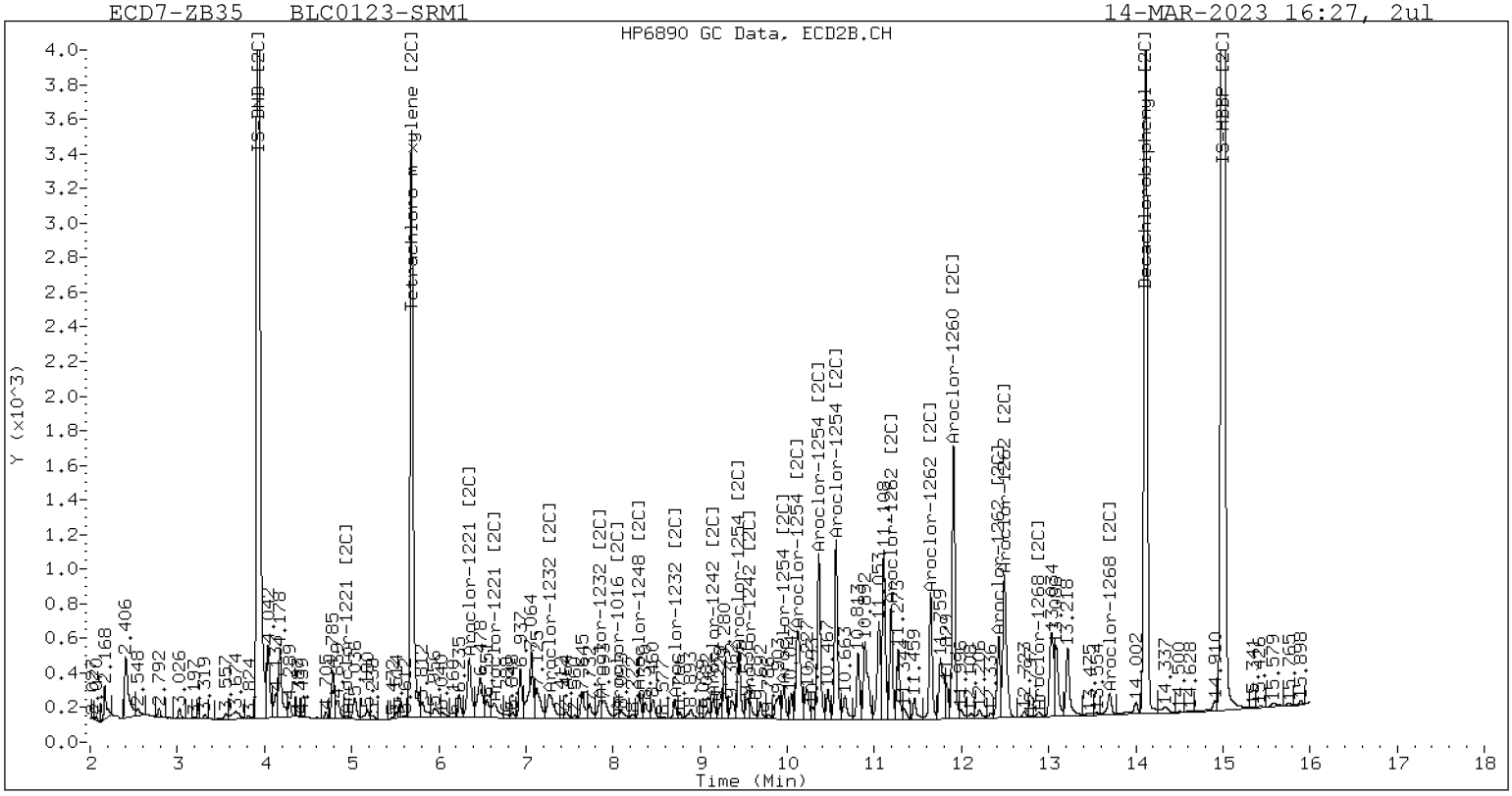
PCB Dual Column Chromatograms

ECD7-ZB5 BLC0123-SRM1 14-MAR-2023 16:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 BLC0123-SRM1 14-MAR-2023 16:27, 2ul



ZB-35 Manual Integration: NO

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016	250	0.0511017	20	0.0514466	50	5.107478E-02	1000	4.502727E-02	100	5.036259E-02	500	0.0471841
Aroclor-1016 (1)	250	0.031405	20	3.172321E-02	50	3.253176E-02	1000	2.667138E-02	100	3.141686E-02	500	2.856283E-02
Aroclor-1016 (2)	250	9.848704E-02	20	9.239415E-02	50	9.245774E-02	1000	8.848657E-02	100	9.221759E-02	500	0.0917416
Aroclor-1016 (3)	250	4.393471E-02	20	5.165382E-02	50	5.037363E-02	1000	3.720718E-02	100	4.822959E-02	500	3.990906E-02
Aroclor-1016 (4)	250	3.058004E-02	20	3.001523E-02	50	2.893599E-02	1000	2.774395E-02	100	2.958631E-02	500	2.852291E-02
Aroclor 1260	250	4.264611E-02	20	3.933745E-02	50	3.914748E-02	1000	0.0377098	100	3.888069E-02	500	3.753326E-02
Aroclor-1260 (1)	250	3.096387E-02	20	2.926415E-02	50	2.920486E-02	1000	2.746159E-02	100	2.841034E-02	500	2.736642E-02
Aroclor-1260 (2)	250	3.291004E-02	20	2.966791E-02	50	3.006192E-02	1000	2.856573E-02	100	3.010757E-02	500	2.910054E-02
Aroclor-1260 (3)	250	8.575373E-02	20	8.087657E-02	50	8.045158E-02	1000	7.674417E-02	100	7.953737E-02	500	7.514663E-02
Aroclor-1260 (4)	250	4.484933E-02	20	3.904963E-02	50	3.886754E-02	1000	3.922291E-02	100	3.955346E-02	500	3.941669E-02
Aroclor-1260 (5)	250	1.875356E-02	20	1.782901E-02	50	1.715148E-02	1000	1.655457E-02	100	1.679471E-02	500	1.663603E-02
Decachlorobiphenyl	40	0.7880759	3.2	0.8290115	8	0.8055828	160	0.797423	16	0.7758675	80	0.7312517
Tetrachlorometaxylene	40	1.205085	3.2	1.168271	8	1.244015	160	1.241136	16	1.185465	80	1.122954

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221							250	1.657582E-02				
Aroclor-1221 (1)							250	7.164712E-03				
Aroclor-1221 (2)							250	0.0128135				
Aroclor-1221 (3)							250	2.974924E-02				
Aroclor 1232									250	1.690391E-02		
Aroclor-1232 (1)									250	4.285984E-03		
Aroclor-1232 (2)									250	8.499602E-03		
Aroclor-1232 (3)									250	3.847671E-02		
Aroclor-1232 (4)									250	1.635336E-02		
Aroclor 1242	250	3.953397E-02										
Aroclor-1242 (1)	250	2.479209E-02										
Aroclor-1242 (2)	250	7.528986E-02										
Aroclor-1242 (3)	250	2.342574E-02										
Aroclor-1242 (4)	250	3.462819E-02										
Aroclor 1248			250	5.747549E-02								
Aroclor-1248 (1)			250	3.903293E-02								
Aroclor-1248 (2)			250	0.0496149								
Aroclor-1248 (3)			250	9.360202E-02								
Aroclor-1248 (4)			250	4.765213E-02								
Aroclor 1254					250	6.629494E-02						
Aroclor-1254 (1)					250	8.033306E-02						
Aroclor-1254 (2)					250	0.0361302						
Aroclor-1254 (3)					250	5.164705E-02						
Aroclor-1254 (4)					250	0.100423						
Aroclor-1254 (5)					250	6.294139E-02						
Aroclor 1262							250	3.665955E-02				
Aroclor-1262 (1)							250	2.454122E-02				
Aroclor-1262 (2)							250	3.993338E-02				

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3)							250	4.292945E-02				
Aroclor-1262 (4)							250	3.923413E-02				
Aroclor 1268									250	0.1442124		
Aroclor-1268 (1)									250	0.102504		
Aroclor-1268 (2)									250	0.1015072		
Aroclor-1268 (3)									250	8.685666E-02		
Aroclor-1268 (4)									250	0.2859818		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016	4.936617E-02	5.3			RSD (20)	
Aroclor-1016 (1)	3.038517E-02	7.4			RSD (20)	
Aroclor-1016 (2)	9.263078E-02	3.5			RSD (20)	
Aroclor-1016 (3)	0.045218	12.9			RSD (20)	
Aroclor-1016 (4)	2.923074E-02	3.5			RSD (20)	
Aroclor 1221		0.0			RSD (20)	
Aroclor-1221 (1)		0.0			RSD (20)	
Aroclor-1221 (2)		0.0			RSD (20)	
Aroclor-1221 (3)		0.0			RSD (20)	
Aroclor 1232		0.0			RSD (20)	
Aroclor-1232 (1)		0.0			RSD (20)	
Aroclor-1232 (2)		0.0			RSD (20)	
Aroclor-1232 (3)		0.0			RSD (20)	
Aroclor-1232 (4)		0.0			RSD (20)	
Aroclor 1242		0.0			RSD (20)	
Aroclor-1242 (1)		0.0			RSD (20)	
Aroclor-1242 (2)		0.0			RSD (20)	
Aroclor-1242 (3)		0.0			RSD (20)	
Aroclor-1242 (4)		0.0			RSD (20)	
Aroclor 1248		0.0			RSD (20)	
Aroclor-1248 (1)		0.0			RSD (20)	
Aroclor-1248 (2)		0.0			RSD (20)	
Aroclor-1248 (3)		0.0			RSD (20)	
Aroclor-1248 (4)		0.0			RSD (20)	
Aroclor 1254		0.0			RSD (20)	
Aroclor-1254 (1)		0.0			RSD (20)	
Aroclor-1254 (2)		0.0			RSD (20)	
Aroclor-1254 (3)		0.0			RSD (20)	
Aroclor-1254 (4)		0.0			RSD (20)	
Aroclor-1254 (5)		0.0			RSD (20)	
Aroclor 1260	3.920913E-02	4.7			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (1):	ZB5

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1)	2.877854E-02	4.7			RSD (20)	
Aroclor-1260 (2)	3.006895E-02	5.0			RSD (20)	
Aroclor-1260 (3)	7.975167E-02	4.6			RSD (20)	
Aroclor-1260 (4)	4.015993E-02	5.8			RSD (20)	
Aroclor-1260 (5)	1.728656E-02	5.0			RSD (20)	
Aroclor 1262		0.0			RSD (20)	
Aroclor-1262 (1)		0.0			RSD (20)	
Aroclor-1262 (2)		0.0			RSD (20)	
Aroclor-1262 (3)		0.0			RSD (20)	
Aroclor-1262 (4)		0.0			RSD (20)	
Aroclor 1268		0.0			RSD (20)	
Aroclor-1268 (1)		0.0			RSD (20)	
Aroclor-1268 (2)		0.0			RSD (20)	
Aroclor-1268 (3)		0.0			RSD (20)	
Aroclor-1268 (4)		0.0			RSD (20)	
Decachlorobiphenyl	0.7878687	4.2			RSD (20)	
Tetrachlorometaxylene	1.194488	3.9			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

Compound	Level 01		Level 02		Level 03		Level 04		Level 05		Level 06	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1016 [2C]	250	0.0571297	20	5.099991E-02	50	0.0573721	1000	5.075893E-02	100	5.836783E-02	500	5.288542E-02
Aroclor-1016 (1) [2C]	250	4.732763E-02	20	5.070692E-02	50	5.021603E-02	1000	4.080107E-02	100	4.868029E-02	500	4.325569E-02
Aroclor-1016 (2) [2C]	250	0.1025919	20	8.142537E-02	50	9.407053E-02	1000	9.361548E-02	100	0.1015897	500	9.651233E-02
Aroclor-1016 (3) [2C]	250	4.410181E-02	20	4.005508E-02	50	4.718351E-02	1000	3.925581E-02	100	4.613223E-02	500	4.062487E-02
Aroclor-1016 (4) [2C]	250	3.449742E-02	20	3.181228E-02	50	3.801833E-02	1000	0.0293633	100	0.0370691	500	3.114879E-02
Aroclor 1260 [2C]	250	7.266587E-02	20	0.0760446	50	7.181489E-02	1000	0.0636872	100	6.942709E-02	500	6.617305E-02
Aroclor-1260 (1) [2C]	250	4.801376E-02	20	5.286013E-02	50	4.911343E-02	1000	4.201242E-02	100	4.695569E-02	500	4.328842E-02
Aroclor-1260 (2) [2C]	250	0.1266443	20	0.1297611	50	0.1243096	1000	0.1054494	100	0.1209452	500	0.1132043
Aroclor-1260 (3) [2C]	250	3.207621E-02	20	3.524009E-02	50	3.146502E-02	1000	0.0319805	100	2.936945E-02	500	3.102287E-02
Aroclor-1260 (4) [2C]	250	8.392913E-02	20	8.631709E-02	50	8.237154E-02	1000	7.530648E-02	100	0.080438	500	7.717658E-02
Decachlorobiphenyl [2C]	40	1.310398	3.2	1.170661	8	1.20406	160	1.207975	16	1.205489	80	1.211045
Tetrachlorometaxylene [2C]	40	1.219073	3.2	1.21526	8	1.195453	160	1.111394	16	1.175548	80	1.125598

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor 1221 [2C]							250	1.507982E-02				
Aroclor-1221 (1) [2C]							250	7.573277E-03				
Aroclor-1221 (2) [2C]							250	0.0143332				
Aroclor-1221 (3) [2C]							250	2.333296E-02				
Aroclor 1232 [2C]									250	1.920227E-02		
Aroclor-1232 (1) [2C]									250	4.09321E-03		
Aroclor-1232 (2) [2C]									250	2.034072E-02		
Aroclor-1232 (3) [2C]									250	4.067023E-02		
Aroclor-1232 (4) [2C]									250	1.170493E-02		
Aroclor 1242 [2C]	250	4.230924E-02										
Aroclor-1242 (1) [2C]	250	3.716893E-02										
Aroclor-1242 (2) [2C]	250	7.813249E-02										
Aroclor-1242 (3) [2C]	250	2.431205E-02										
Aroclor-1242 (4) [2C]	250	0.0296235										
Aroclor 1248 [2C]			250	4.442703E-02								
Aroclor-1248 (1) [2C]			250	3.819713E-02								
Aroclor-1248 (2) [2C]			250	3.949349E-02								
Aroclor-1248 (3) [2C]			250	4.544987E-02								
Aroclor-1248 (4) [2C]			250	5.456762E-02								
Aroclor 1254 [2C]					250	0.0763106						
Aroclor-1254 (1) [2C]					250	6.080523E-02						
Aroclor-1254 (2) [2C]					250	4.891616E-02						
Aroclor-1254 (3) [2C]					250	0.1058376						
Aroclor-1254 (4) [2C]					250	0.103175						
Aroclor-1254 (5) [2C]					250	6.281905E-02						
Aroclor 1262 [2C]							250	7.397596E-02				
Aroclor-1262 (1) [2C]							250	6.830764E-02				
Aroclor-1262 (2) [2C]							250	5.817803E-02				

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

Compound	Level 07		Level 08		Level 09		Level 10		Level 11		Level 12	
	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF	Conc	RRF
Aroclor-1262 (3) [2C]							250	6.600951E-02				
Aroclor-1262 (4) [2C]							250	0.1034087				
Aroclor 1268 [2C]									250	0.2386862		
Aroclor-1268 (1) [2C]									250	0.1610947		
Aroclor-1268 (2) [2C]									250	0.1731794		
Aroclor-1268 (3) [2C]									250	0.1478672		
Aroclor-1268 (4) [2C]									250	0.4726034		

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor 1016 [2C]	5.458565E-02	6.3			RSD (20)	
Aroclor-1016 (1) [2C]	4.683127E-02	8.5			RSD (20)	
Aroclor-1016 (2) [2C]	9.496755E-02	8.0			RSD (20)	
Aroclor-1016 (3) [2C]	4.289222E-02	7.9			RSD (20)	
Aroclor-1016 (4) [2C]	3.365154E-02	10.3			RSD (20)	
Aroclor 1221 [2C]		0.0			RSD (20)	
Aroclor-1221 (1) [2C]		0.0			RSD (20)	
Aroclor-1221 (2) [2C]		0.0			RSD (20)	
Aroclor-1221 (3) [2C]		0.0			RSD (20)	
Aroclor 1232 [2C]		0.0			RSD (20)	
Aroclor-1232 (1) [2C]		0.0			RSD (20)	
Aroclor-1232 (2) [2C]		0.0			RSD (20)	
Aroclor-1232 (3) [2C]		0.0			RSD (20)	
Aroclor-1232 (4) [2C]		0.0			RSD (20)	
Aroclor 1242 [2C]		0.0			RSD (20)	
Aroclor-1242 (1) [2C]		0.0			RSD (20)	
Aroclor-1242 (2) [2C]		0.0			RSD (20)	
Aroclor-1242 (3) [2C]		0.0			RSD (20)	
Aroclor-1242 (4) [2C]		0.0			RSD (20)	
Aroclor 1248 [2C]		0.0			RSD (20)	
Aroclor-1248 (1) [2C]		0.0			RSD (20)	
Aroclor-1248 (2) [2C]		0.0			RSD (20)	
Aroclor-1248 (3) [2C]		0.0			RSD (20)	
Aroclor-1248 (4) [2C]		0.0			RSD (20)	
Aroclor 1254 [2C]		0.0			RSD (20)	
Aroclor-1254 (1) [2C]		0.0			RSD (20)	
Aroclor-1254 (2) [2C]		0.0			RSD (20)	
Aroclor-1254 (3) [2C]		0.0			RSD (20)	
Aroclor-1254 (4) [2C]		0.0			RSD (20)	
Aroclor-1254 (5) [2C]		0.0			RSD (20)	
Aroclor 1260 [2C]	6.996878E-02	6.4			RSD (20)	

INITIAL CALIBRATION DATA

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Calibration:	GB00069	Instrument:	ECD7
Calibration Date:	02/24/2023	Column (2):	ZB35

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
Aroclor-1260 (1) [2C]	4.704064E-02	8.4			RSD (20)	
Aroclor-1260 (2) [2C]	0.1200523	7.6			RSD (20)	
Aroclor-1260 (3) [2C]	3.185902E-02	6.0			RSD (20)	
Aroclor-1260 (4) [2C]	8.092314E-02	5.1			RSD (20)	
Aroclor 1262 [2C]		0.0			RSD (20)	
Aroclor-1262 (1) [2C]		0.0			RSD (20)	
Aroclor-1262 (2) [2C]		0.0			RSD (20)	
Aroclor-1262 (3) [2C]		0.0			RSD (20)	
Aroclor-1262 (4) [2C]		0.0			RSD (20)	
Aroclor 1268 [2C]		0.0			RSD (20)	
Aroclor-1268 (1) [2C]		0.0			RSD (20)	
Aroclor-1268 (2) [2C]		0.0			RSD (20)	
Aroclor-1268 (3) [2C]		0.0			RSD (20)	
Aroclor-1268 (4) [2C]		0.0			RSD (20)	
Decachlorobiphenyl [2C]	1.218271	3.9			RSD (20)	
Tetrachlorometaxylene [2C]	1.173721	3.9			RSD (20)	

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0342

Instrument: ECD7
Calibration ID: GB00069

Printed: 2/28/2023 9:54:44AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0342-CAL1	QC		1		L000856	L000844		
SLB0342-CAL2	QC		2		L000859	L000844		
SLB0342-CAL3	QC		3		L000858	L000844		
SLB0342-CAL4	QC		4		L000731	L000844		
SLB0342-CAL5	QC		5		L000857	L000844		
SLB0342-CAL6	QC		6		L000855	L000844		
SLB0342-CAL7	QC		7		L000860	L000844		
SLB0342-CAL8	QC		8		L000861	L000844		
SLB0342-CAL9	QC		9		L000862	L000844		
SLB0342-CALA	QC		10		L000863	L000844		
SLB0342-CALB	QC		11		L000864	L000844		
SLB0342-SCV1	QC		12		L002065	L000844		
SLB0342-SCV2	QC		13		K007656	L000844		
SLB0342-SCV3	QC		14		L002066	L000844		
SLB0342-SCV4	QC		15		L002067	L000844		
SLB0342-SCV5	QC		16		L002068	L000844		
SLB0342-SCV6	QC		17		L002069	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	24-FEB-2023 10:51	02242301ECD7.D	1	IB	
2	24-FEB-2023 11:12	02242302ECD7.D	1	0.25PPMAR1660	
3	24-FEB-2023 11:33	02242303ECD7.D	1	0.02PPMAR1660	
4	24-FEB-2023 11:54	02242304ECD7.D	1	0.05PPMAR1660	
5	24-FEB-2023 12:15	02242305ECD7.D	1	1.0PPMAR1660	
6	24-FEB-2023 12:36	02242306ECD7.D	1	0.1PPMAR1660	
7	24-FEB-2023 12:57	02242307ECD7.D	1	0.5PPMAR1660	
8	24-FEB-2023 13:18	02242308ECD7.D	1	0.25PPMAR1242	
9	24-FEB-2023 13:39	02242309ECD7.D	1	0.25PPMAR1248	
10	24-FEB-2023 14:00	02242310ECD7.D	1	0.25PPMAR1254	
11	24-FEB-2023 14:21	02242311ECD7.D	1	0.25PPMAR2162	
12	24-FEB-2023 14:42	02242312ECD7.D	1	0.25PPMAR3268	
13	24-FEB-2023 15:03	02242313ECD7.D	1	AR1660SCV	
14	24-FEB-2023 15:24	02242314ECD7.D	1	AR1242SCV	
15	24-FEB-2023 15:45	02242315ECD7.D	1	AR1248SCV	
16	24-FEB-2023 16:06	02242316ECD7.D	1	AR1254SCV	
17	24-FEB-2023 16:27	02242317ECD7.D	1	AR2162SCV	
18	24-FEB-2023 16:48	02242318ECD7.D	1	AR3268SCV	
19	24-FEB-2023 17:09	02242319ECD7.D	1	DDTS	
20	24-FEB-2023 17:30	02242320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 24-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2039	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	Aroclor-1016 [2C],
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2038	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 28-Feb-2023 09:27

02242301ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242302ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242303ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242304ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242305ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242306ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242307ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242308ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242309ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242310ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242311ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242312ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242313ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242314ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242315ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242316ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242317ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242318ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242319ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27
02242320ECD7.D	Data Locked	richardl, 28-Feb-2023 09:27

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\02242312ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00716	0.00716	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01281	0.01281	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02975	0.02975	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02479	0.02479	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.07529	0.07529	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02343	0.02343	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03463	0.03463	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00429	0.00429	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.00850	0.00850	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.03848	0.03848	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01635	0.01635	0.000
7 Aroclor-1016(1)	0.03172	0.03253	0.03142	0.03141	0.02856	0.02667	+++++	0.03039	7.449
(2)	0.09239	0.09246	0.09222	0.09849	0.09174	0.08849	+++++	0.09263	3.499
(3)	0.05165	0.05037	0.04823	0.04393	0.03991	0.03721	+++++	0.04522	12.936
(4)	0.03002	0.02894	0.02959	0.03058	0.02852	0.02774	+++++	0.02923	3.542
6 Aroclor-1248(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03903	0.03903	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.04961	0.04961	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.09360	0.09360	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.04765	0.04765	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.08033	0.08033	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.03613	0.03613	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.05165	0.05165	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.10042	0.10042	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++	0.06294	0.06294	0.000
9 Aroclor-1260(1)	0.02926	0.02920	0.02841	0.03096	0.02737	0.02746	+++++	0.02878	4.677
(2)	0.02967	0.03006	0.03011	0.03291	0.02910	0.02857	+++++	0.03007	5.029
(3)	0.08088	0.08045	0.07954	0.08575	0.07515	0.07674	+++++	0.07975	4.627
(4)	0.03905	0.03887	0.03955	0.04485	0.03942	0.03922	+++++	0.04016	5.753
(5)	0.01783	0.01715	0.01679	0.01875	0.01664	0.01655	+++++	0.01729	4.953
10 Aroclor-1262(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02454	0.02454	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.03993	0.03993	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04293	0.04293	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03923	0.03923	0.000
11 Aroclor-1268(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.10250	0.10250	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.10151	0.10151	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.08686	0.08686	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.28598	0.28598	0.000
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.16827	1.24402	1.18546	1.20509	1.12295	1.24114	+++++	1.19449	3.860
$ 13 Decachlorobiphenyl	0.82901	0.80558	0.77587	0.78808	0.73125	0.79742	+++++	0.78787	4.189

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242312ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	RRF	% RSD
1 Aroclor-1221 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00757	0.00757	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01433	0.01433	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02333	0.02333	0.000
4 Aroclor-1232 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00409	0.00409	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.02034	0.02034	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04067	0.04067	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01170	0.01170	0.000
3 Aroclor-1242 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03717	0.03717	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.07813	0.07813	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02431	0.02431	0.000
(4)	*****	*****	*****	*****	*****	*****	0.02962	0.02962	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****	0.03820	0.03820	0.000
(2)	*****	*****	*****	*****	*****	*****	0.03949	0.03949	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04545	0.04545	0.000
(4)	*****	*****	*****	*****	*****	*****	0.05457	0.05457	0.000
7 Aroclor-1016 [2C](1)	0.05071	0.05022	0.04868	0.04733	0.04326	0.04080	*****	0.04683	8.503
(2)	0.08143	0.09407	0.10159	0.10259	0.09651	0.09362	*****	0.09497	8.025
(3)	0.04006	0.04718	0.04613	0.04410	0.04062	0.03926	*****	0.04289	7.857
(4)	0.03181	0.03802	0.03707	0.03450	0.03115	0.02936	*****	0.03365	10.251

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	*****	*****	*****	*****	*****	*****	0.06081	0.06081	0.000
(2)	*****	*****	*****	*****	*****	*****	0.04892	0.04892	0.000
(3)	*****	*****	*****	*****	*****	*****	0.10584	0.10584	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10317	0.10317	0.000
(5)	*****	*****	*****	*****	*****	*****	0.06282	0.06282	0.000
10 Aroclor-1262 [2C](1)	*****	*****	*****	*****	*****	*****	0.06831	0.06831	0.000
(2)	*****	*****	*****	*****	*****	*****	0.05818	0.05818	0.000
(3)	*****	*****	*****	*****	*****	*****	0.06601	0.06601	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10341	0.10341	0.000
9 Aroclor-1260 [2C](1)	0.05286	0.04911	0.04696	0.04801	0.04329	0.04201	*****	0.04704	8.422
(2)	0.12976	0.12431	0.12095	0.12664	0.11320	0.10545	*****	0.12005	7.605

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(3)	0.03524	0.03147	0.02937	0.03208	0.03102	0.03198	#####	0.03186	6.045
(4)	0.08632	0.08237	0.08044	0.08393	0.07718	0.07531	#####	0.08092	5.126
11 Aroclor-1268 [2C](1)	#####	#####	#####	#####	#####	#####	0.16109	0.16109	0.000
(2)	#####	#####	#####	#####	#####	#####	0.17318	0.17318	0.000
(3)	#####	#####	#####	#####	#####	#####	0.14787	0.14787	0.000
(4)	#####	#####	#####	#####	#####	#####	0.47260	0.47260	0.000
41 2,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
42 2,4-DDD [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
44 4,4-DDE [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
45 4,4-DDD/2,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####
46 4,4-DDT [2C]	#####	#####	#####	#####	#####	#####	#####	#####	#####

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.21526	1.19545	1.17555	1.21907	1.12560	1.11139	+++++	1.17372	3.897
$ 13 Decachlorobiphenyl [2C]	1.17066	1.20406	1.20549	1.31040	1.21104	1.20797	+++++	1.21827	3.898

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
*	41 IS-BNB	3.493	3.492	3.492	3.492	3.491	3.491	3.493	3.393-3.593	3.492	0.001
$	1 Tetrachloro-m-xylene	5.811	5.809	5.809	5.813	5.809	5.810	5.811	5.711-5.911	5.810	0.002
	2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
	3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
	4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
	7 Aroclor-1016	7.272	7.272	7.272	7.270	7.271	7.270	7.272	7.172-7.372	7.271	0.001
	6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
	8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
	9 Aroclor-1260	11.046	11.047	11.046	11.044	11.045	11.044	11.046	10.946-11.146	11.045	0.001
	10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
	11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$	13 Decachlorobiphenyl	13.897	13.893	13.893	13.899	13.892	13.898	13.897	13.797-13.997	13.895	0.003
*	12 IS-HBBP	14.269	14.268	14.268	14.267	14.268	14.268	14.269	14.169-14.369	14.268	0.001
	42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.260	9.210-9.310	+++++	+++++
	43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.801	9.751-9.851	+++++	+++++
	44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.293	10.243-10.343	+++++	+++++
	46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.683	9.583-9.783	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.254	10.154-10.354	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.754	10.654-10.854	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.929	3.929	3.928	3.929	3.928	3.828-4.028	3.929	0.000
$ 2 Tetrachloro-m-xylene [	5.687	5.688	5.688	5.688	5.688	5.688	5.687	5.587-5.787	5.688	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.255	7.256	7.256	7.254	7.255	7.256	7.255	7.155-7.355	7.255	0.001
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.653	11.656	11.655	11.652	11.655	11.653	11.653	11.553-11.753	11.654	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.120	14.120	14.119	14.122	14.119	14.120	14.120	14.020-14.220	14.120	0.001
* 12 IS-HBBP [2C]	15.008	15.008	15.008	15.008	15.007	15.008	15.008	14.908-15.108	15.008	0.000
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.911	9.861-9.961	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.536	9.486-9.586	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.209	10.109-10.309	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.667	10.567-10.767	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.092	10.992-11.192	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242301ECD7.D
Data file 2: /230224.b/230224.b/02242301ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 24-FEB-2023 10:51
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.826	0.019	382217	5.683	-0.002	180378	33.8	36.5	7.7	Tetrachloro-m-xylene
13.904	0.011	534110	14.120	0.001	295605	35.3	37.2	5.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	756896	12.3
Hexabromobiphenyl	1429847	1534275	7.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	336543	6.8
Hexabromobiphenyl	513946	521508	1.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.321	0.025	1873	31.1
Aroclor-1221	3	---			0.0	3	6.633	0.012	314	3.2
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	7.698	0.043	2193	6.0	3	---			0.0
Aroclor-1232	4	8.505	-0.076	11525	74.5	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	7.698	0.042	2193	3.1	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	8.505	-0.074	11525	35.2	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	9.596	-0.072	31424	64.3	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	10.167	-0.010	18361	30.8	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	11.098	0.054	6994	12.7	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	11.706	-0.027	7806	5.1	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	10.824	-0.005	16873	35.8	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	13.040	0.053	14031	18.6	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.709	0.009	6037	3.6	3	12.891	-0.001	659	0.7
Aroclor-1268	4	13.499	0.010	12396	2.3	4	13.710	0.001	1848	0.6
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.906 - 13.793) = 260205 Col1 Total PCB = 0.0 ppm*

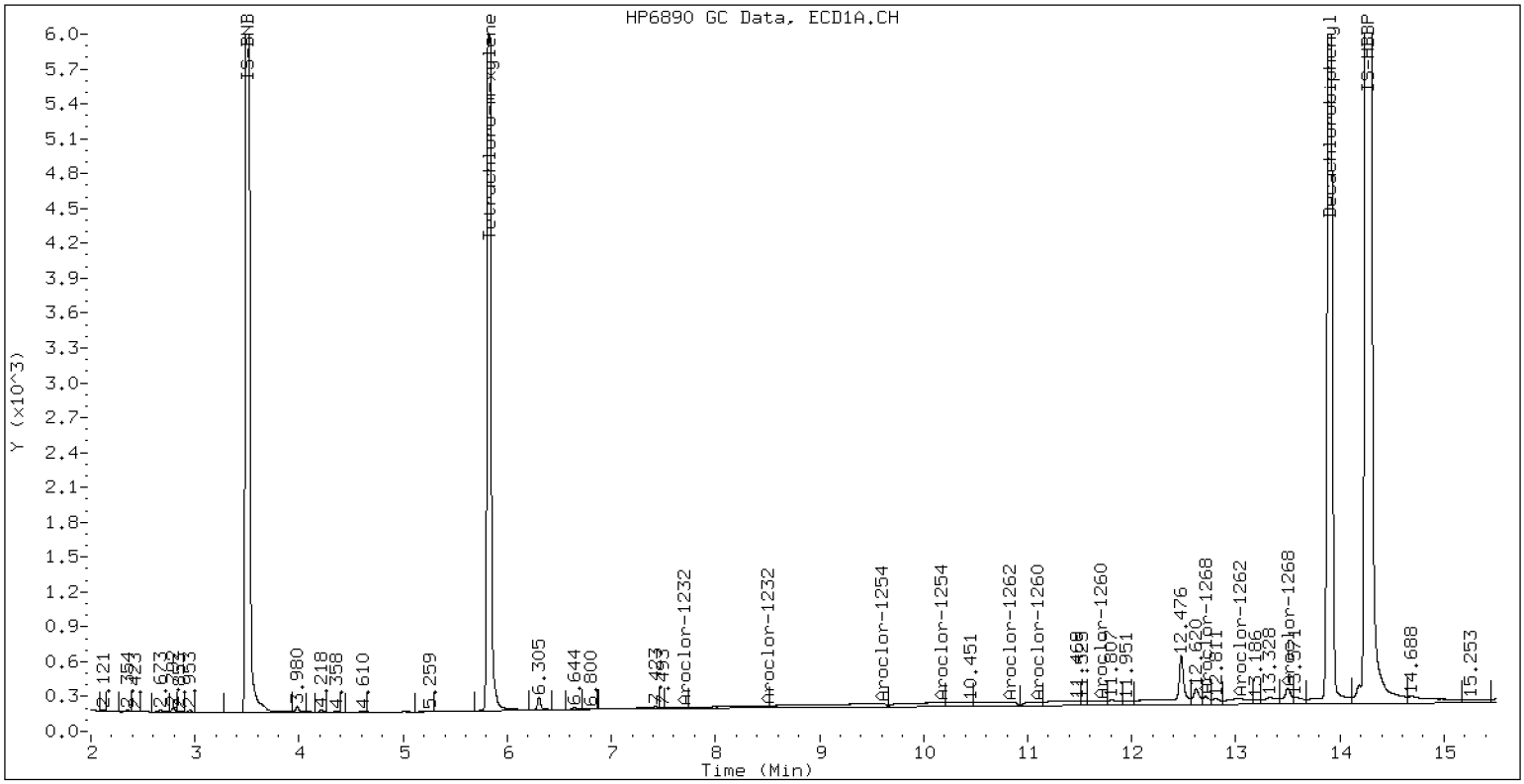
Total PCB Area Col2 (5.785 - 14.019) = 18252 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

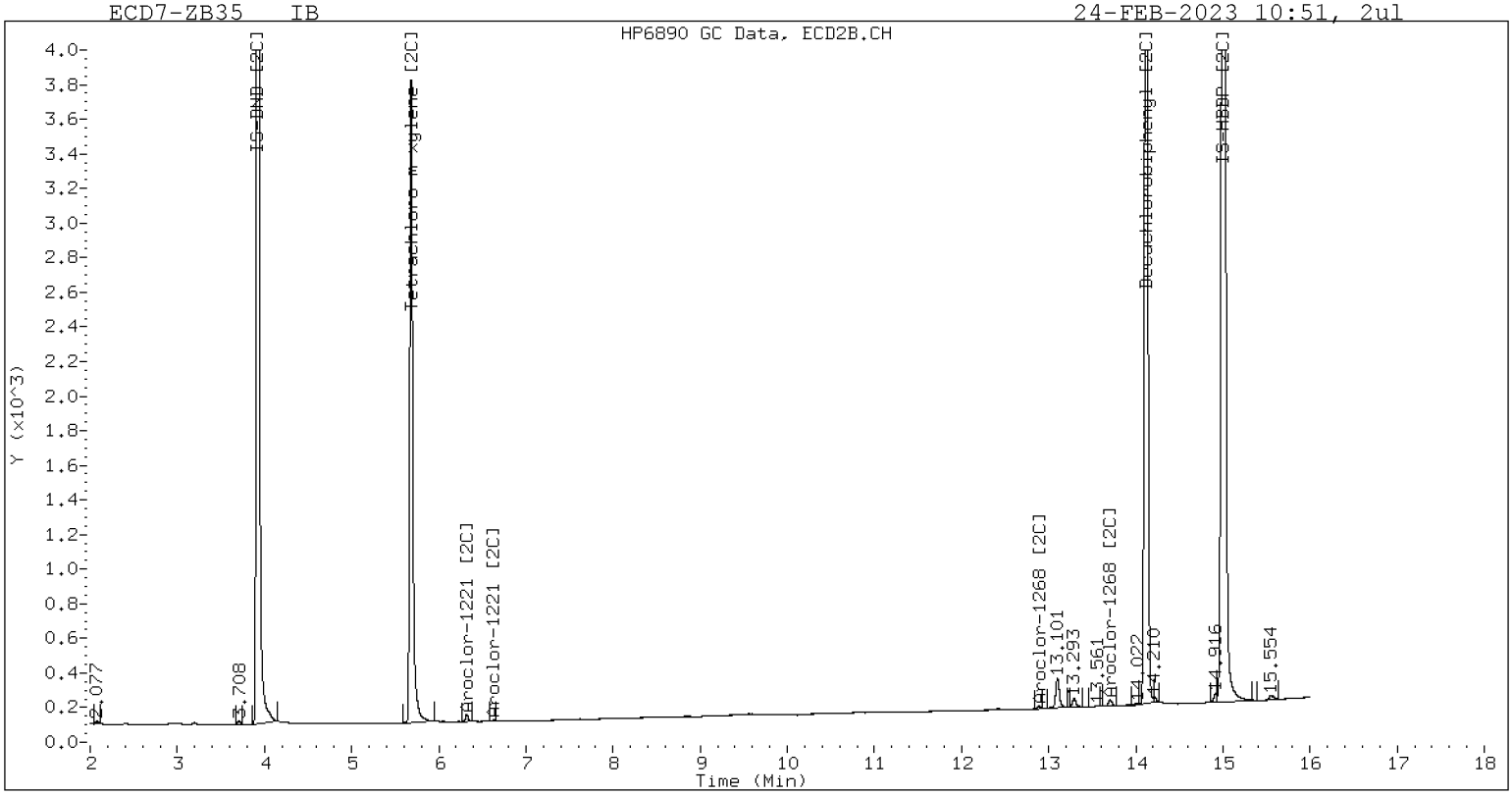
PCB Dual Column Chromatograms

ECD7-ZB5 IB 24-FEB-2023 10:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 24-FEB-2023 10:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242302ECD7.D
Data file 2: /230224.b/230224.b/02242302ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:12
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.005	405980	5.687	0.002	192160	40.4	41.5	2.9	Tetrachloro-m-xylene
13.897	0.004	563414	14.120	0.001	336737	40.0	43.0	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	673778	0.0
Hexabromobiphenyl	1429847	1429847	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	315256	0.0
Hexabromobiphenyl	513946	513946	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.272	0.001	66125	258.4	1	7.255	-0.001	46626	252.6
Aroclor-1016	2	7.654	-0.000	207370	265.8	2	7.855	-0.001	101071	270.1
Aroclor-1016	3	7.792	0.002	92507	242.9	3	8.055	0.001	43448	257.1
Aroclor-1016	4	8.406	0.001	64388	261.5	4	8.306	-0.000	33986	256.3
Total Col1Ave (4 peaks):					257.2	Total Col2Ave (4 peaks):				259.0 RPD = 1
Corrected Ave (3 peaks):					254.3	Corrected Ave (3 peaks):				255.3 RPD = 0
CalAmt %D:					2.9	CalAmt %D:				3.6
Aroclor-1260	1	11.046	0.001	138355	269.0	1	11.653	0.001	77114	255.2
Aroclor-1260	2	11.363	0.002	147051	273.6	2	11.918	0.001	203401	263.7
Aroclor-1260	3	11.736	0.003	383171	268.8	3	12.435	-0.000	51517	251.7
Aroclor-1260	4	12.141	0.002	200399	279.2	4	12.502	0.001	134797	259.3
Aroclor-1260	5	12.247	0.003	83796	271.2	NS	---			----
Total Col1Ave (5 peaks):					272.4	Total Col2Ave (4 peaks):				257.5 RPD = 6
Corrected Ave (4 peaks):					270.7	Corrected Ave (3 peaks):				255.4 RPD = 6
CalAmt %D:					8.9	CalAmt %D:				3.0

Total PCB Area Col1 (5.906 - 13.793) = 4024419 Col1 Total PCB = 0.5 ppm*

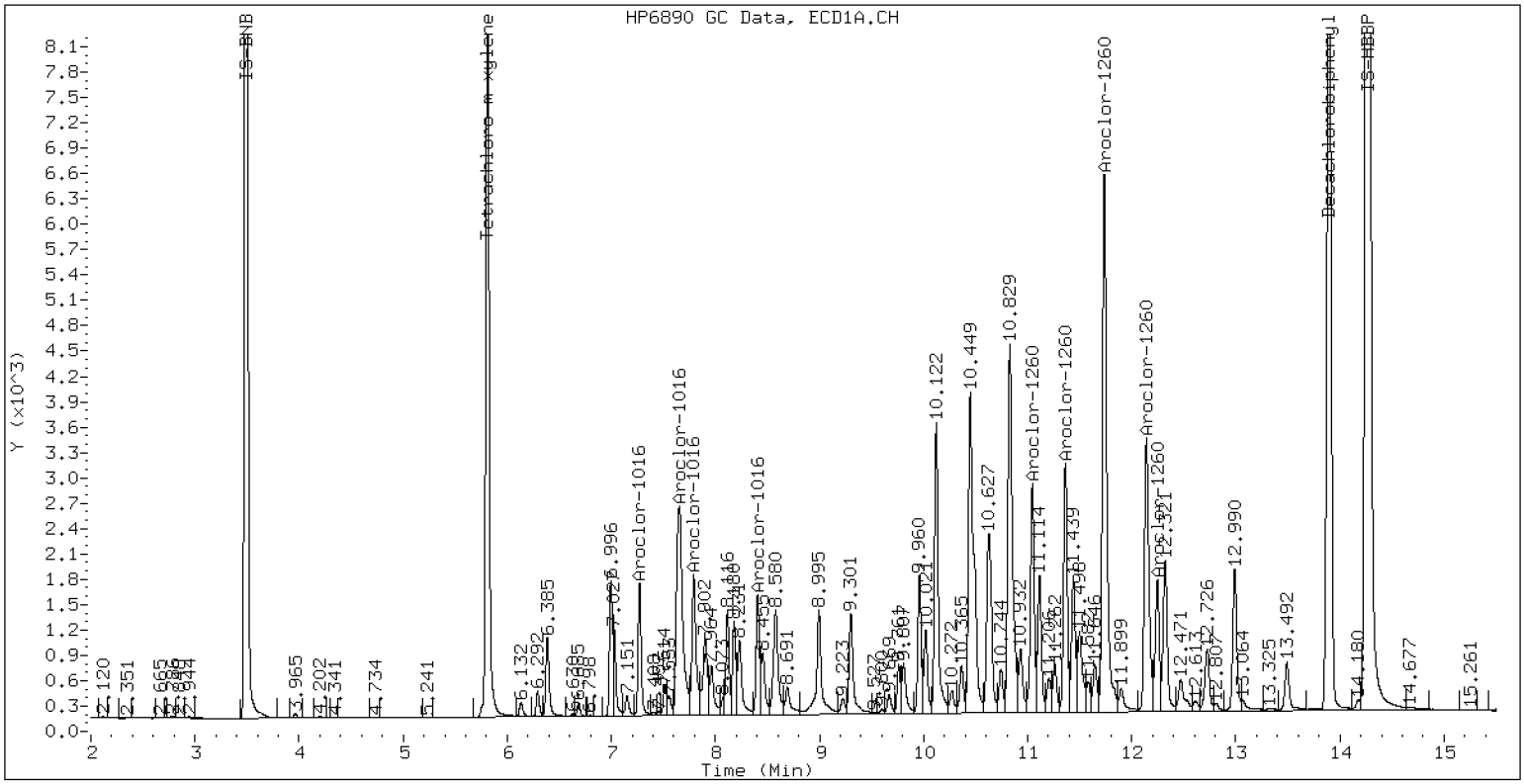
Total PCB Area Col2 (5.785 - 14.019) = 1889311 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

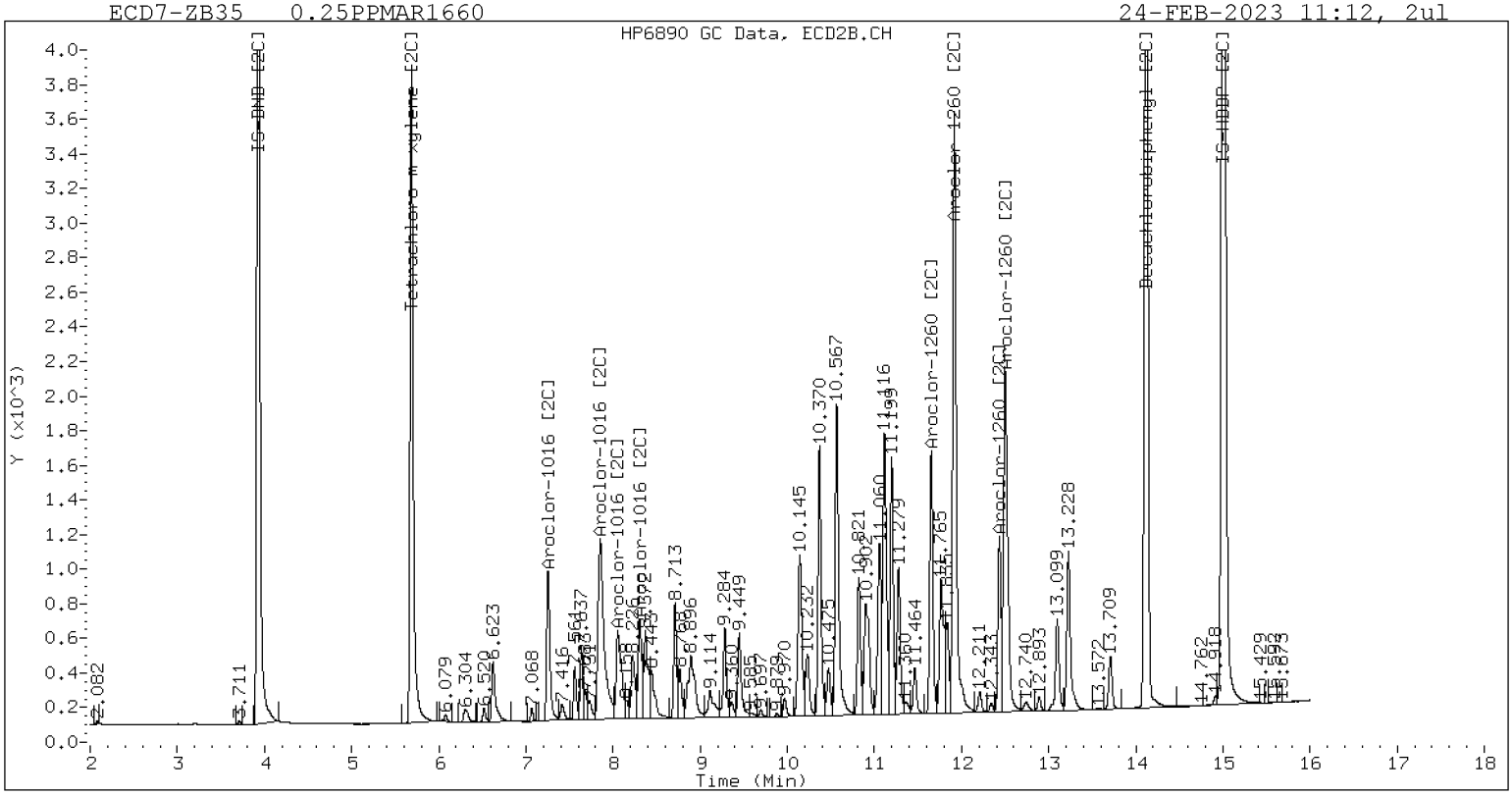
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242303ECD7.D
Data file 2: /230224.b/230224.b/02242303ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:33
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	29768	5.688	0.003	14932	3.1	3.3	5.7	Tetrachloro-m-xylene
13.893	0.000	45992	14.120	0.000	23950	3.4	3.1	9.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	637010	-5.5
Hexabromobiphenyl	1429847	1386953	-3.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307177	-2.6
Hexabromobiphenyl	513946	511463	-0.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.272	0.001	5052	20.9	1	7.256	0.000	3894	21.7
Aroclor-1016	2	7.659	0.005	14714	19.9	2	7.864	0.008	6253	17.1
Aroclor-1016	3	7.795	0.005	8226	22.8	3	8.060	0.006	3076	18.7
Aroclor-1016	4	8.407	0.002	4780	20.5	4	8.309	0.002	2443	18.9
Total Col1Ave (4 peaks):					21.1	Total Col2Ave (4 peaks):				19.1 RPD = 10
Corrected Ave (3 peaks):					20.5	Corrected Ave (3 peaks):				18.2 RPD = 11
CalAmt %D:					5.3	CalAmt %D:				-4.5
Aroclor-1260	1	11.047	0.003	10147	20.3	1	11.656	0.003	6759	22.5
Aroclor-1260	2	11.364	0.003	10287	19.7	2	11.922	0.005	16592	21.6
Aroclor-1260	3	11.740	0.006	28043	20.3	3	12.438	0.002	4506	22.1
Aroclor-1260	4	12.145	0.006	13540	19.4	4	12.505	0.004	11037	21.3
Aroclor-1260	5	12.246	0.002	6182	20.6	NS	---			----
Total Col1Ave (5 peaks):					20.1	Total Col2Ave (4 peaks):				21.9 RPD = 9
Corrected Ave (4 peaks):					19.9	Corrected Ave (3 peaks):				21.7 RPD = 8
CalAmt %D:					0.4	CalAmt %D:				9.4

Total PCB Area Col1 (5.906 - 13.793) = 324832 Col1 Total PCB = 0.0 ppm*

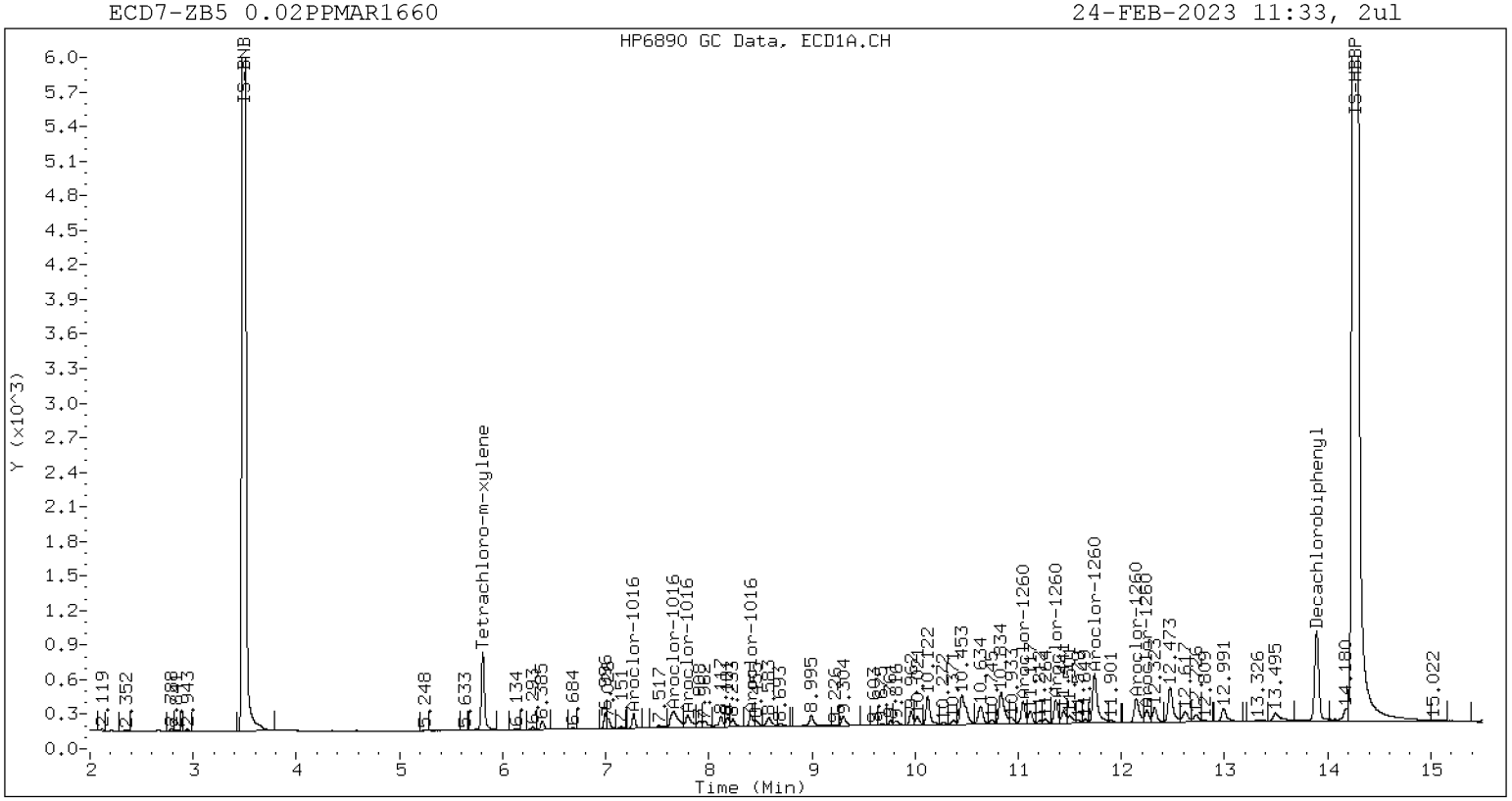
Total PCB Area Col2 (5.785 - 14.019) = 157149 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

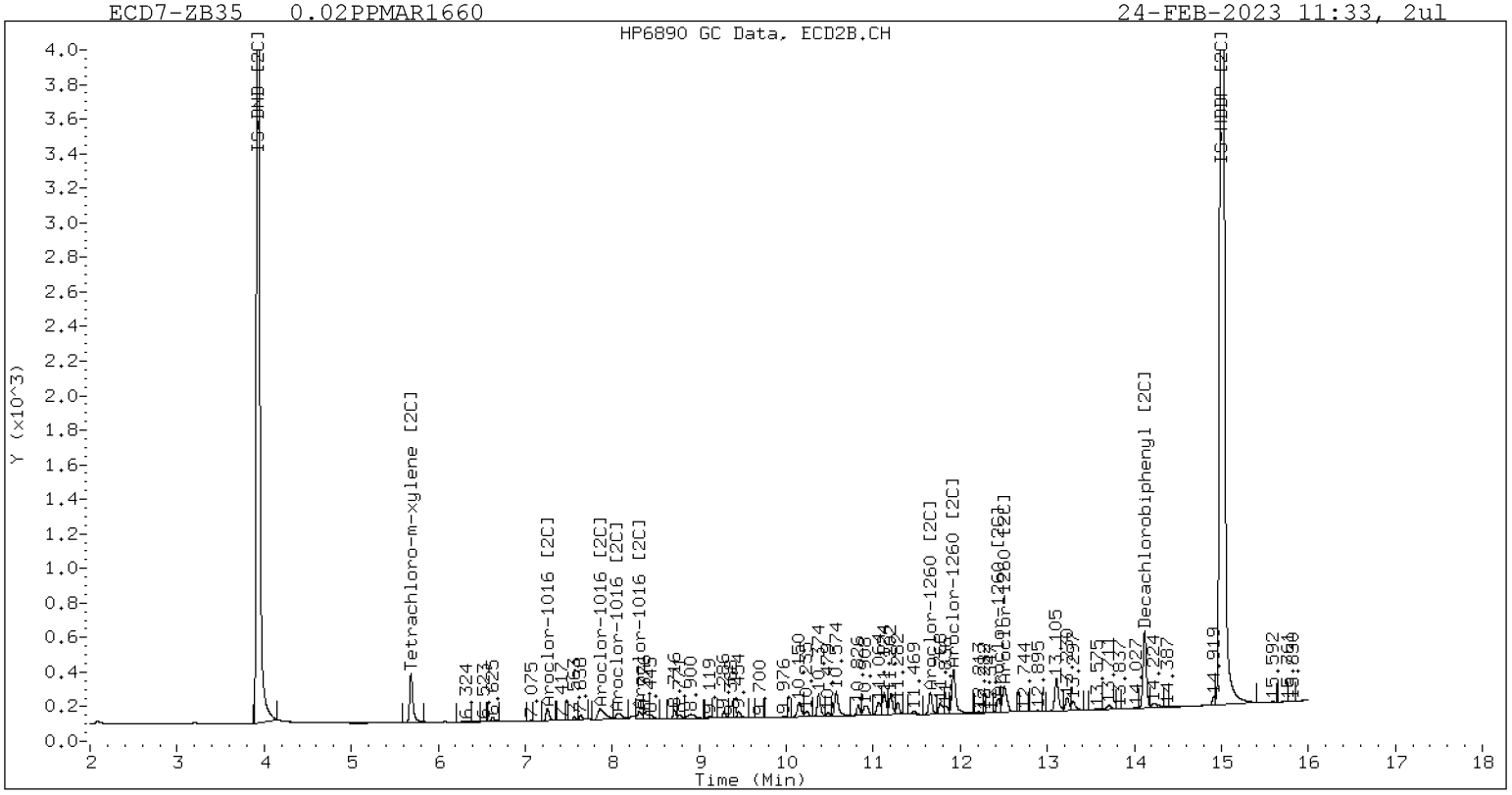
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 24-FEB-2023 11:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 24-FEB-2023 11:33, 2ul

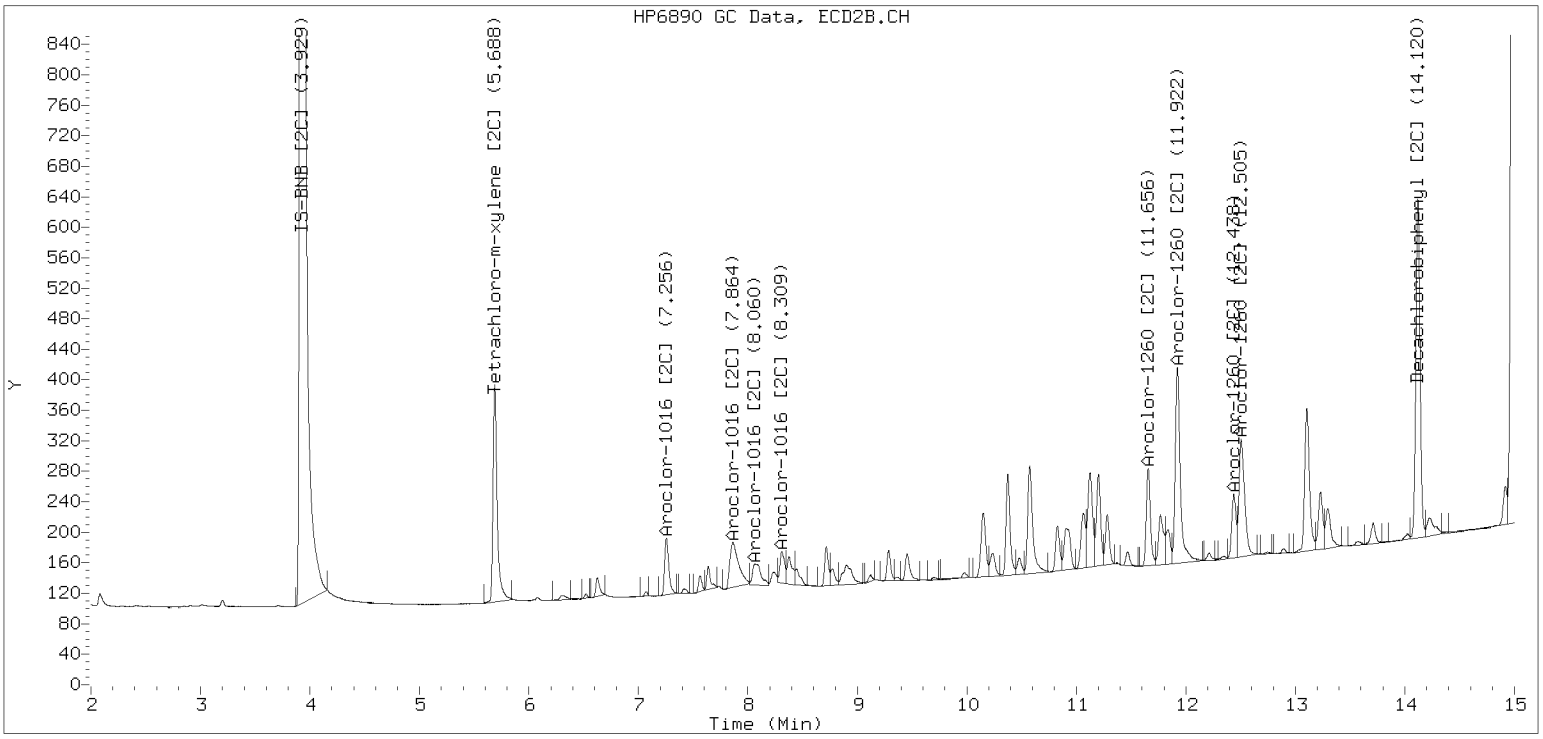


ZB-35 Manual Integration: YES

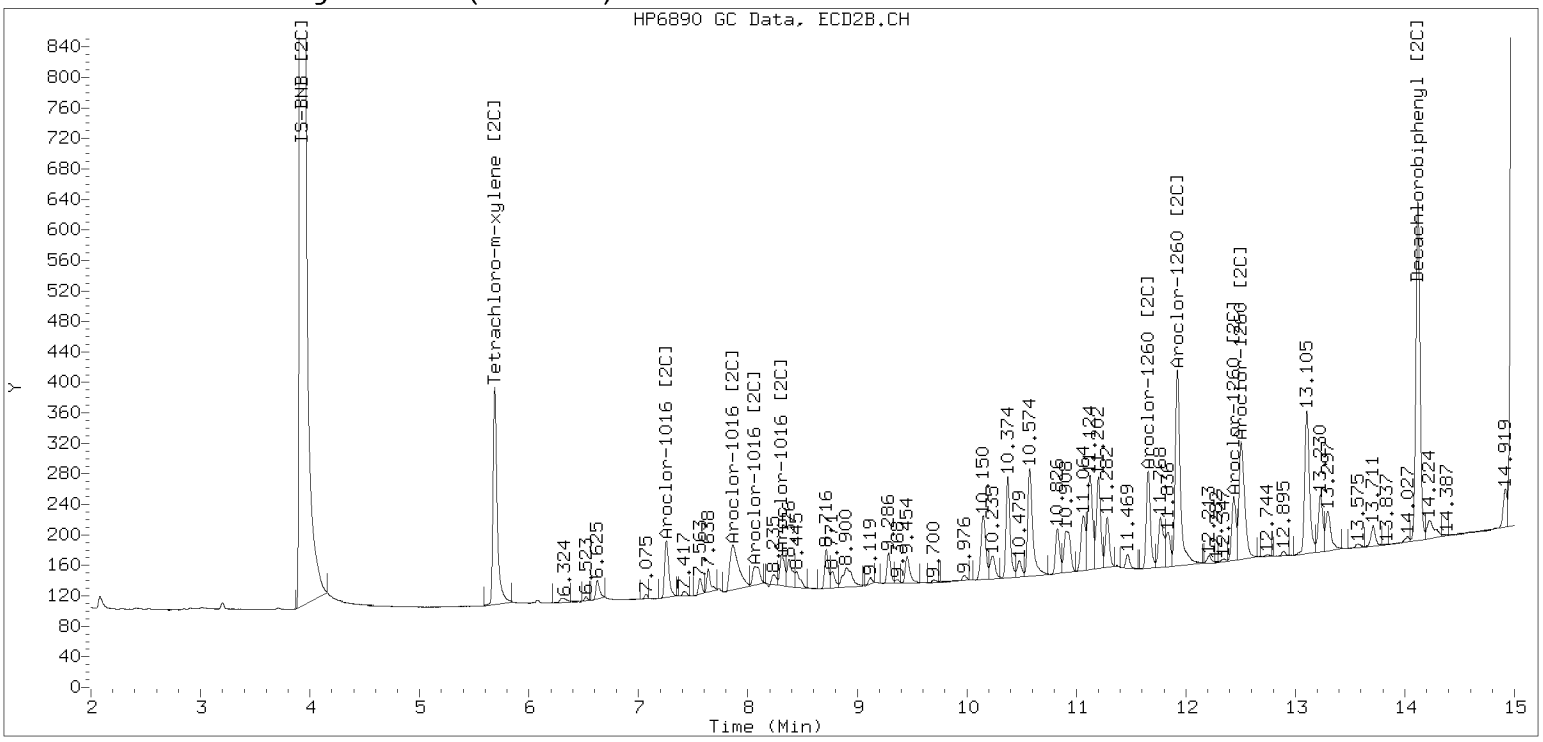
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230224.b/230224.b/02242303ECD7.D Injection Date: 24-FEB-2023

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242304ECD7.D
Data file 2: /230224.b/230224.b/02242304ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:54
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	78493	5.688	0.003	36772	8.3	8.1	2.2	Tetrachloro-m-xylene
13.893	-0.000	113544	14.119	-0.000	62745	8.2	7.9	3.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	630965	-6.4
Hexabromobiphenyl	1429847	1409464	-1.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307599	-2.4
Hexabromobiphenyl	513946	521112	1.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.272	0.002	12829	53.5	1	7.256	0.000	9654	53.6
Aroclor-1016	2	7.660	0.006	36461	49.9	2	7.864	0.008	18085	49.5
Aroclor-1016	3	7.795	0.005	19865	55.7	3	8.063	0.008	9071	55.0
Aroclor-1016	4	8.408	0.003	11411	49.5	4	8.310	0.003	7309	56.5
Total Col1Ave (4 peaks):					52.2	Total Col2Ave (4 peaks):				53.7 RPD = 3
Corrected Ave (3 peaks):					51.0	Corrected Ave (3 peaks):				52.7 RPD = 3
CalAmt %D:					4.3	CalAmt %D:				7.3
Aroclor-1260	1	11.046	0.002	25727	50.7	1	11.655	0.002	15996	52.2
Aroclor-1260	2	11.363	0.002	26482	50.0	2	11.922	0.004	40487	51.8
Aroclor-1260	3	11.739	0.005	70871	50.4	3	12.437	0.002	10248	49.4
Aroclor-1260	4	12.143	0.004	34239	48.4	4	12.506	0.004	26828	50.9
Aroclor-1260	5	12.246	0.002	15109	49.6	NS	---			----
Total Col1Ave (5 peaks):					49.8	Total Col2Ave (4 peaks):				51.1 RPD = 2
Corrected Ave (4 peaks):					49.6	Corrected Ave (3 peaks):				50.7 RPD = 2
CalAmt %D:					-0.3	CalAmt %D:				2.1

Total PCB Area Col1 (5.906 - 13.793) = 758292 Col1 Total PCB = 0.1 ppm*

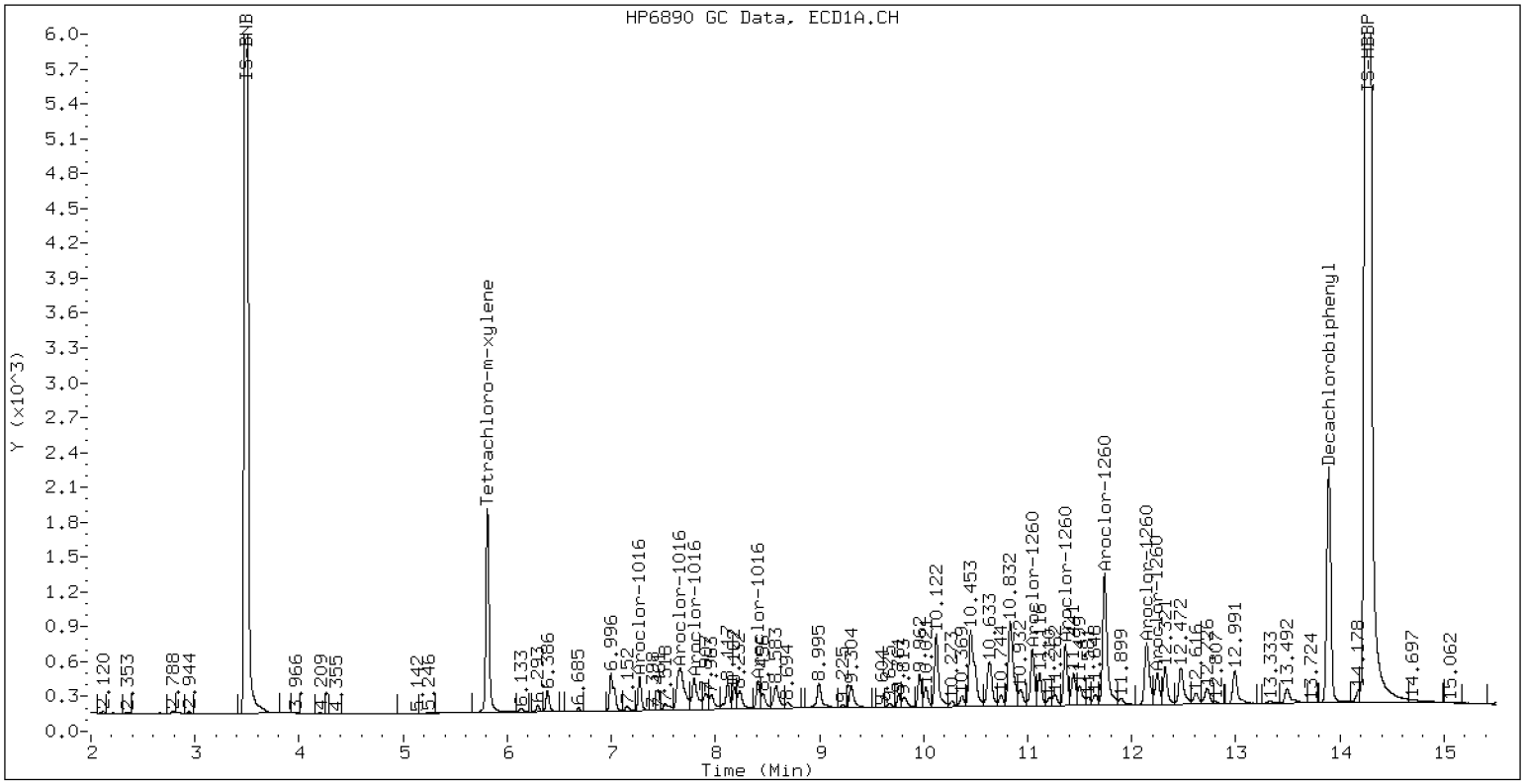
Total PCB Area Col2 (5.785 - 14.019) = 386383 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

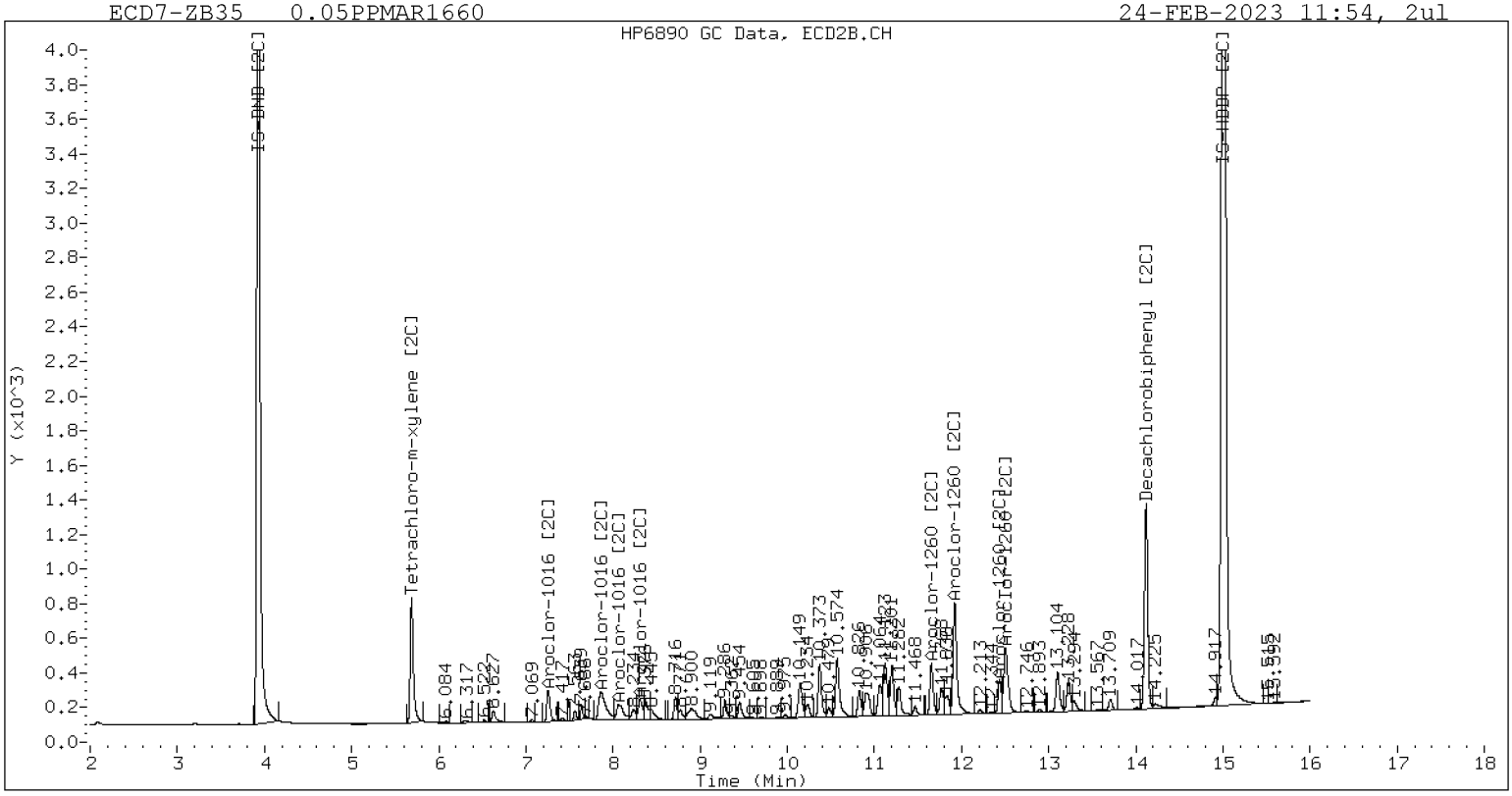
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242305ECD7.D
Data file 2: /230224.b/230224.b/02242305ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:15
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.813	0.006	1641874	5.688	0.003	709674	166.2	151.5	9.3	Tetrachloro-m-xylene
13.899	0.006	2344583	14.122	0.002	1300114	161.9	158.6	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661440	-1.8
Hexabromobiphenyl	1429847	1470100	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319272	1.3
Hexabromobiphenyl	513946	538138	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.270	-0.000	220519	877.8	1	7.254	-0.001	162833	871.2
Aroclor-1016	2	7.652	-0.002	731607	955.3	2	7.852	-0.004	373610	985.8
Aroclor-1016	3	7.789	-0.001	307629	822.8	3	8.051	-0.003	156666	915.2
Aroclor-1016	4	8.404	-0.001	229387	949.1	4	8.305	-0.002	117186	872.6
Total Col1Ave (4 peaks):					901.3	Total Col2Ave (4 peaks):				911.2 RPD = 1
Corrected Ave (3 peaks):					883.3	Corrected Ave (3 peaks):				886.3 RPD = 0
CalAmt %D:					-9.9	CalAmt %D:				-8.9
Aroclor-1260	1	11.044	-0.000	504641	954.2	1	11.652	-0.000	282606	893.1
Aroclor-1260	2	11.360	-0.001	524931	950.0	2	11.917	-0.000	709329	878.4
Aroclor-1260	3	11.734	-0.000	1410270	962.3	3	12.434	-0.001	215124	1003.8
Aroclor-1260	4	12.137	-0.002	720770	976.7	4	12.501	-0.001	506566	930.6
Aroclor-1260	5	12.243	-0.001	304211	957.7	NS	---			----
Total Col1Ave (5 peaks):					960.2	Total Col2Ave (4 peaks):				926.5 RPD = 4
Corrected Ave (4 peaks):					956.0	Corrected Ave (3 peaks):				900.7 RPD = 6
CalAmt %D:					-4.0	CalAmt %D:				-7.4

Total PCB Area Col1 (5.906 - 13.793) = 14454279 Col1 Total PCB = 1.8 ppm*

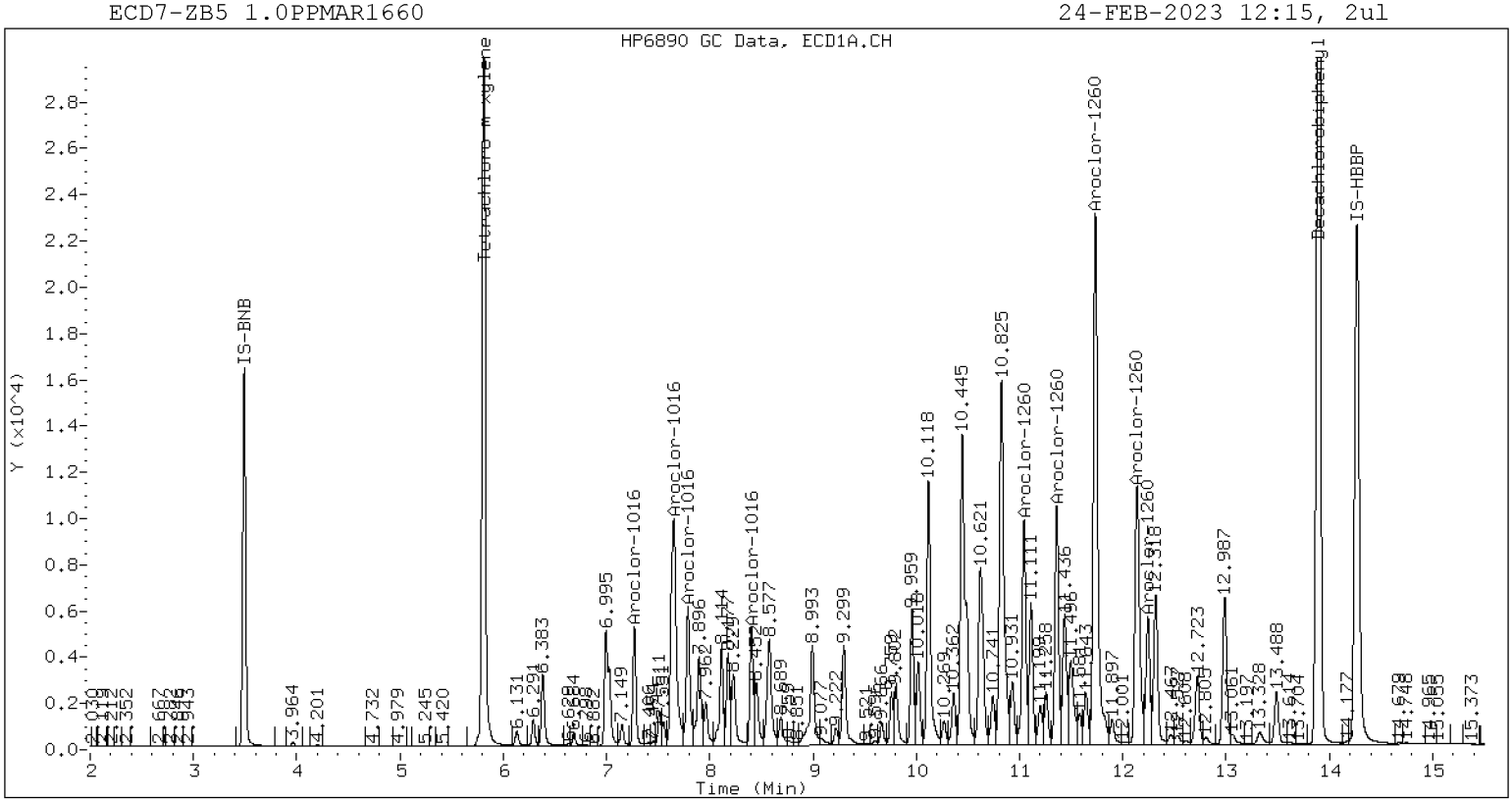
Total PCB Area Col2 (5.785 - 14.019) = 7029563 Col2 Total PCB = 1.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

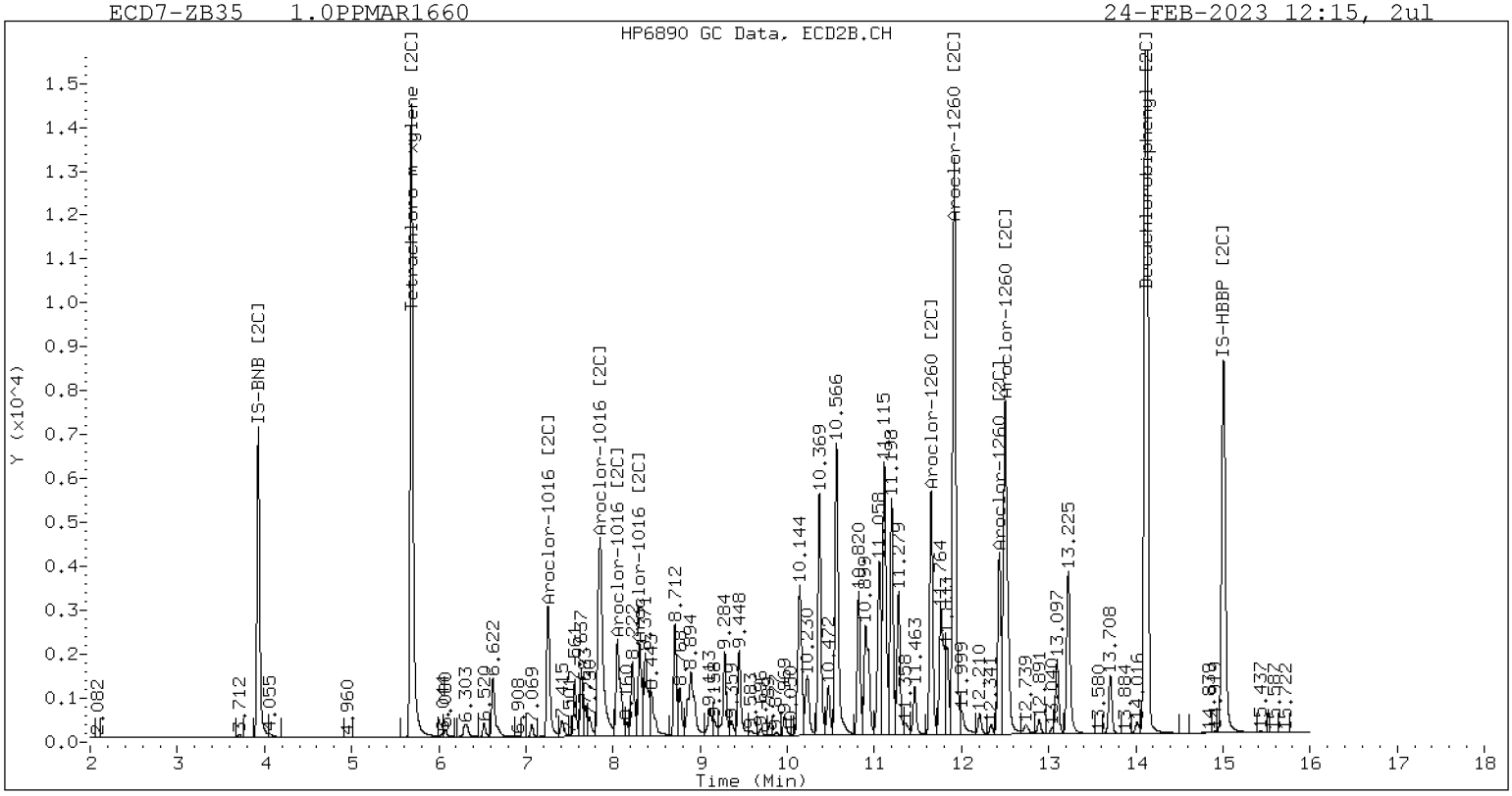
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242306ECD7.D
Data file 2: /230224.b/230224.b/02242306ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:36
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	155528	5.688	0.003	74628	15.9	16.0	0.9	Tetrachloro-m-xylene
13.892	-0.001	227253	14.119	-0.000	128496	15.8	15.8	0.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	655979	-2.6
Hexabromobiphenyl	1429847	1464509	2.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317418	0.7
Hexabromobiphenyl	513946	532962	3.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.000	25761	103.4	1	7.255	-0.000	19315	103.9
Aroclor-1016	2	7.657	0.003	75616	99.6	2	7.863	0.007	40308	107.0
Aroclor-1016	3	7.794	0.004	39547	106.7	3	8.059	0.005	18304	107.6
Aroclor-1016	4	8.406	0.001	24260	101.2	4	8.309	0.002	14708	110.2
Total Col1Ave (4 peaks):					102.7	Total Col2Ave (4 peaks):				107.2 RPD = 4
Corrected Ave (3 peaks):					101.4	Corrected Ave (3 peaks):				106.2 RPD = 5
CalAmt %D:					2.7	CalAmt %D:				7.2
Aroclor-1260	1	11.045	0.000	52009	98.7	1	11.655	0.002	31282	99.8
Aroclor-1260	2	11.362	0.001	55116	100.1	2	11.920	0.003	80574	100.7
Aroclor-1260	3	11.738	0.004	145604	99.7	3	12.437	0.002	19566	92.2
Aroclor-1260	4	12.141	0.002	72408	98.5	4	12.503	0.001	53588	99.4
Aroclor-1260	5	12.245	0.001	30745	97.2	NS	---			----
Total Col1Ave (5 peaks):					98.8	Total Col2Ave (4 peaks):				98.0 RPD = 1
Corrected Ave (4 peaks):					98.5	Corrected Ave (3 peaks):				97.1 RPD = 1
CalAmt %D:					-1.2	CalAmt %D:				-2.0

Total PCB Area Col1 (5.906 - 13.793) = 1555762 Col1 Total PCB = 0.2 ppm*

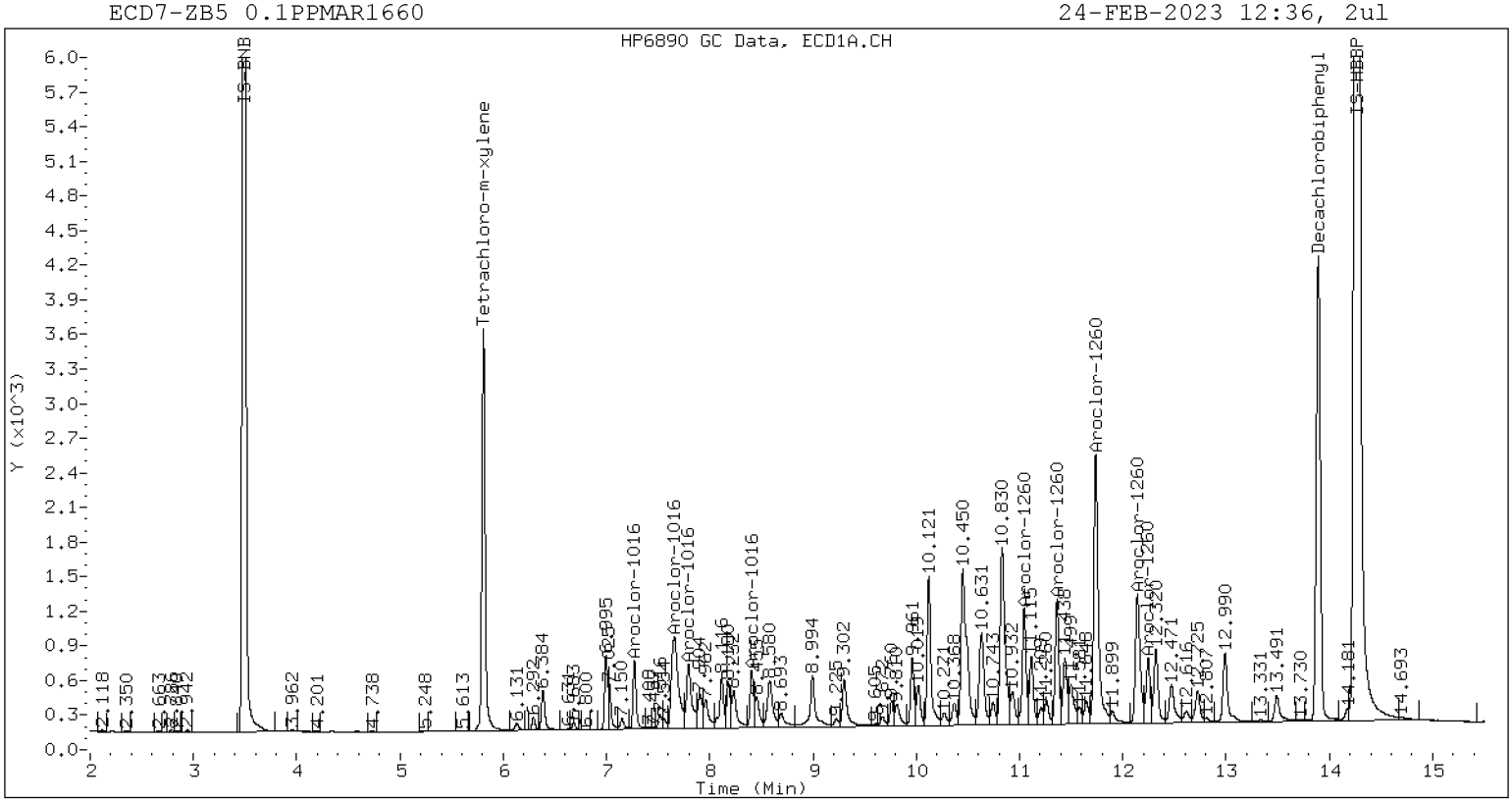
Total PCB Area Col2 (5.785 - 14.019) = 764924 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

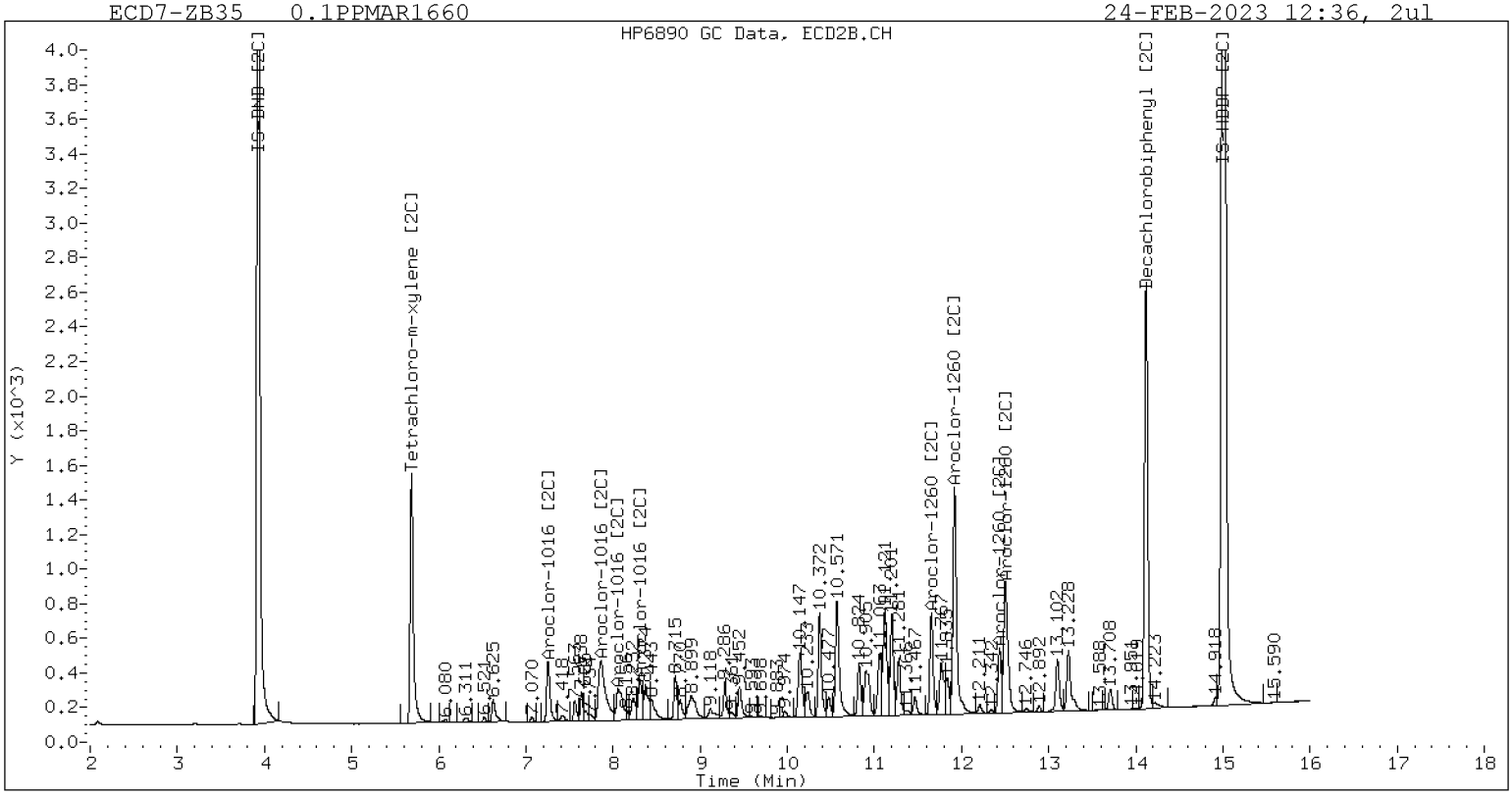
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242307ECD7.D
Data file 2: /230224.b/230224.b/02242307ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:57
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.004	724614	5.688	0.003	359257	75.2	76.7	2.0	Tetrachloro-m-xylene
13.898	0.005	1056911	14.120	0.000	650153	74.3	79.5	6.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645275	-4.2
Hexabromobiphenyl	1429847	1445345	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319170	1.2
Hexabromobiphenyl	513946	536853	4.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	115193	470.0	1	7.256	0.000	86287	461.8
Aroclor-1016	2	7.654	0.000	369991	495.2	2	7.856	0.000	192524	508.1
Aroclor-1016	3	7.790	0.000	160952	441.3	3	8.055	0.000	81039	473.6
Aroclor-1016	4	8.405	0.000	115032	487.9	4	8.307	0.000	62136	462.8
Total Col1Ave (4 peaks):					473.6	Total Col2Ave (4 peaks):				476.6 RPD = 1
Corrected Ave (3 peaks):					466.4	Corrected Ave (3 peaks):				466.1 RPD = 0
CalAmt %D:					-5.3	CalAmt %D:				-4.7
Aroclor-1260	1	11.044	0.000	247212	475.5	1	11.653	0.000	145247	460.1
Aroclor-1260	2	11.361	0.000	262877	483.9	2	11.918	0.000	379838	471.5
Aroclor-1260	3	11.734	0.000	678830	471.1	3	12.436	0.000	104092	486.9
Aroclor-1260	4	12.139	0.000	356067	490.7	4	12.502	0.000	258953	476.9
Aroclor-1260	5	12.244	0.000	150280	481.2	NS	---			----
Total Col1Ave (5 peaks):					480.5	Total Col2Ave (4 peaks):				473.8 RPD = 1
Corrected Ave (4 peaks):					477.9	Corrected Ave (3 peaks):				469.5 RPD = 2
CalAmt %D:					-3.9	CalAmt %D:				-5.2

Total PCB Area Col1 (5.906 - 13.793) = 7134169 Col1 Total PCB = 0.9 ppm*

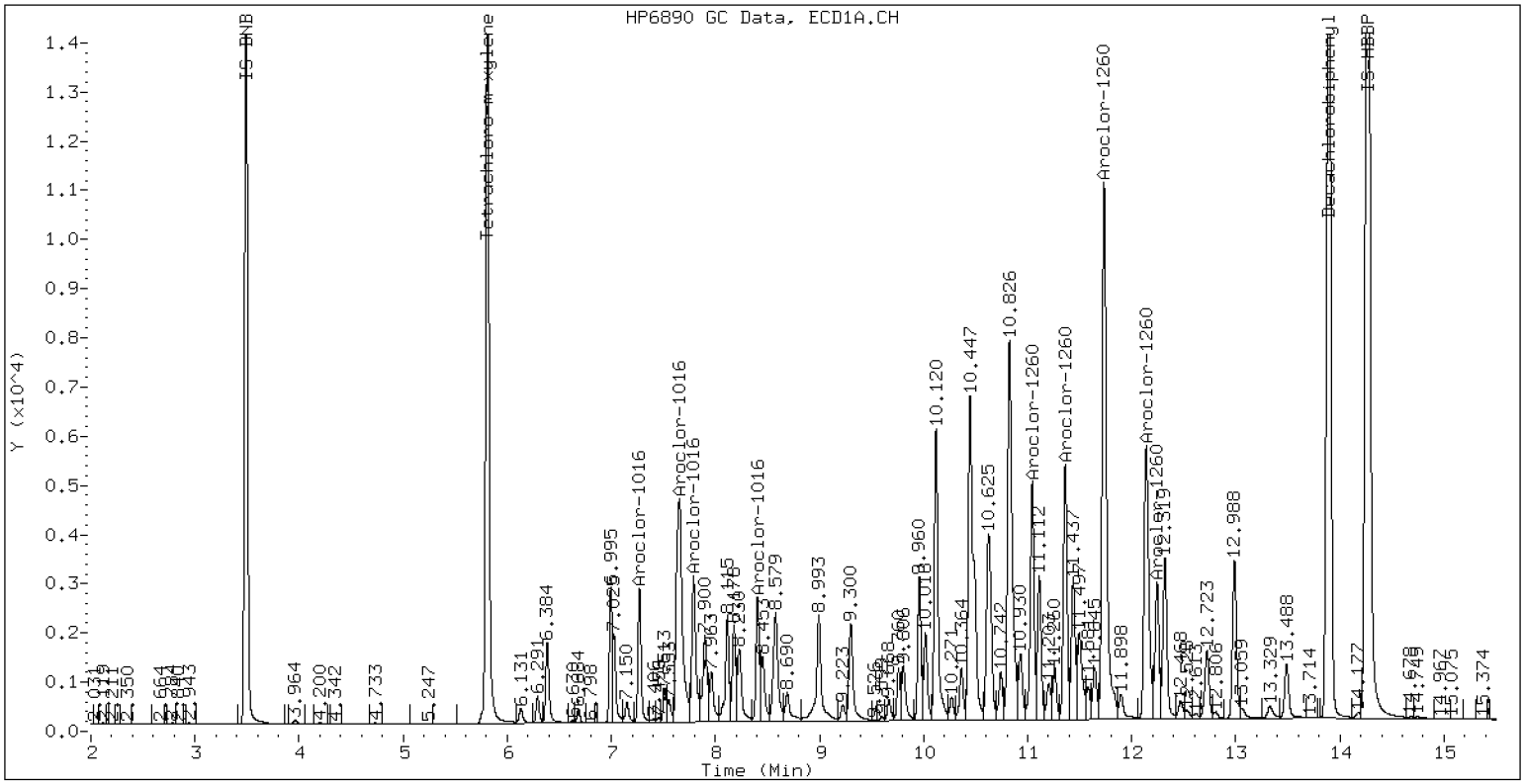
Total PCB Area Col2 (5.785 - 14.019) = 3589735 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

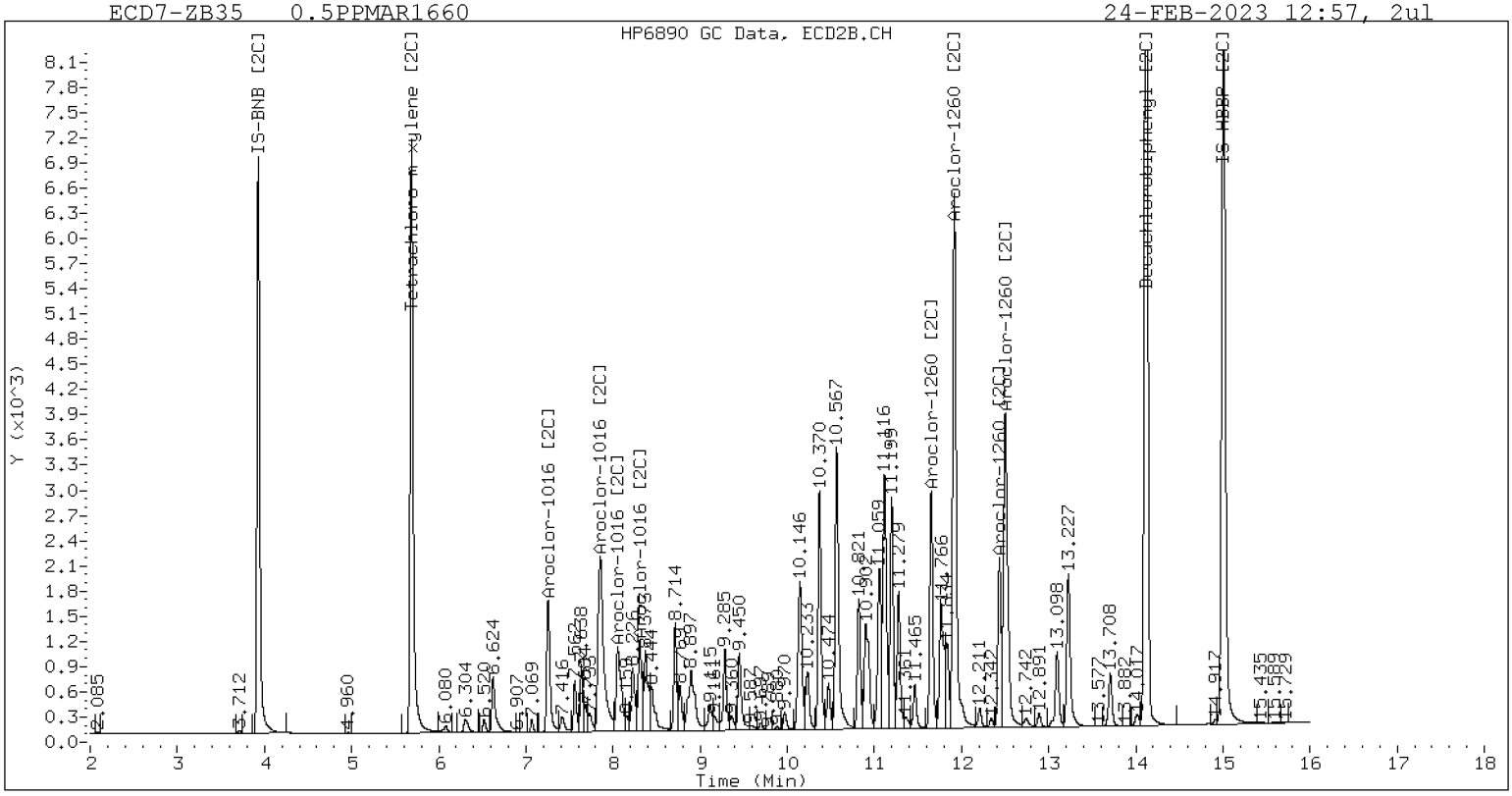
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242308ECD7.D
Data file 2: /230224.b/230224.b/02242308ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 24-FEB-2023 13:18
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	434187	5.688	0.003	214306	46.0	46.5	1.1	Tetrachloro-m-xylene
13.894	0.000	515867	14.119	-0.001	312943	35.6	38.5	7.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632576	-6.1
Hexabromobiphenyl	1429847	1469715	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314129	-0.4
Hexabromobiphenyl	513946	534294	4.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.271	0.000	49009	250.0	1	7.255	0.000	36487	250.0
Aroclor-1242	2	7.656	0.000	148833	250.0	2	7.858	0.000	76699	250.0
Aroclor-1242	3	8.405	0.000	46308	250.0	3	9.167	0.000	23866	250.0
Aroclor-1242	4	8.579	0.000	68453	250.0	4	9.597	0.000	29080	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1221467 Col1 Total PCB = 0.2 ppm*

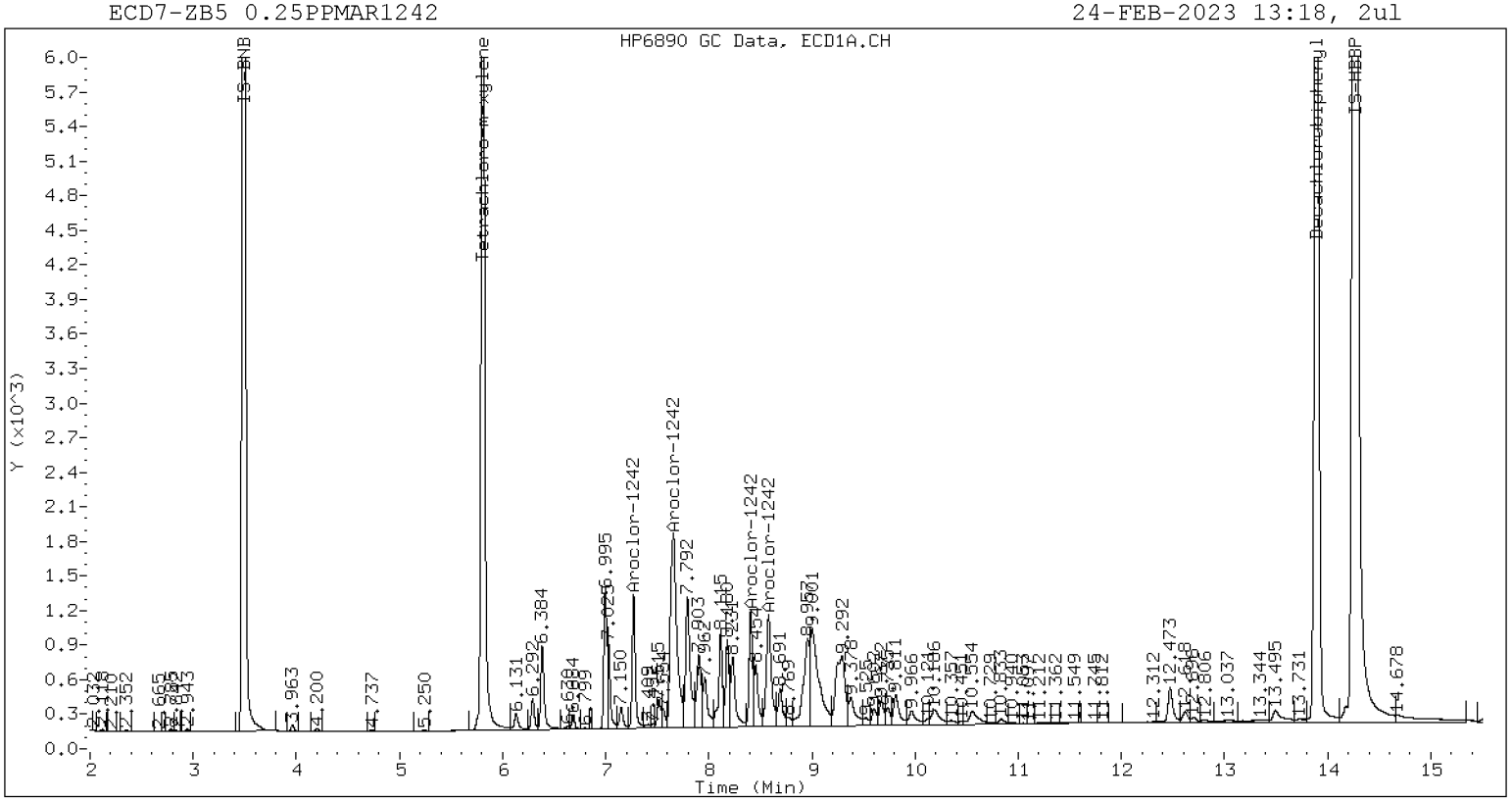
Total PCB Area Col2 (5.785 - 14.019) = 572067 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

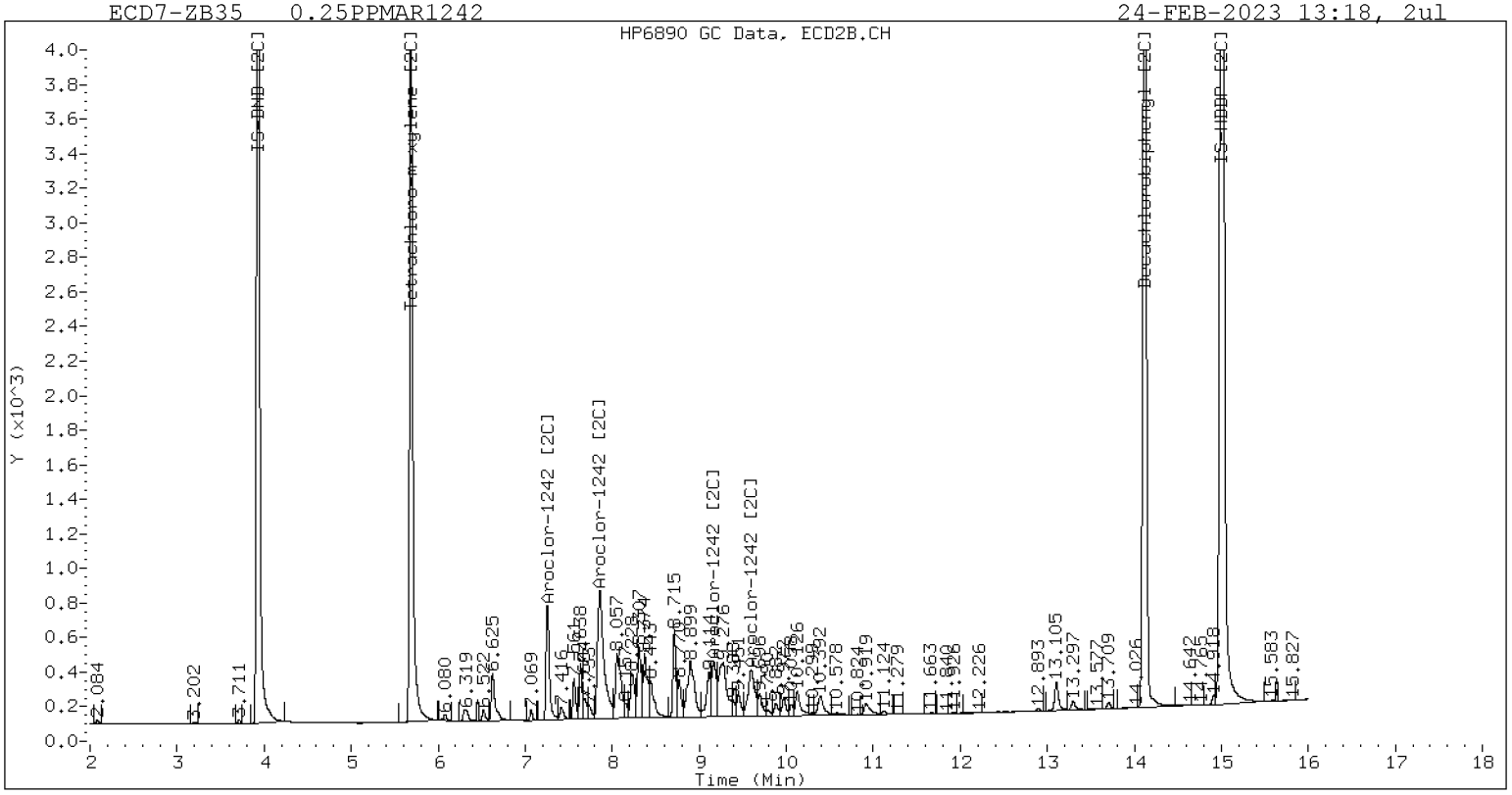
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242309ECD7.D
Data file 2: /230224.b/230224.b/02242309ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 24-FEB-2023 13:39
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	349513	5.688	0.003	176615	36.6	37.9	3.4	Tetrachloro-m-xylene
13.894	0.001	523008	14.121	0.001	322054	36.4	39.3	7.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	639911	-5.0
Hexabromobiphenyl	1429847	1458696	2.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317938	0.9
Hexabromobiphenyl	513946	538760	4.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1248	1	8.405	0.000	78055	250.0	1	8.308	0.000	37951	250.0
Aroclor-1248	2	8.580	0.000	99216	250.0	2	8.714	0.000	39239	250.0
Aroclor-1248	3	8.999	0.000	187178	250.0	3	9.166	0.000	45157	250.0
Aroclor-1248	4	9.295	0.000	95291	250.0	4	9.590	0.000	54216	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1565180 Col1 Total PCB = 0.2 ppm*

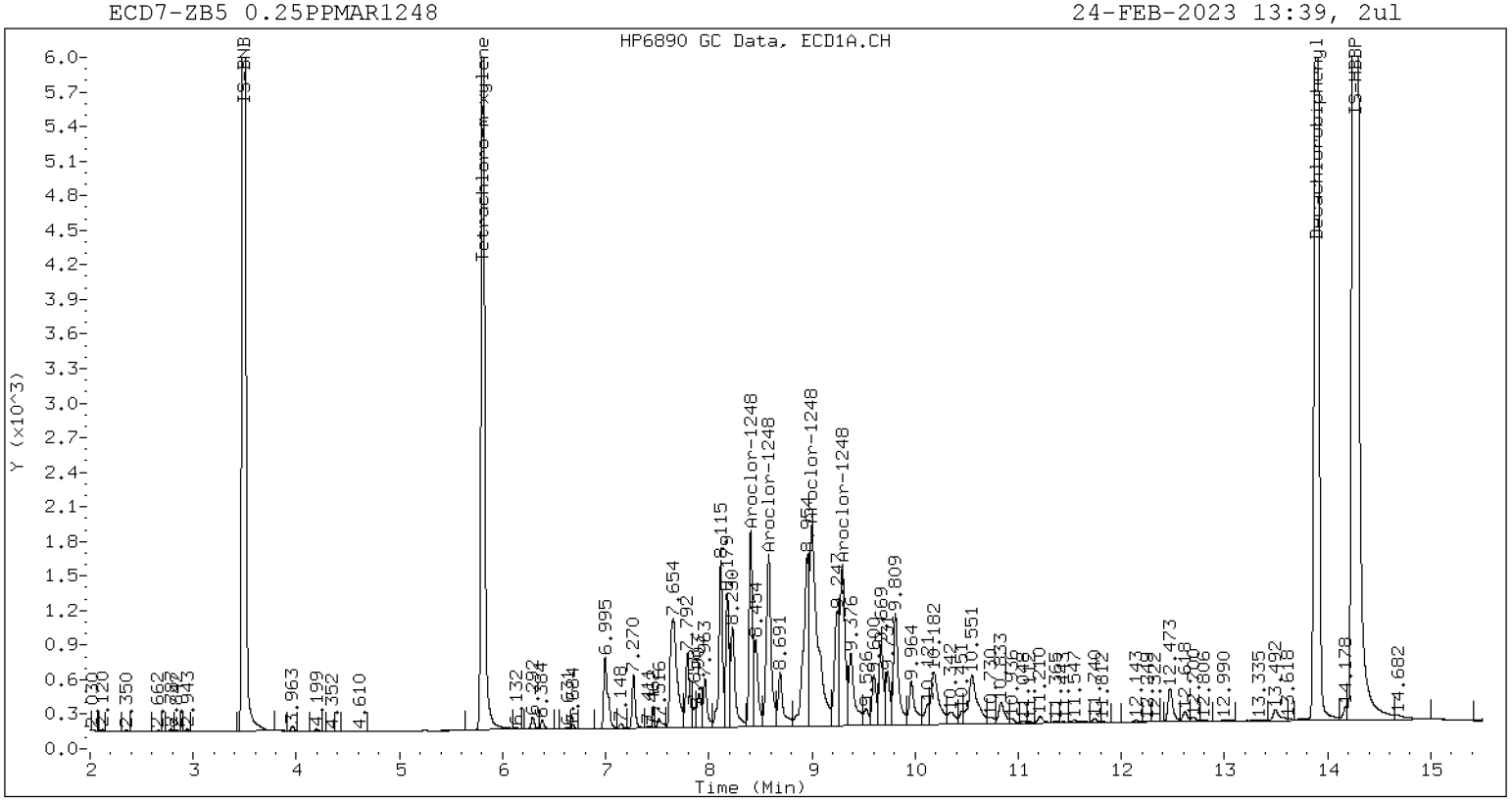
Total PCB Area Col2 (5.785 - 14.019) = 754991 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

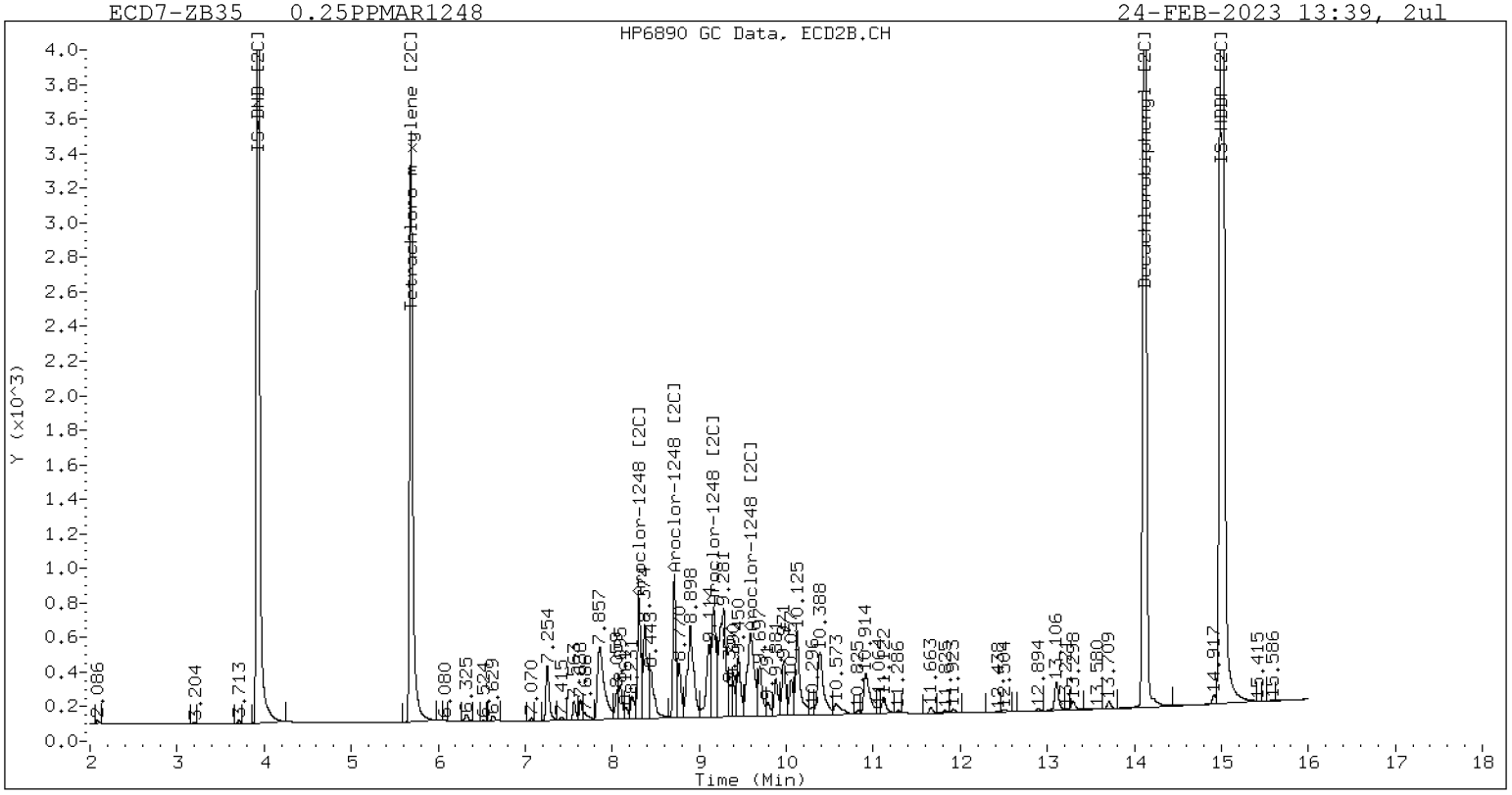
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242310ECD7.D
Data file 2: /230224.b/230224.b/02242310ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 24-FEB-2023 14:00
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	352587	5.687	0.002	177502	37.3	38.6	3.4	Tetrachloro-m-xylene
13.895	0.002	532500	14.119	0.000	325903	37.0	40.2	8.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	633407	-6.0
Hexabromobiphenyl	1429847	1460265	2.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	313673	-0.5
Hexabromobiphenyl	513946	532442	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.299	0.000	159011	250.0	1	9.449	0.000	59603	250.0
Aroclor-1254	2	9.377	0.000	71516	250.0	2	9.970	0.000	47949	250.0
Aroclor-1254	3	9.668	0.000	102230	250.0	3	10.124	0.000	103745	250.0
Aroclor-1254	4	9.807	0.000	198777	250.0	4	10.373	0.000	101135	250.0
Aroclor-1254	5	10.176	0.000	124586	250.0	5	10.569	0.000	61577	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 2179224 Col1 Total PCB = 0.3 ppm*

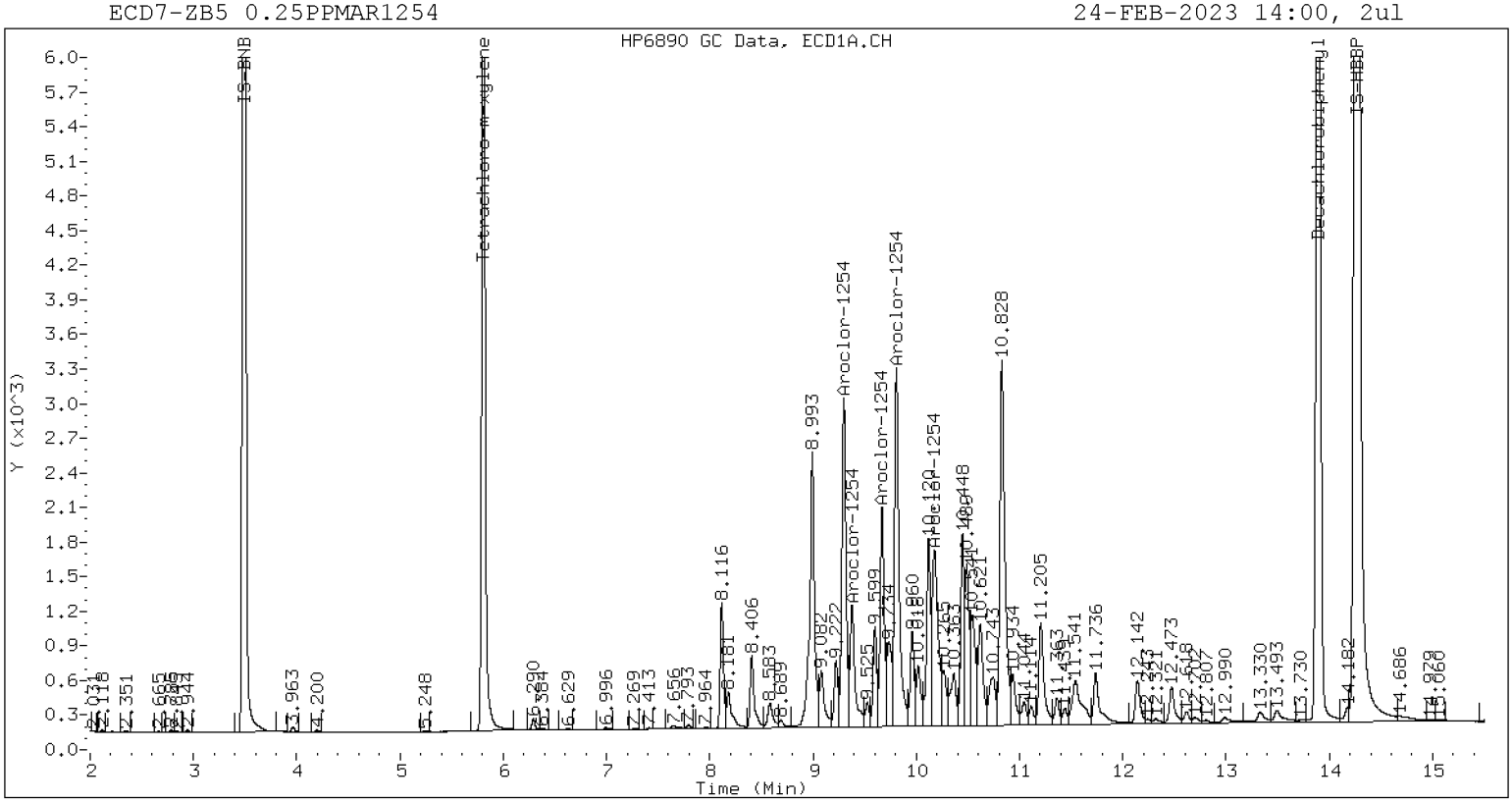
Total PCB Area Col2 (5.785 - 14.019) = 1022156 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

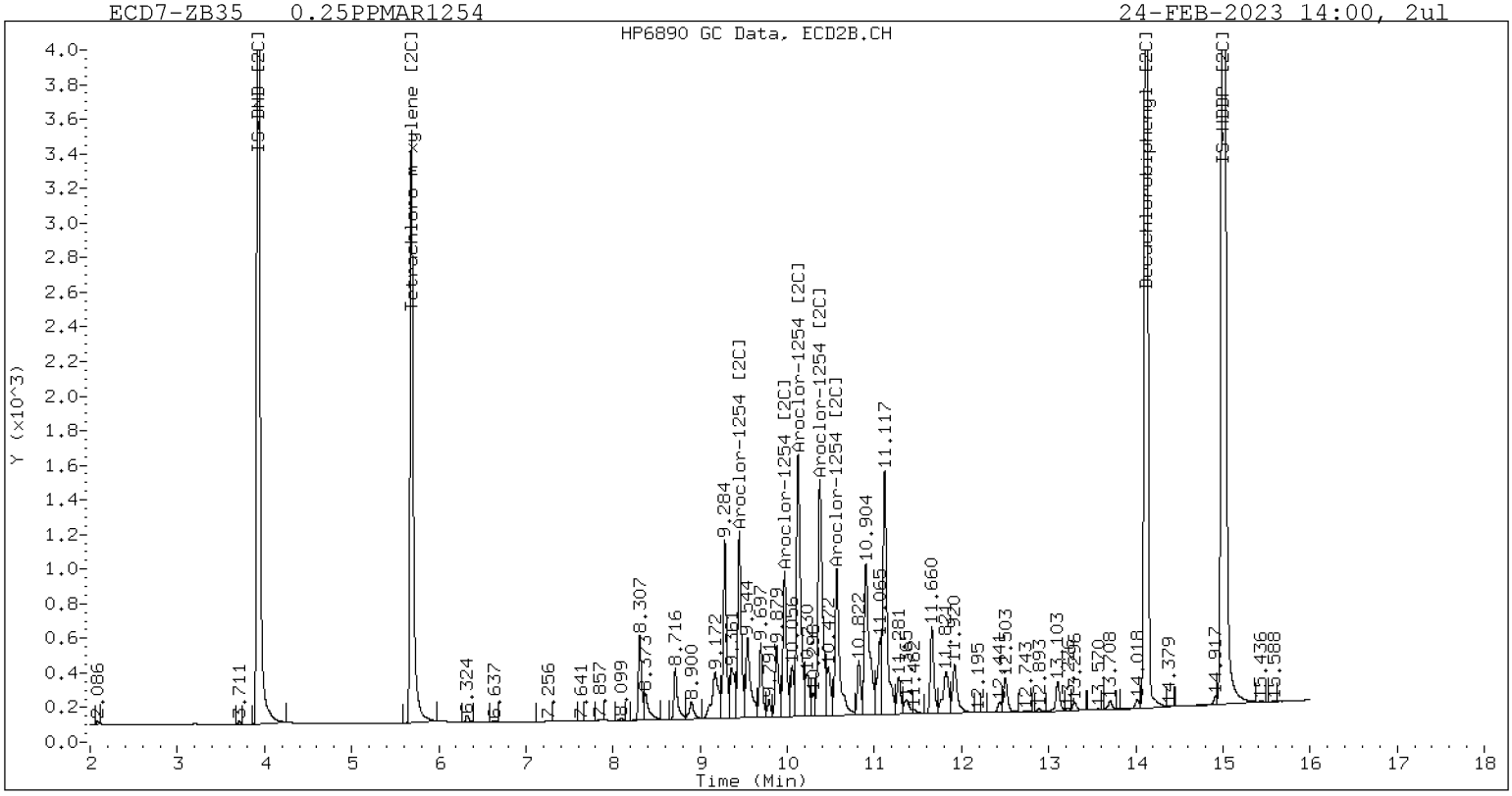
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242311ECD7.D
Data file 2: /230224.b/230224.b/02242311ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2162
Client ID:
Injection Date: 24-FEB-2023 14:21
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	362236	5.686	0.000	177349	38.4	39.2	2.1	Tetrachloro-m-xylene
13.894	0.001	523254	14.119	-0.000	321034	36.0	39.2	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632433	-6.1
Hexabromobiphenyl	1429847	1474039	3.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	308453	-2.2
Hexabromobiphenyl	513946	538177	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1221	1	4.731	0.000	14160	250.0	1	4.956	0.000	7300	250.0
Aroclor-1221	2	6.132	0.000	25324	250.0	2	6.296	0.000	13816	250.0
Aroclor-1221	3	6.382	0.000	58795	250.0	3	6.622	0.000	22491	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.829	0.000	113046	250.0	1	11.200	0.000	114880	250.0
Aroclor-1262	2	12.244	0.000	183948	250.0	2	11.652	0.000	97844	250.0
Aroclor-1262	3	12.319	0.000	197749	250.0	3	12.434	0.000	111015	250.0
Aroclor-1262	4	12.987	0.000	180727	250.0	4	12.502	0.000	173913	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3105316 Col1 Total PCB = 0.4 ppm*

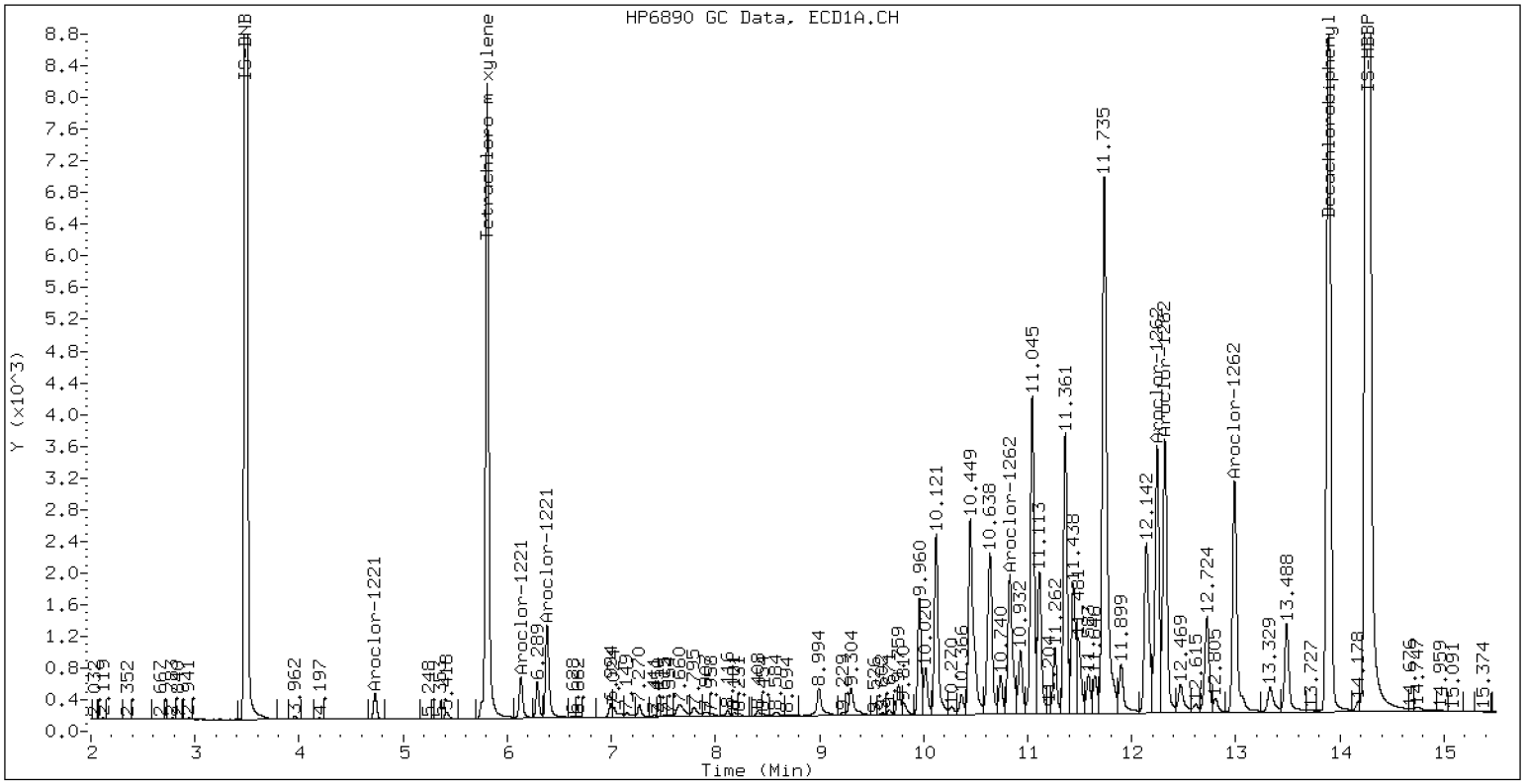
Total PCB Area Col2 (5.785 - 14.019) = 1573107 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

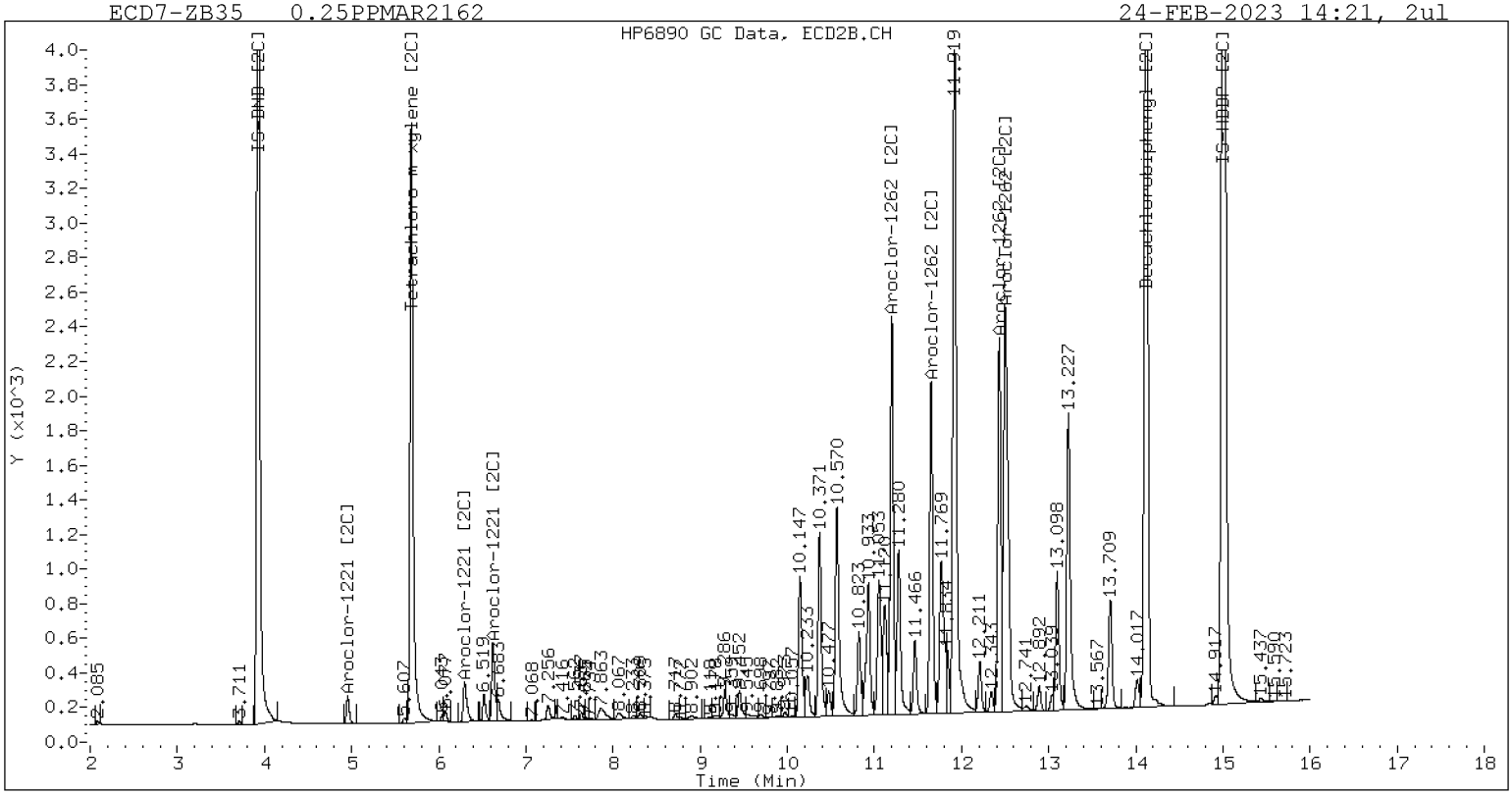
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242312ECD7.D
Data file 2: /230224.b/230224.b/02242312ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 24-FEB-2023 14:42
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	366416	5.685	0.000	179450	38.0	38.9	2.4	Tetrachloro-m-xylene
13.893	0.000	778191	14.119	0.000	477889	53.0	57.5	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645602	-4.2
Hexabromobiphenyl	1429847	1492154	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314042	-0.4
Hexabromobiphenyl	513946	545458	6.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.730	0.000	8647	250.0	1	4.956	0.000	4017	250.0
Aroclor-1232	2	6.131	0.000	17148	250.0	2	7.254	0.000	19962	250.0
Aroclor-1232	3	7.656	0.000	77627	250.0	3	7.861	0.000	39913	250.0
Aroclor-1232	4	8.581	0.000	32993	250.0	4	8.715	0.000	11487	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.247	0.000	477974	250.0	1	12.432	0.000	274595	250.0
Aroclor-1268	2	12.317	0.000	473326	250.0	2	12.500	0.000	295194	250.0
Aroclor-1268	3	12.699	0.000	405011	250.0	3	12.892	0.000	252048	250.0
Aroclor-1268	4	13.490	0.000	1333528	250.0	4	13.709	0.000	805579	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3998414 Col1 Total PCB = 0.5 ppm*

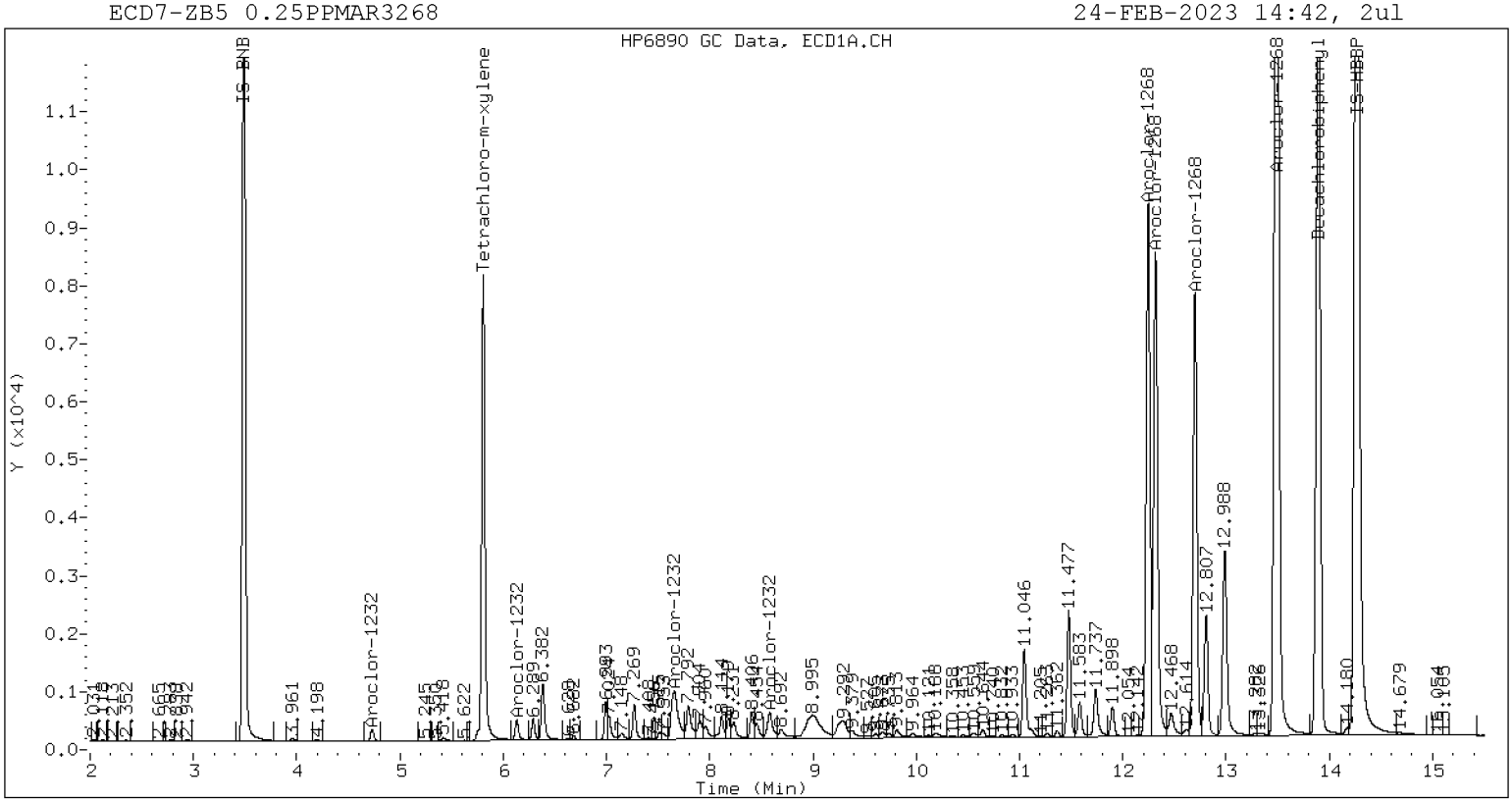
Total PCB Area Col2 (5.785 - 14.019) = 2300029 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

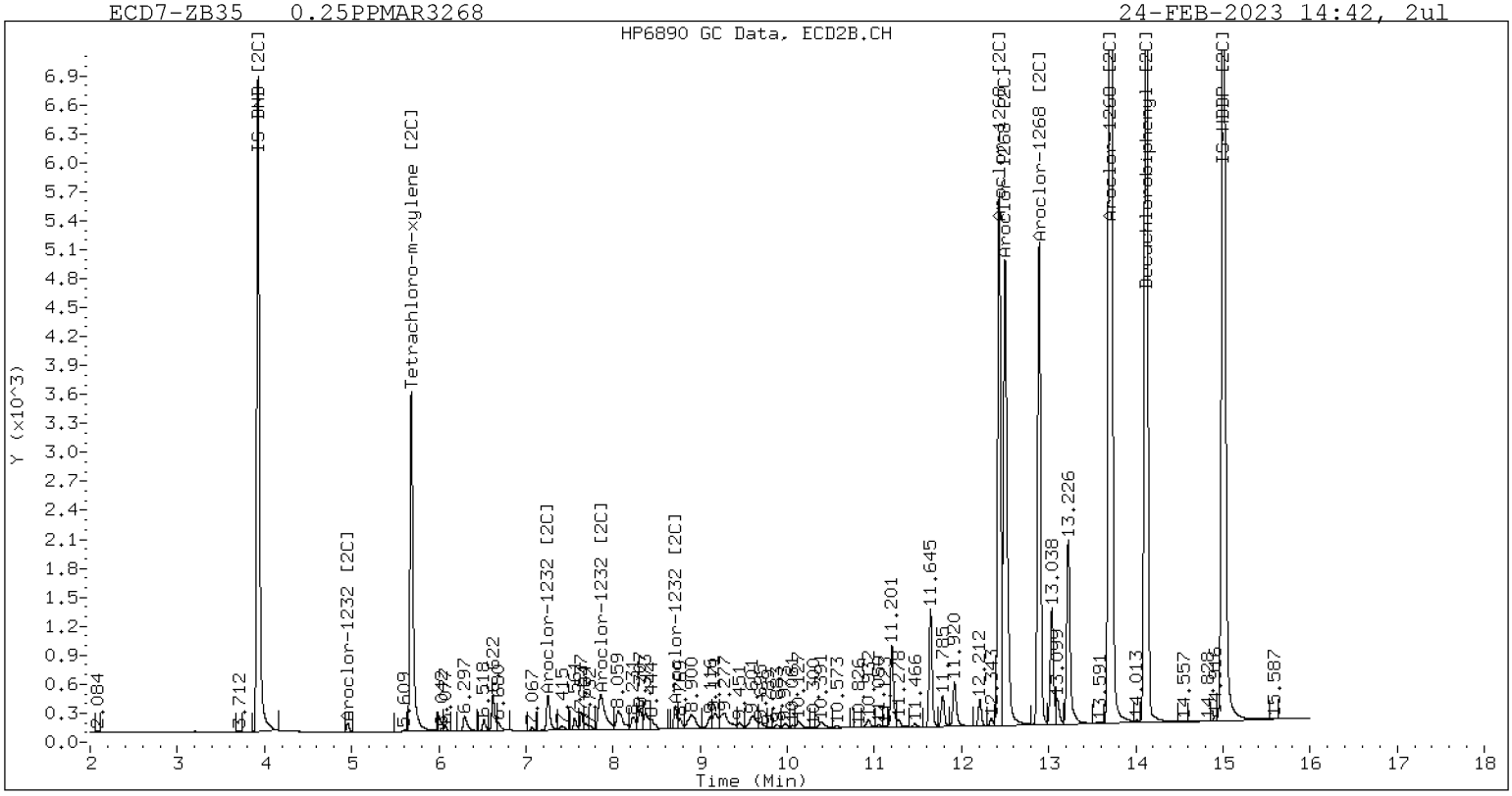
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242313ECD7.D
Data file 2: /230224.b/230224.b/02242313ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 24-FEB-2023 15:03
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	337070	5.686	0.001	165848	34.9	35.8	2.3	Tetrachloro-m-xylene
13.895	0.002	515407	14.119	-0.000	316730	34.3	37.3	8.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645975	-4.1
Hexabromobiphenyl	1429847	1524245	6.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316115	0.3
Hexabromobiphenyl	513946	556950	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.002	59491	242.5	1	7.254	-0.002	44576	240.9
Aroclor-1016	2	7.655	0.001	181090	242.1	2	7.857	0.002	95386	254.2
Aroclor-1016	3	7.790	0.000	88470	242.3	3	8.056	0.002	42160	248.8
Aroclor-1016	4	8.404	-0.001	57980	245.6	4	8.307	0.000	32197	242.1
Total Col1Ave (4 peaks):					243.1	Total Col2Ave (4 peaks):				246.5 RPD = 1
Corrected Ave (3 peaks):					242.3	Corrected Ave (3 peaks):				243.9 RPD = 1
Aroclor-1221	1	4.731	0.000	464	8.0	1	---			0.0
Aroclor-1221	2	6.130	-0.002	9233	89.2	2	6.300	0.004	5379	95.0
Aroclor-1221	3	6.382	-0.001	42570	177.2	3	6.623	0.001	20952	227.2
Total Col1Ave (3 peaks):					91.5	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.731	0.001	464	13.4	1	---			0.0
Aroclor-1232	2	6.130	-0.001	9233	134.5	2	7.254	-0.000	44576	554.6
Aroclor-1232	3	7.655	-0.001	181090	582.9	3	7.857	-0.003	95386	593.5
Aroclor-1232	4	8.580	-0.001	79916	605.2	4	8.713	-0.002	29795	644.2
Total Col1Ave (4 peaks):					334.0	Total Col2Ave (3 peaks):				597.4 RPD = 57*
Corrected Ave (3 peaks):					243.6	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	-0.002	59491	297.2	1	7.254	-0.002	44576	303.5
Aroclor-1242	2	7.655	-0.001	181090	297.9	2	7.857	-0.000	95386	309.0
Aroclor-1242	3	8.404	-0.001	57980	306.5	3	9.115	-0.052	18754	195.2
Aroclor-1242	4	8.580	0.000	79916	285.8	4	9.697	0.100	1355	11.6
Total Col1Ave (4 peaks):					296.8	Total Col2Ave (4 peaks):				204.8 RPD = 37
Corrected Ave (3 peaks):					293.6	Corrected Ave (3 peaks):				170.1 RPD = 53*
Aroclor-1248	1	8.404	-0.001	57980	184.0	1	8.307	-0.001	32197	213.3
Aroclor-1248	2	8.580	-0.001	79916	199.5	2	8.713	-0.001	29795	190.9
Aroclor-1248	3	8.993	-0.006	71805	95.0	3	9.115	-0.050	18754	104.4
Aroclor-1248	4	9.300	0.006	47348	123.1	4	---			0.0
Total Col1Ave (4 peaks):					150.4	Total Col2Ave (3 peaks):				169.6 RPD = 12
Corrected Ave (3 peaks):					134.0	Corrected Ave: < 3 Peaks				
Aroclor-1254	1	9.300	0.002	47348	73.0	1	9.451	0.001	22438	93.4
Aroclor-1254	2	---			0.0	2	9.972	0.001	2694	13.9
Aroclor-1254	3	9.670	0.002	5461	13.1	3	10.147	0.024	52914	126.5
Aroclor-1254	4	9.807	-0.000	18944	23.4	4	10.370	-0.003	70430	172.8
Aroclor-1254	5	10.121	-0.056	154170	303.3	5	10.568	-0.000	98525	396.9
Total Col1Ave (4 peaks):					103.2	Total Col2Ave (5 peaks):				160.7 RPD = 44*
Corrected Ave (3 peaks):					36.5	Corrected Ave (4 peaks):				101.7 RPD = 94*
Aroclor-1260	1	11.044	0.000	149195	272.1	1	11.653	0.000	82210	251.0
Aroclor-1260	2	11.361	-0.000	153832	268.5	2	11.919	0.001	222226	265.9
Aroclor-1260	3	11.736	0.002	396660	261.0	3	12.435	-0.000	59148	266.7
Aroclor-1260	4	12.140	0.001	190448	248.9	4	12.504	0.002	147180	261.2
Aroclor-1260	5	12.244	-0.000	91385	277.5	NS	---			----
Total Col1Ave (5 peaks):					265.6	Total Col2Ave (4 peaks):				261.2 RPD = 2
Corrected Ave (4 peaks):					262.6	Corrected Ave (3 peaks):				259.4 RPD = 1
Aroclor-1262	1	10.827	-0.002	220238	471.0	1	11.199	-0.001	84479	177.6
Aroclor-1262	2	12.244	0.000	91385	120.1	2	11.653	0.002	82210	203.0
Aroclor-1262	3	12.320	0.001	113066	138.2	3	12.435	0.002	59148	128.7
Aroclor-1262	4	12.988	0.001	102156	136.7	4	12.504	0.002	147180	204.4
Total Col1Ave (4 peaks):					216.5	Total Col2Ave (4 peaks):				178.4 RPD = 19
Corrected Ave (3 peaks):					131.7	Corrected Ave (3 peaks):				169.8 RPD = 25
Aroclor-1268	1	12.244	-0.003	91385	46.8	1	12.435	0.003	59148	52.7
Aroclor-1268	2	12.320	0.003	113066	58.5	2	12.504	0.004	147180	122.1
Aroclor-1268	3	12.726	0.027	46633	28.2	3	12.893	0.001	2874	2.8
Aroclor-1268	4	13.489	-0.000	25567	4.7	4	13.709	-0.000	13041	4.0
Total Col1Ave (4 peaks):					34.5	Total Col2Ave (4 peaks):				45.4 RPD = 27
Corrected Ave (3 peaks):					26.6	Corrected Ave (3 peaks):				19.8 RPD = 29

Total PCB Area Col1 (5.906 - 13.793) = 3743076 Col1 Total PCB = 0.5 ppm*

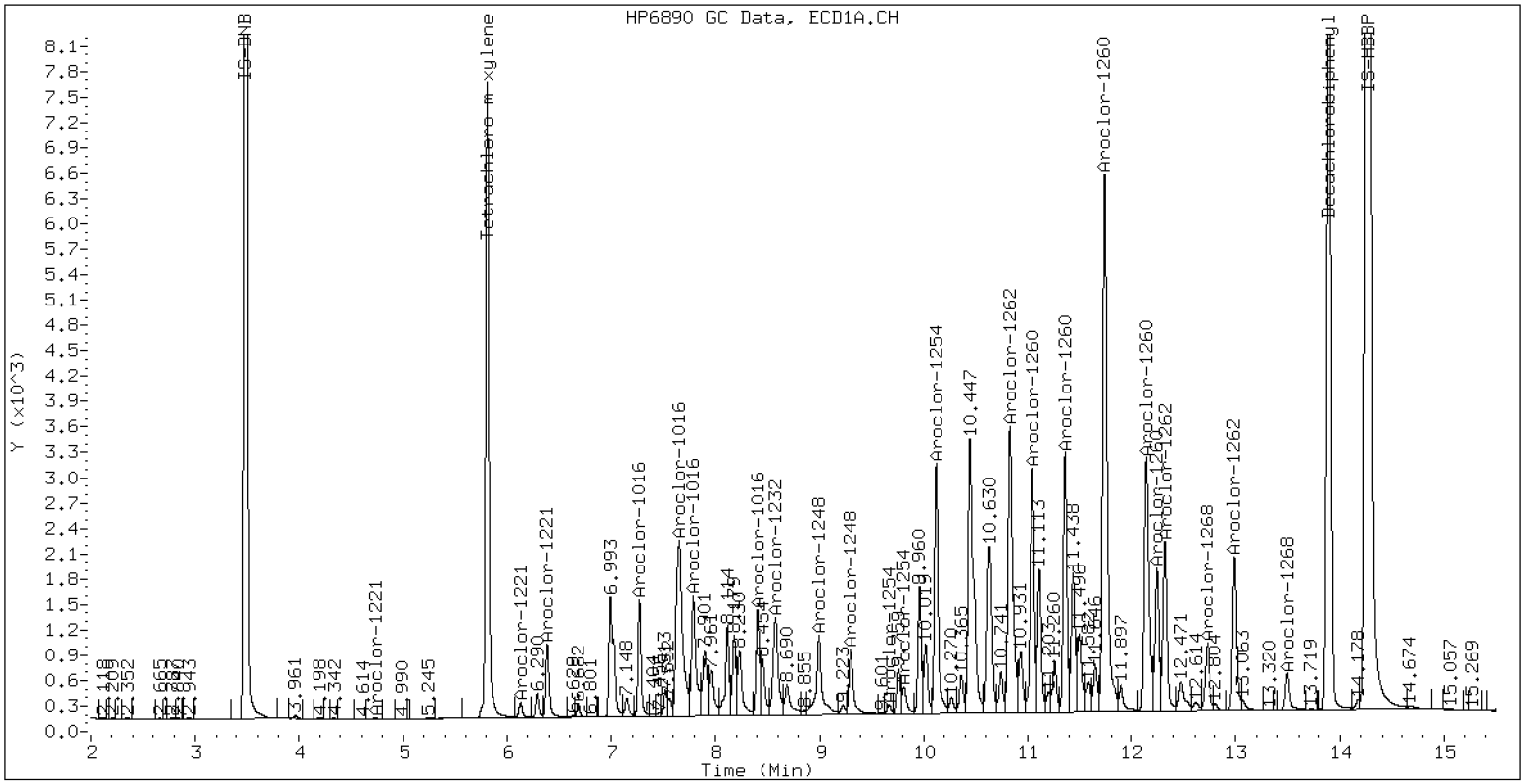
Total PCB Area Col2 (5.785 - 14.019) = 1897008 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

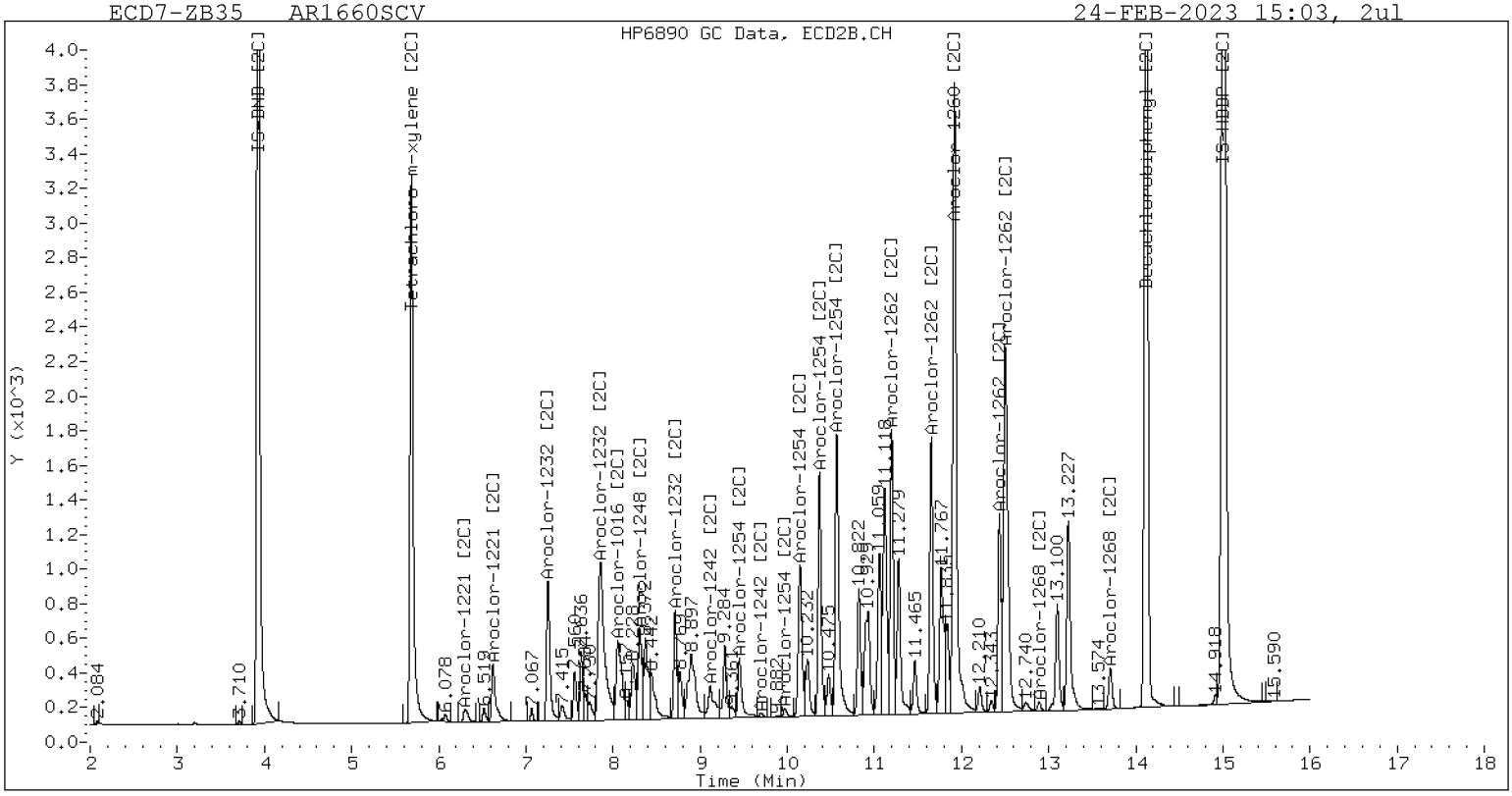
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242314ECD7.D
Data file 2: /230224.b/230224.b/02242314ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 24-FEB-2023 15:24
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	354283	5.686	0.001	172455	33.6	34.5	2.6	Tetrachloro-m-xylene
13.895	0.002	567088	14.120	0.001	347430	37.0	40.3	8.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	705650	4.7
Hexabromobiphenyl	1429847	1555683	8.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	340433	8.0
Hexabromobiphenyl	513946	565609	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.000	39927	149.0	1	7.256	0.000	32417	162.7
Aroclor-1016	2	7.653	-0.001	132339	162.0	2	7.856	0.001	69235	171.3
Aroclor-1016	3	7.791	0.001	59310	148.7	3	8.055	0.000	29473	161.5
Aroclor-1016	4	8.405	0.000	42537	165.0	4	8.307	-0.000	22792	159.2
Total Col1Ave (4 peaks):		156.2				Total Col2Ave (4 peaks):		163.7	RPD = 5	
Corrected Ave (3 peaks):		153.2				Corrected Ave (3 peaks):		161.1	RPD = 5	
Aroclor-1221	1	4.733	0.002	319	5.0	1	---			0.0
Aroclor-1221	2	6.131	-0.001	6534	57.8	2	6.319	0.022	4365	71.6
Aroclor-1221	3	6.384	0.001	29664	113.0	3	6.624	0.002	14916	150.2
Total Col1Ave (3 peaks):		58.6				Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.733	0.003	319	8.4	1	---			0.0
Aroclor-1232	2	6.131	0.000	6534	87.2	2	7.256	0.002	32417	374.5
Aroclor-1232	3	7.653	-0.003	132339	389.9	3	7.856	-0.004	69235	400.0
Aroclor-1232	4	8.579	-0.002	69445	481.4	4	8.714	-0.001	22167	445.0
Total Col1Ave (4 peaks):		241.7				Total Col2Ave (3 peaks):		406.5	RPD = 51*	
Corrected Ave (3 peaks):		161.8				Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.270	-0.001	39927	182.6	1	7.256	0.000	32417	205.0
Aroclor-1242	2	7.653	-0.003	132339	199.3	2	7.856	-0.002	69235	208.2
Aroclor-1242	3	8.405	-0.000	42537	205.9	3	9.164	-0.004	23068	223.0
Aroclor-1242	4	8.579	-0.000	69445	227.4	4	9.587	-0.010	31021	246.1
Total Col1Ave (4 peaks):		203.8				Total Col2Ave (4 peaks):		220.6	RPD = 8	
Corrected Ave (3 peaks):		195.9				Corrected Ave (3 peaks):		212.1	RPD = 8	
Aroclor-1248	1	8.405	0.000	42537	123.5	1	8.307	-0.001	22792	140.2
Aroclor-1248	2	8.579	-0.001	69445	158.7	2	8.714	-0.000	22167	131.9
Aroclor-1248	3	9.001	0.003	91942	111.4	3	9.164	-0.002	23068	119.3
Aroclor-1248	4	9.294	-0.000	38711	92.1	4	9.587	-0.003	31021	133.6
Total Col1Ave (4 peaks):		121.4				Total Col2Ave (4 peaks):		131.2	RPD = 8	
Corrected Ave (3 peaks):		109.0				Corrected Ave (3 peaks):		128.3	RPD = 16	
Aroclor-1254	1	9.294	-0.005	38711	54.6	1	9.450	0.001	13131	50.7
Aroclor-1254	2	9.377	-0.000	17371	54.5	2	9.970	0.000	8340	40.1
Aroclor-1254	3	9.668	-0.000	16373	35.9	3	10.123	-0.000	16364	36.3
Aroclor-1254	4	9.807	-0.001	27490	31.0	4	10.382	0.009	16062	36.6
Aroclor-1254	5	10.175	-0.001	20494	36.9	5	10.572	0.004	4818	18.0
Total Col1Ave (5 peaks):		42.6				Total Col2Ave (5 peaks):		36.4	RPD = 16	
Corrected Ave (4 peaks):		39.6				Corrected Ave (4 peaks):		32.8	RPD = 19	
Aroclor-1260	1	11.048	0.003	794	1.4	1	11.665	0.012	1652	5.0
Aroclor-1260	2	11.366	0.005	814	1.4	2	11.926	0.008	842	1.0
Aroclor-1260	3	11.739	0.006	1848	1.2	3	12.438	0.002	483	2.1
Aroclor-1260	4	12.145	0.006	1372	1.8	4	12.506	0.004	790	1.4
Aroclor-1260	5	---			0.0	NS	---			----
Total Col1Ave (4 peaks):		1.4				Total Col2Ave (4 peaks):		2.4	RPD = 49*	
Corrected Ave (3 peaks):		1.3				Corrected Ave (3 peaks):		1.5	RPD = 12	
Aroclor-1262	1	10.832	0.003	13157	27.6	1	11.121	-0.079	6113	12.7
Aroclor-1262	2	12.145	-0.098	1372	1.8	2	11.665	0.013	1652	4.0
Aroclor-1262	3	---			0.0	3	12.438	0.004	483	1.0
Aroclor-1262	4	13.038	0.051	842	1.1	4	12.506	0.004	790	1.1
Total Col1Ave (3 peaks):		10.1				Total Col2Ave (4 peaks):		4.7	RPD = 73*	
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):		2.0		
Aroclor-1268	1	---			0.0	1	12.438	0.006	483	0.4
Aroclor-1268	2	---			0.0	2	12.506	0.006	790	0.6
Aroclor-1268	3	12.617	-0.082	5851	3.5	3	12.899	0.007	491	0.5
Aroclor-1268	4	13.500	0.010	1745	0.3	4	13.714	0.005	379	0.1
Col1Ave: <3 Quant Peaks						Col2Ave:		0.4		

Total PCB Area Col1 (5.906 - 13.793) = 1149784 Col1 Total PCB = 0.1 ppm*

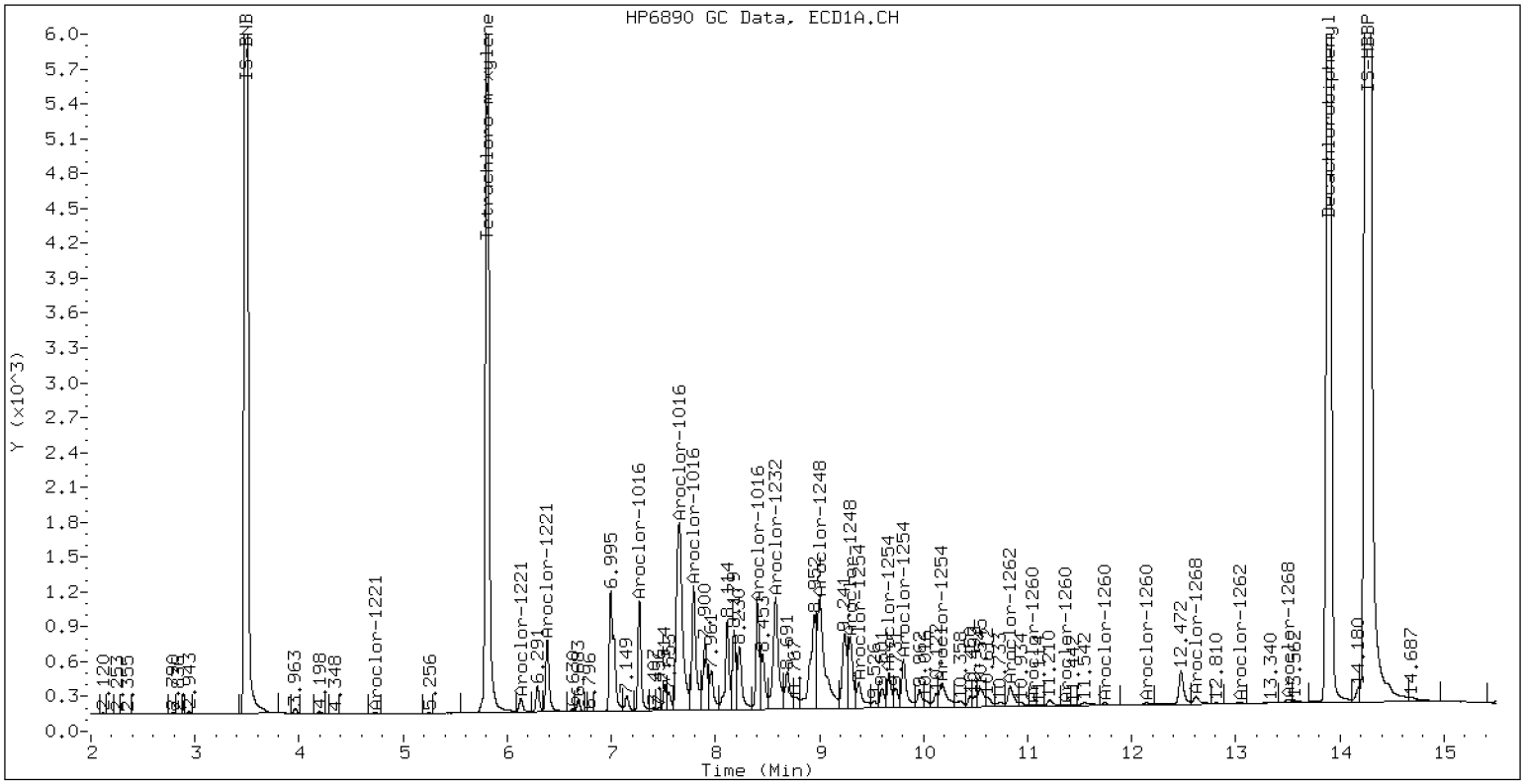
Total PCB Area Col2 (5.785 - 14.019) = 572210 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

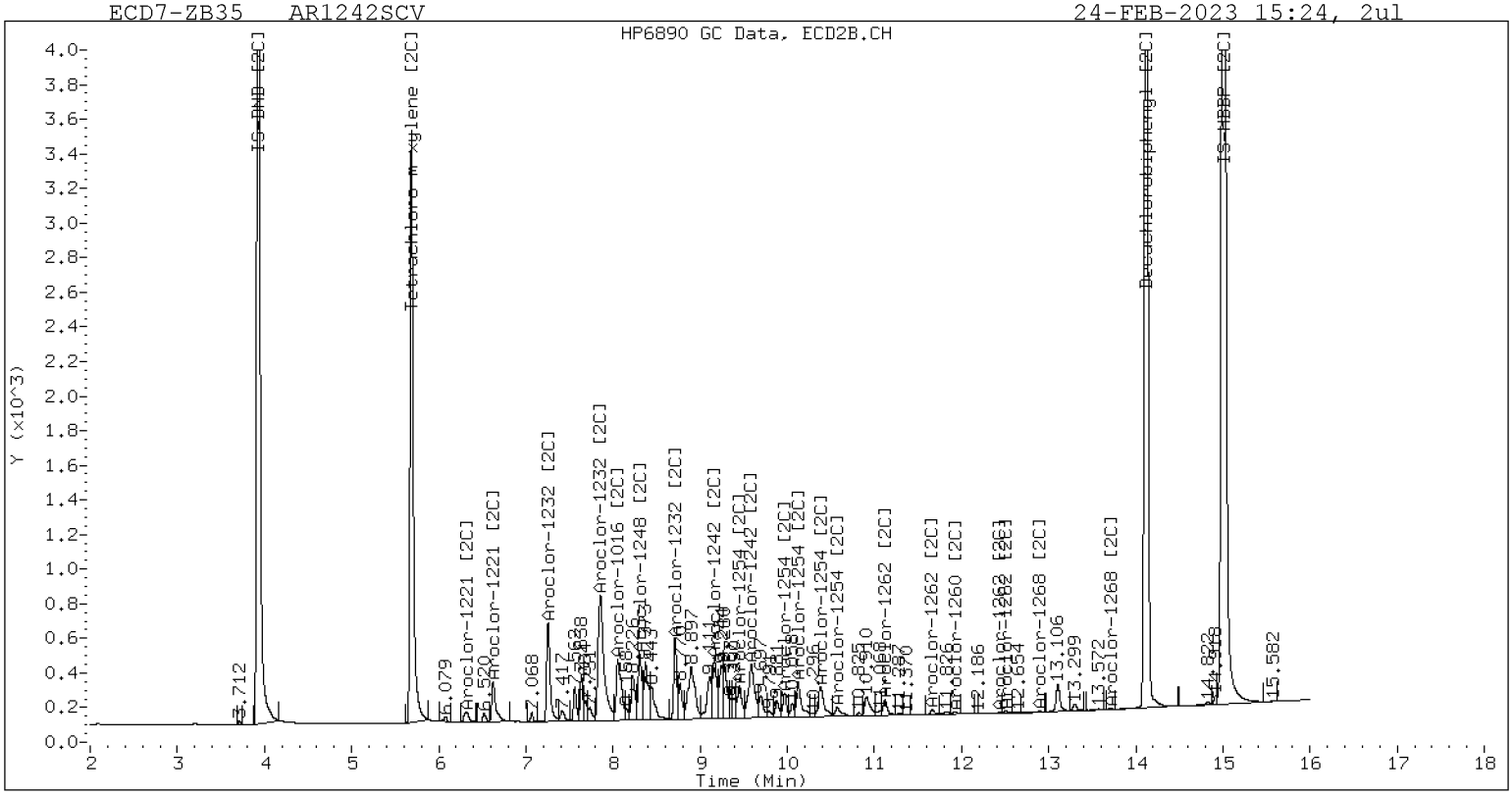
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242315ECD7.D
Data file 2: /230224.b/230224.b/02242315ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 24-FEB-2023 15:45
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	336655	5.687	0.002	168719	34.9	36.4	4.2	Tetrachloro-m-xylene
13.894	0.001	499162	14.118	-0.001	308317	33.1	36.3	9.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	646554	-4.0
Hexabromobiphenyl	1429847	1529451	7.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316066	0.3
Hexabromobiphenyl	513946	557213	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.271	0.000	19773	80.5	1	7.254	-0.002	16926	91.5
Aroclor-1016	2	7.653	-0.001	88099	117.7	2	7.857	0.001	45733	121.9
Aroclor-1016	3	7.794	0.003	35915	98.3	3	8.060	0.005	8078	47.7
Aroclor-1016	4	8.406	0.001	77842	329.5	4	8.307	0.000	37348	280.9
	Total Col1Ave (4 peaks):				156.5	Total Col2Ave (4 peaks):				135.5 RPD = 14
	Corrected Ave (3 peaks):				98.8	Corrected Ave (3 peaks):				87.0 RPD = 13
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	6.133	0.001	680	6.6	2	6.326	0.030	1966	34.7
Aroclor-1221	3	6.384	0.002	3390	14.1	3	6.631	0.009	1571	17.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	6.133	0.002	680	9.9	2	7.254	-0.000	16926	210.6
Aroclor-1232	3	7.653	-0.002	88099	283.3	3	7.857	-0.004	45733	284.6
Aroclor-1232	4	8.581	-0.000	99572	753.4	4	8.714	-0.001	38224	826.6
	Total Col1Ave (3 peaks):				348.9	Total Col2Ave (3 peaks):				440.6 RPD = 23
	Corrected Ave: < 3 Peaks					Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.271	-0.000	19773	98.7	1	7.254	-0.002	16926	115.3
Aroclor-1242	2	7.653	-0.003	88099	144.8	2	7.857	-0.001	45733	148.2
Aroclor-1242	3	8.406	0.000	77842	411.2	3	9.165	-0.002	45021	468.7
Aroclor-1242	4	8.581	0.001	99572	355.8	4	9.590	-0.008	53613	458.1
	Total Col1Ave (4 peaks):				252.6	Total Col2Ave (4 peaks):				297.6 RPD = 16
	Corrected Ave (3 peaks):				199.8	Corrected Ave (3 peaks):				240.5 RPD = 19
Aroclor-1248	1	8.406	0.000	77842	246.8	1	8.307	-0.001	37348	247.5
Aroclor-1248	2	8.581	0.000	99572	248.3	2	8.714	-0.000	38224	245.0
Aroclor-1248	3	8.998	-0.000	186857	247.0	3	9.165	-0.000	45021	250.7
Aroclor-1248	4	9.294	-0.000	98398	255.5	4	9.590	-0.001	53613	248.7
	Total Col1Ave (4 peaks):				249.4	Total Col2Ave (4 peaks):				248.0 RPD = 1
	Corrected Ave (3 peaks):				247.4	Corrected Ave (3 peaks):				247.0 RPD = 0
Aroclor-1254	1	9.294	-0.004	98398	151.6	1	9.450	0.001	21823	90.8
Aroclor-1254	2	9.377	-0.001	49616	169.9	2	9.971	0.001	19450	100.6
Aroclor-1254	3	9.669	0.001	40230	96.4	3	10.124	0.000	36574	87.5
Aroclor-1254	4	9.808	0.001	68500	84.4	4	10.389	0.016	35100	86.1
Aroclor-1254	5	10.183	0.007	47365	93.1	5	10.573	0.004	5676	22.9
	Total Col1Ave (5 peaks):				119.1	Total Col2Ave (5 peaks):				77.6 RPD = 42*
	Corrected Ave (4 peaks):				106.4	Corrected Ave (4 peaks):				71.8 RPD = 39
Aroclor-1260	1	11.047	0.003	1670	3.0	1	11.662	0.009	2055	6.3
Aroclor-1260	2	11.362	0.001	1111	1.9	2	11.924	0.007	1466	1.8
Aroclor-1260	3	11.739	0.005	2107	1.4	3	12.434	-0.002	573	2.6
Aroclor-1260	4	12.144	0.005	1379	1.8	4	12.505	0.003	1003	1.8
Aroclor-1260	5	12.251	0.006	698	2.1	NS	---			----
	Total Col1Ave (5 peaks):				2.1	Total Col2Ave (4 peaks):				3.1 RPD = 41*
	Corrected Ave (4 peaks):				1.8	Corrected Ave (3 peaks):				2.0 RPD = 12
Aroclor-1262	1	10.833	0.005	15355	32.7	1	11.122	-0.079	7225	15.2
Aroclor-1262	2	12.251	0.007	698	0.9	2	11.662	0.011	2055	5.1
Aroclor-1262	3	12.321	0.002	836	1.0	3	12.434	0.000	573	1.2
Aroclor-1262	4	12.991	0.004	1043	1.4	4	12.505	0.003	1003	1.4
	Total Col1Ave (4 peaks):				9.0	Total Col2Ave (4 peaks):				5.7 RPD = 45*
	Corrected Ave (3 peaks):				1.1	Corrected Ave (3 peaks):				2.6 RPD = 80*
Aroclor-1268	1	12.251	0.004	698	0.4	1	12.434	0.002	573	0.5
Aroclor-1268	2	12.321	0.004	836	0.4	2	12.505	0.005	1003	0.8
Aroclor-1268	3	12.700	0.001	2449	1.5	3	12.892	0.001	721	0.7
Aroclor-1268	4	13.493	0.003	7547	1.4	4	13.708	-0.001	2265	0.7
	Total Col1Ave (4 peaks):				0.9	Total Col2Ave (4 peaks):				0.7 RPD = 29
	Corrected Ave (3 peaks):				0.7	Corrected Ave (3 peaks):				0.6 RPD = 13

Total PCB Area Col1 (5.906 - 13.793) = 1574335 Col1 Total PCB = 0.2 ppm*

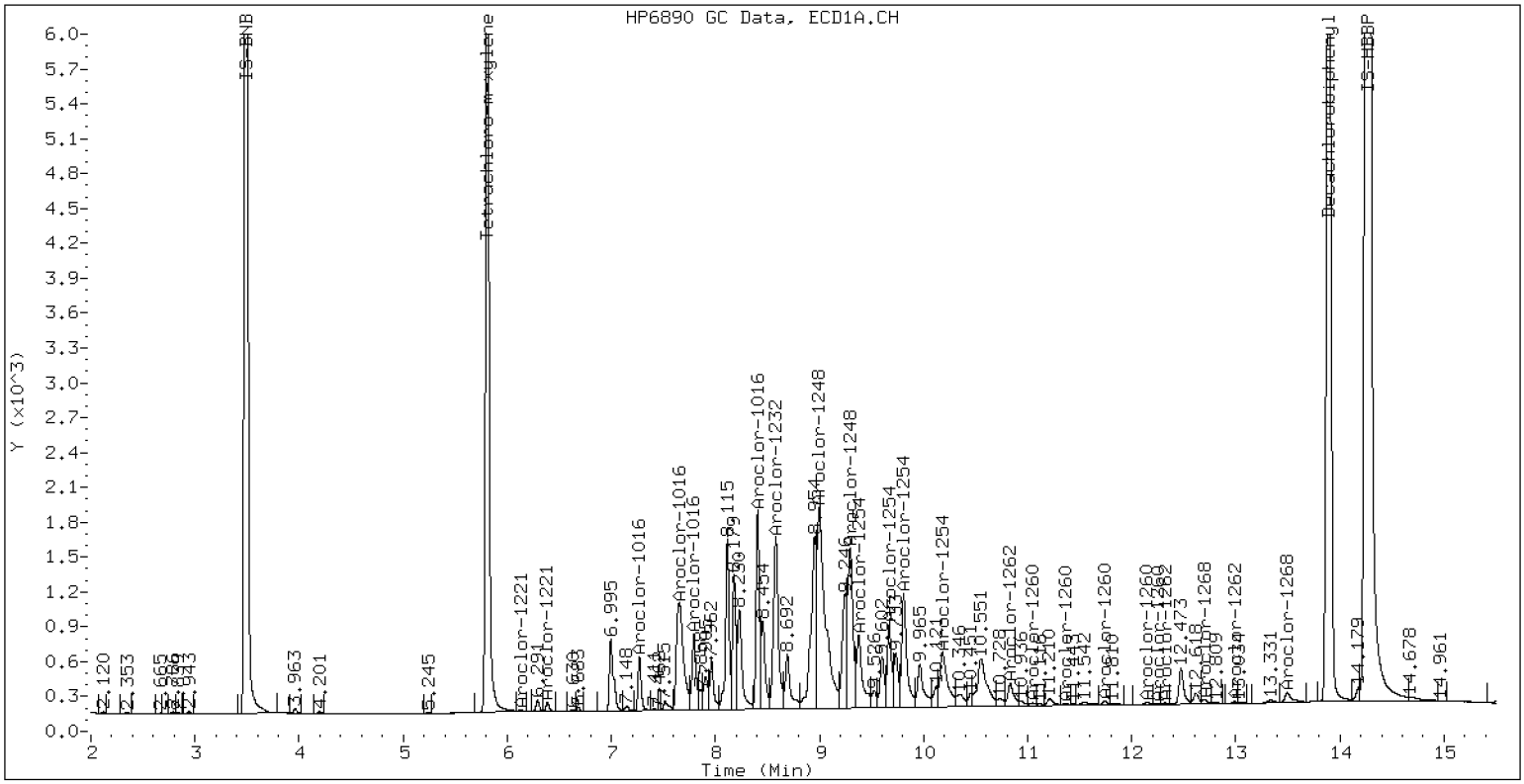
Total PCB Area Col2 (5.785 - 14.019) = 746330 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

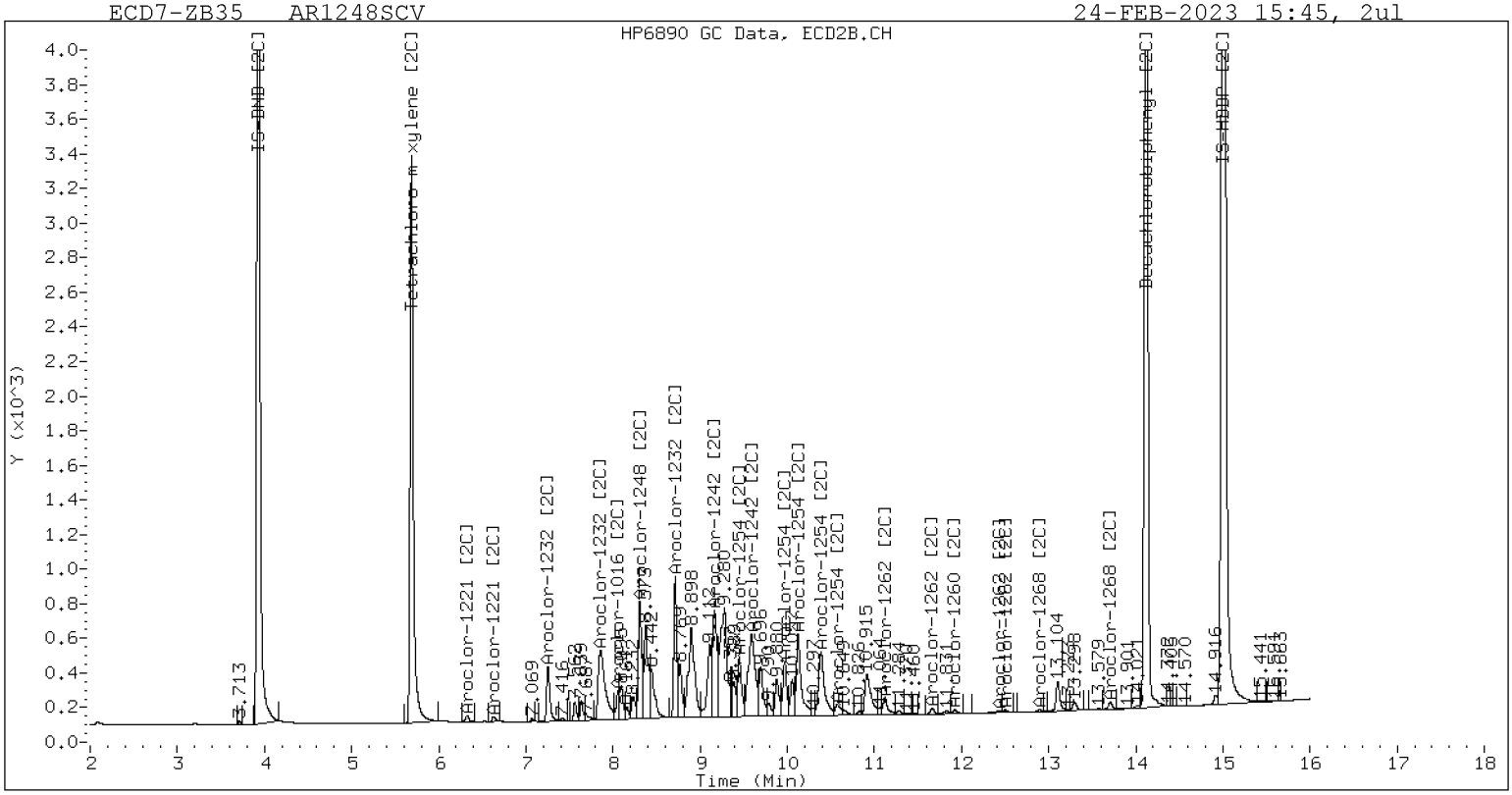
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242316ECD7.D
Data file 2: /230224.b/230224.b/02242316ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 24-FEB-2023 16:06
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.000	354312	5.686	0.001	174604	36.1	37.1	2.6	Tetrachloro-m-xylene
13.895	0.002	540961	14.119	-0.000	329134	34.6	37.9	9.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656887	-2.5
Hexabromobiphenyl	1429847	1585505	10.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	320936	1.8
Hexabromobiphenyl	513946	570006	10.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	565	2.3	1	7.255	-0.001	387	2.1
Aroclor-1016	2	7.656	0.002	1875	2.5	2	7.854	-0.002	860	2.3
Aroclor-1016	3	7.792	0.002	1106	3.0	3	8.098	0.043	578	3.4
Aroclor-1016	4	8.405	0.000	29924	124.7	4	8.307	0.000	21985	162.9
	Total Col1Ave (4 peaks):				33.1	Total Col2Ave (4 peaks):				42.6 RPD = 25
	Corrected Ave (3 peaks):				2.6	Corrected Ave (3 peaks):				2.6 RPD = 0
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.325	0.028	1947	33.9
Aroclor-1221	3	---			0.0	3	6.637	0.015	368	3.9
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.255	0.001	387	4.7
Aroclor-1232	3	7.656	0.000	1875	5.9	3	7.854	-0.007	860	5.3
Aroclor-1232	4	8.583	0.002	12327	91.8	4	8.715	0.000	15013	319.7
	Col1Ave: <3 Quant Peaks					Col2Ave: 109.9				
Aroclor-1242	1	7.270	-0.000	565	2.8	1	7.255	-0.001	387	2.6
Aroclor-1242	2	7.656	0.000	1875	3.0	2	7.854	-0.004	860	2.7
Aroclor-1242	3	8.405	-0.000	29924	155.6	3	9.169	0.002	21933	224.9
Aroclor-1242	4	8.583	0.003	12327	43.4	4	9.545	-0.053	34065	286.6
	Total Col1Ave (4 peaks):				51.2	Total Col2Ave (4 peaks):				129.2 RPD = 87*
	Corrected Ave (3 peaks):				16.4	Corrected Ave (3 peaks):				76.7 RPD = 130*
Aroclor-1248	1	8.405	0.000	29924	93.4	1	8.307	-0.001	21985	143.5
Aroclor-1248	2	8.583	0.002	12327	30.3	2	8.715	0.001	15013	94.8
Aroclor-1248	3	8.992	-0.007	145580	189.4	3	9.169	0.004	21933	120.3
Aroclor-1248	4	9.298	0.003	155450	397.3	4	9.545	-0.046	34065	155.6
	Total Col1Ave (4 peaks):				177.6	Total Col2Ave (4 peaks):				128.5 RPD = 32
	Corrected Ave (3 peaks):				104.3	Corrected Ave (3 peaks):				119.5 RPD = 14
Aroclor-1254	1	9.298	-0.001	155450	235.7	1	9.450	0.001	58639	240.4
Aroclor-1254	2	9.377	-0.001	69801	235.3	2	9.971	0.000	47008	239.5
Aroclor-1254	3	9.668	-0.000	100839	237.8	3	10.124	0.000	100062	235.7
Aroclor-1254	4	9.807	0.000	190544	231.1	4	10.373	0.000	99535	240.5
Aroclor-1254	5	10.176	-0.000	122321	236.7	5	10.570	0.001	61549	244.2
	Total Col1Ave (5 peaks):				235.3	Total Col2Ave (5 peaks):				240.1 RPD = 2
	Corrected Ave (4 peaks):				234.7	Corrected Ave (4 peaks):				239.0 RPD = 2
Aroclor-1260	1	11.043	-0.002	12288	21.5	1	11.661	0.008	29062	86.7
Aroclor-1260	2	11.361	-0.001	13660	22.9	2	11.921	0.003	22238	26.0
Aroclor-1260	3	11.736	0.002	37632	23.8	3	12.441	0.005	3555	15.7
Aroclor-1260	4	12.141	0.002	27105	34.1	4	12.503	0.001	13126	22.8
Aroclor-1260	5	12.320	0.076	2381	6.9	NS	---			----
	Total Col1Ave (5 peaks):				21.9	Total Col2Ave (4 peaks):				37.8 RPD = 53*
	Corrected Ave (4 peaks):				18.8	Corrected Ave (3 peaks):				21.5 RPD = 13
Aroclor-1262	1	10.827	-0.002	220626	453.6	1	11.281	0.081	13562	27.9
Aroclor-1262	2	12.320	0.076	2381	3.0	2	11.661	0.009	29062	70.1
Aroclor-1262	3	---			0.0	3	12.441	0.007	3555	7.6
Aroclor-1262	4	12.989	0.002	3225	4.1	4	12.503	0.001	13126	17.8
	Total Col1Ave (3 peaks):				153.6	Total Col2Ave (4 peaks):				30.8 RPD = 133*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				17.7
Aroclor-1268	1	12.320	0.074	2381	1.2	1	12.441	0.009	3555	3.1
Aroclor-1268	2	---			0.0	2	12.503	0.003	13126	10.6
Aroclor-1268	3	12.701	0.002	2939	1.7	3	12.892	0.000	772	0.7
Aroclor-1268	4	13.493	0.003	9164	1.6	4	13.707	-0.002	2801	0.8
	Total Col1Ave (3 peaks):				1.5	Total Col2Ave (4 peaks):				3.8 RPD = 87*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				1.6

Total PCB Area Col1 (5.906 - 13.793) = 2118645 Col1 Total PCB = 0.3 ppm*

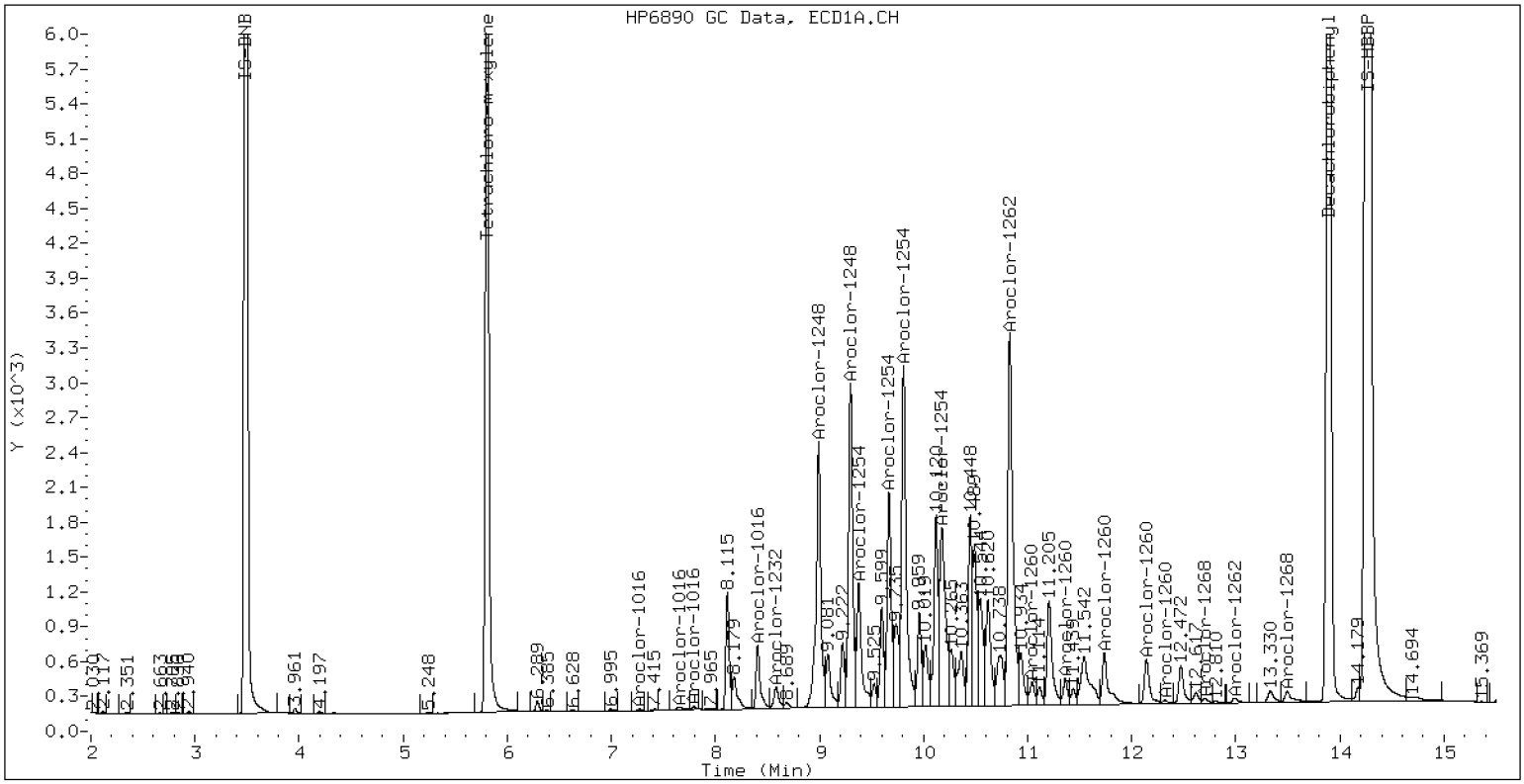
Total PCB Area Col2 (5.785 - 14.019) = 1007601 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

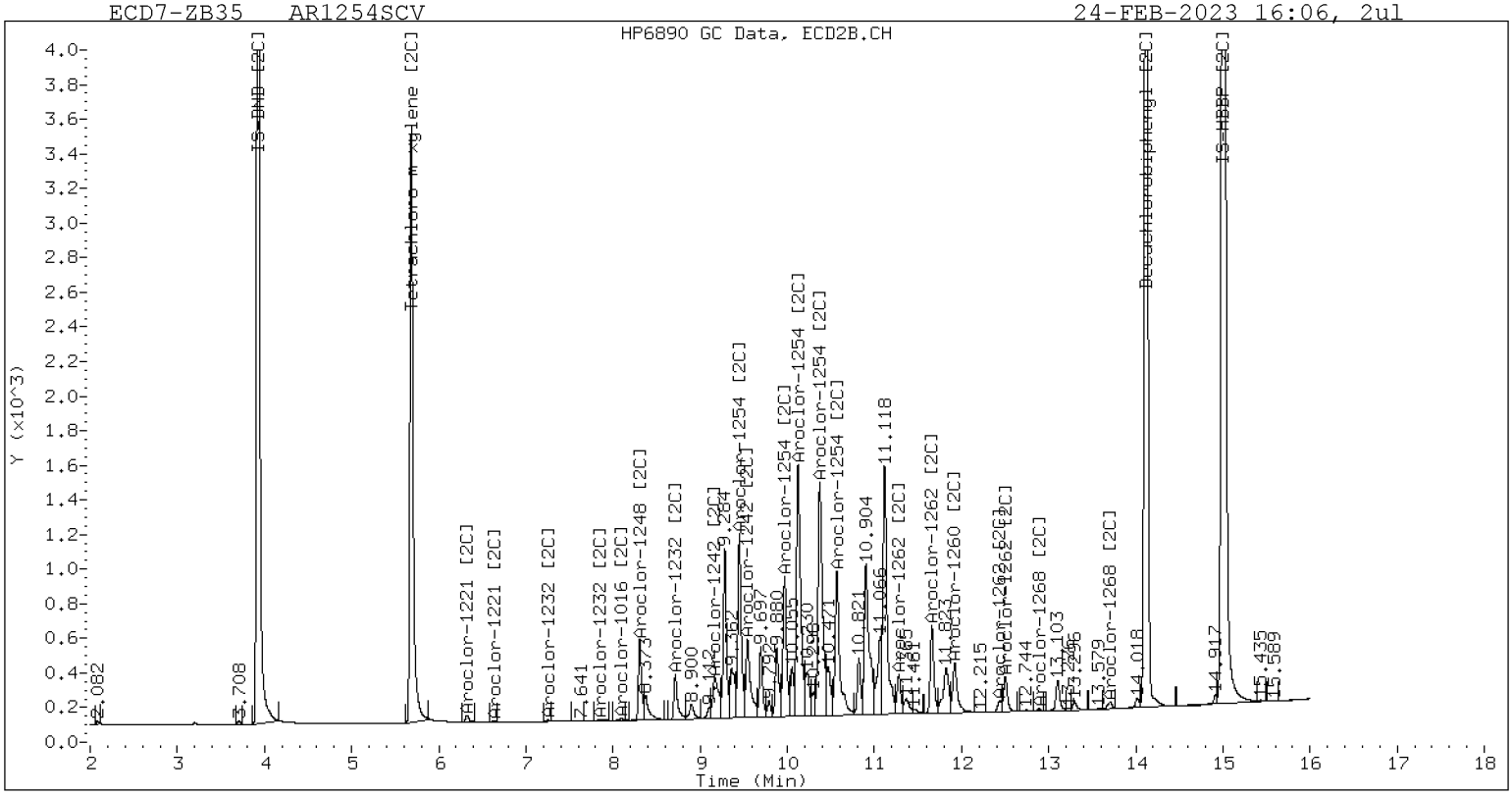
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242317ECD7.D
Data file 2: /230224.b/230224.b/02242317ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 24-FEB-2023 16:27
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	356001	5.685	0.000	170882	36.0	36.6	1.7	Tetrachloro-m-xylene
13.895	0.002	533971	14.119	0.000	326235	34.4	37.9	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661953	-1.8
Hexabromobiphenyl	1429847	1574993	10.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317807	0.8
Hexabromobiphenyl	513946	565951	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.001	7175	28.5	1	7.256	0.000	3727	20.0
Aroclor-1016	2	7.659	0.005	12893	16.8	2	7.863	0.007	5834	15.5
Aroclor-1016	3	7.794	0.004	6936	18.5	3	8.063	0.009	2963	17.4
Aroclor-1016	4	8.408	0.003	3610	14.9	4	8.308	0.002	2045	15.3
Total Col1Ave (4 peaks):					19.7	Total Col2Ave (4 peaks):				17.0 RPD = 14
Corrected Ave (3 peaks):					16.8	Corrected Ave (3 peaks):				16.1 RPD = 4
Aroclor-1221	1	4.730	-0.000	15803	266.6	1	4.955	-0.001	7909	262.9
Aroclor-1221	2	6.131	-0.001	26946	254.1	2	6.296	-0.000	14303	251.2
Aroclor-1221	3	6.382	-0.000	62477	253.8	3	6.622	0.000	23612	254.7
Total Col1Ave (3 peaks):					258.2	Total Col2Ave (3 peaks):				256.3 RPD = 1
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.730	0.000	15803	445.6	1	4.955	-0.001	7909	486.4
Aroclor-1232	2	6.131	0.000	26946	383.1	2	7.256	0.002	3727	46.1
Aroclor-1232	3	7.659	0.003	12893	40.5	3	7.863	0.002	5834	36.1
Aroclor-1232	4	8.583	0.003	2684	19.8	4	8.716	0.002	1189	25.6
Total Col1Ave (4 peaks):					222.3	Total Col2Ave (4 peaks):				148.5 RPD = 40
Corrected Ave (3 peaks):					147.8	Corrected Ave (3 peaks):				35.9 RPD = 122*
Aroclor-1242	1	7.269	-0.001	7175	35.0	1	7.256	0.000	3727	25.2
Aroclor-1242	2	7.659	0.003	12893	20.7	2	7.863	0.005	5834	18.8
Aroclor-1242	3	8.408	0.002	3610	18.6	3	9.175	0.008	1082	11.2
Aroclor-1242	4	8.583	0.004	2684	9.4	4	9.543	-0.054	1390	11.8
Total Col1Ave (4 peaks):					20.9	Total Col2Ave (4 peaks):				16.8 RPD = 22
Corrected Ave (3 peaks):					16.2	Corrected Ave (3 peaks):				13.9 RPD = 15
Aroclor-1248	1	8.408	0.002	3610	11.2	1	8.308	0.001	2045	13.5
Aroclor-1248	2	8.583	0.003	2684	6.5	2	8.716	0.002	1189	7.6
Aroclor-1248	3	8.994	-0.005	24440	31.6	3	9.175	0.009	1082	6.0
Aroclor-1248	4	9.302	0.008	26328	66.8	4	9.543	-0.048	1390	6.4
Total Col1Ave (4 peaks):					29.0	Total Col2Ave (4 peaks):				8.4 RPD = 110*
Corrected Ave (3 peaks):					16.4	Corrected Ave (3 peaks):				6.7 RPD = 85*
Aroclor-1254	1	9.302	0.004	26328	39.6	1	9.452	0.003	9571	39.6
Aroclor-1254	2	---			0.0	2	9.972	0.002	1733	8.9
Aroclor-1254	3	9.670	0.002	3721	8.7	3	10.147	0.023	49218	117.1
Aroclor-1254	4	9.808	0.000	9653	11.6	4	10.370	-0.002	59603	145.4
Aroclor-1254	5	10.120	-0.056	131179	251.9	5	10.569	0.001	79533	318.7
Total Col1Ave (4 peaks):					78.0	Total Col2Ave (5 peaks):				125.9 RPD = 47*
Corrected Ave (3 peaks):					20.0	Corrected Ave (4 peaks):				77.8 RPD = 118*
Aroclor-1260	1	11.044	-0.000	223208	394.0	1	11.652	-0.001	104071	312.7
Aroclor-1260	2	11.361	-0.001	190166	321.2	2	11.919	0.002	251579	296.2
Aroclor-1260	3	11.737	0.003	458281	291.9	3	12.435	-0.001	113645	504.2
Aroclor-1260	4	12.141	0.002	149720	189.4	4	12.501	-0.001	182951	319.6
Aroclor-1260	5	12.244	0.000	196033	576.0	NS	---			----
Total Col1Ave (5 peaks):					354.5	Total Col2Ave (4 peaks):				358.2 RPD = 1
Corrected Ave (4 peaks):					299.1	Corrected Ave (3 peaks):				309.5 RPD = 3
Aroclor-1262	1	10.828	-0.001	121431	251.3	1	11.201	0.000	121335	251.1
Aroclor-1262	2	12.244	0.000	196033	249.3	2	11.652	0.000	104071	252.9
Aroclor-1262	3	12.319	0.001	211092	249.8	3	12.435	0.001	113645	243.4
Aroclor-1262	4	12.988	0.001	183455	237.5	4	12.501	-0.001	182951	250.1
Total Col1Ave (4 peaks):					247.0	Total Col2Ave (4 peaks):				249.3 RPD = 1
Corrected Ave (3 peaks):					245.5	Corrected Ave (3 peaks):				248.2 RPD = 1
Aroclor-1268	1	12.244	-0.002	196033	97.1	1	12.435	0.003	113645	99.7
Aroclor-1268	2	12.319	0.002	211092	105.6	2	12.501	0.001	182951	149.3
Aroclor-1268	3	12.723	0.024	77240	45.2	3	12.891	-0.000	7755	7.4
Aroclor-1268	4	13.488	-0.002	65479	11.6	4	13.709	0.000	35146	10.5
Total Col1Ave (4 peaks):					64.9	Total Col2Ave (4 peaks):				66.7 RPD = 3

Corrected Ave (3 peaks): 51.3 Corrected Ave (3 peaks): 39.2 RPD = 27

Total PCB Area Col1 (5.906 - 13.793) = 3239932 Col1 Total PCB = 0.4 ppm*

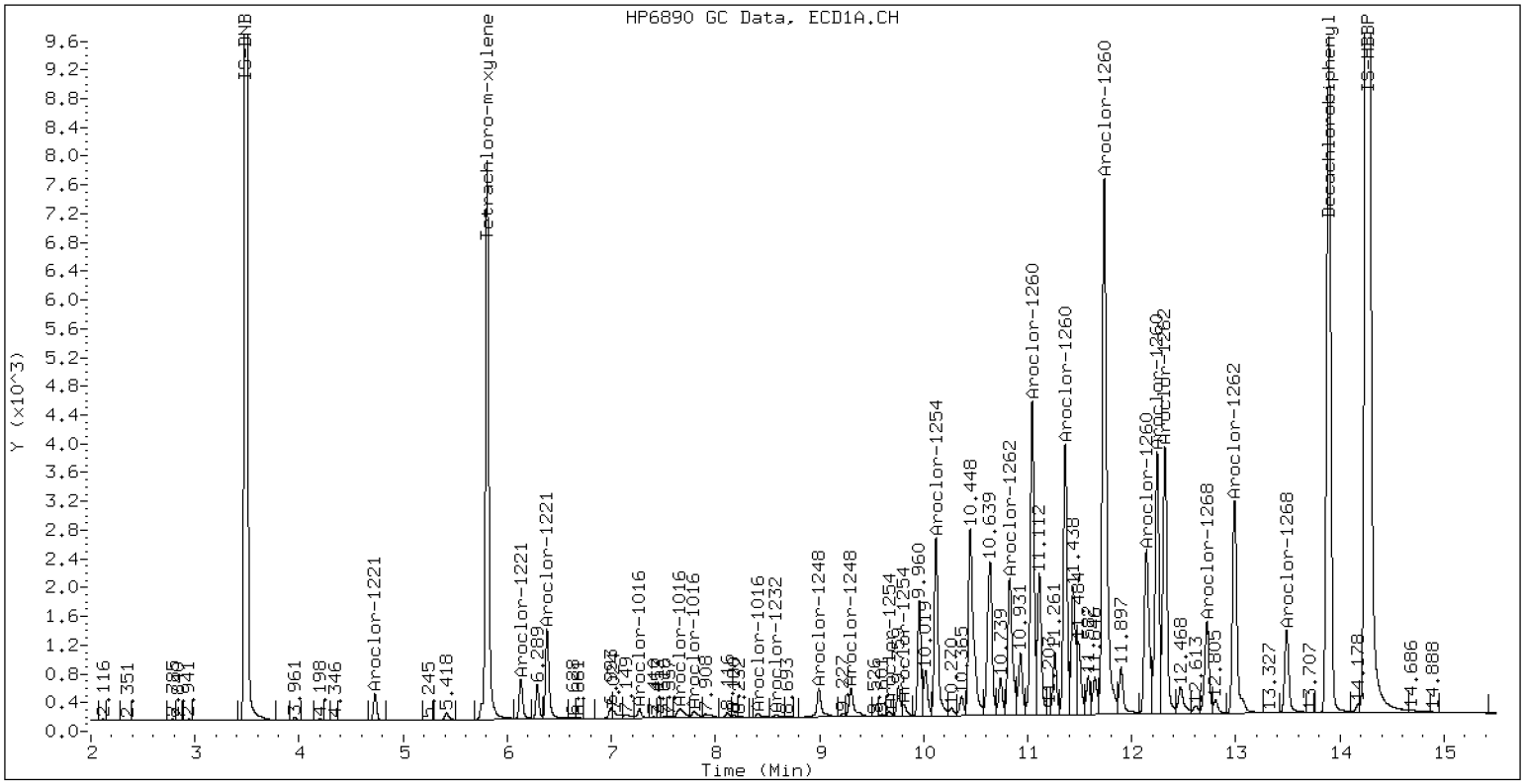
Total PCB Area Col2 (5.785 - 14.019) = 1655522 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

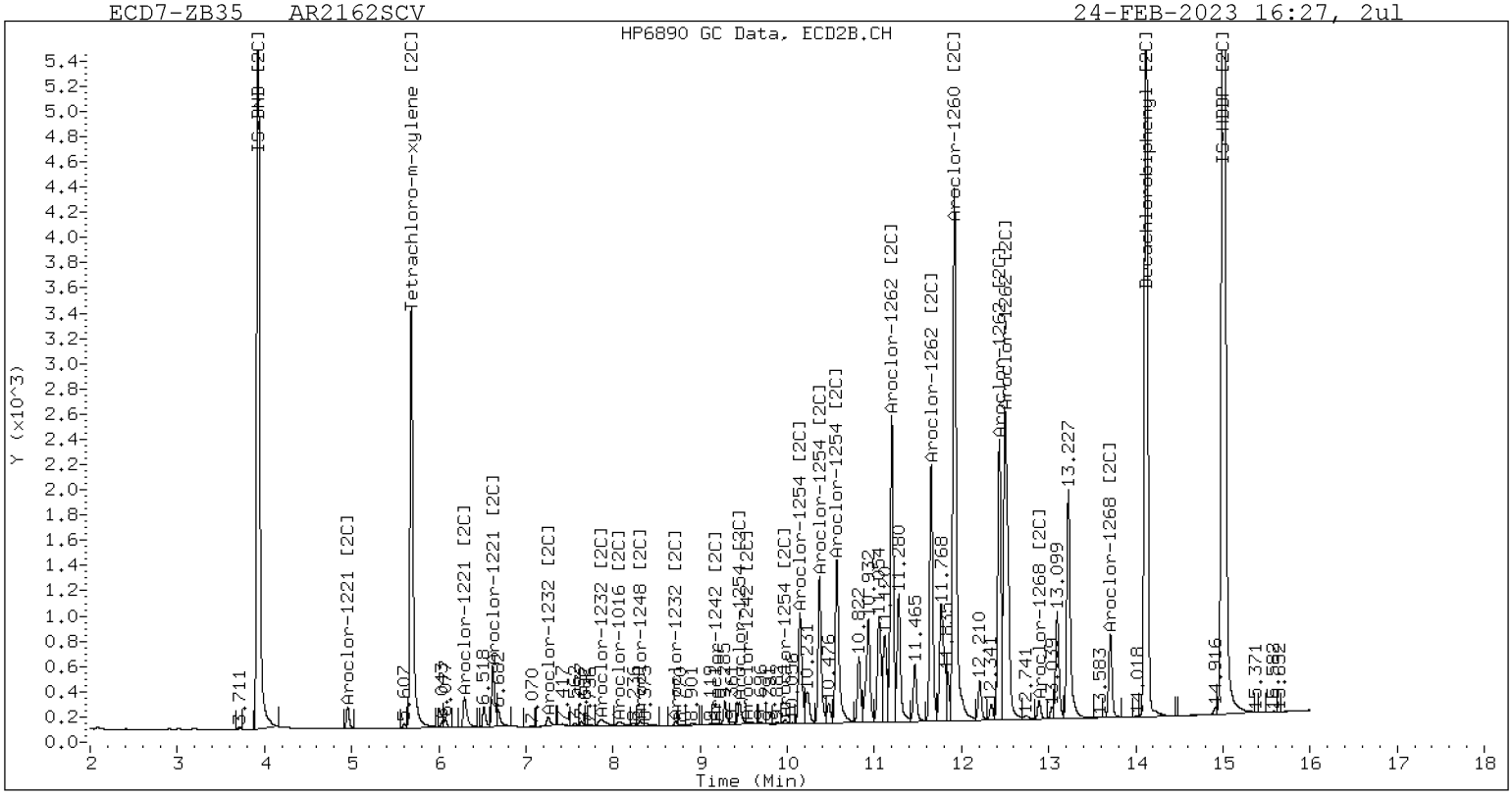
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242318ECD7.D
Data file 2: /230224.b/230224.b/02242318ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 24-FEB-2023 16:48
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	363331	5.685	0.000	176204	37.1	38.2	2.9	Tetrachloro-m-xylene
13.894	0.001	800845	14.118	-0.001	488290	51.3	56.4	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656592	-2.6
Hexabromobiphenyl	1429847	1584453	10.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314741	-0.2
Hexabromobiphenyl	513946	568346	10.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.001	28327	113.6	1	7.254	-0.001	20651	112.1
Aroclor-1016	2	7.657	0.003	80668	106.1	2	7.861	0.005	41326	110.6
Aroclor-1016	3	7.793	0.003	40661	109.6	3	8.060	0.005	20446	121.2
Aroclor-1016	4	8.407	0.002	24680	102.9	4	8.308	0.001	13576	102.5
Total Col1Ave (4 peaks):					108.0	Total Col2Ave (4 peaks):				111.6 RPD = 3
Corrected Ave (3 peaks):					106.2	Corrected Ave (3 peaks):				108.4 RPD = 2
Aroclor-1221	1	4.729	-0.001	8535	145.1	1	4.956	-0.000	3965	133.1
Aroclor-1221	2	6.132	-0.000	15523	147.6	2	6.297	0.001	8689	154.1
Aroclor-1221	3	6.382	-0.000	45872	187.9	3	6.622	0.001	22272	242.6
Total Col1Ave (3 peaks):					160.2	Total Col2Ave (3 peaks):				176.6 RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.729	-0.001	8535	242.6	1	4.956	0.000	3965	246.2
Aroclor-1232	2	6.132	0.001	15523	222.5	2	7.254	0.000	20651	258.1
Aroclor-1232	3	7.657	0.001	80668	255.4	3	7.861	0.001	41326	258.3
Aroclor-1232	4	8.582	0.001	34784	259.2	4	8.714	-0.001	12504	271.5
Total Col1Ave (4 peaks):					244.9	Total Col2Ave (4 peaks):				258.5 RPD = 5
Corrected Ave (3 peaks):					240.2	Corrected Ave (3 peaks):				254.2 RPD = 6
Aroclor-1242	1	7.270	-0.001	28327	139.2	1	7.254	-0.001	20651	141.2
Aroclor-1242	2	7.657	0.001	80668	130.5	2	7.861	0.003	41326	134.4
Aroclor-1242	3	8.407	0.001	24680	128.4	3	9.170	0.003	12830	134.1
Aroclor-1242	4	8.582	0.003	34784	122.4	4	9.600	0.003	14836	127.3
Total Col1Ave (4 peaks):					130.1	Total Col2Ave (4 peaks):				134.3 RPD = 3
Corrected Ave (3 peaks):					127.1	Corrected Ave (3 peaks):				132.0 RPD = 4
Aroclor-1248	1	8.407	0.001	24680	77.0	1	8.308	0.000	13576	90.3
Aroclor-1248	2	8.582	0.001	34784	85.4	2	8.714	-0.000	12504	80.5
Aroclor-1248	3	8.996	-0.003	83592	108.8	3	9.170	0.004	12830	71.8
Aroclor-1248	4	9.292	-0.003	39603	101.3	4	9.600	0.010	14836	69.1
Total Col1Ave (4 peaks):					93.1	Total Col2Ave (4 peaks):				77.9 RPD = 18
Corrected Ave (3 peaks):					87.9	Corrected Ave (3 peaks):				73.8 RPD = 17
Aroclor-1254	1	9.292	-0.007	39603	60.1	1	9.452	0.003	4590	19.2
Aroclor-1254	2	9.377	-0.000	11450	38.6	2	9.973	0.003	2892	15.0
Aroclor-1254	3	9.674	0.005	6387	15.1	3	10.131	0.007	6052	14.5
Aroclor-1254	4	9.813	0.006	10162	12.3	4	10.390	0.017	5324	13.1
Aroclor-1254	5	10.189	0.012	6862	13.3	5	10.572	0.004	1891	7.7
Total Col1Ave (5 peaks):					27.9	Total Col2Ave (5 peaks):				13.9 RPD = 67*
Corrected Ave (4 peaks):					19.8	Corrected Ave (4 peaks):				12.6 RPD = 45*
Aroclor-1260	1	11.046	0.002	87033	152.7	1	11.645	-0.008	62543	187.1
Aroclor-1260	2	11.362	0.001	6300	10.6	2	11.920	0.003	28552	33.5
Aroclor-1260	3	11.738	0.004	54524	34.5	3	12.432	-0.004	285450	1261.2
Aroclor-1260	4	12.144	0.005	1727	2.2	4	12.499	-0.002	306992	534.0
Aroclor-1260	5	12.246	0.002	502931	1469.0	NS	---			----
Total Col1Ave (5 peaks):					333.8	Total Col2Ave (4 peaks):				503.9 RPD = 41*
Corrected Ave (4 peaks):					50.0	Corrected Ave (3 peaks):				251.5 RPD = 134*
Aroclor-1262	1	10.832	0.004	3395	7.0	1	11.201	0.001	44255	91.2
Aroclor-1262	2	12.246	0.002	502931	635.9	2	11.645	-0.007	62543	151.3
Aroclor-1262	3	12.318	-0.000	497006	584.5	3	12.432	-0.002	285450	608.7
Aroclor-1262	4	12.987	-0.000	202197	260.2	4	12.499	-0.003	306992	417.9
Total Col1Ave (4 peaks):					371.9	Total Col2Ave (4 peaks):				317.3 RPD = 16
Corrected Ave (3 peaks):					283.9	Corrected Ave (3 peaks):				220.1 RPD = 25
Aroclor-1268	1	12.246	-0.001	502931	247.7	1	12.432	-0.000	285450	249.4
Aroclor-1268	2	12.318	0.002	497006	247.2	2	12.499	-0.001	306992	249.5
Aroclor-1268	3	12.699	-0.000	422793	245.8	3	12.892	0.000	260893	248.4
Aroclor-1268	4	13.490	0.000	1386953	244.9	4	13.709	-0.000	829733	247.1
Total Col1Ave (4 peaks):					246.4	Total Col2Ave (4 peaks):				248.6 RPD = 1

Corrected Ave (3 peaks): 246.0 Corrected Ave (3 peaks): 248.3 RPD = 1

Total PCB Area Col1 (5.906 - 13.793) = 4180607 Col1 Total PCB = 0.5 ppm*

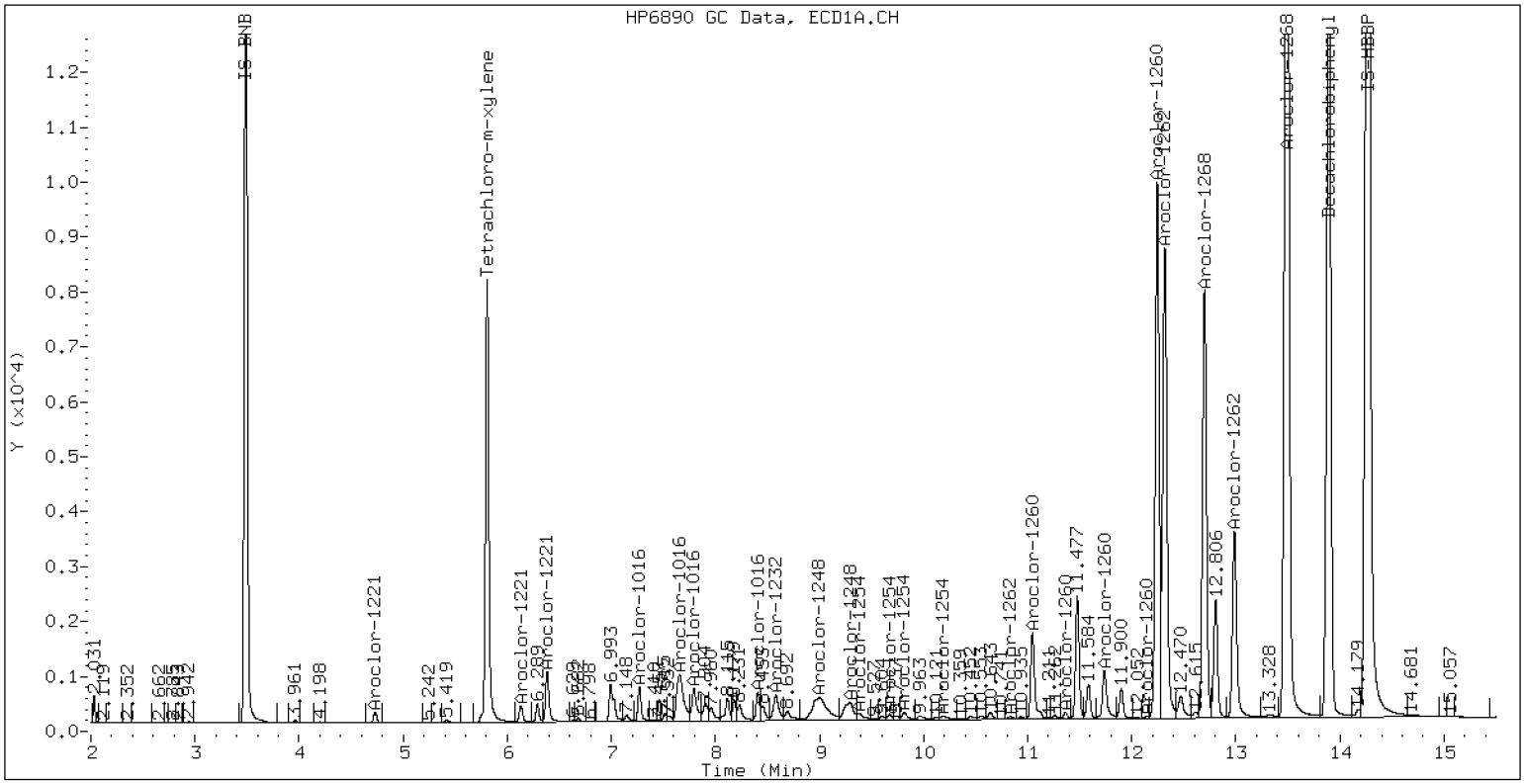
Total PCB Area Col2 (5.785 - 14.019) = 2376912 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

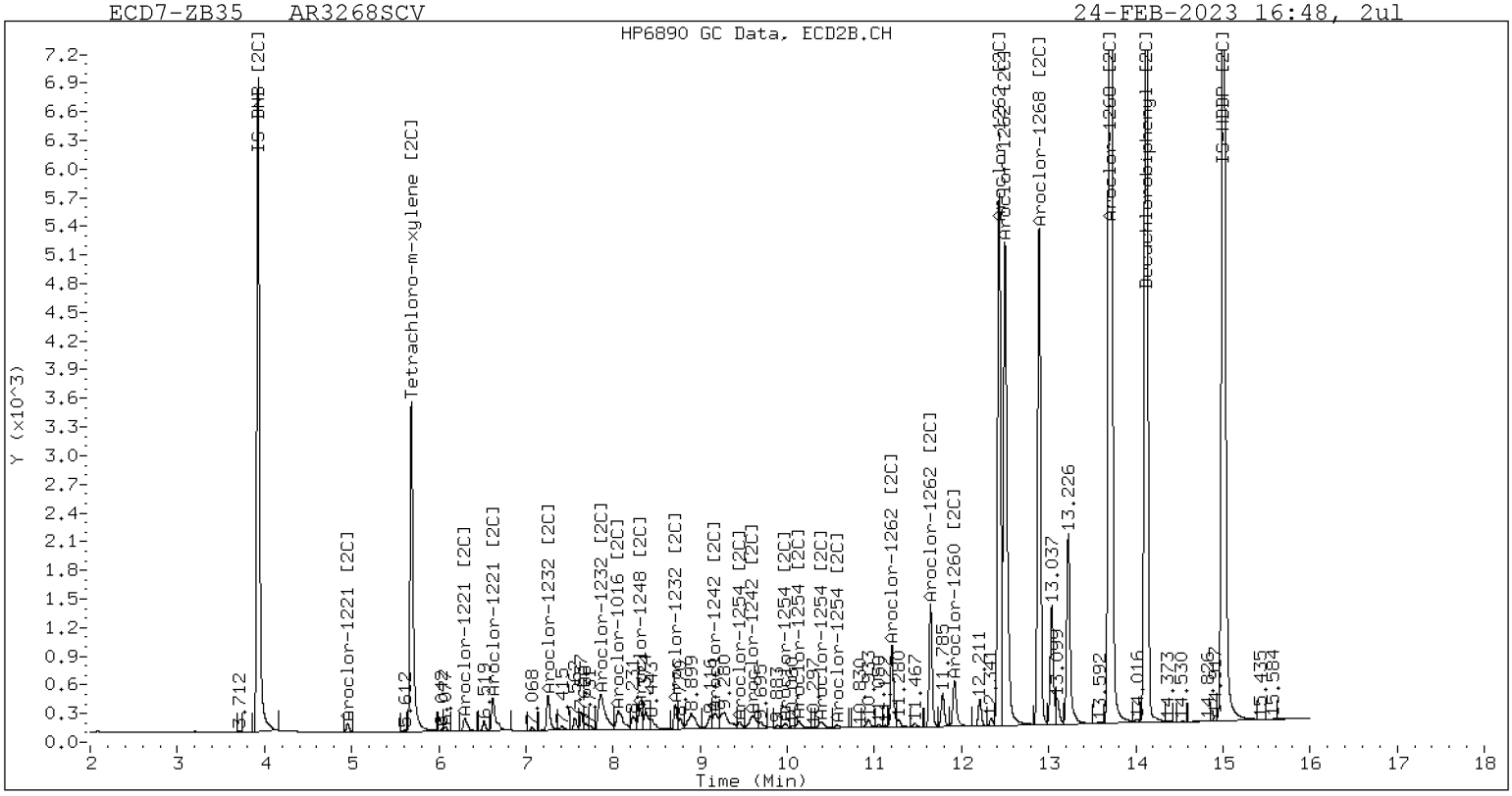
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.261	0.000	694353	9.912	0.000	580269	0.100	0.100	0.0	2,4-DDE
0.000	-10.293	0	10.672	0.000	673479	0.000	0.200#	----	2,4-DDT
9.686	0.000	1191406	10.212	0.000	433373	0.100	0.100	0.0	4,4-DDE
10.259	0.000	1721760	10.672	0.000	673479	0.100	0.200#	66.7*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.285	0.023	4923	9.921	0.009	9972	0.001	0.002	84.3*	2,4-DDE
0.000	-10.293	0	10.677	0.004	249094	0.000	0.074#	----	2,4-DDT
9.692	0.006	12128	10.221	0.009	528	0.001	0.000	156.7*	4,4-DDE
10.265	0.006	410017	10.677	0.004	249094	0.023	0.074#	103.6*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLB0342

Instrument: ECD7
Calibration ID: GB00069

Printed: 2/28/2023 9:54:44AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLB0342-CAL1	QC		1		L000856	L000844		
SLB0342-CAL2	QC		2		L000859	L000844		
SLB0342-CAL3	QC		3		L000858	L000844		
SLB0342-CAL4	QC		4		L000731	L000844		
SLB0342-CAL5	QC		5		L000857	L000844		
SLB0342-CAL6	QC		6		L000855	L000844		
SLB0342-CAL7	QC		7		L000860	L000844		
SLB0342-CAL8	QC		8		L000861	L000844		
SLB0342-CAL9	QC		9		L000862	L000844		
SLB0342-CALA	QC		10		L000863	L000844		
SLB0342-CALB	QC		11		L000864	L000844		
SLB0342-SCV1	QC		12		L002065	L000844		
SLB0342-SCV2	QC		13		K007656	L000844		
SLB0342-SCV3	QC		14		L002066	L000844		
SLB0342-SCV4	QC		15		L002067	L000844		
SLB0342-SCV5	QC		16		L002068	L000844		
SLB0342-SCV6	QC		17		L002069	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	24-FEB-2023 10:51	02242301ECD7.D	1	IB	
2	24-FEB-2023 11:12	02242302ECD7.D	1	0.25PPMAR1660	
3	24-FEB-2023 11:33	02242303ECD7.D	1	0.02PPMAR1660	
4	24-FEB-2023 11:54	02242304ECD7.D	1	0.05PPMAR1660	
5	24-FEB-2023 12:15	02242305ECD7.D	1	1.0PPMAR1660	
6	24-FEB-2023 12:36	02242306ECD7.D	1	0.1PPMAR1660	
7	24-FEB-2023 12:57	02242307ECD7.D	1	0.5PPMAR1660	
8	24-FEB-2023 13:18	02242308ECD7.D	1	0.25PPMAR1242	
9	24-FEB-2023 13:39	02242309ECD7.D	1	0.25PPMAR1248	
10	24-FEB-2023 14:00	02242310ECD7.D	1	0.25PPMAR1254	
11	24-FEB-2023 14:21	02242311ECD7.D	1	0.25PPMAR2162	
12	24-FEB-2023 14:42	02242312ECD7.D	1	0.25PPMAR3268	
13	24-FEB-2023 15:03	02242313ECD7.D	1	AR1660SCV	
14	24-FEB-2023 15:24	02242314ECD7.D	1	AR1242SCV	
15	24-FEB-2023 15:45	02242315ECD7.D	1	AR1248SCV	
16	24-FEB-2023 16:06	02242316ECD7.D	1	AR1254SCV	
17	24-FEB-2023 16:27	02242317ECD7.D	1	AR2162SCV	
18	24-FEB-2023 16:48	02242318ECD7.D	1	AR3268SCV	
19	24-FEB-2023 17:09	02242319ECD7.D	1	DDTS	
20	24-FEB-2023 17:30	02242320ECD7.D	1	DDT BD	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

ARI Job No.: IB Method: PCB.m Instrument: ecd7.i Date: 24-FEB-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	NO MANUAL INTEGRATION
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2039	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION
1051	02242301ECD7.D	IB		1	NO MANUAL INTEGRATION
1112	02242302ECD7.D	0.25PPMAR1660		1	NO MANUAL INTEGRATION
1133	02242303ECD7.D	0.02PPMAR1660		1	Aroclor-1016 [2C],
1154	02242304ECD7.D	0.05PPMAR1660		1	NO MANUAL INTEGRATION
1215	02242305ECD7.D	1.0PPMAR1660		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1236	02242306ECD7.D	0.1PPMAR1660		1	NO MANUAL INTEGRATION
1257	02242307ECD7.D	0.5PPMAR1660		1	NO MANUAL INTEGRATION
1318	02242308ECD7.D	0.25PPMAR1242		1	NO MANUAL INTEGRATION
1339	02242309ECD7.D	0.25PPMAR1248		1	NO MANUAL INTEGRATION
1400	02242310ECD7.D	0.25PPMAR1254		1	NO MANUAL INTEGRATION
1421	02242311ECD7.D	0.25PPMAR2162		1	NO MANUAL INTEGRATION
1442	02242312ECD7.D	0.25PPMAR3268		1	NO MANUAL INTEGRATION
1503	02242313ECD7.D	AR1660SCV		1	NO MANUAL INTEGRATION
1524	02242314ECD7.D	AR1242SCV		1	NO MANUAL INTEGRATION
1545	02242315ECD7.D	AR1248SCV		1	NO MANUAL INTEGRATION
1606	02242316ECD7.D	AR1254SCV		1	NO MANUAL INTEGRATION
1627	02242317ECD7.D	AR2162SCV		1	NO MANUAL INTEGRATION
1648	02242318ECD7.D	AR3268SCV		1	NO MANUAL INTEGRATION
1709	02242319ECD7.D	DDTS		1	NO MANUAL INTEGRATION
1730	02242320ECD7.D	DDT BD		1	NO MANUAL INTEGRATION
1751	02242321ECD7.D			1	NO MANUAL INTEGRATION
1812	02242322ECD7.D			1	NO MANUAL INTEGRATION
1833	02242323ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1854	02242324ECD7.D			1	NO MANUAL INTEGRATION
1915	02242325ECD7.D			1	NO MANUAL INTEGRATION
1936	02242326ECD7.D			1	NO MANUAL INTEGRATION
1957	02242327ECD7.D			1	NO MANUAL INTEGRATION
2018	02242328ECD7.D			1	NO MANUAL INTEGRATION
2038	02242329ECD7.D			1	NO MANUAL INTEGRATION
2059	02242330ECD7.D			1	NO MANUAL INTEGRATION
2120	02242331ECD7.D			1	NO MANUAL INTEGRATION
2141	02242332ECD7.D			1	NO MANUAL INTEGRATION
2202	02242333ECD7.D			1	NO MANUAL INTEGRATION
2223	02242334ECD7.D			1	NO MANUAL INTEGRATION
2244	02242335ECD7.D			1	NO MANUAL INTEGRATION
2305	02242336ECD7.D			1	NO MANUAL INTEGRATION
2326	02242337ECD7.D			1	NO MANUAL INTEGRATION
2347	02242338ECD7.D			1	NO MANUAL INTEGRATION
0008	02242339ECD7.D			1	NO MANUAL INTEGRATION
0029	02242340ECD7.D			1	NO MANUAL INTEGRATION
0050	02242341ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0111	02242342ECD7.D			1	NO MANUAL INTEGRATION
0132	02242343ECD7.D			1	NO MANUAL INTEGRATION
0153	02242344ECD7.D			1	NO MANUAL INTEGRATION
0214	02242345ECD7.D			1	NO MANUAL INTEGRATION
0235	02242346ECD7.D			1	NO MANUAL INTEGRATION
0256	02242347ECD7.D			1	NO MANUAL INTEGRATION
0317	02242348ECD7.D			1	NO MANUAL INTEGRATION
0338	02242349ECD7.D			1	NO MANUAL INTEGRATION
0359	02242350ECD7.D			1	NO MANUAL INTEGRATION
0420	02242351ECD7.D			1	NO MANUAL INTEGRATION
0441	02242352ECD7.D			1	NO MANUAL INTEGRATION
0502	02242353ECD7.D			1	NO MANUAL INTEGRATION
0523	02242354ECD7.D			1	NO MANUAL INTEGRATION
0544	02242355ECD7.D			1	NO MANUAL INTEGRATION
0605	02242356ECD7.D			1	NO MANUAL INTEGRATION
0626	02242357ECD7.D			1	NO MANUAL INTEGRATION
0647	02242358ECD7.D			1	NO MANUAL INTEGRATION
0708	02242359ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0729	02242360ECD7.D			1	NO MANUAL INTEGRATION
0750	02242361ECD7.D			1	NO MANUAL INTEGRATION
0811	02242362ECD7.D			1	NO MANUAL INTEGRATION
0832	02242363ECD7.D			1	NO MANUAL INTEGRATION
0853	02242364ECD7.D			1	NO MANUAL INTEGRATION
0914	02242365ECD7.D			1	NO MANUAL INTEGRATION
0935	02242366ECD7.D			1	NO MANUAL INTEGRATION
0956	02242367ECD7.D			1	NO MANUAL INTEGRATION
1017	02242368ECD7.D			1	NO MANUAL INTEGRATION
1038	02242369ECD7.D			1	NO MANUAL INTEGRATION
1059	02242370ECD7.D			1	NO MANUAL INTEGRATION
1120	02242371ECD7.D			1	NO MANUAL INTEGRATION
1141	02242372ECD7.D			1	NO MANUAL INTEGRATION
1202	02242373ECD7.D			1	NO MANUAL INTEGRATION
1223	02242374ECD7.D			1	NO MANUAL INTEGRATION
1244	02242375ECD7.D			1	NO MANUAL INTEGRATION
1305	02242376ECD7.D			1	NO MANUAL INTEGRATION
1326	02242377ECD7.D			1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230224.b\230224.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1347	02242378ECD7.D			1	NO MANUAL INTEGRATION
1408	02242379ECD7.D			1	NO MANUAL INTEGRATION
1429	02242380ECD7.D			1	NO MANUAL INTEGRATION
1450	02242381ECD7.D			1	NO MANUAL INTEGRATION
1511	02242382ECD7.D			1	NO MANUAL INTEGRATION
1532	02242383ECD7.D			1	NO MANUAL INTEGRATION
1553	02242384ECD7.D			1	NO MANUAL INTEGRATION

Security Status Report

Date: 28-Feb-2023 10:53

02242301ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242302ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242303ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242304ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242305ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242306ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242307ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242308ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242309ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242310ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242311ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242312ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242313ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242314ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242315ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242316ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242317ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242318ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242319ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53
02242320ECD7.D	Data Locked	richardl, 28-Feb-2023 10:53

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\02242312ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
2 Aroclor-1221(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00716	0.00716	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01281	0.01281	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02975	0.02975	0.000
3 Aroclor-1242(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02479	0.02479	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.07529	0.07529	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02343	0.02343	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.03463	0.03463	0.000
4 Aroclor-1232(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00429	0.00429	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.00850	0.00850	0.000
(3)	*****	*****	*****	*****	*****	*****	0.03848	0.03848	0.000
(4)	*****	*****	*****	*****	*****	*****	0.01635	0.01635	0.000
7 Aroclor-1016(1)	0.03172	0.03253	0.03142	0.03141	0.02856	0.02667	*****	0.03039	7.449
(2)	0.09239	0.09246	0.09222	0.09849	0.09174	0.08849	*****	0.09263	3.499
(3)	0.05165	0.05037	0.04823	0.04393	0.03991	0.03721	*****	0.04522	12.936
(4)	0.03002	0.02894	0.02959	0.03058	0.02852	0.02774	*****	0.02923	3.542
6 Aroclor-1248(1)	*****	*****	*****	*****	*****	*****	0.03903	0.03903	0.000
(2)	*****	*****	*****	*****	*****	*****	0.04961	0.04961	0.000
(3)	*****	*****	*****	*****	*****	*****	0.09360	0.09360	0.000
(4)	*****	*****	*****	*****	*****	*****	0.04765	0.04765	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.08033	0.08033	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.03613	0.03613	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.05165	0.05165	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.10042	0.10042	0.000
(5)	+++++	+++++	+++++	+++++	+++++	+++++	0.06294	0.06294	0.000
9 Aroclor-1260(1)	0.02926	0.02920	0.02841	0.03096	0.02737	0.02746	+++++	0.02878	4.677
(2)	0.02967	0.03006	0.03011	0.03291	0.02910	0.02857	+++++	0.03007	5.029
(3)	0.08088	0.08045	0.07954	0.08575	0.07515	0.07674	+++++	0.07975	4.627
(4)	0.03905	0.03887	0.03955	0.04485	0.03942	0.03922	+++++	0.04016	5.753
(5)	0.01783	0.01715	0.01679	0.01875	0.01664	0.01655	+++++	0.01729	4.953
10 Aroclor-1262(1)	+++++	+++++	+++++	+++++	+++++	+++++	0.02454	0.02454	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.03993	0.03993	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04293	0.04293	0.000
(4)	*****	*****	*****	*****	*****	*****	0.03923	0.03923	0.000
11 Aroclor-1268(1)	*****	*****	*****	*****	*****	*****	0.10250	0.10250	0.000
(2)	*****	*****	*****	*****	*****	*****	0.10151	0.10151	0.000
(3)	*****	*****	*****	*****	*****	*****	0.08686	0.08686	0.000
(4)	*****	*****	*****	*****	*****	*****	0.28598	0.28598	0.000
42 2,4-DDE	*****	*****	*****	*****	*****	*****	*****	*****	*****
43 2,4-DDD	*****	*****	*****	*****	*****	*****	*****	*****	*****
44 2,4-DDT	*****	*****	*****	*****	*****	*****	*****	*****	*****
46 4,4-DDE	*****	*****	*****	*****	*****	*****	*****	*****	*****

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m
Last Edit : 24-Feb-2023 15:31 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 1 Tetrachloro-m-xylene	1.16827	1.24402	1.18546	1.20509	1.12295	1.24114	+++++	1.19449	3.860
$ 13 Decachlorobiphenyl	0.82901	0.80558	0.77587	0.78808	0.73125	0.79742	+++++	0.78787	4.189

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Calibration File Names:
Level 1: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242303ECD7.D
Level 2: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242304ECD7.D
Level 3: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242306ECD7.D
Level 4: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242302ECD7.D
Level 5: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242307ECD7.D
Level 6: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242305ECD7.D
Level 7: \\target\share\chem4\ecd7.i\230224.b\230224.b\02242312ECD7.D

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
1 Aroclor-1221 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00757	0.00757	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.01433	0.01433	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.02333	0.02333	0.000
4 Aroclor-1232 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.00409	0.00409	0.000
(2)	+++++	+++++	+++++	+++++	+++++	+++++	0.02034	0.02034	0.000
(3)	+++++	+++++	+++++	+++++	+++++	+++++	0.04067	0.04067	0.000
(4)	+++++	+++++	+++++	+++++	+++++	+++++	0.01170	0.01170	0.000
3 Aroclor-1242 [2C](1)	+++++	+++++	+++++	+++++	+++++	+++++	0.03717	0.03717	0.000

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	RRF	% RSD
(2)	*****	*****	*****	*****	*****	*****	0.07813	0.07813	0.000
(3)	*****	*****	*****	*****	*****	*****	0.02431	0.02431	0.000
(4)	*****	*****	*****	*****	*****	*****	0.02962	0.02962	0.000
6 Aroclor-1248 [2C](1)	*****	*****	*****	*****	*****	*****	0.03820	0.03820	0.000
(2)	*****	*****	*****	*****	*****	*****	0.03949	0.03949	0.000
(3)	*****	*****	*****	*****	*****	*****	0.04545	0.04545	0.000
(4)	*****	*****	*****	*****	*****	*****	0.05457	0.05457	0.000
7 Aroclor-1016 [2C](1)	0.05071	0.05022	0.04868	0.04733	0.04326	0.04080	*****	0.04683	8.503
(2)	0.08143	0.09407	0.10159	0.10259	0.09651	0.09362	*****	0.09497	8.025
(3)	0.04006	0.04718	0.04613	0.04410	0.04062	0.03926	*****	0.04289	7.857
(4)	0.03181	0.03802	0.03707	0.03450	0.03115	0.02936	*****	0.03365	10.251

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
8 Aroclor-1254 [2C](1)	*****	*****	*****	*****	*****	*****	0.06081	0.06081	0.000
(2)	*****	*****	*****	*****	*****	*****	0.04892	0.04892	0.000
(3)	*****	*****	*****	*****	*****	*****	0.10584	0.10584	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10317	0.10317	0.000
(5)	*****	*****	*****	*****	*****	*****	0.06282	0.06282	0.000
10 Aroclor-1262 [2C](1)	*****	*****	*****	*****	*****	*****	0.06831	0.06831	0.000
(2)	*****	*****	*****	*****	*****	*****	0.05818	0.05818	0.000
(3)	*****	*****	*****	*****	*****	*****	0.06601	0.06601	0.000
(4)	*****	*****	*****	*****	*****	*****	0.10341	0.10341	0.000
9 Aroclor-1260 [2C](1)	0.05286	0.04911	0.04696	0.04801	0.04329	0.04201	*****	0.04704	8.422
(2)	0.12976	0.12431	0.12095	0.12664	0.11320	0.10545	*****	0.12005	7.605

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1 / 250.000 Level 7	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	___ RRF	% RSD
(3)	0.03524 / +++++	0.03147	0.02937	0.03208	0.03102	0.03198	0.03186	6.045
(4)	0.08632 / +++++	0.08237	0.08044	0.08393	0.07718	0.07531	0.08092	5.126
11 Aroclor-1268 [2C](1)	+++++ / 0.16109	+++++	+++++	+++++	+++++	+++++	0.16109	0.000
(2)	+++++ / 0.17318	+++++	+++++	+++++	+++++	+++++	0.17318	0.000
(3)	+++++ / 0.14787	+++++	+++++	+++++	+++++	+++++	0.14787	0.000
(4)	+++++ / 0.47260	+++++	+++++	+++++	+++++	+++++	0.47260	0.000
41 2,4-DDE [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
42 2,4-DDD [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
44 4,4-DDE [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
46 4,4-DDT [2C]	+++++ / +++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

ARI Labs, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 24-FEB-2023 11:12
End Cal Date : 24-FEB-2023 14:42
Quant Method : ISTD
Origin : Disabled
Target Version : 4.14
Integrator : HP Genie
Method file : \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Last Edit : 24-Feb-2023 15:29 richardl
Curve Type : Average

Compound	20.000 Level 1	50.000 Level 2	100.000 Level 3	250.000 Level 4	500.000 Level 5	1000.000 Level 6	250.000 Level 7	___ RRF	% RSD
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 2 Tetrachloro-m-xylene [2C]	1.21526	1.19545	1.17555	1.21907	1.12560	1.11139	+++++	1.17372	3.897
$ 13 Decachlorobiphenyl [2C]	1.17066	1.20406	1.20549	1.31040	1.21104	1.20797	+++++	1.21827	3.898

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 41 IS-BNB	3.493	3.492	3.492	3.492	3.491	3.491	3.493	3.393-3.593	3.492	0.001
$ 1 Tetrachloro-m-xylene	5.811	5.809	5.809	5.813	5.809	5.810	5.811	5.711-5.911	5.810	0.002
2 Aroclor-1221	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
3 Aroclor-1242	+++++	+++++	+++++	+++++	+++++	+++++	7.269	7.169-7.369	+++++	+++++
4 Aroclor-1232	+++++	+++++	+++++	+++++	+++++	+++++	4.732	4.632-4.832	+++++	+++++
7 Aroclor-1016	7.272	7.272	7.272	7.270	7.271	7.270	7.272	7.172-7.372	7.271	0.001
6 Aroclor-1248	+++++	+++++	+++++	+++++	+++++	+++++	8.403	8.303-8.503	+++++	+++++
8 Aroclor-1254	+++++	+++++	+++++	+++++	+++++	+++++	9.295	9.195-9.395	+++++	+++++
9 Aroclor-1260	11.046	11.047	11.046	11.044	11.045	11.044	11.046	10.946-11.146	11.045	0.001
10 Aroclor-1262	+++++	+++++	+++++	+++++	+++++	+++++	10.824	10.724-10.924	+++++	+++++
11 Aroclor-1268	+++++	+++++	+++++	+++++	+++++	+++++	12.243	12.143-12.343	+++++	+++++
$ 13 Decachlorobiphenyl	13.897	13.893	13.893	13.899	13.892	13.898	13.897	13.797-13.997	13.895	0.003
* 12 IS-HBBP	14.269	14.268	14.268	14.267	14.268	14.268	14.269	14.169-14.369	14.268	0.001
42 2,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.260	9.210-9.310	+++++	+++++
43 2,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	9.801	9.751-9.851	+++++	+++++
44 2,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.293	10.243-10.343	+++++	+++++
46 4,4-DDE	+++++	+++++	+++++	+++++	+++++	+++++	9.683	9.583-9.783	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Batch File: \\target\share\chem4\ecd7.i\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
47 4,4-DDD	+++++	+++++	+++++	+++++	+++++	+++++	10.254	10.154-10.354	+++++	+++++
48 4,4-DDT	+++++	+++++	+++++	+++++	+++++	+++++	10.754	10.654-10.854	+++++	+++++
49 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.842	1.742-1.942	+++++	+++++
50 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	6.708	6.608-6.808	+++++	+++++

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	02242302ECD7	02242303ECD7	02242304ECD7	02242305ECD7	02242306ECD7	02242307ECD7
INJ.DATE:	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023	24-FEB-2023
INJ.TIME:	11:12	11:33	11:54	12:15	12:36	12:57

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
* 40 IS-BNB [2C]	3.928	3.929	3.929	3.929	3.928	3.929	3.928	3.828-4.028	3.929	0.000
$ 2 Tetrachloro-m-xylene [	5.687	5.688	5.688	5.688	5.688	5.688	5.687	5.587-5.787	5.688	0.001
1 Aroclor-1221 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.858-5.058	+++++	+++++
4 Aroclor-1232 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	4.958	4.859-5.059	+++++	+++++
3 Aroclor-1242 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	7.254	7.154-7.354	+++++	+++++
6 Aroclor-1248 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	8.305	8.205-8.405	+++++	+++++
7 Aroclor-1016 [2C]	7.255	7.256	7.256	7.254	7.255	7.256	7.255	7.155-7.355	7.255	0.001
8 Aroclor-1254 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.447	9.347-9.547	+++++	+++++
10 Aroclor-1262 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.198	11.098-11.298	+++++	+++++
9 Aroclor-1260 [2C]	11.653	11.656	11.655	11.652	11.655	11.653	11.653	11.553-11.753	11.654	0.001
11 Aroclor-1268 [2C]	+++++	+++++	+++++	+++++	+++++	+++++	12.431	12.331-12.531	+++++	+++++
$ 13 Decachlorobiphenyl [2C	14.120	14.120	14.119	14.122	14.119	14.120	14.120	14.020-14.220	14.120	0.001
* 12 IS-HBBP [2C]	15.008	15.008	15.008	15.008	15.007	15.008	15.008	14.908-15.108	15.008	0.000
41 2,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.911	9.861-9.961	+++++	+++++
42 2,4-DDD [2C]	+++++	+++++	+++++	+++++	+++++	+++++	9.536	9.486-9.586	+++++	+++++
44 4,4-DDE [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.209	10.109-10.309	+++++	+++++
45 4,4-DDD/2,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	10.667	10.567-10.767	+++++	+++++

Reviewer 1 _____ Date:_____
Reviewer 2 _____ Date:_____

ARI Labs, Inc.
RETENTION TIME SUMMARY REPORT

Method File: \\target\share\chem4\ecd7.i\230224.b\PCB.m\PCB2.m
Batch File: \\target\share\chem4\ecd7.i\230224.b\230224.b
Inst ID: ecd7.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
46 4,4-DDT [2C]	+++++	+++++	+++++	+++++	+++++	+++++	11.092	10.992-11.192	+++++	+++++
48 Hexachlorobutadiene	+++++	+++++	+++++	+++++	+++++	+++++	1.703	1.603-1.803	+++++	+++++
49 Hexachlorobenzene	+++++	+++++	+++++	+++++	+++++	+++++	7.178	7.078-7.278	+++++	+++++

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242301ECD7.D
Data file 2: /230224.b/230224.b/02242301ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: IB
Client ID:
Injection Date: 24-FEB-2023 10:51
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.826	0.019	382217	5.683	-0.002	180378	33.8	36.5	7.7	Tetrachloro-m-xylene
13.904	0.011	534110	14.120	0.001	295605	35.3	37.2	5.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	756896	12.3
Hexabromobiphenyl	1429847	1534275	7.3

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	336543	6.8
Hexabromobiphenyl	513946	521508	1.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	---			0.0	1	---			0.0
Aroclor-1016	2	---			0.0	2	---			0.0
Aroclor-1016	3	---			0.0	3	---			0.0
Aroclor-1016	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.321	0.025	1873	31.1
Aroclor-1221	3	---			0.0	3	6.633	0.012	314	3.2
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	---			0.0
Aroclor-1232	3	7.698	0.043	2193	6.0	3	---			0.0
Aroclor-1232	4	8.505	-0.076	11525	74.5	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1242	1	---			0.0	1	---			0.0
Aroclor-1242	2	7.698	0.042	2193	3.1	2	---			0.0
Aroclor-1242	3	---			0.0	3	---			0.0
Aroclor-1242	4	8.505	-0.074	11525	35.2	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1248	1	---			0.0	1	---			0.0
Aroclor-1248	2	---			0.0	2	---			0.0
Aroclor-1248	3	---			0.0	3	---			0.0
Aroclor-1248	4	---			0.0	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1254	1	---			0.0	1	---			0.0
Aroclor-1254	2	---			0.0	2	---			0.0
Aroclor-1254	3	9.596	-0.072	31424	64.3	3	---			0.0
Aroclor-1254	4	---			0.0	4	---			0.0
Aroclor-1254	5	10.167	-0.010	18361	30.8	5	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1260	1	11.098	0.054	6994	12.7	1	---			0.0
Aroclor-1260	2	---			0.0	2	---			0.0
Aroclor-1260	3	11.706	-0.027	7806	5.1	3	---			0.0
Aroclor-1260	4	---			0.0	4	---			0.0
Aroclor-1260	5	---			0.0	NS	---			----
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1262	1	10.824	-0.005	16873	35.8	1	---			0.0
Aroclor-1262	2	---			0.0	2	---			0.0
Aroclor-1262	3	---			0.0	3	---			0.0
Aroclor-1262	4	13.040	0.053	14031	18.6	4	---			0.0
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1268	1	---			0.0	1	---			0.0
Aroclor-1268	2	---			0.0	2	---			0.0
Aroclor-1268	3	12.709	0.009	6037	3.6	3	12.891	-0.001	659	0.7
Aroclor-1268	4	13.499	0.010	12396	2.3	4	13.710	0.001	1848	0.6
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				

Total PCB Area Col1 (5.906 - 13.793) = 260205 Col1 Total PCB = 0.0 ppm*

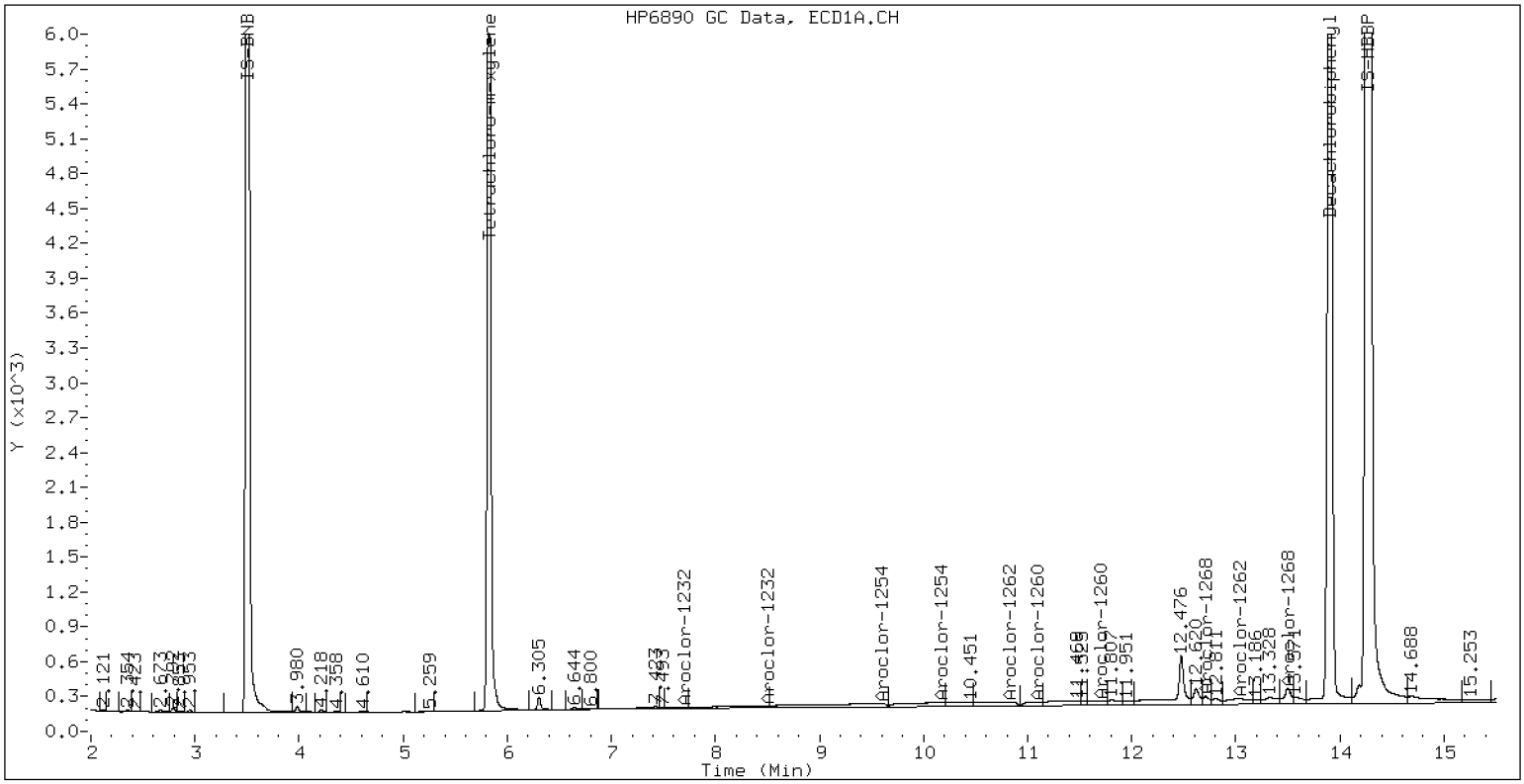
Total PCB Area Col2 (5.785 - 14.019) = 18252 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

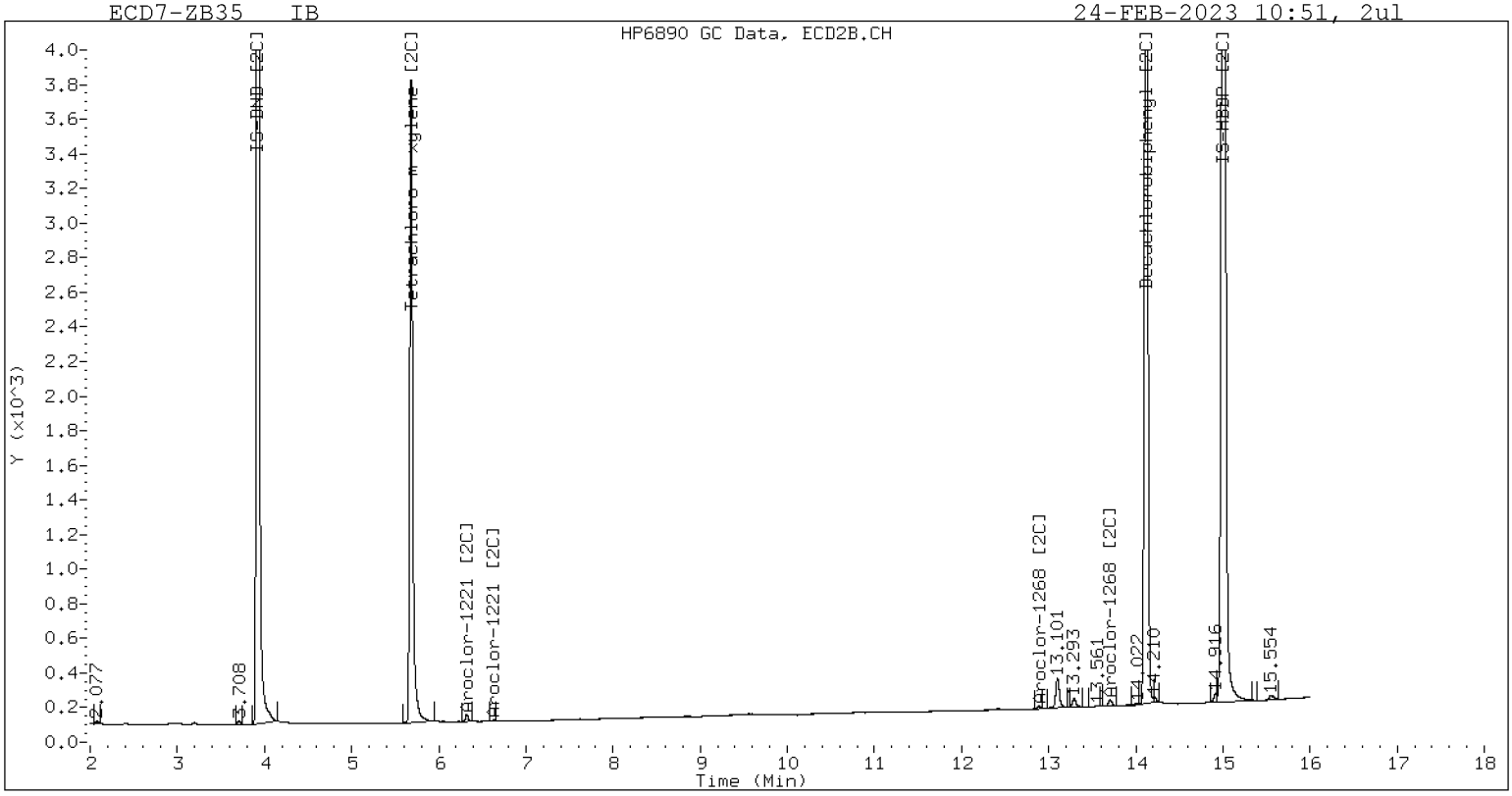
PCB Dual Column Chromatograms

ECD7-ZB5 IB 24-FEB-2023 10:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 IB 24-FEB-2023 10:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242302ECD7.D
Data file 2: /230224.b/230224.b/02242302ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:12
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.811	0.005	405980	5.687	0.002	192160	40.4	41.5	2.9	Tetrachloro-m-xylene
13.897	0.004	563414	14.120	0.001	336737	40.0	43.0	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	673778	0.0
Hexabromobiphenyl	1429847	1429847	0.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	315256	0.0
Hexabromobiphenyl	513946	513946	0.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.272	0.001	66125	258.4	1	7.255	-0.001	46626	252.6
Aroclor-1016	2	7.654	-0.000	207370	265.8	2	7.855	-0.001	101071	270.1
Aroclor-1016	3	7.792	0.002	92507	242.9	3	8.055	0.001	43448	257.1
Aroclor-1016	4	8.406	0.001	64388	261.5	4	8.306	-0.000	33986	256.3
Total Col1Ave (4 peaks):					257.2	Total Col2Ave (4 peaks):				259.0 RPD = 1
Corrected Ave (3 peaks):					254.3	Corrected Ave (3 peaks):				255.3 RPD = 0
CalAmt %D:					2.9	CalAmt %D:				3.6
Aroclor-1260	1	11.046	0.001	138355	269.0	1	11.653	0.001	77114	255.2
Aroclor-1260	2	11.363	0.002	147051	273.6	2	11.918	0.001	203401	263.7
Aroclor-1260	3	11.736	0.003	383171	268.8	3	12.435	-0.000	51517	251.7
Aroclor-1260	4	12.141	0.002	200399	279.2	4	12.502	0.001	134797	259.3
Aroclor-1260	5	12.247	0.003	83796	271.2	NS	---			----
Total Col1Ave (5 peaks):					272.4	Total Col2Ave (4 peaks):				257.5 RPD = 6
Corrected Ave (4 peaks):					270.7	Corrected Ave (3 peaks):				255.4 RPD = 6
CalAmt %D:					8.9	CalAmt %D:				3.0

Total PCB Area Col1 (5.906 - 13.793) = 4024419 Col1 Total PCB = 0.5 ppm*

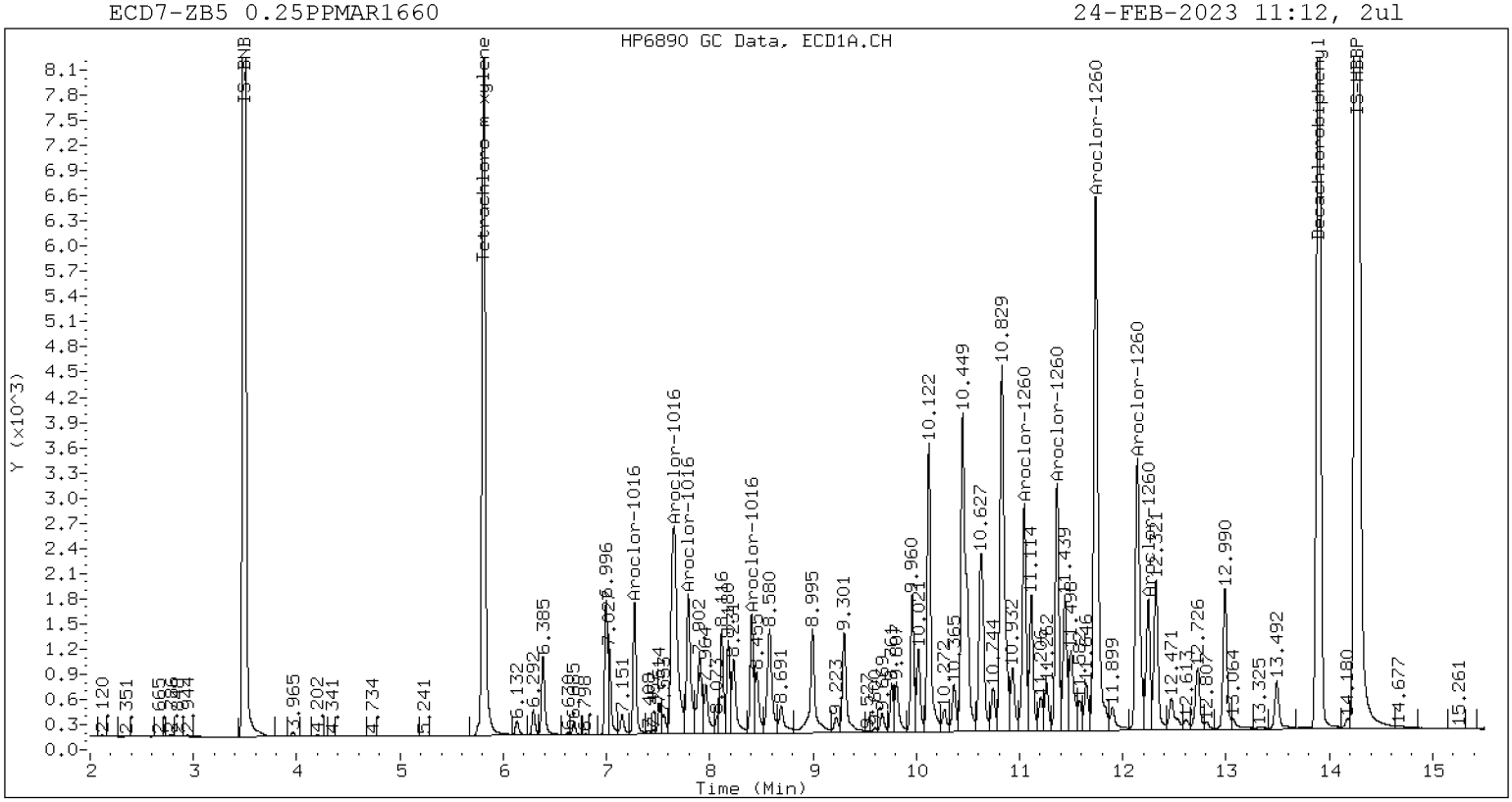
Total PCB Area Col2 (5.785 - 14.019) = 1889311 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

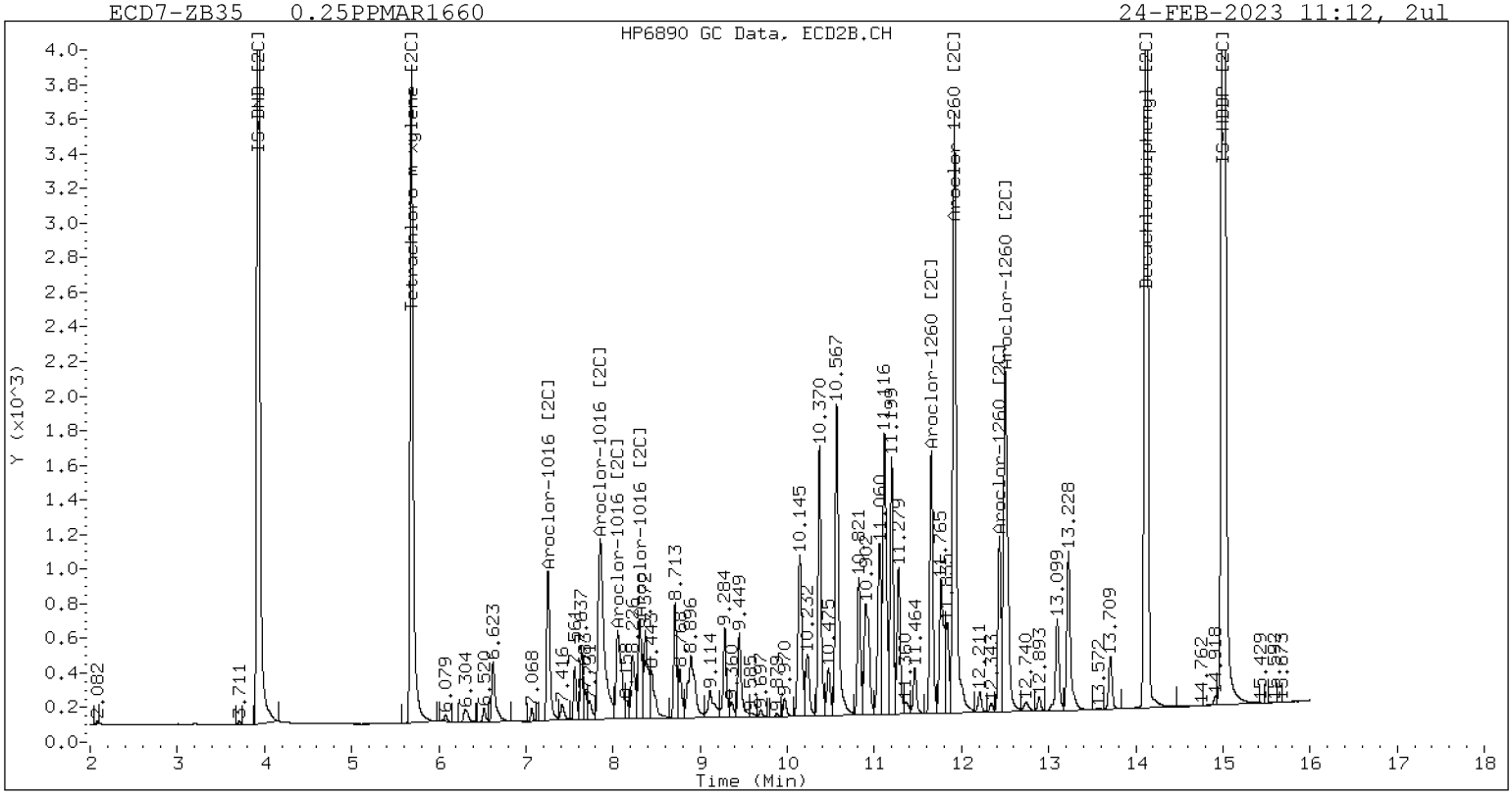
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1660 24-FEB-2023 11:12, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242303ECD7.D
Data file 2: /230224.b/230224.b/02242303ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.02PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:33
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	29768	5.688	0.003	14932	3.1	3.3	5.7	Tetrachloro-m-xylene
13.893	0.000	45992	14.120	0.000	23950	3.4	3.1	9.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	637010	-5.5
Hexabromobiphenyl	1429847	1386953	-3.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307177	-2.6
Hexabromobiphenyl	513946	511463	-0.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.272	0.001	5052	20.9	1	7.256	0.000	3894	21.7
Aroclor-1016	2	7.659	0.005	14714	19.9	2	7.864	0.008	6253	17.1
Aroclor-1016	3	7.795	0.005	8226	22.8	3	8.060	0.006	3076	18.7
Aroclor-1016	4	8.407	0.002	4780	20.5	4	8.309	0.002	2443	18.9
Total Col1Ave (4 peaks):					21.1	Total Col2Ave (4 peaks):				19.1 RPD = 10
Corrected Ave (3 peaks):					20.5	Corrected Ave (3 peaks):				18.2 RPD = 11
CalAmt %D:					5.3	CalAmt %D:				-4.5
Aroclor-1260	1	11.047	0.003	10147	20.3	1	11.656	0.003	6759	22.5
Aroclor-1260	2	11.364	0.003	10287	19.7	2	11.922	0.005	16592	21.6
Aroclor-1260	3	11.740	0.006	28043	20.3	3	12.438	0.002	4506	22.1
Aroclor-1260	4	12.145	0.006	13540	19.4	4	12.505	0.004	11037	21.3
Aroclor-1260	5	12.246	0.002	6182	20.6	NS	---			----
Total Col1Ave (5 peaks):					20.1	Total Col2Ave (4 peaks):				21.9 RPD = 9
Corrected Ave (4 peaks):					19.9	Corrected Ave (3 peaks):				21.7 RPD = 8
CalAmt %D:					0.4	CalAmt %D:				9.4

Total PCB Area Col1 (5.906 - 13.793) = 324832 Col1 Total PCB = 0.0 ppm*

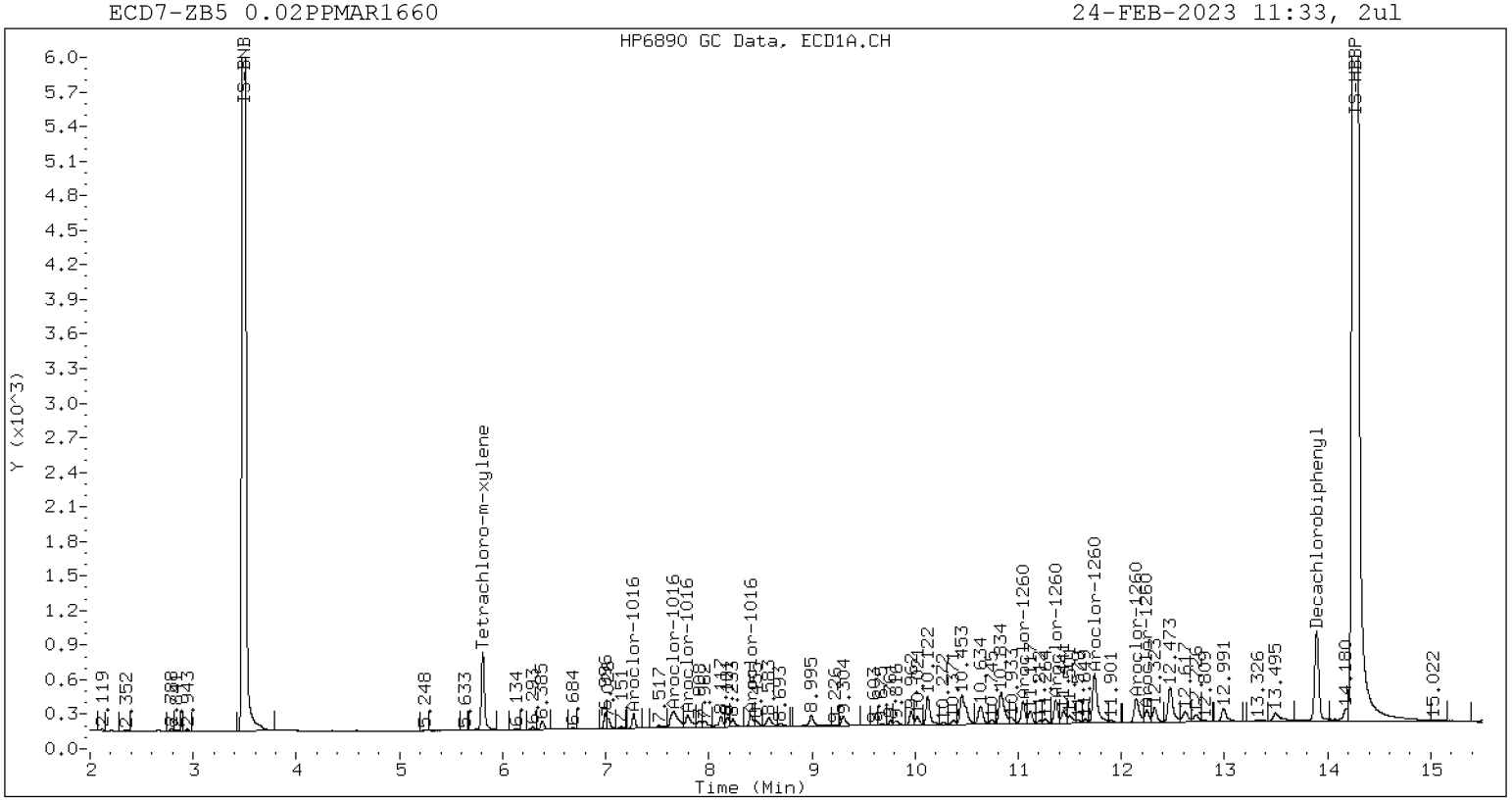
Total PCB Area Col2 (5.785 - 14.019) = 157149 Col2 Total PCB = 0.0 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

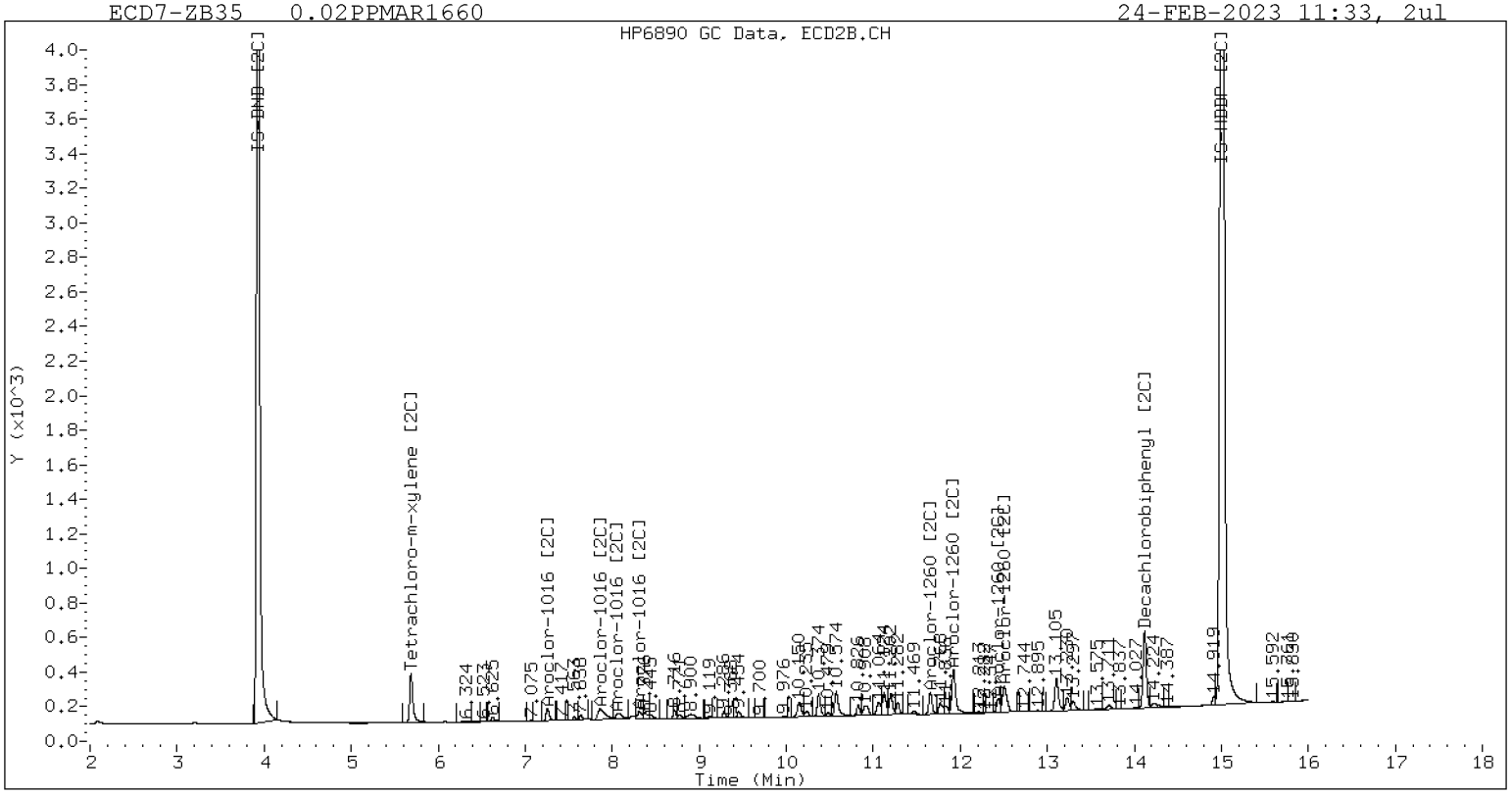
PCB Dual Column Chromatograms

ECD7-ZB5 0.02PPMAR1660 24-FEB-2023 11:33, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.02PPMAR1660 24-FEB-2023 11:33, 2ul

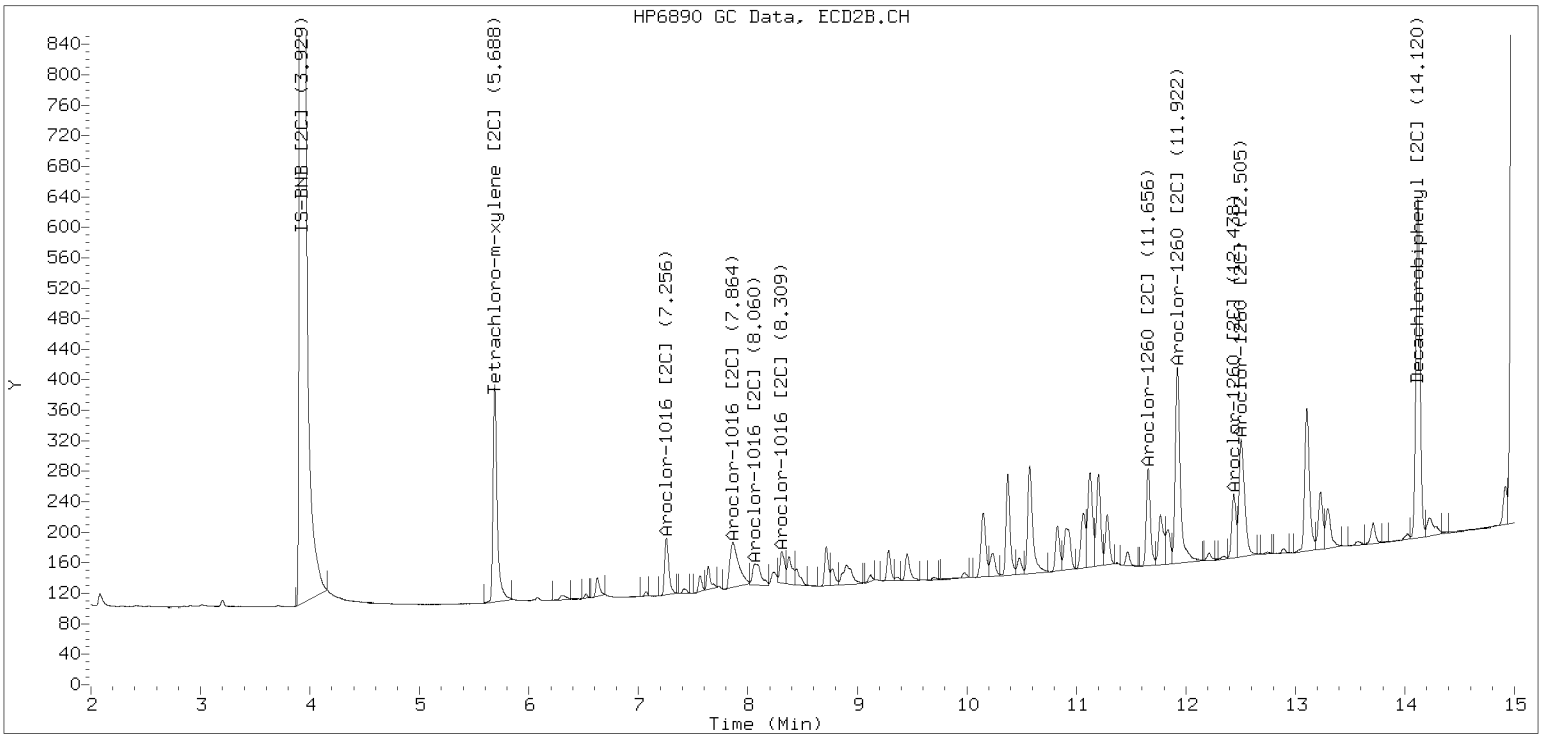


ZB-35 Manual Integration: YES

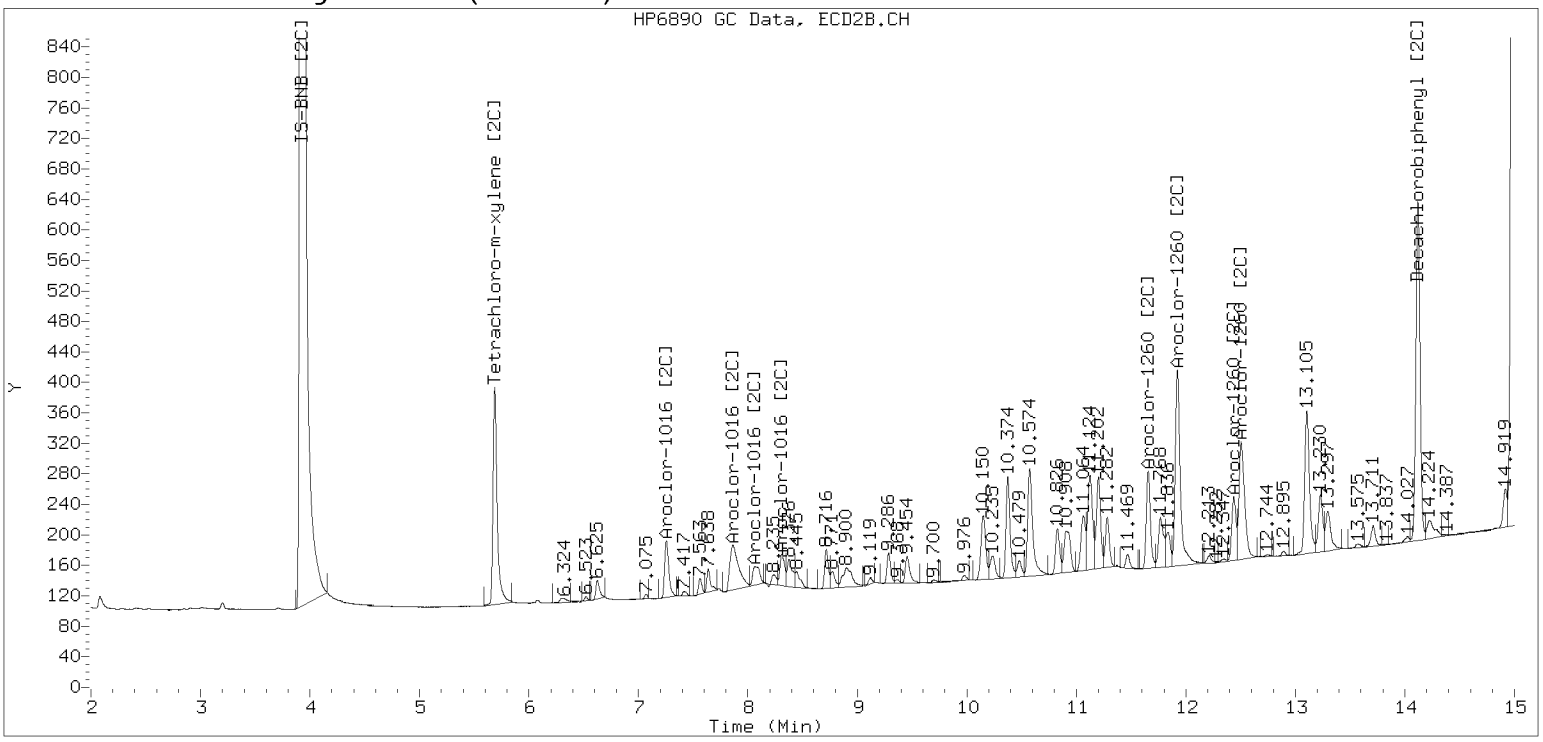
Manual Peak Adjustment, ZB-35

Datafile: ecd7.i/230224.b/230224.b/02242303ECD7.D Injection Date: 24-FEB-2023

Manual Integration (After)



Processed Integration (Before)



Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242304ECD7.D
Data file 2: /230224.b/230224.b/02242304ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.05PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 11:54
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	78493	5.688	0.003	36772	8.3	8.1	2.2	Tetrachloro-m-xylene
13.893	-0.000	113544	14.119	-0.000	62745	8.2	7.9	3.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	630965	-6.4
Hexabromobiphenyl	1429847	1409464	-1.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	307599	-2.4
Hexabromobiphenyl	513946	521112	1.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1016	1	7.272	0.002	12829	53.5	1	7.256	0.000	9654	53.6
Aroclor-1016	2	7.660	0.006	36461	49.9	2	7.864	0.008	18085	49.5
Aroclor-1016	3	7.795	0.005	19865	55.7	3	8.063	0.008	9071	55.0
Aroclor-1016	4	8.408	0.003	11411	49.5	4	8.310	0.003	7309	56.5
Total Col1Ave (4 peaks):					52.2	Total Col2Ave (4 peaks):				53.7 RPD = 3
Corrected Ave (3 peaks):					51.0	Corrected Ave (3 peaks):				52.7 RPD = 3
CalAmt %D:					4.3	CalAmt %D:				7.3
Aroclor-1260	1	11.046	0.002	25727	50.7	1	11.655	0.002	15996	52.2
Aroclor-1260	2	11.363	0.002	26482	50.0	2	11.922	0.004	40487	51.8
Aroclor-1260	3	11.739	0.005	70871	50.4	3	12.437	0.002	10248	49.4
Aroclor-1260	4	12.143	0.004	34239	48.4	4	12.506	0.004	26828	50.9
Aroclor-1260	5	12.246	0.002	15109	49.6	NS	---			----
Total Col1Ave (5 peaks):					49.8	Total Col2Ave (4 peaks):				51.1 RPD = 2
Corrected Ave (4 peaks):					49.6	Corrected Ave (3 peaks):				50.7 RPD = 2
CalAmt %D:					-0.3	CalAmt %D:				2.1

Total PCB Area Col1 (5.906 - 13.793) = 758292 Col1 Total PCB = 0.1 ppm*

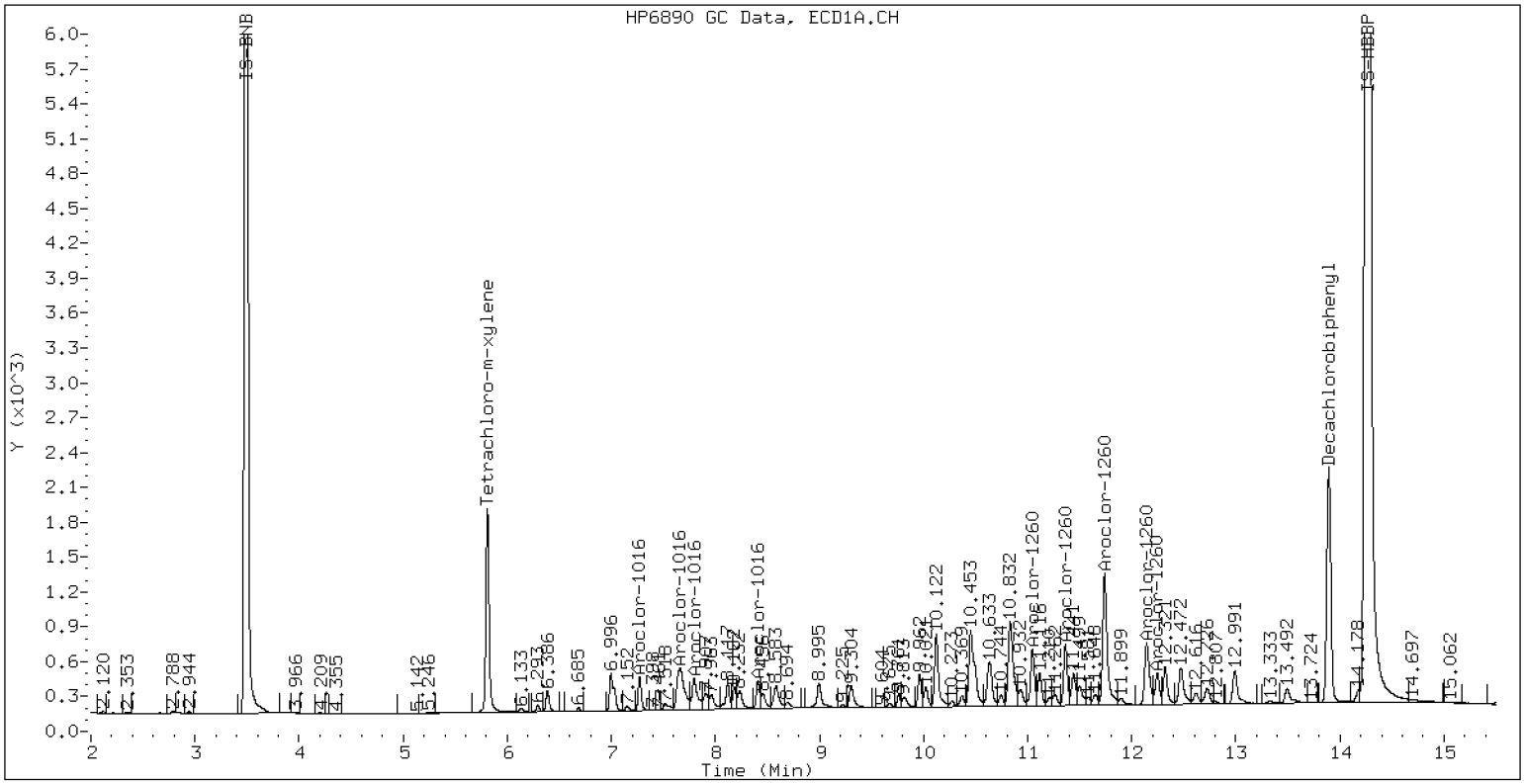
Total PCB Area Col2 (5.785 - 14.019) = 386383 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

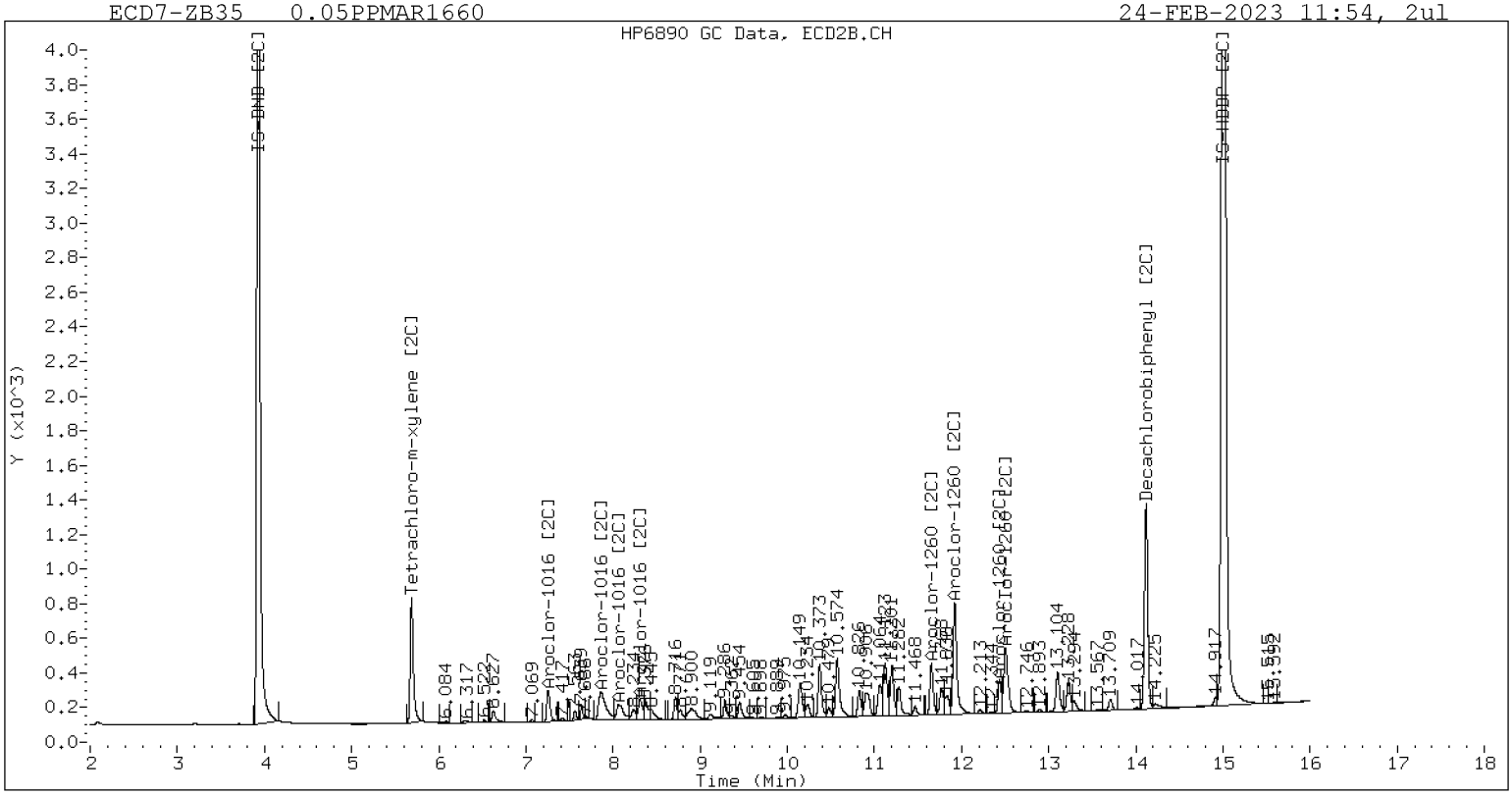
PCB Dual Column Chromatograms

ECD7-ZB5 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.05PPMAR1660 24-FEB-2023 11:54, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242305ECD7.D
Data file 2: /230224.b/230224.b/02242305ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 1.0PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:15
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.813	0.006	1641874	5.688	0.003	709674	166.2	151.5	9.3	Tetrachloro-m-xylene
13.899	0.006	2344583	14.122	0.002	1300114	161.9	158.6	2.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661440	-1.8
Hexabromobiphenyl	1429847	1470100	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319272	1.3
Hexabromobiphenyl	513946	538138	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.000	220519	877.8	1	7.254	-0.001	162833	871.2
Aroclor-1016	2	7.652	-0.002	731607	955.3	2	7.852	-0.004	373610	985.8
Aroclor-1016	3	7.789	-0.001	307629	822.8	3	8.051	-0.003	156666	915.2
Aroclor-1016	4	8.404	-0.001	229387	949.1	4	8.305	-0.002	117186	872.6
Total Col1Ave (4 peaks):					901.3	Total Col2Ave (4 peaks):				911.2 RPD = 1
Corrected Ave (3 peaks):					883.3	Corrected Ave (3 peaks):				886.3 RPD = 0
CalAmt %D:					-9.9	CalAmt %D:				-8.9
Aroclor-1260	1	11.044	-0.000	504641	954.2	1	11.652	-0.000	282606	893.1
Aroclor-1260	2	11.360	-0.001	524931	950.0	2	11.917	-0.000	709329	878.4
Aroclor-1260	3	11.734	-0.000	1410270	962.3	3	12.434	-0.001	215124	1003.8
Aroclor-1260	4	12.137	-0.002	720770	976.7	4	12.501	-0.001	506566	930.6
Aroclor-1260	5	12.243	-0.001	304211	957.7	NS	---			----
Total Col1Ave (5 peaks):					960.2	Total Col2Ave (4 peaks):				926.5 RPD = 4
Corrected Ave (4 peaks):					956.0	Corrected Ave (3 peaks):				900.7 RPD = 6
CalAmt %D:					-4.0	CalAmt %D:				-7.4

Total PCB Area Col1 (5.906 - 13.793) = 14454279 Col1 Total PCB = 1.8 ppm*

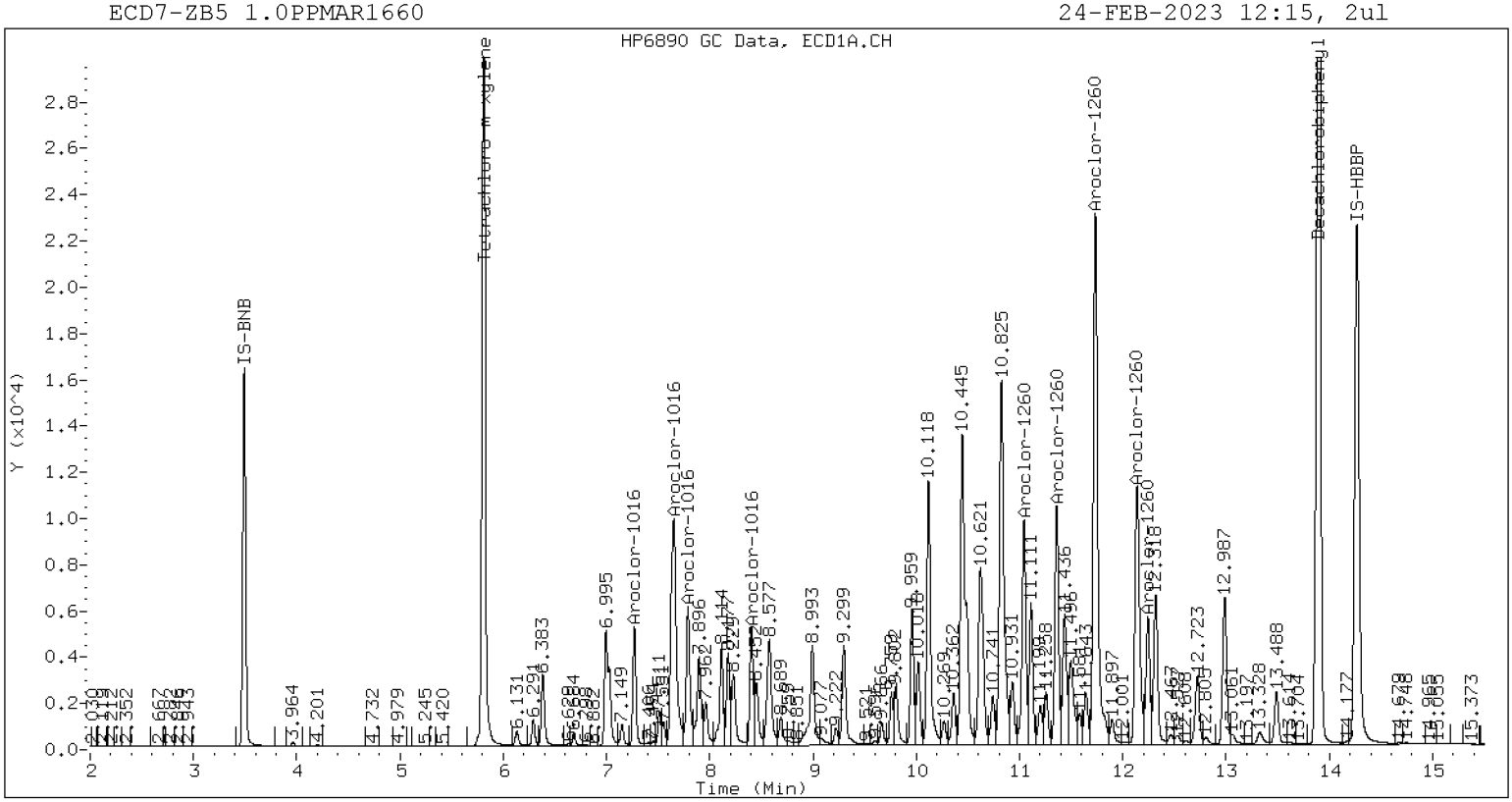
Total PCB Area Col2 (5.785 - 14.019) = 7029563 Col2 Total PCB = 1.8 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

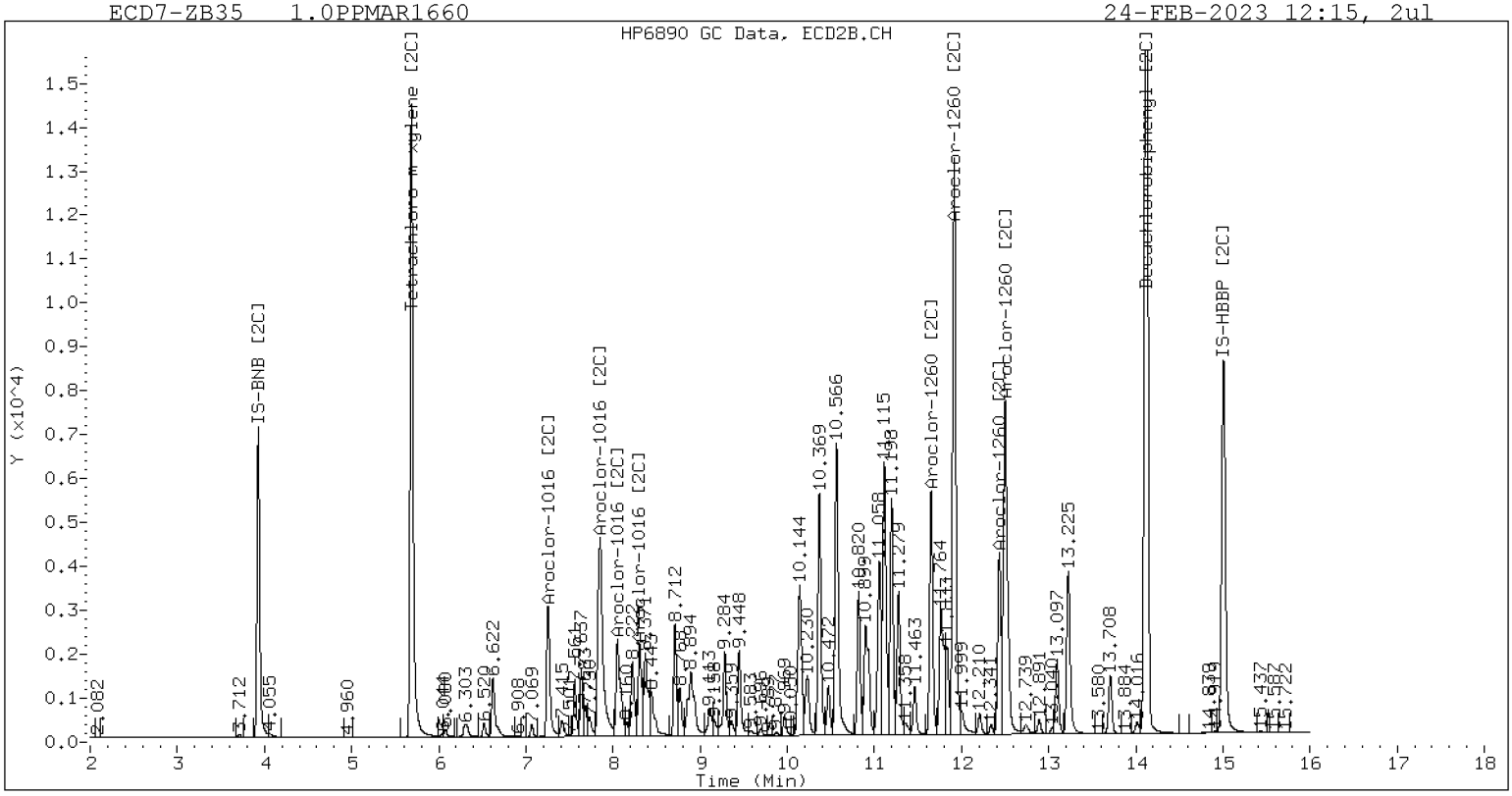
PCB Dual Column Chromatograms

ECD7-ZB5 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 1.0PPMAR1660 24-FEB-2023 12:15, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242306ECD7.D
Data file 2: /230224.b/230224.b/02242306ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.1PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:36
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	155528	5.688	0.003	74628	15.9	16.0	0.9	Tetrachloro-m-xylene
13.892	-0.001	227253	14.119	-0.000	128496	15.8	15.8	0.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	655979	-2.6
Hexabromobiphenyl	1429847	1464509	2.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317418	0.7
Hexabromobiphenyl	513946	532962	3.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.000	25761	103.4	1	7.255	-0.000	19315	103.9
Aroclor-1016	2	7.657	0.003	75616	99.6	2	7.863	0.007	40308	107.0
Aroclor-1016	3	7.794	0.004	39547	106.7	3	8.059	0.005	18304	107.6
Aroclor-1016	4	8.406	0.001	24260	101.2	4	8.309	0.002	14708	110.2
Total Col1Ave (4 peaks):					102.7	Total Col2Ave (4 peaks):				107.2 RPD = 4
Corrected Ave (3 peaks):					101.4	Corrected Ave (3 peaks):				106.2 RPD = 5
CalAmt %D:					2.7	CalAmt %D:				7.2
Aroclor-1260	1	11.045	0.000	52009	98.7	1	11.655	0.002	31282	99.8
Aroclor-1260	2	11.362	0.001	55116	100.1	2	11.920	0.003	80574	100.7
Aroclor-1260	3	11.738	0.004	145604	99.7	3	12.437	0.002	19566	92.2
Aroclor-1260	4	12.141	0.002	72408	98.5	4	12.503	0.001	53588	99.4
Aroclor-1260	5	12.245	0.001	30745	97.2	NS	---			----
Total Col1Ave (5 peaks):					98.8	Total Col2Ave (4 peaks):				98.0 RPD = 1
Corrected Ave (4 peaks):					98.5	Corrected Ave (3 peaks):				97.1 RPD = 1
CalAmt %D:					-1.2	CalAmt %D:				-2.0

Total PCB Area Col1 (5.906 - 13.793) = 1555762 Col1 Total PCB = 0.2 ppm*

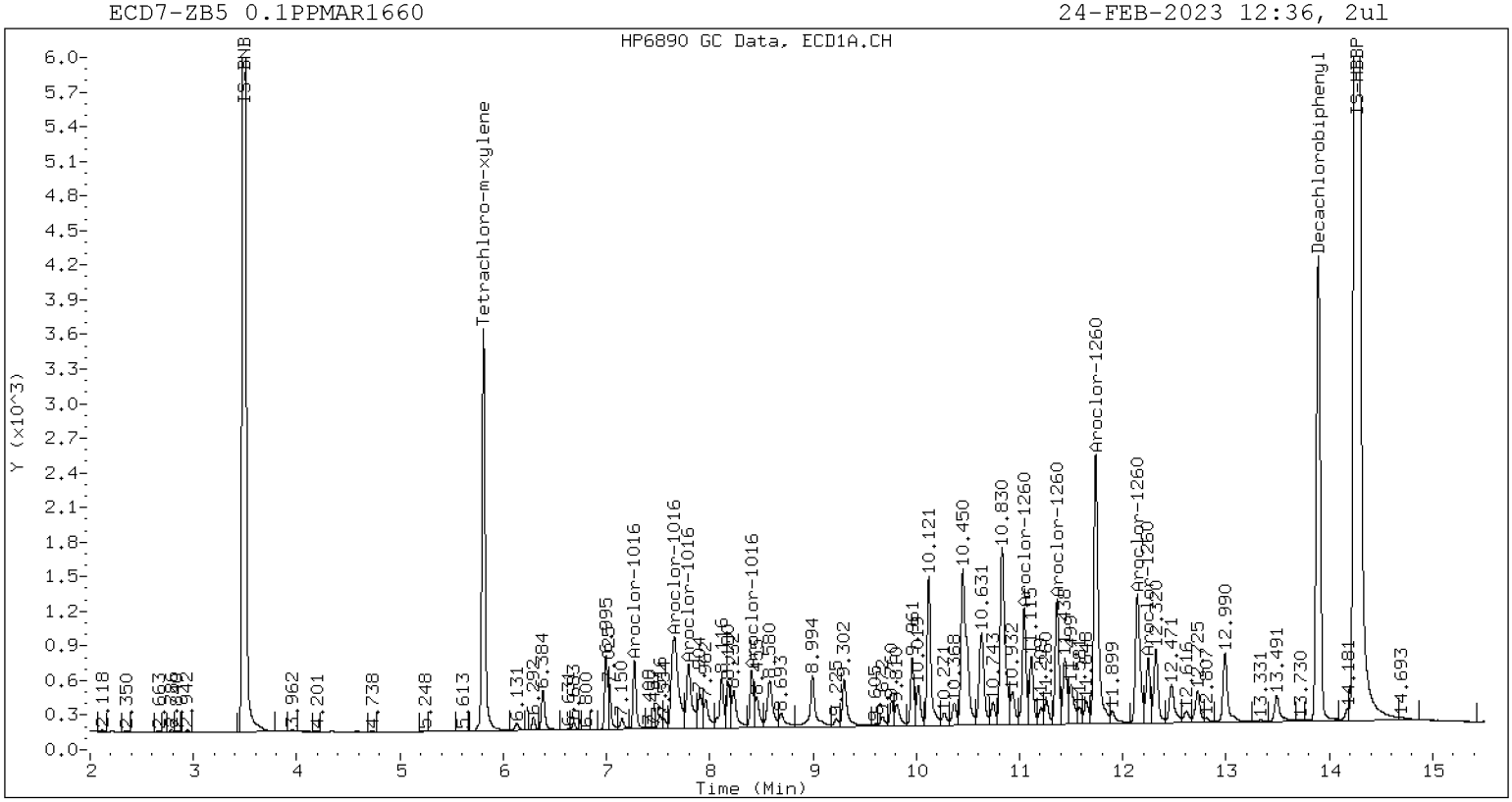
Total PCB Area Col2 (5.785 - 14.019) = 764924 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

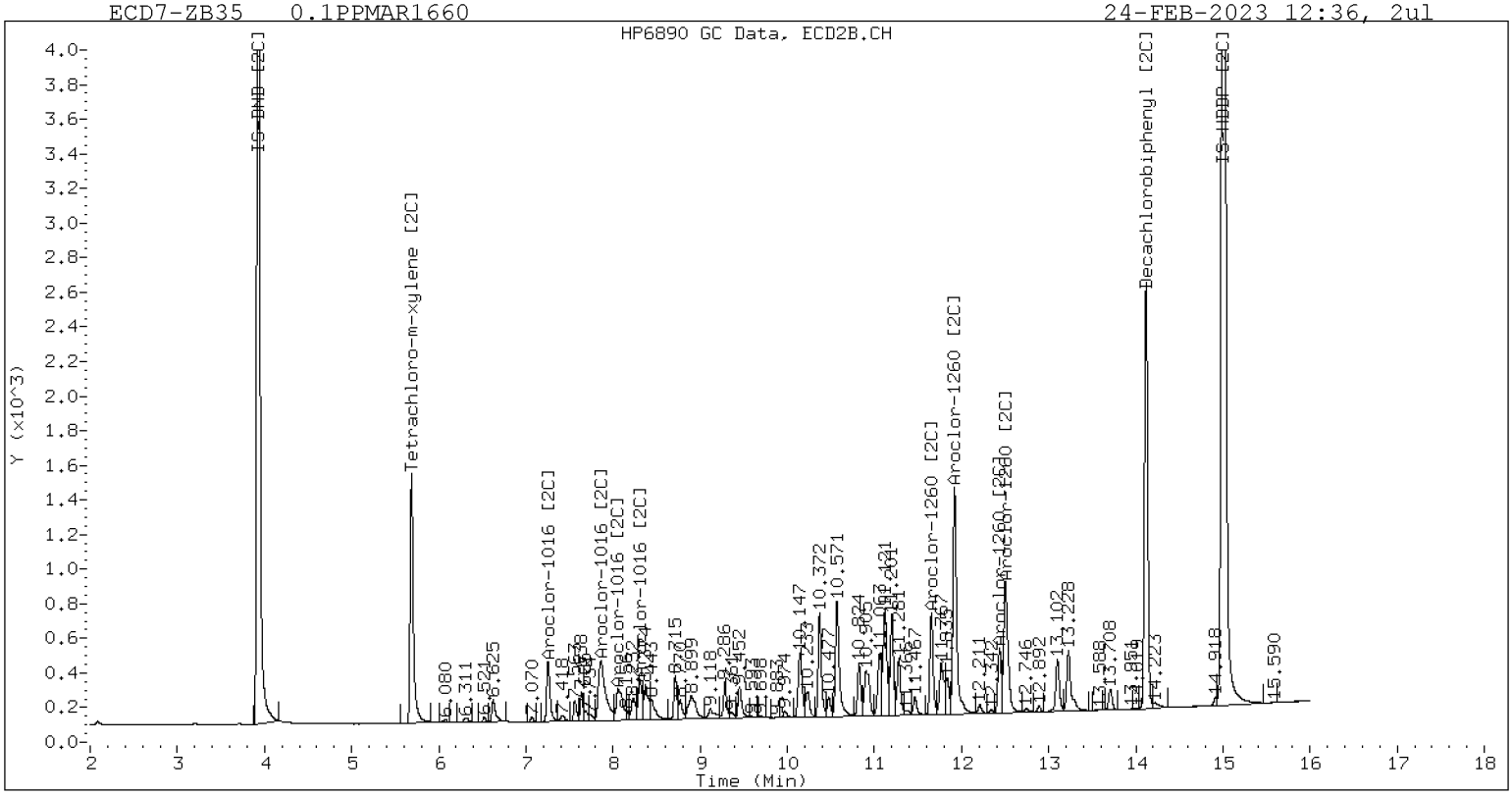
PCB Dual Column Chromatograms

ECD7-ZB5 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.1PPMAR1660 24-FEB-2023 12:36, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242307ECD7.D
Data file 2: /230224.b/230224.b/02242307ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.5PPMAR1660
Client ID:
Injection Date: 24-FEB-2023 12:57
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.810	0.004	724614	5.688	0.003	359257	75.2	76.7	2.0	Tetrachloro-m-xylene
13.898	0.005	1056911	14.120	0.000	650153	74.3	79.5	6.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645275	-4.2
Hexabromobiphenyl	1429847	1445345	1.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	319170	1.2
Hexabromobiphenyl	513946	536853	4.5

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	115193	470.0	1	7.256	0.000	86287	461.8
Aroclor-1016	2	7.654	0.000	369991	495.2	2	7.856	0.000	192524	508.1
Aroclor-1016	3	7.790	0.000	160952	441.3	3	8.055	0.000	81039	473.6
Aroclor-1016	4	8.405	0.000	115032	487.9	4	8.307	0.000	62136	462.8
Total Col1Ave (4 peaks):					473.6	Total Col2Ave (4 peaks):				476.6 RPD = 1
Corrected Ave (3 peaks):					466.4	Corrected Ave (3 peaks):				466.1 RPD = 0
			CalAmt %D:		-5.3			CalAmt %D:		-4.7
Aroclor-1260	1	11.044	0.000	247212	475.5	1	11.653	0.000	145247	460.1
Aroclor-1260	2	11.361	0.000	262877	483.9	2	11.918	0.000	379838	471.5
Aroclor-1260	3	11.734	0.000	678830	471.1	3	12.436	0.000	104092	486.9
Aroclor-1260	4	12.139	0.000	356067	490.7	4	12.502	0.000	258953	476.9
Aroclor-1260	5	12.244	0.000	150280	481.2	NS	---			----
Total Col1Ave (5 peaks):					480.5	Total Col2Ave (4 peaks):				473.8 RPD = 1
Corrected Ave (4 peaks):					477.9	Corrected Ave (3 peaks):				469.5 RPD = 2
			CalAmt %D:		-3.9			CalAmt %D:		-5.2

Total PCB Area Col1 (5.906 - 13.793) = 7134169 Col1 Total PCB = 0.9 ppm*

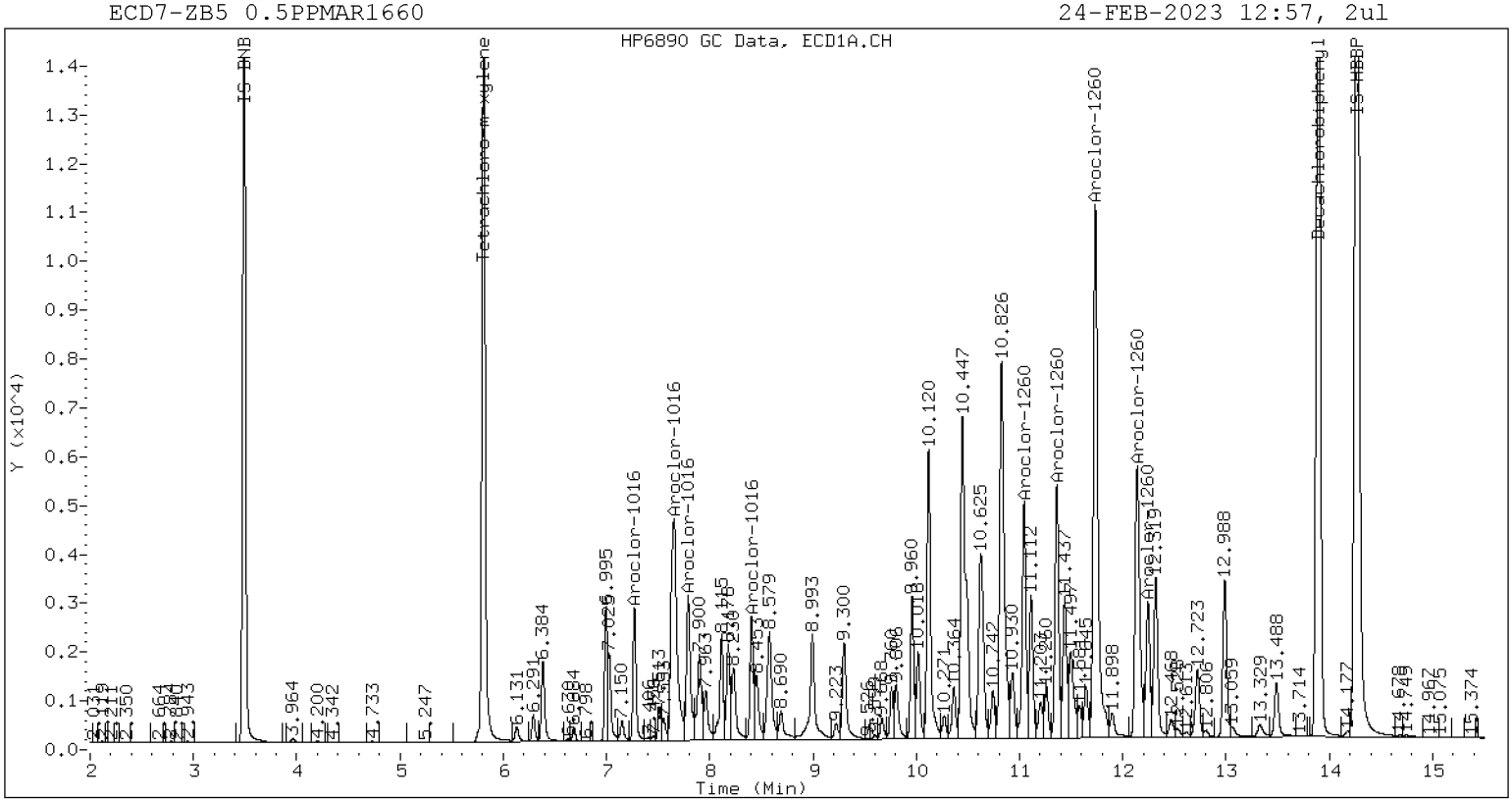
Total PCB Area Col2 (5.785 - 14.019) = 3589735 Col2 Total PCB = 0.9 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

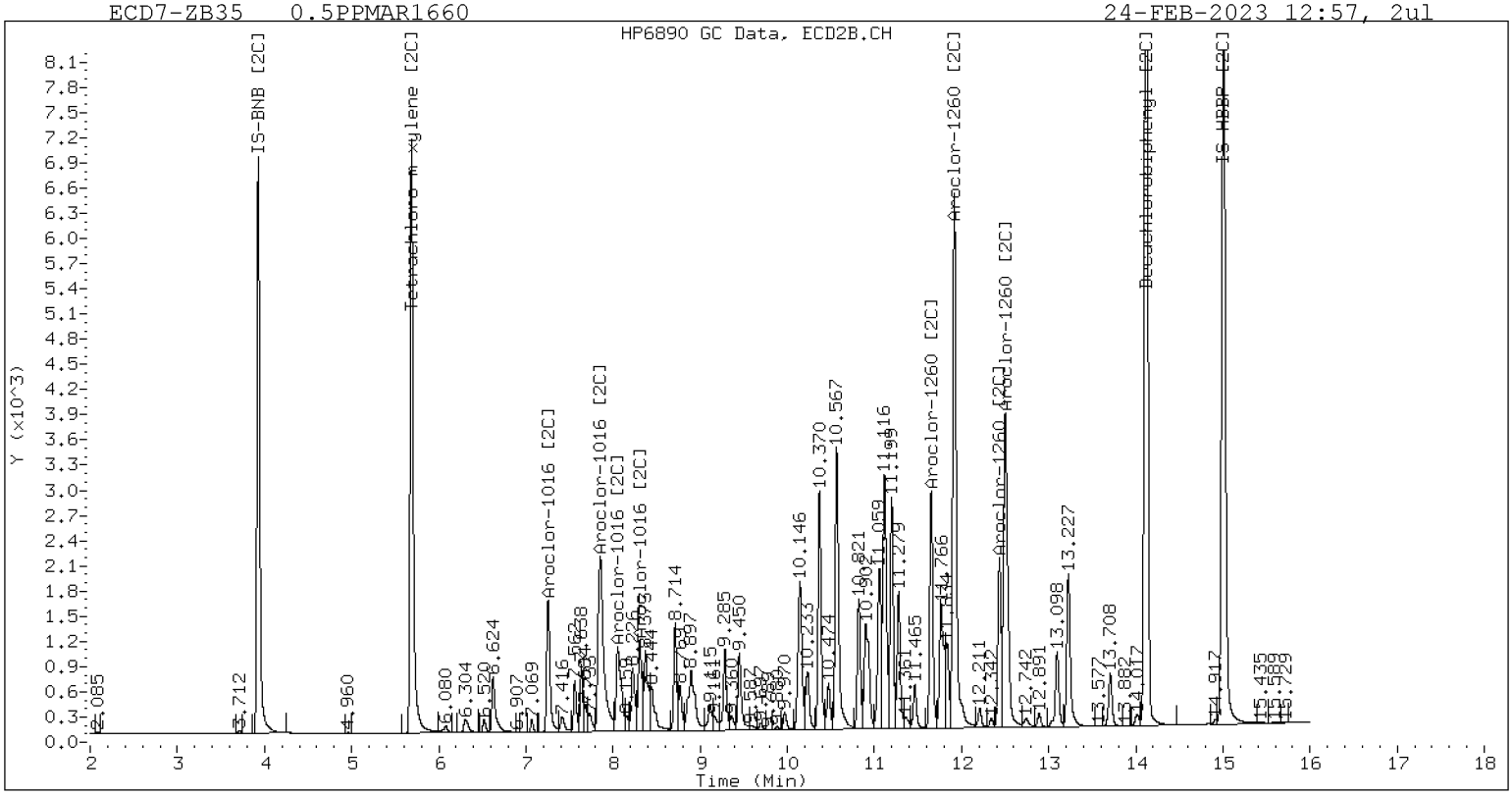
PCB Dual Column Chromatograms

ECD7-ZB5 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.5PPMAR1660 24-FEB-2023 12:57, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242308ECD7.D
Data file 2: /230224.b/230224.b/02242308ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1242
Client ID:
Injection Date: 24-FEB-2023 13:18
Report Date: 02/28/2023 09:50
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	434187	5.688	0.003	214306	46.0	46.5	1.1	Tetrachloro-m-xylene
13.894	0.000	515867	14.119	-0.001	312943	35.6	38.5	7.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632576	-6.1
Hexabromobiphenyl	1429847	1469715	2.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314129	-0.4
Hexabromobiphenyl	513946	534294	4.0

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.271	0.000	49009	250.0	1	7.255	0.000	36487	250.0
Aroclor-1242	2	7.656	0.000	148833	250.0	2	7.858	0.000	76699	250.0
Aroclor-1242	3	8.405	0.000	46308	250.0	3	9.167	0.000	23866	250.0
Aroclor-1242	4	8.579	0.000	68453	250.0	4	9.597	0.000	29080	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1221467 Col1 Total PCB = 0.2 ppm*

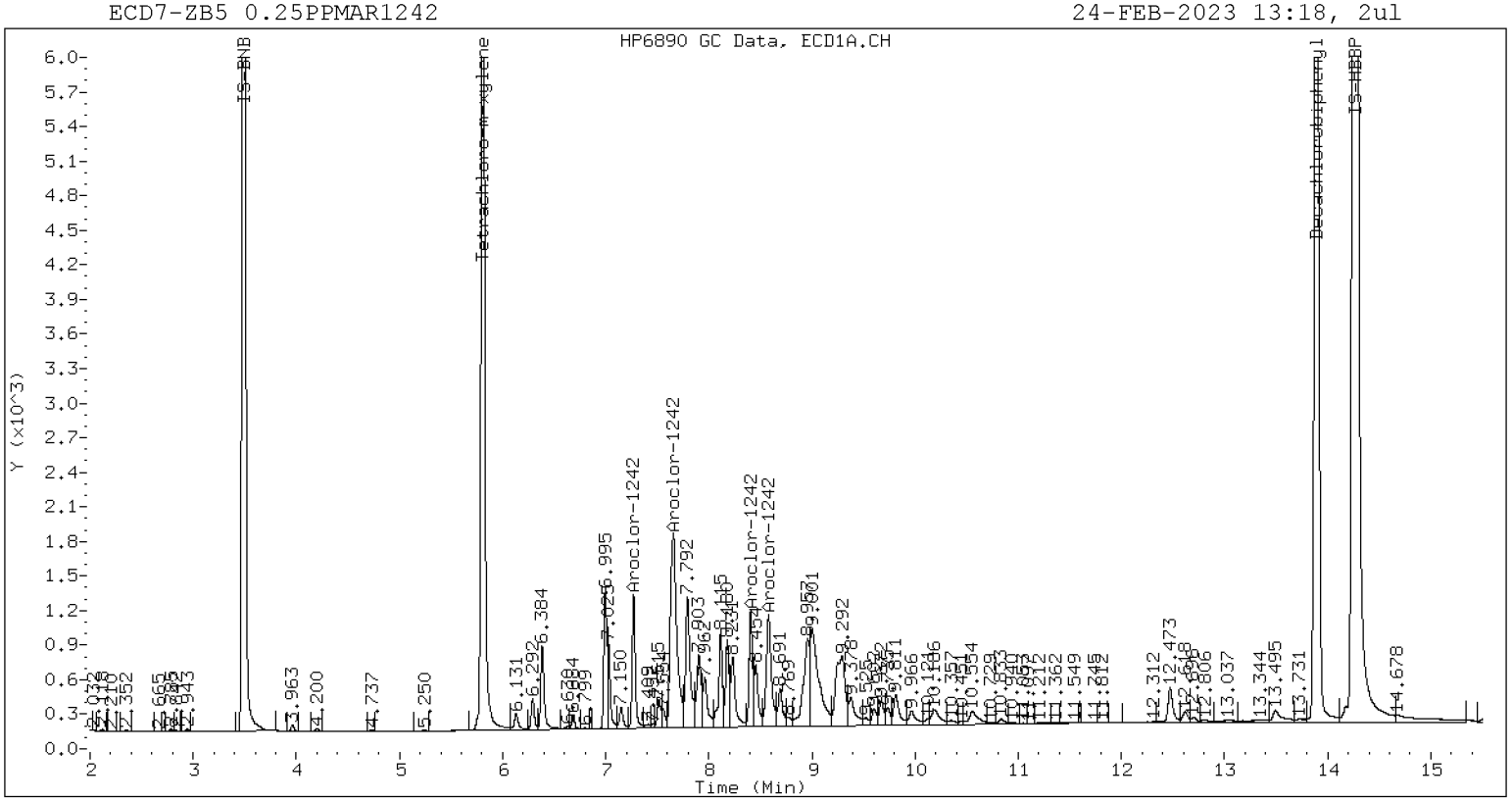
Total PCB Area Col2 (5.785 - 14.019) = 572067 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

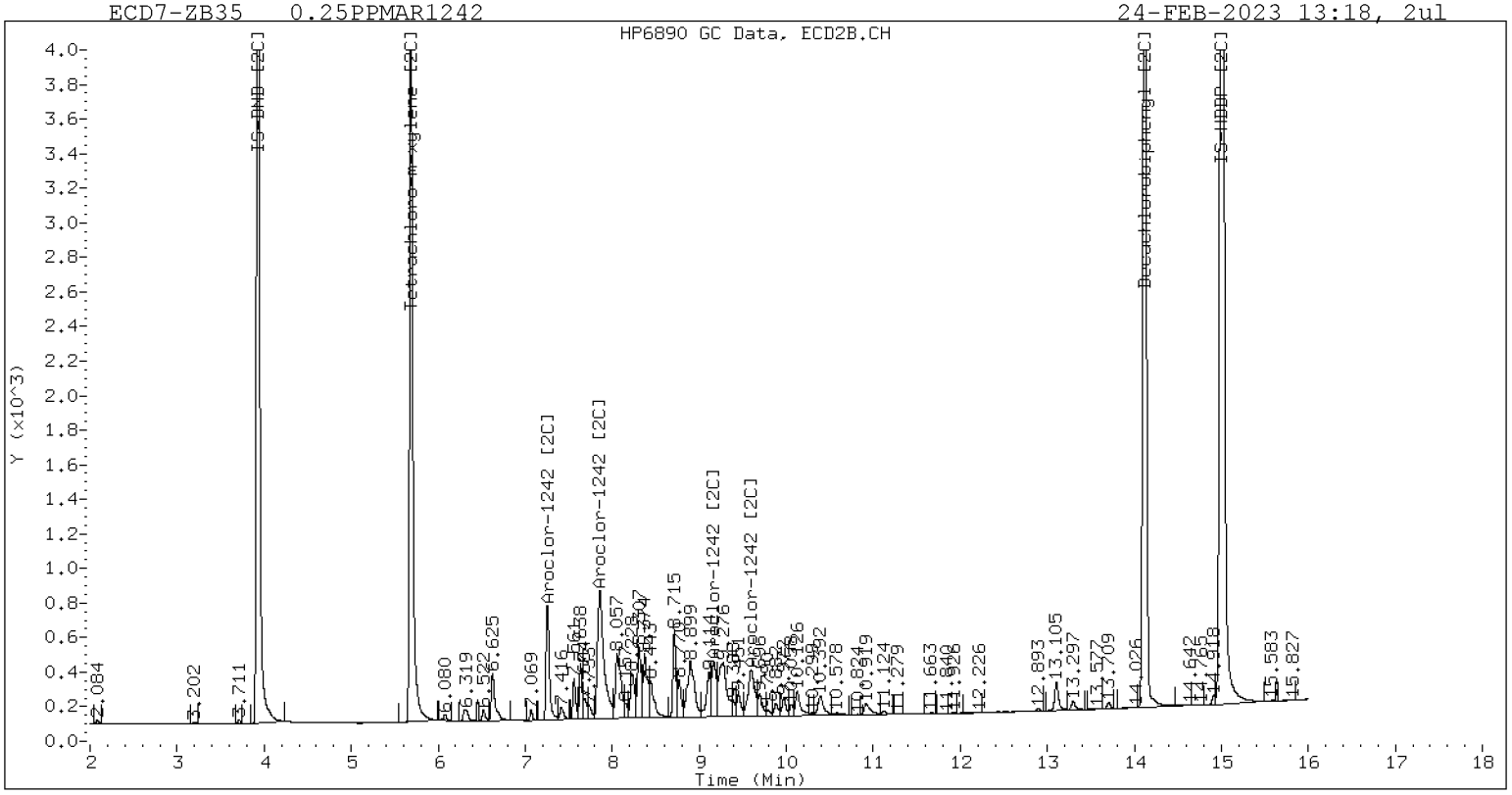
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1242 24-FEB-2023 13:18, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242309ECD7.D
Data file 2: /230224.b/230224.b/02242309ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1248
Client ID:
Injection Date: 24-FEB-2023 13:39
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.003	349513	5.688	0.003	176615	36.6	37.9	3.4	Tetrachloro-m-xylene
13.894	0.001	523008	14.121	0.001	322054	36.4	39.3	7.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	639911	-5.0
Hexabromobiphenyl	1429847	1458696	2.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317938	0.9
Hexabromobiphenyl	513946	538760	4.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1248	1	8.405	0.000	78055	250.0	1	8.308	0.000	37951	250.0
Aroclor-1248	2	8.580	0.000	99216	250.0	2	8.714	0.000	39239	250.0
Aroclor-1248	3	8.999	0.000	187178	250.0	3	9.166	0.000	45157	250.0
Aroclor-1248	4	9.295	0.000	95291	250.0	4	9.590	0.000	54216	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 1565180 Col1 Total PCB = 0.2 ppm*

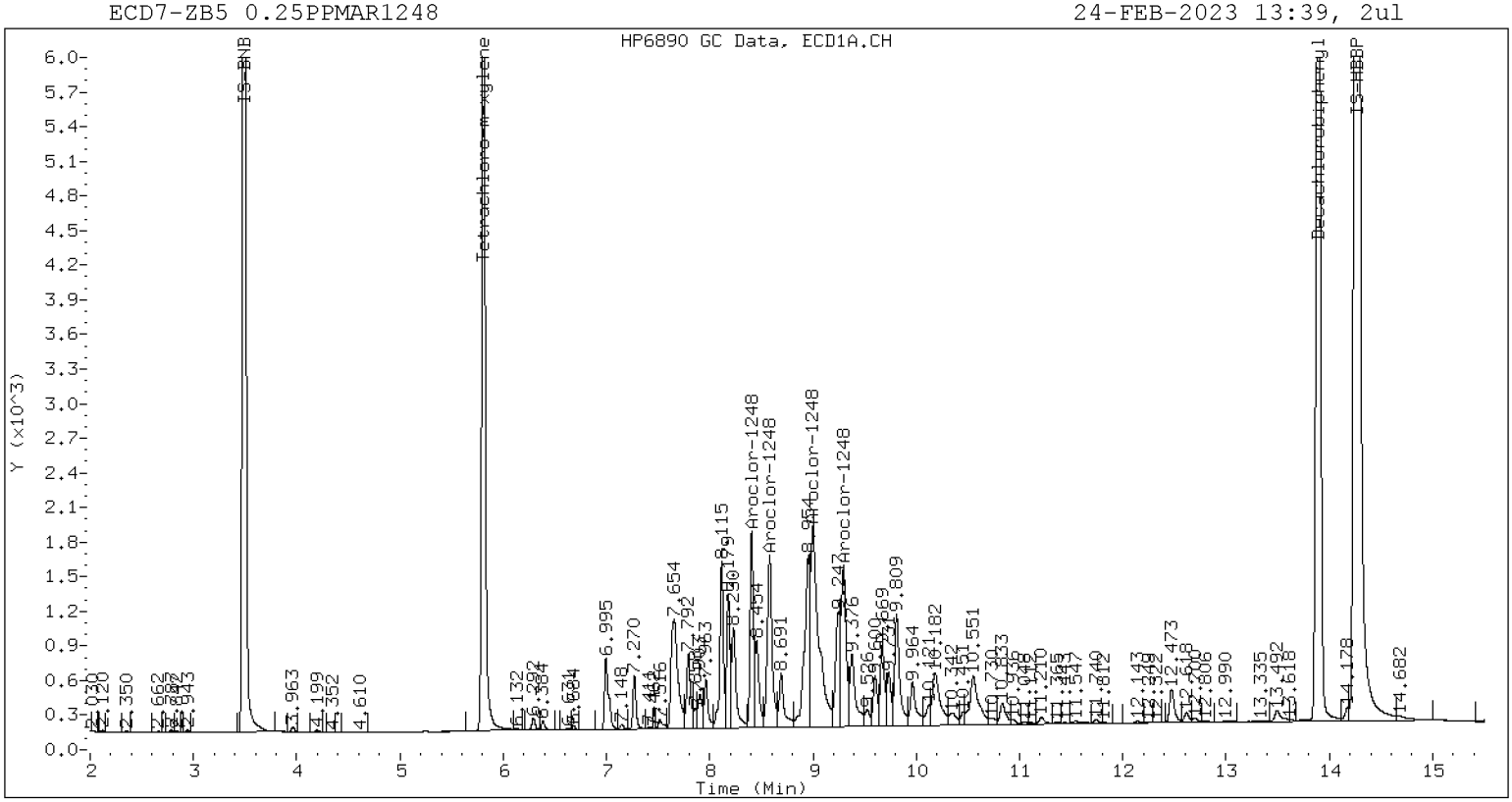
Total PCB Area Col2 (5.785 - 14.019) = 754991 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

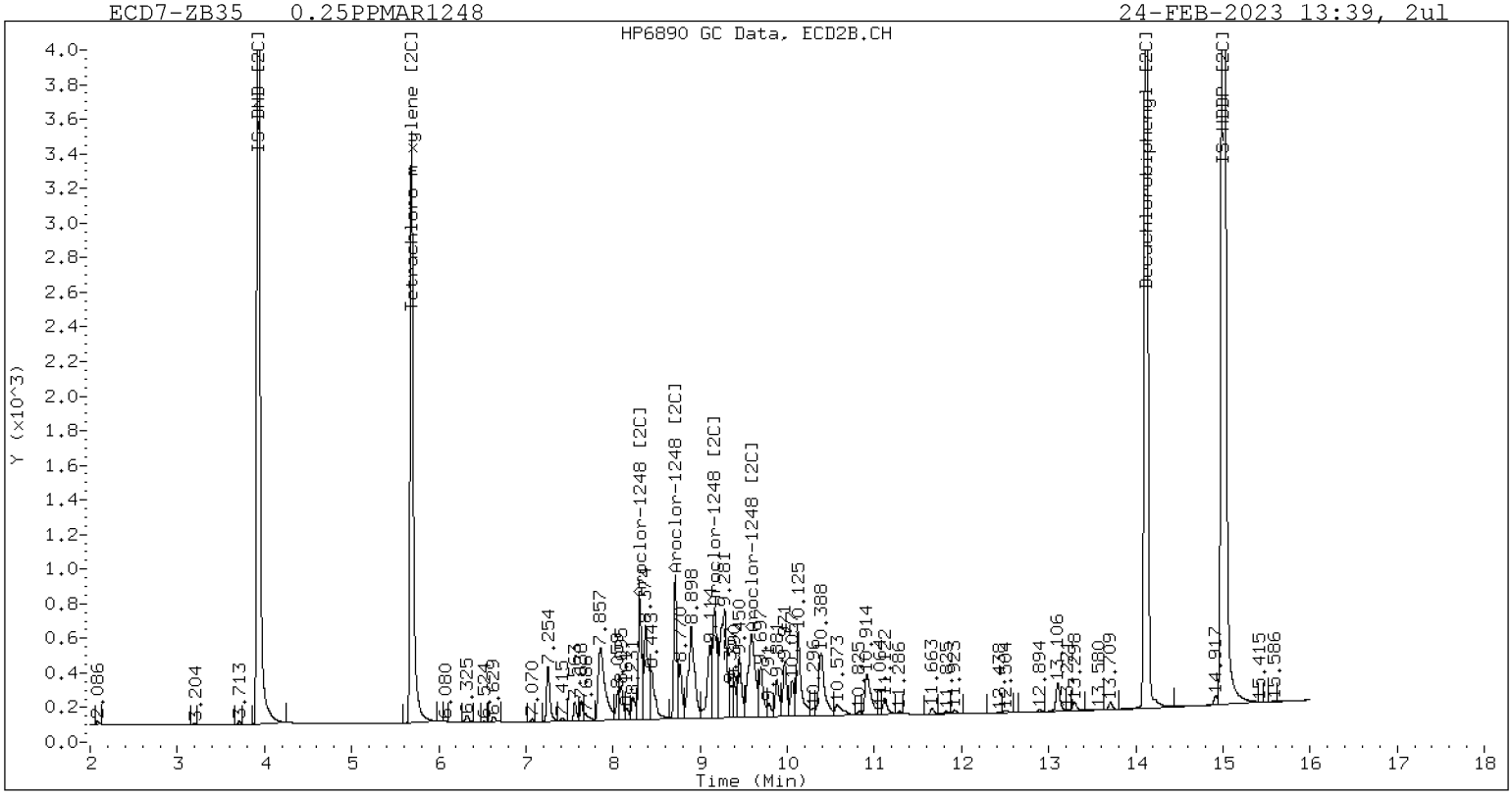
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1248 24-FEB-2023 13:39, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242310ECD7.D
Data file 2: /230224.b/230224.b/02242310ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR1254
Client ID:
Injection Date: 24-FEB-2023 14:00
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	352587	5.687	0.002	177502	37.3	38.6	3.4	Tetrachloro-m-xylene
13.895	0.002	532500	14.119	0.000	325903	37.0	40.2	8.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	633407	-6.0
Hexabromobiphenyl	1429847	1460265	2.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	313673	-0.5
Hexabromobiphenyl	513946	532442	3.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.299	0.000	159011	250.0	1	9.449	0.000	59603	250.0
Aroclor-1254	2	9.377	0.000	71516	250.0	2	9.970	0.000	47949	250.0
Aroclor-1254	3	9.668	0.000	102230	250.0	3	10.124	0.000	103745	250.0
Aroclor-1254	4	9.807	0.000	198777	250.0	4	10.373	0.000	101135	250.0
Aroclor-1254	5	10.176	0.000	124586	250.0	5	10.569	0.000	61577	250.0

Total Col1Ave (5 peaks): 250.0 Total Col2Ave (5 peaks): 250.0 RPD = 0

Corrected Ave (4 peaks): 250.0 Corrected Ave (4 peaks): 250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 2179224 Col1 Total PCB = 0.3 ppm*

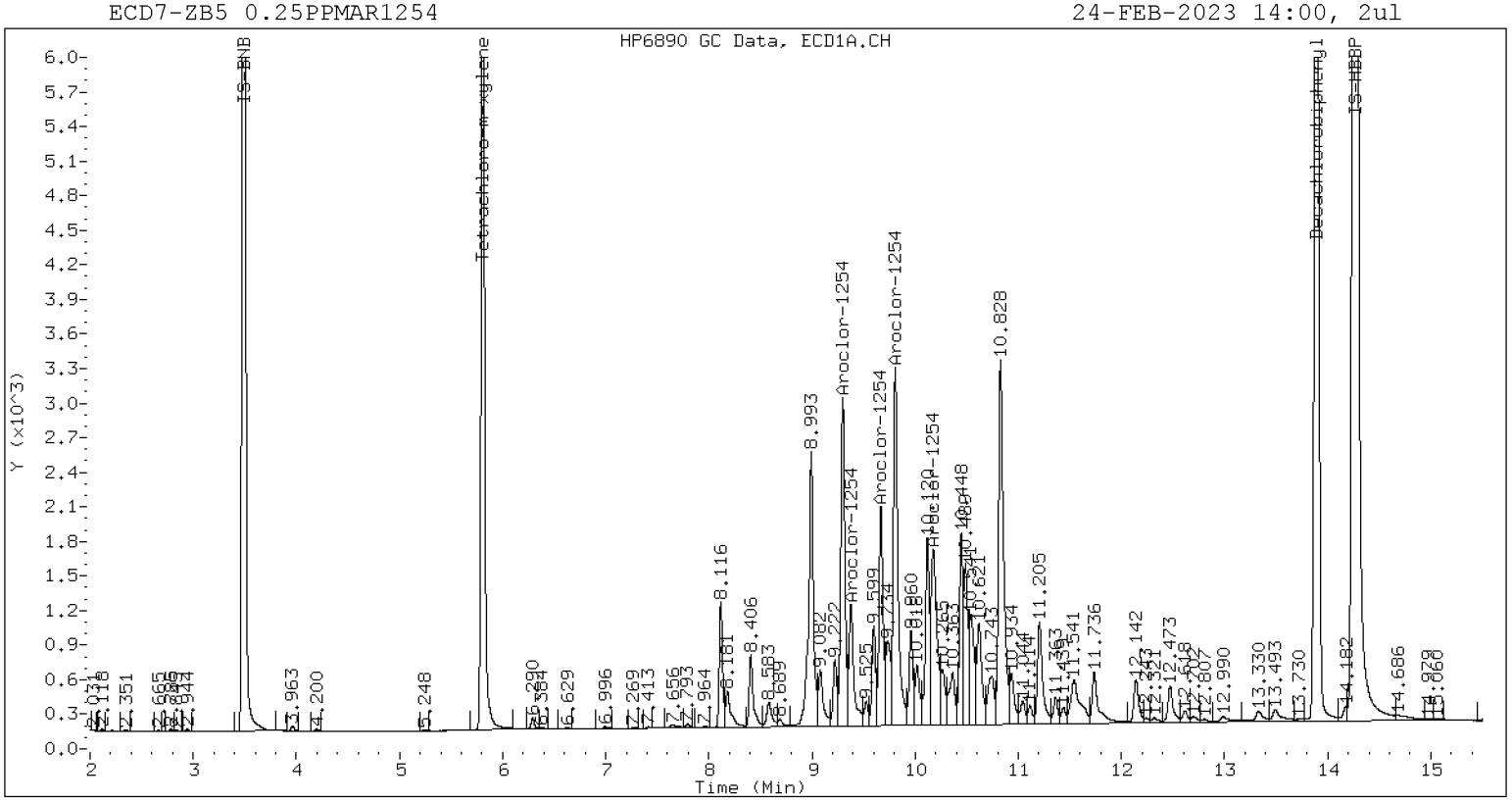
Total PCB Area Col2 (5.785 - 14.019) = 1022156 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

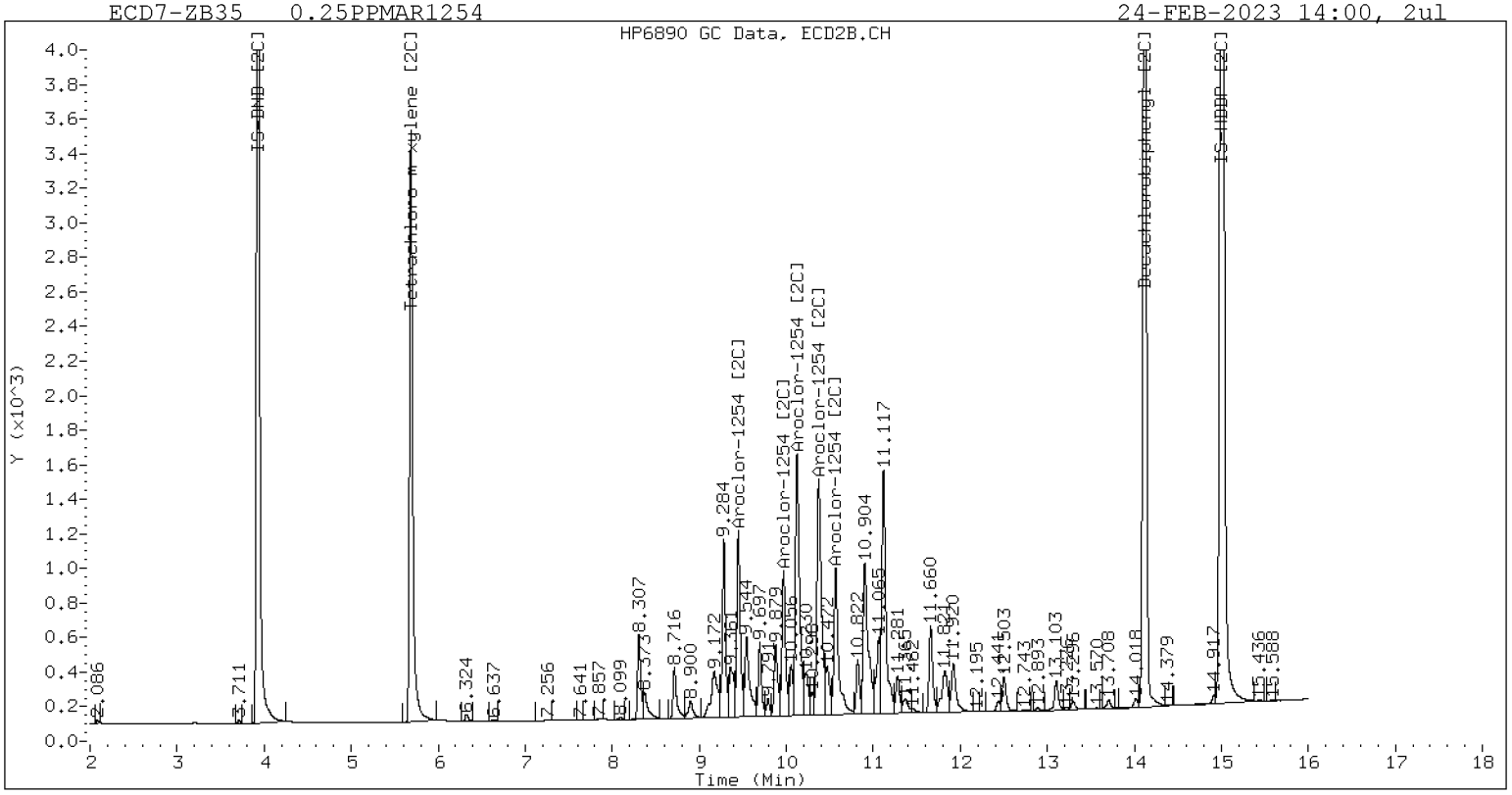
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR1254 24-FEB-2023 14:00, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242311ECD7.D
Data file 2: /230224.b/230224.b/02242311ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR2162.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR2162
Client ID:
Injection Date: 24-FEB-2023 14:21
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	362236	5.686	0.000	177349	38.4	39.2	2.1	Tetrachloro-m-xylene
13.894	0.001	523254	14.119	-0.000	321034	36.0	39.2	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	632433	-6.1
Hexabromobiphenyl	1429847	1474039	3.1

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	308453	-2.2
Hexabromobiphenyl	513946	538177	4.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
		ZB5 Col					ZB35 Col			
Aroclor-1221	1	4.731	0.000	14160	250.0	1	4.956	0.000	7300	250.0
Aroclor-1221	2	6.132	0.000	25324	250.0	2	6.296	0.000	13816	250.0
Aroclor-1221	3	6.382	0.000	58795	250.0	3	6.622	0.000	22491	250.0
Total Col1Ave (3 peaks):					250.0	Total Col2Ave (3 peaks):				250.0 RPD = 0
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1262	1	10.829	0.000	113046	250.0	1	11.200	0.000	114880	250.0
Aroclor-1262	2	12.244	0.000	183948	250.0	2	11.652	0.000	97844	250.0
Aroclor-1262	3	12.319	0.000	197749	250.0	3	12.434	0.000	111015	250.0
Aroclor-1262	4	12.987	0.000	180727	250.0	4	12.502	0.000	173913	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3105316 Col1 Total PCB = 0.4 ppm*

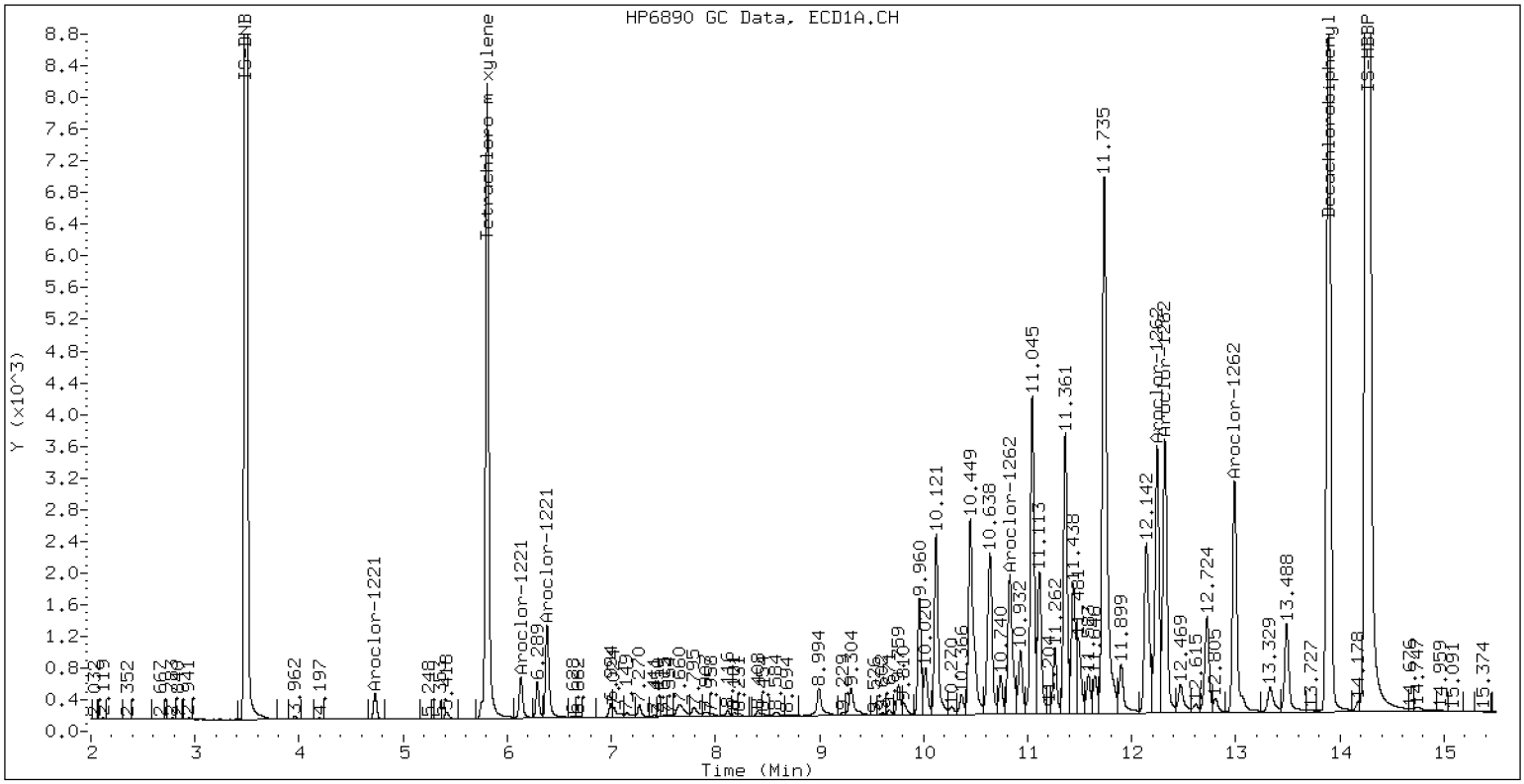
Total PCB Area Col2 (5.785 - 14.019) = 1573107 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

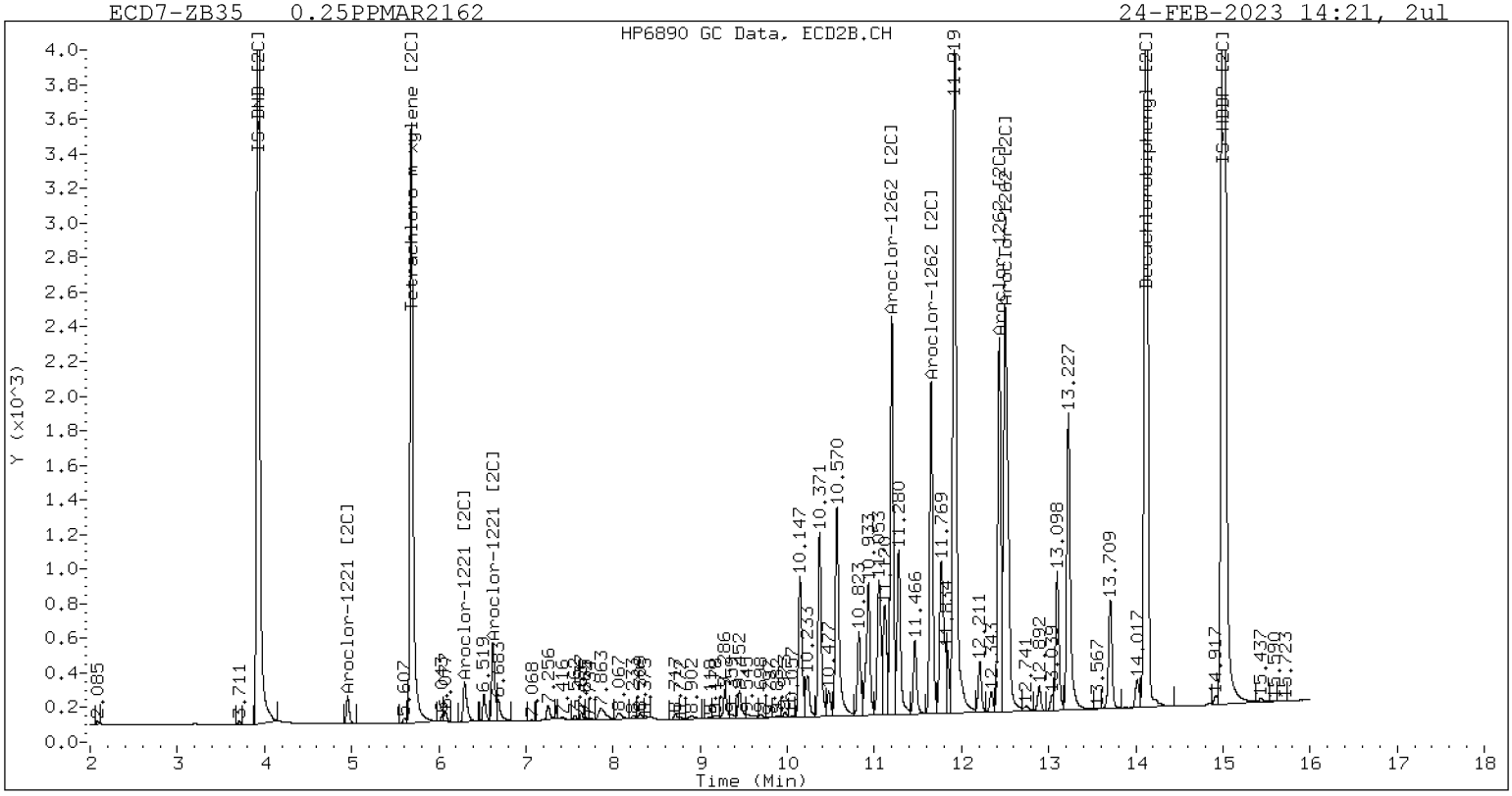
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR2162 24-FEB-2023 14:21, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242312ECD7.D
Data file 2: /230224.b/230224.b/02242312ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: AR3268.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: 0.25PPMAR3268
Client ID:
Injection Date: 24-FEB-2023 14:42
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	366416	5.685	0.000	179450	38.0	38.9	2.4	Tetrachloro-m-xylene
13.893	0.000	778191	14.119	0.000	477889	53.0	57.5	8.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645602	-4.2
Hexabromobiphenyl	1429847	1492154	4.4

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314042	-0.4
Hexabromobiphenyl	513946	545458	6.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1232	1	4.730	0.000	8647	250.0	1	4.956	0.000	4017	250.0
Aroclor-1232	2	6.131	0.000	17148	250.0	2	7.254	0.000	19962	250.0
Aroclor-1232	3	7.656	0.000	77627	250.0	3	7.861	0.000	39913	250.0
Aroclor-1232	4	8.581	0.000	32993	250.0	4	8.715	0.000	11487	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0
Aroclor-1268	1	12.247	0.000	477974	250.0	1	12.432	0.000	274595	250.0
Aroclor-1268	2	12.317	0.000	473326	250.0	2	12.500	0.000	295194	250.0
Aroclor-1268	3	12.699	0.000	405011	250.0	3	12.892	0.000	252048	250.0
Aroclor-1268	4	13.490	0.000	1333528	250.0	4	13.709	0.000	805579	250.0
Total Col1Ave (4 peaks):					250.0	Total Col2Ave (4 peaks):				250.0 RPD = 0
Corrected Ave (3 peaks):					250.0	Corrected Ave (3 peaks):				250.0 RPD = 0

Total PCB Area Col1 (5.906 - 13.793) = 3998414 Col1 Total PCB = 0.5 ppm*

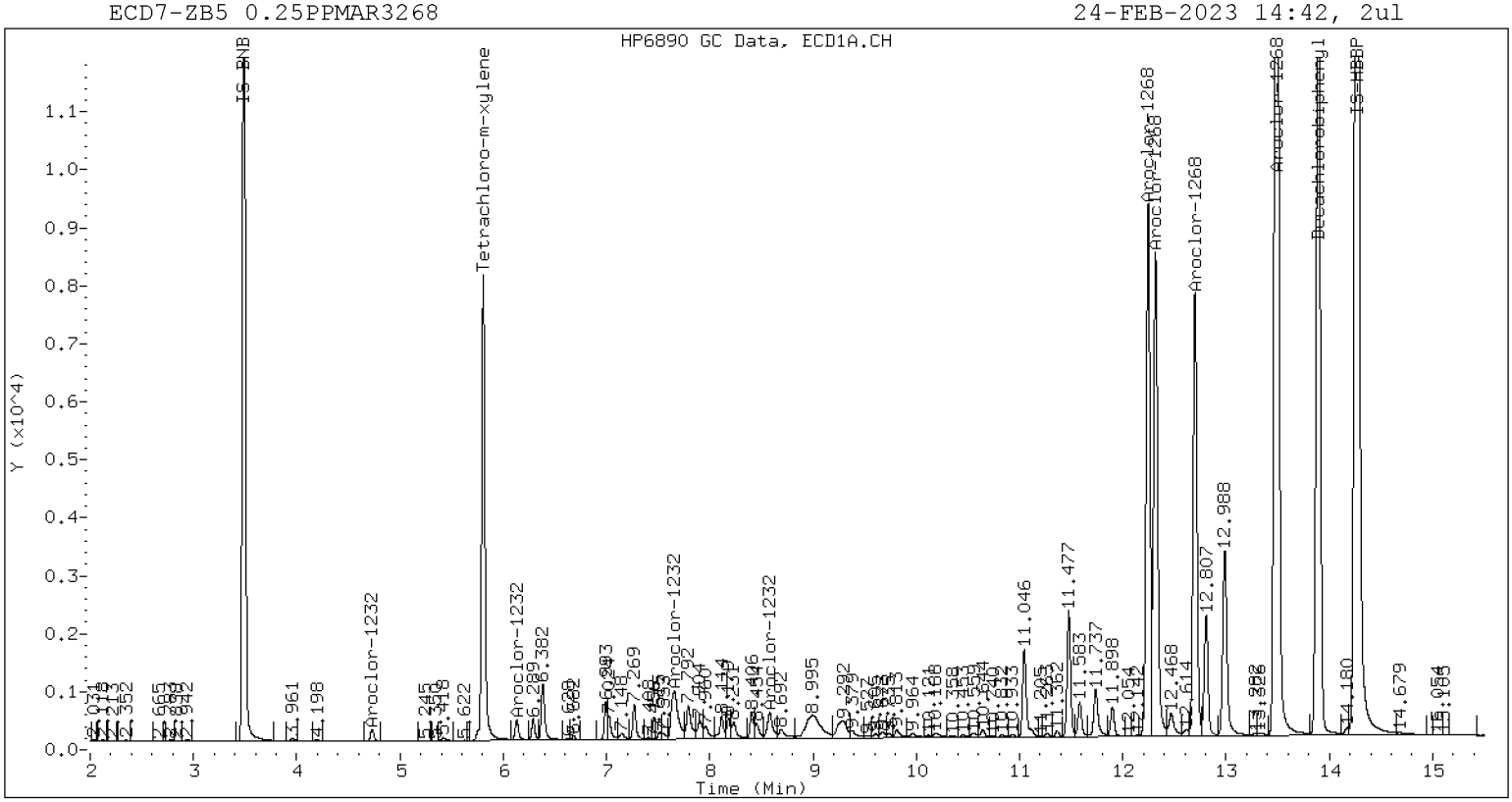
Total PCB Area Col2 (5.785 - 14.019) = 2300029 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

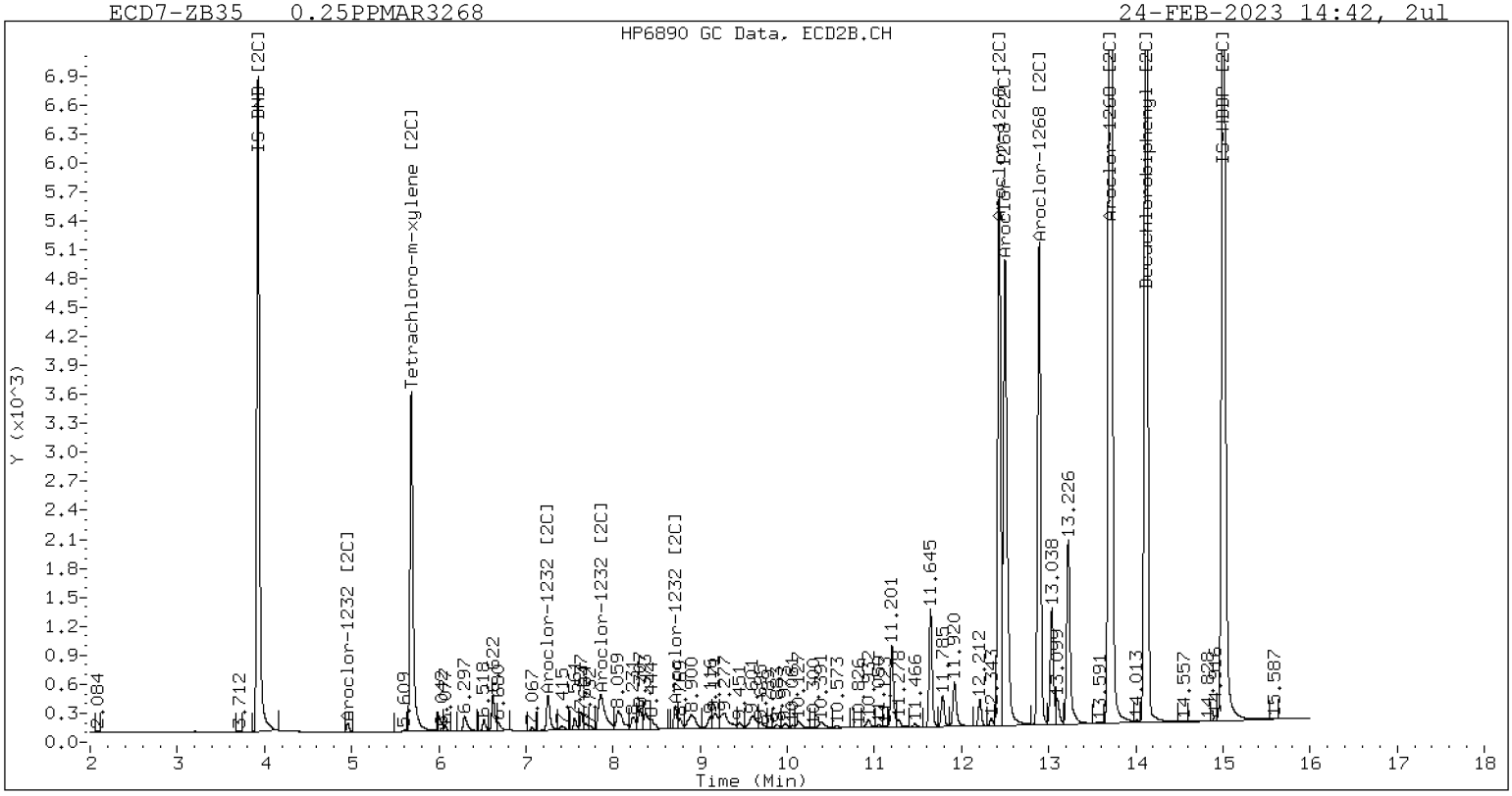
PCB Dual Column Chromatograms

ECD7-ZB5 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 0.25PPMAR3268 24-FEB-2023 14:42, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242313ECD7.D
Data file 2: /230224.b/230224.b/02242313ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660SCV
Client ID:
Injection Date: 24-FEB-2023 15:03
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	337070	5.686	0.001	165848	34.9	35.8	2.3	Tetrachloro-m-xylene
13.895	0.002	515407	14.119	-0.000	316730	34.3	37.3	8.4	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	645975	-4.1
Hexabromobiphenyl	1429847	1524245	6.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316115	0.3
Hexabromobiphenyl	513946	556950	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.002	59491	242.5	1	7.254	-0.002	44576	240.9
Aroclor-1016	2	7.655	0.001	181090	242.1	2	7.857	0.002	95386	254.2
Aroclor-1016	3	7.790	0.000	88470	242.3	3	8.056	0.002	42160	248.8
Aroclor-1016	4	8.404	-0.001	57980	245.6	4	8.307	0.000	32197	242.1
Total Col1Ave (4 peaks):					243.1	Total Col2Ave (4 peaks):				246.5 RPD = 1
Corrected Ave (3 peaks):					242.3	Corrected Ave (3 peaks):				243.9 RPD = 1
Aroclor-1221	1	4.731	0.000	464	8.0	1	---			0.0
Aroclor-1221	2	6.130	-0.002	9233	89.2	2	6.300	0.004	5379	95.0
Aroclor-1221	3	6.382	-0.001	42570	177.2	3	6.623	0.001	20952	227.2
Total Col1Ave (3 peaks):					91.5	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.731	0.001	464	13.4	1	---			0.0
Aroclor-1232	2	6.130	-0.001	9233	134.5	2	7.254	-0.000	44576	554.6
Aroclor-1232	3	7.655	-0.001	181090	582.9	3	7.857	-0.003	95386	593.5
Aroclor-1232	4	8.580	-0.001	79916	605.2	4	8.713	-0.002	29795	644.2
Total Col1Ave (4 peaks):					334.0	Total Col2Ave (3 peaks):				597.4 RPD = 57*
Corrected Ave (3 peaks):					243.6	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.269	-0.002	59491	297.2	1	7.254	-0.002	44576	303.5
Aroclor-1242	2	7.655	-0.001	181090	297.9	2	7.857	-0.000	95386	309.0
Aroclor-1242	3	8.404	-0.001	57980	306.5	3	9.115	-0.052	18754	195.2
Aroclor-1242	4	8.580	0.000	79916	285.8	4	9.697	0.100	1355	11.6
Total Col1Ave (4 peaks):					296.8	Total Col2Ave (4 peaks):				204.8 RPD = 37
Corrected Ave (3 peaks):					293.6	Corrected Ave (3 peaks):				170.1 RPD = 53*
Aroclor-1248	1	8.404	-0.001	57980	184.0	1	8.307	-0.001	32197	213.3
Aroclor-1248	2	8.580	-0.001	79916	199.5	2	8.713	-0.001	29795	190.9
Aroclor-1248	3	8.993	-0.006	71805	95.0	3	9.115	-0.050	18754	104.4
Aroclor-1248	4	9.300	0.006	47348	123.1	4	---			0.0
Total Col1Ave (4 peaks):					150.4	Total Col2Ave (3 peaks):				169.6 RPD = 12
Corrected Ave (3 peaks):					134.0	Corrected Ave: < 3 Peaks				
Aroclor-1254	1	9.300	0.002	47348	73.0	1	9.451	0.001	22438	93.4
Aroclor-1254	2	---			0.0	2	9.972	0.001	2694	13.9
Aroclor-1254	3	9.670	0.002	5461	13.1	3	10.147	0.024	52914	126.5
Aroclor-1254	4	9.807	-0.000	18944	23.4	4	10.370	-0.003	70430	172.8
Aroclor-1254	5	10.121	-0.056	154170	303.3	5	10.568	-0.000	98525	396.9
Total Col1Ave (4 peaks):					103.2	Total Col2Ave (5 peaks):				160.7 RPD = 44*
Corrected Ave (3 peaks):					36.5	Corrected Ave (4 peaks):				101.7 RPD = 94*
Aroclor-1260	1	11.044	0.000	149195	272.1	1	11.653	0.000	82210	251.0
Aroclor-1260	2	11.361	-0.000	153832	268.5	2	11.919	0.001	222226	265.9
Aroclor-1260	3	11.736	0.002	396660	261.0	3	12.435	-0.000	59148	266.7
Aroclor-1260	4	12.140	0.001	190448	248.9	4	12.504	0.002	147180	261.2
Aroclor-1260	5	12.244	-0.000	91385	277.5	NS	---			----
Total Col1Ave (5 peaks):					265.6	Total Col2Ave (4 peaks):				261.2 RPD = 2
Corrected Ave (4 peaks):					262.6	Corrected Ave (3 peaks):				259.4 RPD = 1
Aroclor-1262	1	10.827	-0.002	220238	471.0	1	11.199	-0.001	84479	177.6
Aroclor-1262	2	12.244	0.000	91385	120.1	2	11.653	0.002	82210	203.0
Aroclor-1262	3	12.320	0.001	113066	138.2	3	12.435	0.002	59148	128.7
Aroclor-1262	4	12.988	0.001	102156	136.7	4	12.504	0.002	147180	204.4
Total Col1Ave (4 peaks):					216.5	Total Col2Ave (4 peaks):				178.4 RPD = 19
Corrected Ave (3 peaks):					131.7	Corrected Ave (3 peaks):				169.8 RPD = 25
Aroclor-1268	1	12.244	-0.003	91385	46.8	1	12.435	0.003	59148	52.7
Aroclor-1268	2	12.320	0.003	113066	58.5	2	12.504	0.004	147180	122.1
Aroclor-1268	3	12.726	0.027	46633	28.2	3	12.893	0.001	2874	2.8
Aroclor-1268	4	13.489	-0.000	25567	4.7	4	13.709	-0.000	13041	4.0
Total Col1Ave (4 peaks):					34.5	Total Col2Ave (4 peaks):				45.4 RPD = 27
Corrected Ave (3 peaks):					26.6	Corrected Ave (3 peaks):				19.8 RPD = 29

Total PCB Area Col1 (5.906 - 13.793) = 3743076 Col1 Total PCB = 0.5 ppm*

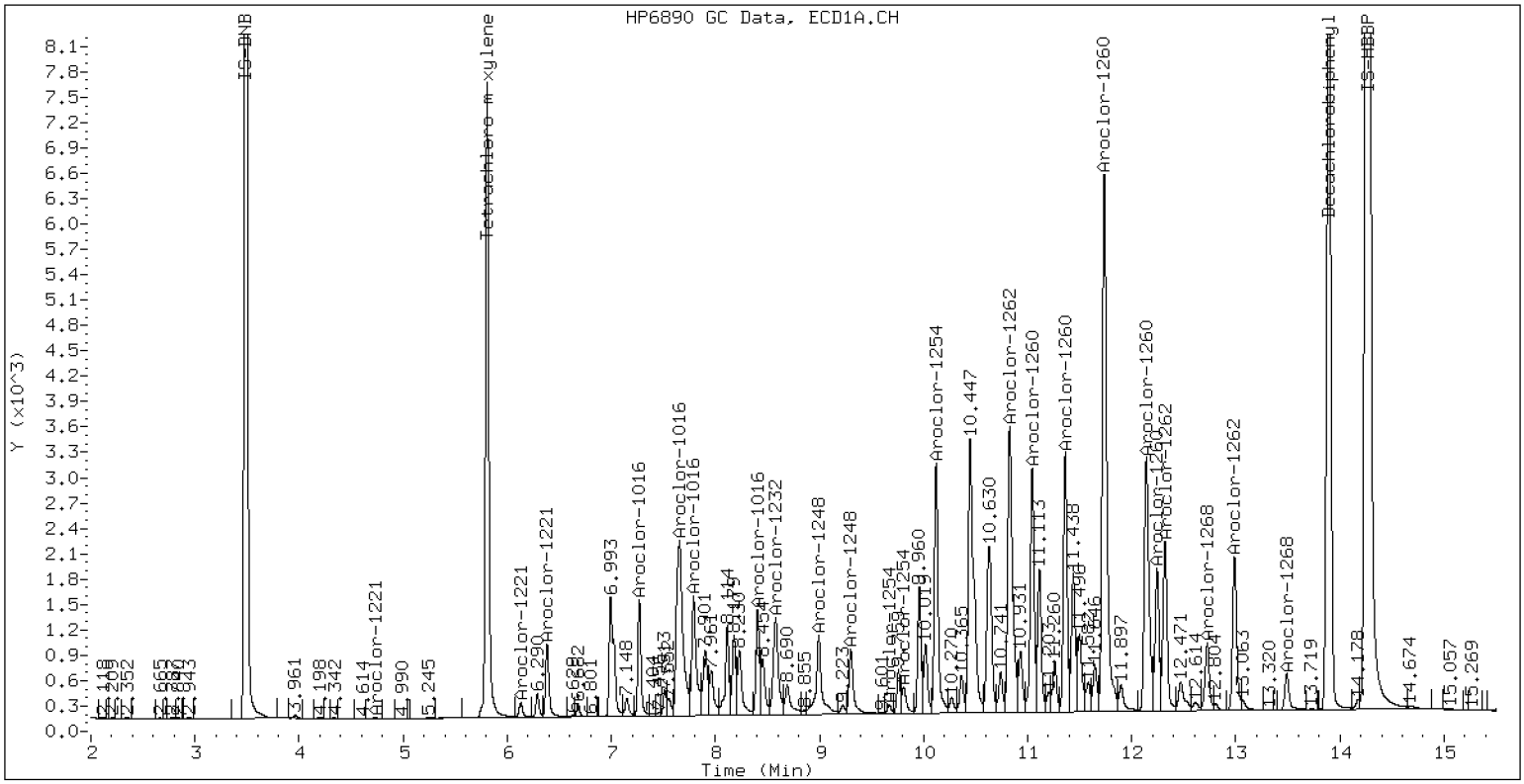
Total PCB Area Col2 (5.785 - 14.019) = 1897008 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

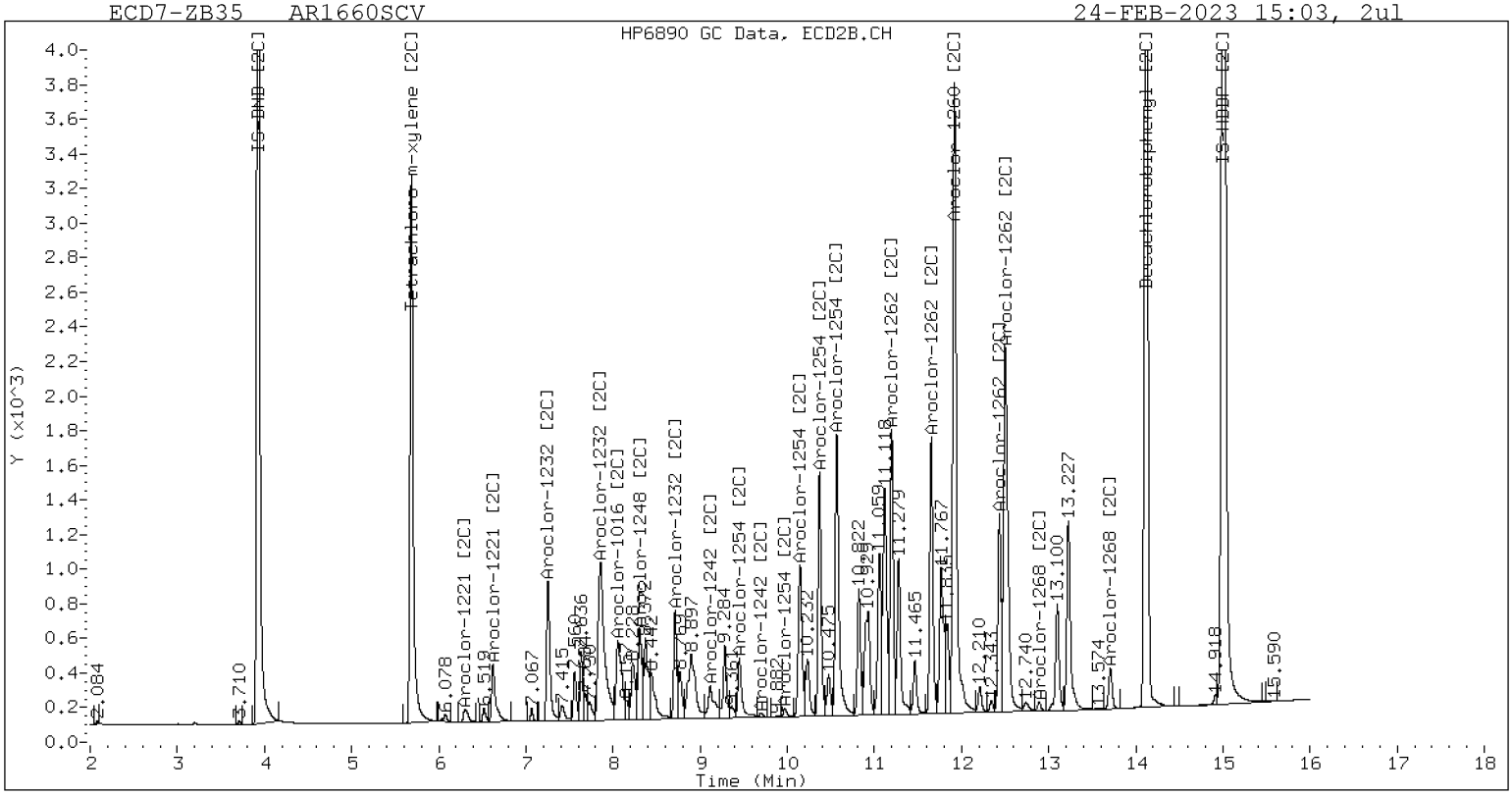
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660SCV 24-FEB-2023 15:03, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242314ECD7.D
Data file 2: /230224.b/230224.b/02242314ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242SCV
Client ID:
Injection Date: 24-FEB-2023 15:24
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.002	354283	5.686	0.001	172455	33.6	34.5	2.6	Tetrachloro-m-xylene
13.895	0.002	567088	14.120	0.001	347430	37.0	40.3	8.6	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	705650	4.7
Hexabromobiphenyl	1429847	1555683	8.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	340433	8.0
Hexabromobiphenyl	513946	565609	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.000	39927	149.0	1	7.256	0.000	32417	162.7
Aroclor-1016	2	7.653	-0.001	132339	162.0	2	7.856	0.001	69235	171.3
Aroclor-1016	3	7.791	0.001	59310	148.7	3	8.055	0.000	29473	161.5
Aroclor-1016	4	8.405	0.000	42537	165.0	4	8.307	-0.000	22792	159.2
Total Col1Ave (4 peaks):					156.2	Total Col2Ave (4 peaks):				163.7 RPD = 5
Corrected Ave (3 peaks):					153.2	Corrected Ave (3 peaks):				161.1 RPD = 5
Aroclor-1221	1	4.733	0.002	319	5.0	1	---			0.0
Aroclor-1221	2	6.131	-0.001	6534	57.8	2	6.319	0.022	4365	71.6
Aroclor-1221	3	6.384	0.001	29664	113.0	3	6.624	0.002	14916	150.2
Total Col1Ave (3 peaks):					58.6	Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	4.733	0.003	319	8.4	1	---			0.0
Aroclor-1232	2	6.131	0.000	6534	87.2	2	7.256	0.002	32417	374.5
Aroclor-1232	3	7.653	-0.003	132339	389.9	3	7.856	-0.004	69235	400.0
Aroclor-1232	4	8.579	-0.002	69445	481.4	4	8.714	-0.001	22167	445.0
Total Col1Ave (4 peaks):					241.7	Total Col2Ave (3 peaks):				406.5 RPD = 51*
Corrected Ave (3 peaks):					161.8	Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.270	-0.001	39927	182.6	1	7.256	0.000	32417	205.0
Aroclor-1242	2	7.653	-0.003	132339	199.3	2	7.856	-0.002	69235	208.2
Aroclor-1242	3	8.405	-0.000	42537	205.9	3	9.164	-0.004	23068	223.0
Aroclor-1242	4	8.579	-0.000	69445	227.4	4	9.587	-0.010	31021	246.1
Total Col1Ave (4 peaks):					203.8	Total Col2Ave (4 peaks):				220.6 RPD = 8
Corrected Ave (3 peaks):					195.9	Corrected Ave (3 peaks):				212.1 RPD = 8
Aroclor-1248	1	8.405	0.000	42537	123.5	1	8.307	-0.001	22792	140.2
Aroclor-1248	2	8.579	-0.001	69445	158.7	2	8.714	-0.000	22167	131.9
Aroclor-1248	3	9.001	0.003	91942	111.4	3	9.164	-0.002	23068	119.3
Aroclor-1248	4	9.294	-0.000	38711	92.1	4	9.587	-0.003	31021	133.6
Total Col1Ave (4 peaks):					121.4	Total Col2Ave (4 peaks):				131.2 RPD = 8
Corrected Ave (3 peaks):					109.0	Corrected Ave (3 peaks):				128.3 RPD = 16
Aroclor-1254	1	9.294	-0.005	38711	54.6	1	9.450	0.001	13131	50.7
Aroclor-1254	2	9.377	-0.000	17371	54.5	2	9.970	0.000	8340	40.1
Aroclor-1254	3	9.668	-0.000	16373	35.9	3	10.123	-0.000	16364	36.3
Aroclor-1254	4	9.807	-0.001	27490	31.0	4	10.382	0.009	16062	36.6
Aroclor-1254	5	10.175	-0.001	20494	36.9	5	10.572	0.004	4818	18.0
Total Col1Ave (5 peaks):					42.6	Total Col2Ave (5 peaks):				36.4 RPD = 16
Corrected Ave (4 peaks):					39.6	Corrected Ave (4 peaks):				32.8 RPD = 19
Aroclor-1260	1	11.048	0.003	794	1.4	1	11.665	0.012	1652	5.0
Aroclor-1260	2	11.366	0.005	814	1.4	2	11.926	0.008	842	1.0
Aroclor-1260	3	11.739	0.006	1848	1.2	3	12.438	0.002	483	2.1
Aroclor-1260	4	12.145	0.006	1372	1.8	4	12.506	0.004	790	1.4
Aroclor-1260	5	---			0.0	NS	---			----
Total Col1Ave (4 peaks):					1.4	Total Col2Ave (4 peaks):				2.4 RPD = 49*
Corrected Ave (3 peaks):					1.3	Corrected Ave (3 peaks):				1.5 RPD = 12
Aroclor-1262	1	10.832	0.003	13157	27.6	1	11.121	-0.079	6113	12.7
Aroclor-1262	2	12.145	-0.098	1372	1.8	2	11.665	0.013	1652	4.0
Aroclor-1262	3	---			0.0	3	12.438	0.004	483	1.0
Aroclor-1262	4	13.038	0.051	842	1.1	4	12.506	0.004	790	1.1
Total Col1Ave (3 peaks):					10.1	Total Col2Ave (4 peaks):				4.7 RPD = 73*
Corrected Ave: < 3 Peaks						Corrected Ave (3 peaks):				2.0
Aroclor-1268	1	---			0.0	1	12.438	0.006	483	0.4
Aroclor-1268	2	---			0.0	2	12.506	0.006	790	0.6
Aroclor-1268	3	12.617	-0.082	5851	3.5	3	12.899	0.007	491	0.5
Aroclor-1268	4	13.500	0.010	1745	0.3	4	13.714	0.005	379	0.1
Col1Ave: <3 Quant Peaks						Col2Ave: 0.4				

Total PCB Area Col1 (5.906 - 13.793) = 1149784 Col1 Total PCB = 0.1 ppm*

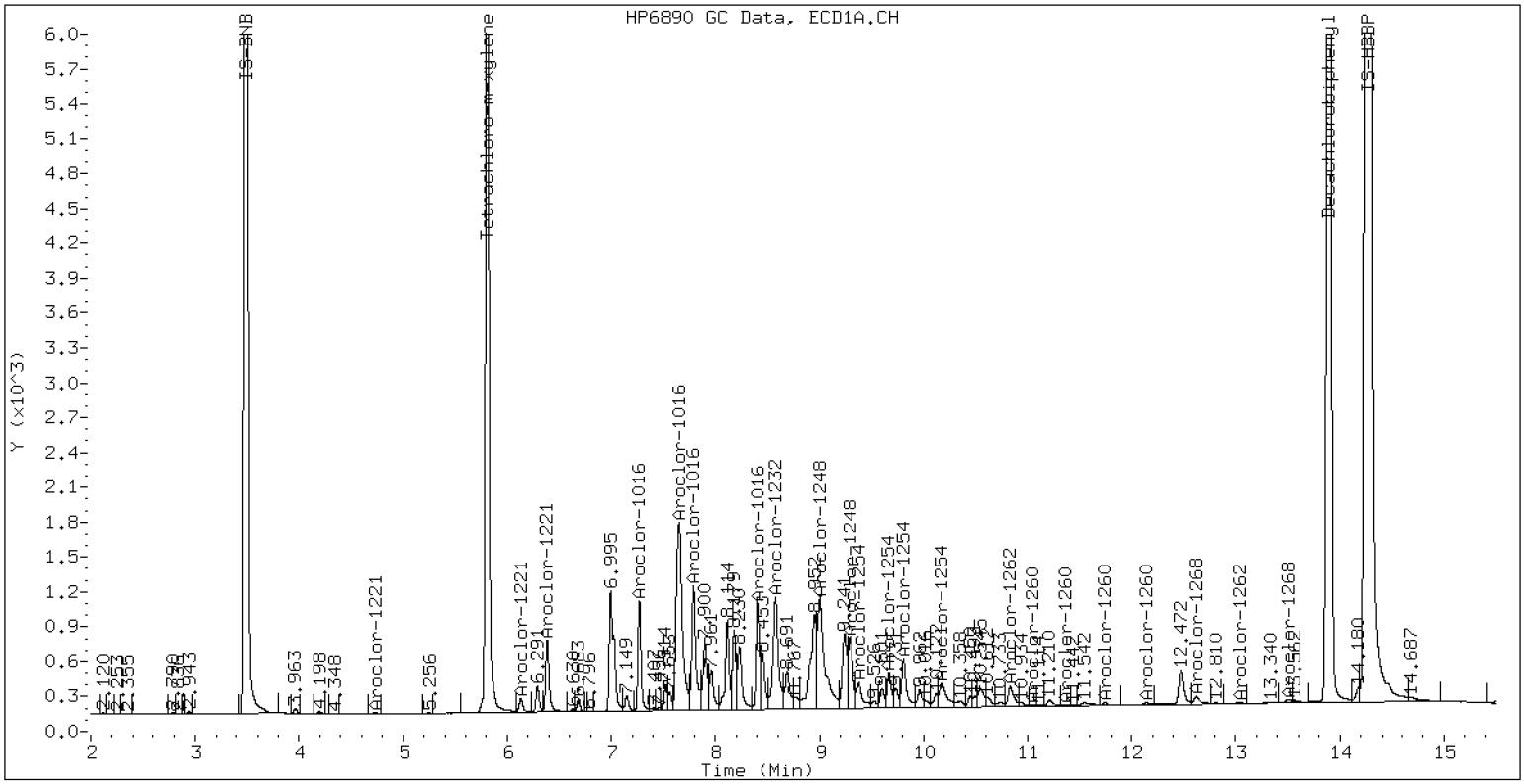
Total PCB Area Col2 (5.785 - 14.019) = 572210 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

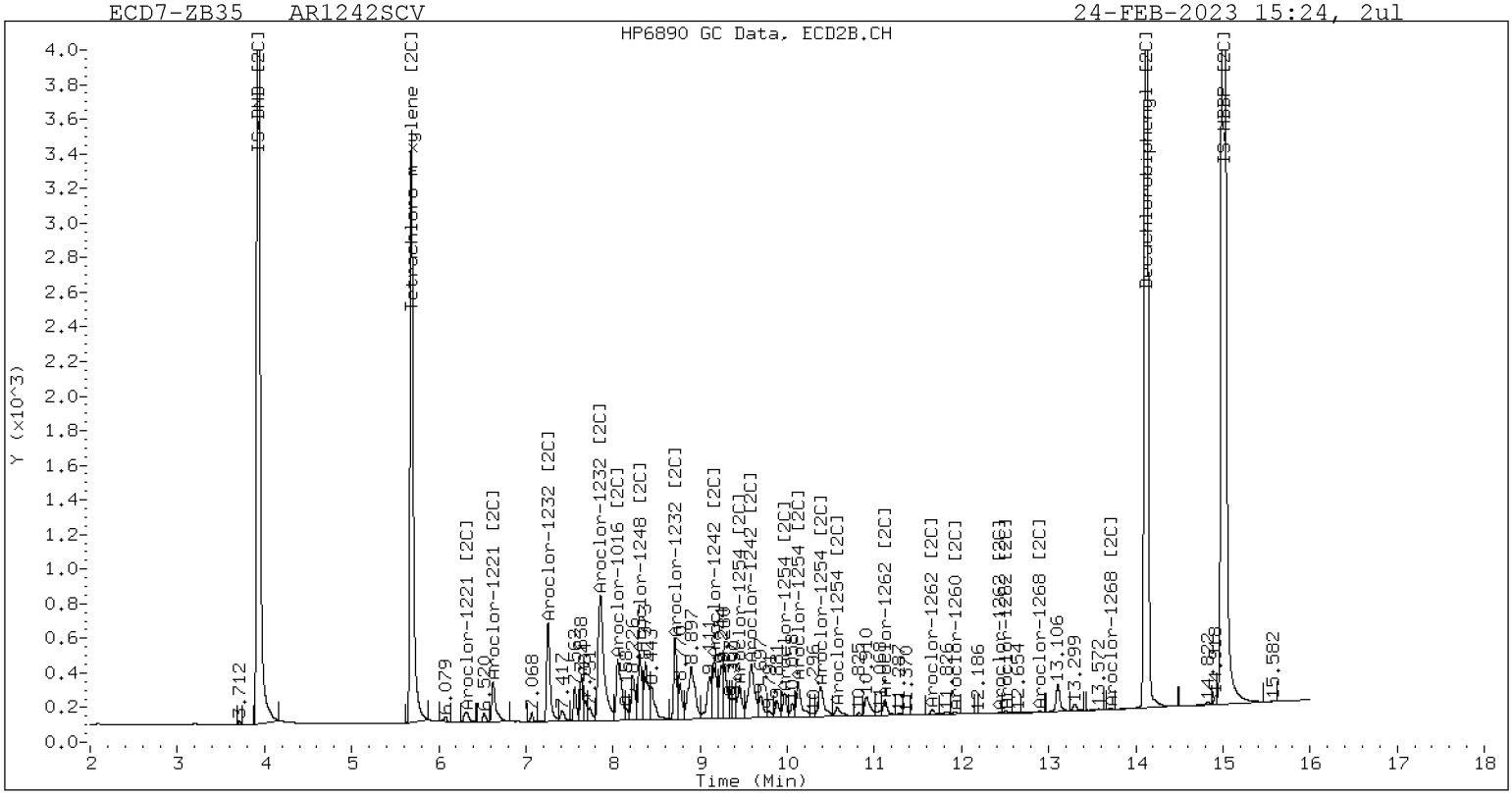
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242SCV 24-FEB-2023 15:24, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242315ECD7.D
Data file 2: /230224.b/230224.b/02242315ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248SCV
Client ID:
Injection Date: 24-FEB-2023 15:45
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	336655	5.687	0.002	168719	34.9	36.4	4.2	Tetrachloro-m-xylene
13.894	0.001	499162	14.118	-0.001	308317	33.1	36.3	9.2	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	646554	-4.0
Hexabromobiphenyl	1429847	1529451	7.0

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	316066	0.3
Hexabromobiphenyl	513946	557213	8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.000	19773	80.5	1	7.254	-0.002	16926	91.5
Aroclor-1016	2	7.653	-0.001	88099	117.7	2	7.857	0.001	45733	121.9
Aroclor-1016	3	7.794	0.003	35915	98.3	3	8.060	0.005	8078	47.7
Aroclor-1016	4	8.406	0.001	77842	329.5	4	8.307	0.000	37348	280.9
Total Col1Ave (4 peaks):					156.5	Total Col2Ave (4 peaks):				135.5 RPD = 14
Corrected Ave (3 peaks):					98.8	Corrected Ave (3 peaks):				87.0 RPD = 13
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	6.133	0.001	680	6.6	2	6.326	0.030	1966	34.7
Aroclor-1221	3	6.384	0.002	3390	14.1	3	6.631	0.009	1571	17.0
Col1Ave: <3 Quant Peaks						Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	6.133	0.002	680	9.9	2	7.254	-0.000	16926	210.6
Aroclor-1232	3	7.653	-0.002	88099	283.3	3	7.857	-0.004	45733	284.6
Aroclor-1232	4	8.581	-0.000	99572	753.4	4	8.714	-0.001	38224	826.6
Total Col1Ave (3 peaks):					348.9	Total Col2Ave (3 peaks):				440.6 RPD = 23
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1242	1	7.271	-0.000	19773	98.7	1	7.254	-0.002	16926	115.3
Aroclor-1242	2	7.653	-0.003	88099	144.8	2	7.857	-0.001	45733	148.2
Aroclor-1242	3	8.406	0.000	77842	411.2	3	9.165	-0.002	45021	468.7
Aroclor-1242	4	8.581	0.001	99572	355.8	4	9.590	-0.008	53613	458.1
Total Col1Ave (4 peaks):					252.6	Total Col2Ave (4 peaks):				297.6 RPD = 16
Corrected Ave (3 peaks):					199.8	Corrected Ave (3 peaks):				240.5 RPD = 19
Aroclor-1248	1	8.406	0.000	77842	246.8	1	8.307	-0.001	37348	247.5
Aroclor-1248	2	8.581	0.000	99572	248.3	2	8.714	-0.000	38224	245.0
Aroclor-1248	3	8.998	-0.000	186857	247.0	3	9.165	-0.000	45021	250.7
Aroclor-1248	4	9.294	-0.000	98398	255.5	4	9.590	-0.001	53613	248.7
Total Col1Ave (4 peaks):					249.4	Total Col2Ave (4 peaks):				248.0 RPD = 1
Corrected Ave (3 peaks):					247.4	Corrected Ave (3 peaks):				247.0 RPD = 0
Aroclor-1254	1	9.294	-0.004	98398	151.6	1	9.450	0.001	21823	90.8
Aroclor-1254	2	9.377	-0.001	49616	169.9	2	9.971	0.001	19450	100.6
Aroclor-1254	3	9.669	0.001	40230	96.4	3	10.124	0.000	36574	87.5
Aroclor-1254	4	9.808	0.001	68500	84.4	4	10.389	0.016	35100	86.1
Aroclor-1254	5	10.183	0.007	47365	93.1	5	10.573	0.004	5676	22.9
Total Col1Ave (5 peaks):					119.1	Total Col2Ave (5 peaks):				77.6 RPD = 42*
Corrected Ave (4 peaks):					106.4	Corrected Ave (4 peaks):				71.8 RPD = 39
Aroclor-1260	1	11.047	0.003	1670	3.0	1	11.662	0.009	2055	6.3
Aroclor-1260	2	11.362	0.001	1111	1.9	2	11.924	0.007	1466	1.8
Aroclor-1260	3	11.739	0.005	2107	1.4	3	12.434	-0.002	573	2.6
Aroclor-1260	4	12.144	0.005	1379	1.8	4	12.505	0.003	1003	1.8
Aroclor-1260	5	12.251	0.006	698	2.1	NS	---			----
Total Col1Ave (5 peaks):					2.1	Total Col2Ave (4 peaks):				3.1 RPD = 41*
Corrected Ave (4 peaks):					1.8	Corrected Ave (3 peaks):				2.0 RPD = 12
Aroclor-1262	1	10.833	0.005	15355	32.7	1	11.122	-0.079	7225	15.2
Aroclor-1262	2	12.251	0.007	698	0.9	2	11.662	0.011	2055	5.1
Aroclor-1262	3	12.321	0.002	836	1.0	3	12.434	0.000	573	1.2
Aroclor-1262	4	12.991	0.004	1043	1.4	4	12.505	0.003	1003	1.4
Total Col1Ave (4 peaks):					9.0	Total Col2Ave (4 peaks):				5.7 RPD = 45*
Corrected Ave (3 peaks):					1.1	Corrected Ave (3 peaks):				2.6 RPD = 80*
Aroclor-1268	1	12.251	0.004	698	0.4	1	12.434	0.002	573	0.5
Aroclor-1268	2	12.321	0.004	836	0.4	2	12.505	0.005	1003	0.8
Aroclor-1268	3	12.700	0.001	2449	1.5	3	12.892	0.001	721	0.7
Aroclor-1268	4	13.493	0.003	7547	1.4	4	13.708	-0.001	2265	0.7
Total Col1Ave (4 peaks):					0.9	Total Col2Ave (4 peaks):				0.7 RPD = 29
Corrected Ave (3 peaks):					0.7	Corrected Ave (3 peaks):				0.6 RPD = 13

Total PCB Area Col1 (5.906 - 13.793) = 1574335 Col1 Total PCB = 0.2 ppm*

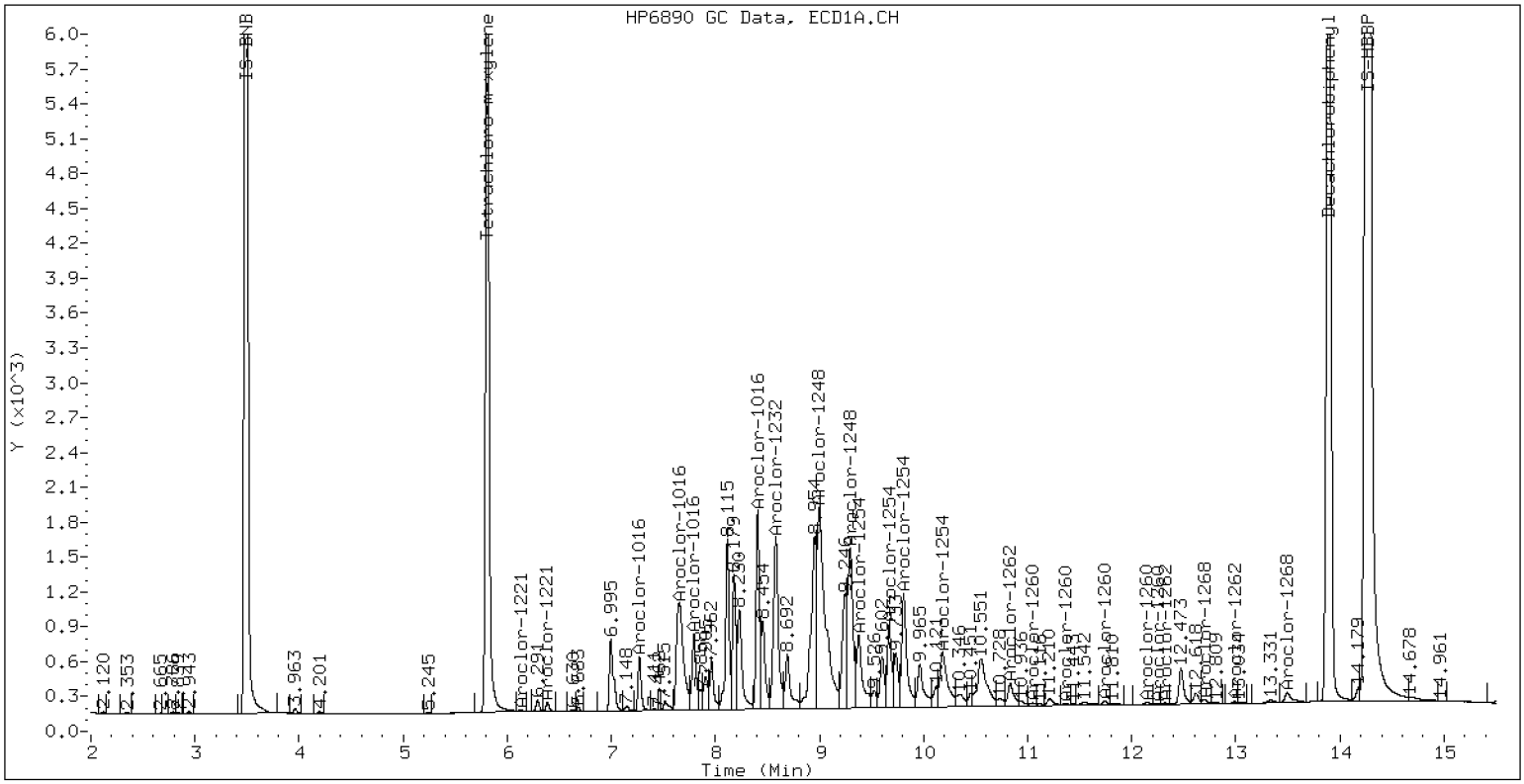
Total PCB Area Col2 (5.785 - 14.019) = 746330 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

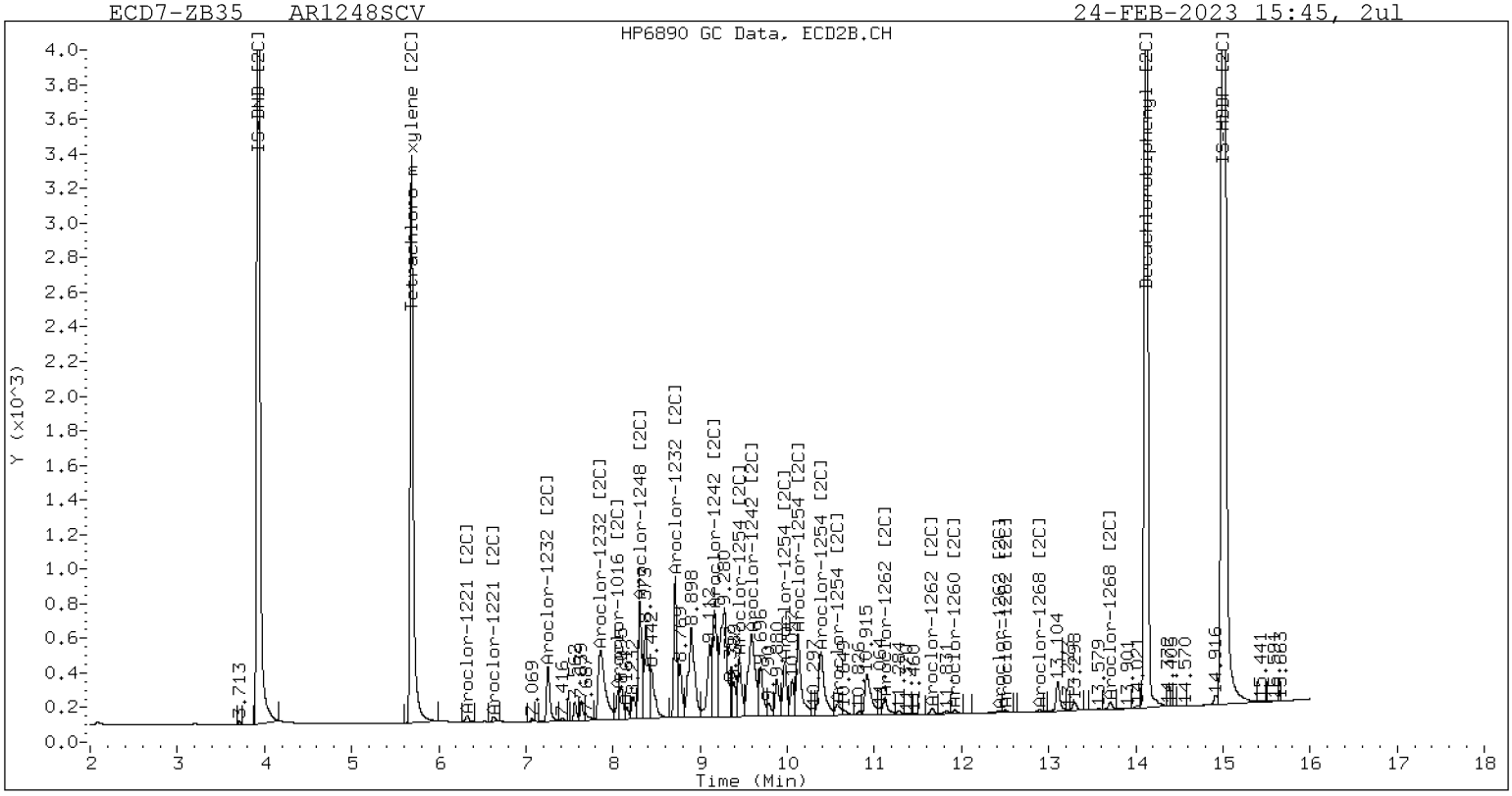
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1248SCV 24-FEB-2023 15:45, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242316ECD7.D
Data file 2: /230224.b/230224.b/02242316ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254SCV
Client ID:
Injection Date: 24-FEB-2023 16:06
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	-0.000	354312	5.686	0.001	174604	36.1	37.1	2.6	Tetrachloro-m-xylene
13.895	0.002	540961	14.119	-0.000	329134	34.6	37.9	9.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656887	-2.5
Hexabromobiphenyl	1429847	1585505	10.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	320936	1.8
Hexabromobiphenyl	513946	570006	10.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	565	2.3	1	7.255	-0.001	387	2.1
Aroclor-1016	2	7.656	0.002	1875	2.5	2	7.854	-0.002	860	2.3
Aroclor-1016	3	7.792	0.002	1106	3.0	3	8.098	0.043	578	3.4
Aroclor-1016	4	8.405	0.000	29924	124.7	4	8.307	0.000	21985	162.9
	Total Col1Ave (4 peaks):				33.1	Total Col2Ave (4 peaks):				42.6 RPD = 25
	Corrected Ave (3 peaks):				2.6	Corrected Ave (3 peaks):				2.6 RPD = 0
Aroclor-1221	1	---			0.0	1	---			0.0
Aroclor-1221	2	---			0.0	2	6.325	0.028	1947	33.9
Aroclor-1221	3	---			0.0	3	6.637	0.015	368	3.9
	Col1Ave: <3 Quant Peaks					Col2Ave: <3 Quant Peaks				
Aroclor-1232	1	---			0.0	1	---			0.0
Aroclor-1232	2	---			0.0	2	7.255	0.001	387	4.7
Aroclor-1232	3	7.656	0.000	1875	5.9	3	7.854	-0.007	860	5.3
Aroclor-1232	4	8.583	0.002	12327	91.8	4	8.715	0.000	15013	319.7
	Col1Ave: <3 Quant Peaks					Col2Ave: 109.9				
Aroclor-1242	1	7.270	-0.000	565	2.8	1	7.255	-0.001	387	2.6
Aroclor-1242	2	7.656	0.000	1875	3.0	2	7.854	-0.004	860	2.7
Aroclor-1242	3	8.405	-0.000	29924	155.6	3	9.169	0.002	21933	224.9
Aroclor-1242	4	8.583	0.003	12327	43.4	4	9.545	-0.053	34065	286.6
	Total Col1Ave (4 peaks):				51.2	Total Col2Ave (4 peaks):				129.2 RPD = 87*
	Corrected Ave (3 peaks):				16.4	Corrected Ave (3 peaks):				76.7 RPD = 130*
Aroclor-1248	1	8.405	0.000	29924	93.4	1	8.307	-0.001	21985	143.5
Aroclor-1248	2	8.583	0.002	12327	30.3	2	8.715	0.001	15013	94.8
Aroclor-1248	3	8.992	-0.007	145580	189.4	3	9.169	0.004	21933	120.3
Aroclor-1248	4	9.298	0.003	155450	397.3	4	9.545	-0.046	34065	155.6
	Total Col1Ave (4 peaks):				177.6	Total Col2Ave (4 peaks):				128.5 RPD = 32
	Corrected Ave (3 peaks):				104.3	Corrected Ave (3 peaks):				119.5 RPD = 14
Aroclor-1254	1	9.298	-0.001	155450	235.7	1	9.450	0.001	58639	240.4
Aroclor-1254	2	9.377	-0.001	69801	235.3	2	9.971	0.000	47008	239.5
Aroclor-1254	3	9.668	-0.000	100839	237.8	3	10.124	0.000	100062	235.7
Aroclor-1254	4	9.807	0.000	190544	231.1	4	10.373	0.000	99535	240.5
Aroclor-1254	5	10.176	-0.000	122321	236.7	5	10.570	0.001	61549	244.2
	Total Col1Ave (5 peaks):				235.3	Total Col2Ave (5 peaks):				240.1 RPD = 2
	Corrected Ave (4 peaks):				234.7	Corrected Ave (4 peaks):				239.0 RPD = 2
Aroclor-1260	1	11.043	-0.002	12288	21.5	1	11.661	0.008	29062	86.7
Aroclor-1260	2	11.361	-0.001	13660	22.9	2	11.921	0.003	22238	26.0
Aroclor-1260	3	11.736	0.002	37632	23.8	3	12.441	0.005	3555	15.7
Aroclor-1260	4	12.141	0.002	27105	34.1	4	12.503	0.001	13126	22.8
Aroclor-1260	5	12.320	0.076	2381	6.9	NS	---			----
	Total Col1Ave (5 peaks):				21.9	Total Col2Ave (4 peaks):				37.8 RPD = 53*
	Corrected Ave (4 peaks):				18.8	Corrected Ave (3 peaks):				21.5 RPD = 13
Aroclor-1262	1	10.827	-0.002	220626	453.6	1	11.281	0.081	13562	27.9
Aroclor-1262	2	12.320	0.076	2381	3.0	2	11.661	0.009	29062	70.1
Aroclor-1262	3	---			0.0	3	12.441	0.007	3555	7.6
Aroclor-1262	4	12.989	0.002	3225	4.1	4	12.503	0.001	13126	17.8
	Total Col1Ave (3 peaks):				153.6	Total Col2Ave (4 peaks):				30.8 RPD = 133*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				17.7
Aroclor-1268	1	12.320	0.074	2381	1.2	1	12.441	0.009	3555	3.1
Aroclor-1268	2	---			0.0	2	12.503	0.003	13126	10.6
Aroclor-1268	3	12.701	0.002	2939	1.7	3	12.892	0.000	772	0.7
Aroclor-1268	4	13.493	0.003	9164	1.6	4	13.707	-0.002	2801	0.8
	Total Col1Ave (3 peaks):				1.5	Total Col2Ave (4 peaks):				3.8 RPD = 87*
	Corrected Ave: < 3 Peaks					Corrected Ave (3 peaks):				1.6

Total PCB Area Col1 (5.906 - 13.793) = 2118645 Col1 Total PCB = 0.3 ppm*

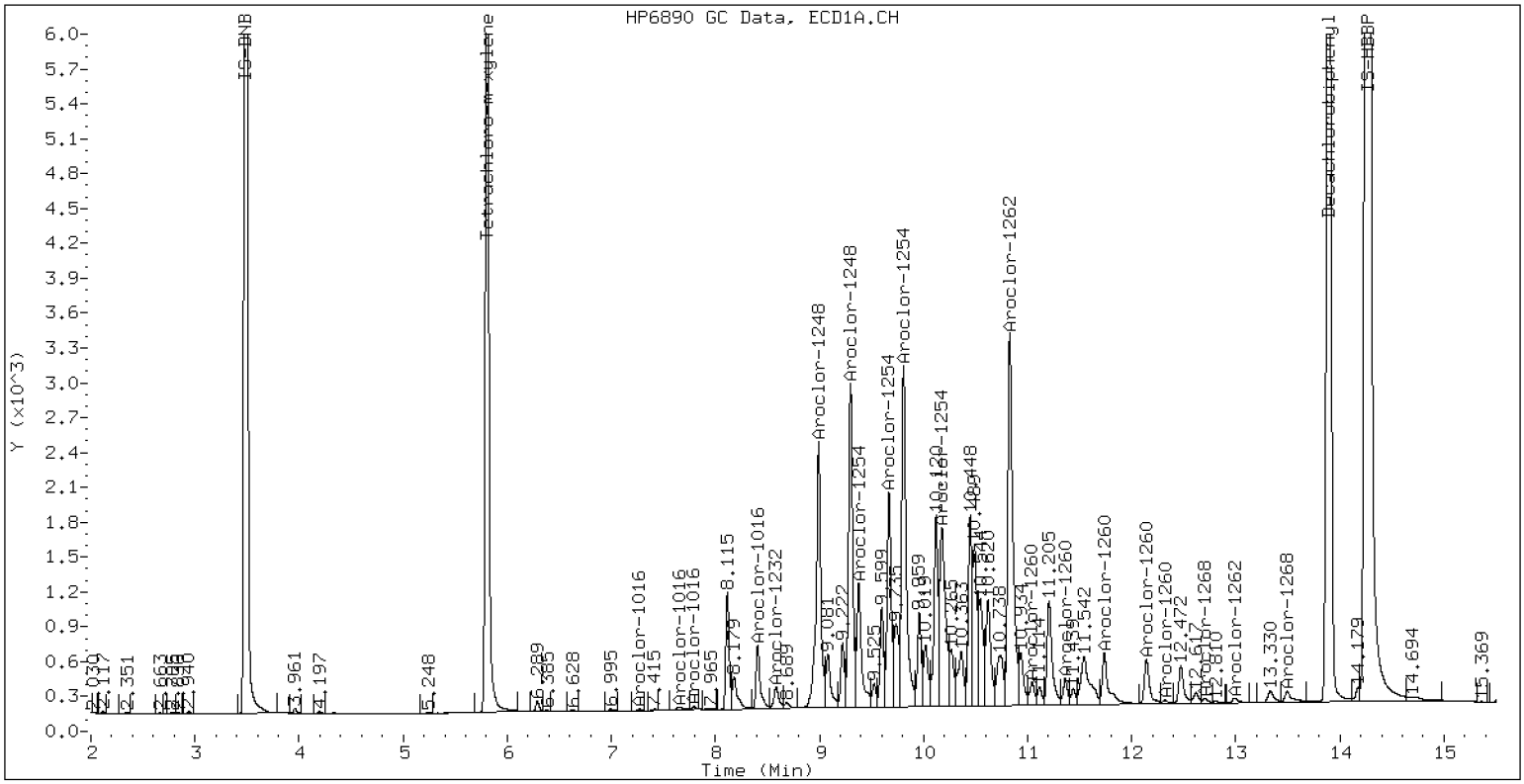
Total PCB Area Col2 (5.785 - 14.019) = 1007601 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

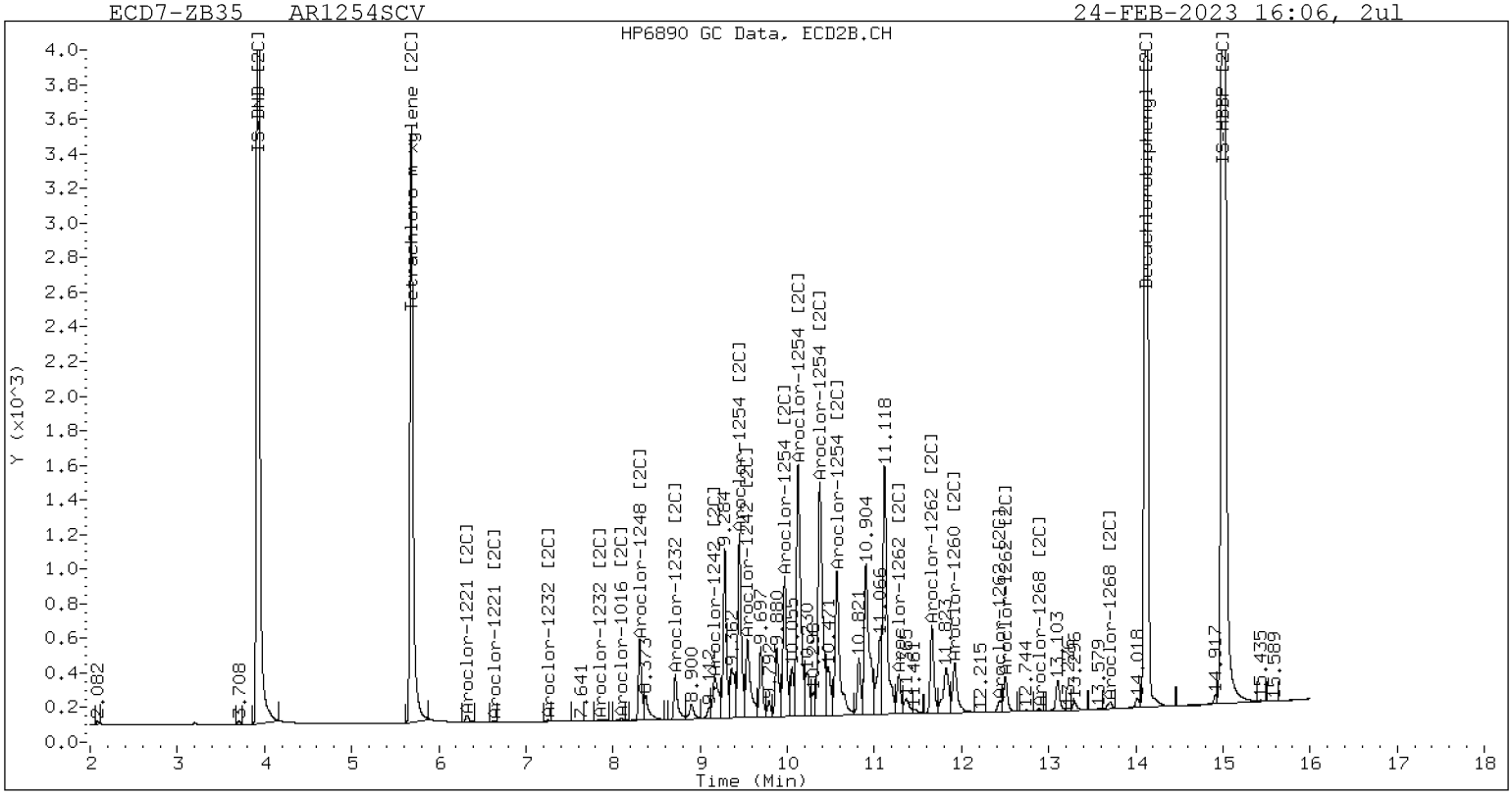
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254SCV 24-FEB-2023 16:06, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242317ECD7.D
Data file 2: /230224.b/230224.b/02242317ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR2162SCV
Client ID:
Injection Date: 24-FEB-2023 16:27
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	356001	5.685	0.000	170882	36.0	36.6	1.7	Tetrachloro-m-xylene
13.895	0.002	533971	14.119	0.000	326235	34.4	37.9	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	661953	-1.8
Hexabromobiphenyl	1429847	1574993	10.2

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	317807	0.8
Hexabromobiphenyl	513946	565951	10.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

	ZB5 Col				ZB35 Col				
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.269	-0.001	7175	28.5	1	7.256	0.000	3727	20.0
Aroclor-1016	2	7.659	0.005	12893	16.8	2	7.863	0.007	5834	15.5
Aroclor-1016	3	7.794	0.004	6936	18.5	3	8.063	0.009	2963	17.4
Aroclor-1016	4	8.408	0.003	3610	14.9	4	8.308	0.002	2045	15.3
Total Col1Ave (4 peaks):					19.7	Total Col2Ave (4 peaks):				17.0 RPD = 14
Corrected Ave (3 peaks):					16.8	Corrected Ave (3 peaks):				16.1 RPD = 4
Aroclor-1221	1	4.730	-0.000	15803	266.6	1	4.955	-0.001	7909	262.9
Aroclor-1221	2	6.131	-0.001	26946	254.1	2	6.296	-0.000	14303	251.2
Aroclor-1221	3	6.382	-0.000	62477	253.8	3	6.622	0.000	23612	254.7
Total Col1Ave (3 peaks):					258.2	Total Col2Ave (3 peaks):				256.3 RPD = 1
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.730	0.000	15803	445.6	1	4.955	-0.001	7909	486.4
Aroclor-1232	2	6.131	0.000	26946	383.1	2	7.256	0.002	3727	46.1
Aroclor-1232	3	7.659	0.003	12893	40.5	3	7.863	0.002	5834	36.1
Aroclor-1232	4	8.583	0.003	2684	19.8	4	8.716	0.002	1189	25.6
Total Col1Ave (4 peaks):					222.3	Total Col2Ave (4 peaks):				148.5 RPD = 40
Corrected Ave (3 peaks):					147.8	Corrected Ave (3 peaks):				35.9 RPD = 122*
Aroclor-1242	1	7.269	-0.001	7175	35.0	1	7.256	0.000	3727	25.2
Aroclor-1242	2	7.659	0.003	12893	20.7	2	7.863	0.005	5834	18.8
Aroclor-1242	3	8.408	0.002	3610	18.6	3	9.175	0.008	1082	11.2
Aroclor-1242	4	8.583	0.004	2684	9.4	4	9.543	-0.054	1390	11.8
Total Col1Ave (4 peaks):					20.9	Total Col2Ave (4 peaks):				16.8 RPD = 22
Corrected Ave (3 peaks):					16.2	Corrected Ave (3 peaks):				13.9 RPD = 15
Aroclor-1248	1	8.408	0.002	3610	11.2	1	8.308	0.001	2045	13.5
Aroclor-1248	2	8.583	0.003	2684	6.5	2	8.716	0.002	1189	7.6
Aroclor-1248	3	8.994	-0.005	24440	31.6	3	9.175	0.009	1082	6.0
Aroclor-1248	4	9.302	0.008	26328	66.8	4	9.543	-0.048	1390	6.4
Total Col1Ave (4 peaks):					29.0	Total Col2Ave (4 peaks):				8.4 RPD = 110*
Corrected Ave (3 peaks):					16.4	Corrected Ave (3 peaks):				6.7 RPD = 85*
Aroclor-1254	1	9.302	0.004	26328	39.6	1	9.452	0.003	9571	39.6
Aroclor-1254	2	---			0.0	2	9.972	0.002	1733	8.9
Aroclor-1254	3	9.670	0.002	3721	8.7	3	10.147	0.023	49218	117.1
Aroclor-1254	4	9.808	0.000	9653	11.6	4	10.370	-0.002	59603	145.4
Aroclor-1254	5	10.120	-0.056	131179	251.9	5	10.569	0.001	79533	318.7
Total Col1Ave (4 peaks):					78.0	Total Col2Ave (5 peaks):				125.9 RPD = 47*
Corrected Ave (3 peaks):					20.0	Corrected Ave (4 peaks):				77.8 RPD = 118*
Aroclor-1260	1	11.044	-0.000	223208	394.0	1	11.652	-0.001	104071	312.7
Aroclor-1260	2	11.361	-0.001	190166	321.2	2	11.919	0.002	251579	296.2
Aroclor-1260	3	11.737	0.003	458281	291.9	3	12.435	-0.001	113645	504.2
Aroclor-1260	4	12.141	0.002	149720	189.4	4	12.501	-0.001	182951	319.6
Aroclor-1260	5	12.244	0.000	196033	576.0	NS	---			----
Total Col1Ave (5 peaks):					354.5	Total Col2Ave (4 peaks):				358.2 RPD = 1
Corrected Ave (4 peaks):					299.1	Corrected Ave (3 peaks):				309.5 RPD = 3
Aroclor-1262	1	10.828	-0.001	121431	251.3	1	11.201	0.000	121335	251.1
Aroclor-1262	2	12.244	0.000	196033	249.3	2	11.652	0.000	104071	252.9
Aroclor-1262	3	12.319	0.001	211092	249.8	3	12.435	0.001	113645	243.4
Aroclor-1262	4	12.988	0.001	183455	237.5	4	12.501	-0.001	182951	250.1
Total Col1Ave (4 peaks):					247.0	Total Col2Ave (4 peaks):				249.3 RPD = 1
Corrected Ave (3 peaks):					245.5	Corrected Ave (3 peaks):				248.2 RPD = 1
Aroclor-1268	1	12.244	-0.002	196033	97.1	1	12.435	0.003	113645	99.7
Aroclor-1268	2	12.319	0.002	211092	105.6	2	12.501	0.001	182951	149.3
Aroclor-1268	3	12.723	0.024	77240	45.2	3	12.891	-0.000	7755	7.4
Aroclor-1268	4	13.488	-0.002	65479	11.6	4	13.709	0.000	35146	10.5
Total Col1Ave (4 peaks):					64.9	Total Col2Ave (4 peaks):				66.7 RPD = 3

Corrected Ave (3 peaks): 51.3 Corrected Ave (3 peaks): 39.2 RPD = 27

Total PCB Area Col1 (5.906 - 13.793) = 3239932 Col1 Total PCB = 0.4 ppm*

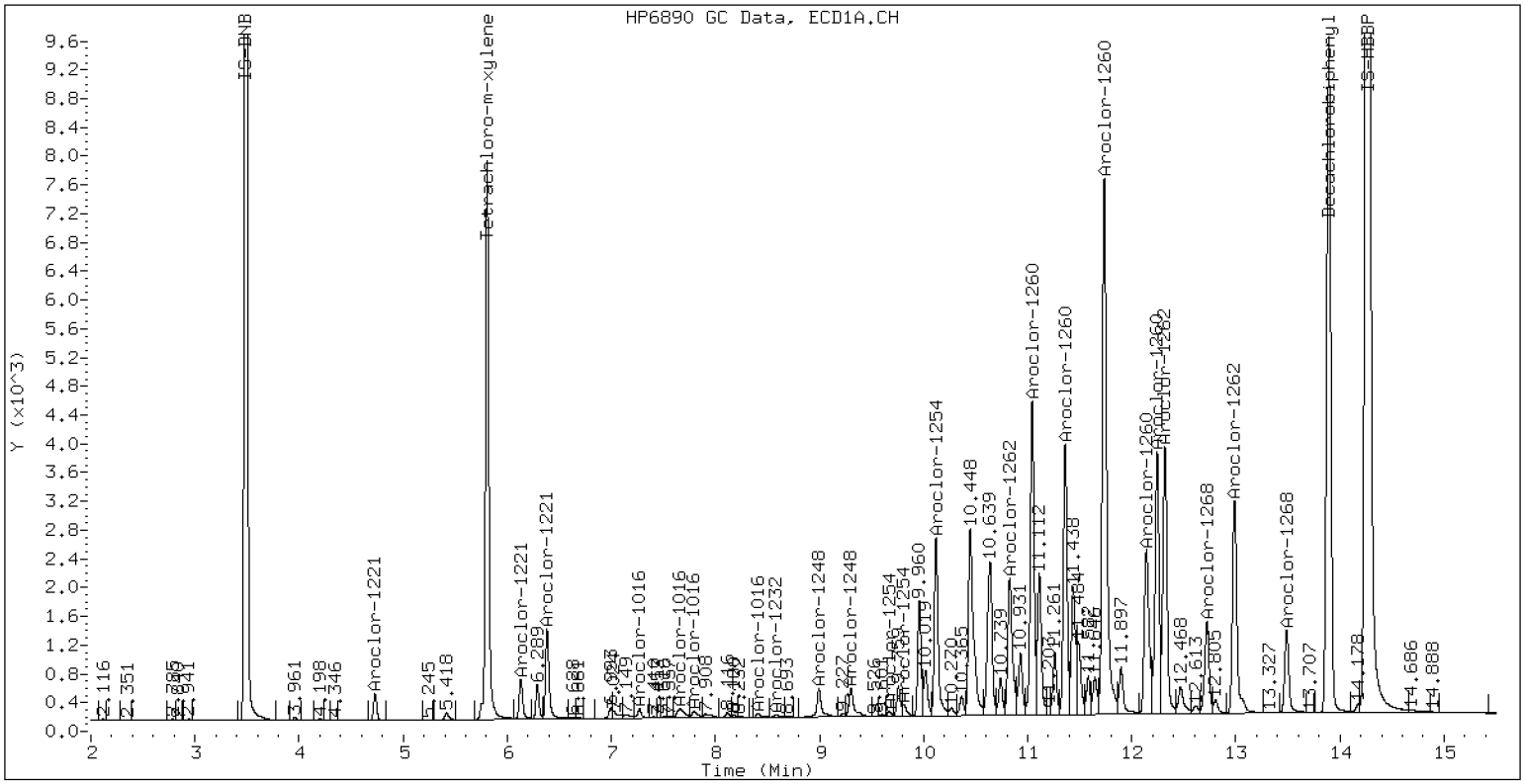
Total PCB Area Col2 (5.785 - 14.019) = 1655522 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

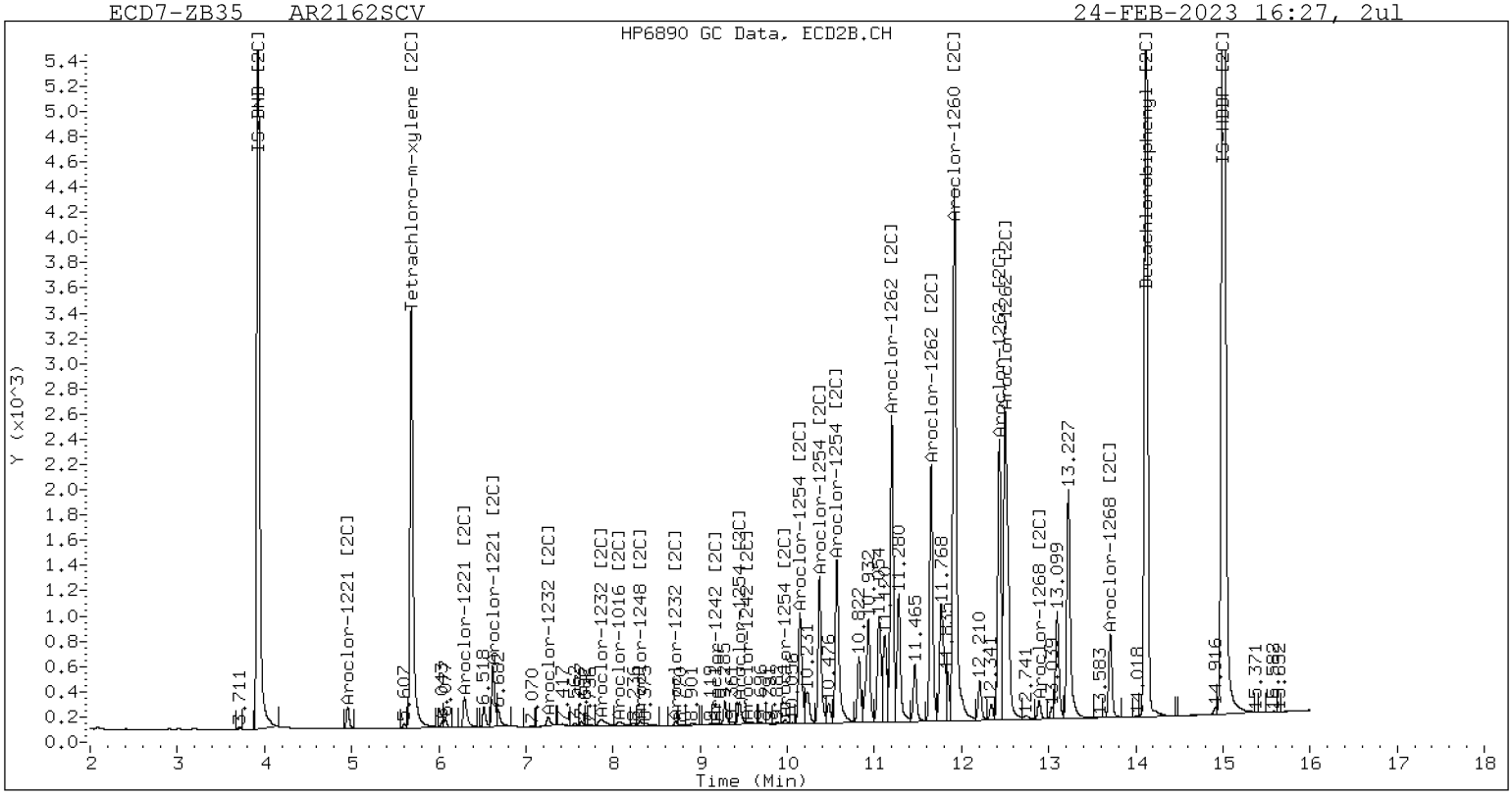
PCB Dual Column Chromatograms

ECD7-ZB5 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR2162SCV 24-FEB-2023 16:27, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230224.b/02242318ECD7.D
Data file 2: /230224.b/230224.b/02242318ECD7.D
Method: \\target\share\chem4\ecd7.i\230224.b\PCB.m
Compound Sublist: PCB.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR3268SCV
Client ID:
Injection Date: 24-FEB-2023 16:48
Report Date: 02/28/2023 09:51
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.806	0.000	363331	5.685	0.000	176204	37.1	38.2	2.9	Tetrachloro-m-xylene
13.894	0.001	800845	14.118	-0.001	488290	51.3	56.4	9.5	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	656592	-2.6
Hexabromobiphenyl	1429847	1584453	10.8

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	314741	-0.2
Hexabromobiphenyl	513946	568346	10.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

Aroclor	Peak#	ZB5 Col RT	Shift	Area	Amount	Peak#	ZB35 Col RT	Shift	Area	Amount
Aroclor-1016	1	7.270	-0.001	28327	113.6	1	7.254	-0.001	20651	112.1
Aroclor-1016	2	7.657	0.003	80668	106.1	2	7.861	0.005	41326	110.6
Aroclor-1016	3	7.793	0.003	40661	109.6	3	8.060	0.005	20446	121.2
Aroclor-1016	4	8.407	0.002	24680	102.9	4	8.308	0.001	13576	102.5
Total Col1Ave (4 peaks):					108.0	Total Col2Ave (4 peaks):				111.6 RPD = 3
Corrected Ave (3 peaks):					106.2	Corrected Ave (3 peaks):				108.4 RPD = 2
Aroclor-1221	1	4.729	-0.001	8535	145.1	1	4.956	-0.000	3965	133.1
Aroclor-1221	2	6.132	-0.000	15523	147.6	2	6.297	0.001	8689	154.1
Aroclor-1221	3	6.382	-0.000	45872	187.9	3	6.622	0.001	22272	242.6
Total Col1Ave (3 peaks):					160.2	Total Col2Ave (3 peaks):				176.6 RPD = 10
Corrected Ave: < 3 Peaks						Corrected Ave: < 3 Peaks				
Aroclor-1232	1	4.729	-0.001	8535	242.6	1	4.956	0.000	3965	246.2
Aroclor-1232	2	6.132	0.001	15523	222.5	2	7.254	0.000	20651	258.1
Aroclor-1232	3	7.657	0.001	80668	255.4	3	7.861	0.001	41326	258.3
Aroclor-1232	4	8.582	0.001	34784	259.2	4	8.714	-0.001	12504	271.5
Total Col1Ave (4 peaks):					244.9	Total Col2Ave (4 peaks):				258.5 RPD = 5
Corrected Ave (3 peaks):					240.2	Corrected Ave (3 peaks):				254.2 RPD = 6
Aroclor-1242	1	7.270	-0.001	28327	139.2	1	7.254	-0.001	20651	141.2
Aroclor-1242	2	7.657	0.001	80668	130.5	2	7.861	0.003	41326	134.4
Aroclor-1242	3	8.407	0.001	24680	128.4	3	9.170	0.003	12830	134.1
Aroclor-1242	4	8.582	0.003	34784	122.4	4	9.600	0.003	14836	127.3
Total Col1Ave (4 peaks):					130.1	Total Col2Ave (4 peaks):				134.3 RPD = 3
Corrected Ave (3 peaks):					127.1	Corrected Ave (3 peaks):				132.0 RPD = 4
Aroclor-1248	1	8.407	0.001	24680	77.0	1	8.308	0.000	13576	90.3
Aroclor-1248	2	8.582	0.001	34784	85.4	2	8.714	-0.000	12504	80.5
Aroclor-1248	3	8.996	-0.003	83592	108.8	3	9.170	0.004	12830	71.8
Aroclor-1248	4	9.292	-0.003	39603	101.3	4	9.600	0.010	14836	69.1
Total Col1Ave (4 peaks):					93.1	Total Col2Ave (4 peaks):				77.9 RPD = 18
Corrected Ave (3 peaks):					87.9	Corrected Ave (3 peaks):				73.8 RPD = 17
Aroclor-1254	1	9.292	-0.007	39603	60.1	1	9.452	0.003	4590	19.2
Aroclor-1254	2	9.377	-0.000	11450	38.6	2	9.973	0.003	2892	15.0
Aroclor-1254	3	9.674	0.005	6387	15.1	3	10.131	0.007	6052	14.5
Aroclor-1254	4	9.813	0.006	10162	12.3	4	10.390	0.017	5324	13.1
Aroclor-1254	5	10.189	0.012	6862	13.3	5	10.572	0.004	1891	7.7
Total Col1Ave (5 peaks):					27.9	Total Col2Ave (5 peaks):				13.9 RPD = 67*
Corrected Ave (4 peaks):					19.8	Corrected Ave (4 peaks):				12.6 RPD = 45*
Aroclor-1260	1	11.046	0.002	87033	152.7	1	11.645	-0.008	62543	187.1
Aroclor-1260	2	11.362	0.001	6300	10.6	2	11.920	0.003	28552	33.5
Aroclor-1260	3	11.738	0.004	54524	34.5	3	12.432	-0.004	285450	1261.2
Aroclor-1260	4	12.144	0.005	1727	2.2	4	12.499	-0.002	306992	534.0
Aroclor-1260	5	12.246	0.002	502931	1469.0	NS	---			----
Total Col1Ave (5 peaks):					333.8	Total Col2Ave (4 peaks):				503.9 RPD = 41*
Corrected Ave (4 peaks):					50.0	Corrected Ave (3 peaks):				251.5 RPD = 134*
Aroclor-1262	1	10.832	0.004	3395	7.0	1	11.201	0.001	44255	91.2
Aroclor-1262	2	12.246	0.002	502931	635.9	2	11.645	-0.007	62543	151.3
Aroclor-1262	3	12.318	-0.000	497006	584.5	3	12.432	-0.002	285450	608.7
Aroclor-1262	4	12.987	-0.000	202197	260.2	4	12.499	-0.003	306992	417.9
Total Col1Ave (4 peaks):					371.9	Total Col2Ave (4 peaks):				317.3 RPD = 16
Corrected Ave (3 peaks):					283.9	Corrected Ave (3 peaks):				220.1 RPD = 25
Aroclor-1268	1	12.246	-0.001	502931	247.7	1	12.432	-0.000	285450	249.4
Aroclor-1268	2	12.318	0.002	497006	247.2	2	12.499	-0.001	306992	249.5
Aroclor-1268	3	12.699	-0.000	422793	245.8	3	12.892	0.000	260893	248.4
Aroclor-1268	4	13.490	0.000	1386953	244.9	4	13.709	-0.000	829733	247.1
Total Col1Ave (4 peaks):					246.4	Total Col2Ave (4 peaks):				248.6 RPD = 1

Corrected Ave (3 peaks): 246.0 Corrected Ave (3 peaks): 248.3 RPD = 1

Total PCB Area Col1 (5.906 - 13.793) = 4180607 Col1 Total PCB = 0.5 ppm*

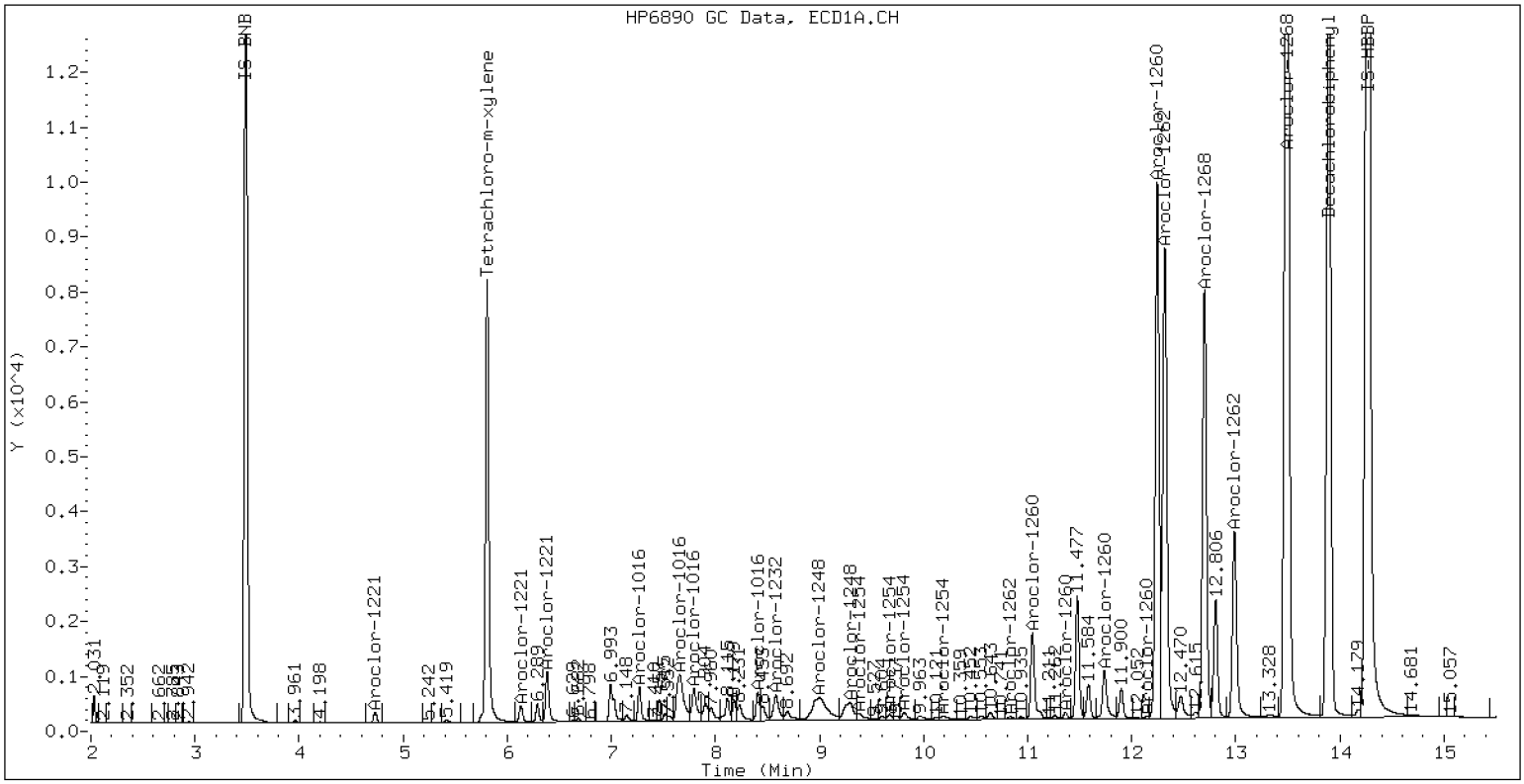
Total PCB Area Col2 (5.785 - 14.019) = 2376912 Col2 Total PCB = 0.6 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

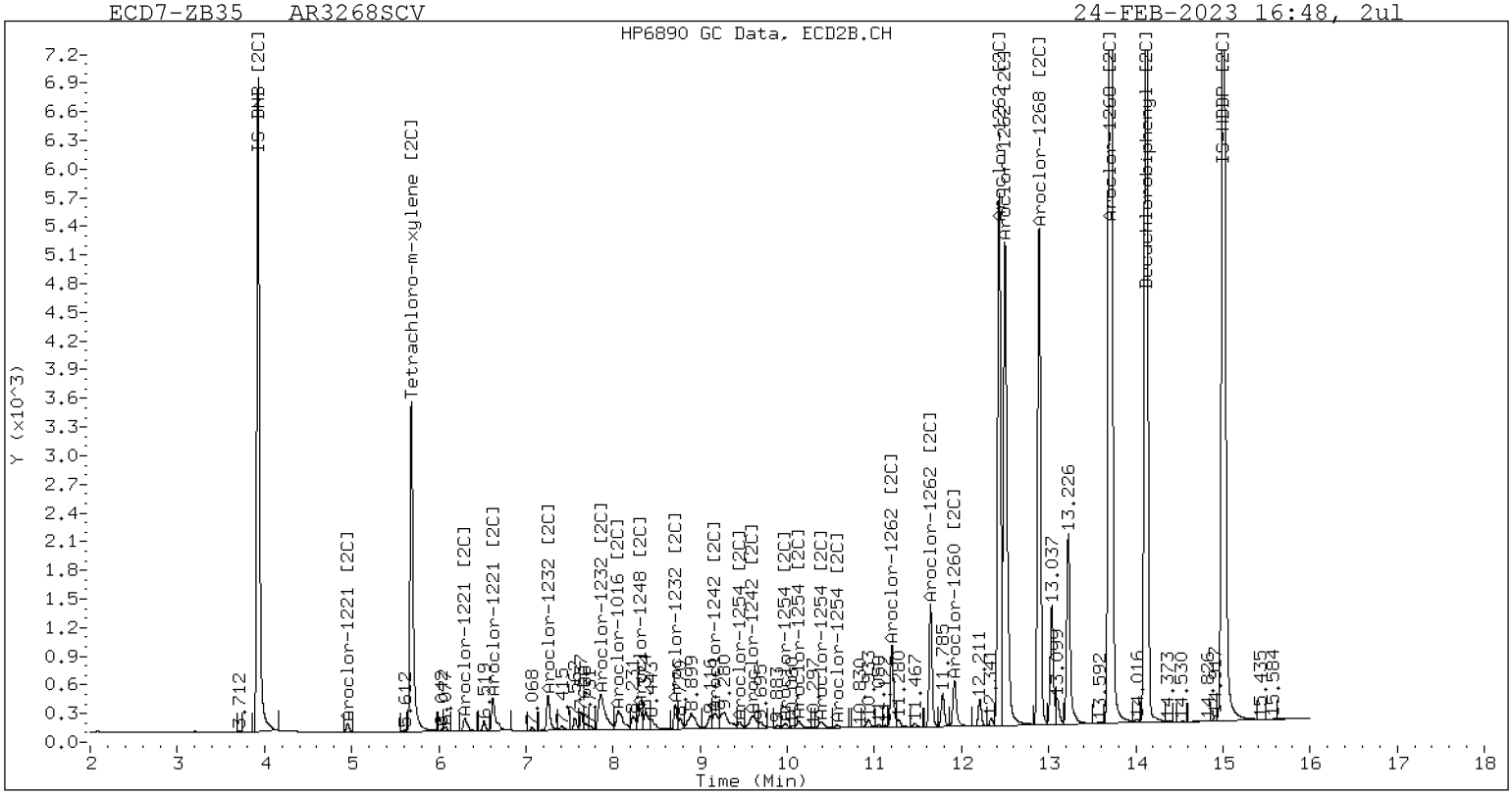
PCB Dual Column Chromatograms

ECD7-ZB5 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR3268SCV 24-FEB-2023 16:48, 2ul



ZB-35 Manual Integration: NO

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242319ECD7.D ARI ID: DDTS

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.261	0.000	694353	9.912	0.000	580269	0.100	0.100	0.0	2,4-DDE
0.000	-10.293	0	10.672	0.000	673479	0.000	0.200#	----	2,4-DDT
9.686	0.000	1191406	10.212	0.000	433373	0.100	0.100	0.0	4,4-DDE
10.259	0.000	1721760	10.672	0.000	673479	0.100	0.200#	66.7*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

Analytical Resources Inc.
8082 DDT SCREEN REPORT

Data file 1: /230224.b/02242320ECD7.D ARI ID: DDT BD

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
9.285	0.023	4923	9.921	0.009	9972	0.001	0.002	84.3*	2,4-DDE
0.000	-10.293	0	10.677	0.004	249094	0.000	0.074#	----	2,4-DDT
9.692	0.006	12128	10.221	0.009	528	0.001	0.000	156.7*	4,4-DDE
10.265	0.006	410017	10.677	0.004	249094	0.023	0.074#	103.6*	4,4-DDD

# Indicates value is from co-eluting peaks
* Indicates RPD > 40%

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00069
Laboratory ID: SLB0342-SCV1
Sequence: SLB0342
Sequence Name: AR1660SCV1
Standard ID: L002065

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1016	250.00	243	-2.7	20.00
Aroclor 1016 [2C]	250.00	246	-1.4	20.00
Aroclor 1260	250.00	266	6.2	20.00
Aroclor 1260 [2C]	250.00	261	4.5	20.00
Decachlorobiphenyl	40.000	34.3	-14.2	20.00
Tetrachlorometaxylene	40.000	34.9	-12.6	20.00
Decachlorobiphenyl [2C]	40.000	37.3	-6.6	20.00
Tetrachlorometaxylene [2C]	40.000	35.8	-10.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00069
Laboratory ID: SLB0342-SCV2
Sequence: SLB0342
Sequence Name: AR1242SCV2
Standard ID: K007656

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1242	250.00	204	-18.5	20.00
Aroclor 1242 [2C]	250.00	221	-11.8	20.00
Decachlorobiphenyl	40.000	37.0	-7.5	20.00
Tetrachlorometaxylene	40.000	33.6	-15.9	20.00
Decachlorobiphenyl [2C]	40.000	40.3	0.8	20.00
Tetrachlorometaxylene [2C]	40.000	34.5	-13.7	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00069
Laboratory ID: SLB0342-SCV3
Sequence: SLB0342
Sequence Name: AR1248SCV3
Standard ID: L002066

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1248	250.00	249	-0.2	20.00
Aroclor 1248 [2C]	250.00	248	-0.8	20.00
Decachlorobiphenyl	40.000	33.1	-17.2	20.00
Tetrachlorometaxylene	40.000	34.9	-12.8	20.00
Decachlorobiphenyl [2C]	40.000	36.3	-9.2	20.00
Tetrachlorometaxylene [2C]	40.000	36.4	-9.0	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00069
Laboratory ID: SLB0342-SCV4
Sequence: SLB0342
Sequence Name: AR1254SCV4
Standard ID: L002067

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1254	250.00	235	-5.9	20.00
Aroclor 1254 [2C]	250.00	240	-4.0	20.00
Decachlorobiphenyl	40.000	34.6	-13.4	20.00
Tetrachlorometaxylene	40.000	36.1	-9.7	20.00
Decachlorobiphenyl [2C]	40.000	37.9	-5.2	20.00
Tetrachlorometaxylene [2C]	40.000	37.1	-7.3	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00069
Laboratory ID: SLB0342-SCV5
Sequence: SLB0342
Sequence Name: AR2162SCV5
Standard ID: L002068

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1221	250.00	258	3.3	20.00
Aroclor 1221 [2C]	250.00	256	2.5	20.00
Aroclor 1262	250.00	247	-1.2	20.00
Aroclor 1262 [2C]	250.00	249	-0.3	20.00
Decachlorobiphenyl	40.000	34.4	-13.9	20.00
Tetrachlorometaxylene	40.000	36.0	-10.0	20.00
Decachlorobiphenyl [2C]	40.000	37.9	-5.4	20.00
Tetrachlorometaxylene [2C]	40.000	36.6	-8.4	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Calibration: GB00069
Laboratory ID: SLB0342-SCV6
Sequence: SLB0342
Sequence Name: AR3268SCV6
Standard ID: L002069

ANALYTE	EXPECTED (ug/L)	FOUND (ug/L)	% DRIFT	QC LIMIT
Aroclor 1232	250.00	245	-2.0	20.00
Aroclor 1232 [2C]	250.00	259	3.4	20.00
Aroclor 1268	250.00	246	-1.4	20.00
Aroclor 1268 [2C]	250.00	249	-0.6	20.00
Decachlorobiphenyl	40.000	51.3	28.3	20.00
Tetrachlorometaxylene	40.000	37.1	-7.3	20.00
Decachlorobiphenyl [2C]	40.000	56.4	41.0	20.00
Tetrachlorometaxylene [2C]	40.000	38.2	-4.6	20.00

* Indicates values outside of QC limits
[2C] indicates second-column analyte.

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142302ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-ICV1	Injection Time:	09:51
Sequence Name:	AR1254ICV1		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
Aroclor 1254	A	250.00	257	0.0662949	0.0675304		3.0	+/-20
Aroclor-1254 (1)	A	250.00	242	0.0803331	0.0778526			
Aroclor-1254 (2)	A	250.00	256	0.0361302	0.0369375			
Aroclor-1254 (3)	A	250.00	250	0.0516471	0.0517310			
Aroclor-1254 (4)	A	250.00	236	0.1004230	0.0949392			
Aroclor-1254 (5)	A	250.00	303	0.0629414	0.0761918			
Aroclor 1254 [2C]	A	250.00	245	0.0763106	0.0747725		-1.8	+/-20
Aroclor-1254 (1) [2C]	A	250.00	249	0.0608052	0.0606326			
Aroclor-1254 (2) [2C]	A	250.00	248	0.0489162	0.0486323			
Aroclor-1254 (3) [2C]	A	250.00	253	0.1058376	0.1069697			
Aroclor-1254 (4) [2C]	A	250.00	233	0.1031750	0.0962046			
Aroclor-1254 (5) [2C]	A	250.00	244	0.0628191	0.0614232			
Decachlorobiphenyl	A	40.000	40.6	0.7878687	0.8007115		1.5	+/-20
Tetrachlorometaxylene	A	40.000	37.8	1.1944880	1.1275770		-5.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.8	1.2182710	1.1506600		-5.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.6	1.1737210	1.1026230		-6.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142302ECD7.D
Data file 2: /230314.b/230314.b/03142302ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254ICV1
Client ID:
Injection Date: 14-MAR-2023 09:51
Report Date: 03/14/2023 16:24
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.001	243114	5.688	-0.002	189235	37.8	37.6	0.5	Tetrachloro-m-xylene
13.896	0.003	286738	14.120	0.001	272283	40.7	37.8	7.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	431215	-36.0
Hexabromobiphenyl	1429847	716208	-49.9

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	343245	8.9
Hexabromobiphenyl	513946	473264	-7.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.301	0.003	104910	242.3	1	9.452	0.000	65037	249.3
Aroclor-1254	2	9.380	0.003	49775	255.6	2	9.973	0.000	52165	248.5
Aroclor-1254	3	9.672	0.004	69710	250.4	3	10.127	0.000	114740	252.7
Aroclor-1254	4	9.811	0.004	127935	236.3	4	10.376	0.000	103193	233.1
Aroclor-1254	5	10.180	0.004	102672	302.6	5	10.573	0.000	65885	244.4

Total Col1Ave (5 peaks): 257.5 Total Col2Ave (5 peaks): 245.6 RPD = 5

Corrected Ave (4 peaks): 246.2 Corrected Ave (4 peaks): 243.8 RPD = 1

CalAmt %D: 3.0 CalAmt %D: -1.8

Total PCB Area Col1 (5.907 - 13.793) = 1457879 Col1 Total PCB = 0.3 ppm*

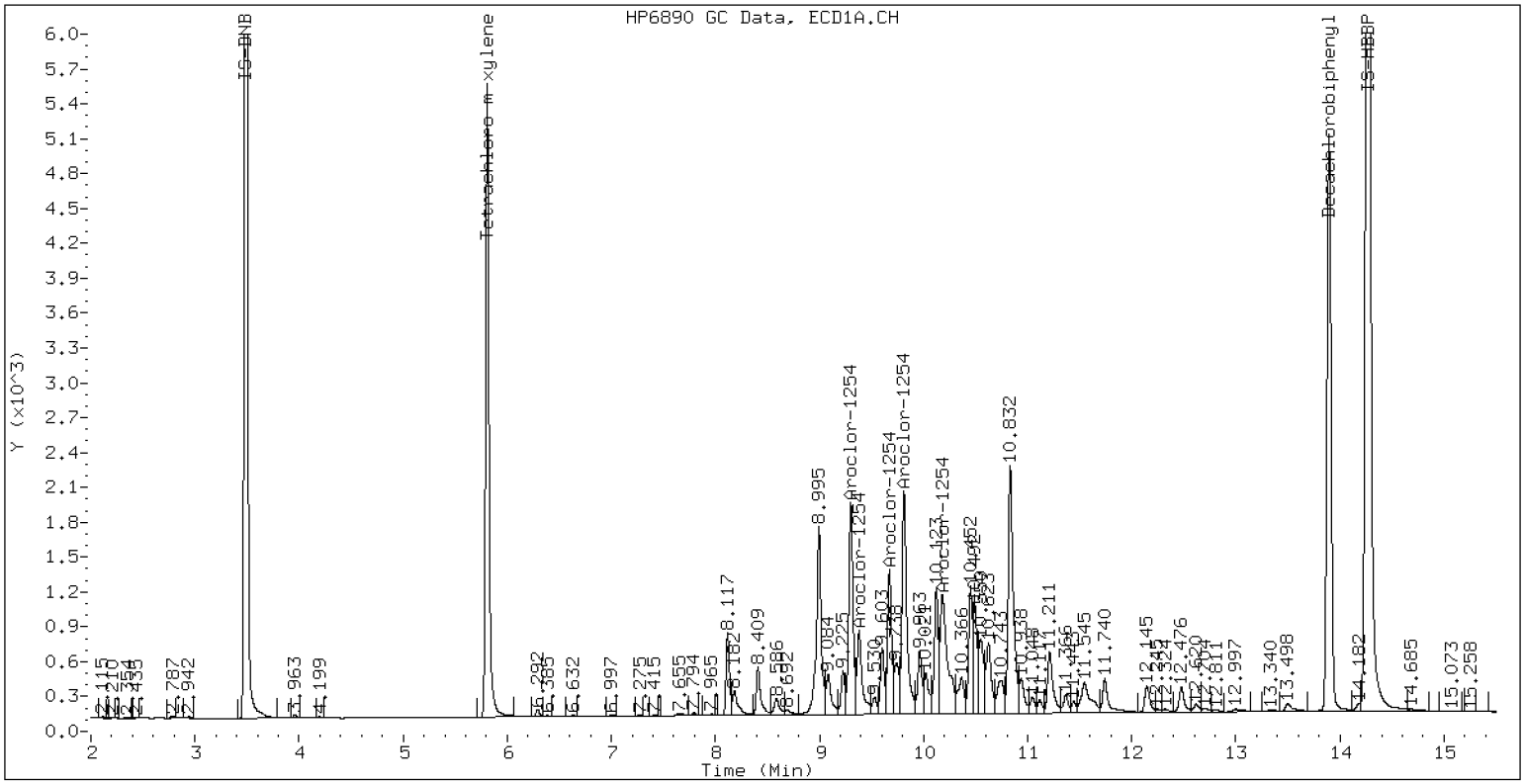
Total PCB Area Col2 (5.790 - 14.019) = 1082625 Col2 Total PCB = 0.3 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

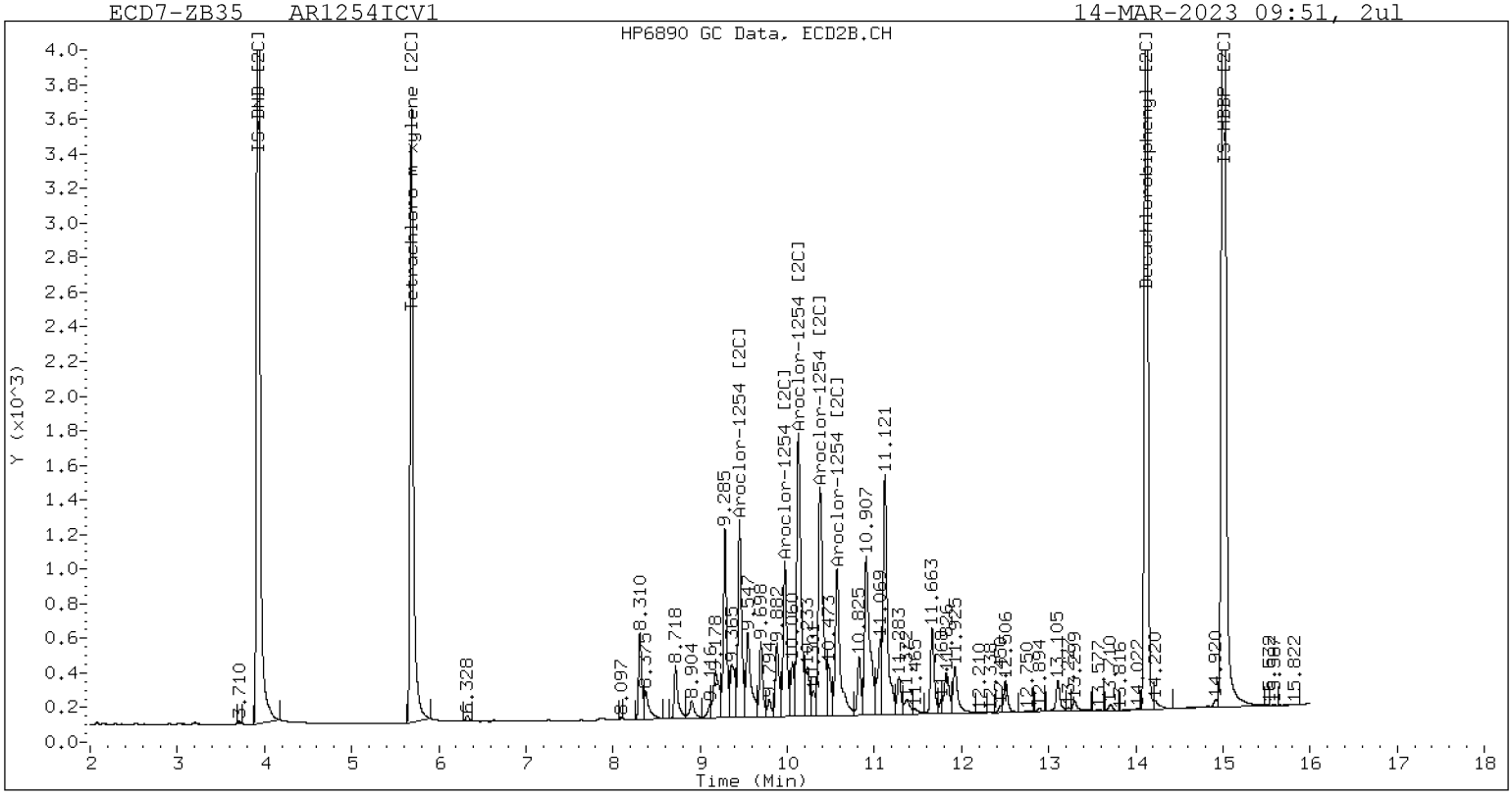
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254ICV1 14-MAR-2023 09:51, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254ICV1 14-MAR-2023 09:51, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142303ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-ICV2	Injection Time:	10:11
Sequence Name:	AR1660ICV2		

		CONC. (ug/L)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
Aroclor 1016	A	250.00	259	0.0493662	0.0509610		3.7	+/-20	
Aroclor-1016 (1)	A	250.00	256	0.0303852	0.0311240		2.4		
Aroclor-1016 (2)	A	250.00	252	0.0926308	0.0935742		0.8		
Aroclor-1016 (3)	A	250.00	271	0.0452180	0.0490010		8.4		
Aroclor-1016 (4)	A	250.00	258	0.0292307	0.0301446		3.2		
Aroclor 1016 [2C]	A	250.00	255	0.0545857	0.0560478		2.1	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	242	0.0468313	0.0453939		-3.2		
Aroclor-1016 (2) [2C]	A	250.00	263	0.0949676	0.0999536		5.2		
Aroclor-1016 (3) [2C]	A	250.00	255	0.0428922	0.0437238		2.0		
Aroclor-1016 (4) [2C]	A	250.00	261	0.0336515	0.0351199		4.4		
Aroclor 1260	A	250.00	303	0.0392091	0.0477093		21.1	+/-20	*
Aroclor-1260 (1)	A	250.00	292	0.0287785	0.0335828		16.8		
Aroclor-1260 (2)	A	250.00	323	0.0300690	0.0388602		29.2		
Aroclor-1260 (3)	A	250.00	309	0.0797517	0.0986595		23.6		
Aroclor-1260 (4)	A	250.00	291	0.0401599	0.0467402		16.4		
Aroclor-1260 (5)	A	250.00	299	0.0172866	0.0207037		19.6		
Aroclor 1260 [2C]	A	250.00	255	0.0699688	0.0716748		1.9	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	274	0.0470406	0.0515073		9.6		
Aroclor-1260 (2) [2C]	A	250.00	258	0.1200523	0.1238833		3.2		
Aroclor-1260 (3) [2C]	A	250.00	237	0.0318590	0.0302453		-5.2		
Aroclor-1260 (4) [2C]	A	250.00	250	0.0809231	0.0810631		0.0		
Decachlorobiphenyl	A	40.000	42.0	0.7878687	0.8272750		5.0	+/-20	
Tetrachlorometaxylene	A	40.000	40.5	1.1944880	1.2106250		1.3	+/-20	
Decachlorobiphenyl [2C]	A	40.000	40.0	1.2182710	1.2174580		0.0	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	39.7	1.1737210	1.1655690		-0.8	+/-20	

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142303ECD7.D
Data file 2: /230314.b/230314.b/03142303ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660ICV2
Client ID:
Injection Date: 14-MAR-2023 10:11
Report Date: 03/14/2023 16:24
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.808	0.001	245243	5.689	-0.001	187490	40.5	39.7	2.0	Tetrachloro-m-xylene
13.894	0.001	293451	14.119	-0.000	280243	42.0	40.0	4.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	405151	-39.9
Hexabromobiphenyl	1429847	709440	-50.4 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	321714	2.0
Hexabromobiphenyl	513946	460374	-10.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.001	39406	256.1	1	7.256	-0.000	45637	242.3
Aroclor-1016	2	7.660	-0.001	118474	252.5	2	7.867	-0.002	100489	263.1
Aroclor-1016	3	7.795	-0.000	62040	270.9	3	8.065	-0.004	43958	254.8
Aroclor-1016	4	8.408	-0.001	38166	257.8	4	8.311	-0.001	35308	260.9
Total Col1Ave (4 peaks):					259.3	Total Col2Ave (4 peaks):				255.3 RPD = 2
Corrected Ave (3 peaks):					255.5	Corrected Ave (3 peaks):				252.7 RPD = 1
CalAmt %D:					3.7	CalAmt %D:				2.1
Aroclor-1260	1	11.047	-0.001	74453	291.7	1	11.655	-0.001	74102	273.7
Aroclor-1260	2	11.364	-0.001	86153	323.1	2	11.921	-0.002	178227	258.0
Aroclor-1260	3	11.739	-0.001	218728	309.3	3	12.437	-0.003	43513	237.3
Aroclor-1260	4	12.144	-0.003	103623	291.0	4	12.504	-0.003	116623	250.4
Aroclor-1260	5	12.246	-0.001	45900	299.4	NS	---			----
Total Col1Ave (5 peaks):					302.9	Total Col2Ave (4 peaks):				254.9 RPD = 17
Corrected Ave (4 peaks):					297.8	Corrected Ave (3 peaks):				248.6 RPD = 18
CalAmt %D:					21.2	CalAmt %D:				1.9

Total PCB Area Col1 (5.907 - 13.793) = 2368746 Col1 Total PCB = 0.5 ppm*

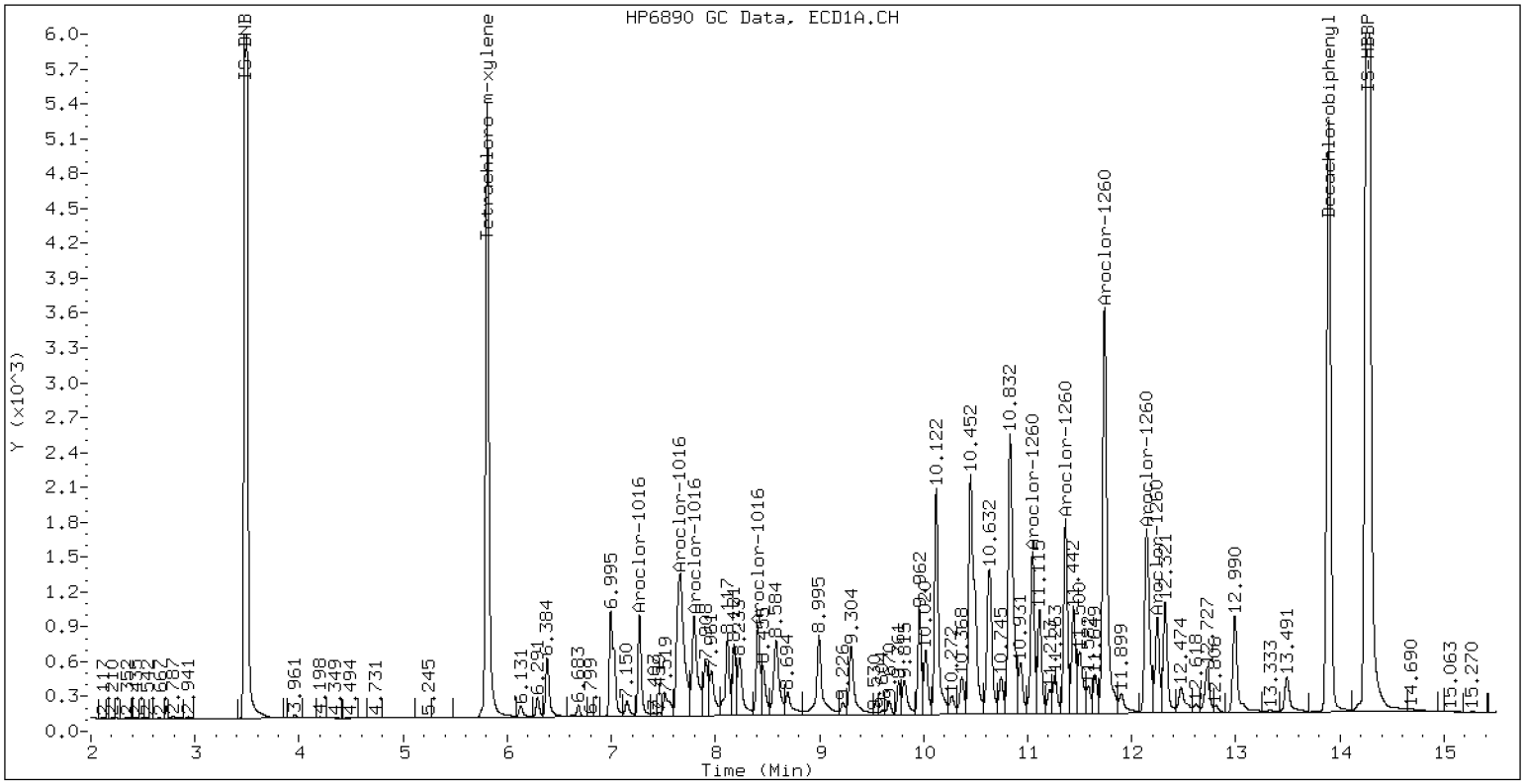
Total PCB Area Col2 (5.790 - 14.019) = 1779992 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

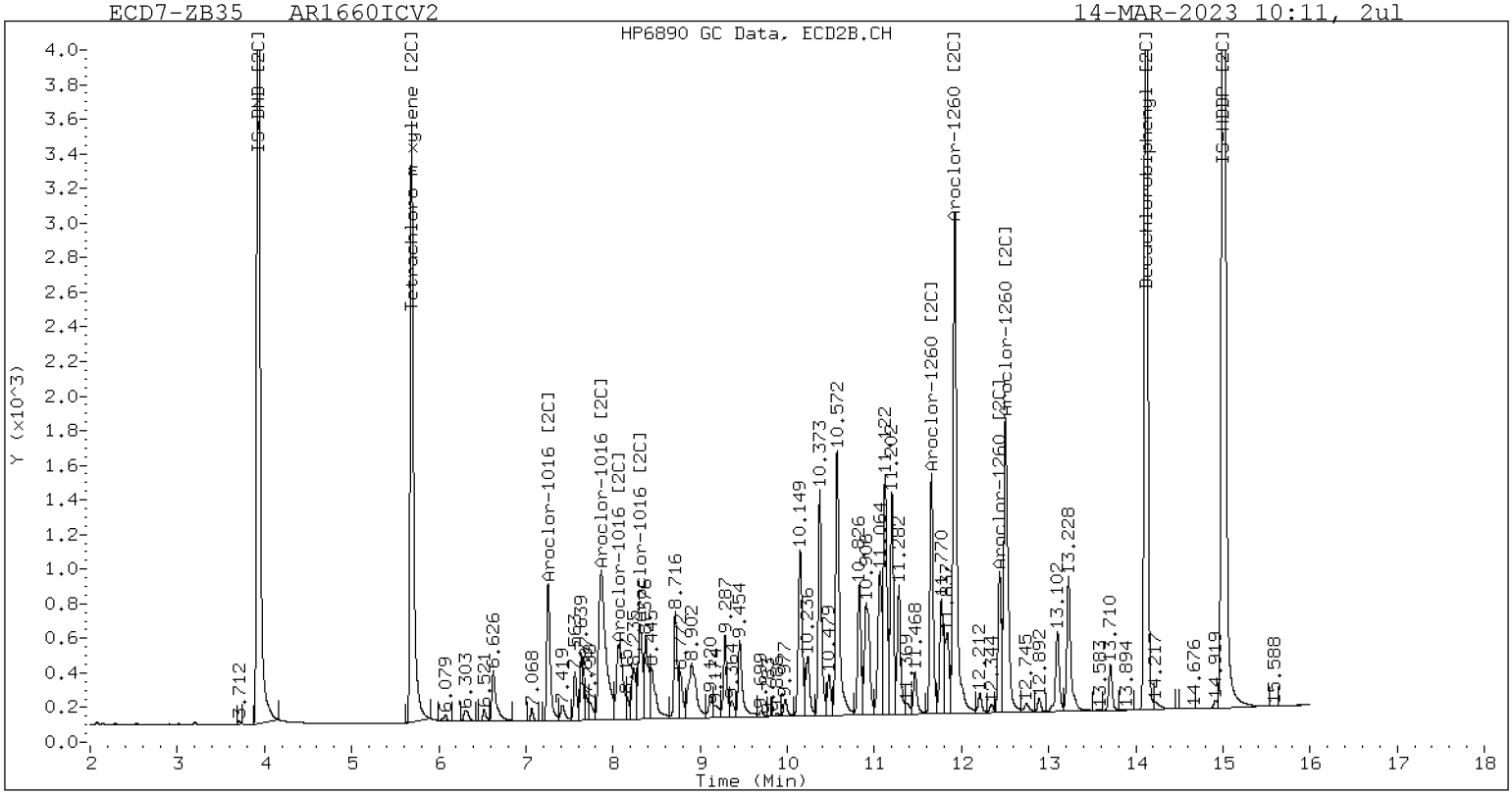
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660ICV2 14-MAR-2023 10:11, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660ICV2 14-MAR-2023 10:11, 2ul



ZB-35 Manual Integration: NO

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242313ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV1	Injection Time:	15:03
Sequence Name:	AR1660SCV1		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	243	0.0493662	0.0479314		-2.7	+/-20
Aroclor 1016 [2C]	A	250.00	246	0.0545857	0.0542382		-1.4	+/-20
Aroclor 1260	A	250.00	266	0.0392091	0.0412121		6.2	+/-20
Aroclor 1260 [2C]	A	250.00	261	0.0699688	0.0733659		4.5	+/-20
Decachlorobiphenyl	A	40.000	34.3	0.7878687	0.6762784		-14.2	+/-20
Tetrachlorometaxylene	A	40.000	34.9	1.1944880	1.0436010		-12.6	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.3	1.2182710	1.1373730		-6.6	+/-20
Tetrachlorometaxylene [2C]	A	40.000	35.8	1.1737210	1.0492890		-10.6	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242314ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV2	Injection Time:	15:24
Sequence Name:	AR1242SCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	204	0.0395340	0.0322254		-18.5	+/-20
Aroclor 1242 [2C]	A	250.00	221	0.0423092	0.0365983		-11.8	+/-20
Decachlorobiphenyl	A	40.000	37.0	0.7878687	0.7290534		-7.5	+/-20
Tetrachlorometaxylene	A	40.000	33.6	1.1944880	1.0041320		-15.9	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.3	1.2182710	1.2285170		0.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	34.5	1.1737210	1.0131510		-13.7	+/-20

* Values outside of QC limits

* Values outside of QC limits

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242315ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV3	Injection Time:	15:45
Sequence Name:	AR1248SCV3		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	249	0.0574755	0.0572474		-0.2	+/-20
Aroclor 1248 [2C]	A	250.00	248	0.0444270	0.0440936		-0.8	+/-20
Decachlorobiphenyl	A	40.000	33.1	0.7878687	0.6527336		-17.2	+/-20
Tetrachlorometaxylene	A	40.000	34.9	1.1944880	1.0413820		-12.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	36.3	1.2182710	1.1066400		-9.2	+/-20
Tetrachlorometaxylene [2C]	A	40.000	36.4	1.1737210	1.0676190		-9.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242316ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV4	Injection Time:	16:06
Sequence Name:	AR1254SCV4		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	235	0.0662949	0.0622529		-5.9	+/-20
Aroclor 1254 [2C]	A	250.00	240	0.0763106	0.0731447		-4.0	+/-20
Decachlorobiphenyl	A	40.000	34.6	0.7878687	0.6823832		-13.4	+/-20
Tetrachlorometaxylene	A	40.000	36.1	1.1944880	1.0787610		-9.7	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.9	1.2182710	1.1548440		-5.2	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.1	1.1737210	1.0880920		-7.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242317ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV5	Injection Time:	16:27
Sequence Name:	AR2162SCV5		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1221	A	250.00	258	0.0165758	0.0169561		3.3	+/-20
Aroclor 1221 [2C]	A	250.00	256	0.0150798	0.0153801		2.5	+/-20
Aroclor 1262	A	250.00	247	0.0366596	0.0361658		-1.2	+/-20
Aroclor 1262 [2C]	A	250.00	249	0.0739760	0.0737876		-0.3	+/-20
Decachlorobiphenyl	A	40.000	34.4	0.7878687	0.6780614		-13.9	+/-20
Tetrachlorometaxylene	A	40.000	36.0	1.1944880	1.0756080		-10.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.9	1.2182710	1.1528740		-5.4	+/-20
Tetrachlorometaxylene [2C]	A	40.000	36.6	1.1737210	1.0753820		-8.4	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	02242318ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLB0342	Injection Date:	02/24/23
Lab Sample ID:	SLB0342-SCV6	Injection Time:	16:48
Sequence Name:	AR3268SCV6		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1232	A	250.00	245	0.0169039	0.0169981		-2.0	+/-20
Aroclor 1232 [2C]	A	250.00	259	0.0192023	0.0199392		3.4	+/-20
Aroclor 1268	A	250.00	246	0.1442124	0.1418626		-1.4	+/-20
Aroclor 1268 [2C]	A	250.00	249	0.2386862	0.2369075		-0.6	+/-20
Decachlorobiphenyl	A	40.000	51.3	0.7878687	1.0108790		28.3	+/-20
Tetrachlorometaxylene	A	40.000	37.1	1.1944880	1.1067180		-7.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	56.4	1.2182710	1.7182840		41.0	+/-20
Tetrachlorometaxylene [2C]	A	40.000	38.2	1.1737210	1.1196760		-4.6	+/-20

* Values outside of QC limits

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142309ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV1	Injection Time:	12:17
Sequence Name:	AR1248CCV1		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	242	0.0574755	0.0561453		-3.4	+/-20
Aroclor-1248 (1)	A	250.00	235		0.0366815			
Aroclor-1248 (2)	A	250.00	240		0.0476797			
Aroclor-1248 (3)	A	250.00	253		0.0947728			
Aroclor-1248 (4)	A	250.00	238		0.0454473			
Aroclor 1248 [2C]	A	250.00	230	0.0444270	0.0407373		-8.2	+/-20
Aroclor-1248 (1) [2C]	A	250.00	229		0.0349667			
Aroclor-1248 (2) [2C]	A	250.00	236		0.0373524			
Aroclor-1248 (3) [2C]	A	250.00	227		0.0412153			
Aroclor-1248 (4) [2C]	A	250.00	226		0.0494147			
Decachlorobiphenyl	A	40.000	38.1	0.7878687	0.7512431		-4.8	+/-20
Tetrachlorometaxylene	A	40.000	36.9	1.1944880	1.1016760		-7.8	+/-20
Decachlorobiphenyl [2C]	A	40.000	38.1	1.2182710	1.1613650		-4.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.4	1.1737210	1.0976230		-6.5	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142309ECD7.D
Data file 2: /230314.b/230314.b/03142309ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV1
Client ID:
Injection Date: 14-MAR-2023 12:17
Report Date: 03/14/2023 16:24
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	237664	5.690	-0.000	186535	36.9	37.4	1.4	Tetrachloro-m-xylene
13.893	0.000	253297	14.120	0.001	273304	38.1	38.1	0.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	431459	-36.0
Hexabromobiphenyl	1429847	674341	-52.8 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	339889	7.8
Hexabromobiphenyl	513946	470660	-8.4

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.408	0.000	49458	234.9	1	8.311	0.000	37140	228.9
Aroclor-1248	2	8.584	0.000	64287	240.2	2	8.718	0.000	39674	236.4
Aroclor-1248	3	8.996	0.000	127783	253.1	3	9.179	0.000	43777	226.7
Aroclor-1248	4	9.289	0.000	61277	238.4	4	9.603	0.000	52486	226.4
Total Col1Ave (4 peaks):					241.7	Total Col2Ave (4 peaks):				229.6 RPD = 5
Corrected Ave (3 peaks):					237.9	Corrected Ave (3 peaks):				227.3 RPD = 5
CalAmt %D:					-3.3	CalAmt %D:				-8.2

Total PCB Area Col1 (5.907 - 13.793) = 1000940 Col1 Total PCB = 0.2 ppm*

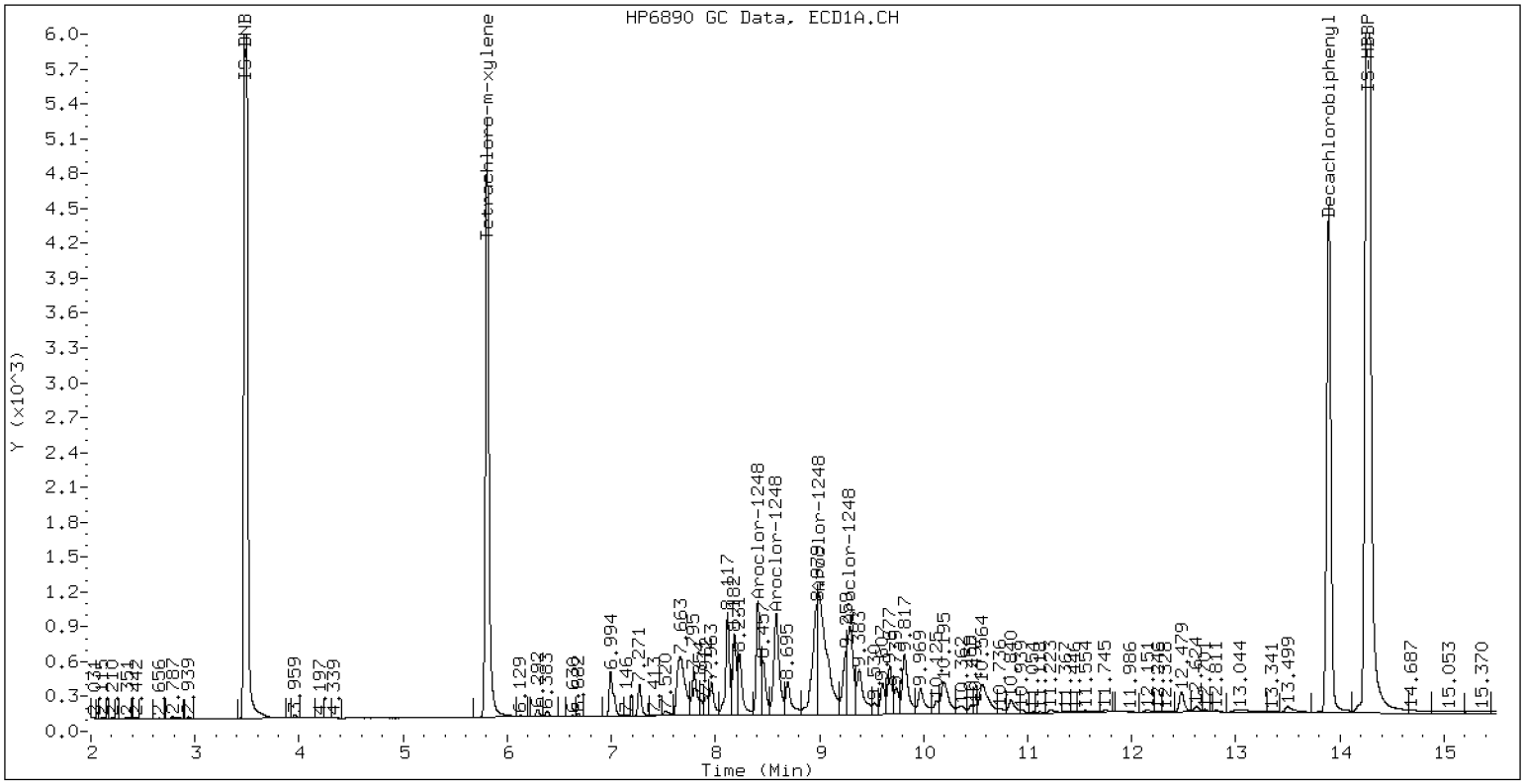
Total PCB Area Col2 (5.790 - 14.019) = 754529 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

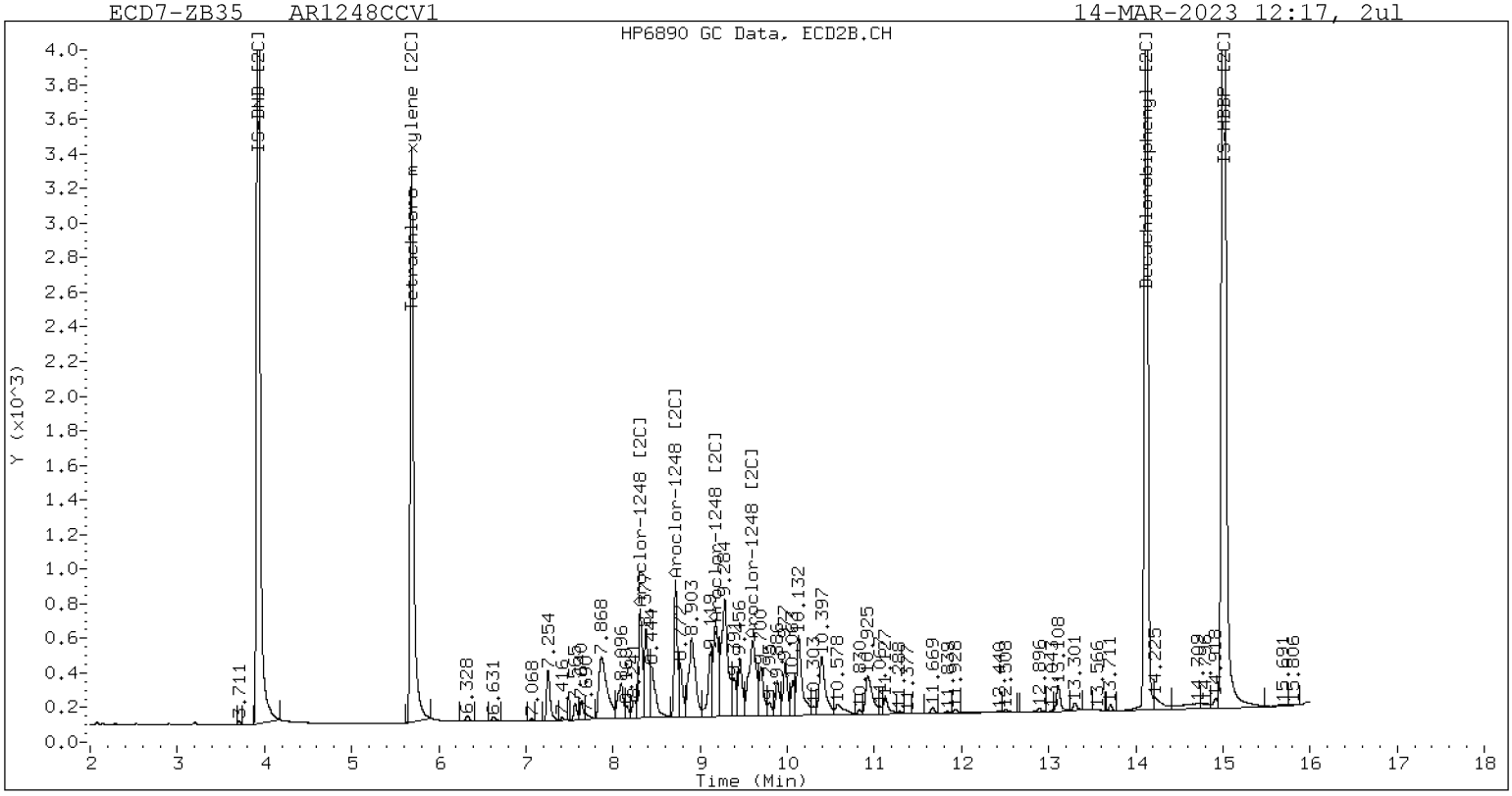
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV1 14-MAR-2023 12:17, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248CCV1 14-MAR-2023 12:17, 2ul

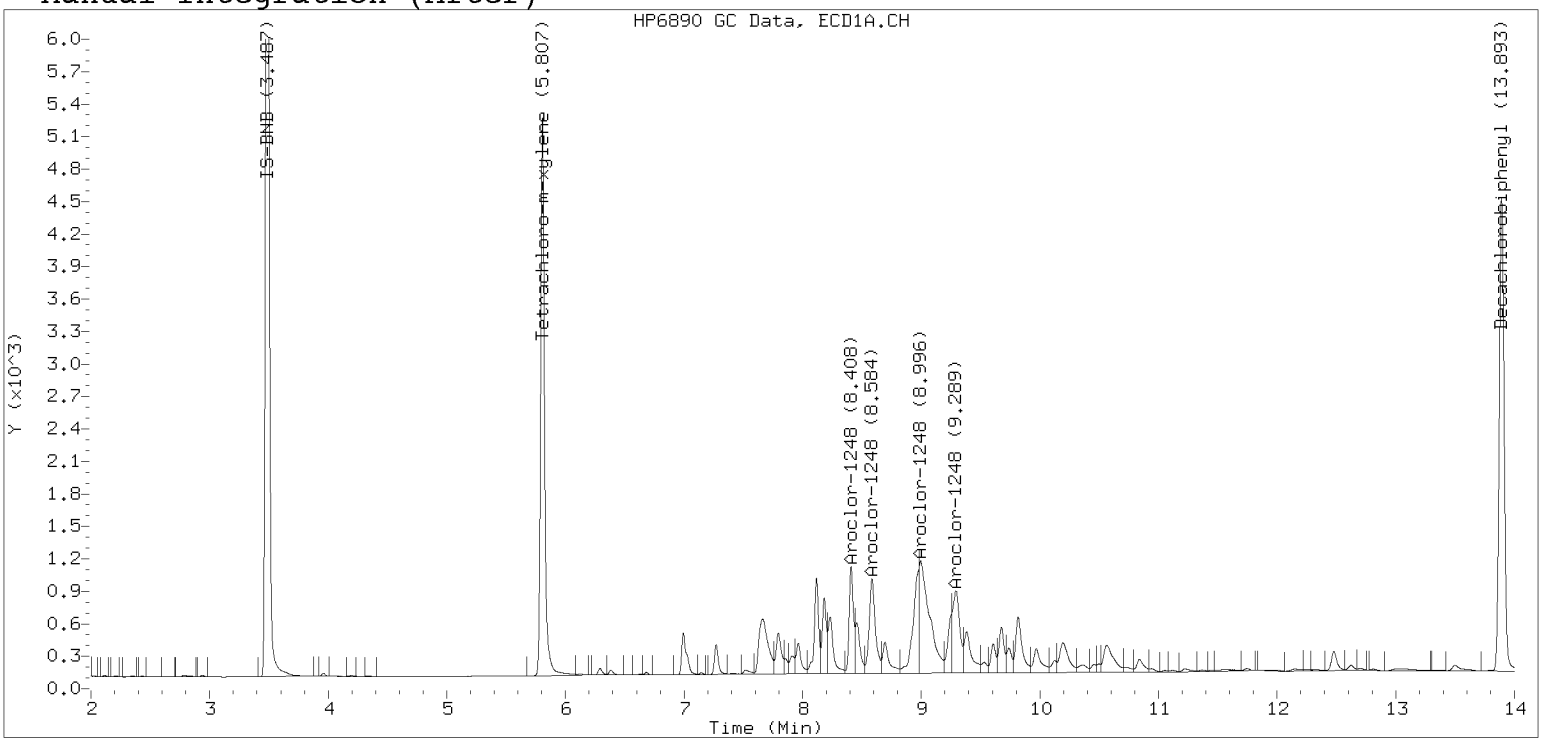


ZB-35 Manual Integration: NO

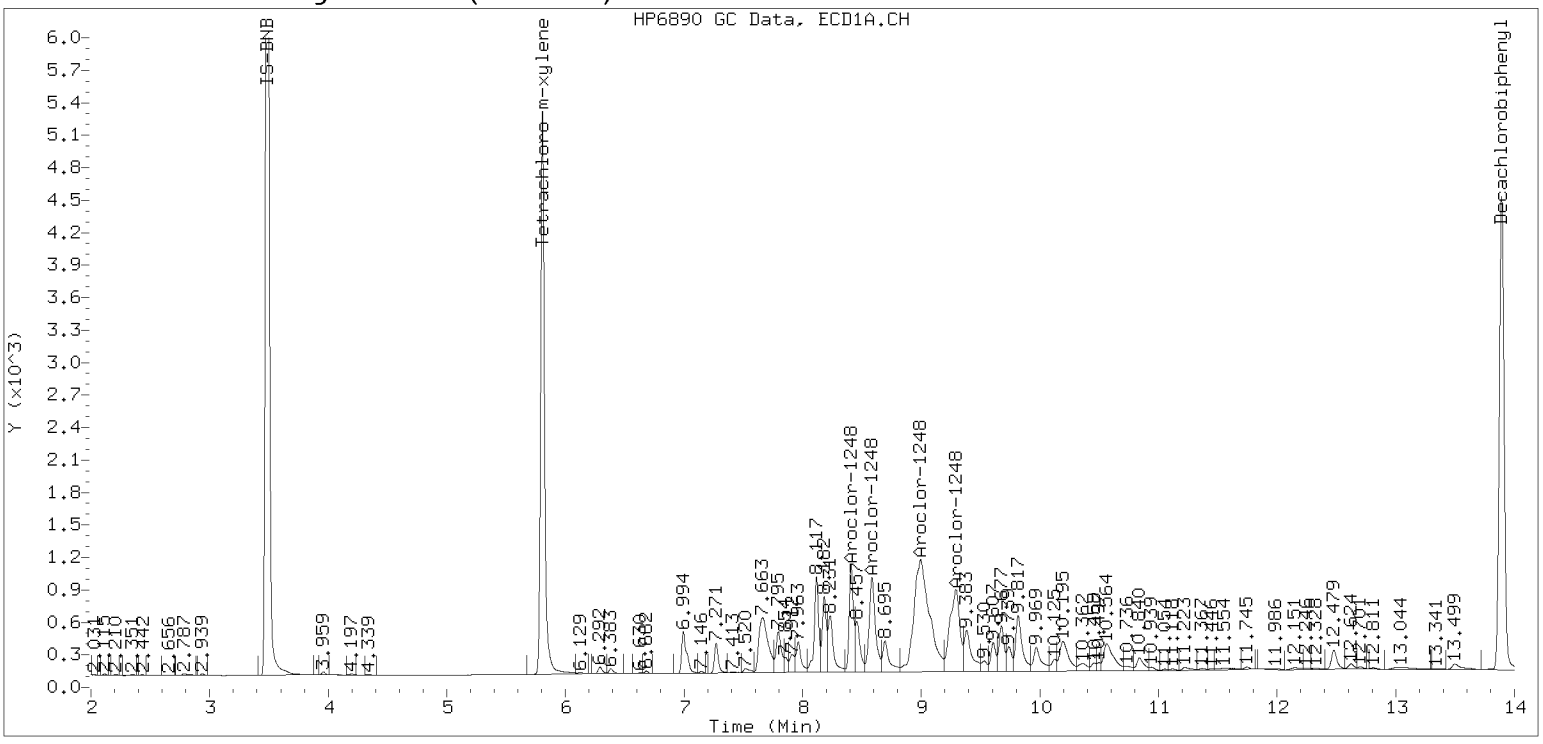
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230314.b/03142309ECD7.D Injection Date: 14-MAR-2023 12:17

Manual Integration (After)



Processed Integration (Before)



CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142310ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV2	Injection Time:	12:37
Sequence Name:	AR1660CCV2		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1016	A	250.00	293	0.0493662	0.0542941		17.1	+/-20
Aroclor-1016 (1)	A	250.00	252	0.0303852	0.0306709		0.8	
Aroclor-1016 (2)	A	250.00	245	0.0926308	0.0907687		-2.0	
Aroclor-1016 (3)	A	250.00	265	0.0452180	0.0479193		6.0	
Aroclor-1016 (4)	A	250.00	409	0.0292307	0.0478175		63.6	
Aroclor 1016 [2C]	A	250.00	259	0.0545857	0.0562870		3.6	+/-20
Aroclor-1016 (1) [2C]	A	250.00	239	0.0468313	0.0447028		-4.4	
Aroclor-1016 (2) [2C]	A	250.00	256	0.0949676	0.0971297		2.4	
Aroclor-1016 (3) [2C]	A	250.00	286	0.0428922	0.0490107		14.4	
Aroclor-1016 (4) [2C]	A	250.00	255	0.0336515	0.0343046		2.0	
Aroclor 1260	A	250.00	292	0.0392091	0.0459202		16.6	+/-20
Aroclor-1260 (1)	A	250.00	276	0.0287785	0.0317433		10.4	
Aroclor-1260 (2)	A	250.00	309	0.0300690	0.0371726		23.6	
Aroclor-1260 (3)	A	250.00	299	0.0797517	0.0954267		19.6	
Aroclor-1260 (4)	A	250.00	279	0.0401599	0.0448370		11.6	
Aroclor-1260 (5)	A	250.00	295	0.0172866	0.0204213		18.0	
Aroclor 1260 [2C]	A	250.00	250	0.0699688	0.0700936		-0.2	+/-20
Aroclor-1260 (1) [2C]	A	250.00	265	0.0470406	0.0498463		6.0	
Aroclor-1260 (2) [2C]	A	250.00	249	0.1200523	0.1197847		-0.4	
Aroclor-1260 (3) [2C]	A	250.00	234	0.0318590	0.0297610		-6.4	
Aroclor-1260 (4) [2C]	A	250.00	250	0.0809231	0.0809823		0.0	
Decachlorobiphenyl	A	40.000	40.5	0.7878687	0.7981906		1.3	+/-20
Tetrachlorometaxylene	A	40.000	39.5	1.1944880	1.1806580		-1.3	+/-20
Decachlorobiphenyl [2C]	A	40.000	40.6	1.2182710	1.2351530		1.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	38.9	1.1737210	1.1420280		-2.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142310ECD7.D
Data file 2: /230314.b/230314.b/03142310ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV2
Client ID:
Injection Date: 14-MAR-2023 12:37
Report Date: 03/14/2023 16:24
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	243235	5.689	-0.001	185656	39.5	38.9	1.6	Tetrachloro-m-xylene
13.894	0.001	293446	14.120	0.001	295955	40.5	40.6	0.1	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	412033	-38.8
Hexabromobiphenyl	1429847	735278	-48.6

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	325134	3.1
Hexabromobiphenyl	513946	479220	-6.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.000	39492	252.4	1	7.257	0.000	45420	238.6
Aroclor-1016	2	7.661	0.000	116874	245.0	2	7.869	-0.000	98688	255.7
Aroclor-1016	3	7.796	0.000	61701	264.9	3	8.068	-0.001	49797	285.7
Aroclor-1016	4	8.409	0.000	61570	409.0	4	8.312	0.000	34855	254.9
Total Col1Ave (4 peaks):					292.8	Total Col2Ave (4 peaks):				258.7 RPD = 12
Corrected Ave (3 peaks):					254.1	Corrected Ave (3 peaks):				249.7 RPD = 2
CalAmt %D:					17.1	CalAmt %D:				3.5
Aroclor-1260	1	11.049	0.000	72938	275.8	1	11.656	-0.001	74648	264.9
Aroclor-1260	2	11.365	0.000	85413	309.1	2	11.924	0.001	179385	249.4
Aroclor-1260	3	11.740	0.000	219266	299.1	3	12.439	-0.001	44569	233.5
Aroclor-1260	4	12.147	0.000	103024	279.1	4	12.506	-0.001	121276	250.2
Aroclor-1260	5	12.247	0.000	46923	295.3	NS	---			----
Total Col1Ave (5 peaks):					291.7	Total Col2Ave (4 peaks):				249.5 RPD = 16
Corrected Ave (4 peaks):					287.3	Corrected Ave (3 peaks):				244.4 RPD = 16
CalAmt %D:					16.7	CalAmt %D:				-0.2

Total PCB Area Col1 (5.907 - 13.793) = 2381161 Col1 Total PCB = 0.5 ppm*

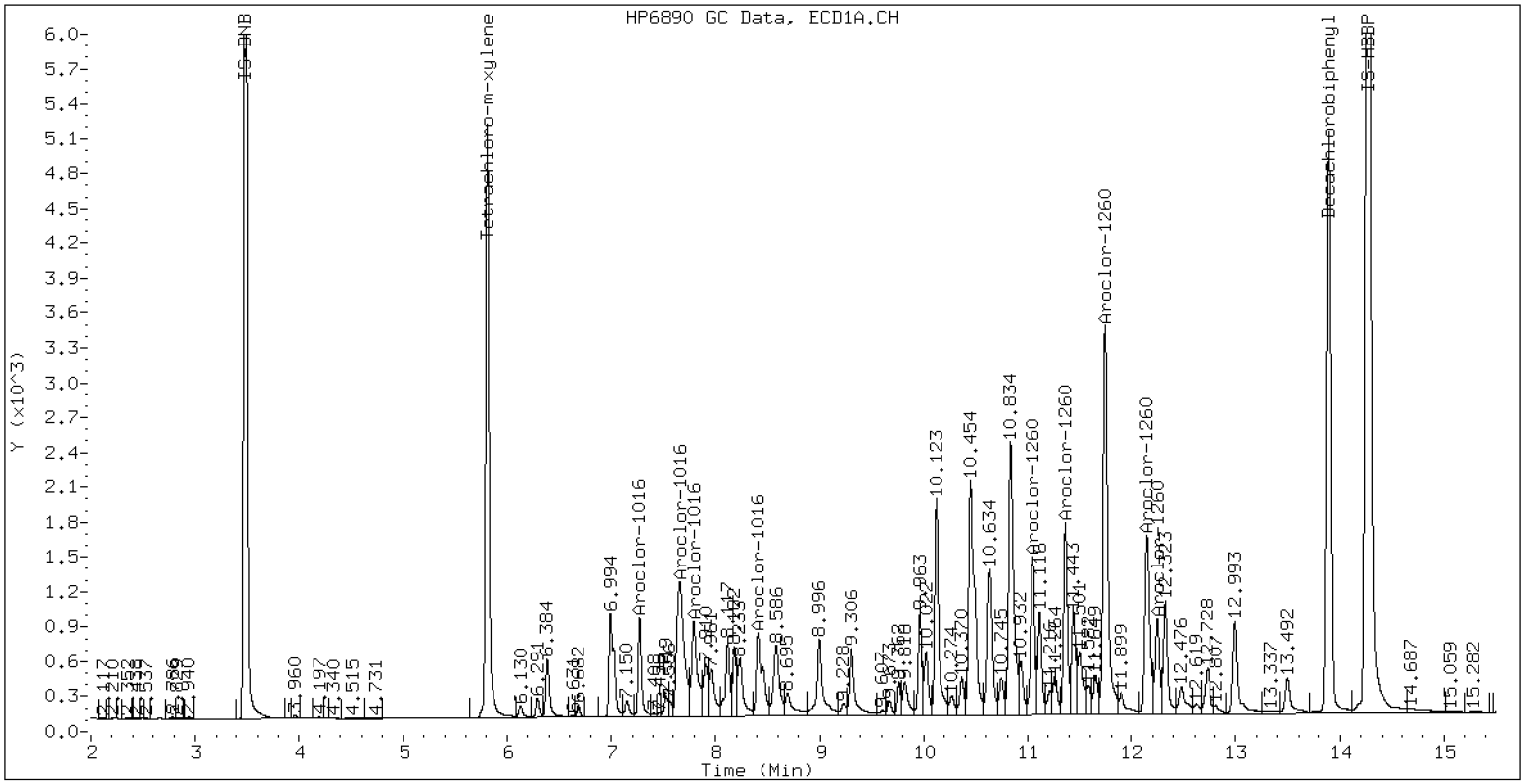
Total PCB Area Col2 (5.790 - 14.019) = 1770252 Col2 Total PCB = 0.5 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

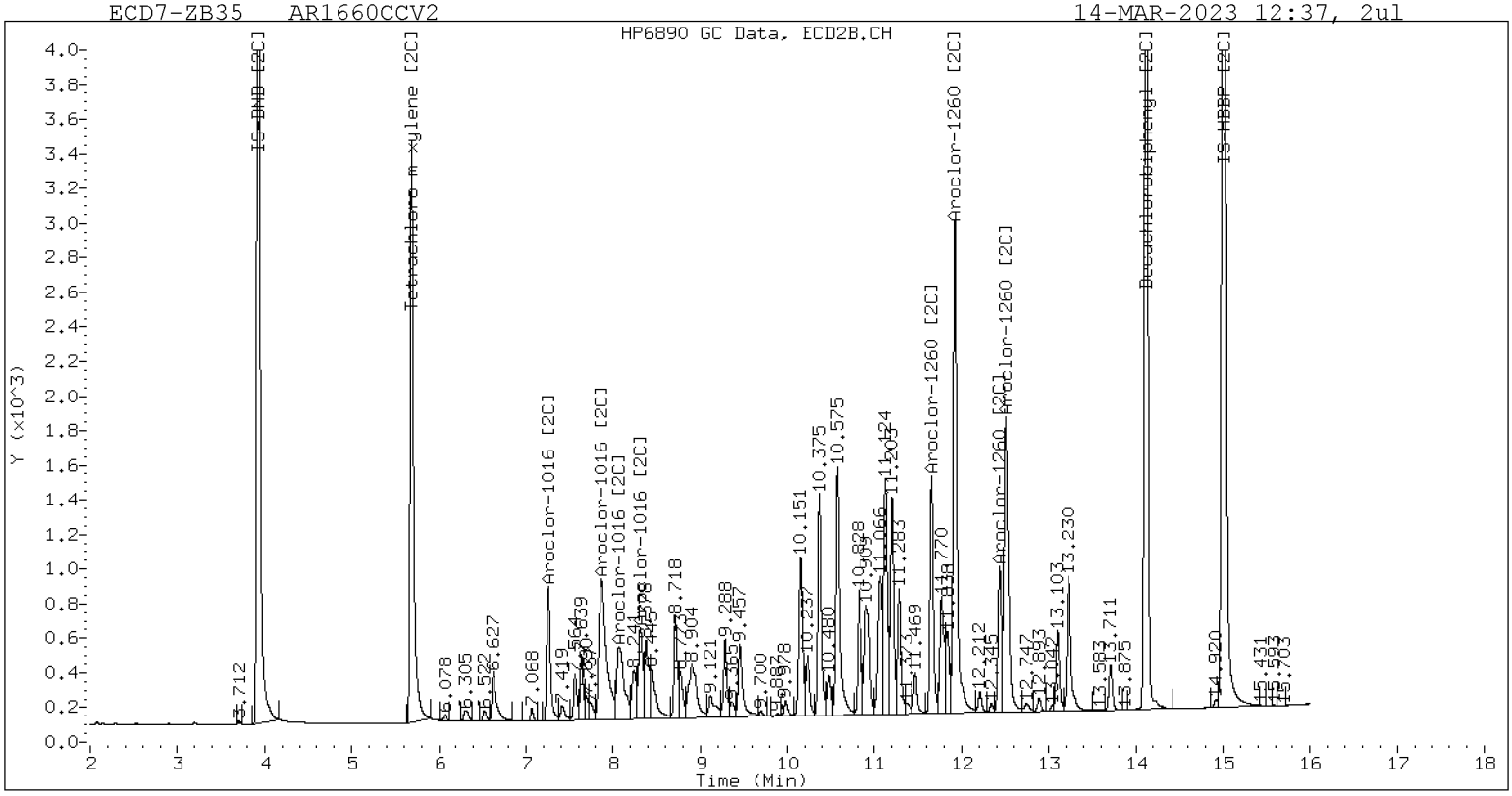
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV2 14-MAR-2023 12:37, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV2 14-MAR-2023 12:37, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142316ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV3	Injection Time:	14:43
Sequence Name:	AR1242CCV3		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1242	A	250.00	232	0.0395340	0.0366316		-7.1	+/-20
Aroclor-1242 (1)	A	250.00	245		0.0243392			
Aroclor-1242 (2)	A	250.00	231		0.0696044			
Aroclor-1242 (3)	A	250.00	226		0.0211841			
Aroclor-1242 (4)	A	250.00	227		0.0313988			
Aroclor 1242 [2C]	A	250.00	223	0.0423092	0.0379749		-11.0	+/-20
Aroclor-1242 (1) [2C]	A	250.00	234		0.0348354			
Aroclor-1242 (2) [2C]	A	250.00	227		0.0709556			
Aroclor-1242 (3) [2C]	A	250.00	220		0.0213827			
Aroclor-1242 (4) [2C]	A	250.00	209		0.0247259			
Decachlorobiphenyl	A	40.000	38.8	0.7878687	0.7647164		-3.0	+/-20
Tetrachlorometaxylene	A	40.000	45.6	1.1944880	1.3605610		14.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.3	1.2182710	1.1360450		-6.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	45.2	1.1737210	1.3279420		13.0	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142316ECD7.D
Data file 2: /230314.b/230314.b/03142316ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1242.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1242CCV3
Client ID:
Injection Date: 14-MAR-2023 14:43
Report Date: 03/14/2023 16:24
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	288471	5.688	-0.002	226375	45.6	45.3	0.7	Tetrachloro-m-xylene
13.894	0.001	168381	14.120	0.001	201126	38.8	37.3	4.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	424047	-37.1
Hexabromobiphenyl	1429847	440375	-69.2 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	340941	8.1
Hexabromobiphenyl	513946	354081	-31.1

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1242	1	7.270	-0.000	32253	245.4	1	7.256	0.000	37115	234.3
Aroclor-1242	2	7.664	0.008	92236	231.1	2	7.869	0.000	75599	227.0
Aroclor-1242	3	8.409	0.004	28072	226.1	3	9.180	0.000	22782	219.9
Aroclor-1242	4	8.586	0.007	41608	226.7	4	9.612	0.000	26344	208.7
Total Col1Ave (4 peaks):					232.3	Total Col2Ave (4 peaks):				222.5 RPD = 4
Corrected Ave (3 peaks):					228.0	Corrected Ave (3 peaks):				218.5 RPD = 4
CalAmt %D:					-7.1	CalAmt %D:				-11.0

Total PCB Area Col1 (5.907 - 13.793) = 748222 Col1 Total PCB = 0.1 ppm*

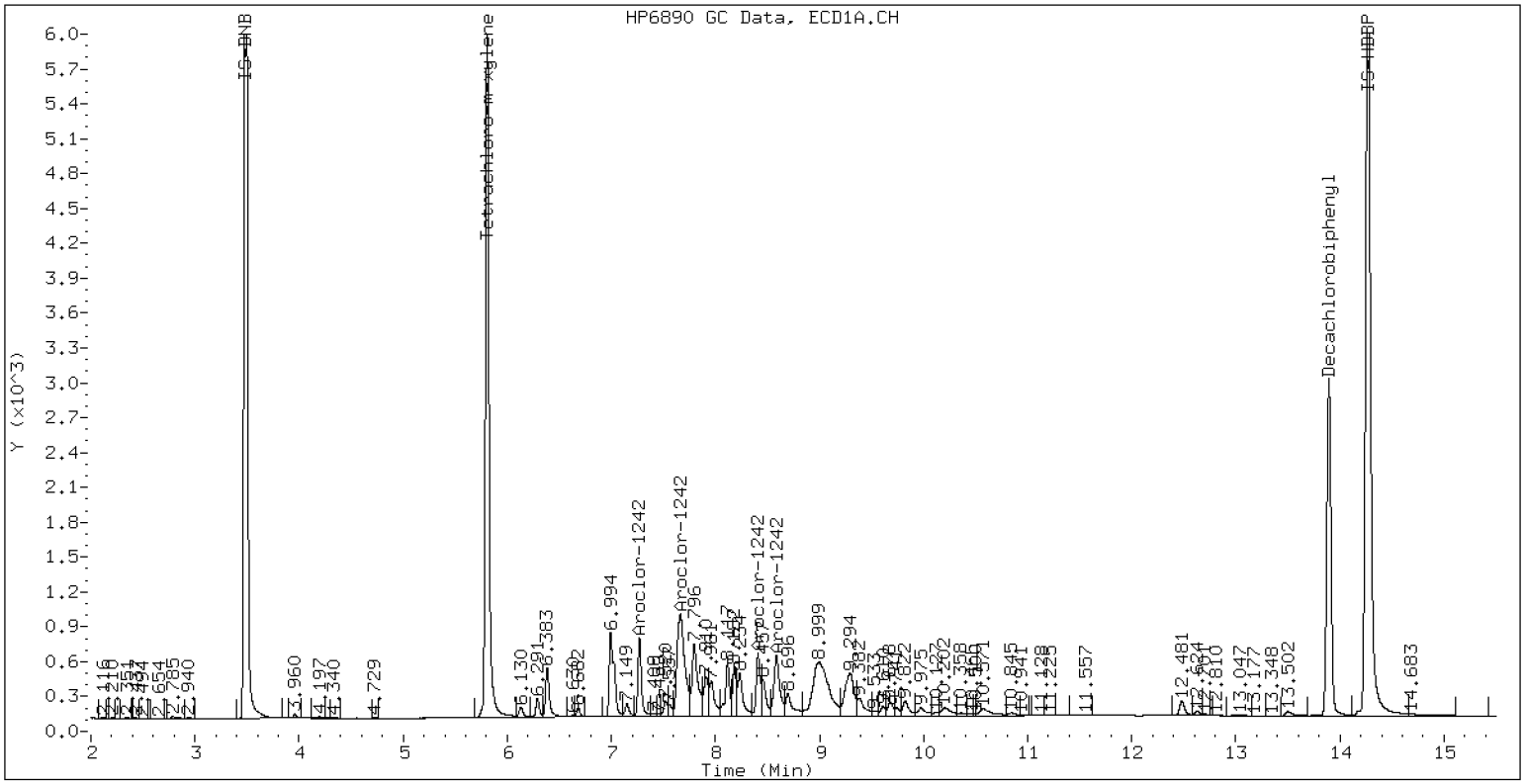
Total PCB Area Col2 (5.790 - 14.019) = 545865 Col2 Total PCB = 0.1 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

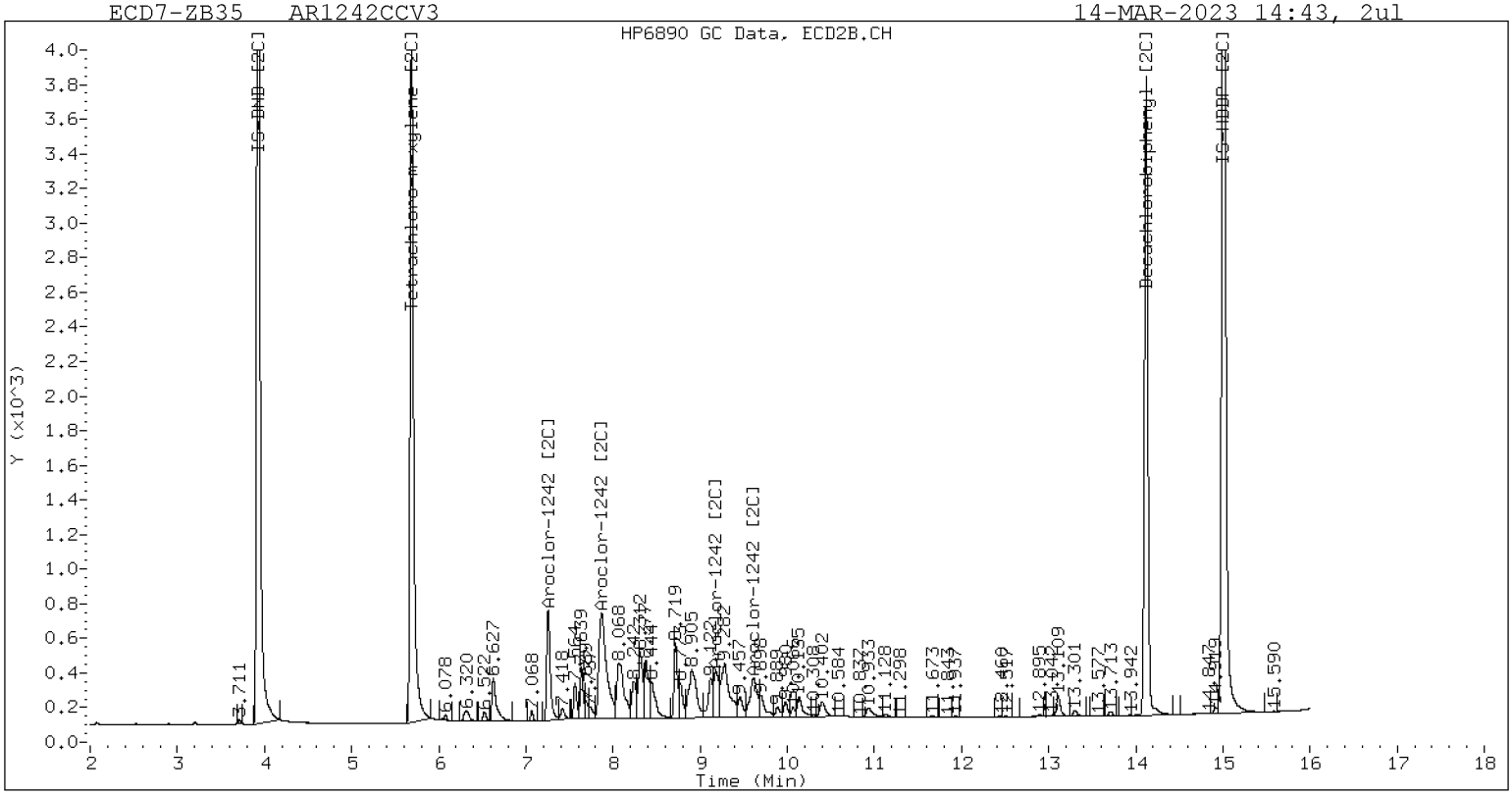
PCB Dual Column Chromatograms

ECD7-ZB5 AR1242CCV3 14-MAR-2023 14:43, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1242CCV3 14-MAR-2023 14:43, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142317ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV4	Injection Time:	15:04
Sequence Name:	AR1660CCV4		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	250	0.0493662	0.0491426		0.0	+/-20	
Aroclor-1016 (1)	A	250.00	250	0.0303852	0.0304268		0.0		
Aroclor-1016 (2)	A	250.00	242	0.0926308	0.0898044		-3.2		
Aroclor-1016 (3)	A	250.00	266	0.0452180	0.0480813		6.4		
Aroclor-1016 (4)	A	250.00	242	0.0292307	0.0282579		-3.2		
Aroclor 1016 [2C]	A	250.00	258	0.0545857	0.0561423		3.2	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	239	0.0468313	0.0447344		-4.4		
Aroclor-1016 (2) [2C]	A	250.00	255	0.0949676	0.0968755		2.0		
Aroclor-1016 (3) [2C]	A	250.00	286	0.0428922	0.0490267		14.4		
Aroclor-1016 (4) [2C]	A	250.00	252	0.0336515	0.0339326		0.8		
Aroclor 1260	A	250.00	345	0.0392091	0.0541443		38.2	+/-20	*
Aroclor-1260 (1)	A	250.00	337	0.0287785	0.0387832		34.8		
Aroclor-1260 (2)	A	250.00	370	0.0300690	0.0444476		48.0		
Aroclor-1260 (3)	A	250.00	349	0.0797517	0.1113072		39.6		
Aroclor-1260 (4)	A	250.00	326	0.0401599	0.0523342		30.4		
Aroclor-1260 (5)	A	250.00	345	0.0172866	0.0238495		38.0		
Aroclor 1260 [2C]	A	250.00	277	0.0699688	0.0778833		10.7	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	296	0.0470406	0.0556506		18.4		
Aroclor-1260 (2) [2C]	A	250.00	280	0.1200523	0.1346282		12.0		
Aroclor-1260 (3) [2C]	A	250.00	258	0.0318590	0.0329041		3.2		
Aroclor-1260 (4) [2C]	A	250.00	273	0.0809231	0.0883503		9.2		
Decachlorobiphenyl	A	40.000	42.4	0.7878687	0.8343393		6.0	+/-20	
Tetrachlorometaxylene	A	40.000	39.8	1.1944880	1.1882820		-0.5	+/-20	
Decachlorobiphenyl [2C]	A	40.000	40.0	1.2182710	1.2185640		0.0	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	39.0	1.1737210	1.1445310		-2.5	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142317ECD7.D
Data file 2: /230314.b/230314.b/03142317ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV4
Client ID:
Injection Date: 14-MAR-2023 15:04
Report Date: 03/14/2023 16:24
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	242296	5.690	0.000	186570	39.8	39.0	2.0	Tetrachloro-m-xylene
13.894	0.000	227259	14.119	0.000	247937	42.4	40.0	5.7	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	407809	-39.5
Hexabromobiphenyl	1429847	544764	-61.9 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	326020	3.4
Hexabromobiphenyl	513946	406933	-20.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.000	38776	250.3	1	7.257	0.000	45576	238.8
Aroclor-1016	2	7.663	0.002	114447	242.4	2	7.869	0.000	98698	255.0
Aroclor-1016	3	7.797	0.001	61275	265.8	3	8.069	0.000	49949	285.8
Aroclor-1016	4	8.409	-0.000	36012	241.7	4	8.311	0.000	34571	252.1
Total Col1Ave (4 peaks):					250.1	Total Col2Ave (4 peaks):				257.9 RPD = 3
Corrected Ave (3 peaks):					244.8	Corrected Ave (3 peaks):				248.6 RPD = 2
CalAmt %D:					0.0	CalAmt %D:				3.2
Aroclor-1260	1	11.048	-0.000	66024	336.9	1	11.657	0.000	70769	295.8
Aroclor-1260	2	11.365	0.000	75667	369.5	2	11.923	0.000	171202	280.4
Aroclor-1260	3	11.740	-0.000	189488	348.9	3	12.440	0.000	41843	258.2
Aroclor-1260	4	12.146	-0.001	89093	325.8	4	12.507	0.000	112352	272.9
Aroclor-1260	5	12.247	-0.000	40601	344.9	NS	---			----
Total Col1Ave (5 peaks):					345.2	Total Col2Ave (4 peaks):				276.8 RPD = 22
Corrected Ave (4 peaks):					339.1	Corrected Ave (3 peaks):				270.5 RPD = 23
CalAmt %D:					38.1	CalAmt %D:				10.7

Total PCB Area Col1 (5.907 - 13.793) = 2174578 Col1 Total PCB = 0.4 ppm*

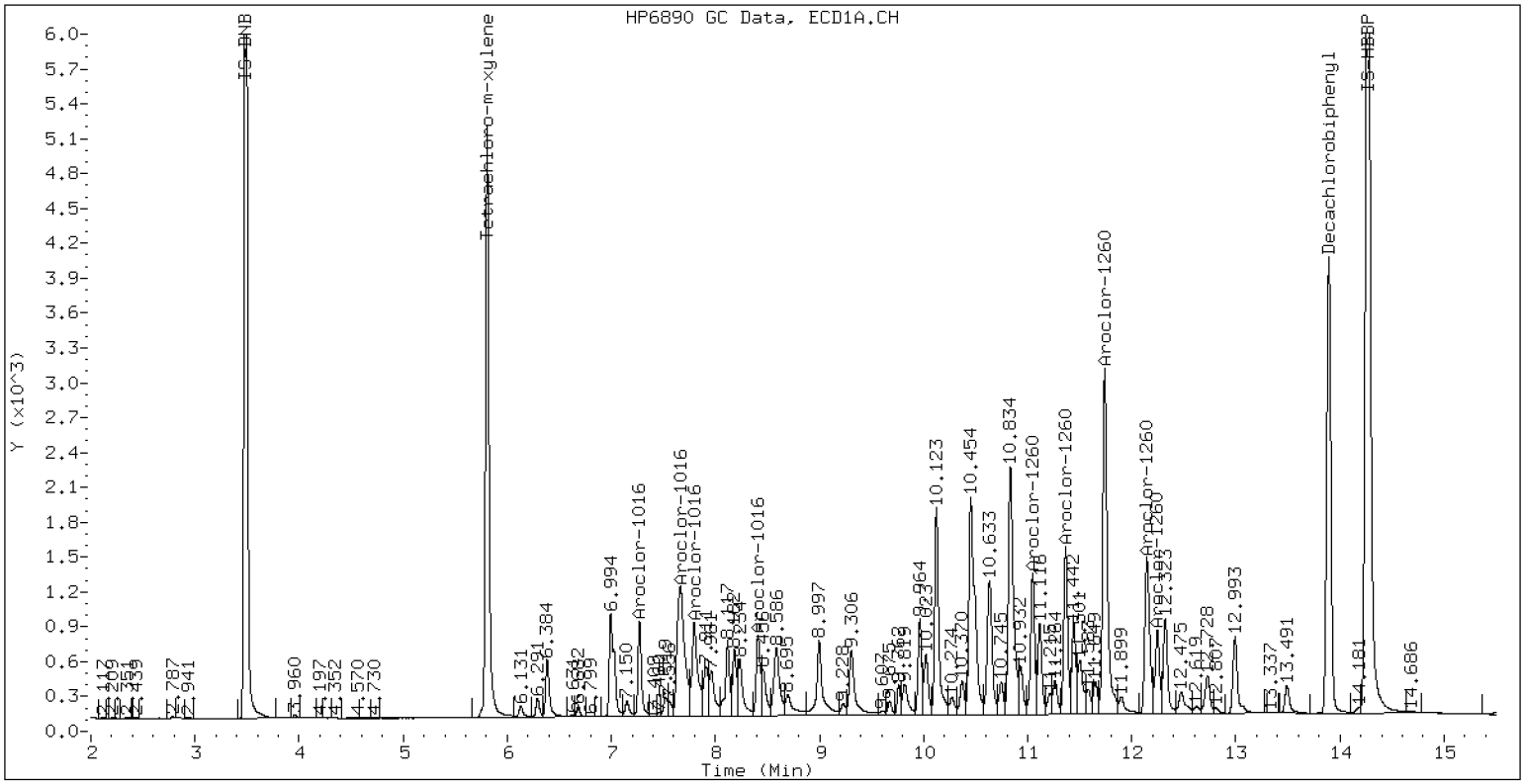
Total PCB Area Col2 (5.790 - 14.019) = 1707663 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

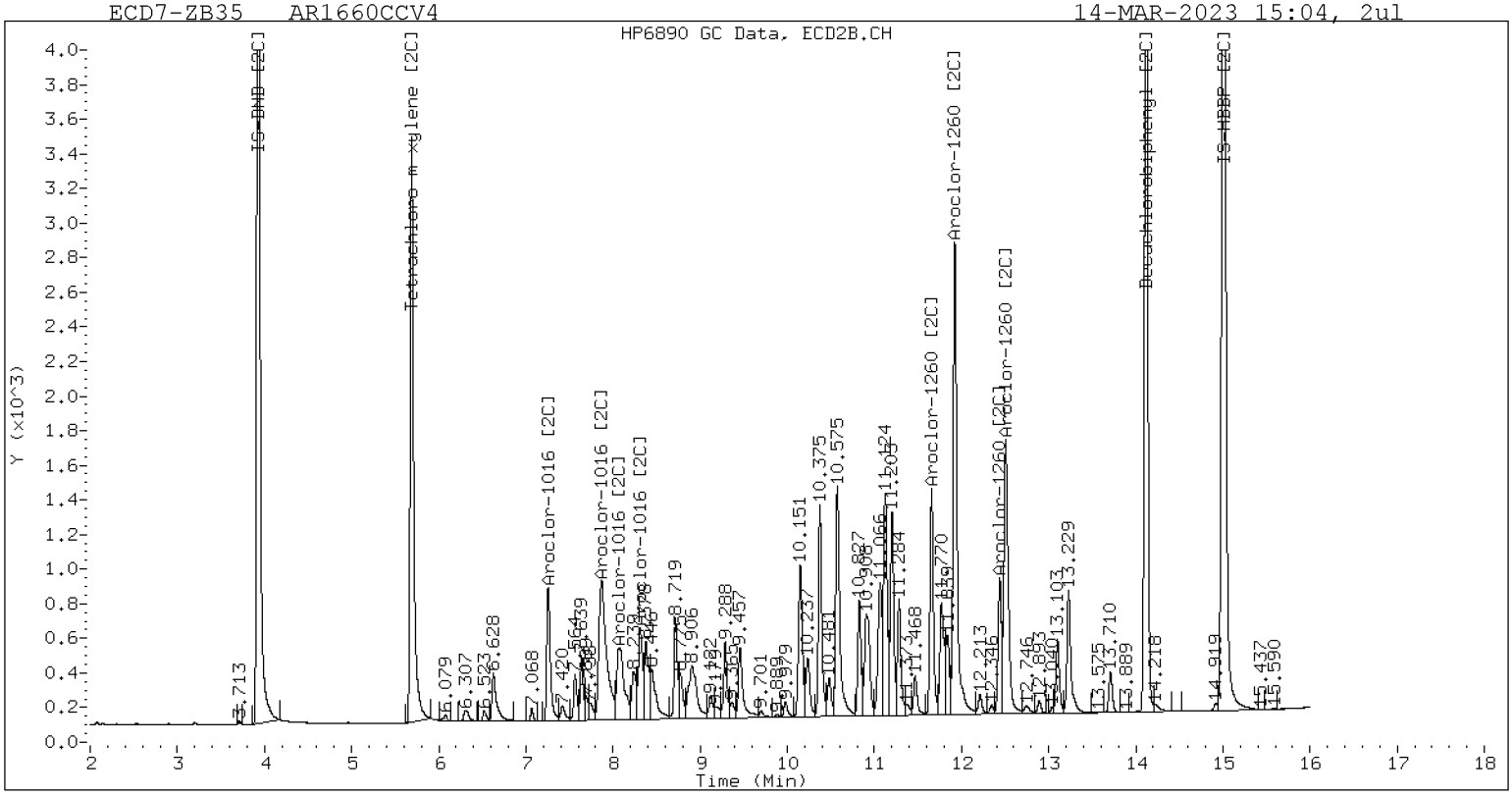
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV4 14-MAR-2023 15:04, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV4 14-MAR-2023 15:04, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142332ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV5	Injection Time:	20:17
Sequence Name:	AR1254CCV5		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1254	A	250.00	219	0.0662949	0.0574219		-12.4	+/-20
Aroclor-1254 (1)	A	250.00	215		0.0692253			
Aroclor-1254 (2)	A	250.00	221		0.0320007			
Aroclor-1254 (3)	A	250.00	212		0.0438835			
Aroclor-1254 (4)	A	250.00	197		0.0790694			
Aroclor-1254 (5)	A	250.00	250		0.0629304			
Aroclor 1254 [2C]	A	250.00	219	0.0763106	0.0670508		-12.2	+/-20
Aroclor-1254 (1) [2C]	A	250.00	228		0.0554830			
Aroclor-1254 (2) [2C]	A	250.00	222		0.0434730			
Aroclor-1254 (3) [2C]	A	250.00	225		0.0953837			
Aroclor-1254 (4) [2C]	A	250.00	216		0.0891741			
Aroclor-1254 (5) [2C]	A	250.00	206		0.0517402			
Decachlorobiphenyl	A	40.000	39.2	0.7878687	0.7721465		-2.0	+/-20
Tetrachlorometaxylene	A	40.000	37.0	1.1944880	1.1043690		-7.5	+/-20
Decachlorobiphenyl [2C]	A	40.000	38.1	1.2182710	1.1614720		-4.8	+/-20
Tetrachlorometaxylene [2C]	A	40.000	37.3	1.1737210	1.0946890		-6.8	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142332ECD7.D
Data file 2: /230314.b/230314.b/03142332ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1254.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1254CCV5
Client ID:
Injection Date: 14-MAR-2023 20:17
Report Date: 03/15/2023 09:29
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	238875	5.689	0.000	189997	37.0	37.3	0.9	Tetrachloro-m-xylene
13.894	-0.000	191851	14.119	0.000	227292	39.2	38.1	2.8	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	432600	-35.8
Hexabromobiphenyl	1429847	496929	-65.2 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	347125	10.1
Hexabromobiphenyl	513946	391386	-23.8

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1254	1	9.302	0.000	93584	215.4	1	9.455	0.000	60186	228.1
Aroclor-1254	2	9.382	0.000	43261	221.4	2	9.975	0.000	47158	222.2
Aroclor-1254	3	9.674	0.000	59325	212.4	3	10.132	0.000	103469	225.3
Aroclor-1254	4	9.814	0.000	106892	196.8	4	10.379	0.000	96733	216.1
Aroclor-1254	5	10.189	0.000	85074	250.0	5	10.574	0.000	56126	205.9

Total Col1Ave (5 peaks): 219.2 Total Col2Ave (5 peaks): 219.5 RPD = 0

Corrected Ave (4 peaks): 211.5 Corrected Ave (4 peaks): 217.4 RPD = 3

CalAmt %D: -12.3 CalAmt %D: -12.2

Total PCB Area Col1 (5.907 - 13.795) = 1190053 Col1 Total PCB = 0.2 ppm*

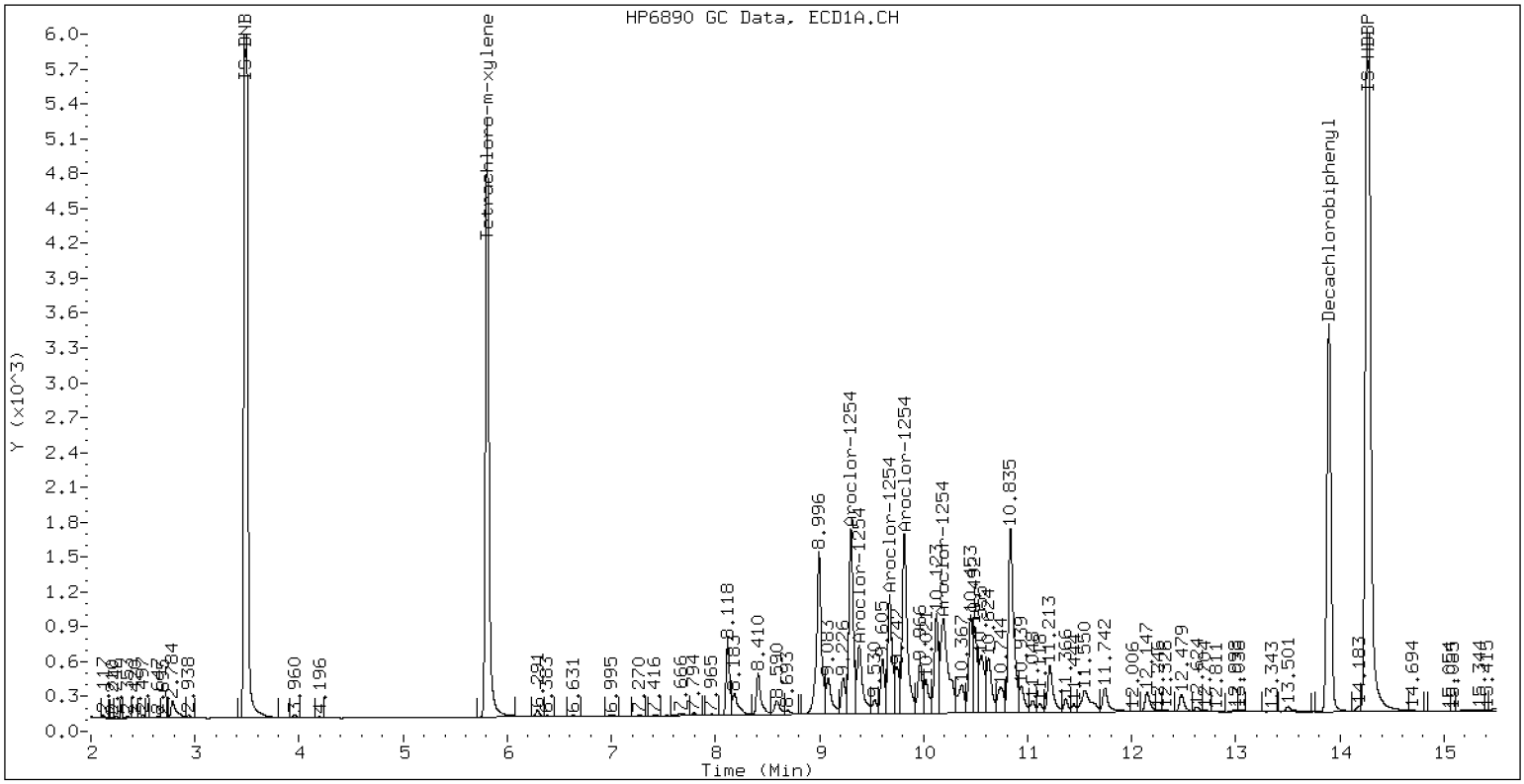
Total PCB Area Col2 (5.788 - 14.019) = 974966 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

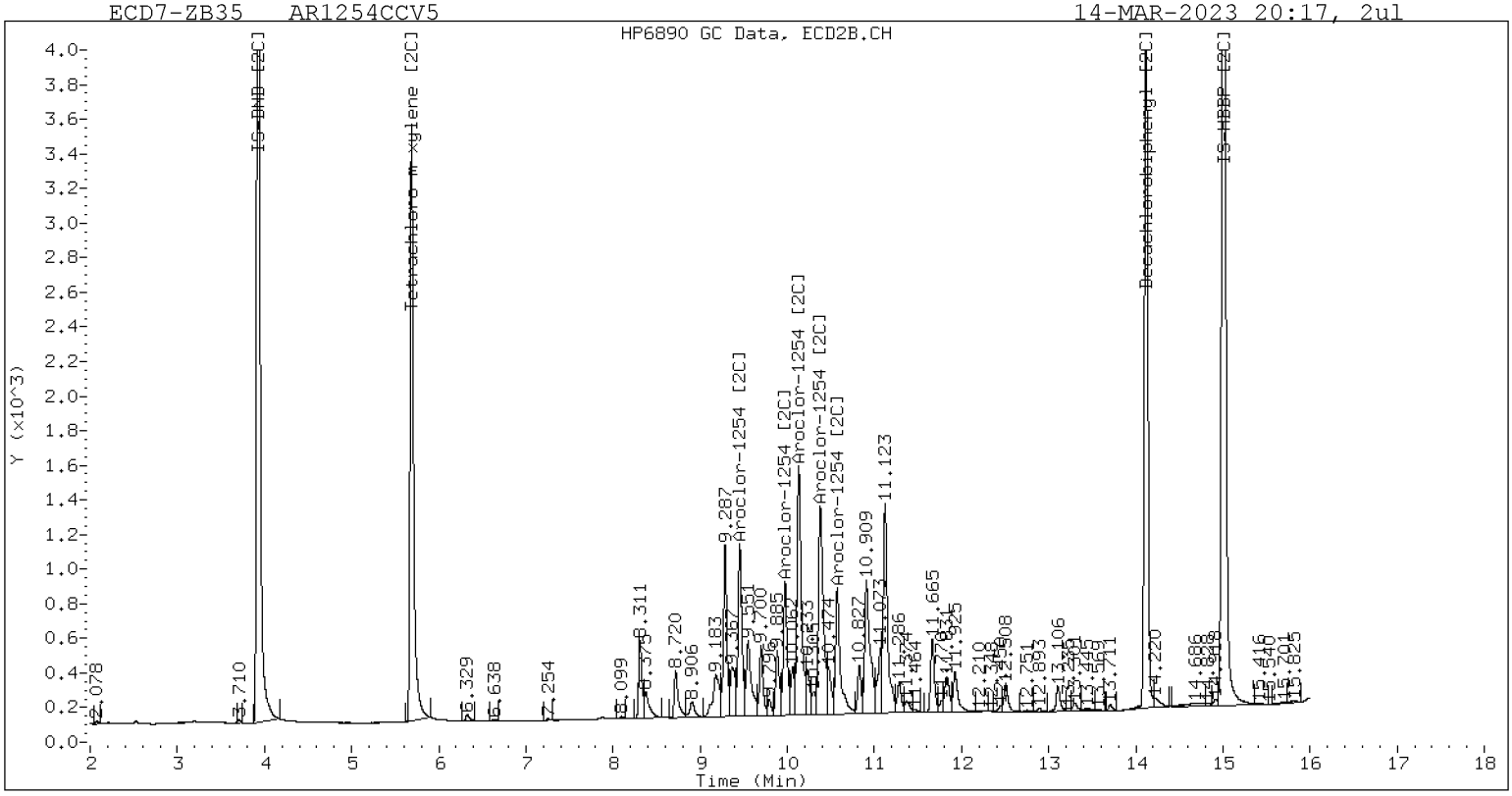
PCB Dual Column Chromatograms

ECD7-ZB5 AR1254CCV5 14-MAR-2023 20:17, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1254CCV5 14-MAR-2023 20:17, 2ul



ZB-35 Manual Integration: NO

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142333ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV6	Injection Time:	20:38
Sequence Name:	AR1660CCV6		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	254	0.0493662	0.0501892		1.7	+/-20	
Aroclor-1016 (1)	A	250.00	254	0.0303852	0.0308739		1.6		
Aroclor-1016 (2)	A	250.00	251	0.0926308	0.0928613		0.4		
Aroclor-1016 (3)	A	250.00	269	0.0452180	0.0486212		7.6		
Aroclor-1016 (4)	A	250.00	243	0.0292307	0.0284004		-2.8		
Aroclor 1016 [2C]	A	250.00	265	0.0545857	0.0578474		6.1	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	245	0.0468313	0.0459377		-2.0		
Aroclor-1016 (2) [2C]	A	250.00	264	0.0949676	0.1003125		5.6		
Aroclor-1016 (3) [2C]	A	250.00	294	0.0428922	0.0503670		17.6		
Aroclor-1016 (4) [2C]	A	250.00	258	0.0336515	0.0347725		3.2		
Aroclor 1260	A	250.00	344	0.0392091	0.0541849		37.5	+/-20	*
Aroclor-1260 (1)	A	250.00	330	0.0287785	0.0380299		32.0		
Aroclor-1260 (2)	A	250.00	370	0.0300690	0.0445036		48.0		
Aroclor-1260 (3)	A	250.00	354	0.0797517	0.1127907		41.6		
Aroclor-1260 (4)	A	250.00	323	0.0401599	0.0519462		29.2		
Aroclor-1260 (5)	A	250.00	342	0.0172866	0.0236539		36.8		
Aroclor 1260 [2C]	A	250.00	271	0.0699688	0.0758939		8.2	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	289	0.0470406	0.0543297		15.6		
Aroclor-1260 (2) [2C]	A	250.00	270	0.1200523	0.1299029		8.0		
Aroclor-1260 (3) [2C]	A	250.00	255	0.0318590	0.0324722		2.0		
Aroclor-1260 (4) [2C]	A	250.00	268	0.0809231	0.0868706		7.2		
Decachlorobiphenyl	A	40.000	42.7	0.7878687	0.8418669		6.8	+/-20	
Tetrachlorometaxylene	A	40.000	40.1	1.1944880	1.1983880		0.3	+/-20	
Decachlorobiphenyl [2C]	A	40.000	41.1	1.2182710	1.2512700		2.8	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	39.7	1.1737210	1.1641090		-0.8	+/-20	

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142333ECD7.D
Data file 2: /230314.b/230314.b/03142333ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV6
Client ID:
Injection Date: 14-MAR-2023 20:38
Report Date: 03/15/2023 09:29
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.809	0.002	252090	5.690	0.002	193561	40.1	39.7	1.1	Tetrachloro-m-xylene
13.894	-0.001	244109	14.119	-0.000	268052	42.7	41.1	4.0	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	420715	-37.6
Hexabromobiphenyl	1429847	579923	-59.4 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	332548	5.5
Hexabromobiphenyl	513946	428448	-16.6

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.271	0.001	40591	254.0	1	7.257	0.001	47739	245.2
Aroclor-1016	2	7.664	0.002	122088	250.6	2	7.869	0.001	104246	264.1
Aroclor-1016	3	7.796	0.001	63924	268.8	3	8.067	0.000	52342	293.6
Aroclor-1016	4	8.409	-0.000	37339	242.9	4	8.312	0.000	36136	258.3
Total Col1Ave (4 peaks):					254.1	Total Col2Ave (4 peaks):				265.3 RPD = 4
Corrected Ave (3 peaks):					249.2	Corrected Ave (3 peaks):				255.9 RPD = 3
CalAmt %D:					1.6	CalAmt %D:				6.1
Aroclor-1260	1	11.049	0.000	68920	330.4	1	11.656	0.000	72742	288.7
Aroclor-1260	2	11.366	0.000	80652	370.0	2	11.923	0.000	173927	270.5
Aroclor-1260	3	11.741	0.000	204406	353.6	3	12.440	-0.001	43477	254.8
Aroclor-1260	4	12.146	-0.001	94140	323.4	4	12.506	0.000	116311	268.4
Aroclor-1260	5	12.247	0.000	42867	342.1	NS	---			----
Total Col1Ave (5 peaks):					343.9	Total Col2Ave (4 peaks):				270.6 RPD = 24
Corrected Ave (4 peaks):					337.3	Corrected Ave (3 peaks):				264.6 RPD = 24
CalAmt %D:					37.6	CalAmt %D:				8.2

Total PCB Area Col1 (5.907 - 13.795) = 2279910 Col1 Total PCB = 0.5 ppm*

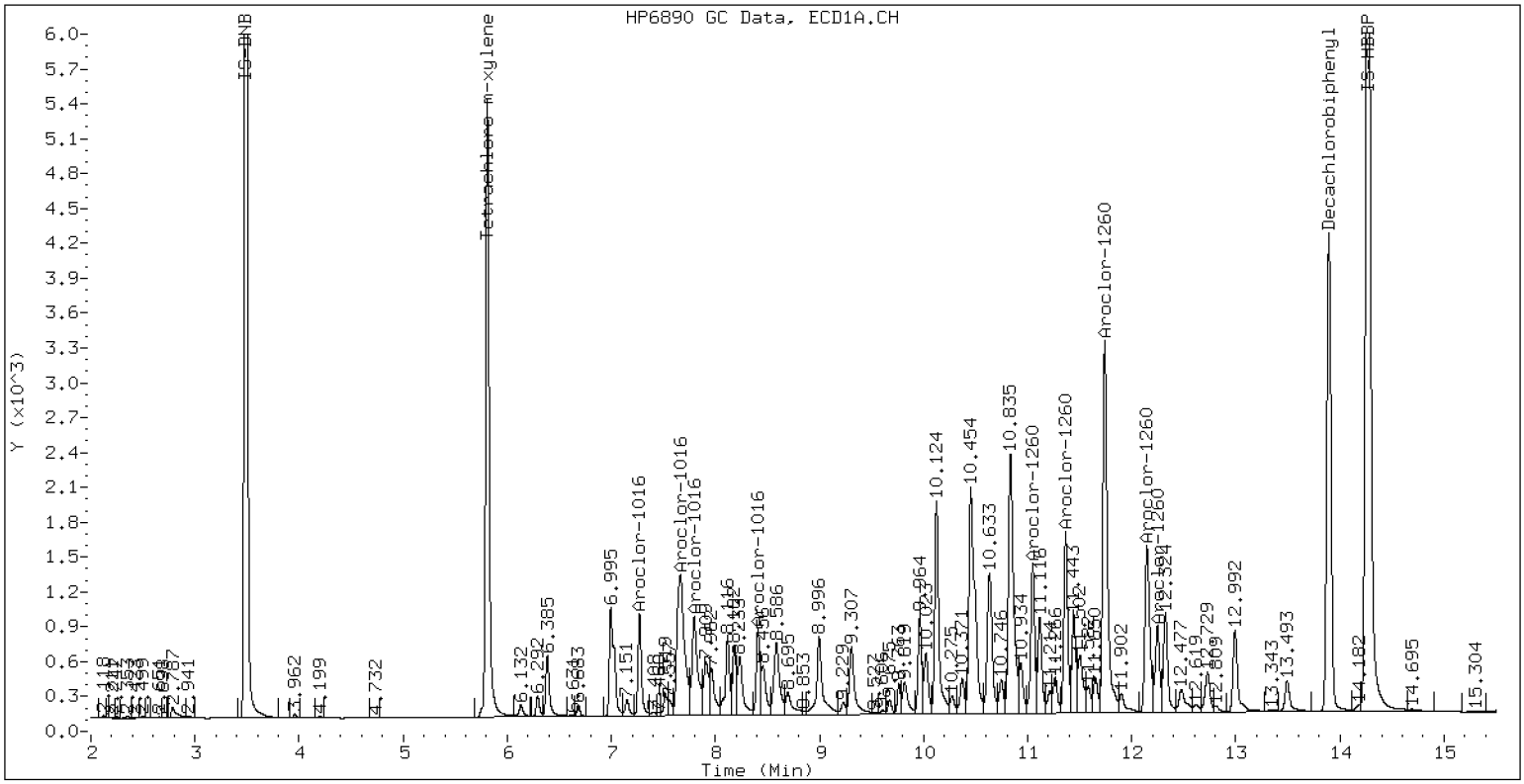
Total PCB Area Col2 (5.788 - 14.019) = 1782169 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

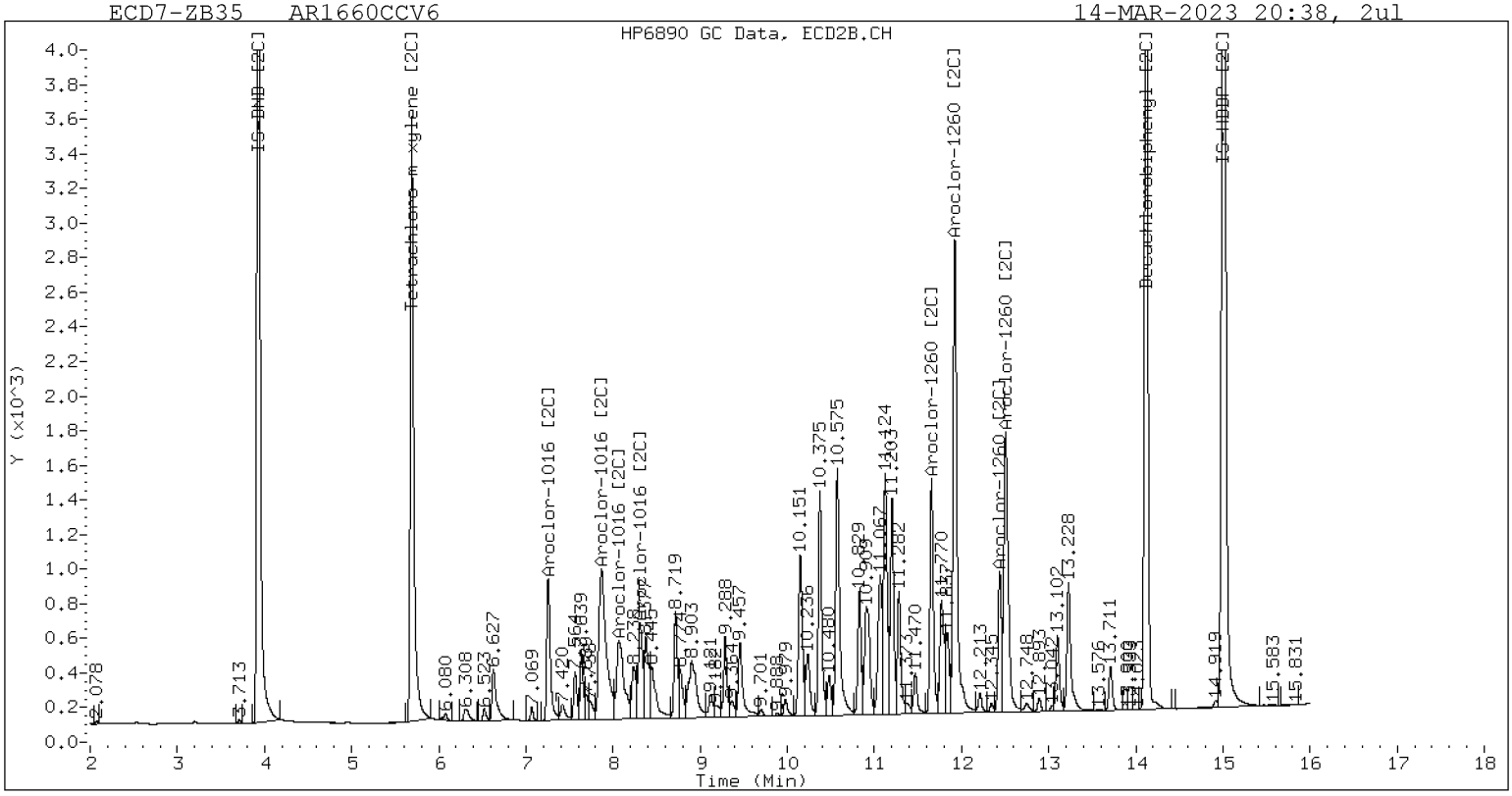
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV6 14-MAR-2023 20:38, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV6 14-MAR-2023 20:38, 2ul



ZB-35 Manual Integration: NO

CONTINUING CALIBRATION CHECK

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142339ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV7	Injection Time:	22:43
Sequence Name:	AR1248CCV7		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
Aroclor 1248	A	250.00	236	0.0574755	0.0552929		-5.7	+/-20
Aroclor-1248 (1)	A	250.00	234		0.0365334			
Aroclor-1248 (2)	A	250.00	239		0.0474504			
Aroclor-1248 (3)	A	250.00	258		0.0967086			
Aroclor-1248 (4)	A	250.00	212		0.0404792			
Aroclor 1248 [2C]	A	250.00	234	0.0444270	0.0416725		-6.3	+/-20
Aroclor-1248 (1) [2C]	A	250.00	230		0.0351202			
Aroclor-1248 (2) [2C]	A	250.00	242		0.0382397			
Aroclor-1248 (3) [2C]	A	250.00	229		0.0417124			
Aroclor-1248 (4) [2C]	A	250.00	236		0.0516175			
Decachlorobiphenyl	A	40.000	39.0	0.7878687	0.7692550		-2.5	+/-20
Tetrachlorometaxylene	A	40.000	37.6	1.1944880	1.1217260		-6.0	+/-20
Decachlorobiphenyl [2C]	A	40.000	37.8	1.2182710	1.1507380		-5.5	+/-20
Tetrachlorometaxylene [2C]	A	40.000	39.1	1.1737210	1.1466990		-2.3	+/-20

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142339ECD7.D
Data file 2: /230314.b/230314.b/03142339ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1248.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1248CCV7
Client ID:
Injection Date: 14-MAR-2023 22:43
Report Date: 03/15/2023 09:29
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.001	247308	5.690	0.001	198438	37.6	39.1	4.0	Tetrachloro-m-xylene
13.895	0.001	198102	14.120	0.001	230830	39.1	37.8	3.3	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	440942	-34.6
Hexabromobiphenyl	1429847	515049	-64.0 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	346103	9.8
Hexabromobiphenyl	513946	401186	-21.9

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col					ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1248	1	8.409	0.000	50341	234.0	1	8.310	0.000	37985	229.9
Aroclor-1248	2	8.584	0.000	65384	239.1	2	8.718	0.000	41359	242.1
Aroclor-1248	3	8.999	0.000	133259	258.3	3	9.175	0.000	45115	229.4
Aroclor-1248	4	9.294	0.000	55778	212.4	4	9.604	0.000	55828	236.5
Total Col1Ave (4 peaks):					235.9	Total Col2Ave (4 peaks):				234.5 RPD = 1
Corrected Ave (3 peaks):					228.5	Corrected Ave (3 peaks):				231.9 RPD = 1
CalAmt %D:					-5.6	CalAmt %D:				-6.2

Total PCB Area Col1 (5.907 - 13.795) = 1000345 Col1 Total PCB = 0.2 ppm*

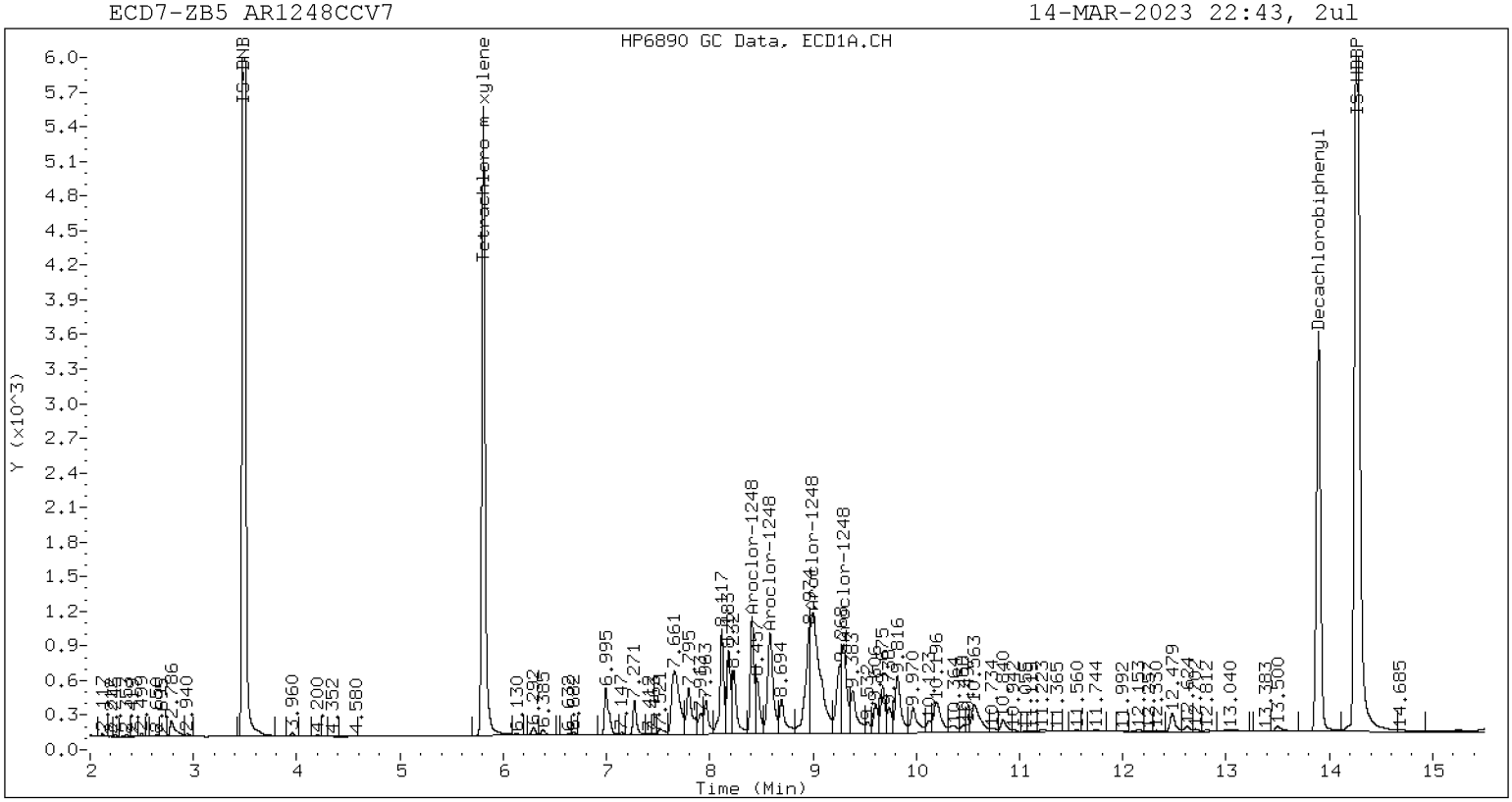
Total PCB Area Col2 (5.788 - 14.019) = 777824 Col2 Total PCB = 0.2 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

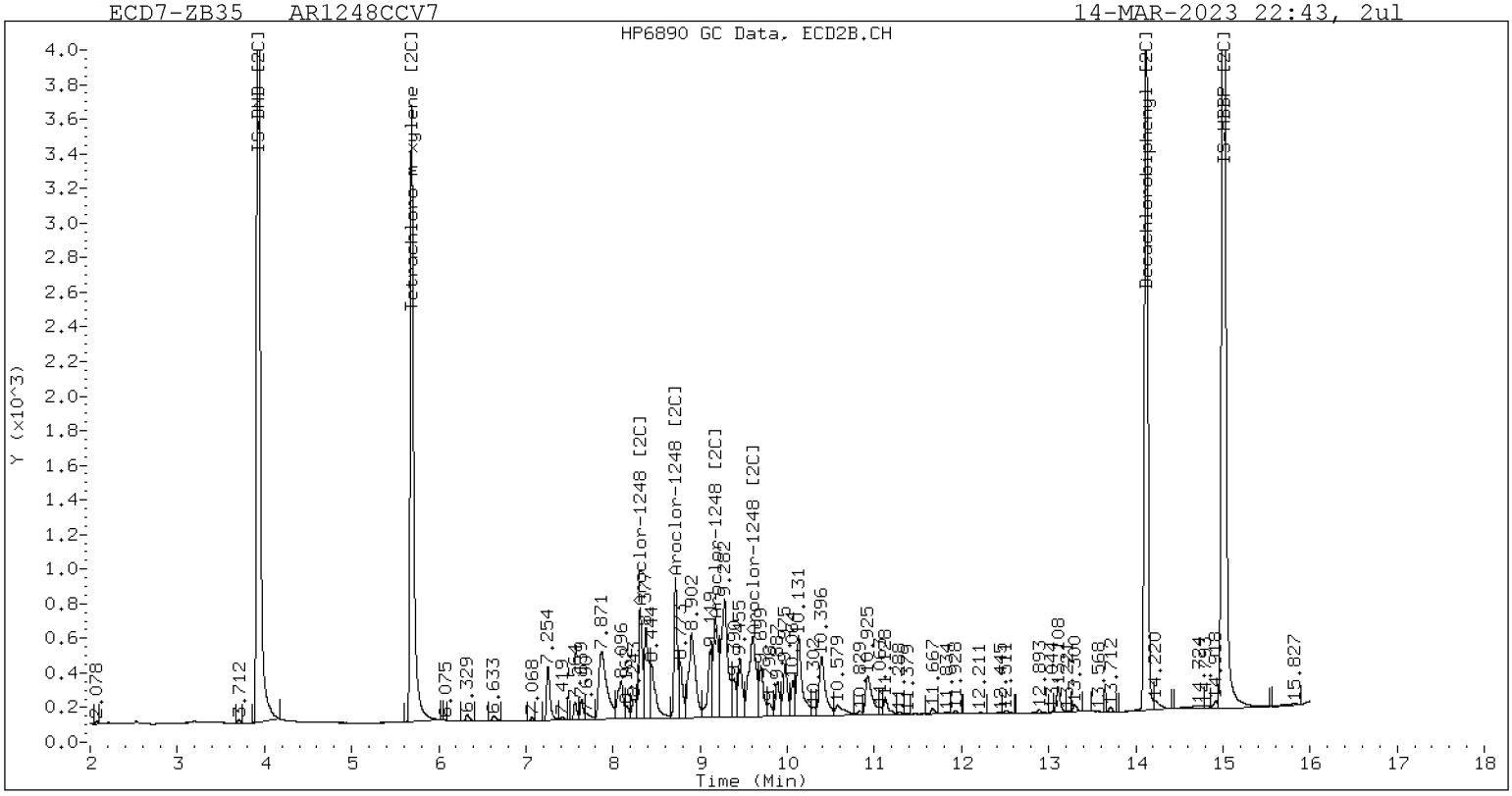
PCB Dual Column Chromatograms

ECD7-ZB5 AR1248CCV7 14-MAR-2023 22:43, 2ul



ZB-5 Manual Integration: YES

ECD7-ZB35 AR1248CCV7 14-MAR-2023 22:43, 2ul

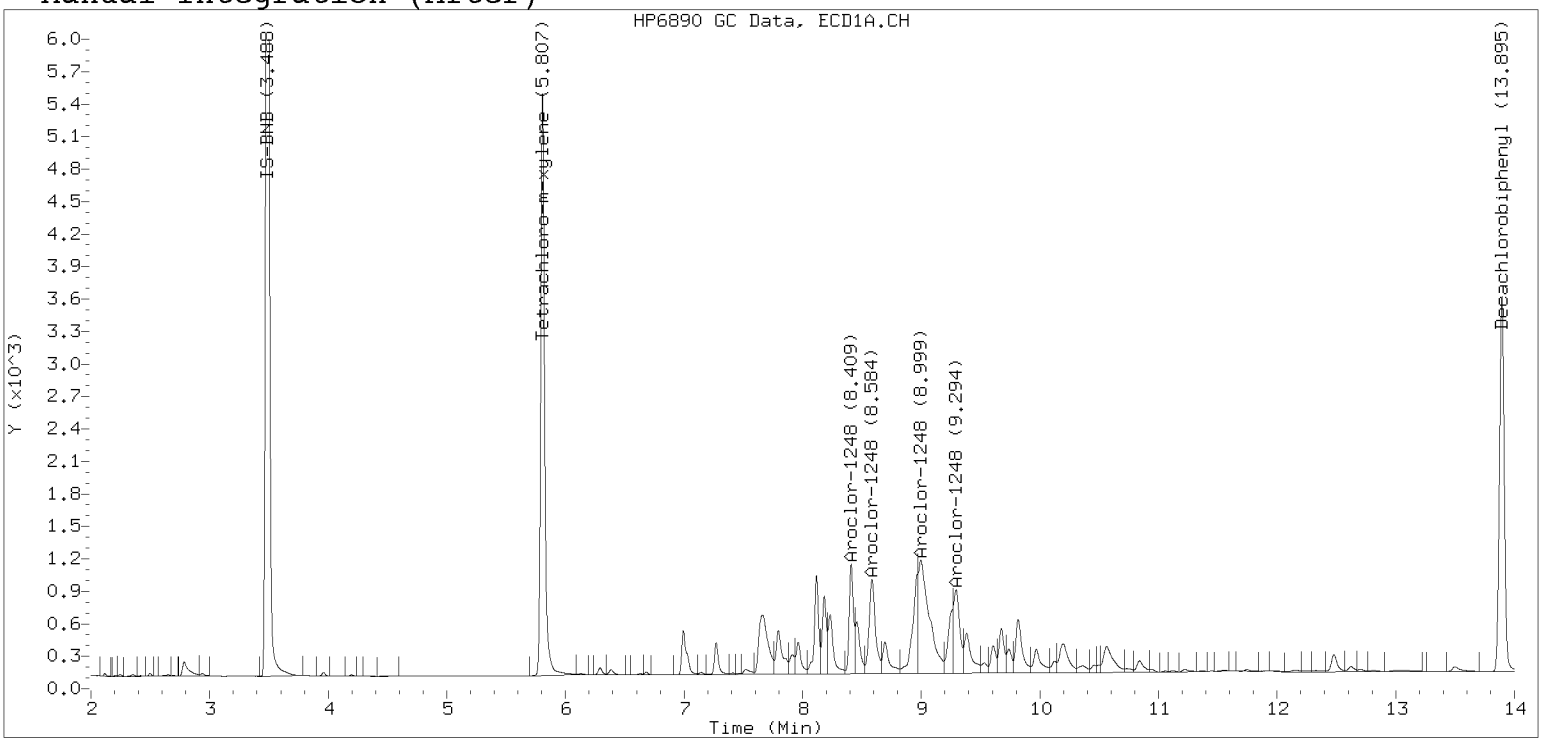


ZB-35 Manual Integration: NO

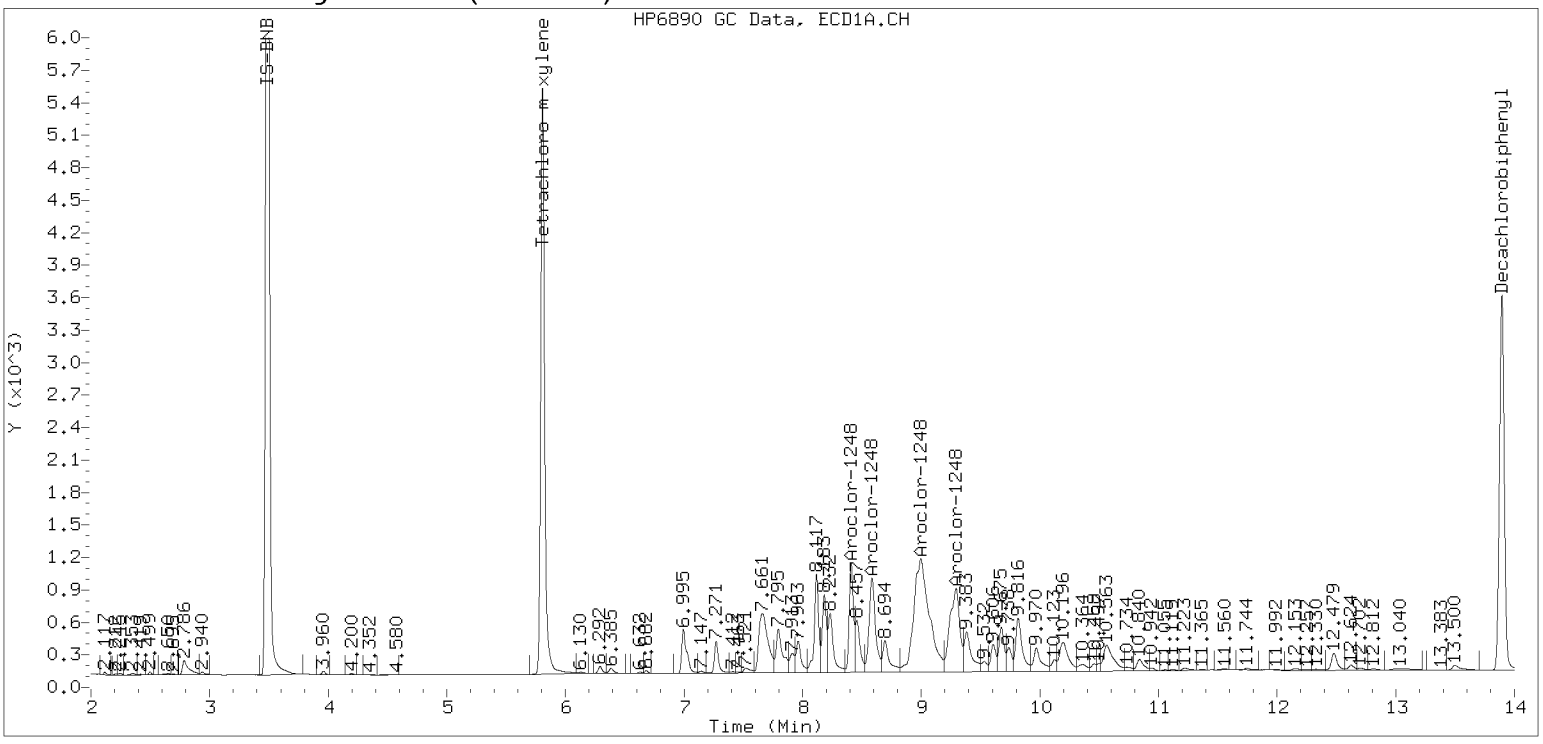
Manual Peak Adjustment, ZB-5

Datafile: ecd7.i/230314.b/03142339ECD7.D Injection Date: 14-MAR-2023 22:43

Manual Integration (After)



Processed Integration (Before)



Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Instrument ID:	ECD7	Calibration:	GB00069
Lab File ID:	03142340ECD7.D	Calibration Date:	02/24/2023
Sequence:	SLC0203	Injection Date:	03/14/23
Lab Sample ID:	SLC0203-CCV8	Injection Time:	23:04
Sequence Name:	AR1660CCV8		

		CONC. (ug/L)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
Aroclor 1016	A	250.00	253	0.0493662	0.0498940		1.0	+/-20	
Aroclor-1016 (1)	A	250.00	251	0.0303852	0.0304949		0.4		
Aroclor-1016 (2)	A	250.00	249	0.0926308	0.0924181		-0.4		
Aroclor-1016 (3)	A	250.00	266	0.0452180	0.0480740		6.4		
Aroclor-1016 (4)	A	250.00	244	0.0292307	0.0285890		-2.4		
Aroclor 1016 [2C]	A	250.00	263	0.0545857	0.0574780		5.3	+/-20	
Aroclor-1016 (1) [2C]	A	250.00	243	0.0468313	0.0455512		-2.8		
Aroclor-1016 (2) [2C]	A	250.00	263	0.0949676	0.0999894		5.2		
Aroclor-1016 (3) [2C]	A	250.00	291	0.0428922	0.0499051		16.4		
Aroclor-1016 (4) [2C]	A	250.00	256	0.0336515	0.0344664		2.4		
Aroclor 1260	A	250.00	337	0.0392091	0.0530746		34.9	+/-20	*
Aroclor-1260 (1)	A	250.00	327	0.0287785	0.0376668		30.8		
Aroclor-1260 (2)	A	250.00	362	0.0300690	0.0435788		44.8		
Aroclor-1260 (3)	A	250.00	344	0.0797517	0.1098610		37.6		
Aroclor-1260 (4)	A	250.00	319	0.0401599	0.0511825		27.6		
Aroclor-1260 (5)	A	250.00	334	0.0172866	0.0230840		33.6		
Aroclor 1260 [2C]	A	250.00	273	0.0699688	0.0766112		9.2	+/-20	
Aroclor-1260 (1) [2C]	A	250.00	291	0.0470406	0.0548150		16.4		
Aroclor-1260 (2) [2C]	A	250.00	273	0.1200523	0.1311912		9.2		
Aroclor-1260 (3) [2C]	A	250.00	258	0.0318590	0.0329079		3.2		
Aroclor-1260 (4) [2C]	A	250.00	270	0.0809231	0.0875308		8.0		
Decachlorobiphenyl	A	40.000	42.3	0.7878687	0.8339306		5.8	+/-20	
Tetrachlorometaxylene	A	40.000	39.8	1.1944880	1.1871620		-0.5	+/-20	
Decachlorobiphenyl [2C]	A	40.000	40.7	1.2182710	1.2399390		1.8	+/-20	
Tetrachlorometaxylene [2C]	A	40.000	40.5	1.1737210	1.1895740		1.3	+/-20	

* Values outside of QC limits

Analytical Resources Inc.
Dual Column 608/8082 PCB Quantitation Report

Data file 1: /230314.b/03142340ECD7.D
Data file 2: /230314.b/230314.b/03142340ECD7.D
Method: \\target\share\chem4\ecd7.i\230314.b\PCB.m
Compound Sublist: AR1660.sub
Instrument, Inj. Vol.: ecd7.i, 2ul
Quant Method: Internal Std

ARI ID: AR1660CCV8
Client ID:
Injection Date: 14-MAR-2023 23:04
Report Date: 03/15/2023 09:29
Matrix: NONE
Dilution Factor: 1.0

SURROGATES

ZB5 Col			ZB35 Col			ZB5	ZB35		
RT	Shift	Response	RT	Shift	Response	on col	on col	RPD	Compound/Flag
5.807	0.000	252745	5.688	0.000	199607	39.8	40.5	2.0	Tetrachloro-m-xylene
13.895	0.000	242934	14.119	0.000	265466	42.3	40.7	3.9	Decachlorobiphenyl

* Indicates RPD > 40%

INTERNAL STANDARD SUMMARY

Column 1

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	673778	425797	-36.8
Hexabromobiphenyl	1429847	582624	-59.3 <-

Column 2

Standard Cpnd	Standard Area*	Sample Area	%D
Bromo-Nitrobenzene	315256	335594	6.5
Hexabromobiphenyl	513946	428192	-16.7

* Standard Areas taken from Initial Cal Level 3
Initial Calibration Date: 24-FEB-2023
<- Indicates standard response outside Limits (-50 to +100%)

		ZB5 Col				ZB35 Col			
Aroclor	Peak#	RT	Shift	Area	Amount	Peak#	RT	Shift	Area	Amount
Aroclor-1016	1	7.270	0.000	40577	250.9	1	7.256	0.000	47771	243.2
Aroclor-1016	2	7.662	0.000	122973	249.4	2	7.867	0.000	104862	263.2
Aroclor-1016	3	7.796	0.000	63968	265.8	3	8.066	0.000	52337	290.9
Aroclor-1016	4	8.409	0.000	38041	244.5	4	8.312	0.000	36146	256.1
Total Col1Ave (4 peaks):					252.7	Total Col2Ave (4 peaks):				263.3 RPD = 4
Corrected Ave (3 peaks):					248.3	Corrected Ave (3 peaks):				254.1 RPD = 2
CalAmt %D:					1.1	CalAmt %D:				5.3
Aroclor-1260	1	11.049	0.000	68580	327.2	1	11.656	0.000	73348	291.3
Aroclor-1260	2	11.365	0.000	79344	362.3	2	11.922	0.000	175547	273.2
Aroclor-1260	3	11.740	0.000	200024	344.4	3	12.440	0.000	44034	258.2
Aroclor-1260	4	12.147	0.000	93188	318.6	4	12.506	0.000	117125	270.4
Aroclor-1260	5	12.247	0.000	42029	333.8	NS	---			----
Total Col1Ave (5 peaks):					337.3	Total Col2Ave (4 peaks):				273.3 RPD = 21
Corrected Ave (4 peaks):					331.0	Corrected Ave (3 peaks):				267.3 RPD = 21
CalAmt %D:					34.9	CalAmt %D:				9.3

Total PCB Area Col1 (5.907 - 13.795) = 2275514 Col1 Total PCB = 0.4 ppm*

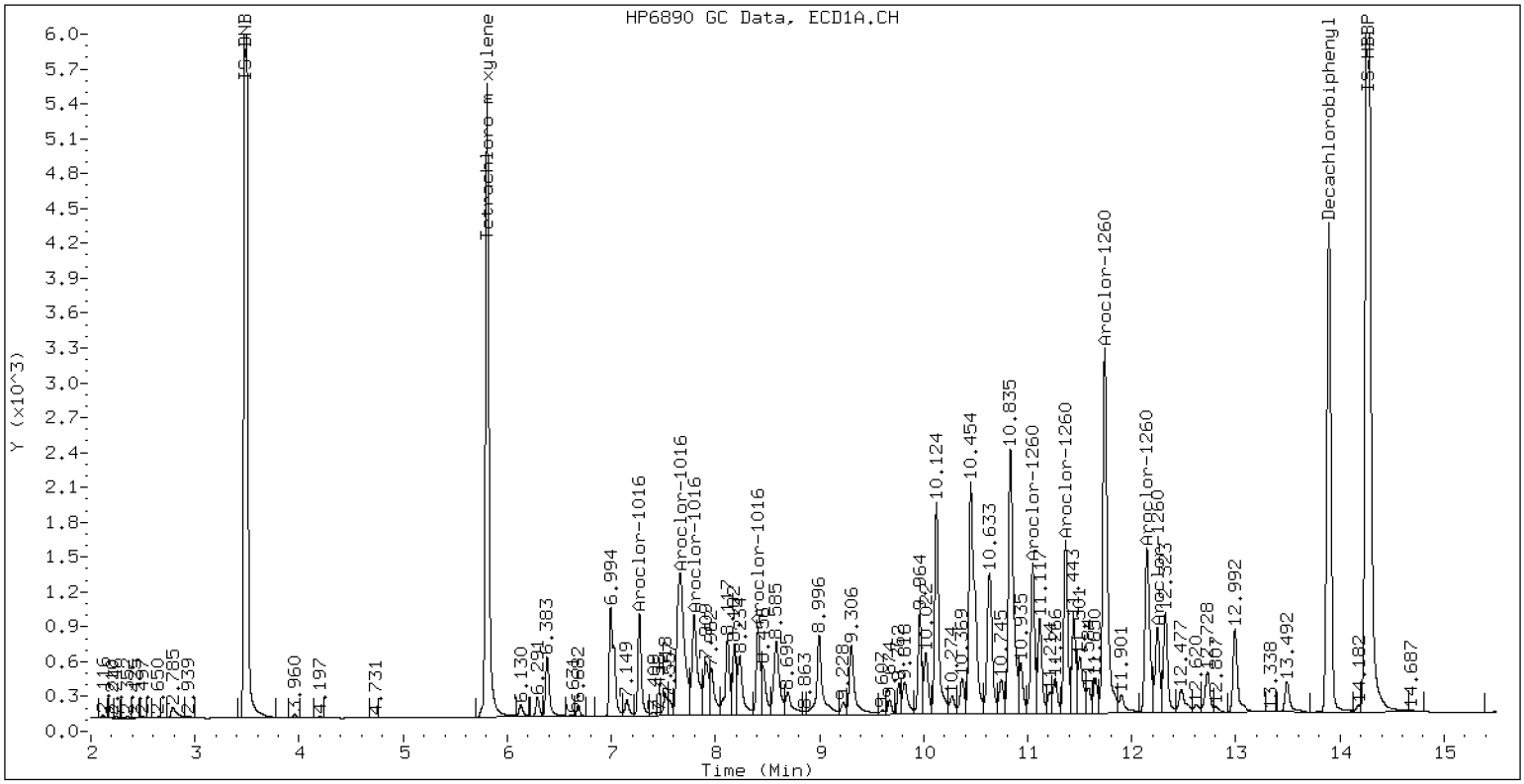
Total PCB Area Col2 (5.788 - 14.019) = 1802338 Col2 Total PCB = 0.4 ppm*

* Quantitated against AR1660 0.25ppm in Ical

PCB-Form 10 Mod.

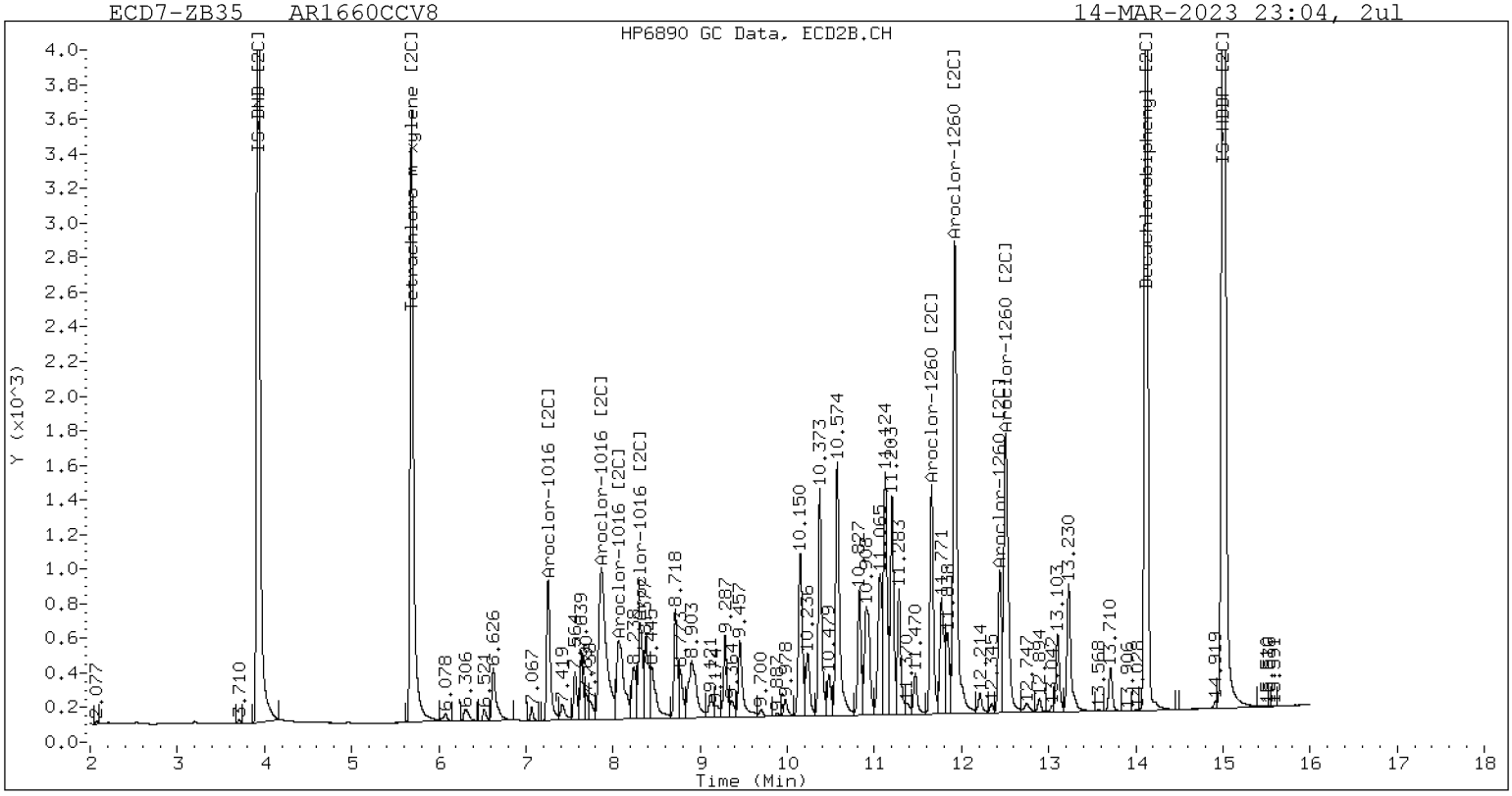
PCB Dual Column Chromatograms

ECD7-ZB5 AR1660CCV8 14-MAR-2023 23:04, 2ul



ZB-5 Manual Integration: NO

ECD7-ZB35 AR1660CCV8 14-MAR-2023 23:04, 2ul



ZB-35 Manual Integration: NO

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0342
Instrument: ECD7
Calibration: GB00069

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Cal Standard	SLB0342-CAL1	02242302ECD7.D	02242302ECD7.D	NA	02/24/23 11:12
Cal Standard	SLB0342-CAL2	02242303ECD7.D	02242303ECD7.D	NA	02/24/23 11:33
Cal Standard	SLB0342-CAL3	02242304ECD7.D	02242304ECD7.D	NA	02/24/23 11:54
Cal Standard	SLB0342-CAL4	02242305ECD7.D	02242305ECD7.D	NA	02/24/23 12:15
Cal Standard	SLB0342-CAL5	02242306ECD7.D	02242306ECD7.D	NA	02/24/23 12:36
Cal Standard	SLB0342-CAL6	02242307ECD7.D	02242307ECD7.D	NA	02/24/23 12:57
Cal Standard	SLB0342-CAL7	02242308ECD7.D	02242308ECD7.D	NA	02/24/23 13:18
Cal Standard	SLB0342-CAL8	02242309ECD7.D	02242309ECD7.D	NA	02/24/23 13:39
Cal Standard	SLB0342-CAL9	02242310ECD7.D	02242310ECD7.D	NA	02/24/23 14:00
Cal Standard	SLB0342-CALA	02242311ECD7.D	02242311ECD7.D	NA	02/24/23 14:21
Cal Standard	SLB0342-CALB	02242312ECD7.D	02242312ECD7.D	NA	02/24/23 14:42
Secondary Cal Check	SLB0342-SCV1	02242313ECD7.D	02242313ECD7.D	NA	02/24/23 15:03
Secondary Cal Check	SLB0342-SCV2	02242314ECD7.D	02242314ECD7.D	NA	02/24/23 15:24
Secondary Cal Check	SLB0342-SCV3	02242315ECD7.D	02242315ECD7.D	NA	02/24/23 15:45
Secondary Cal Check	SLB0342-SCV4	02242316ECD7.D	02242316ECD7.D	NA	02/24/23 16:06
Secondary Cal Check	SLB0342-SCV5	02242317ECD7.D	02242317ECD7.D	NA	02/24/23 16:27
Secondary Cal Check	SLB0342-SCV6	02242318ECD7.D	02242318ECD7.D	NA	02/24/23 16:48

Dual Column

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLC0203
Instrument: ECD7
Calibration: GB00069

Sample Name	Lab Sample ID	Column 1 File ID	Column 2 File ID	Matrix	Analysis Date/Time
Initial Cal Check	SLC0203-ICV1	03142302ECD7.D	03142302ECD7.D	NA	03/14/23 09:51
Initial Cal Check	SLC0203-ICV2	03142303ECD7.D	03142303ECD7.D	NA	03/14/23 10:11
Calibration Check	SLC0203-CCV1	03142309ECD7.D	03142309ECD7.D	NA	03/14/23 12:17
Calibration Check	SLC0203-CCV2	03142310ECD7.D	03142310ECD7.D	NA	03/14/23 12:37
Calibration Check	SLC0203-CCV3	03142316ECD7.D	03142316ECD7.D	NA	03/14/23 14:43
Calibration Check	SLC0203-CCV4	03142317ECD7.D	03142317ECD7.D	NA	03/14/23 15:04
Blank	BLC0124-BLK1	03142318ECD7.D	03142318ECD7.D	Solid	03/14/23 15:24
LCS	BLC0124-BS1	03142319ECD7.D	03142319ECD7.D	Solid	03/14/23 15:45
LCS Dup	BLC0124-BSD1	03142320ECD7.D	03142320ECD7.D	Solid	03/14/23 16:06
Reference	BLC0124-SRM1	03142321ECD7.D	03142321ECD7.D	Solid	03/14/23 16:27
LY-28_2-3	23C0064-01	03142322ECD7.D	03142322ECD7.D	Solid	03/14/23 16:48
LY-31_0-10	23C0064-02	03142323ECD7.D	03142323ECD7.D	Solid	03/14/23 17:09
LY-31_1-2	23C0064-03	03142324ECD7.D	03142324ECD7.D	Solid	03/14/23 17:30
LY-32_0-10	23C0064-04	03142325ECD7.D	03142325ECD7.D	Solid	03/14/23 17:51
Calibration Check	SLC0203-CCV5	03142332ECD7.D	03142332ECD7.D	NA	03/14/23 20:17
Calibration Check	SLC0203-CCV6	03142333ECD7.D	03142333ECD7.D	NA	03/14/23 20:38
Calibration Check	SLC0203-CCV7	03142339ECD7.D	03142339ECD7.D	NA	03/14/23 22:43
Calibration Check	SLC0203-CCV8	03142340ECD7.D	03142340ECD7.D	NA	03/14/23 23:04

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS SEQUENCE

SLC0203

Instrument: ECD7
Calibration ID: GB00069

Printed: 3/15/2023 9:52:36AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
SLC0203-ICV1	QC		1		L000862	L000844		
SLC0203-ICV2	QC		2		L000856	L000844		
23C0039-05	8082A PCB Solid 4	A 01	3			L000844	HydroGeoLogic, Inc.	
23C0039-06	8082A PCB Solid 4	A 01	4			L000844	HydroGeoLogic, Inc.	
23C0039-08	8082A PCB Solid 4	A 01	5			L000844	HydroGeoLogic, Inc.	
23C0039-09	8082A PCB Solid 4	A 01	6			L000844	HydroGeoLogic, Inc.	
23C0039-10	8082A PCB Solid 4	A 01	7			L000844	HydroGeoLogic, Inc.	
SLC0203-CCV1	QC		8		L000861	L000844		
SLC0203-CCV2	QC		9		L000856	L000844		
BLC0141-BLK1	QC		10			L000844		
BLC0141-BS1	QC		11			L000844		
BLC0141-BSD1	QC		12			L000844		
23B0491-01	PCB (20 ug/kg) or (MTCA 0.	F 03	13			L000844	Seattle Public Utilities	
23B0491-02	PCB (20 ug/kg) or (MTCA 0.	F 03	14			L000844	Seattle Public Utilities	
SLC0203-CCV3	QC		15		L000860	L000844		
SLC0203-CCV4	QC		16		L000856	L000844		
BLC0124-BLK1	QC		17			L000844		
BLC0124-BS1	QC		18			L000844		
BLC0124-BSD1	QC		19			L000844		
BLC0124-SRM1	QC		20			L000844		
23C0064-01	8082A PCB Solid 4	A 03	21			L000844	GeoEngineers	

Samples Loaded By Date

Data Processed By Date

ANALYSIS SEQUENCE

SLC0203

Instrument: ECD7
Calibration ID: GB00069

Printed: 3/15/2023 9:52:36AM

Lab Number	Analysis	Container	Order	Position	STD ID	ISTD ID	Client	Comments
23C0064-02	8082A PCB Solid 4	A 03	22			L000844	GeoEngineers	
23C0064-03	8082A PCB Solid 4	A 03	23			L000844	GeoEngineers	
23C0064-04	8082A PCB Solid 4	A 03	24			L000844	GeoEngineers	
23C0071-01	8082A PCB Solid 4	A 03	25			L000844	Anchor QEA, LLC	
23C0071-02	8082A PCB Solid 4	A 03	26			L000844	Anchor QEA, LLC	
23C0071-03	8082A PCB Solid 4	A 03	27			L000844	Anchor QEA, LLC	
23C0071-04	8082A PCB Solid 4	A 03	28			L000844	Anchor QEA, LLC	
23C0071-05	8082A PCB Solid 4	A 03	29			L000844	Anchor QEA, LLC	
23C0071-06	8082A PCB Solid 4	A 03	30			L000844	Anchor QEA, LLC	
SLC0203-CCV5	QC		31		L000862	L000844		
SLC0203-CCV6	QC		32		L000856	L000844		
23C0071-08	8082A PCB Solid 4	A 01	33			L000844	Anchor QEA, LLC	
23C0071-09	8082A PCB Solid 4	A 01	34			L000844	Anchor QEA, LLC	
23C0071-10	8082A PCB Solid 4	A 01	35			L000844	Anchor QEA, LLC	
BLC0124-MS1	QC		36			L000844		
BLC0124-MSD1	QC		37			L000844		
SLC0203-CCV7	QC		38		L000861	L000844		
SLC0203-CCV8	QC		39		L000856	L000844		

Samples Loaded By Date

Data Processed By Date

GC LOG SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230314.b

	Inject Date/Time	Filename	DF	LabID	ClientID
1	14-MAR-2023 09:30	03142301ECD7.D	1	DDTS	
2	14-MAR-2023 09:51	03142302ECD7.D	1	AR1254ICV1	
3	14-MAR-2023 10:11	03142303ECD7.D	1	AR1660ICV2	
4	14-MAR-2023 10:32	03142304ECD7.D	5	23C0039-05RE1	
5	14-MAR-2023 10:53	03142305ECD7.D	5	23C0039-06RE1	
6	14-MAR-2023 11:14	03142306ECD7.D	5	23C0039-08RE1	
7	14-MAR-2023 11:35	03142307ECD7.D	5	23C0039-09RE1	
8	14-MAR-2023 11:56	03142308ECD7.D	5	23C0039-10RE1	
9	14-MAR-2023 12:17	03142309ECD7.D	1	AR1248CCV1	
10	14-MAR-2023 12:37	03142310ECD7.D	1	AR1660CCV2	
11	14-MAR-2023 12:58	03142311ECD7.D	1	BLC0141-BLK1	
12	14-MAR-2023 13:19	03142312ECD7.D	1	BLC0141-BS1	
13	14-MAR-2023 13:40	03142313ECD7.D	1	BLC0141-BSD1	
14	14-MAR-2023 14:01	03142314ECD7.D	1	23B0491-01	
15	14-MAR-2023 14:22	03142315ECD7.D	1	23B0491-02	
16	14-MAR-2023 14:43	03142316ECD7.D	1	AR1242CCV3	
17	14-MAR-2023 15:04	03142317ECD7.D	1	AR1660CCV4	
18	14-MAR-2023 15:24	03142318ECD7.D	1	BLC01~~23~~-BLK1	BLC0124
19	14-MAR-2023 15:45	03142319ECD7.D	1	BLC01~~23~~-BS1	BLC0124
20	14-MAR-2023 16:06	03142320ECD7.D	1	BLC0123-BSD1	BLC0124
21	14-MAR-2023 16:27	03142321ECD7.D	1	BLC0~~12~~3-SRM1	BLC0124
22	14-MAR-2023 16:48	03142322ECD7.D	1	23C0064-01	
23	14-MAR-2023 17:09	03142323ECD7.D	1	23C0064-02	
24	14-MAR-2023 17:30	03142324ECD7.D	1	23C0064-03	
25	14-MAR-2023 17:51	03142325ECD7.D	1	23C0064-04	
26	14-MAR-2023 18:12	03142326ECD7.D	1	23C0071-01	
27	14-MAR-2023 18:33	03142327ECD7.D	1	23C0071-02	
28	14-MAR-2023 18:53	03142328ECD7.D	1	23C0071-03	
29	14-MAR-2023 19:14	03142329ECD7.D	1	23C0071-04	
30	14-MAR-2023 19:35	03142330ECD7.D	1	23C0071-05	
31	14-MAR-2023 19:56	03142331ECD7.D	1	23C0071-06	
32	14-MAR-2023 20:17	03142332ECD7.D	1	AR1254CCV5	
33	14-MAR-2023 20:38	03142333ECD7.D	1	AR1660CCV6	
34	14-MAR-2023 20:59	03142334ECD7.D	1	23C0071-08	
35	14-MAR-2023 21:19	03142335ECD7.D	1	23C0071-09	
36	14-MAR-2023 21:40	03142336ECD7.D	1	23C0071-10	
37	14-MAR-2023 22:01	03142337ECD7.D	1	BLC0123-MS1	
38	14-MAR-2023 22:22	03142338ECD7.D	1	BLC0123-MSD1	
39	14-MAR-2023 22:43	03142339ECD7.D	1	AR1248CCV7	
40	14-MAR-2023 23:04	03142340ECD7.D	1	AR1660CCV8	

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230314.b

ARI Job No.: DDTS Method: PCB.m Instrument: ecd7.i Date: 14-MAR-2023

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0930	03142301ECD7.D	DDTS		1	NO MANUAL INTEGRATION
0951	03142302ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1011	03142303ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1032	03142304ECD7.D	23C0039-05RE1		5	Aroclor-1254,
1053	03142305ECD7.D	23C0039-06RE1		5	Aroclor-1254,
1114	03142306ECD7.D	23C0039-08RE1		5	Aroclor-1254,
1135	03142307ECD7.D	23C0039-09RE1		5	Aroclor-1254,
1156	03142308ECD7.D	23C0039-10RE1		5	Aroclor-1254,
1217	03142309ECD7.D	AR1248CCV1		1	Aroclor-1248,
1237	03142310ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1258	03142311ECD7.D	BLC0141-BLK1		1	NO MANUAL INTEGRATION
1319	03142312ECD7.D	BLC0141-BS1		1	NO MANUAL INTEGRATION
1340	03142313ECD7.D	BLC0141-BSD1		1	NO MANUAL INTEGRATION
1401	03142314ECD7.D	23B0491-01		1	NO MANUAL INTEGRATION
1422	03142315ECD7.D	23B0491-02		1	NO MANUAL INTEGRATION
1443	03142316ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
1504	03142317ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230314.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1524	03142318ECD7.D	BLC0123-BLK1		1	NO MANUAL INTEGRATION
1545	03142319ECD7.D	BLC0123-BS1		1	NO MANUAL INTEGRATION
1606	03142320ECD7.D	BLC0123-BSD1		1	NO MANUAL INTEGRATION
1627	03142321ECD7.D	BLC0123-SRM1		1	NO MANUAL INTEGRATION
1648	03142322ECD7.D	23C0064-01		1	NO MANUAL INTEGRATION
1709	03142323ECD7.D	23C0064-02		1	NO MANUAL INTEGRATION
1730	03142324ECD7.D	23C0064-03		1	NO MANUAL INTEGRATION
1751	03142325ECD7.D	23C0064-04		1	NO MANUAL INTEGRATION
1812	03142326ECD7.D	23C0071-01		1	Aroclor-1254,
1833	03142327ECD7.D	23C0071-02		1	Aroclor-1254,
1853	03142328ECD7.D	23C0071-03		1	NO MANUAL INTEGRATION
1914	03142329ECD7.D	23C0071-04		1	Aroclor-1254,
1935	03142330ECD7.D	23C0071-05		1	Aroclor-1254,
1956	03142331ECD7.D	23C0071-06		1	Aroclor-1254,
2017	03142332ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
2038	03142333ECD7.D	AR1660CCV6		1	NO MANUAL INTEGRATION
2059	03142334ECD7.D	23C0071-08		1	Aroclor-1254,
2119	03142335ECD7.D	23C0071-09		1	Aroclor-1254,

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230314.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2140	03142336ECD7.D	23C0071-10		1	Aroclor-1254,
2201	03142337ECD7.D	BLC0123-MS1		1	NO MANUAL INTEGRATION
2222	03142338ECD7.D	BLC0123-MSD1		1	NO MANUAL INTEGRATION
2243	03142339ECD7.D	AR1248CCV7		1	Aroclor-1248,
2304	03142340ECD7.D	AR1660CCV8		1	NO MANUAL INTEGRATION
0930	03142301ECD7.D	DDTS		1	NO MANUAL INTEGRATION
0951	03142302ECD7.D	AR1254ICV1		1	NO MANUAL INTEGRATION
1011	03142303ECD7.D	AR1660ICV2		1	NO MANUAL INTEGRATION
1032	03142304ECD7.D	23C0039-05RE1		5	Aroclor-1248 [2C], Aroclor-1254 [2C],
1053	03142305ECD7.D	23C0039-06RE1		5	Aroclor-1248 [2C], Aroclor-1254 [2C],
1114	03142306ECD7.D	23C0039-08RE1		5	Aroclor-1248 [2C], Aroclor-1254 [2C],
1135	03142307ECD7.D	23C0039-09RE1		5	Aroclor-1248 [2C], Aroclor-1254 [2C],
1156	03142308ECD7.D	23C0039-10RE1		5	Aroclor-1248 [2C],
1217	03142309ECD7.D	AR1248CCV1		1	NO MANUAL INTEGRATION
1237	03142310ECD7.D	AR1660CCV2		1	NO MANUAL INTEGRATION
1258	03142311ECD7.D	BLC0141-BLK1		1	NO MANUAL INTEGRATION
1319	03142312ECD7.D	BLC0141-BS1		1	NO MANUAL INTEGRATION
1340	03142313ECD7.D	BLC0141-BSD1		1	NO MANUAL INTEGRATION

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230314.b\230314.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1401	03142314ECD7.D	23B0491-01		1	NO MANUAL INTEGRATION
1422	03142315ECD7.D	23B0491-02		1	NO MANUAL INTEGRATION
1443	03142316ECD7.D	AR1242CCV3		1	NO MANUAL INTEGRATION
1504	03142317ECD7.D	AR1660CCV4		1	NO MANUAL INTEGRATION
1524	03142318ECD7.D	BLC0123-BLK1		1	NO MANUAL INTEGRATION
1545	03142319ECD7.D	BLC0123-BS1		1	NO MANUAL INTEGRATION
1606	03142320ECD7.D	BLC0123-BSD1		1	NO MANUAL INTEGRATION
1627	03142321ECD7.D	BLC0123-SRM1		1	NO MANUAL INTEGRATION
1648	03142322ECD7.D	23C0064-01		1	NO MANUAL INTEGRATION
1709	03142323ECD7.D	23C0064-02		1	NO MANUAL INTEGRATION
1730	03142324ECD7.D	23C0064-03		1	NO MANUAL INTEGRATION
1751	03142325ECD7.D	23C0064-04		1	NO MANUAL INTEGRATION
1812	03142326ECD7.D	23C0071-01		1	Aroclor-1248 [2C],
1833	03142327ECD7.D	23C0071-02		1	Aroclor-1248 [2C],
1853	03142328ECD7.D	23C0071-03		1	Aroclor-1248 [2C],
1914	03142329ECD7.D	23C0071-04		1	Aroclor-1248 [2C],
1935	03142330ECD7.D	23C0071-05		1	Aroclor-1248 [2C],
1956	03142331ECD7.D	23C0071-06		1	Aroclor-1248 [2C],

MANUAL INTEGRATION SUMMARY FOR DATABATCH - \\target\share\chem4\ecd7.i\230314.b\230314.b

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
2017	03142332ECD7.D	AR1254CCV5		1	NO MANUAL INTEGRATION
2038	03142333ECD7.D	AR1660CCV6		1	NO MANUAL INTEGRATION
2059	03142334ECD7.D	23C0071-08		1	Aroclor-1248 [2C],
2119	03142335ECD7.D	23C0071-09		1	Aroclor-1248 [2C],
2140	03142336ECD7.D	23C0071-10		1	Aroclor-1248 [2C],
2201	03142337ECD7.D	BLC0123-MS1		1	NO MANUAL INTEGRATION
2222	03142338ECD7.D	BLC0123-MSD1		1	NO MANUAL INTEGRATION
2243	03142339ECD7.D	AR1248CCV7		1	NO MANUAL INTEGRATION
2304	03142340ECD7.D	AR1660CCV8		1	NO MANUAL INTEGRATION

Security Status Report

Date: 15-Mar-2023 09:47

03142301ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142302ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142303ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142304ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142305ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142306ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142307ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142308ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142309ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142310ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142311ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142312ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142313ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142314ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
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03142317ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142318ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142319ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142320ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142321ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142322ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142323ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142324ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142325ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142326ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142327ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142328ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142329ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142330ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142331ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142332ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
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03142334ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142335ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142336ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142337ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142338ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142339ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47
03142340ECD7.D	Data Locked	richardl, 15-Mar-2023 09:47

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0342
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLB0342-SCV1 (Water)			Lab File ID: 02242313ECD7.D			Analyzed: 02/24/23 15:03		
Decachlorobiphenyl	40.000	85.8	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	87.4	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	93.4	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	89.4	80 - 120	5.685	5.687167	-0.0022	N/A	
SLB0342-SCV2 (Water)			Lab File ID: 02242314ECD7.D			Analyzed: 02/24/23 15:24		
Decachlorobiphenyl	40.000	92.5	80 - 120	13.895	13.89483	0.0002	N/A	
Tetrachlorometaxylene	40.000	84.1	80 - 120	5.808	5.8095	-0.0015	N/A	
Decachlorobiphenyl [2C]	40.000	101	80 - 120	14.12	14.11917	0.0008	N/A	
Tetrachlorometaxylene [2C]	40.000	86.3	80 - 120	5.686	5.687167	-0.0012	N/A	
SLB0342-SCV3 (Water)			Lab File ID: 02242315ECD7.D			Analyzed: 02/24/23 15:45		
Decachlorobiphenyl	40.000	82.8	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	87.2	80 - 120	5.808	5.8095	-0.0015	N/A	
Decachlorobiphenyl [2C]	40.000	90.8	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	91.0	80 - 120	5.687	5.687167	-0.0002	N/A	
SLB0342-SCV4 (Water)			Lab File ID: 02242316ECD7.D			Analyzed: 02/24/23 16:06		
Decachlorobiphenyl	40.000	86.6	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	90.3	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	94.8	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	92.7	80 - 120	5.685	5.687167	-0.0022	N/A	
SLB0342-SCV5 (Water)			Lab File ID: 02242317ECD7.D			Analyzed: 02/24/23 16:27		
Decachlorobiphenyl	40.000	86.1	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	90.0	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	94.6	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	91.6	80 - 120	5.685	5.687167	-0.0022	N/A	
SLB0342-SCV6 (Water)			Lab File ID: 02242318ECD7.D			Analyzed: 02/24/23 16:48		
Decachlorobiphenyl	40.000	128	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	92.7	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	141	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	95.4	80 - 120	5.685	5.687167	-0.0022	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLC0203
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/L	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
SLC0203-ICV1 (Solid)			Lab File ID: 03142302ECD7.D			Analyzed: 03/14/23 09:51		
Decachlorobiphenyl	40.000	102	80 - 120	13.896	13.89483	0.0012	N/A	
Tetrachlorometaxylene	40.000	94.5	80 - 120	5.808	5.8095	-0.0015	N/A	
Decachlorobiphenyl [2C]	40.000	94.5	80 - 120	14.12	14.11917	0.0008	N/A	
Tetrachlorometaxylene [2C]	40.000	94.0	80 - 120	5.688	5.687167	0.0008	N/A	
SLC0203-ICV2 (Solid)			Lab File ID: 03142303ECD7.D			Analyzed: 03/14/23 10:11		
Decachlorobiphenyl	40.000	105	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	101	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	100	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	99.3	80 - 120	5.688	5.687167	0.0008	N/A	
SLC0203-CCV1 (Solid)			Lab File ID: 03142309ECD7.D			Analyzed: 03/14/23 12:17		
Decachlorobiphenyl	40.000	95.3	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	92.3	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	95.3	80 - 120	14.12	14.11917	0.0008	N/A	
Tetrachlorometaxylene [2C]	40.000	93.5	80 - 120	5.689	5.687167	0.0018	N/A	
SLC0203-CCV2 (Solid)			Lab File ID: 03142310ECD7.D			Analyzed: 03/14/23 12:37		
Decachlorobiphenyl	40.000	101	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	98.8	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	102	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	97.3	80 - 120	5.689	5.687167	0.0018	N/A	
SLC0203-CCV3 (Solid)			Lab File ID: 03142316ECD7.D			Analyzed: 03/14/23 14:43		
Decachlorobiphenyl	40.000	97.0	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	114	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	93.3	80 - 120	14.12	14.11917	0.0008	N/A	
Tetrachlorometaxylene [2C]	40.000	113	80 - 120	5.688	5.687167	0.0008	N/A	
SLC0203-CCV4 (Solid)			Lab File ID: 03142317ECD7.D			Analyzed: 03/14/23 15:04		
Decachlorobiphenyl	40.000	106	80 - 120	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	40.000	99.5	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	100	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	97.5	80 - 120	5.69	5.687167	0.0028	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLC0203
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
BLC0124-BLK1 (Solid)			Lab File ID: 03142318ECD7.D			Analyzed: 03/14/23 15:24		
Decachlorobiphenyl	8.0000	99.6	40 - 126	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	8.0000	85.3	44 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	8.0000	99.3	40 - 126	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	8.0000	82.2	44 - 120	5.688	5.687167	0.0008	N/A	
BLC0124-BS1 (Solid)			Lab File ID: 03142319ECD7.D			Analyzed: 03/14/23 15:45		
Decachlorobiphenyl	8.0000	95.8	40 - 126	13.893	13.89483	-0.0018	N/A	
Tetrachlorometaxylene	8.0000	82.0	44 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	8.0000	96.3	40 - 126	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	8.0000	74.8	44 - 120	5.689	5.687167	0.0018	N/A	
BLC0124-BSD1 (Solid)			Lab File ID: 03142320ECD7.D			Analyzed: 03/14/23 16:06		
Decachlorobiphenyl	8.0000	92.0	40 - 126	13.891	13.89483	-0.0038	N/A	
Tetrachlorometaxylene	8.0000	77.4	44 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	8.0000	94.0	40 - 126	14.117	14.11917	-0.0022	N/A	
Tetrachlorometaxylene [2C]	8.0000	71.6	44 - 120	5.688	5.687167	0.0008	N/A	
BLC0124-SRM1 (Solid)			Lab File ID: 03142321ECD7.D			Analyzed: 03/14/23 16:27		
Decachlorobiphenyl	40.000	87.3	40 - 126	13.886	13.89483	-0.0088	N/A	
Tetrachlorometaxylene	40.000	73.6	44 - 120	5.805	5.8095	-0.0045	N/A	
Decachlorobiphenyl [2C]	40.000	79.6	40 - 126	14.114	14.11917	-0.0052	N/A	
Tetrachlorometaxylene [2C]	40.000	74.1	44 - 120	5.686	5.687167	-0.0012	N/A	
23C0064-01 (Solid)			Lab File ID: 03142322ECD7.D			Analyzed: 03/14/23 16:48		
Decachlorobiphenyl	7.9714	93.6	40 - 126	13.89	13.89483	-0.0048	N/A	
Tetrachlorometaxylene	7.9714	76.3	44 - 120	5.805	5.8095	-0.0045	N/A	
Decachlorobiphenyl [2C]	7.9714	87.5	40 - 126	14.116	14.11917	-0.0032	N/A	
Tetrachlorometaxylene [2C]	7.9714	76.7	44 - 120	5.687	5.687167	-0.0002	N/A	
23C0064-02 (Solid)			Lab File ID: 03142323ECD7.D			Analyzed: 03/14/23 17:09		
Decachlorobiphenyl	7.9797	89.1	40 - 126	13.889	13.89483	-0.0058	N/A	
Tetrachlorometaxylene	7.9797	82.8	44 - 120	5.805	5.8095	-0.0045	N/A	
Decachlorobiphenyl [2C]	7.9797	91.0	40 - 126	14.116	14.11917	-0.0032	N/A	
Tetrachlorometaxylene [2C]	7.9797	79.0	44 - 120	5.687	5.687167	-0.0002	N/A	

SURROGATE RECOVERY AND RT SUMMARY
EPA 8082A

Laboratory: Analytical Resources, LLC
SDG/WO: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLC0203
Instrument: ECD7
Calibration: GB00069
Calibration Date: 02/24/2023

Surrogate Compound	Spike Level ug/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
23C0064-03 (Solid)			Lab File ID: 03142324ECD7.D			Analyzed: 03/14/23 17:30		
Decachlorobiphenyl	7.9857	93.3	40 - 126	13.892	13.89483	-0.0028	N/A	
Tetrachlorometaxylene	7.9857	81.4	44 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	7.9857	91.5	40 - 126	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	7.9857	78.3	44 - 120	5.688	5.687167	0.0008	N/A	
23C0064-04 (Solid)			Lab File ID: 03142325ECD7.D			Analyzed: 03/14/23 17:51		
Decachlorobiphenyl	7.9603	85.9	40 - 126	13.89	13.89483	-0.0048	N/A	
Tetrachlorometaxylene	7.9603	80.0	44 - 120	5.805	5.8095	-0.0045	N/A	
Decachlorobiphenyl [2C]	7.9603	85.0	40 - 126	14.117	14.11917	-0.0022	N/A	
Tetrachlorometaxylene [2C]	7.9603	77.4	44 - 120	5.686	5.687167	-0.0012	N/A	
SLC0203-CCV5 (Solid)			Lab File ID: 03142332ECD7.D			Analyzed: 03/14/23 20:17		
Decachlorobiphenyl	40.000	98.0	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	92.5	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	95.3	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	93.3	80 - 120	5.688	5.687167	0.0008	N/A	
SLC0203-CCV6 (Solid)			Lab File ID: 03142333ECD7.D			Analyzed: 03/14/23 20:38		
Decachlorobiphenyl	40.000	107	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	100	80 - 120	5.808	5.8095	-0.0015	N/A	
Decachlorobiphenyl [2C]	40.000	103	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	99.3	80 - 120	5.69	5.687167	0.0028	N/A	
SLC0203-CCV7 (Solid)			Lab File ID: 03142339ECD7.D			Analyzed: 03/14/23 22:43		
Decachlorobiphenyl	40.000	97.5	80 - 120	13.895	13.89483	0.0002	N/A	
Tetrachlorometaxylene	40.000	94.0	80 - 120	5.807	5.8095	-0.0025	N/A	
Decachlorobiphenyl [2C]	40.000	94.5	80 - 120	14.119	14.11917	-0.0002	N/A	
Tetrachlorometaxylene [2C]	40.000	97.8	80 - 120	5.689	5.687167	0.0018	N/A	
SLC0203-CCV8 (Solid)			Lab File ID: 03142340ECD7.D			Analyzed: 03/14/23 23:04		
Decachlorobiphenyl	40.000	106	80 - 120	13.894	13.89483	-0.0008	N/A	
Tetrachlorometaxylene	40.000	99.5	80 - 120	5.806	5.8095	-0.0035	N/A	
Decachlorobiphenyl [2C]	40.000	102	80 - 120	14.118	14.11917	-0.0012	N/A	
Tetrachlorometaxylene [2C]	40.000	101	80 - 120	5.688	5.687167	0.0008	N/A	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLB0342
Instrument: ECD7
Calibration: GB00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Secondary Cal Check (SLB0342-SCV1)		(Water)	Lab File ID: 02242313ECD7.D				Analyzed: 02/24/23 15:03		
1-Bromo-2-Nitrobenzene	645975	3.489	673778	3.493	96	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	1524245	14.268	1429847	14.268	107	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	316115	3.927	315256	3.928	100	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	556950	15.007	513946	15.008	108	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0342-SCV2)		(Water)	Lab File ID: 02242314ECD7.D				Analyzed: 02/24/23 15:24		
1-Bromo-2-Nitrobenzene	705650	3.493	673778	3.493	105	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	1555683	14.267	1429847	14.268	109	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	340433	3.929	315256	3.928	108	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl [2C]	565609	15.008	513946	15.008	110	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SLB0342-SCV3)		(Water)	Lab File ID: 02242315ECD7.D				Analyzed: 02/24/23 15:45		
1-Bromo-2-Nitrobenzene	646554	3.49	673778	3.493	96	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl	1529451	14.268	1429847	14.268	107	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	316066	3.928	315256	3.928	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	557213	15.008	513946	15.008	108	50 - 200	0.000	+/-0.50	
Secondary Cal Check (SLB0342-SCV4)		(Water)	Lab File ID: 02242316ECD7.D				Analyzed: 02/24/23 16:06		
1-Bromo-2-Nitrobenzene	656887	3.488	673778	3.493	97	50 - 200	-0.005	+/-0.50	
Hexabromobiphenyl	1585505	14.267	1429847	14.268	111	50 - 200	-0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	320936	3.925	315256	3.928	102	50 - 200	-0.003	+/-0.50	
Hexabromobiphenyl [2C]	570006	15.007	513946	15.008	111	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0342-SCV5)		(Water)	Lab File ID: 02242317ECD7.D				Analyzed: 02/24/23 16:27		
1-Bromo-2-Nitrobenzene	661953	3.489	673778	3.493	98	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	1574993	14.268	1429847	14.268	110	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	317807	3.926	315256	3.928	101	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	565951	15.007	513946	15.008	110	50 - 200	-0.001	+/-0.50	
Secondary Cal Check (SLB0342-SCV6)		(Water)	Lab File ID: 02242318ECD7.D				Analyzed: 02/24/23 16:48		
1-Bromo-2-Nitrobenzene	656592	3.489	673778	3.493	97	50 - 200	-0.004	+/-0.50	
Hexabromobiphenyl	1584453	14.268	1429847	14.268	111	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	314741	3.926	315256	3.928	100	50 - 200	-0.002	+/-0.50	
Hexabromobiphenyl [2C]	568346	15.007	513946	15.008	111	50 - 200	-0.001	+/-0.50	

Analytical Resources, LLC
Analytical Chemists and Consultants

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory:	Analytical Resources, LLC	SDG:	23C0064
Client:	GeoEngineers	Project:	Anacortes Log Yard
Sequence:	SLC0203	Instrument:	ECD7
		Calibration:	GB00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Initial Cal Check (SLC0203-ICV1)		(Solid)	Lab File ID: 03142302ECD7.D				Analyzed: 03/14/23 09:51		
1-Bromo-2-Nitrobenzene	431215	3.489	405151	3.488	106	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	716208	14.268	709440	14.267	101	50 - 200	0.001	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	343245	3.927	321714	3.928	107	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	473264	15.009	460374	15.008	103	50 - 200	0.001	+/-0.50	
Initial Cal Check (SLC0203-ICV2)		(Solid)	Lab File ID: 03142303ECD7.D				Analyzed: 03/14/23 10:11		
1-Bromo-2-Nitrobenzene	405151	3.488	405151	3.488	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	709440	14.267	709440	14.267	100	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	321714	3.928	321714	3.928	100	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	460374	15.008	460374	15.008	100	50 - 200	0.000	+/-0.50	
Blank (BLC0124-BLK1)		(Solid)	Lab File ID: 03142318ECD7.D				Analyzed: 03/14/23 15:24		
1-Bromo-2-Nitrobenzene	469052	3.488	405151	3.488	116	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	694888	14.267	709440	14.267	98	50 - 200	0.000	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	385225	3.928	321714	3.928	120	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	497244	15.008	460374	15.008	108	50 - 200	0.000	+/-0.50	
LCS (BLC0124-BS1)		(Solid)	Lab File ID: 03142319ECD7.D				Analyzed: 03/14/23 15:45		
1-Bromo-2-Nitrobenzene	480282	3.489	405151	3.488	119	50 - 200	0.001	+/-0.50	
Hexabromobiphenyl	758464	14.265	709440	14.267	107	50 - 200	-0.002	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	391878	3.928	321714	3.928	122	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	540905	15.006	460374	15.008	117	50 - 200	-0.002	+/-0.50	
LCS Dup (BLC0124-BSD1)		(Solid)	Lab File ID: 03142320ECD7.D				Analyzed: 03/14/23 16:06		
1-Bromo-2-Nitrobenzene	488354	3.488	405151	3.488	121	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	808973	14.264	709440	14.267	114	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	395768	3.928	321714	3.928	123	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	569500	15.005	460374	15.008	124	50 - 200	-0.003	+/-0.50	
Reference (BLC0124-SRM1)		(Solid)	Lab File ID: 03142321ECD7.D				Analyzed: 03/14/23 16:27		
1-Bromo-2-Nitrobenzene	479121	3.488	431215	3.489	111	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	616918	14.255	716208	14.268	86	50 - 200	-0.013	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	377331	3.927	343245	3.927	110	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	498712	15	473264	15.009	105	50 - 200	-0.009	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Sequence: SLC0203
Instrument: ECD7
Calibration: GB00069

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LY-28_2-3 (23C0064-01)		(Solid)	Lab File ID: 03142322ECD7.D				Analyzed: 03/14/23 16:48		
1-Bromo-2-Nitrobenzene	486502	3.488	405151	3.488	120	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	691908	14.261	709440	14.267	98	50 - 200	-0.006	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	389133	3.927	321714	3.928	121	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	545761	15.003	460374	15.008	119	50 - 200	-0.005	+/-0.50	
LY-31_0-10 (23C0064-02)		(Solid)	Lab File ID: 03142323ECD7.D				Analyzed: 03/14/23 17:09		
1-Bromo-2-Nitrobenzene	477508	3.487	405151	3.488	118	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	756372	14.262	709440	14.267	107	50 - 200	-0.005	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	396881	3.928	321714	3.928	123	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	568018	15.004	460374	15.008	123	50 - 200	-0.004	+/-0.50	
LY-31_1-2 (23C0064-03)		(Solid)	Lab File ID: 03142324ECD7.D				Analyzed: 03/14/23 17:30		
1-Bromo-2-Nitrobenzene	481099	3.488	405151	3.488	119	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl	823676	14.264	709440	14.267	116	50 - 200	-0.003	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	382288	3.928	321714	3.928	119	50 - 200	0.000	+/-0.50	
Hexabromobiphenyl [2C]	580430	15.005	460374	15.008	126	50 - 200	-0.003	+/-0.50	
LY-32_0-10 (23C0064-04)		(Solid)	Lab File ID: 03142325ECD7.D				Analyzed: 03/14/23 17:51		
1-Bromo-2-Nitrobenzene	478718	3.487	405151	3.488	118	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl	792387	14.263	709440	14.267	112	50 - 200	-0.004	+/-0.50	
1-Bromo-2-Nitrobenzene [2C]	393470	3.927	321714	3.928	122	50 - 200	-0.001	+/-0.50	
Hexabromobiphenyl [2C]	599094	15.005	460374	15.008	130	50 - 200	-0.003	+/-0.50	

HOLDING TIME SUMMARY

Analysis: EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
LY-28_2-3 23C0064-01	01/27/23 10:50	01/30/23 13:24	03/07/23 13:30	39	365	03/14/23 16:48	7	40	
LY-31_0-10 23C0064-02	01/26/23 11:25	01/30/23 13:24	03/07/23 13:30	40	365	03/14/23 17:09	7	40	
LY-31_1-2 23C0064-03	01/27/23 11:40	01/30/23 13:24	03/07/23 13:30	39	365	03/14/23 17:30	7	40	
LY-32_0-10 23C0064-04	01/26/23 09:40	01/30/23 13:24	03/07/23 13:30	40	365	03/14/23 17:51	7	40	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 8082A

Laboratory: Analytical Resources, LLC
SDG: 23C0064
Client: GeoEngineers
Project: Anacortes Log Yard
Matrix: Solid
Instrument: ECD7

Analyte	MDL	RL	Units
Aroclor 1016	1.6	4.0	ug/kg
Aroclor 1016 [2C]	1.6	4.0	ug/kg
Aroclor 1221	1.6	4.0	ug/kg
Aroclor 1221 [2C]	1.6	4.0	ug/kg
Aroclor 1232	1.6	4.0	ug/kg
Aroclor 1232 [2C]	1.6	4.0	ug/kg
Aroclor 1242	1.6	4.0	ug/kg
Aroclor 1242 [2C]	1.6	4.0	ug/kg
Aroclor 1248	1.6	4.0	ug/kg
Aroclor 1248 [2C]	1.6	4.0	ug/kg
Aroclor 1254	1.6	4.0	ug/kg
Aroclor 1254 [2C]	1.6	4.0	ug/kg
Aroclor 1260	0.6	4.0	ug/kg
Aroclor 1260 [2C]	0.6	4.0	ug/kg
Aroclor 1262	0.6	4.0	ug/kg
Aroclor 1262 [2C]	0.6	4.0	ug/kg
Aroclor 1268	0.6	4.0	ug/kg
Aroclor 1268 [2C]	0.6	4.0	ug/kg

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: S-279N
Description: Tetrachloro-m-xylene
Lot: 0052481B-1
Solvent: N/A
Hazards: *Refer to SDS for complete safety information*

Signal Word: Warning

Date Certified: Jul 28, 2005
Expiration: Jul 28, 2015
Sample Size: 100 mg
Components: 1
Storage Condition: Ambient (>5 °C)

Certified Reference Material

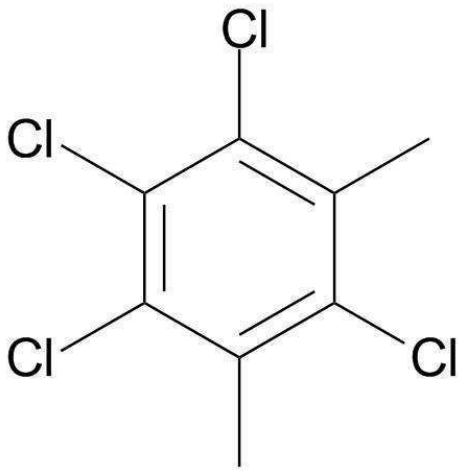
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER AR-1463

ilac-MRA

Component	CAS #	Purity % (GC/FID)	Prepared Concentration	Certified Analyte Concentration[1]
Tetrachloro-meta-xylene	877-09-8	96.0	N/A	N/A

Identification:

Molecular formula: C8H6Cl4
Molecular weight: 243.94



C000147
tetrachlormetaxylene
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

This Certified Reference Material was verified in accordance with ISO/IEC 17025

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

[1] The Uncertainty calculated for this product is ±2.4%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

Metrological traceability is established through in-house validated methods.

Purity, if stated, is equal to 100% minus found impurity components. Impurity components have not been identified.

The information on this certificate may not be reproduced without the express permission of the manufacturer. See reverse side for additional information

Hazard Information: Please refer to the SDS for information regarding the hazards associated with using this material.

This product was prepared according to in-house procedures and is guaranteed to be homogeneous.

Certified By: Larry Decker, Organic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

EXPIRED AccuStandard

AccuStandard
125 Market Street
New Haven, CT 06513
(203) 786-5290

CERTIFICATE OF PRODUCT DATA

PRODUCT: C-209N
DESCRIPTION: 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
LOT #: 990521LB-AC
SOLVENT: N/A

EXPIRATION: Jul 28, 2015

This product is guaranteed accurate to ±0.5% of the Certified Analyte concentration through the Expiration Date on the Label.

Component	CAS #	Purity % (GC/MS)	Prepared Concentration[1]	Certified Analyte Concentration[2]
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	100	N/A	N/A

C000148
decachlorbiphenyl
Expires 1/15/2020
Prepared By Joshua Rains 1/15/2014

* I1768A

Certified by: R. Cooper

1. All weights are traceable through National Institute of Standards & Technology, Test No. 822/254480
2. Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty calculated for this product is ±4% which is the Combined Uncertainty uc(y). It represents an estimated standard deviation equal to the positive square root of the total variance of the uncertainty of components. The Expanded Uncertainty is U which is Uc(y) *K where K is the coverage factor at the 95% confidence level (K=2).
3. A product with a suffix (-1A, -2B, etc.) on its lot# has had its expiration date extended and is identical to the same lot# without the suffix.

Please note: AccuStandard follows the U.S. conventions in reporting numerical values, on both certificates and labels.

A comma (,) is used to separate units of one-thousand or greater.
A period (.) is used as a decimal place marker.

This product was manufactured in accordance to quality system requirements of ISO 9001:2000 and ISO 17025

* Recertified 2 4-6-09 JS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Standard Record

Standard ID: C000148 **Printed: 4/23/2015 11:54:44AM**

Description:	decachlorbiphenyl	Expires:	15-Jan-2020
Standard Type:	Other	Prepared:	15-Jan-2014
Solvent:	na/a	Prepared By:	Joshua Rains
Final Volume (mls):	1	Department:	Organics
Vials:	1	Last Edit:	27-Feb-2015 13:03 by JGR
Vendor:	Accustandard	Lot #:	990521lb-ac
Vendor Catalog #:			

Comments

see i1768a
SOM calibrations added 06/12/14 sdrd

Analyte	CAS Number	Concentration	Units
Decachlorobiphenyl [2C]	2051-24-3	1000000	ug/mL
Decachlorobiphenyl	2051-24-3	1000000	ug/mL
DCB 1660 [2C]	2051-24-3	1000000	ug/mL
DCB 1660	2051-24-3	1000000	ug/mL
DCB [2C]	2051-24-3	1000000	ug/mL
DCB (A) [2C]	2051-24-3	1000000	ug/mL
DCB (A)	2051-24-3	1000000	ug/mL
DCB	2051-24-3	1000000	ug/mL

Reviewed By Date

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101461
Description: Aroclor 1254
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL13053
Certification Date: November 29, 2018
Expiration Date: November 30, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1254	11097-69-1	1000	± 0.246%

I09808
Recd. JP
02/24/20

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101468
Description: Aroclor 1221
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14017
Certification Date: August 20, 2019
Expiration Date: August 31, 2027

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1221	11104-28-2	1000	± 0.553%

J004466
Rec'd JF
06/18/21

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101469
Description: Aroclor 1232
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL14914
Certification Date: January 31, 2020
Expiration Date: January 31, 2028

Andrea L Gill
Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1232	11141-16-5	1000	± 0.738%

J006467 JR
read
06/18/21

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommendad temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.:	AL0-101470	**Lot Number:**	CL14018
Description:	Aroclor 1242	**Certification Date:**	August 20, 2019
Storage:	4 °C	**Expiration Date:**	August 31, 2027
Provided As:	1 mL in 2 mL Ampoule in Isooctane		

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1242	53469-21-9	1000	± 0.553%

J006468
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06/18/21

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommanded temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.:	AL0-101471	**Lot Number:**	CL15384
Description:	Aroclor 1248	**Certification Date:**	June 19, 2020
Storage:	4 °C	**Expiration Date:**	June 30, 2028
Provided As:	1 mL in 2 mL Ampoule in Isooctane		

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1248	12672-29-6	1000	± 0.520%

JJ06469
Reed, JR
06/18/21

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101474	**Lot Number:**	CL11330
Description:	Aroclor 1262	**Certification Date:**	May 15, 2015
Storage:	4 °C	**Expiration Date:**	April 30, 2023
Provided As:	1 mL in 2 mL Ampoule in Isooctane	**Revision Date:**	April 2, 2018

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1262	37324-23-5	1000	± 0.516%

J 00647
Red JK
06/18/21

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Reference Material Producer
Certificate No. 2427.02

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1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.:	AL0-101475	**Lot Number:**	CL11331
Description:	Aroclor 1268	**Certification Date:**	May 15, 2015
Storage:	4 °C	**Expiration Date:**	April 30, 2023
Provided As:	1 mL in 2 mL Ampoule in Isooctane	**Revision Date:**	April 2, 2018

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1268	11100-14-4	1000	± 0.516%

J006472
Rec'd
06/18/21

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.

Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL111110613_us

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
411 Madrid Ave., Torrance, CA 90501 USA ▪ Tel: 310-212-0555 ▪ Fax: 310-328-7768 ▪ info@phenomenex.com
Access your MSDS and digital C of A at www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

Certificate of Analysis

Agilent

Aroclor 1016 Solution

Product Number: PP-282 **Page:** 1 of 1

Lot Number: CR-0761 **Lot Issue Date:** 28-Feb-2017 **Expiration Date:** 31-Mar-2025

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1016	012674-11-2	NT01016	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1254 Reed JR 02/05/22

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

Agilent

Certificate of Analysis

Product Name: Aroclor 1260 Standard

Product Number: PP-362-1 **Lot Issue Date:** 20-Jan-2021

Lot Number: 0006582048 **Expiration Date:** 28-Feb-2025

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1260	011096-82-5	NT01023	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K 1255

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert
No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert
No. AT-1937

Agilent

Certificate of Analysis
ISO Guide 34

Aroclor 1242 Solution

Product Number: PP-312 **Page:** 1 of 1

Lot Number: CS-6293 **Lot Issue Date:** 04-Jan-2019 **Expiration Date:** 31-Jan-2023

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1242	053469-21-9	NT01020	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1256

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

M Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO Guide 34 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

ISO 17034

Agilent
Trusted Answers

Reference Material Certificate

Product Name:	Aroclor 1248 Standard	**Lot Number:**	0006626997
Product Number:	PP-342-1	**Lot Issue Date:**	17-Aug-2021
Storage Conditions:	Store at Room Temperature (15° to 30°C).	**Expiration Date:**	30-Sep-2025

	CERTIFIED VALUES			
Component Name	**Concentration**	**Expanded Uncertainty**	**CAS#**	**Analyte Lot**
Aroclor 1248	100.3 ±	0.5 µg/mL	012672-29-6	NT01582

Matrix: isooctane (2,2,4-trimethylpentane)

K1257

Description:
This document is prepared in accordance with ISO 17034 and Guide 31. This analytical reference material standard was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed above.

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This analytical reference standard was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Safety:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this analytical reference material.

Intended Use:
This analytical reference standard is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Expiration of Certification:
The certification of this analytical reference standard is valid until the expiration date specified above, provided the material is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the material is damaged, contaminated, or otherwise modified.

Certificate of Analysis

Agilent

Aroclor 1254 Solution

Product Number: PP-352 **Page:** 1 of 1

Lot Number: CS-2321 **Lot Issue Date:** 04-May-2018 **Expiration Date:** 31-May-2026

This ISO Guide 34 Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1254	011097-69-1	RM00922	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1258

ULTRA uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

John Russo
President

Monica Bourgeois
Director of QA/RA

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001
Registered
TUV USA, Inc.

Agilent

Certificate of Analysis

Product Name: Aroclor 1221 Standard

Product Number: PP-292-1 **Lot Issue Date:** 28-Apr-2020

Lot Number: 0006535333 **Expiration Date:** 31-May-2024

Description:

This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system, and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1221	011104-28-2	RM04278	100.2 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1259

Traceability:

The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:

This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:

This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:

Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:

Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:

The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:

If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

MBourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

www.agilent.com/quality/
CSD-QA-015.1

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 17025 Cert No. AT-1937

Agilent

Certificate of Analysis
ISO 17034

Aroclor 1262 Standard

Product Number: PP-372-1 **Page:** 1 of 1

Lot Number: 0006499800 **Lot Issue Date:** 04-Nov-2019 **Expiration Date:** 30-Nov-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent Technologies ISO 9001 registered quality system. A review of the gravimetric preparation data by our ISO 17025 accredited laboratory serves to verify the concentration of each analyte. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1262	037324-23-5	RM14263	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1260

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO 17025 Cert No. AT-1937

Agilent

Certificate of Analysis
ISO 17034

Aroclor 1232 Standard

Product Number: PP-302-1 **Page:** 1 of 1

Lot Number: CF-2197A **Lot Issue Date:** 05-Jul-2016 **Expiration Date:** 31-Aug-2023

This ISO 17034 Reference Material (RM) was manufactured and verified in accordance with Agilent's ISO 9001 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The true value and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	True Value
Aroclor 1232	011141-16-5	NT01717	100.4 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage: Store at Room Temperature (15° to 30°C).

K1261

Agilent uses balances calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001, and calibrated Class A glassware in the manufacturing of these standards.

M P Bourgeois

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

Produced in accordance with TUV USA Inc 56 100 18560026 registered ISO 9001 Quality Management System

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
ISO17025 Cert No. AT-1937

Agilent

Certificate of Analysis

Product Name: Aroclor 1268 Standard

Product Number: PP-382-1 **Lot Issue Date:** 09-Feb-2021

Lot Number: 0006587800 **Expiration Date:** 31-Mar-2029

Description:
This analytical reference material (RM) was manufactured and verified in accordance with an ISO 9001 registered quality system and analyte concentrations were verified by an ISO 17025 accredited laboratory. The concentration and uncertainty value at the 95% confidence level for each analyte, determined gravimetrically, is listed below.

Analyte	CAS#	Analyte Lot	Concentration ± Uncertainty
Aroclor 1268	011100-14-4	RM00937	100.0 ± 0.5 µg/mL

Matrix: isooctane (2,2,4-trimethylpentane)

Storage Conditions: Store at Room Temperature (15° to 30°C).

K1262

Traceability:
The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z540.3, ISO 9001, ISO 17025, and ISO 17034. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 1088.

Homogeneity:
This RM was unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods, and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening the container and should be processed without delay for the certified values to be valid within the stated uncertainties.

Hazards:
Refer to the Safety Data Sheet on www.agilent.com for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

Maintenance of Certification:
If substantive changes are noted that affect the certification before the expiration of this certificate, Agilent will notify the purchaser.

Sample lot approver:

Monica Bourgeois
QMS Representative

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ISO 17034 Cert No. AR-1936

RM was produced in accordance with TUV USA Inc registered ISO 9001 Quality Management System. Cert # 56 100 18560026

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ISO 17025 Cert No. AT-1937

250 Smith Street North Kingstown, Rhode Island 02852 www.agilent.com/quality

Recipient Copy

CHAIN-OF-CUSTODY RECORD

COC No. 15350

Order Number: CB014765 Date Shipped: 4/11/2022 AirBill No(s): 519204140444

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. B
LAS VEGAS, NV 89120
PHONE: 1-702-895-8712

To: Kelly Bottem
Analytical Resources, Inc.
4611 S. 134th Place SUITE 100
Tukwila WA 98168
206-695-6211

K003525
K003528

Sample ID	Qty	Description/Remarks	→ Catalogue Number
PSRM0148	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0149	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0150	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0151	1	PUGET SOUND SEDIMENT RM	PS-SRM

4/11/2022

BOEING PLANT 2

Please use the enclosed Sample Preparation Instructions. If catalogue number(s) are listed at the top of the Sample Preparation Instructions use the Sample Preparation Instructions with catalogue number(s) matching the catalogue number(s) of each of the samples listed above.

Relinquished by: (Signature)	Date/Time 1400 4/11/2022	Received by: (Signature)	Date/Time 0955 04/12/22
Custody Seal(s): Present/Absent PRESENT	Remarks:		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

PUGET SOUND SEDIMENT REFERENCE MATERIAL
QATS LABORATORY INSTRUCTIONS FOR
HRGC/HRMS CDD/CDF/CB CONGENER AND GC/ECD AROCLOR ANALYSIS

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocols or your contract, disregard these instructions.

APPLICATION: For the analysis of CDD/CDF and CB Congener analytes using project-specified HRGC/HRMS methods, and Aroclors using project-specified GC/ECD methods.

CAUTION: Read instructions carefully before opening bottles and proceeding with the analyses.

Contains CDD/CDF, CB Congener, and/or Aroclors
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a Puget Sound (Washington State) Sediment Reference Material (SRM) set for chlorinated dibenzo-p-dioxins/chlorinated dibenzofurans (CDD/CDF), and/or chlorinated biphenyl (CB) congener analysis using project-specified high resolution gas chromatography/ high resolution mass spectrometry (HRGC/HRMS) methods. This SRM is also suitable for Aroclors analysis using project-specified gas chromatography/electron capture detection (GC/ECD) methods. This set consists of one (1) or more bottles, each with approximately 30 grams of Puget Sound SRM containing CDD/CDF, CB Congener, and/or Aroclor analytes. Check the chain-of-custody record to determine the number of bottles provided for CDD/CDF, CB Congener, and/or Aroclor analysis. None of the bottles are to be opened until SRM preparation/analysis is to occur.

CAUTION: The SRM could contain compounds that are light sensitive and should be protected from light during storage. Store the SRM at ≤ 6° C, preferably at < 0° C, until SRM preparation and analysis is to occur. Allow the bottle(s) to reach ambient temperature before opening.

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Refer to the enclosed chain-of-custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS REQUIREMENTS*

The SRM is to be analyzed as described in the project-specified methods employed for the analysis of CDD/CDF and/or CB Congener analytes using HRGC/HRMS instrumentation and/or Aroclors using GC/ECD instrumentation. These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the project-specified methods, or your contract, disregard these instructions.

(D) *SAMPLE ANALYSIS*

General Instructions

The SRM contains CDD/CDF, CB Congener, and Aroclor analytes which are known or suspected to have severe health effects. Employing appropriate safety precautions, this SRM is to be handled, prepared, and analyzed exactly as you would process samples received from a known or suspected hazardous waste site. The SRM should be handled only by trained and experienced analysts in facilities expressly designed to handle such materials. When calculating the concentrations of analytes, use 0% as the soil moisture content.

Allow the bottle(s) to reach ambient temperature before opening and removing gravimetric amounts for sample preparation. To begin the extraction and analysis procedure, break the seal and open the bottle carefully. Weigh out the appropriate aliquot for extraction and analysis as prescribed in the project-specified methods (typically 10 grams for HRGC/HRMS methods and 30 grams for GC/ECD methods), or in accordance with your contract.

Proceed immediately with the extraction and analysis as described in the project-specified methods or your contract.

(E) *REPORTING*

Report the results for the prepared SRM as received.

Report the analytical results for the SRM to EPA or other appropriate Agency, using the format and other instructions for submission of data packages as specified in your contract.

Certificate of Analysis

Phenova Certified Reference Materials are sold by Phenomenex.
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Certified Reference Material

This product is included in Phenova's ISO/IEC 17025 and ISO Guide 34 Scopes of Accreditation

Catalog No.: AL0-101467
Description: Aroclor 1016
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Isooctane

Lot Number: CL12975
Certification Date: November 19, 2018
Expiration Date: October 31, 2026

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1016	12674-11-2	1000	± 0.553%

K5829

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Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL11110613_us

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Access your MSDS and digital C of A at www.phenomenex.com/mysupport. Re-order at www.phenomenex.com/standards

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO Guide 34[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in the calibration and calibration verification of chromatographic instrumentation performed in routine laboratory analysis.

4. Instruction: Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all certified analytes in the mixture.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Material Safety Data Sheet (MSDS) is available at www.phenomenex.com/mysupport.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

   $$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

   Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty raported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO Guide 34. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO Guide 34.

12. Period of Validity: The Certified Values and their uncertainties are guaranteed until the expiration date. This product will be monitorad during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31:2000(E) – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35:2006(E) – Reference Material – General and Statistical Principles for Certification.
[3] ISO Guide 34:2009(E) – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025:2005(E) – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

ACCREDITED
Reference Material Producer
Certificate No. 2427.02

phenova® Certified Reference Materials

Manufactured by Phenova, Inc.
Phenova's testing and calibration results are internationally recognized through the ILAC MRA. Phenova is an accredited ISO Guide 34 Reference Material Provider and ISO/IEC 17025 accredited Chemical Testing Laboratory.

ilac-MRA ACCREDITED
Chemical Testing Laboratory
Certificate No. 2427.03

IL111106I3_US

Certificate of Analysis

phenova Certified Reference Materials | A Phenomenex Company

Produced by Phenova
6390 Joyce Drive STE 100, Golden, CO 80403 USA ▪ Tel: 303-940-0033 ▪ Fax: 303-940-0043 ▪ info@phenova.com
Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

Certified Reference Material

This product is certified in accordance with Phenova's ISO 17034 accreditation and supported by Phenova's ISO/IEC 17025 chemical testing accreditation

Catalog No.: AL0-101462
Description: Aroclor 1260
Storage: 4 °C
Provided As: 1 mL in 2 mL Ampoule in Hexane

Lot Number: CL18021
Certification Date: February 14, 2022
Expiration Date: February 28, 2030

Andrea L Gill

Andrea Gill, Certified Reference Materials Manager

Component	CAS #	Certified Value µg/mL	Expanded Uncertainty
Aroclor 1260	11096-82-5	1000	± 0.553%

K005830

Certificate of Analysis

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Access your Safety Data Sheets and digital Certificates at **www.phenova.com/documents.**

1. Quality Document: This Certificate of Analysis has been created in accordance with ISO Guide 31[1] and ISO Guide 35.[2]

2. Quality Standards: Phenova is accredited by A2LA to ISO 17034[3] and ISO/IEC 17025[4] as a producer of Certified Reference Materials and Reference Materials. This ensures that our manufacturing processes have been accredited to and meet strict international standards.

3. Intended Use: The product is manufactured for use in calibration, calibration verification, quantification, identification and other appropriate analytical control applications. The product is intended for routine laboratory analysis and research purposes only. Only trained personnel should handle this product.

4. Handling and Usage Notes: Store according to recommended conditions listed and avoid prolonged exposure to light. Visually inspect the solution inside the ampoule for any un-dissolved material. If particulate is visible, sonicate the unopened ampoule until material is fully dissolved. Dilute as required, use only class A glassware and diluents compatible with all analytes in the mixture. Considerations should be made related to repeated use of the opened product. Once opened, exposure to light, air, heat, objects, and additional transfer vessels may cause evaporation, degradation or contamination resulting in changes in concentration, uncertainty and stability duration. Store opened standards in a clean, tightly capped vessel under the recommended temperature. Appropriate controls, such as the use of additional verification standards should be used to confirm the opened product is fit for purpose under repeated use conditions.

5. Hazardous Situation: The product is intended for use by experienced professional personnel. A Safety Data Sheet (SDS) is available at www.phenova.com/documents.

6. Level of Homogeneity: The product has been certified to guarantee the certified values and their uncertainties at a volume of 2 µL.

7. Certified Value: Certified Value is based upon gravimetric and volumetric preparation using calibrated balances and Class A glassware.

8. Raw Materials and Purity: Phenova reference standard products are prepared from the highest quality starting materials. The purity of this material was verified using an ISO/IEC 17025 methodology.

9. Expanded Uncertainty: The expanded uncertainty (uCRM) as stated is determined in accordance with ISO/IEC Guide 98[5] and ISO Guide 35 incorporating Type A standard uncertainty at a 95% confidence level. The uncertainty contains elements of manufacturing (uM), homogeneity analysis (uH) and long-term stability testing (uLTS). The uncertainty is calculated based on the root-sum-of-squares equation times a coverage factor (k=2).

$$uCRM = k\sqrt{uM^2 + uH^2 + uLTS^2}$$

Transport conditions (short-term stability) have been tested such that there is no contribution to the uncertainty reported. The expanded uncertainty applies to the product as received.

10. Metrological Traceability: The property value (certified value and its uncertainty) are traceable through an unbroken chain of calibration to the SI base unit kg through a NIST traceable weight in accordance with ISO 17034. This is achieved through calibration of balances, verification of weights, use of national methodology for glassware calibration and product homogeneity and stability testing utilizing an ISO/IEC 17025 methodology.

11. Values Obtained During Product Testing: This product is subjected to verification, homogeneity and stability testing using an ISO/IEC 17025 chromatographic methodology. All values obtained during testing meet criteria in accordance with ISO 17034.

12. Period of Validity: The Certified Values, Uncertainties and Expiration Date are based on the unopened product being stored according to the recommended storage condition listed and are guaranteed until the expiration date. This product will be monitored during the period of validity and customers notified of any significant changes in stability.

References:

[1] ISO Guide 31 – Reference Materials – Contents of Certificates and Labels.
[2] ISO Guide 35 – Reference Material – General and Statistical Principles for Certification.
[3] ISO 17034 – General Requirements for the Competence of Reference Material Producers.
[4] ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories.
[5] ISO/IEC Guide 98-3:2008(E) – Uncertainty of Measurement – Part 3: Guide to Expression of Uncertainty in Measurement (GUM: 1995)

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLC0084
Date:	3/3/2023 12:44
Analyst:	YL
Drying Oven:	15
Analytical Balance:	B146462614

Batch drying time		
Record times as mm/dd/yy hh:mm		
Date/time in oven:	3/3/2023 13:16	
Date/time out:	3/6/2023 6:40	
Elapsed hrs:	65.4	> 24 hr

Oven Temp, C	TS (%) calculated as:
105	Final dry wt (g) = (Dry Wt - Tare Wt)
97	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	105
End Temp:	97

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23C0064-01	0.8300	12.1800	9.8700	9.04	**79.65%**	Yes
23C0064-02	0.7900	11.7500	9.1700	8.38	**76.46%**	No
23C0064-03	0.7600	12.0000	9.4700	8.71	**77.49%**	Yes
23C0064-04	0.8200	12.0100	9.5400	8.72	**77.93%**	Yes

TOTAL SOLIDS BENCHSHEET

Method: PSEP 1986

(dry at 103-105 C)

Instrumentation

Batch:	BLC0084
Date:	3/3/2023 12:44
Analyst:	JL
Drying Oven:	Ø15
Analytical Balance:	B1464626 14

Batch drying time

Record times as mm/dd/yy hh:mm

			Oven Temp, C
Date/time in oven:	Ø3/Ø3/23	13:16	105
Date/time out:	3/6/23	6:40	97
Elapsed hrs:	0.0		

TS (%) calculated as:

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

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

Oven Temps, °C	
Start Temp:	105
End Temp:	97

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23C0064-01	Ø.33	12.18	9.87			No yes
23C0064-02	Ø.79	11.75	9.17			No
23C0064-03	Ø.76	12.ØØ	9.47			No yes
23C0064-04	Ø.82	12.Ø1	9.54			No yes

T/S + Scrum

1 copy

Attachment 4
Data Validation Report

GeoEngineers

2101 4th Avenue, Suite 950, Seattle, WA 98121, Telephone: 206.728.2674, Fax: 206.728.2732 www.geoengineers.com

Data Validation Report

Project:	Anacortes Port Log Yard – Additional Data Gap Sediment Investigation January 2023 Sediment Samples
GEI File No:	05147-016-11
Date:	May 10, 2023

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2B data validation (USEPA Document 540-R-08-005; USEPA 2009) of analytical data from the analyses of sediment samples collected as part of the January 2023 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Anacortes Port Log Yard site in Anacortes, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with National Functional Guidelines for Organic Superfund Methods Data Review (USEPA 2020a) and Inorganic Superfund Methods Data Review (USEPA 2020b) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

The data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Field Duplicates
- Instrument Tuning
- Internal Standards
- Initial Calibrations (ICALs)

- Continuing Calibrations (CCALs)

VALIDATED SAMPLE DELIVERY GROUPS

This data validation included review of the sample delivery groups (SDGs) listed below in Table 1.

TABLE 1: SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory #	Validated Samples
23A0626	LY-28_0-10, LY-DUP_0-10, LY-28_1-2, LY-29_0-10, LY-29_1-2, LY-30_0-10, LY-30_1-2
23C0064	LY-28_2-3, LY-31_0-10, LY-31_1-2, LY-32_0-10

CHEMICAL ANALYSIS PERFORMED

Analytical Resources, Inc. (ARI), located in Tukwila, Washington, performed laboratory analyses on the sediment samples using one or more of the following methods:

- Polycyclic Aromatic Hydrocarbons (PAHs) by Method SW8270E-SIM; and
- Polychlorinated Biphenyls (PCBs) by Method SW8082A

DATA VALIDATION SUMMARY

The results for each of the QC elements are summarized below.

Data Package Completeness

ARI provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory.

Holding Times and Sample Preservation

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis. The sample cooler arrived at the laboratory outside the appropriate temperatures of between 2 and 6 degrees Celsius at 1.3 degrees Celsius. It was determined through professional judgment, that since the samples were not frozen when received by the laboratory, this temperature should not affect the sample analytical results.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries (%R) are calculated following analysis. The surrogate recoveries for field samples were within the laboratory control limits, with the exceptions noted below:

SDG 23A0626: (PAHs) The %R for surrogate dibenzo(a,h)anthracene-d14 was greater than the control limits in Samples LY-28_0-10 and LY-28_1-2; however, the samples were spiked with two additional surrogates and in each case the %R values were within their respective control limits. No action was required for these outliers.

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks.

Matrix Spikes/Matrix Spike Duplicates

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a %R is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the results from the MS and MSD, the relative percent difference (RPD) is calculated. The %R control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the %R and RPD values were within the proper control limits.

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, control limits for accuracy and precision in the LCS and its duplicate (LCSD) are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to each sample in the associated batch, instead of just the parent sample. The %R control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the %R and RPD values were within the proper control limits, with the following exception:

SDG 23A0626: (PCBs) The %R for Aroclor 1260 was greater than the control limit in the LCSD extracted on 2/9/2023; however, the %R for this target analyte was within the control limit in the corresponding LCS. No action was required for this outlier.

Field Duplicates

Field duplicates are similar to laboratory duplicates in that they are used to assess precision. Two samples (parent and duplicate) are created in the field by subsampling the homogenized sample and submitting them to the lab as separate samples. Duplicate samples were collected and analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for sediment samples is 50 percent.

SDG 23A0626: One field duplicate sample pair, LY-28_0-10/LY-DUP_0-10, was submitted with this SDG. The precision criteria for the target analytes were met for this sample pair, with the exception of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene. The positive results for these target analytes were qualified as estimated (J) in this sample pair.

Instrument Tuning

Instrument tuning for analyses by gas chromatography/mass spectrometry (GC/MS) are completed to ensure that mass resolution, identification, and sensitivity of the analyses are acceptable. Instrument tuning should be performed at the beginning of each 12-hour period during which samples or standards are analyzed. The frequency and specified acceptance criteria were met for each applicable analysis.

Internal Standards (Low Resolution Mass Spectrometry)

Like the surrogate, an internal standard is a compound that is chemically similar to the analytes of interest, but unlikely to be found in an environmental sample. Internal standards are used only for the mass spectrometry instrumentation and are usually added to the sample aliquot after extraction has taken place. The internal standard should be analyzed at the beginning of a 12-hour sample run and the control limits for internal standard recoveries are 50 percent to 200 percent of the calibration standard. The internal standard recoveries were within the control limits.

Initial Calibrations (ICALs)

The initial calibrations were conducted according to the laboratory methods and consisted of the appropriate number of standards. For inorganic analyses, the %R values were within the control limits of 90% and 110%. For organic analyses, the percent relative standard deviation (%RSD) and relative response factors (RRF) values were within the control limits stated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 2020a, USEPA 2020b).

Continuing Calibrations (CCALs)

The continuing calibrations were conducted according to the laboratory methods and consisted of the appropriate number of standards. For inorganic analyses, the %R values were within the control limits of 90% and 110%. For organic analyses, the percent difference (%D) and relative response factors (RRF) values were within the control limits in the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA 2020a, USEPA 2020b).

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values, with the exceptions noted above. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and field duplicate RPD values, with the exceptions note above.

The data are acceptable for the intended use, with the following qualifications listed below in Table 2.

TABLE 2: SUMMARY OF QUALIFIED SAMPLES

Sample ID	Analyte	Validation Qualifier	Rationale
LY-28_0-10	Benzo(a)anthracene	J	Field Duplicate Precision
	Benzo(a)pyrene	J	Field Duplicate Precision
	Benzo(b)fluoranthene	J	Field Duplicate Precision
	Benzo(k)fluoranthene	J	Field Duplicate Precision
	Chrysene	J	Field Duplicate Precision
LY-DUP_0-10	Benzo(a)anthracene	J	Field Duplicate Precision
	Benzo(a)pyrene	J	Field Duplicate Precision
	Benzo(b)fluoranthene	J	Field Duplicate Precision
	Benzo(k)fluoranthene	J	Field Duplicate Precision
	Chrysene	J	Field Duplicate Precision

REFERENCES

U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA), 2020a. "Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review," EPA-540-R-20-005. November 2020.

U.S. Environmental Protection Agency (USEPA), 2020b. "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review," EPA-542-R-20-006. November 2020.