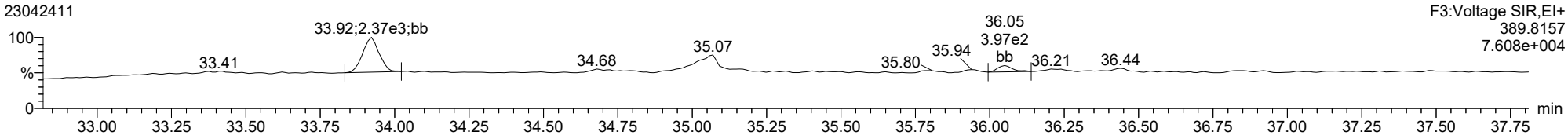
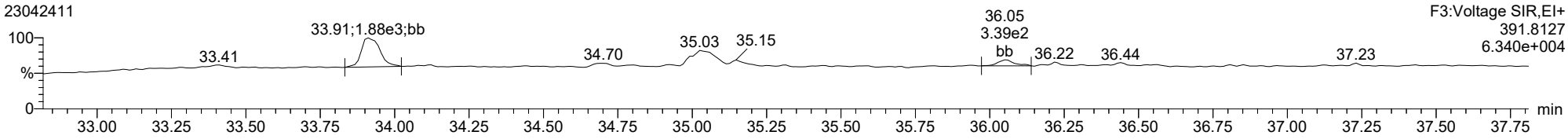
ID: 23C0619-07, Name: 23042411, Date: 24-Apr-2023, Time: 22:35:20, Conditions: AUTOSPEC01, User: pk

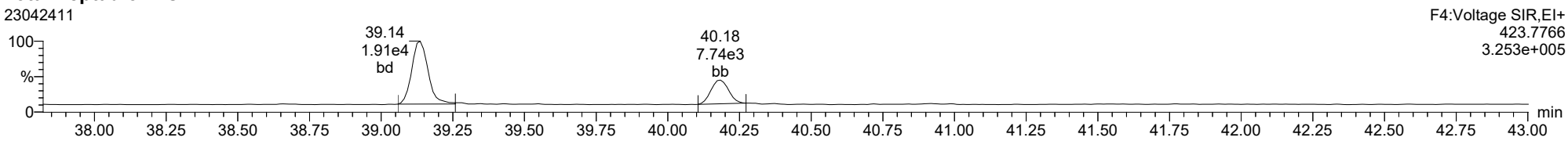
Total-hexadioxins



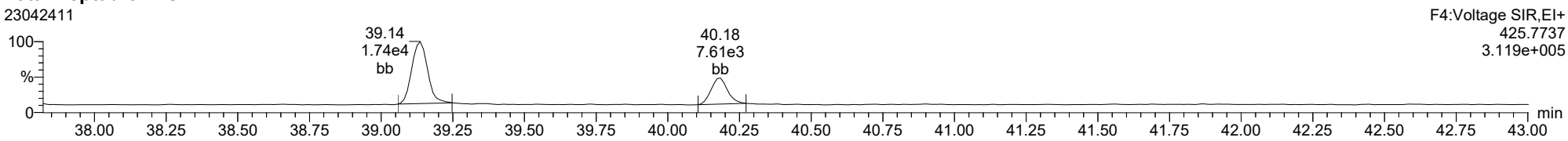
Total-hexadioxins



Total-heptadioxins

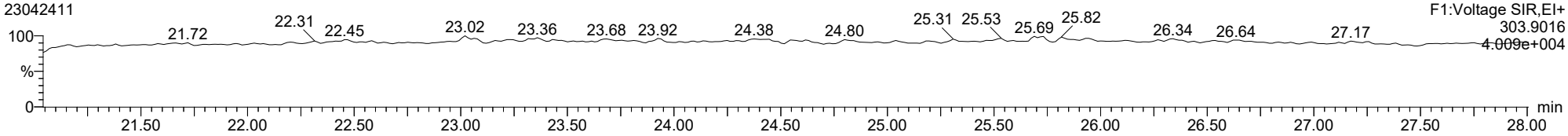


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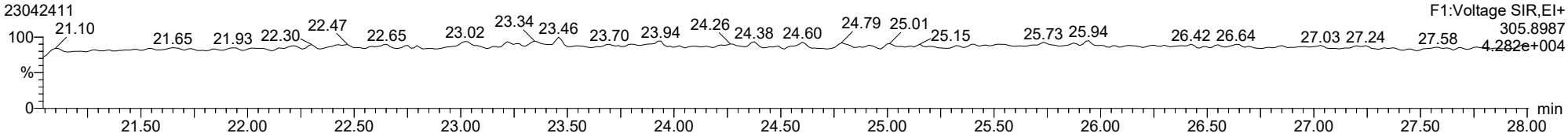


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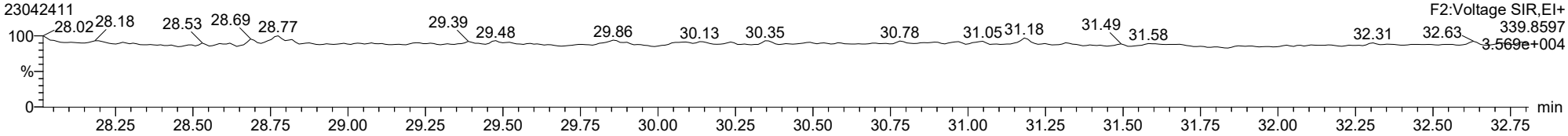
Total-tetrafurans



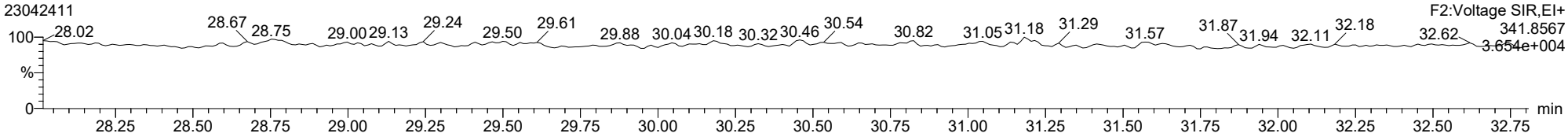
Total-tetrafurans



Total-pentafurans

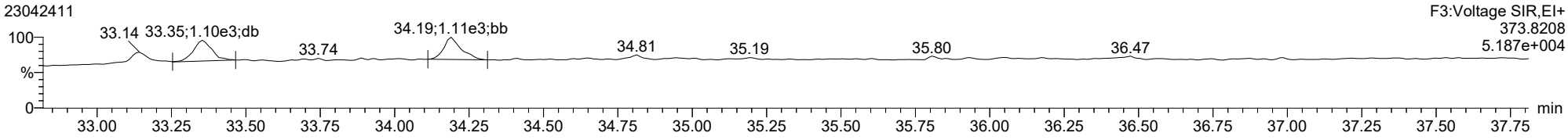


Total-pentafurans

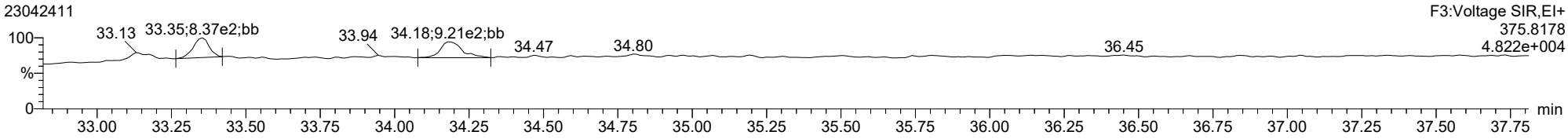


ID: 23C0619-07, Name: 23042411, Date: 24-Apr-2023, Time: 22:35:20, Conditions: AUTOSPEC01, User: pk

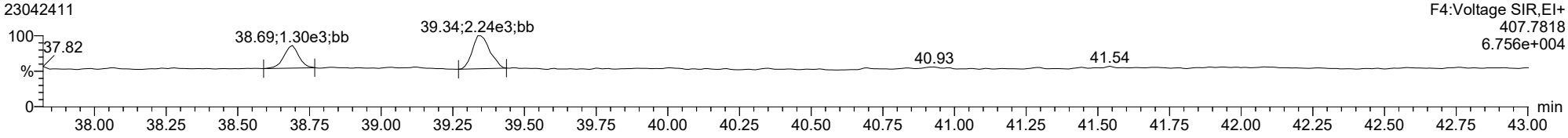
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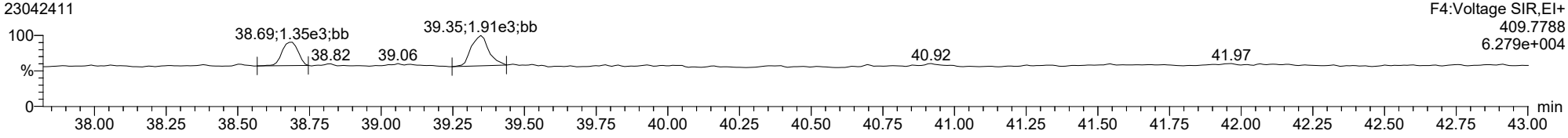
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SED-26C:0-1

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.				
Project:	Port of Friday Harbor				
Matrix:	Sediment	Laboratory ID:	23C0619-08 C	File ID:	23042414
Sampled:	03/22/23 10:38	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 01:09
% Solids:	60.92	Preparation:	EPA 1613	Initial/Final:	16.46 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.792	0.655-0.886	0.202	0.997	3.10	ng/kg	X
1746-01-6	2,3,7,8-TCDD	1	0.868	0.655-0.886	0.085	0.997	0.512	ng/kg	J
57117-41-6	1,2,3,7,8-PeCDF	1	1.537	1.318-1.783	0.166	0.997	2.65	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1	1.502	1.318-1.783	0.155	0.997	2.33	ng/kg	
40321-76-4	1,2,3,7,8-PeCDD	1	1.525	1.318-1.783	0.401	0.997	4.31	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.233	1.054-1.426	0.139	0.997	4.68	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.316	1.054-1.426	0.145	0.997	3.45	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.184	1.054-1.426	0.163	0.997	5.03	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.455	1.054-1.426	0.177	0.997	1.57	ng/kg	EMPC
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.219	1.054-1.426	0.330	0.997	4.08	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.220	1.054-1.426	0.330	0.997	26.1	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.216	1.054-1.426	0.364	0.997	11.0	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.047	0.893-1.208	0.342	0.997	116	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.941	0.893-1.208	0.535	0.997	5.85	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.027	0.893-1.208	1.02	2.49	976	ng/kg	B
39001-02-0	OCDF	1	0.889	0.757-1.024	0.946	2.49	554	ng/kg	
3268-87-9	OCDD	1	0.858	0.757-1.024	1.51	9.97	8660	ng/kg	E, B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.997	30.7	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.997	8.75	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.997	55.9	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.997	19.7	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.997	144	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.997	233	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.997	486	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.997	2320	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 25.24
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 25.24

SED-26C:0-1

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Sediment	Laboratory ID:	23C0619-08	File ID:	23042414
Sampled:	03/22/23 10:38	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 01:09
Solids Wt%:	60.92	Preparation:	EPA 1613	Initial/Final:	16.46 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.752	0.655-0.886	0.082	81.9	24 - 169 %	
13C12-2,3,7,8-TCDD		0.798	0.655-0.886	0.122	88.1	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.481	1.318-1.783	0.207	92.1	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.545	1.318-1.783	0.230	95.4	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.612	1.318-1.783	0.146	75.2	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.514	0.434-0.587	0.221	83.2	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.512	0.434-0.587	0.186	73.9	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.511	0.434-0.587	0.229	78.8	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.511	0.434-0.587	0.277	73.3	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.242	1.054-1.426	0.200	84.5	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.263	1.054-1.426	0.172	78.4	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.462	0.374-0.506	0.231	88.8	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.431	0.374-0.506	0.268	80.2	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.022	0.893-1.208	0.188	76.6	23 - 140 %	
13C12-OCDD		0.887	0.757-1.024	0.196	69.1	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.054	87.7	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:21:19 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23C0619-08, Name: 23042414, Date: 25-Apr-2023, Time: 01:09:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.718	1.001	4.828e3	6.097e3	0.702	0.792	0.770	1198	2267	7.45e4	9.22e4	62.2	40.7	NO	dd	dd	1.552
12378-PeCDF	29.878	1.001	4.712e3	3.066e3	0.679	1.537	1.550	1095	1277	7.40e4	4.71e4	67.6	36.9	NO	bb	bb	1.327
23478-PeCDF	31.215	1.001	4.448e3	2.962e3	0.786	1.502	1.550	1095	1277	7.10e4	4.78e4	64.8	37.4	NO	bb	bb	1.170
123478-HxCDF	34.835	1.000	9.215e3	7.474e3	1.166	1.233	1.240	1284	1224	1.49e5	1.09e5	115.9	88.7	NO	dd	dd	2.349
234678-HxCDF	35.861	1.001	8.699e3	7.346e3	1.140	1.184	1.240	1284	1224	8.63e4	7.25e4	67.2	59.2	NO	bb	bb	2.522
123678-HxCDF	34.980	1.001	6.875e3	5.225e3	1.091	1.316	1.240	1284	1224	1.04e5	7.76e4	80.8	63.4	NO	db	db	1.728
123789-HxCDF	36.841	1.000	2.276e3	1.564e3	1.137	1.455	1.240	1284	1224	3.02e4	2.83e4	23.5	23.1	YES	MM	bb	0.788
1234678-HpCDF	38.701	1.000	1.493e5	1.426e5	1.003	1.047	1.050	2349	2039	2.48e6	2.41e6	1054.4	1184.2	NO	bb	bb	58.408
1234789-HpCDF	40.930	1.000	5.246e3	5.573e3	0.953	0.941	1.050	2349	2039	7.60e4	7.65e4	32.3	37.5	NO	bb	bb	2.933
OCDF	45.134	1.006	3.380e5	3.802e5	0.778	0.889	0.890	2646	2198	3.98e6	4.57e6	1504.7	2077.8	NO	bb	bb	277.549
2378-TCDD	26.368	1.001	1.052e3	1.212e3	1.149	0.868	0.770	929	911	1.49e4	2.03e4	16.1	22.3	NO	bd	bd	0.257
12378-PeCDD	31.471	1.000	6.280e3	4.119e3	1.022	1.525	1.550	2095	2189	8.13e4	5.20e4	38.8	23.7	NO	bb	bb	2.159
123478-HxCDD	35.983	1.001	5.897e3	4.836e3	0.996	1.219	1.240	1809	2651	8.86e4	7.93e4	49.0	29.9	NO	bd	bd	2.044
123678-HxCDD	36.095	1.000	4.098e4	3.360e4	1.001	1.220	1.240	1809	2651	6.32e5	5.08e5	349.2	191.7	NO	dd	dd	13.095
123789-HxCDD	36.473	1.011	1.512e4	1.243e4	0.907	1.216	1.240	1809	2651	2.27e5	1.89e5	125.4	71.1	NO	bb	db	5.540
1234678-HpCDD	40.194	1.001	1.039e6	1.012e6	1.039	1.027	1.050	4349	5757	1.57e7	1.51e7	3609.6	2624.2	NO	bb	bb	489.224
OCDD	44.896	1.000	6.135e6	7.150e6	0.920	0.858	0.890	5601	3564	7.88e7	9.09e7	14075.9	25507.4	NO	bb	bb	4340.891
13C-2378-TCDF	25.704	1.007	4.309e5	5.726e5	1.620	0.752	0.770	1175	1392	6.27e6	8.57e6	5337.2	6157.3	NO	bb	bb	81.934
13C-12378-PeCDF	29.855	1.169	5.153e5	3.480e5	1.240	1.481	1.550	2572	2400	7.52e6	4.95e6	2922.1	2062.4	NO	bb	bd	92.072
13C-23478-PeCDF	31.192	1.222	4.891e5	3.166e5	1.118	1.545	1.550	2572	2400	7.09e6	4.57e6	2754.6	1902.7	NO	bb	bb	95.360
13C-123478-HxCDF	34.825	0.955	2.069e5	4.025e5	1.168	0.514	0.510	1502	2625	3.15e6	6.11e6	2094.9	2326.4	NO	bd	bd	83.172
13C-123678-HxCDF	34.958	0.959	2.176e5	4.246e5	1.386	0.512	0.510	1502	2625	3.21e6	6.20e6	2134.2	2363.4	NO	db	db	73.853
13C-234678-HxCDF	35.838	0.983	1.888e5	3.695e5	1.129	0.511	0.510	1502	2625	2.73e6	5.40e6	1819.8	2055.4	NO	bb	bb	78.831
13C-123789-HxCDF	36.852	1.011	1.449e5	2.836e5	0.932	0.511	0.510	1502	2625	2.52e6	4.83e6	1677.4	1841.1	NO	bb	bb	73.336
13C-1234678-HpCDF	38.690	1.061	1.574e5	3.408e5	0.895	0.462	0.440	1545	1754	2.42e6	5.29e6	1564.3	3013.7	NO	bd	bb	88.762
13C-1234789-HpCDF	40.919	1.122	1.166e5	2.704e5	0.770	0.431	0.440	1545	1754	1.55e6	3.51e6	1004.0	2002.3	NO	bb	bd	80.177
13C-1234-TCDD	25.534	0.000	3.318e5	4.241e5	1.000	0.782	0.770	1658	1053	5.08e6	6.33e6	3062.1	6010.2	NO	bb	bb	100.000
13C-2378-TCDD	26.339	1.032	3.407e5	4.271e5	1.152	0.798	0.770	1658	1053	5.03e6	6.39e6	3031.6	6065.2	NO	bb	bb	88.138
13C-12378-PeCDD	31.460	1.232	2.909e5	1.804e5	0.829	1.612	1.550	1173	1159	3.86e6	2.44e6	3295.4	2108.7	NO	bd	bb	75.228
13C-123478-HxCDD	35.961	0.986	2.922e5	2.352e5	0.995	1.242	1.240	1638	1545	4.49e6	3.66e6	2743.6	2367.8	NO	bd	bd	84.507
13C-123678-HxCDD	36.083	0.990	3.176e5	2.514e5	1.157	1.263	1.240	1638	1545	4.51e6	3.58e6	2751.4	2317.5	NO	db	db	78.439
13C-1234678-HpCDD	40.172	1.102	2.040e5	1.995e5	0.840	1.022	1.050	1496	1023	2.89e6	2.75e6	1932.1	2689.6	NO	bb	bd	76.592
13C-OCDD	44.887	1.231	3.127e5	3.527e5	0.767	0.887	0.890	1366	1038	3.70e6	4.15e6	2710.8	3992.5	NO	bb	bb	138.247
13C-123789-HxCDD	36.462	0.000	3.462e5	2.809e5	1.000	1.232	1.240	1638	1545	5.28e6	4.23e6	3223.9	2737.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.353	1.032	3.414e5		1.288			1341		4.94e6		3686.1			bb		35.068

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:21:19 Pacific Daylight Time

ID: 23C0619-08, Name: 23042414, Date: 25-Apr-2023, Time: 01:09:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.229	0.865	1.167e3	1.761e3	0.802	0.662	0.770	1198	2267	1.72e4	2.74e4	14.4	12.1	NO	bb	bb	0.364
1289-TCDF	27.144	1.056	5.221e2	1.867e2	0.678	2.796	0.770	1198	2267	6.62e3	4.70e3	5.5	2.1	YES	bd	bd	0.104
13468-PECDF					1.246		1.550	584	1066								
12389-PECDF	32.262	1.081	6.102e2	1.070e2	0.496	5.702	1.550	1095	1277	9.48e3	3.40e3	8.7	2.7	YES	db	bb	0.167
123468-HXCDF	33.164	0.952	2.708e4	2.131e4	1.169	1.271	1.240	1284	1224	4.02e5	3.33e5	313.4	271.7	NO	bb	bb	6.793
1368-TCDD	23.500	0.892	4.406e3	5.863e3	1.015	0.752	0.770	929	911	6.06e4	8.83e4	65.2	97.0	NO	bb	bb	1.317
1289-TCDD	26.961	1.024	3.472e2	4.143e2	0.909	0.838	0.770	929	911	6.11e3	6.22e3	6.6	6.8	NO	bb	bb	0.109
12479-PECDD					2.301		1.550	2095	2189								
12389-PECDD	31.883	1.013	1.775e3	7.465e2	1.184	2.378	1.550	2095	2189	2.54e4	1.45e4	12.1	6.6	YES	bb	db	0.452
124679-HXCDD	33.944	0.944	1.347e5	1.082e5	1.115	1.246	1.240	1809	2651	2.02e6	1.61e6	1118.5	606.1	NO	bb	bb	41.298
1234679-HPCDD	39.147	0.974	1.578e6	1.511e6	1.137	1.045	1.050	4349	5757	2.57e7	2.48e7	5920.0	4314.0	NO	bb	bb	673.334
Total-tetrafurans			4.789e4		0.727			1198		7.05e5							15.392
Total-penta1			5.651e4					584		7.97e5							11.850
Total-pentafurans			5.451e4		0.654			1095		6.35e5							16.186
Total-hexafurans			2.600e5		1.141			1284		3.85e6							72.097
Total-heptafurans			5.527e5		0.978			2349		9.09e6							243.649
Total-Furans			1.310e6		0.922			1198		1.91e7							636.765
Total-tetradioxins			1.525e4		1.024			929		2.09e5							4.385
Total-pentadioxins			3.930e4		1.502			2095		5.30e5							9.883
Total-hexadioxins			3.617e5		1.005			1809		4.93e6							116.830
Total-heptadioxins			2.617e6		1.088			4349		4.14e7							1162.559
Total-Dioxins			9.168e6		1.130			929		1.26e8							5634.583
Total-TEQ			1.048e7					929		1.45e8							6271.348
FUNCTION1 PFK			3.246e7					436162		2.30e8							
FUNCTION2 PFK			7.085e6					178765		3.72e7							0.000
FUNCTION3 PFK			1.693e7					274192		1.10e8							0.000
FUNCTION4 PFK			0.000e0					206041		0.00e0							
FUNCTION5 PFK			1.095e5					162596		8.80e5							
FUNCTION1 HXCD...			3.019e3					734		4.76e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			2.956e2					668		7.34e3							0.000
FUNCTION3 OCDPE			3.547e2					494		8.22e3							0.000
FUNCTION4 NCDPE			3.848e3					549		5.81e4							0.000
FUNCTION5 DCDPE			1.285e3					381		1.04e4							0.000

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.83	1.468e3	2.099e3	0.727	0.70	0.77	20.2	YES	NO	dd	dd	0.489
2	Total-tetrafurans	23.71	3.322e3	4.973e3	0.727	0.67	0.77	45.0	YES	NO	bd	dd	1.137
3	Total-tetrafurans	23.26	2.430e3	3.085e3	0.727	0.79	0.77	23.2	YES	NO	dd	dd	0.756
4	Total-tetrafurans	23.20	1.306e3	1.504e3	0.727	0.87	0.77	19.0	YES	NO	dd	dd	0.385
5	Total-tetrafurans	23.06	5.570e3	7.048e3	0.727	0.79	0.77	61.6	YES	NO	bd	bd	1.730
6	Total-tetrafurans	22.48	2.283e3	2.961e3	0.727	0.77	0.77	30.2	YES	NO	db	bb	0.719
7	1368-TCDF	22.23	1.167e3	1.761e3	0.802	0.66	0.77	14.4	YES	NO	bb	bb	0.364
8	Total-tetrafurans	25.96	4.098e3	5.535e3	0.727	0.74	0.77	51.8	YES	NO	dd	dd	1.320
9	Total-tetrafurans	25.84	3.385e3	4.855e3	0.727	0.70	0.77	41.6	YES	NO	dd	dd	1.130
10	2378-TCDF	25.72	4.828e3	6.097e3	0.702	0.79	0.77	62.2	YES	NO	dd	dd	1.552
11	Total-tetrafurans	25.22	1.617e3	1.960e3	0.727	0.83	0.77	22.0	YES	NO	db	dd	0.490
12	Total-tetrafurans	25.04	1.511e3	2.002e3	0.727	0.75	0.77	19.9	YES	NO	bd	bd	0.481
13	Total-tetrafurans	24.81	3.140e3	4.311e3	0.727	0.73	0.77	40.7	YES	NO	bb	db	1.021
14	Total-tetrafurans	24.62	4.360e3	6.452e3	0.727	0.68	0.77	54.7	YES	NO	db	dd	1.482
15	Total-tetrafurans	24.47	2.950e3	3.764e3	0.727	0.78	0.77	33.6	YES	NO	dd	dd	0.920
16	Total-tetrafurans	23.98	3.373e3	4.503e3	0.727	0.75	0.77	34.5	YES	NO	db	dd	1.080
17	Total-tetrafurans	27.34	1.077e3	1.367e3	0.727	0.79	0.77	14.0	YES	NO	dd	db	0.335

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.14	5.651e4	3.730e4		1.51	1.55	1364.5	YES	NO	bb	bb	11.850

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PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	30.96	4.176e3	2.547e3	0.654	1.64	1.55	49.5	YES	NO	bd	bd	1.232
2	Total-pentafurans	30.19	1.716e3	1.168e3	0.654	1.47	1.55	24.0	YES	NO	db	dd	0.529
3	Total-pentafurans	30.08	4.204e3	2.870e3	0.654	1.46	1.55	60.6	YES	NO	bd	bd	1.296
4	12378-PeCDF	29.88	4.712e3	3.066e3	0.679	1.54	1.55	67.6	YES	NO	bb	bb	1.327
5	Total-pentafurans	29.52	1.045e4	6.188e3	0.654	1.69	1.55	96.8	YES	NO	MM	MM	3.049
6	Total-pentafurans	29.32	2.185e3	1.373e3	0.654	1.59	1.55	38.0	YES	NO	bd	bd	0.652
7	Total-pentafurans	28.85	2.010e4	1.356e4	0.654	1.48	1.55	140.4	YES	NO	MM	MM	6.168
8	23478-PeCDF	31.21	4.448e3	2.962e3	0.786	1.50	1.55	64.8	YES	NO	bb	bb	1.170
9	Total-pentafurans	31.07	2.514e3	1.652e3	0.654	1.52	1.55	37.8	YES	NO	db	db	0.763

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	34.69	4.457e3	4.102e3	1.141	1.09	1.24	56.0	YES	NO	bd	bd	1.341
2	Total-hexafurans	34.21	1.259e5	1.008e5	1.141	1.25	1.24	1462.9	YES	NO	bb	bb	35.523
3	Total-hexafurans	33.91	2.302e3	1.974e3	1.141	1.17	1.24	27.3	YES	NO	bb	bb	0.670
4	Total-hexafurans	33.65	6.720e2	4.855e2	1.141	1.38	1.24	8.1	YES	NO	bb	bb	0.181
5	Total-hexafurans	33.39	7.411e4	5.848e4	1.141	1.27	1.24	859.3	YES	NO	bb	bb	20.776
6	123468-HXCDF	33.16	2.708e4	2.131e4	1.169	1.27	1.24	313.4	YES	NO	bb	bb	6.793
7	234678-HxCDF	35.86	8.699e3	7.346e3	1.140	1.18	1.24	67.2	YES	NO	bb	bb	2.522
8	Total-hexafurans	35.31	7.078e2	6.622e2	1.141	1.07	1.24	9.3	YES	NO	bb	bb	0.215
9	123678-HxCDF	34.98	6.875e3	5.225e3	1.091	1.32	1.24	80.8	YES	NO	db	db	1.728
10	123478-HxCDF	34.84	9.215e3	7.474e3	1.166	1.23	1.24	115.9	YES	NO	dd	dd	2.349

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.36	3.955e5	3.886e5	0.978	1.02	1.05	2766.4	YES	NO	bb	bb	181.103
2	Total-heptafurans	39.11	2.659e3	2.562e3	0.978	1.04	1.05	18.0	YES	NO	bb	bb	1.206
3	1234678-HpCDF	38.70	1.493e5	1.426e5	1.003	1.05	1.05	1054.4	YES	NO	bb	bb	58.408
4	1234789-HpCDF	40.93	5.246e3	5.573e3	0.953	0.94	1.05	32.3	YES	NO	bb	bb	2.933

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.83	1.468e3	2.099e3	0.727	0.70	0.77	20.2	YES	NO	dd	dd	0.489
2	Total-tetrafurans	23.71	3.322e3	4.973e3	0.727	0.67	0.77	45.0	YES	NO	bd	dd	1.137
3	Total-tetrafurans	23.26	2.430e3	3.085e3	0.727	0.79	0.77	23.2	YES	NO	dd	dd	0.756
4	Total-tetrafurans	23.20	1.306e3	1.504e3	0.727	0.87	0.77	19.0	YES	NO	dd	dd	0.385
5	Total-tetrafurans	23.06	5.570e3	7.048e3	0.727	0.79	0.77	61.6	YES	NO	bd	bd	1.730
6	Total-tetrafurans	22.48	2.283e3	2.961e3	0.727	0.77	0.77	30.2	YES	NO	db	bb	0.719
7	1368-TCDF	22.23	1.167e3	1.761e3	0.802	0.66	0.77	14.4	YES	NO	bb	bb	0.364
8	Total-tetrafurans	25.96	4.098e3	5.535e3	0.727	0.74	0.77	51.8	YES	NO	dd	dd	1.320
9	Total-tetrafurans	25.84	3.385e3	4.855e3	0.727	0.70	0.77	41.6	YES	NO	dd	dd	1.130
10	2378-TCDF	25.72	4.828e3	6.097e3	0.702	0.79	0.77	62.2	YES	NO	dd	dd	1.552
11	Total-tetrafurans	25.22	1.617e3	1.960e3	0.727	0.83	0.77	22.0	YES	NO	db	dd	0.490
12	Total-tetrafurans	25.04	1.511e3	2.002e3	0.727	0.75	0.77	19.9	YES	NO	bd	bd	0.481
13	Total-tetrafurans	24.81	3.140e3	4.311e3	0.727	0.73	0.77	40.7	YES	NO	bb	db	1.021
14	Total-tetrafurans	24.62	4.360e3	6.452e3	0.727	0.68	0.77	54.7	YES	NO	db	dd	1.482
15	Total-tetrafurans	24.47	2.950e3	3.764e3	0.727	0.78	0.77	33.6	YES	NO	dd	dd	0.920
16	Total-tetrafurans	23.98	3.373e3	4.503e3	0.727	0.75	0.77	34.5	YES	NO	db	dd	1.080
17	Total-Furans	27.67	1.506e2	2.223e2	0.922	0.68	0.77	3.2	NO	NO	db	bb	0.040
18	Total-tetrafurans	27.34	1.077e3	1.367e3	0.727	0.79	0.77	14.0	YES	NO	dd	db	0.335
19	Total-pentafurans	30.96	4.176e3	2.547e3	0.654	1.64	1.55	49.5	YES	NO	bd	bd	1.232
20	Total-pentafurans	30.19	1.716e3	1.168e3	0.654	1.47	1.55	24.0	YES	NO	db	dd	0.529
21	Total-pentafurans	30.08	4.204e3	2.870e3	0.654	1.46	1.55	60.6	YES	NO	bd	bd	1.296
22	12378-PeCDF	29.88	4.712e3	3.066e3	0.679	1.54	1.55	67.6	YES	NO	bb	bb	1.327
23	Total-pentafurans	29.52	1.045e4	6.188e3	0.654	1.69	1.55	96.8	YES	NO	MM	MM	3.049
24	Total-pentafurans	29.32	2.185e3	1.373e3	0.654	1.59	1.55	38.0	YES	NO	bd	bd	0.652
25	Total-pentafurans	28.85	2.010e4	1.356e4	0.654	1.48	1.55	140.4	YES	NO	MM	MM	6.168
26	23478-PeCDF	31.21	4.448e3	2.962e3	0.786	1.50	1.55	64.8	YES	NO	bb	bb	1.170
27	Total-pentafurans	31.07	2.514e3	1.652e3	0.654	1.52	1.55	37.8	YES	NO	db	db	0.763
28	Total-hexafurans	34.69	4.457e3	4.102e3	1.141	1.09	1.24	56.0	YES	NO	bd	bd	1.341
29	Total-hexafurans	34.21	1.259e5	1.008e5	1.141	1.25	1.24	1462.9	YES	NO	bb	bb	35.523
30	Total-hexafurans	33.91	2.302e3	1.974e3	1.141	1.17	1.24	27.3	YES	NO	bb	bb	0.670
31	Total-hexafurans	33.65	6.720e2	4.855e2	1.141	1.38	1.24	8.1	YES	NO	bb	bb	0.181
32	Total-hexafurans	33.39	7.411e4	5.848e4	1.141	1.27	1.24	859.3	YES	NO	bb	bb	20.776
33	123468-HXCDF	33.16	2.708e4	2.131e4	1.169	1.27	1.24	313.4	YES	NO	bb	bb	6.793
34	234678-HxCDF	35.86	8.699e3	7.346e3	1.140	1.18	1.24	67.2	YES	NO	bb	bb	2.522
35	Total-hexafurans	35.31	7.078e2	6.622e2	1.141	1.07	1.24	9.3	YES	NO	bb	bb	0.215
36	123678-HxCDF	34.98	6.875e3	5.225e3	1.091	1.32	1.24	80.8	YES	NO	db	db	1.728
37	123478-HxCDF	34.84	9.215e3	7.474e3	1.166	1.23	1.24	115.9	YES	NO	dd	dd	2.349

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-heptafurans	39.36	3.955e5	3.886e5	0.978	1.02	1.05	2766.4	YES	NO	bb	bb	181.103
39	Total-heptafurans	39.11	2.659e3	2.562e3	0.978	1.04	1.05	18.0	YES	NO	bb	bb	1.206
40	1234678-HpCDF	38.70	1.493e5	1.426e5	1.003	1.05	1.05	1054.4	YES	NO	bb	bb	58.408
41	1234789-HpCDF	40.93	5.246e3	5.573e3	0.953	0.94	1.05	32.3	YES	NO	bb	bb	2.933
42	OCDF	45.13	3.380e5	3.802e5	0.778	0.89	0.89	1504.7	YES	NO	bb	bb	277.549
43	Total-penta1	27.14	5.651e4	3.730e4		1.51	1.55	1364.5	YES	NO	bb	bb	11.850

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.47	7.053e2	8.324e2	1.024	0.85	0.77	10.0	YES	NO	bd	bd	0.196
2	Total-tetradioxins	23.97	9.612e2	1.125e3	1.024	0.85	0.77	17.1	YES	NO	db	bb	0.265
3	1368-TCDD	23.50	4.406e3	5.863e3	1.015	0.75	0.77	65.2	YES	NO	bb	bb	1.317
4	1289-TCDD	26.96	3.472e2	4.143e2	0.909	0.84	0.77	6.6	YES	NO	bb	bb	0.109
5	Total-tetradioxins	26.49	7.923e2	9.835e2	1.024	0.81	0.77	11.6	YES	NO	db	db	0.226
6	2378-TCDD	26.37	1.052e3	1.212e3	1.149	0.87	0.77	16.1	YES	NO	bd	bd	0.257
7	Total-tetradioxins	25.97	1.871e3	2.170e3	1.024	0.86	0.77	19.8	YES	NO	bb	bb	0.514
8	Total-tetradioxins	25.69	4.317e2	4.976e2	1.024	0.87	0.77	6.5	YES	NO	db	dd	0.118
9	Total-tetradioxins	25.34	8.193e2	1.209e3	1.024	0.68	0.77	13.2	YES	NO	db	db	0.258
10	Total-tetradioxins	24.97	2.225e3	3.032e3	1.024	0.73	0.77	37.3	YES	NO	bb	bb	0.669
11	Total-tetradioxins	24.69	1.641e3	1.948e3	1.024	0.84	0.77	21.1	YES	NO	db	db	0.456

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.47	6.280e3	4.119e3	1.022	1.52	1.55	38.8	YES	NO	bb	bb	2.159
2	Total-pentadioxins	30.22	4.678e3	3.138e3	1.502	1.49	1.55	36.3	YES	NO	dd	dd	1.104
3	Total-pentadioxins	30.09	5.275e3	3.412e3	1.502	1.55	1.55	36.9	YES	NO	bd	bd	1.227
4	Total-pentadioxins	29.87	5.961e3	3.622e3	1.502	1.65	1.55	40.4	YES	NO	bb	bb	1.354
5	Total-pentadioxins	29.26	4.120e3	2.580e3	1.502	1.60	1.55	35.7	YES	NO	bb	bb	0.946
6	Total-pentadioxins	28.82	1.299e4	8.913e3	1.502	1.46	1.55	65.0	YES	NO	bb	bb	3.093

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	34.72	2.180e4	1.711e4	1.005	1.27	1.24	187.2	YES	NO	bb	bb	7.065
2	124679-HXCDD	33.94	1.347e5	1.082e5	1.115	1.25	1.24	1118.5	YES	NO	bb	bb	41.298
3	123789-HxCDD	36.47	1.512e4	1.243e4	0.907	1.22	1.24	125.4	YES	NO	bb	db	5.540
4	Total-hexadioxins	36.25	8.577e3	7.668e3	1.005	1.12	1.24	60.2	YES	NO	db	dd	2.950
5	123678-HxCDD	36.09	4.098e4	3.360e4	1.001	1.22	1.24	349.2	YES	NO	dd	dd	13.095
6	123478-HxCDD	35.98	5.897e3	4.836e3	0.996	1.22	1.24	49.0	YES	NO	bd	bd	2.044
7	Total-hexadioxins	35.18	1.834e4	1.547e4	1.005	1.19	1.24	158.3	YES	NO	db	db	6.139
8	Total-hexadioxins	35.09	1.162e5	9.692e4	1.005	1.20	1.24	675.4	YES	NO	bd	bd	38.699

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.19	1.039e6	1.012e6	1.039	1.03	1.05	3609.6	YES	NO	bb	bb	489.224
2	1234679-HPCDD	39.15	1.578e6	1.511e6	1.137	1.04	1.05	5920.0	YES	NO	bb	bb	673.334

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	24.47	7.053e2	8.324e2	1.024	0.85	0.77	10.0	YES	NO	bd	bd	0.196
2	Total-tetradioxins	23.97	9.612e2	1.125e3	1.024	0.85	0.77	17.1	YES	NO	db	bb	0.265
3	1368-TCDD	23.50	4.406e3	5.863e3	1.015	0.75	0.77	65.2	YES	NO	bb	bb	1.317
4	Total-Dioxins	23.30	1.320e2	1.826e2	1.130	0.72	0.77	2.7	NO	NO	bb	bb	0.036
5	1289-TCDD	26.96	3.472e2	4.143e2	0.909	0.84	0.77	6.6	YES	NO	bb	bb	0.109
6	Total-tetradioxins	26.49	7.923e2	9.835e2	1.024	0.81	0.77	11.6	YES	NO	db	db	0.226
7	2378-TCDD	26.37	1.052e3	1.212e3	1.149	0.87	0.77	16.1	YES	NO	bd	bd	0.257
8	Total-tetradioxins	25.97	1.871e3	2.170e3	1.024	0.86	0.77	19.8	YES	NO	bb	bb	0.514
9	Total-tetradioxins	25.69	4.317e2	4.976e2	1.024	0.87	0.77	6.5	YES	NO	db	dd	0.118
10	Total-tetradioxins	25.34	8.193e2	1.209e3	1.024	0.68	0.77	13.2	YES	NO	db	db	0.258
11	Total-tetradioxins	24.97	2.225e3	3.032e3	1.024	0.73	0.77	37.3	YES	NO	bb	bb	0.669
12	Total-tetradioxins	24.69	1.641e3	1.948e3	1.024	0.84	0.77	21.1	YES	NO	db	db	0.456
13	12378-PeCDD	31.47	6.280e3	4.119e3	1.022	1.52	1.55	38.8	YES	NO	bb	bb	2.159
14	Total-pentadioxins	30.22	4.678e3	3.138e3	1.502	1.49	1.55	36.3	YES	NO	dd	dd	1.104
15	Total-pentadioxins	30.09	5.275e3	3.412e3	1.502	1.55	1.55	36.9	YES	NO	bd	bd	1.227
16	Total-pentadioxins	29.87	5.961e3	3.622e3	1.502	1.65	1.55	40.4	YES	NO	bb	bb	1.354
17	Total-pentadioxins	29.26	4.120e3	2.580e3	1.502	1.60	1.55	35.7	YES	NO	bb	bb	0.946
18	Total-pentadioxins	28.82	1.299e4	8.913e3	1.502	1.46	1.55	65.0	YES	NO	bb	bb	3.093
19	Total-hexadioxins	34.72	2.180e4	1.711e4	1.005	1.27	1.24	187.2	YES	NO	bb	bb	7.065
20	124679-HXCDD	33.94	1.347e5	1.082e5	1.115	1.25	1.24	1118.5	YES	NO	bb	bb	41.298
21	123789-HxCDD	36.47	1.512e4	1.243e4	0.907	1.22	1.24	125.4	YES	NO	bb	db	5.540
22	Total-hexadioxins	36.25	8.577e3	7.668e3	1.005	1.12	1.24	60.2	YES	NO	db	dd	2.950
23	123678-HxCDD	36.09	4.098e4	3.360e4	1.001	1.22	1.24	349.2	YES	NO	dd	dd	13.095
24	123478-HxCDD	35.98	5.897e3	4.836e3	0.996	1.22	1.24	49.0	YES	NO	bd	bd	2.044
25	Total-hexadioxins	35.18	1.834e4	1.547e4	1.005	1.19	1.24	158.3	YES	NO	db	db	6.139
26	Total-hexadioxins	35.09	1.162e5	9.692e4	1.005	1.20	1.24	675.4	YES	NO	bd	bd	38.699
27	1234678-HpCDD	40.19	1.039e6	1.012e6	1.039	1.03	1.05	3609.6	YES	NO	bb	bb	489.224
28	1234679-HPCDD	39.15	1.578e6	1.511e6	1.137	1.04	1.05	5920.0	YES	NO	bb	bb	673.334
29	OCDD	44.90	6.135e6	7.150e6	0.920	0.86	0.89	14075.9	YES	NO	bb	bb	4340.8...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.83	1.468e3	2.099e3	0.727	0.70	0.77	20.2	YES	NO	dd	dd	0.489
2	Total-tetrafurans	23.71	3.322e3	4.973e3	0.727	0.67	0.77	45.0	YES	NO	bd	dd	1.137
3	Total-tetrafurans	23.26	2.430e3	3.085e3	0.727	0.79	0.77	23.2	YES	NO	dd	dd	0.756
4	Total-tetrafurans	23.20	1.306e3	1.504e3	0.727	0.87	0.77	19.0	YES	NO	dd	dd	0.385
5	Total-tetrafurans	23.06	5.570e3	7.048e3	0.727	0.79	0.77	61.6	YES	NO	bd	bd	1.730
6	Total-tetrafurans	22.48	2.283e3	2.961e3	0.727	0.77	0.77	30.2	YES	NO	db	bb	0.719
7	1368-TCDF	22.23	1.167e3	1.761e3	0.802	0.66	0.77	14.4	YES	NO	bb	bb	0.364
8	Total-tetrafurans	25.96	4.098e3	5.535e3	0.727	0.74	0.77	51.8	YES	NO	dd	dd	1.320
9	Total-tetrafurans	25.84	3.385e3	4.855e3	0.727	0.70	0.77	41.6	YES	NO	dd	dd	1.130
10	2378-TCDF	25.72	4.828e3	6.097e3	0.702	0.79	0.77	62.2	YES	NO	dd	dd	1.552
11	Total-tetrafurans	25.22	1.617e3	1.960e3	0.727	0.83	0.77	22.0	YES	NO	db	dd	0.490
12	Total-tetrafurans	25.04	1.511e3	2.002e3	0.727	0.75	0.77	19.9	YES	NO	bd	bd	0.481
13	Total-tetrafurans	24.81	3.140e3	4.311e3	0.727	0.73	0.77	40.7	YES	NO	bb	db	1.021
14	Total-tetrafurans	24.62	4.360e3	6.452e3	0.727	0.68	0.77	54.7	YES	NO	db	dd	1.482
15	Total-tetrafurans	24.47	2.950e3	3.764e3	0.727	0.78	0.77	33.6	YES	NO	dd	dd	0.920
16	Total-tetrafurans	23.98	3.373e3	4.503e3	0.727	0.75	0.77	34.5	YES	NO	db	dd	1.080
17	Total-Furans	27.67	1.506e2	2.223e2	0.922	0.68	0.77	3.2	NO	NO	db	bb	0.040
18	Total-tetrafurans	27.34	1.077e3	1.367e3	0.727	0.79	0.77	14.0	YES	NO	dd	db	0.335
19	Total-pentafurans	30.96	4.176e3	2.547e3	0.654	1.64	1.55	49.5	YES	NO	bd	bd	1.232
20	Total-pentafurans	30.19	1.716e3	1.168e3	0.654	1.47	1.55	24.0	YES	NO	db	dd	0.529
21	Total-pentafurans	30.08	4.204e3	2.870e3	0.654	1.46	1.55	60.6	YES	NO	bd	bd	1.296
22	12378-PeCDF	29.88	4.712e3	3.066e3	0.679	1.54	1.55	67.6	YES	NO	bb	bb	1.327
23	Total-pentafurans	29.52	1.045e4	6.188e3	0.654	1.69	1.55	96.8	YES	NO	MM	MM	3.049
24	Total-pentafurans	29.32	2.185e3	1.373e3	0.654	1.59	1.55	38.0	YES	NO	bd	bd	0.652
25	Total-pentafurans	28.85	2.010e4	1.356e4	0.654	1.48	1.55	140.4	YES	NO	MM	MM	6.168
26	23478-PeCDF	31.21	4.448e3	2.962e3	0.786	1.50	1.55	64.8	YES	NO	bb	bb	1.170
27	Total-pentafurans	31.07	2.514e3	1.652e3	0.654	1.52	1.55	37.8	YES	NO	db	db	0.763
28	Total-hexafurans	34.69	4.457e3	4.102e3	1.141	1.09	1.24	56.0	YES	NO	bd	bd	1.341
29	Total-hexafurans	34.21	1.259e5	1.008e5	1.141	1.25	1.24	1462.9	YES	NO	bb	bb	35.523
30	Total-hexafurans	33.91	2.302e3	1.974e3	1.141	1.17	1.24	27.3	YES	NO	bb	bb	0.670
31	Total-hexafurans	33.65	6.720e2	4.855e2	1.141	1.38	1.24	8.1	YES	NO	bb	bb	0.181
32	Total-hexafurans	33.39	7.411e4	5.848e4	1.141	1.27	1.24	859.3	YES	NO	bb	bb	20.776
33	123468-HXCDF	33.16	2.708e4	2.131e4	1.169	1.27	1.24	313.4	YES	NO	bb	bb	6.793
34	234678-HxCDF	35.86	8.699e3	7.346e3	1.140	1.18	1.24	67.2	YES	NO	bb	bb	2.522
35	Total-hexafurans	35.31	7.078e2	6.622e2	1.141	1.07	1.24	9.3	YES	NO	bb	bb	0.215
36	123678-HxCDF	34.98	6.875e3	5.225e3	1.091	1.32	1.24	80.8	YES	NO	db	db	1.728
37	123478-HxCDF	34.84	9.215e3	7.474e3	1.166	1.23	1.24	115.9	YES	NO	dd	dd	2.349

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-heptafurans	39.36	3.955e5	3.886e5	0.978	1.02	1.05	2766.4	YES	NO	bb	bb	181.103
39	Total-heptafurans	39.11	2.659e3	2.562e3	0.978	1.04	1.05	18.0	YES	NO	bb	bb	1.206
40	1234678-HpCDF	38.70	1.493e5	1.426e5	1.003	1.05	1.05	1054.4	YES	NO	bb	bb	58.408
41	1234789-HpCDF	40.93	5.246e3	5.573e3	0.953	0.94	1.05	32.3	YES	NO	bb	bb	2.933
42	OCDF	45.13	3.380e5	3.802e5	0.778	0.89	0.89	1504.7	YES	NO	bb	bb	277.549
43	Total-penta1	27.14	5.651e4	3.730e4		1.51	1.55	1364.5	YES	NO	bb	bb	11.850
44	Total-tetradioxins	24.47	7.053e2	8.324e2	1.024	0.85	0.77	10.0	YES	NO	bd	bd	0.196
45	Total-tetradioxins	23.97	9.612e2	1.125e3	1.024	0.85	0.77	17.1	YES	NO	db	bb	0.265
46	1368-TCDD	23.50	4.406e3	5.863e3	1.015	0.75	0.77	65.2	YES	NO	bb	bb	1.317
47	Total-Dioxins	23.30	1.320e2	1.826e2	1.130	0.72	0.77	2.7	NO	NO	bb	bb	0.036
48	1289-TCDD	26.96	3.472e2	4.143e2	0.909	0.84	0.77	6.6	YES	NO	bb	bb	0.109
49	Total-tetradioxins	26.49	7.923e2	9.835e2	1.024	0.81	0.77	11.6	YES	NO	db	db	0.226
50	2378-TCDD	26.37	1.052e3	1.212e3	1.149	0.87	0.77	16.1	YES	NO	bd	bd	0.257
51	Total-tetradioxins	25.97	1.871e3	2.170e3	1.024	0.86	0.77	19.8	YES	NO	bb	bb	0.514
52	Total-tetradioxins	25.69	4.317e2	4.976e2	1.024	0.87	0.77	6.5	YES	NO	db	dd	0.118
53	Total-tetradioxins	25.34	8.193e2	1.209e3	1.024	0.68	0.77	13.2	YES	NO	db	db	0.258
54	Total-tetradioxins	24.97	2.225e3	3.032e3	1.024	0.73	0.77	37.3	YES	NO	bb	bb	0.669
55	Total-tetradioxins	24.69	1.641e3	1.948e3	1.024	0.84	0.77	21.1	YES	NO	db	db	0.456
56	12378-PeCDD	31.47	6.280e3	4.119e3	1.022	1.52	1.55	38.8	YES	NO	bb	bb	2.159
57	Total-pentadioxins	30.22	4.678e3	3.138e3	1.502	1.49	1.55	36.3	YES	NO	dd	dd	1.104
58	Total-pentadioxins	30.09	5.275e3	3.412e3	1.502	1.55	1.55	36.9	YES	NO	bd	bd	1.227
59	Total-pentadioxins	29.87	5.961e3	3.622e3	1.502	1.65	1.55	40.4	YES	NO	bb	bb	1.354
60	Total-pentadioxins	29.26	4.120e3	2.580e3	1.502	1.60	1.55	35.7	YES	NO	bb	bb	0.946
61	Total-pentadioxins	28.82	1.299e4	8.913e3	1.502	1.46	1.55	65.0	YES	NO	bb	bb	3.093
62	Total-hexadioxins	34.72	2.180e4	1.711e4	1.005	1.27	1.24	187.2	YES	NO	bb	bb	7.065
63	124679-HXCDD	33.94	1.347e5	1.082e5	1.115	1.25	1.24	1118.5	YES	NO	bb	bb	41.298
64	123789-HxCDD	36.47	1.512e4	1.243e4	0.907	1.22	1.24	125.4	YES	NO	bb	db	5.540
65	Total-hexadioxins	36.25	8.577e3	7.668e3	1.005	1.12	1.24	60.2	YES	NO	db	dd	2.950
66	123678-HxCDD	36.09	4.098e4	3.360e4	1.001	1.22	1.24	349.2	YES	NO	dd	dd	13.095
67	123478-HxCDD	35.98	5.897e3	4.836e3	0.996	1.22	1.24	49.0	YES	NO	bd	bd	2.044
68	Total-hexadioxins	35.18	1.834e4	1.547e4	1.005	1.19	1.24	158.3	YES	NO	db	db	6.139
69	Total-hexadioxins	35.09	1.162e5	9.692e4	1.005	1.20	1.24	675.4	YES	NO	bd	bd	38.699
70	1234678-HpCDD	40.19	1.039e6	1.012e6	1.039	1.03	1.05	3609.6	YES	NO	bb	bb	489.224
71	1234679-HPCDD	39.15	1.578e6	1.511e6	1.137	1.04	1.05	5920.0	YES	NO	bb	bb	673.334
72	OCDD	44.90	6.135e6	7.150e6	0.920	0.86	0.89	14075.9	YES	NO	bb	bb	4340.8...

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.33	9.664e5					16.6	YES		dd		
2	FUNCTION1 PFK	23.18	4.076e5					11.5	YES		dd		
3	FUNCTION1 PFK	23.06	3.729e5					15.2	YES		dd		
4	FUNCTION1 PFK	23.02	1.090e6					15.0	YES		bd		
5	FUNCTION1 PFK	22.78	7.799e4					4.5	YES		db		
6	FUNCTION1 PFK	22.69	2.450e5					8.0	YES		dd		
7	FUNCTION1 PFK	22.64	2.640e5					7.9	YES		bd		
8	FUNCTION1 PFK	22.21	5.438e5					10.9	YES		db		
9	FUNCTION1 PFK	22.17	2.979e5					10.1	YES		dd		
10	FUNCTION1 PFK	21.95	2.368e6					27.1	YES		dd		
11	FUNCTION1 PFK	21.73	1.869e6					33.3	YES		dd		
12	FUNCTION1 PFK	21.59	3.922e6					43.4	YES		dd		
13	FUNCTION1 PFK	21.40	2.911e6					51.0	YES		dd		
14	FUNCTION1 PFK	21.31	1.118e6					45.5	YES		dd		
15	FUNCTION1 PFK	21.13	5.235e6					62.8	YES		bd		
16	FUNCTION1 PFK	27.85	8.673e5					9.8	YES		bb		
17	FUNCTION1 PFK	27.51	8.726e5					11.4	YES		db		
18	FUNCTION1 PFK	27.37	4.887e5					11.3	YES		bd		
19	FUNCTION1 PFK	27.20	5.196e5					9.3	YES		bb		
20	FUNCTION1 PFK	27.02	6.655e5					8.3	YES		bb		
21	FUNCTION1 PFK	25.60	6.093e5					9.1	YES		bb		
22	FUNCTION1 PFK	25.32	1.242e5					4.8	YES		bb		
23	FUNCTION1 PFK	24.67	1.136e6					5.3	YES		bb		
24	FUNCTION1 PFK	24.29	2.191e5					10.1	YES		db		
25	FUNCTION1 PFK	24.19	5.879e5					16.9	YES		dd		
26	FUNCTION1 PFK	24.05	2.378e6					19.2	YES		bd		
27	FUNCTION1 PFK	23.71	8.820e5					18.4	YES		db		
28	FUNCTION1 PFK	23.64	4.801e5					16.1	YES		dd		
29	FUNCTION1 PFK	23.51	9.370e5					13.8	YES		dd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.14	3.285e4					3.5	YES		bd		0.000
2	FUNCTION2 PFK	31.03	2.755e4					2.8	NO		db		0.000
3	FUNCTION2 PFK	30.91	3.463e4					2.9	NO		dd		0.000
4	FUNCTION2 PFK	30.87	8.070e3					1.5	NO		bd		0.000
5	FUNCTION2 PFK	30.74	1.336e3					0.7	NO		bb		0.000
6	FUNCTION2 PFK	30.59	9.427e3					1.8	NO		bb		0.000
7	FUNCTION2 PFK	30.27	9.870e3					1.9	NO		db		0.000
8	FUNCTION2 PFK	30.22	1.217e4					2.5	NO		bd		0.000
9	FUNCTION2 PFK	29.88	4.180e5					12.2	YES		db		0.000
10	FUNCTION2 PFK	29.70	3.381e5					21.0	YES		dd		0.000
11	FUNCTION2 PFK	29.67	1.184e6					20.0	YES		dd		0.000
12	FUNCTION2 PFK	29.37	1.017e5					14.3	YES		bd		0.000
13	FUNCTION2 PFK	29.18	2.543e6					36.6	YES		bb		0.000
14	FUNCTION2 PFK	28.43	3.407e4					3.5	YES		db		0.000
15	FUNCTION2 PFK	28.37	2.779e4					3.3	YES		dd		0.000
16	FUNCTION2 PFK	28.31	8.309e4					4.5	YES		dd		0.000
17	FUNCTION2 PFK	28.18	2.399e4					3.9	YES		dd		0.000
18	FUNCTION2 PFK	32.37	2.152e5					14.1	YES		db		0.000
19	FUNCTION2 PFK	32.34	7.553e5					14.4	YES		bd		0.000
20	FUNCTION2 PFK	31.91	8.901e5					19.4	YES		db		0.000
21	FUNCTION2 PFK	31.73	6.569e4					11.5	YES		dd		0.000
22	FUNCTION2 PFK	31.68	2.510e5					10.9	YES		bd		0.000
23	FUNCTION2 PFK	31.28	1.876e4					1.2	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.37	2.653e6					40.9	YES		dd		0.000
2	FUNCTION3 PFK	36.16	9.942e5					30.1	YES		dd		0.000
3	FUNCTION3 PFK	36.02	1.052e6					23.4	YES		bd		0.000
4	FUNCTION3 PFK	35.76	1.696e5					6.5	YES		bb		0.000
5	FUNCTION3 PFK	35.45	1.019e5					3.0	YES		bb		0.000
6	FUNCTION3 PFK	35.11	2.131e5					5.8	YES		bb		0.000
7	FUNCTION3 PFK	34.91	2.275e5					7.9	YES		bb		0.000
8	FUNCTION3 PFK	34.03	8.047e5					11.2	YES		bb		0.000
9	FUNCTION3 PFK	33.68	1.838e5					5.3	YES		bb		0.000
10	FUNCTION3 PFK	37.60	1.295e6					11.2	YES		db		0.000
11	FUNCTION3 PFK	37.28	1.287e6					31.2	YES		dd		0.000
12	FUNCTION3 PFK	37.16	7.245e5					36.1	YES		dd		0.000
13	FUNCTION3 PFK	37.04	2.982e6					42.8	YES		bd		0.000
14	FUNCTION3 PFK	36.70	2.330e6					53.0	YES		db		0.000
15	FUNCTION3 PFK	36.58	1.408e6					48.2	YES		dd		0.000
16	FUNCTION3 PFK	36.50	5.090e5					44.5	YES		dd		0.000

PFK4

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

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.78	1.095e5					5.4	YES		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.61	1.817e2					2.1	NO		db		0.000
2	FUNCTION1 HXCD...	21.40	1.636e2					2.2	NO		dd		0.000
3	FUNCTION1 HXCD...	21.32	1.299e2					2.8	NO		dd		0.000
4	FUNCTION1 HXCD...	21.21	1.920e2					2.4	NO		dd		0.000
5	FUNCTION1 HXCD...	21.13	8.758e1					2.0	NO		bd		0.000
6	FUNCTION1 HXCD...	27.62	1.533e2					4.2	YES		bb		0.000
7	FUNCTION1 HXCD...	26.11	2.828e2					5.1	YES		bb		0.000
8	FUNCTION1 HXCD...	25.87	1.045e3					23.5	YES		db		0.000
9	FUNCTION1 HXCD...	25.79	1.049e2					4.0	YES		dd		0.000
10	FUNCTION1 HXCD...	25.72	2.518e2					5.5	YES		bd		0.000
11	FUNCTION1 HXCD...	25.53	1.243e2					1.9	NO		bb		0.000
12	FUNCTION1 HXCD...	25.07	1.271e2					5.2	YES		bb		0.000
13	FUNCTION1 HXCD...	23.73	1.755e2					3.9	YES		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.35	7.178e1					3.6	YES		bb		0.000
2	FUNCTION2 HPCD...	31.21	9.400e1					3.5	YES		bb		0.000
3	FUNCTION2 HPCD...	28.95	1.298e2					3.8	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.08	1.022e2					4.1	YES		bb		0.000
2	FUNCTION3 OCDPE	34.21	7.492e1					4.3	YES		db		0.000
3	FUNCTION3 OCDPE	34.17	1.775e2					8.3	YES		bd		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.23	2.773e2					5.5	YES		bb		0.000
2	FUNCTION4 NCDPE	38.36	3.571e3					100.4	YES		bb		0.000

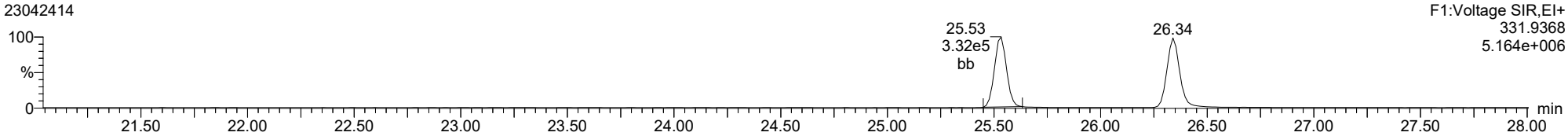
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.91	1.285e3					27.4	YES		bb		0.000

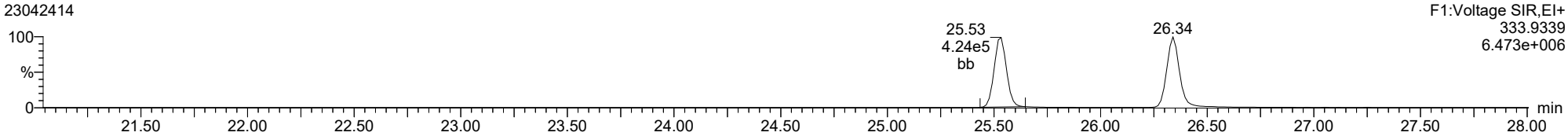
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ID: 23C0619-08, Name: 23042414, Date: 25-Apr-2023, Time: 01:09:02, Conditions: AUTOSPEC01, User: pk

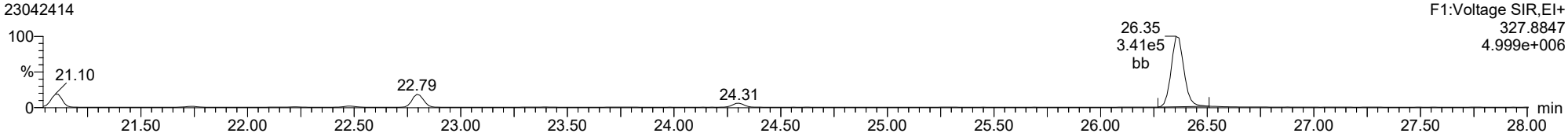
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13C-1234-TCDD

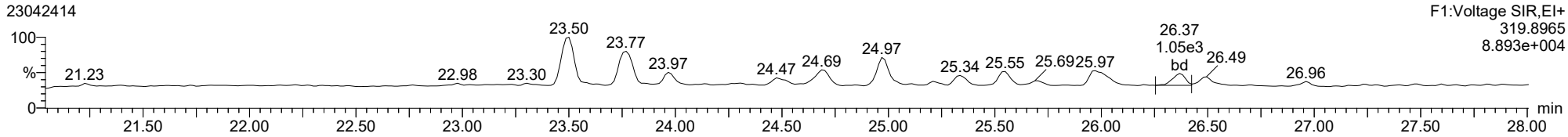


37CL-2378-TCDD

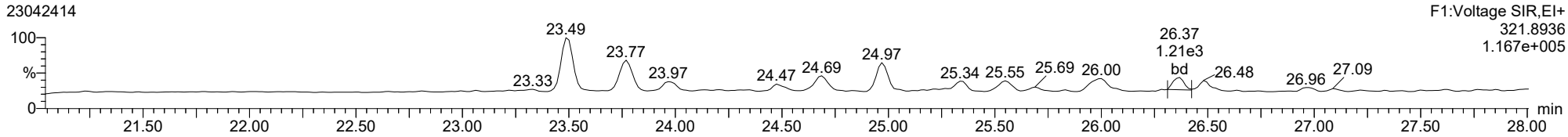


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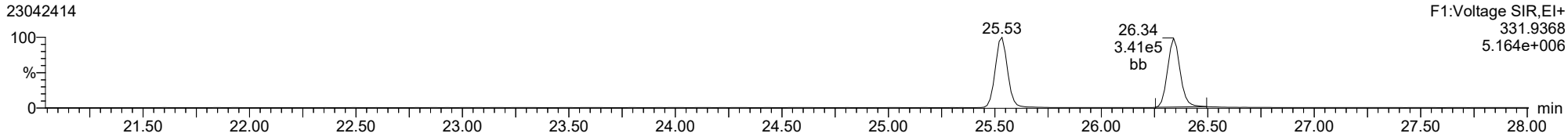
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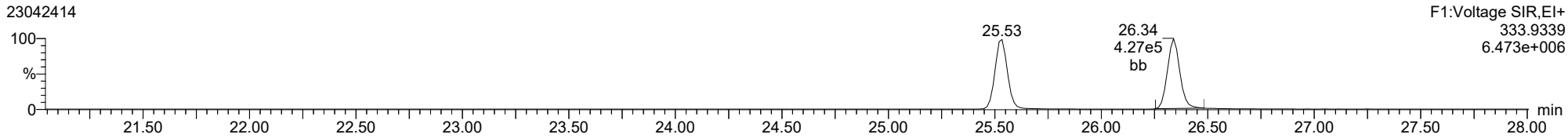
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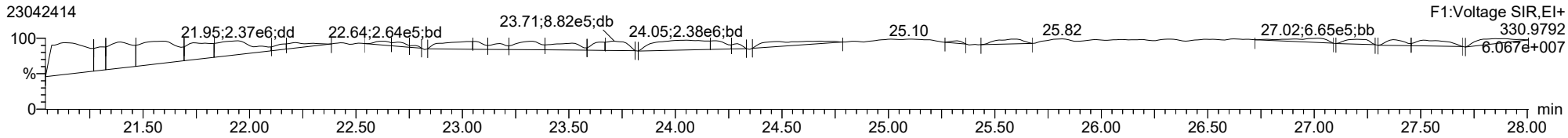
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13C-2378-TCDD

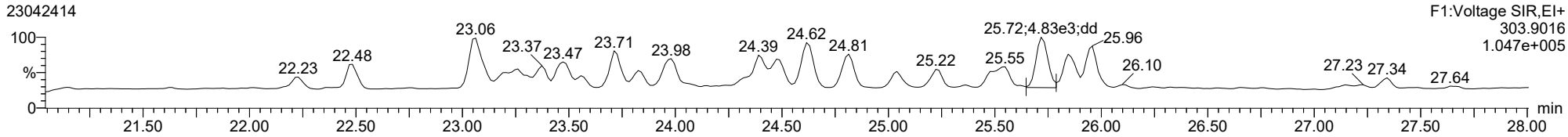


FUNCTION1 PFK

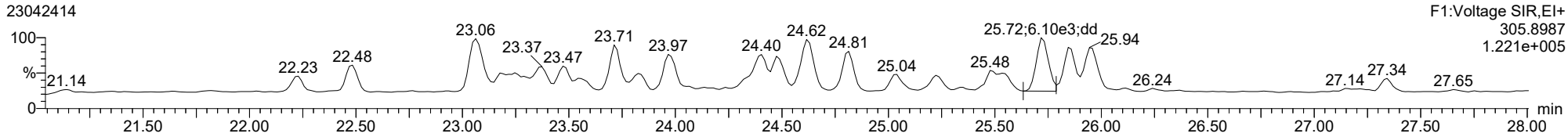


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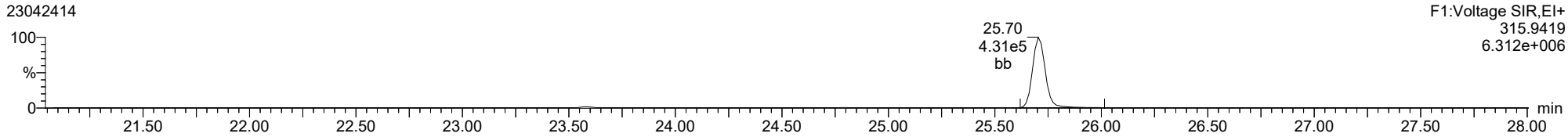
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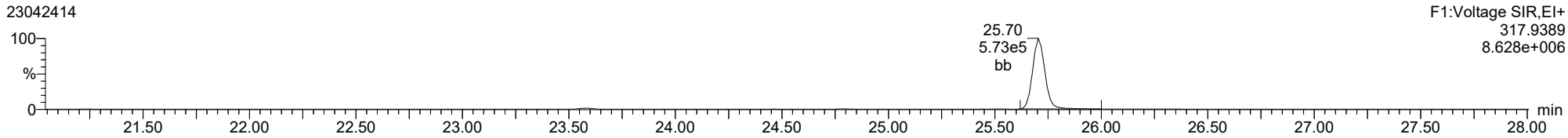
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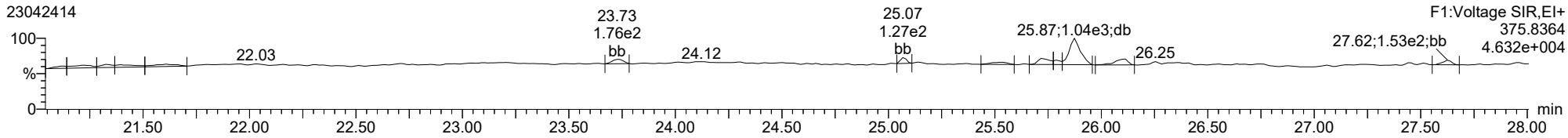
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13C-2378-TCDF

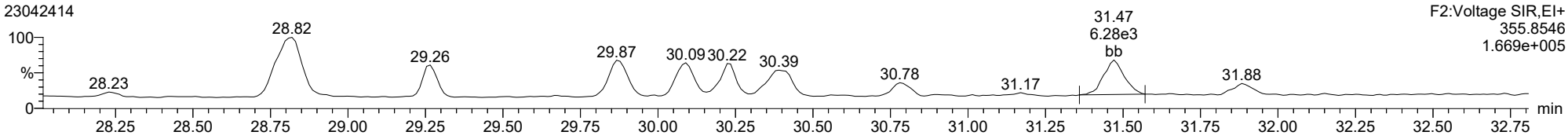


FUNCTION1 HXCDPE

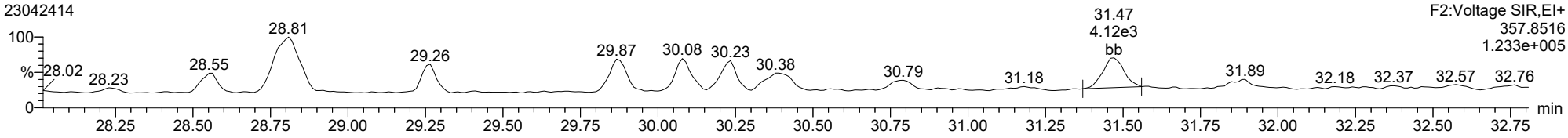


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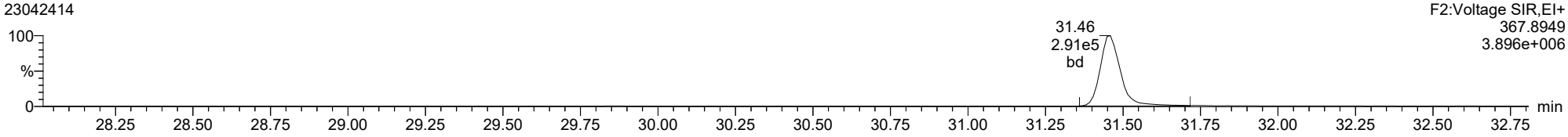
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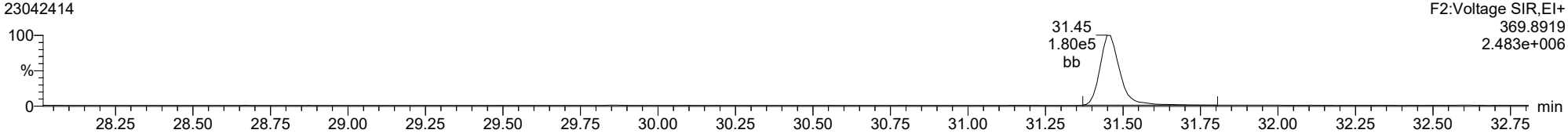
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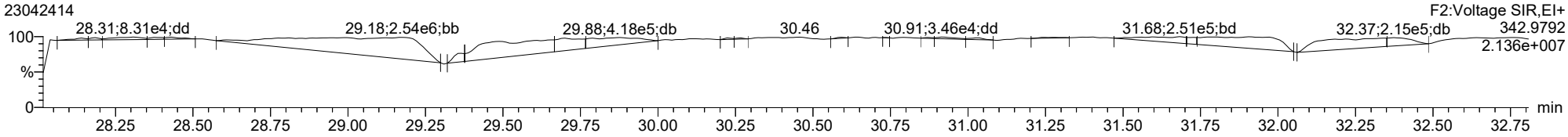
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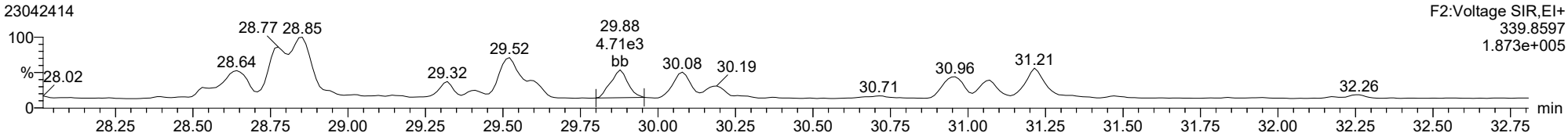


FUNCTION2 PFK

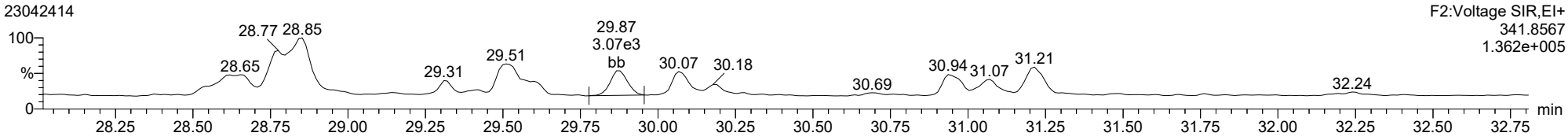


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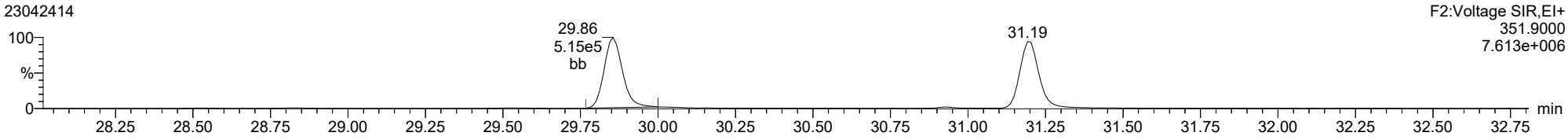
12378-PeCDF



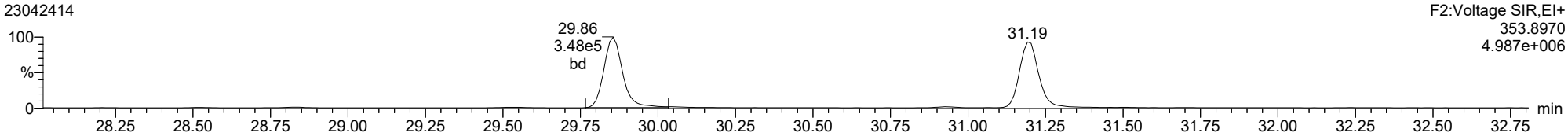
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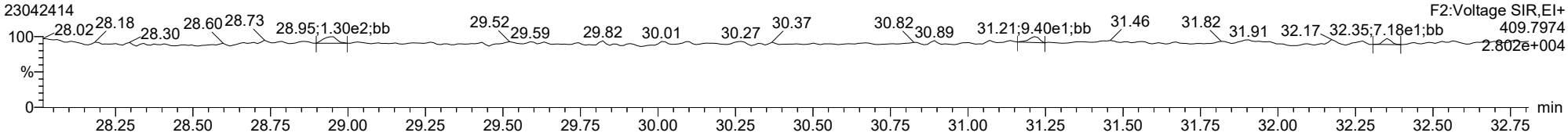
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13C-12378-PeCDF

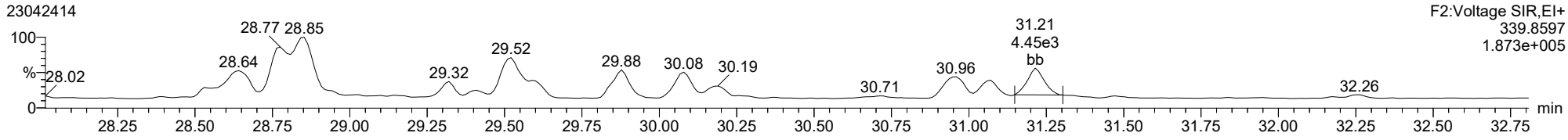


FUNCTION2 HPCDPE

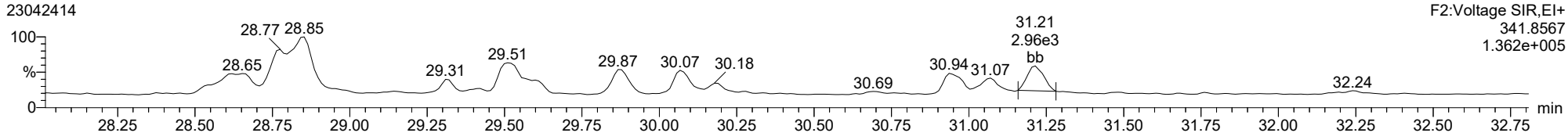


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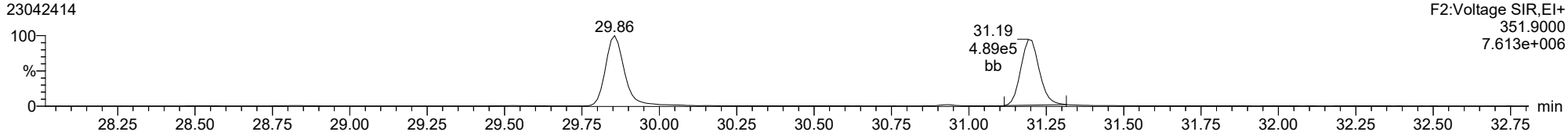
23478-PeCDF



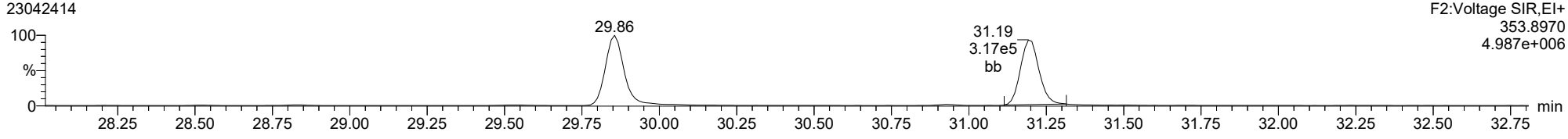
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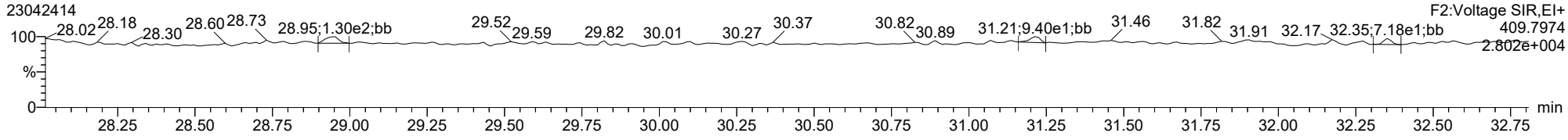
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13C-23478-PeCDF

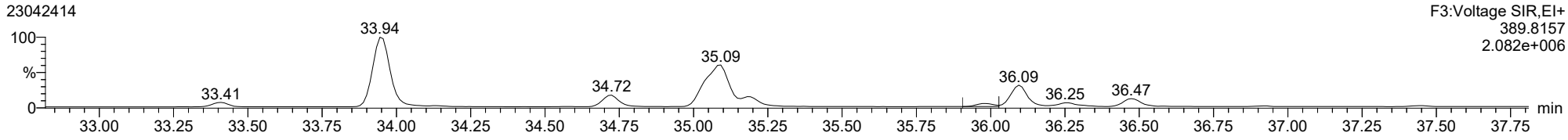


FUNCTION2 HPCDPE

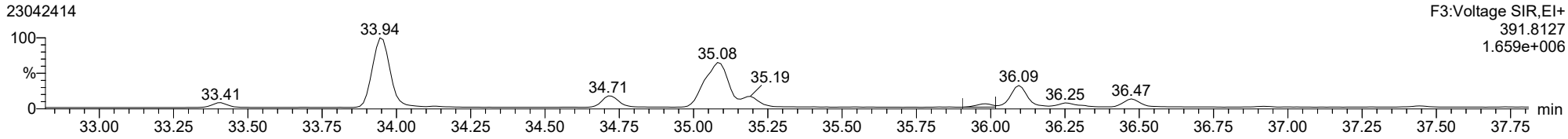


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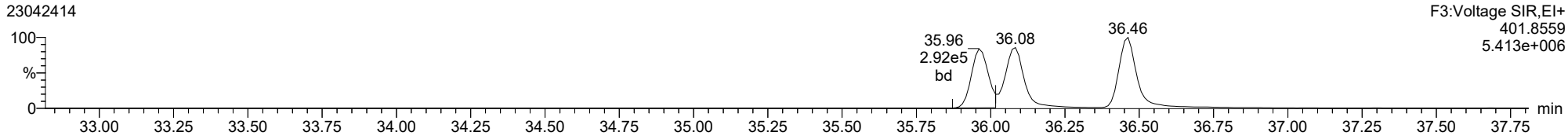
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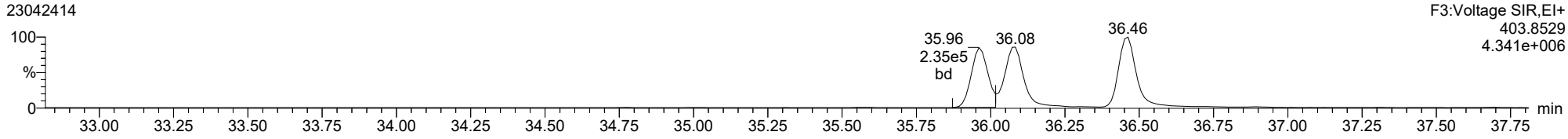
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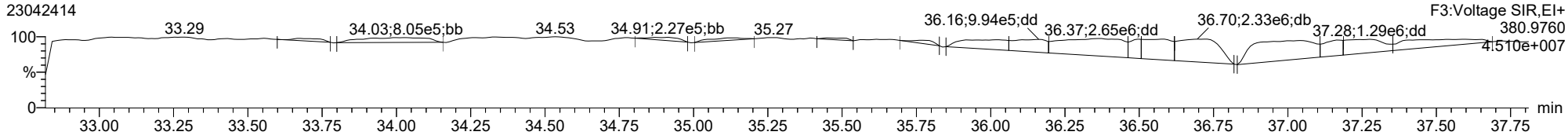
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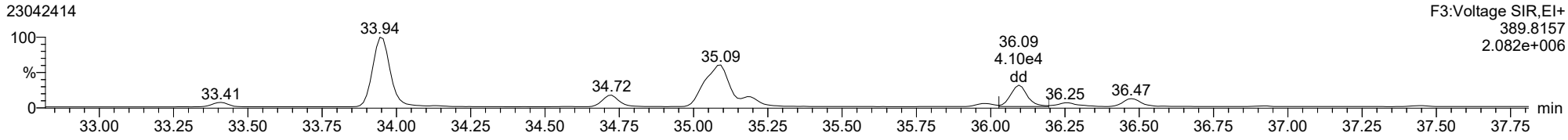


FUNCTION3 PFK

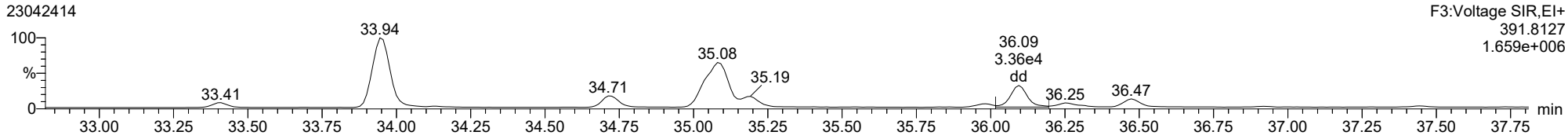


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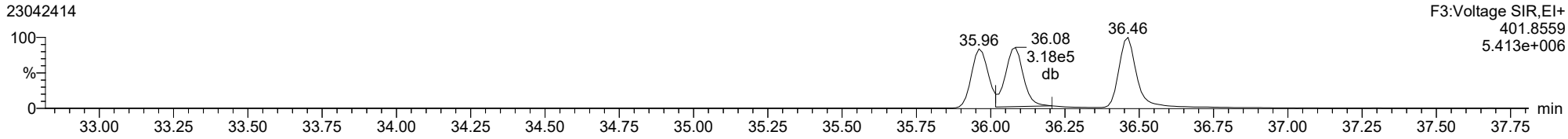
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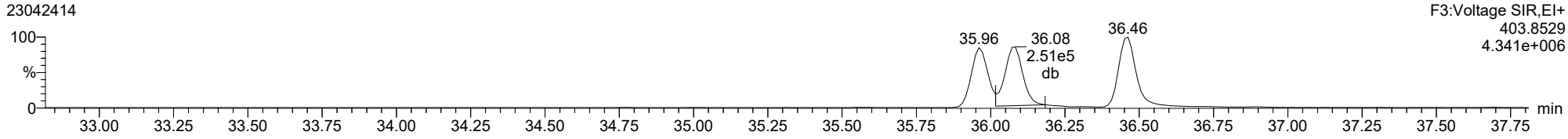
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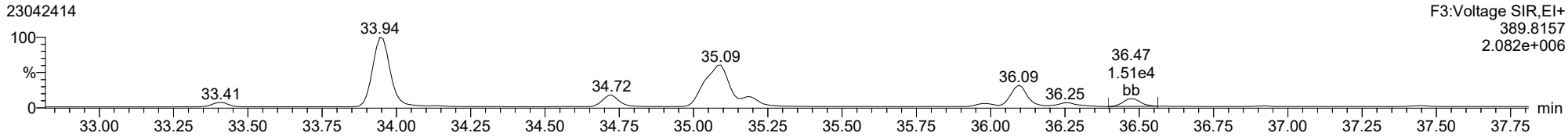


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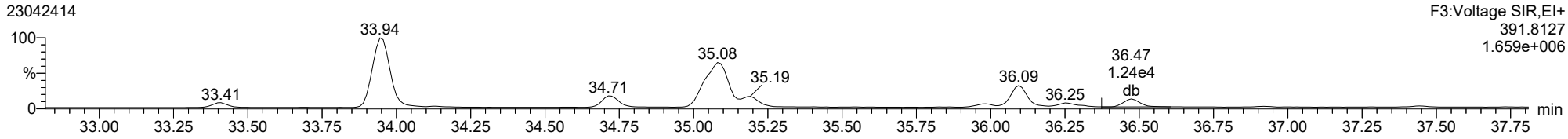


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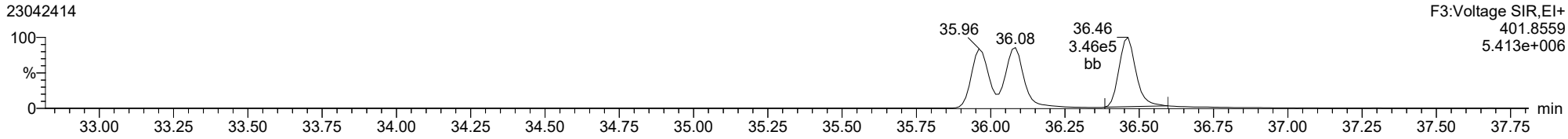
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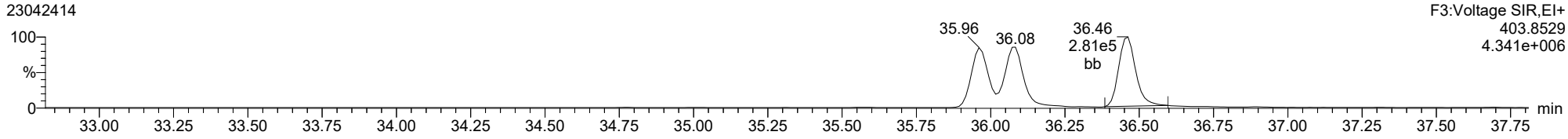
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13C-123789-HxCDD

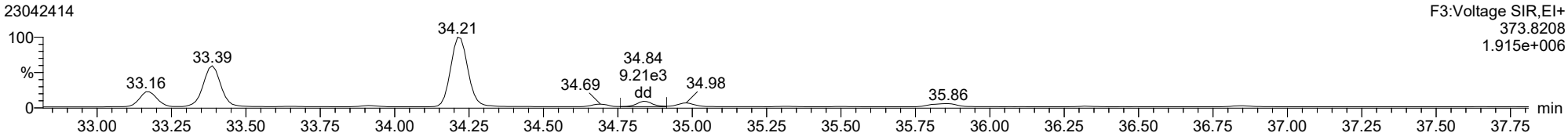


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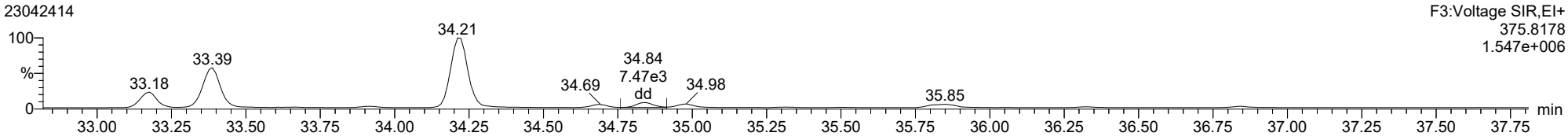


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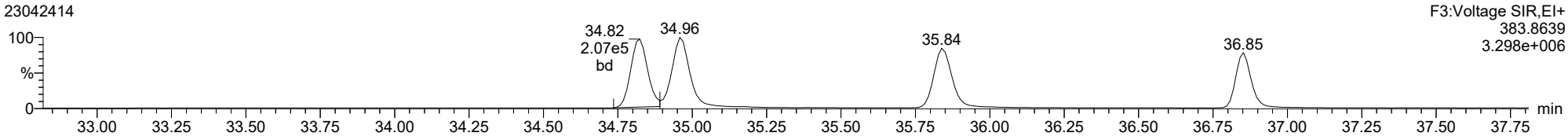
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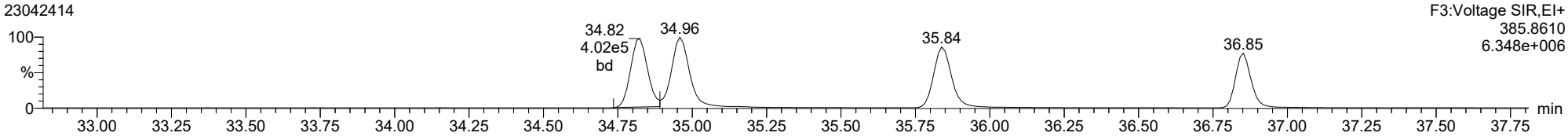
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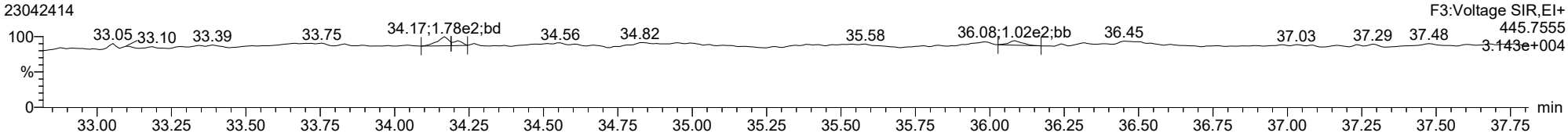
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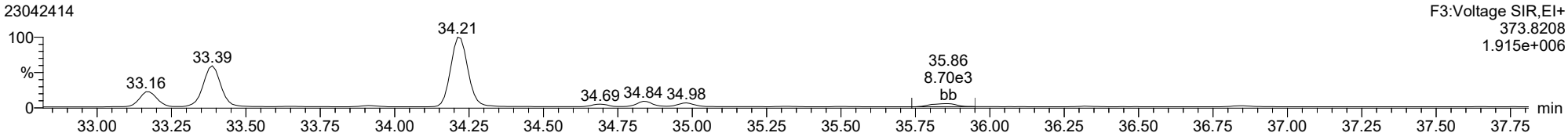


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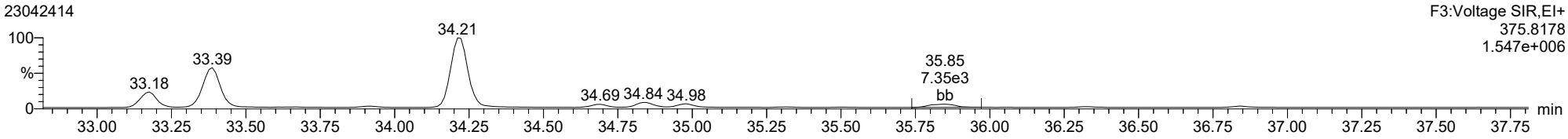


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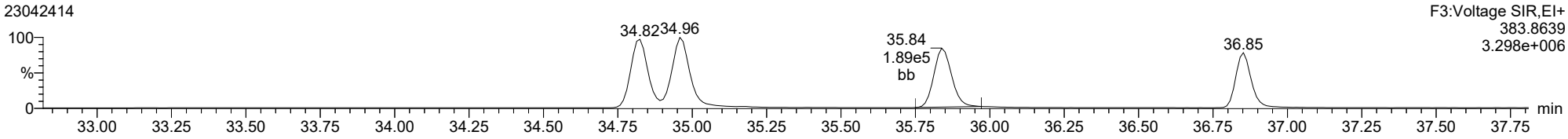
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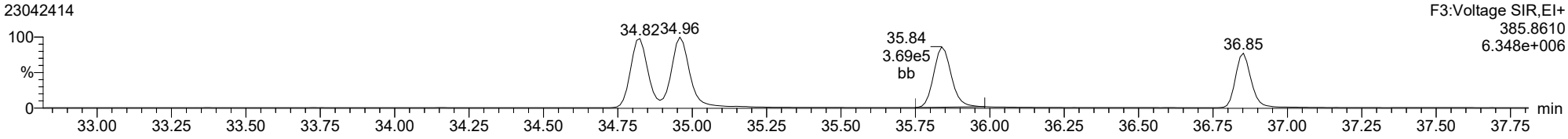
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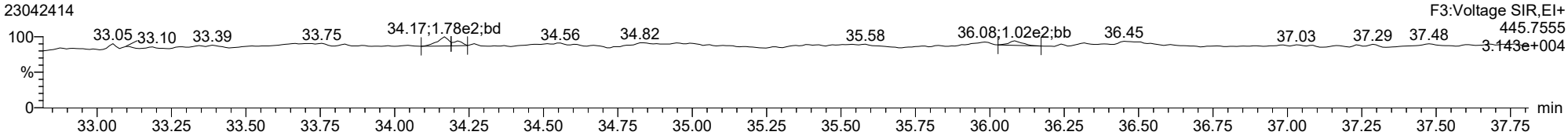
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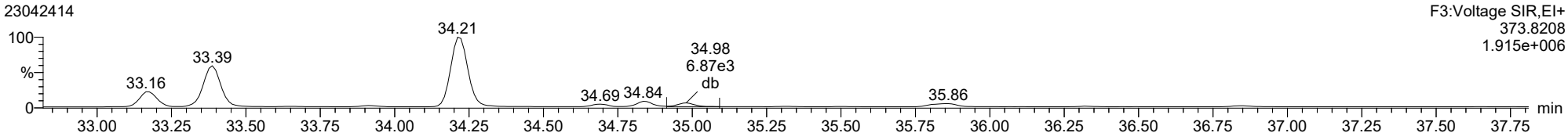


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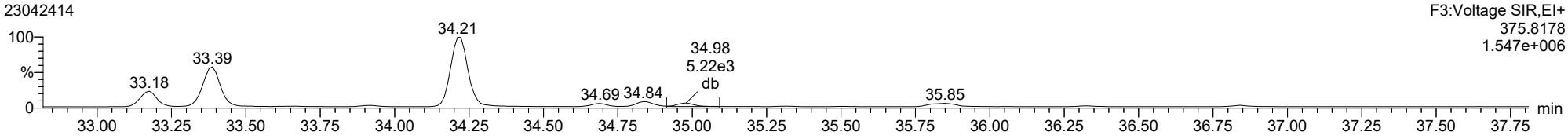


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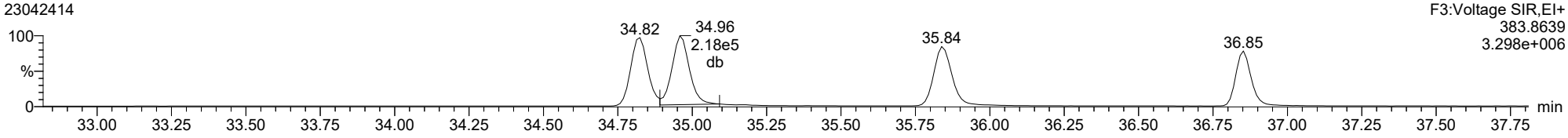
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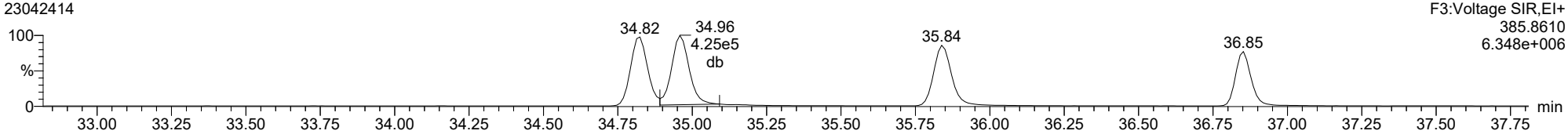
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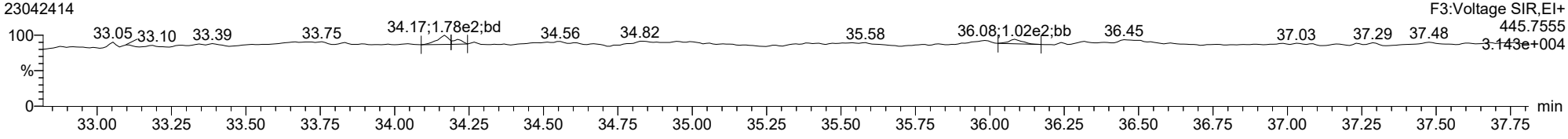
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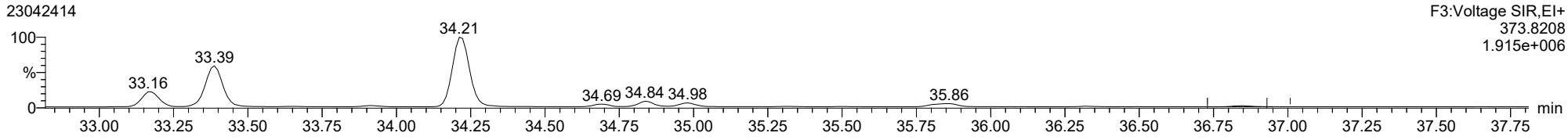


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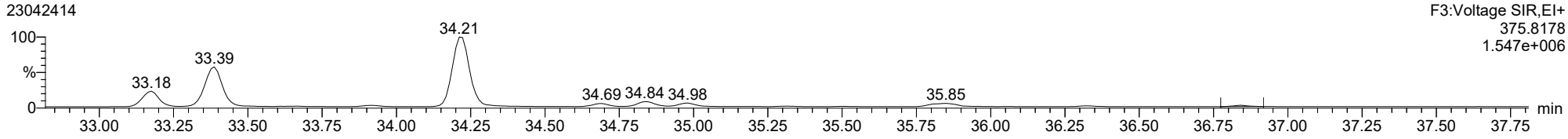


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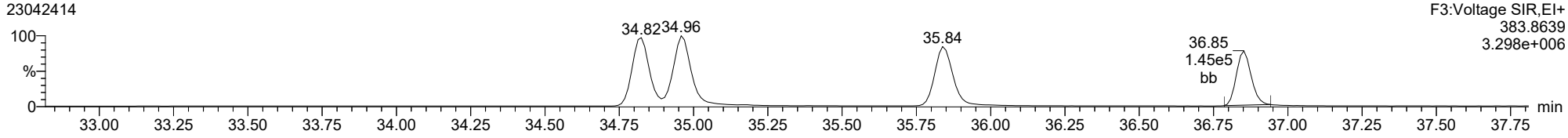
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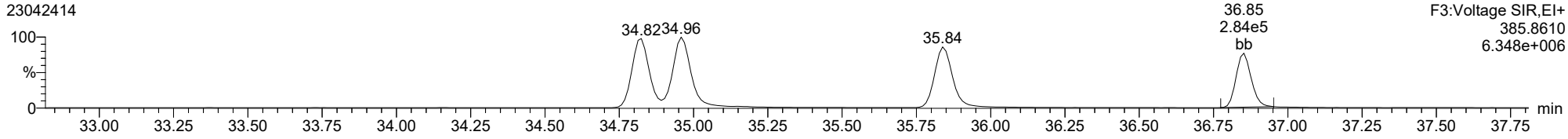
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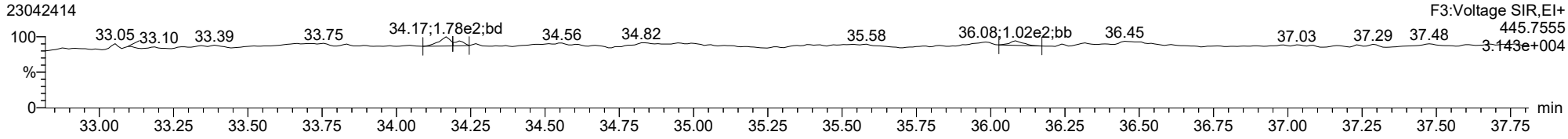
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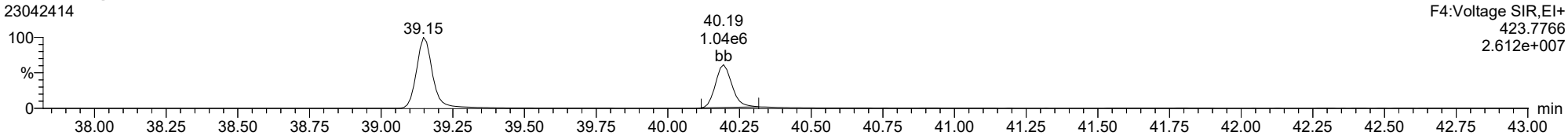


FUNCTION3 OCDPE

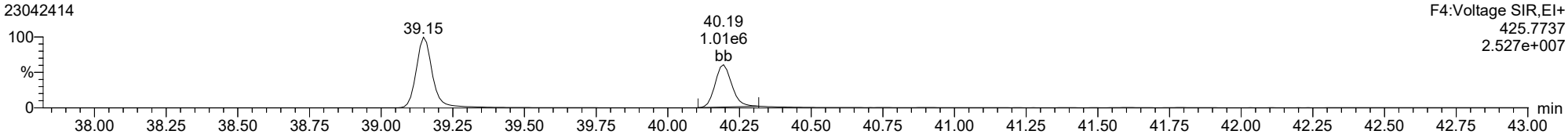


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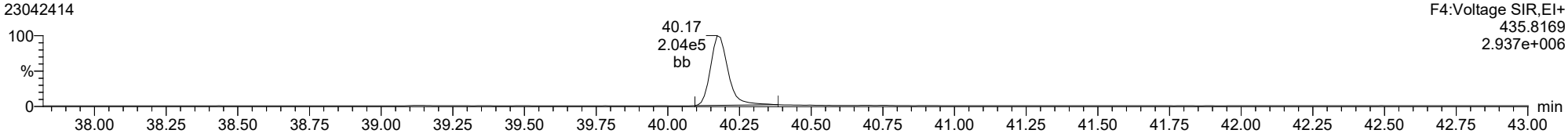
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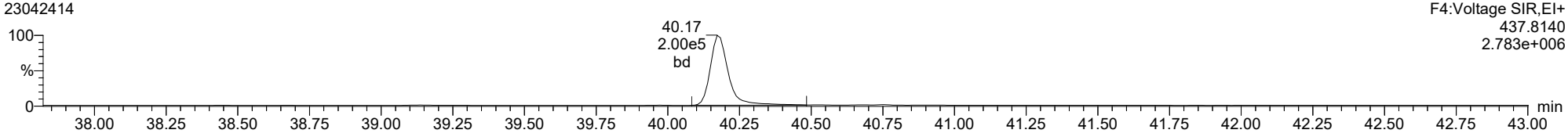
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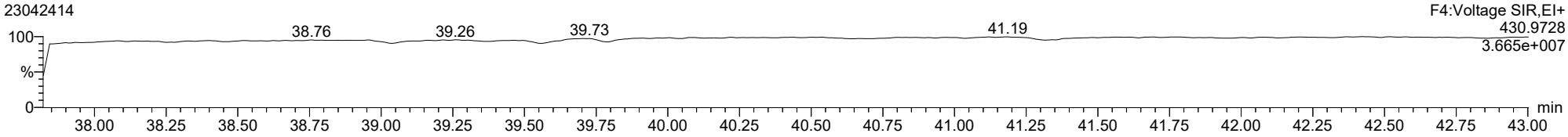
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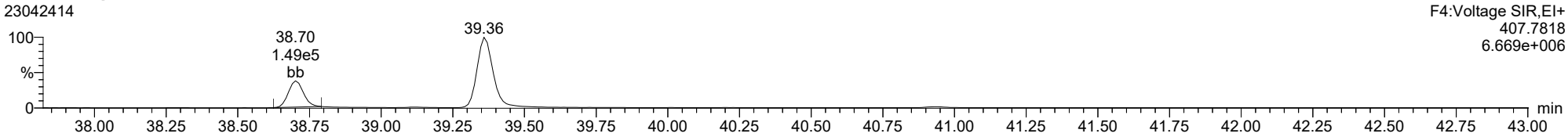


FUNCTION4 PFK

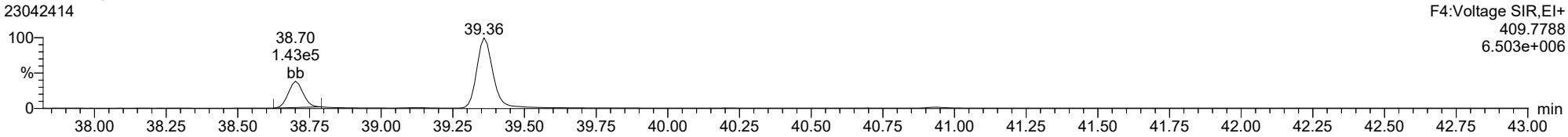


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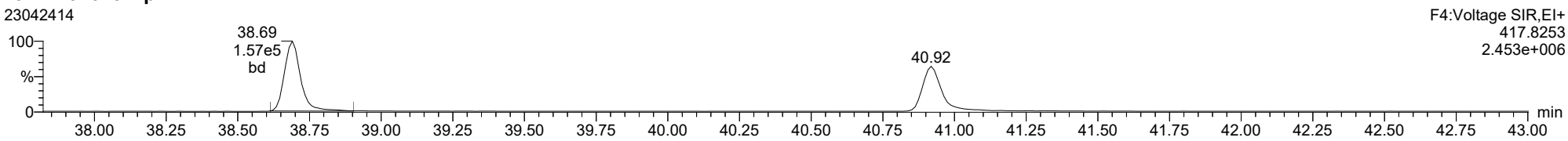
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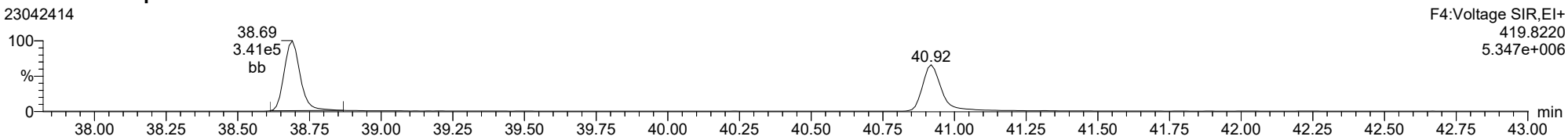
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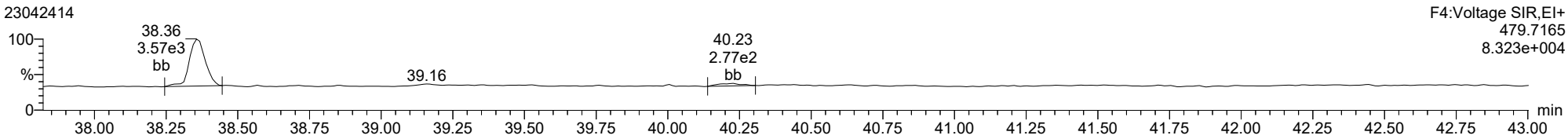
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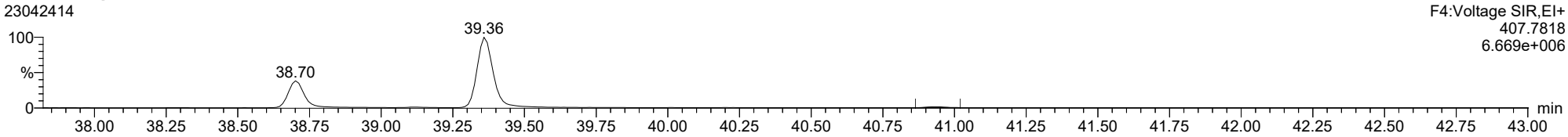


FUNCTION4 NCDPE

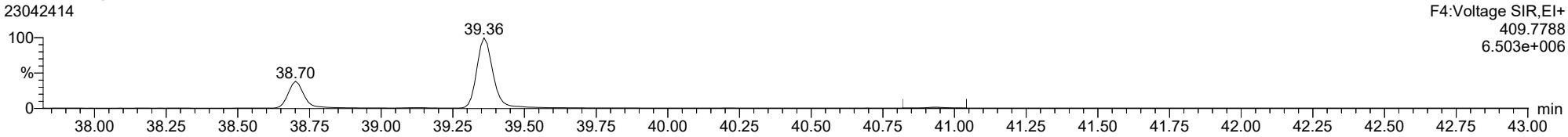


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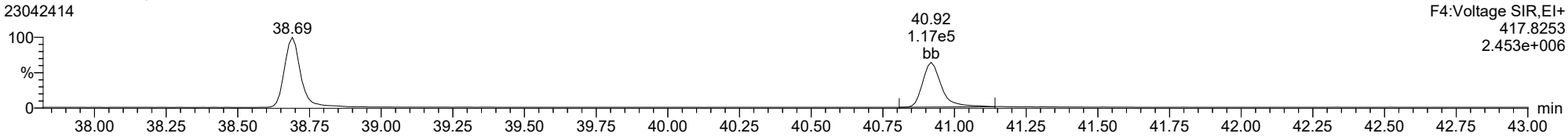
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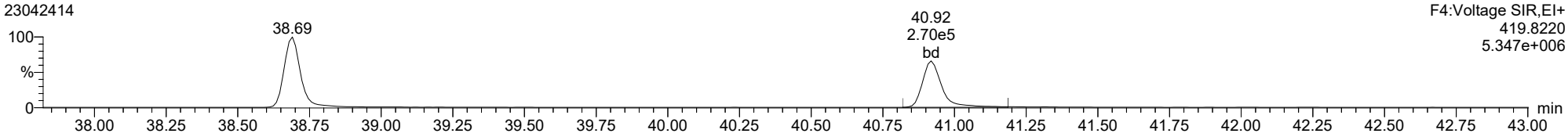
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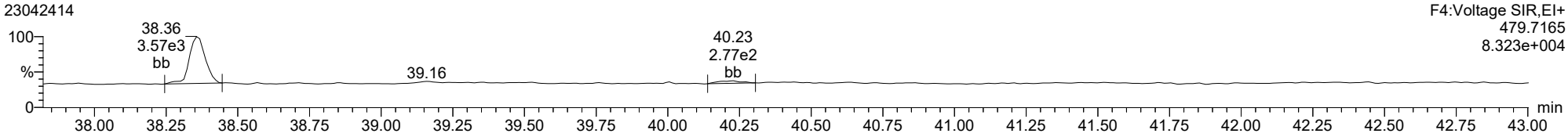
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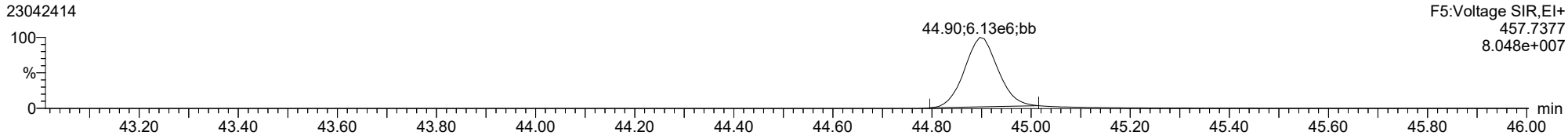


FUNCTION4 NCDPE

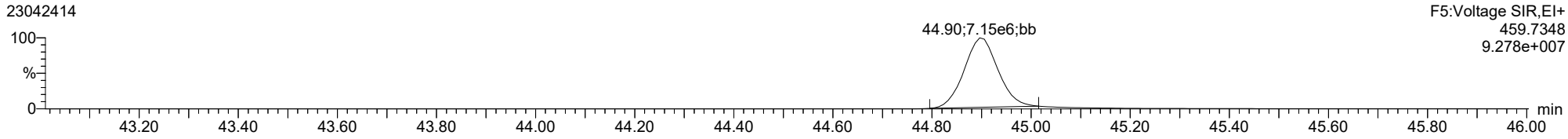


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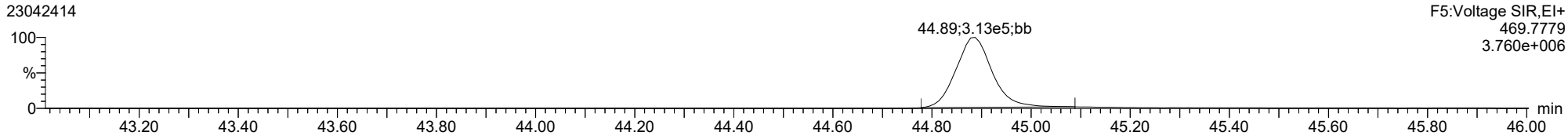
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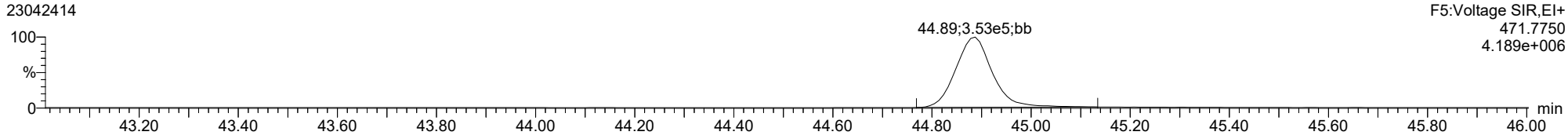
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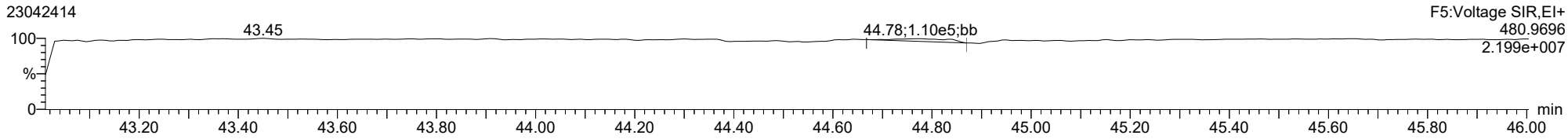
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13C-OCDD



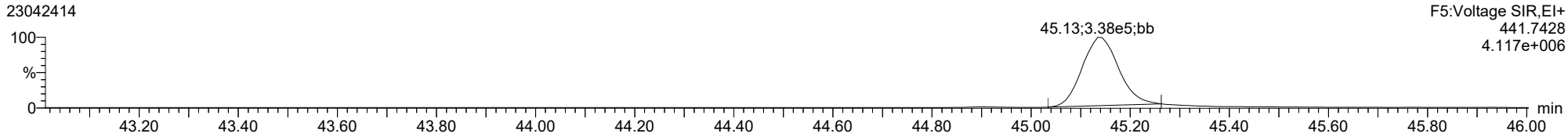
FUNCTION5 PFK



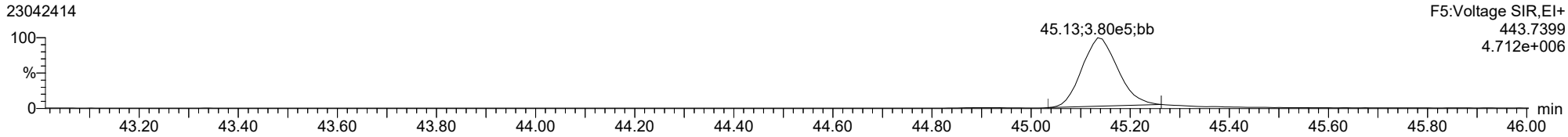
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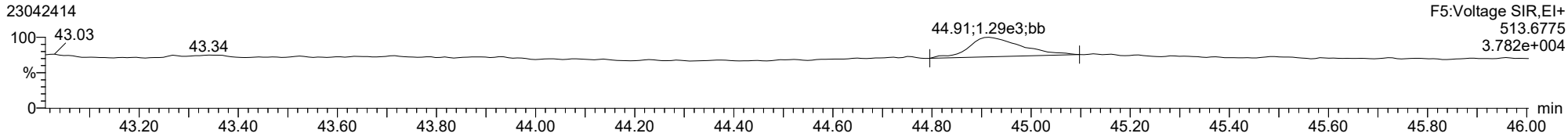
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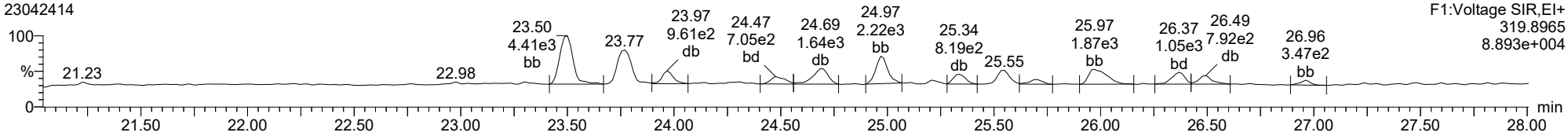


FUNCTION5 DCDPE

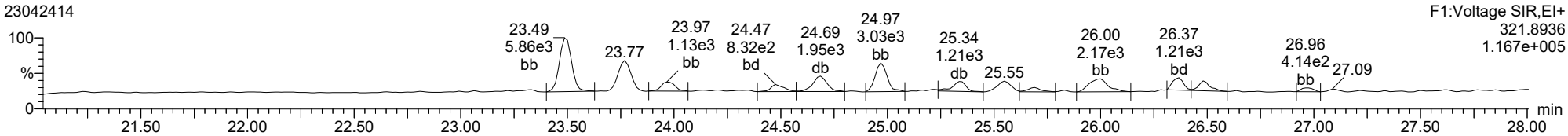


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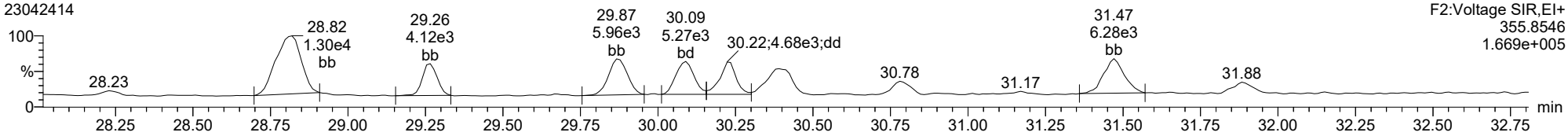
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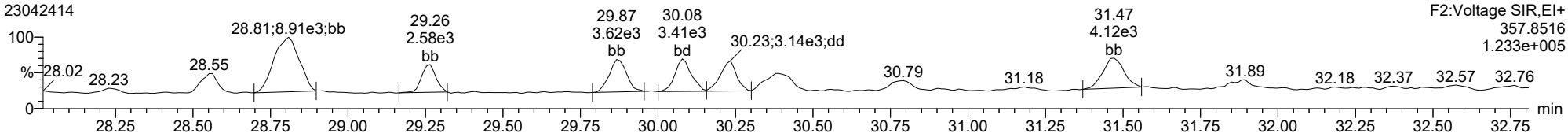
Total-tetradioxins



Total-pentadioxins

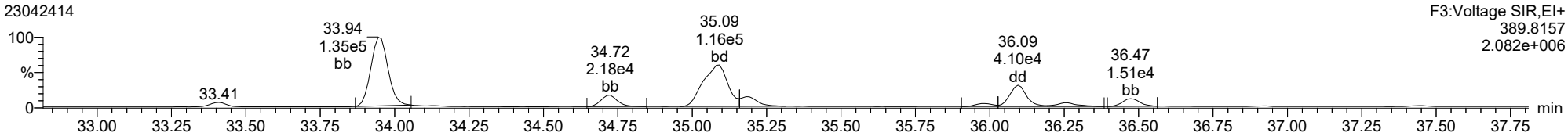


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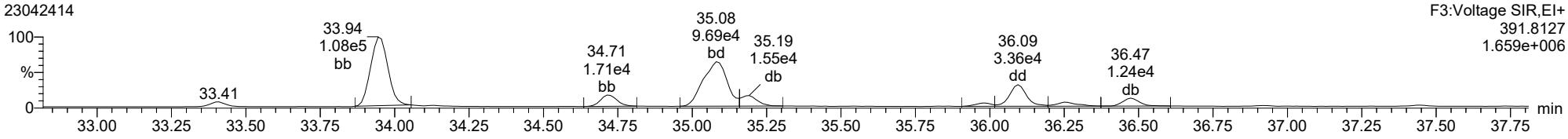


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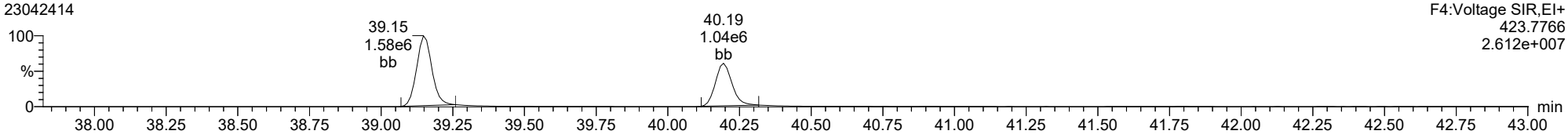
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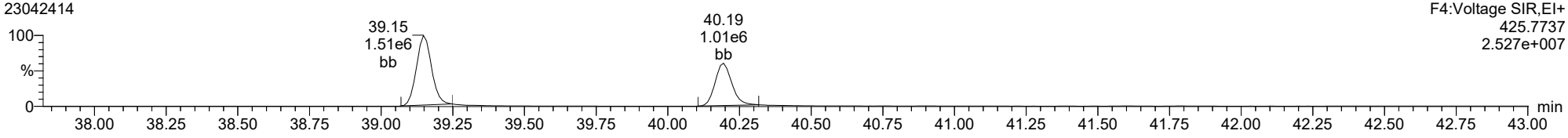
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Total-heptadioxins

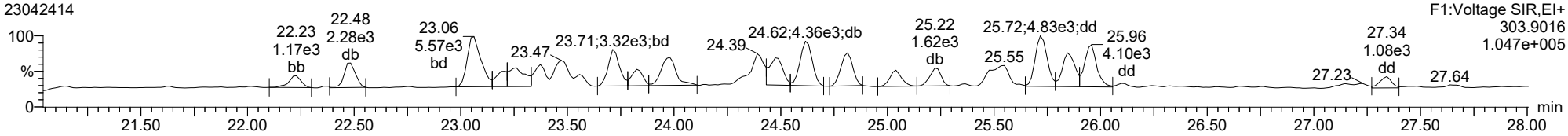


Total-heptadioxins

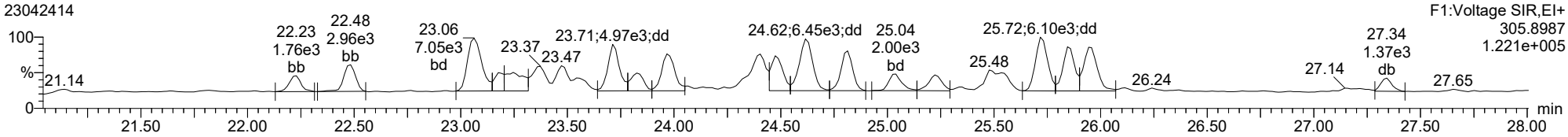


ID: 23C0619-08, Name: 23042414, Date: 25-Apr-2023, Time: 01:09:02, Conditions: AUTOSPEC01, User: pk

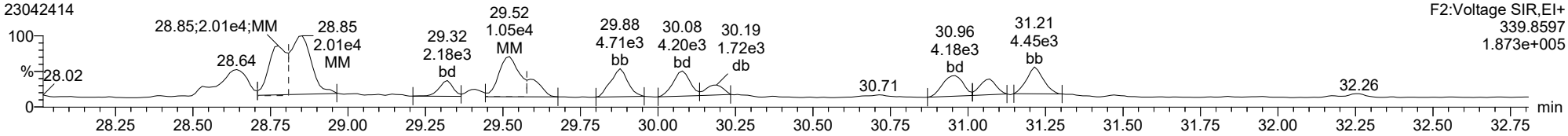
Total-tetrafurans



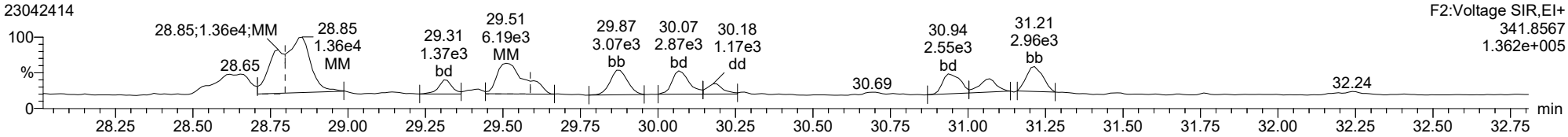
Total-tetrafurans



Total-pentafurans

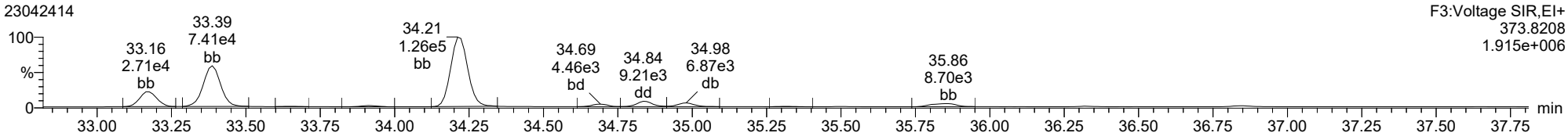


Total-pentafurans

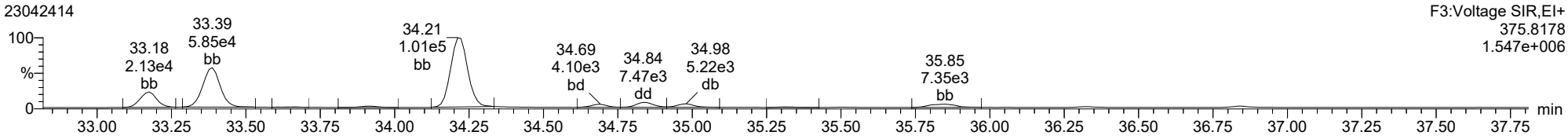


ID: 23C0619-08, Name: 23042414, Date: 25-Apr-2023, Time: 01:09:02, Conditions: AUTOSPEC01, User: pk

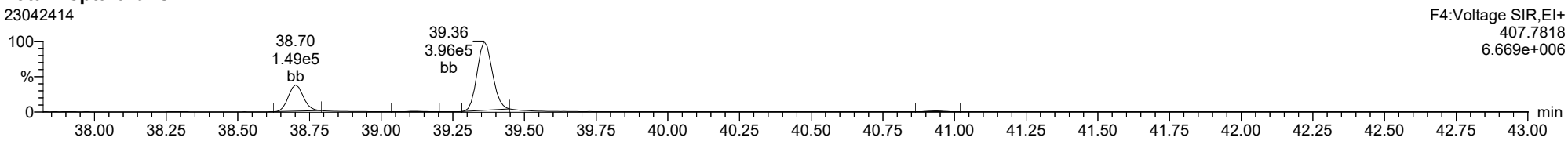
Total-hexafurans



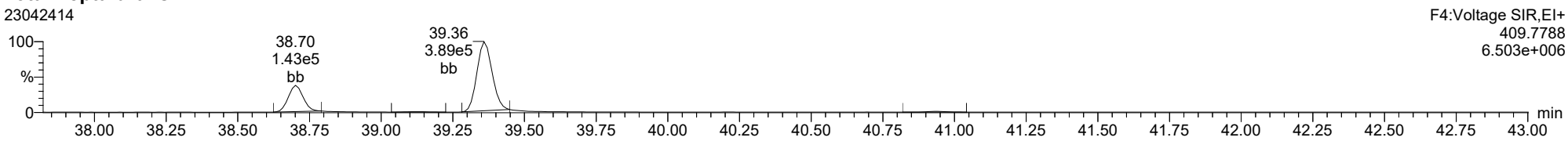
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SED-25C:0-1

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.				
Project:	Port of Friday Harbor				
Matrix:	Sediment	Laboratory ID:	23C0619-10 C	File ID:	23042415
Sampled:	03/22/23 11:19	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 01:58
% Solids:	75.54	Preparation:	EPA 1613	Initial/Final:	13.24 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.850	0.655-0.886	0.254	1.00	0.373	ng/kg	X, J
1746-01-6	2,3,7,8-TCDD	1	0.384	0.655-0.886	0.098	1.00	0.206	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.483	1.318-1.783	0.202	1.00	0.329	ng/kg	J
57117-31-4	2,3,4,7,8-PeCDF	1	1.114	1.318-1.783	0.192	1.00	0.154	ng/kg	EMPC, J
40321-76-4	1,2,3,7,8-PeCDD	1	2.241	1.318-1.783	0.263	1.00	0.720	ng/kg	EMPC, J
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.377	1.054-1.426	0.102	1.00	0.589	ng/kg	J
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.939	1.054-1.426	0.110	1.00	0.376	ng/kg	EMPC, J
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.309	1.054-1.426	0.109	1.00	0.623	ng/kg	J
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.780	1.054-1.426	0.132	1.00	0.193	ng/kg	EMPC, J
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.926	1.054-1.426	0.218	1.00	0.619	ng/kg	EMPC, J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.181	1.054-1.426	0.224	1.00	2.73	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.286	1.054-1.426	0.243	1.00	1.44	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.069	0.893-1.208	0.152	1.00	10.0	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.499	0.893-1.208	0.244	1.00	0.575	ng/kg	EMPC, J
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.022	0.893-1.208	0.469	2.50	89.0	ng/kg	B
39001-02-0	OCDF	1	0.882	0.757-1.024	0.417	2.50	23.2	ng/kg	
3268-87-9	OCDD	1	0.860	0.757-1.024	0.926	10.0	611	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	1.71	ng/kg	
41903-57-5	Total TCDD	1	0.000			1.00	0.331	ng/kg	
30402-15-4	Total PeCDF	1	0.000			1.00	3.81	ng/kg	
36088-22-9	Total PeCDD	1	0.000			1.00	0.244	ng/kg	
55684-94-1	Total HxCDF	1	0.000			1.00	14.4	ng/kg	
34465-46-8	Total HxCDD	1	0.000			1.00	29.0	ng/kg	
38998-75-3	Total HpCDF	1	0.000			1.00	31.3	ng/kg	
37871-00-4	Total HpCDD	1	0.000			1.00	273	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 2.86
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 2.86

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SED-25C:0-1

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Sediment	Laboratory ID:	23C0619-10	File ID:	23042415
Sampled:	03/22/23 11:19	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 01:58
Solids Wt%:	75.54	Preparation:	EPA 1613	Initial/Final:	13.24 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.746	0.655-0.886	0.101	81.8	24 - 169 %	
13C12-2,3,7,8-TCDD		0.781	0.655-0.886	0.168	88.9	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.520	1.318-1.783	0.200	96.8	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.530	1.318-1.783	0.222	96.2	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.655	1.318-1.783	0.123	74.9	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.503	0.434-0.587	0.284	82.4	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.524	0.434-0.587	0.239	74.8	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.498	0.434-0.587	0.294	87.0	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.510	0.434-0.587	0.356	86.5	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.245	1.054-1.426	0.284	90.6	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.283	1.054-1.426	0.244	79.5	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.463	0.374-0.506	0.310	96.5	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.450	0.374-0.506	0.361	84.3	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.048	0.893-1.208	0.228	78.1	23 - 140 %	
13C12-OCDD		0.916	0.757-1.024	0.304	78.3	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.070	81.5	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:21:35 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23C0619-10, Name: 23042415, Date: 25-Apr-2023, Time: 01:58:07, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.690	1.001	4.757e2	5.595e2	0.702	0.850	0.770	2097	1370	6.52e3	9.20e3	3.1	6.7	NO	dd	bd	0.186
12378-PeCDF	29.844	1.000	4.784e2	3.226e2	0.679	1.483	1.550	1002	1440	8.76e3	5.49e3	8.7	3.8	NO	bb	bd	0.164
23478-PeCDF	31.181	1.000	2.050e2	1.840e2	0.786	1.114	1.550	1002	1440	6.39e3	5.46e3	6.4	3.8	YES	bd	bb	0.077
123478-HxCDF	34.814	1.001	9.696e2	7.040e2	1.166	1.377	1.240	1025	531	1.74e4	1.19e4	17.0	22.5	NO	bb	bd	0.295
234678-HxCDF	35.794	1.000	9.998e2	7.636e2	1.140	1.309	1.240	1025	531	1.02e4	8.66e3	10.0	16.3	NO	bd	bb	0.311
123678-HxCDF	34.958	1.001	5.211e2	5.549e2	1.091	0.939	1.240	1025	531	9.78e3	8.42e3	9.5	15.8	YES	MM	db	0.188
123789-HxCDF	36.830	1.000	2.859e2	1.606e2	1.137	1.780	1.240	1025	531	4.15e3	2.91e3	4.1	5.5	YES	bb	bb	0.096
1234678-HpCDF	38.691	1.001	1.133e4	1.061e4	1.003	1.069	1.050	868	852	1.86e5	1.74e5	214.3	204.6	NO	bb	bb	5.007
1234789-HpCDF	40.941	1.001	5.391e2	3.596e2	0.953	1.499	1.050	868	852	7.70e3	6.53e3	8.9	7.7	YES	bb	bb	0.287
OCDF	45.126	1.006	1.283e4	1.454e4	0.778	0.882	0.890	692	1142	1.58e5	1.72e5	228.0	150.9	NO	bb	bb	11.579
2378-TCDD	26.339	1.001	2.006e2	5.230e2	1.149	0.384	0.770	850	868	5.09e3	8.46e3	6.0	9.7	YES	bd	dd	0.103
12378-PeCDD	31.415	1.000	9.435e2	4.210e2	1.022	2.241	1.550	1339	1068	1.16e4	6.90e3	8.7	6.5	YES	bb	bb	0.360
123478-HxCDD	35.950	1.001	6.755e2	7.293e2	0.996	0.926	1.240	1157	1529	1.07e4	1.42e4	9.3	9.3	YES	bd	bd	0.309
123678-HxCDD	36.050	1.001	3.437e3	2.911e3	1.001	1.181	1.240	1157	1529	5.61e4	4.47e4	48.5	29.2	NO	db	dd	1.365
123789-HxCDD	36.440	1.011	1.694e3	1.317e3	0.907	1.286	1.240	1157	1529	2.79e4	2.21e4	24.1	14.5	NO	bb	bb	0.721
1234678-HpCDD	40.173	1.000	7.758e4	7.590e4	1.039	1.022	1.050	1806	2264	1.18e6	1.13e6	653.1	501.3	NO	bb	bb	44.528
OCDD	44.879	1.000	3.947e5	4.589e5	0.920	0.860	0.890	2912	1906	4.75e6	5.46e6	1631.4	2862.7	NO	bb	bb	305.334
13C-2378-TCDF	25.676	1.007	3.381e5	4.532e5	1.620	0.746	0.770	1314	1242	4.98e6	6.73e6	3791.5	5414.0	NO	bb	bd	81.815
13C-12378-PeCDF	29.833	1.170	4.324e5	2.846e5	1.240	1.520	1.550	2109	1763	6.44e6	4.21e6	3052.6	2387.9	NO	bd	bd	96.835
13C-23478-PeCDF	31.170	1.222	3.882e5	2.537e5	1.118	1.530	1.550	2109	1763	5.88e6	3.81e6	2786.3	2158.7	NO	bb	bb	96.201
13C-123478-HxCDF	34.791	0.955	1.630e5	3.240e5	1.168	0.503	0.510	1892	2651	2.62e6	5.19e6	1383.6	1957.9	NO	bd	bd	82.434
13C-123678-HxCDF	34.936	0.959	1.802e5	3.440e5	1.386	0.524	0.510	1892	2651	2.68e6	5.14e6	1417.4	1938.8	NO	db	db	74.765
13C-234678-HxCDF	35.794	0.983	1.653e5	3.317e5	1.129	0.498	0.510	1892	2651	2.50e6	4.93e6	1320.6	1857.8	NO	bb	bb	87.037
13C-123789-HxCDF	36.830	1.011	1.376e5	2.698e5	0.932	0.510	0.510	1892	2651	2.10e6	4.16e6	1111.1	1569.9	NO	bb	bb	86.479
13C-1234678-HpCDF	38.668	1.062	1.384e5	2.985e5	0.895	0.463	0.440	1741	2058	2.15e6	4.75e6	1233.7	2309.5	NO	bd	bb	96.513
13C-1234789-HpCDF	40.908	1.123	1.019e5	2.262e5	0.770	0.450	0.440	1741	2058	1.38e6	3.08e6	791.0	1494.9	NO	bb	bd	84.301
13C-1234-TCDD	25.506	0.000	2.641e5	3.328e5	1.000	0.794	0.770	1782	1232	4.14e6	5.18e6	2321.1	4207.1	NO	bb	bb	100.000
13C-2378-TCDD	26.311	1.032	2.682e5	3.436e5	1.152	0.781	0.770	1782	1232	4.03e6	5.16e6	2259.8	4189.5	NO	bb	bb	88.942
13C-12378-PeCDD	31.427	1.232	2.311e5	1.396e5	0.829	1.655	1.550	786	800	3.35e6	1.99e6	4266.0	2491.6	NO	bb	bb	74.913
13C-123478-HxCDD	35.917	0.986	2.528e5	2.031e5	0.995	1.245	1.240	2262	1605	4.12e6	3.30e6	1820.2	2057.5	NO	bd	bd	90.628
13C-123678-HxCDD	36.028	0.989	2.612e5	2.035e5	1.157	1.283	1.240	2262	1605	4.04e6	3.17e6	1787.7	1972.7	NO	db	db	79.450
13C-1234678-HpCDD	40.161	1.103	1.697e5	1.620e5	0.840	1.048	1.050	1122	1504	2.56e6	2.40e6	2286.0	1595.9	NO	bb	bb	78.090
13C-OCDD	44.861	1.232	2.906e5	3.172e5	0.767	0.916	0.890	1503	1693	3.24e6	3.58e6	2158.8	2112.0	NO	bb	bd	156.606
13C-123789-HxCDD	36.418	0.000	2.811e5	2.245e5	1.000	1.252	1.240	2262	1605	4.56e6	3.66e6	2017.8	2283.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.033	2.507e5		1.288			1411		3.73e6		2646.5			bb		32.606

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:21:35 Pacific Daylight Time

ID: 23C0619-10, Name: 23042415, Date: 25-Apr-2023, Time: 01:58:07, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.172	0.864	1.189e2	1.125e2	0.802	1.057	0.770	2097	1370	2.79e3	3.78e3	1.3	2.8	YES	bb	bd	0.036
1289-TCDF	27.102	1.056	9.307e1	1.653e2	0.678	0.563	0.770	2097	1370	1.96e3	2.61e3	0.9	1.9	YES	bb	bb	0.048
13468-PECDF					1.246		1.550	554	929								
12389-PECDF					0.496		1.550	1002	1440								
123468-HXCDF	33.142	0.953	3.249e3	2.524e3	1.169	1.287	1.240	1025	531	4.90e4	3.65e4	47.8	68.7	NO	bd	bb	1.014
1368-TCDD	23.472	0.892	4.539e2	5.733e2	1.015	0.792	0.770	850	868	8.95e3	1.14e4	10.5	13.1	NO	bb	bb	0.165
1289-TCDD					0.909		0.770	850	868								
12479-PECDD	28.764	0.915	6.570e2	3.217e2	2.301	2.042	1.550	1339	1068	1.21e4	8.23e3	9.0	7.7	YES	db	db	0.115
12389-PECDD					1.184		1.550	1339	1068								
124679-HXCDD	33.922	0.944	1.593e4	1.262e4	1.115	1.263	1.240	1157	1529	2.44e5	1.95e5	210.6	127.2	NO	bb	bb	5.613
1234679-HPCDD	39.137	0.974	1.754e5	1.715e5	1.137	1.023	1.050	1806	2264	2.79e6	2.75e6	1547.0	1215.7	NO	bb	bb	91.976
Total-tetrafurans			2.078e3		0.727			2097		2.92e4							0.856
Total-penta1			5.749e3					554		8.99e4							1.459
Total-pentafurans			1.227e3		0.654			1002		1.96e4							0.446
Total-hexafurans			2.241e4		1.141			1025		3.43e5							7.207
Total-heptafurans			3.162e4		0.978			868		5.11e5							15.674
Total-Furans			7.591e4		0.922			2097		1.15e6							37.221
Total-tetradioxins			4.539e2		1.024			850		8.95e3							0.165
Total-pentadioxins			3.912e2		1.502			1339		7.67e3							0.122
Total-hexadioxins			3.837e4		1.005			1157		5.39e5							14.490
Total-heptadioxins			2.530e5		1.088			1806		3.97e6							136.504
Total-Dioxins			6.869e5		1.130			850		9.28e6							456.615
Total-TEQ			7.628e5					850		1.04e7							493.836
FUNCTION1 PFK			1.107e6					402677		5.64e6							
FUNCTION2 PFK			1.421e5					228201		1.61e6							0.000
FUNCTION3 PFK			2.066e7					321763		4.23e7							0.000
FUNCTION4 PFK			1.575e4					224748		5.33e5							
FUNCTION5 PFK			8.748e4					211809		3.30e6							
FUNCTION1 HXCD...			2.847e2					490		5.27e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			9.719e2					974		2.17e4							0.000
FUNCTION3 OCDPE			4.319e2					450		7.31e3							0.000
FUNCTION4 NCDPE			5.936e2					597		9.29e3							0.000
FUNCTION5 DCDPE			0.000e0					611		0.00e0							

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.03	6.484e2	9.261e2	0.727	0.70	0.77	4.8	YES	NO	dd	dd	0.274
2	2378-TCDF	25.69	4.757e2	5.595e2	0.702	0.85	0.77	3.1	YES	NO	dd	bd	0.186
3	Total-tetrafurans	24.80	5.153e2	7.861e2	0.727	0.66	0.77	3.3	YES	NO	bb	bb	0.226
4	Total-tetrafurans	24.59	4.387e2	5.372e2	0.727	0.82	0.77	2.8	NO	NO	bb	bb	0.170

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.12	5.749e3	3.846e3		1.49	1.55	162.3	YES	NO	bb	bb	1.459

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.84	4.784e2	3.226e2	0.679	1.48	1.55	8.7	YES	NO	bb	bd	0.164
2	Total-pentafurans	28.70	7.489e2	5.003e2	0.654	1.50	1.55	10.8	YES	NO	bd	bd	0.281

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	34.19	9.632e3	7.427e3	1.141	1.30	1.24	146.3	YES	NO	bb	bb	3.123
2	Total-hexafurans	33.88	1.728e2	1.267e2	1.141	1.36	1.24	3.0	YES	NO	bb	bb	0.055
3	Total-hexafurans	33.35	7.381e3	5.774e3	1.141	1.28	1.24	110.9	YES	NO	db	bb	2.409
4	123468-HXCDF	33.14	3.249e3	2.524e3	1.169	1.29	1.24	47.8	YES	NO	bd	bb	1.014
5	234678-HxCDF	35.79	9.998e2	7.636e2	1.140	1.31	1.24	10.0	YES	NO	bd	bb	0.311
6	123478-HxCDF	34.81	9.696e2	7.040e2	1.166	1.38	1.24	17.0	YES	NO	bb	bd	0.295

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.35	2.029e4	1.962e4	0.978	1.03	1.05	374.6	YES	NO	bb	bb	10.667
2	1234678-HpCDF	38.69	1.133e4	1.061e4	1.003	1.07	1.05	214.3	YES	NO	bb	bb	5.007

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.03	6.484e2	9.261e2	0.727	0.70	0.77	4.8	YES	NO	dd	dd	0.274
2	2378-TCDF	25.69	4.757e2	5.595e2	0.702	0.85	0.77	3.1	YES	NO	dd	bd	0.186
3	Total-tetrafurans	24.80	5.153e2	7.861e2	0.727	0.66	0.77	3.3	YES	NO	bb	bb	0.226
4	Total-tetrafurans	24.59	4.387e2	5.372e2	0.727	0.82	0.77	2.8	NO	NO	bb	bb	0.170
5	12378-PeCDF	29.84	4.784e2	3.226e2	0.679	1.48	1.55	8.7	YES	NO	bb	bd	0.164
6	Total-pentafurans	28.70	7.489e2	5.003e2	0.654	1.50	1.55	10.8	YES	NO	bd	bd	0.281
7	Total-hexafurans	34.19	9.632e3	7.427e3	1.141	1.30	1.24	146.3	YES	NO	bb	bb	3.123
8	Total-hexafurans	33.88	1.728e2	1.267e2	1.141	1.36	1.24	3.0	YES	NO	bb	bb	0.055
9	Total-hexafurans	33.35	7.381e3	5.774e3	1.141	1.28	1.24	110.9	YES	NO	db	bb	2.409
10	123468-HXCDF	33.14	3.249e3	2.524e3	1.169	1.29	1.24	47.8	YES	NO	bd	bb	1.014
11	234678-HxCDF	35.79	9.998e2	7.636e2	1.140	1.31	1.24	10.0	YES	NO	bd	bb	0.311
12	123478-HxCDF	34.81	9.696e2	7.040e2	1.166	1.38	1.24	17.0	YES	NO	bb	bd	0.295
13	Total-heptafurans	39.35	2.029e4	1.962e4	0.978	1.03	1.05	374.6	YES	NO	bb	bb	10.667
14	1234678-HpCDF	38.69	1.133e4	1.061e4	1.003	1.07	1.05	214.3	YES	NO	bb	bb	5.007
15	OCDF	45.13	1.283e4	1.454e4	0.778	0.88	0.89	228.0	YES	NO	bb	bb	11.579
16	Total-penta1	27.12	5.749e3	3.846e3		1.49	1.55	162.3	YES	NO	bb	bb	1.459

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.47	4.539e2	5.733e2	1.015	0.79	0.77	10.5	YES	NO	bb	bb	0.165

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.20	3.912e2	2.888e2	1.502	1.35	1.55	5.7	YES	NO	bb	db	0.122

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.06	1.293e4	1.041e4	1.005	1.24	1.24	119.2	YES	NO	bd	bd	5.047
2	Total-hexadioxins	34.69	1.960e3	1.774e3	1.005	1.11	1.24	32.4	YES	NO	bb	bd	0.807
3	124679-HXCDD	33.92	1.593e4	1.262e4	1.115	1.26	1.24	210.6	YES	NO	bb	bb	5.613
4	123789-HxCDD	36.44	1.694e3	1.317e3	0.907	1.29	1.24	24.1	YES	NO	bb	bb	0.721
5	123678-HxCDD	36.05	3.437e3	2.911e3	1.001	1.18	1.24	48.5	YES	NO	db	dd	1.365
6	Total-hexadioxins	35.16	2.412e3	1.920e3	1.005	1.26	1.24	30.8	YES	NO	db	dd	0.936

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.17	7.758e4	7.590e4	1.039	1.02	1.05	653.1	YES	NO	bb	bb	44.528
2	1234679-HPCDD	39.14	1.754e5	1.715e5	1.137	1.02	1.05	1547.0	YES	NO	bb	bb	91.976

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.47	4.539e2	5.733e2	1.015	0.79	0.77	10.5	YES	NO	bb	bb	0.165
2	Total-pentadioxins	30.20	3.912e2	2.888e2	1.502	1.35	1.55	5.7	YES	NO	bb	db	0.122
3	Total-hexadioxins	35.06	1.293e4	1.041e4	1.005	1.24	1.24	119.2	YES	NO	bd	bd	5.047
4	Total-hexadioxins	34.69	1.960e3	1.774e3	1.005	1.11	1.24	32.4	YES	NO	bb	bd	0.807
5	124679-HXCDD	33.92	1.593e4	1.262e4	1.115	1.26	1.24	210.6	YES	NO	bb	bb	5.613
6	123789-HxCDD	36.44	1.694e3	1.317e3	0.907	1.29	1.24	24.1	YES	NO	bb	bb	0.721
7	123678-HxCDD	36.05	3.437e3	2.911e3	1.001	1.18	1.24	48.5	YES	NO	db	dd	1.365
8	Total-hexadioxins	35.16	2.412e3	1.920e3	1.005	1.26	1.24	30.8	YES	NO	db	dd	0.936
9	1234678-HpCDD	40.17	7.758e4	7.590e4	1.039	1.02	1.05	653.1	YES	NO	bb	bb	44.528
10	1234679-HPCDD	39.14	1.754e5	1.715e5	1.137	1.02	1.05	1547.0	YES	NO	bb	bb	91.976
11	OCDD	44.88	3.947e5	4.589e5	0.920	0.86	0.89	1631.4	YES	NO	bb	bb	305.334

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.03	6.484e2	9.261e2	0.727	0.70	0.77	4.8	YES	NO	dd	dd	0.274
2	2378-TCDF	25.69	4.757e2	5.595e2	0.702	0.85	0.77	3.1	YES	NO	dd	bd	0.186
3	Total-tetrafurans	24.80	5.153e2	7.861e2	0.727	0.66	0.77	3.3	YES	NO	bb	bb	0.226
4	Total-tetrafurans	24.59	4.387e2	5.372e2	0.727	0.82	0.77	2.8	NO	NO	bb	bb	0.170
5	12378-PeCDF	29.84	4.784e2	3.226e2	0.679	1.48	1.55	8.7	YES	NO	bb	bd	0.164
6	Total-pentafurans	28.70	7.489e2	5.003e2	0.654	1.50	1.55	10.8	YES	NO	bd	bd	0.281
7	Total-hexafurans	34.19	9.632e3	7.427e3	1.141	1.30	1.24	146.3	YES	NO	bb	bb	3.123
8	Total-hexafurans	33.88	1.728e2	1.267e2	1.141	1.36	1.24	3.0	YES	NO	bb	bb	0.055
9	Total-hexafurans	33.35	7.381e3	5.774e3	1.141	1.28	1.24	110.9	YES	NO	db	bb	2.409
10	123468-HXCDF	33.14	3.249e3	2.524e3	1.169	1.29	1.24	47.8	YES	NO	bd	bb	1.014
11	234678-HxCDF	35.79	9.998e2	7.636e2	1.140	1.31	1.24	10.0	YES	NO	bd	bb	0.311
12	123478-HxCDF	34.81	9.696e2	7.040e2	1.166	1.38	1.24	17.0	YES	NO	bb	bd	0.295
13	Total-heptafurans	39.35	2.029e4	1.962e4	0.978	1.03	1.05	374.6	YES	NO	bb	bb	10.667
14	1234678-HpCDF	38.69	1.133e4	1.061e4	1.003	1.07	1.05	214.3	YES	NO	bb	bb	5.007
15	OCDF	45.13	1.283e4	1.454e4	0.778	0.88	0.89	228.0	YES	NO	bb	bb	11.579
16	Total-penta1	27.12	5.749e3	3.846e3		1.49	1.55	162.3	YES	NO	bb	bb	1.459
17	1368-TCDD	23.47	4.539e2	5.733e2	1.015	0.79	0.77	10.5	YES	NO	bb	bb	0.165
18	Total-pentadioxins	30.20	3.912e2	2.888e2	1.502	1.35	1.55	5.7	YES	NO	bb	db	0.122
19	Total-hexadioxins	35.06	1.293e4	1.041e4	1.005	1.24	1.24	119.2	YES	NO	bd	bd	5.047
20	Total-hexadioxins	34.69	1.960e3	1.774e3	1.005	1.11	1.24	32.4	YES	NO	bb	bd	0.807
21	124679-HXCDD	33.92	1.593e4	1.262e4	1.115	1.26	1.24	210.6	YES	NO	bb	bb	5.613
22	123789-HxCDD	36.44	1.694e3	1.317e3	0.907	1.29	1.24	24.1	YES	NO	bb	bb	0.721
23	123678-HxCDD	36.05	3.437e3	2.911e3	1.001	1.18	1.24	48.5	YES	NO	db	dd	1.365
24	Total-hexadioxins	35.16	2.412e3	1.920e3	1.005	1.26	1.24	30.8	YES	NO	db	dd	0.936
25	1234678-HpCDD	40.17	7.758e4	7.590e4	1.039	1.02	1.05	653.1	YES	NO	bb	bb	44.528
26	1234679-HPCDD	39.14	1.754e5	1.715e5	1.137	1.02	1.05	1547.0	YES	NO	bb	bb	91.976
27	OCDD	44.88	3.947e5	4.589e5	0.920	0.86	0.89	1631.4	YES	NO	bb	bb	305.334

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.01	3.521e5					2.4	NO		bb		
2	FUNCTION1 PFK	22.71	7.169e5					9.0	YES		bb		
3	FUNCTION1 PFK	21.21	3.842e4					2.6	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.81	5.489e4					2.9	NO		bb		0.000
2	FUNCTION2 PFK	30.10	6.706e4					2.1	NO		bb		0.000
3	FUNCTION2 PFK	29.30	2.014e4					2.1	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.31	2.256e6					6.7	YES		bb		0.000
2	FUNCTION3 PFK	36.42	4.983e6					20.9	YES		bb		0.000
3	FUNCTION3 PFK	34.45	5.521e5					5.8	YES		bb		0.000
4	FUNCTION3 PFK	33.60	4.107e6					27.6	YES		db		0.000
5	FUNCTION3 PFK	32.86	8.762e6					70.6	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.38	1.575e4					2.4	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.20	7.626e3					1.1	NO		bb		
2	FUNCTION5 PFK	43.14	5.254e3					1.1	NO		bb		
3	FUNCTION5 PFK	43.08	4.749e3					1.2	NO		bb		
4	FUNCTION5 PFK	45.56	2.259e4					2.1	NO		bb		
5	FUNCTION5 PFK	45.35	1.720e3					0.6	NO		bb		
6	FUNCTION5 PFK	45.32	4.387e3					1.1	NO		bb		
7	FUNCTION5 PFK	44.91	2.232e3					0.5	NO		bb		
8	FUNCTION5 PFK	44.41	4.876e3					1.0	NO		bb		
9	FUNCTION5 PFK	44.32	6.804e2					0.4	NO		bb		
10	FUNCTION5 PFK	44.28	4.045e3					0.7	NO		bb		
11	FUNCTION5 PFK	43.91	1.924e3					0.6	NO		bb		
12	FUNCTION5 PFK	43.87	7.467e3					1.0	NO		bb		
13	FUNCTION5 PFK	43.73	1.078e3					0.4	NO		bb		
14	FUNCTION5 PFK	43.54	9.300e3					1.4	NO		bb		
15	FUNCTION5 PFK	43.44	4.994e3					1.1	NO		db		
16	FUNCTION5 PFK	43.41	3.171e3					0.9	NO		bd		
17	FUNCTION5 PFK	43.33	1.391e3					0.4	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.05	8.373e1					4.3	YES		bb		0.000
2	FUNCTION1 HXCD...	25.89	8.020e1					3.7	YES		bb		0.000
3	FUNCTION1 HXCD...	25.75	1.208e2					2.8	NO		bb		0.000

ETHERS2

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

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.88	9.721e1					1.8	NO		bb		0.000
2	FUNCTION2 HPCD...	31.66	1.026e2					2.2	NO		bb		0.000
3	FUNCTION2 HPCD...	31.44	8.065e1					1.7	NO		bb		0.000
4	FUNCTION2 HPCD...	31.20	1.056e2					2.3	NO		bb		0.000
5	FUNCTION2 HPCD...	30.38	9.134e1					2.6	NO		bb		0.000
6	FUNCTION2 HPCD...	29.00	1.023e2					2.1	NO		db		0.000
7	FUNCTION2 HPCD...	28.94	1.220e2					2.6	NO		bd		0.000
8	FUNCTION2 HPCD...	28.61	8.576e1					2.7	NO		bb		0.000
9	FUNCTION2 HPCD...	28.27	1.844e2					4.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.83	1.343e2					5.5	YES		bb		0.000
2	FUNCTION3 OCDPE	36.43	1.103e2					3.7	YES		bb		0.000
3	FUNCTION3 OCDPE	35.08	7.884e1					2.6	NO		bb		0.000
4	FUNCTION3 OCDPE	37.51	1.083e2					4.5	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.16	8.218e1					2.7	NO		bb		0.000
2	FUNCTION4 NCDPE	38.36	5.114e2					12.9	YES		bb		0.000

ETHERS6

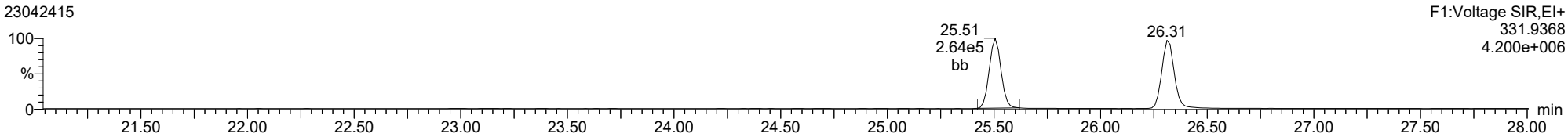
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1													

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Printed: Tuesday, April 25, 2023 11:21:35 Pacific Daylight Time

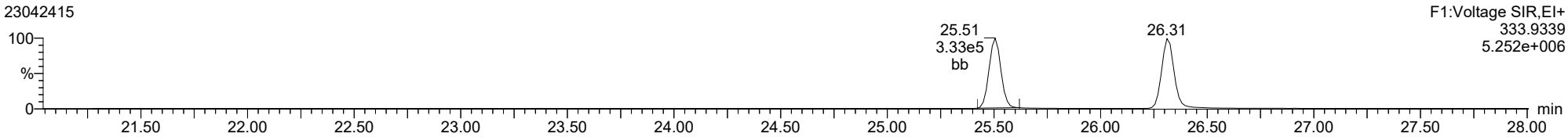
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ID: 23C0619-10, Name: 23042415, Date: 25-Apr-2023, Time: 01:58:07, Conditions: AUTOSPEC01, User: pk

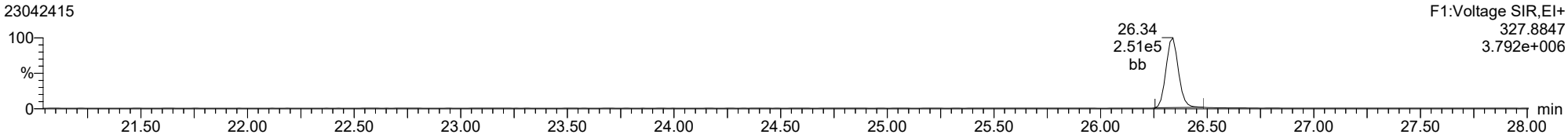
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13C-1234-TCDD

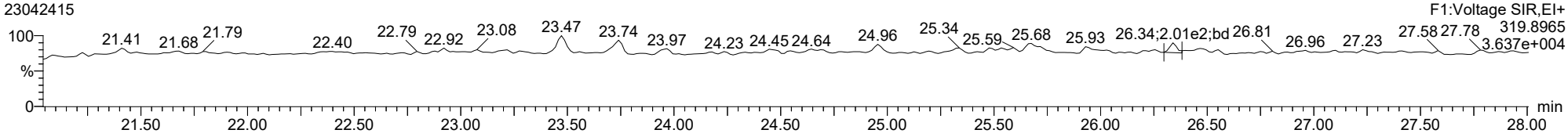


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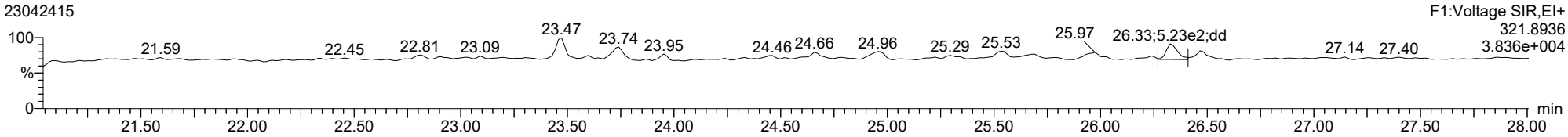


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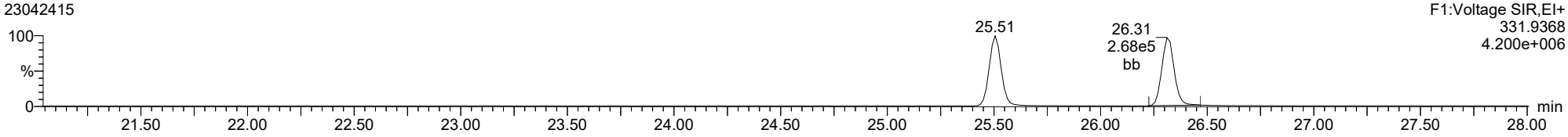
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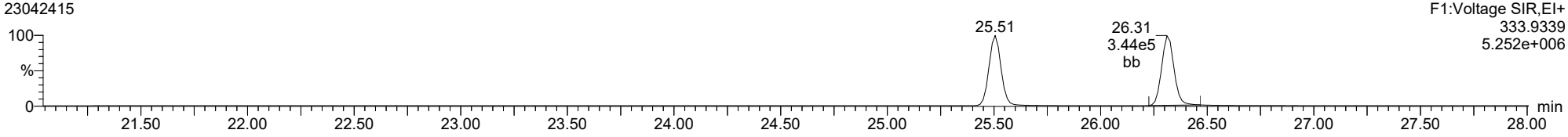
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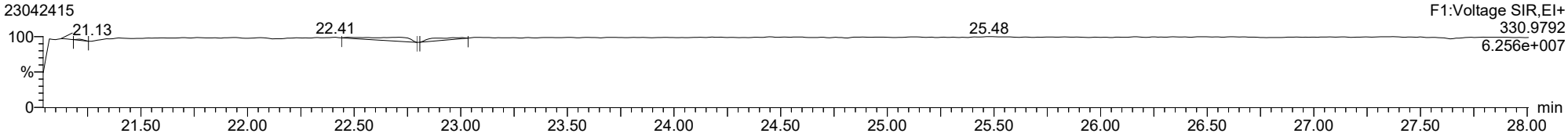
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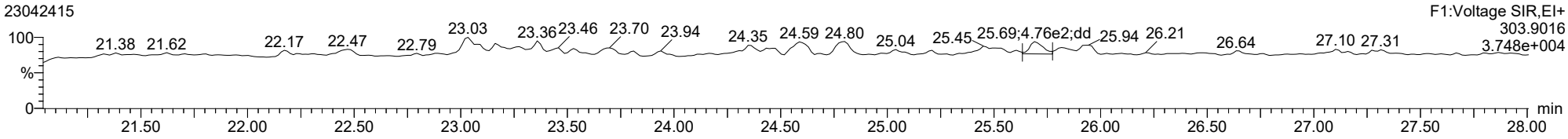


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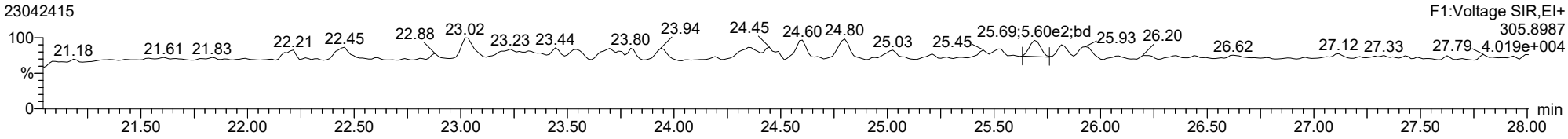


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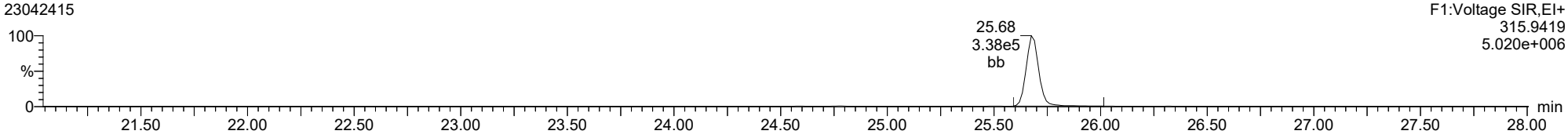
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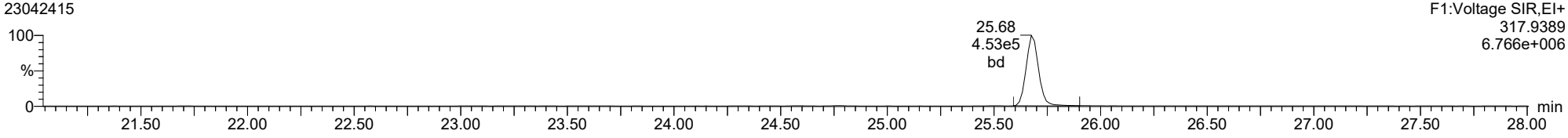
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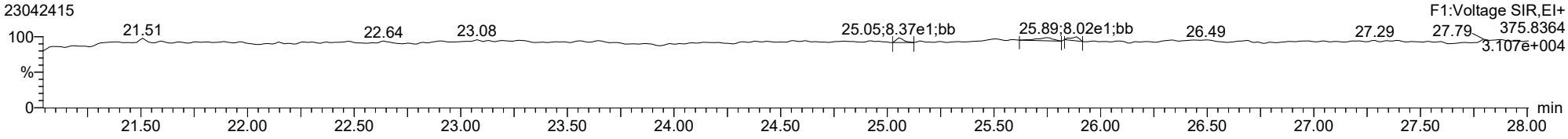
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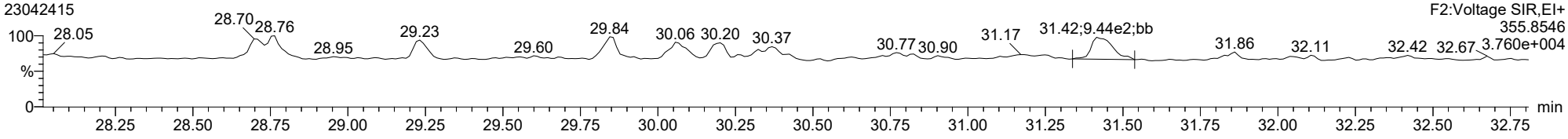


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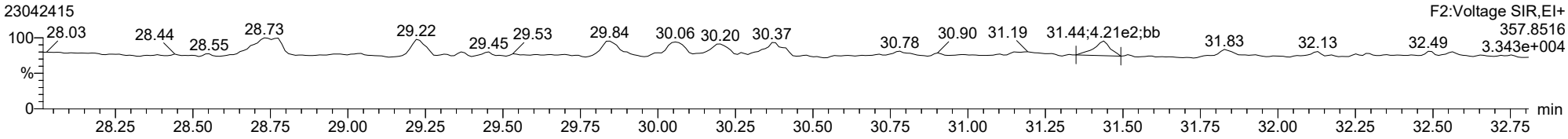


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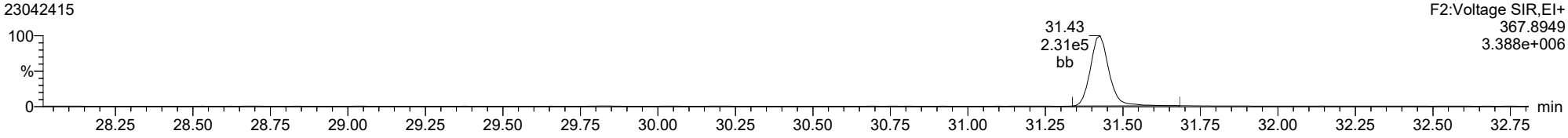
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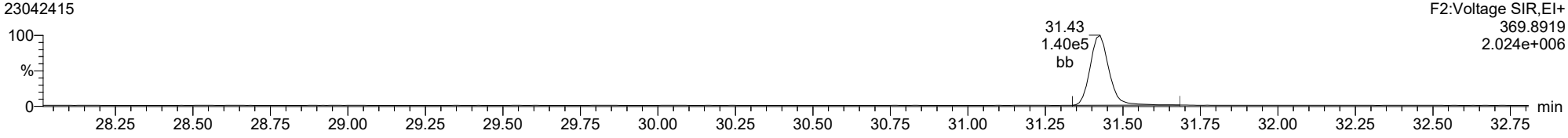
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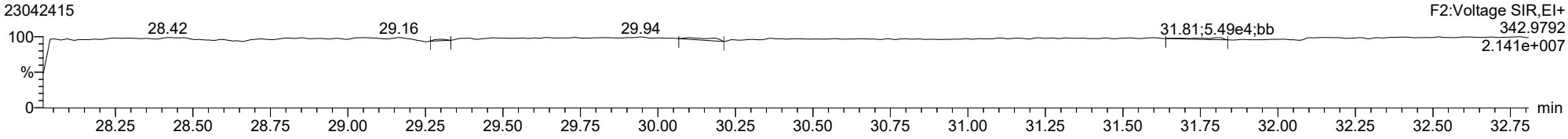
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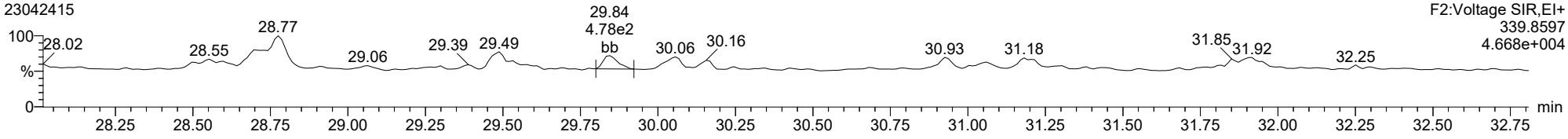


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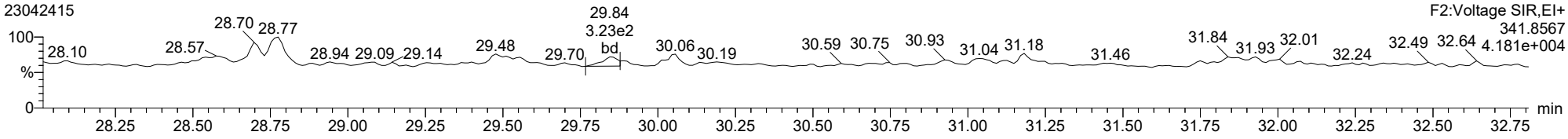


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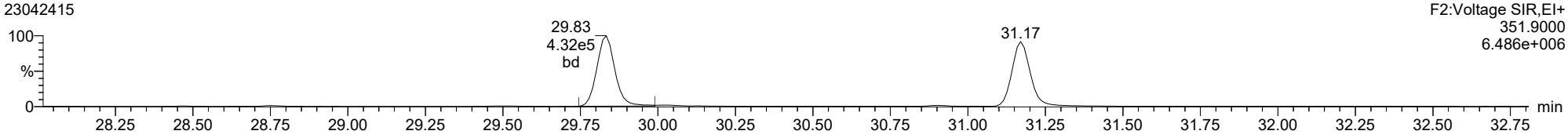
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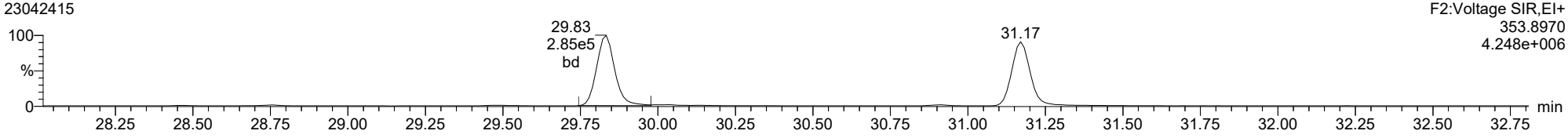
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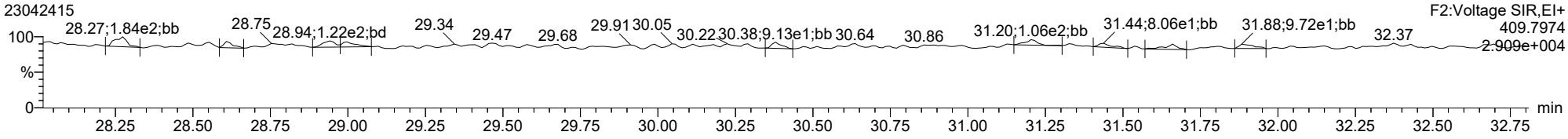
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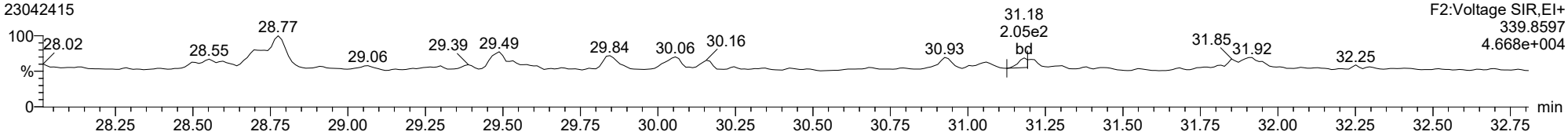


FUNCTION2 HPCDPE

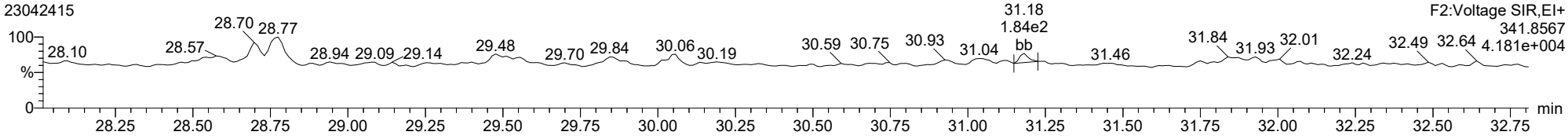


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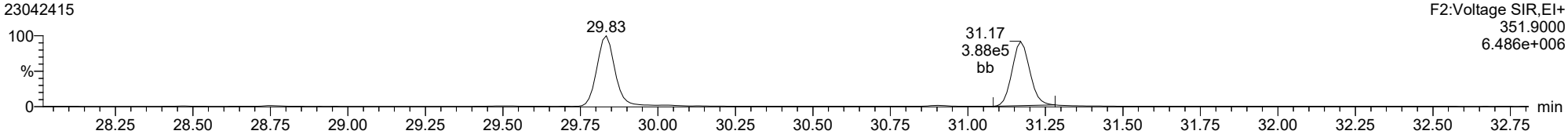
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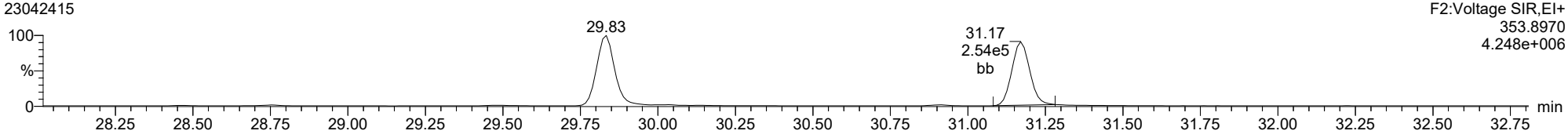
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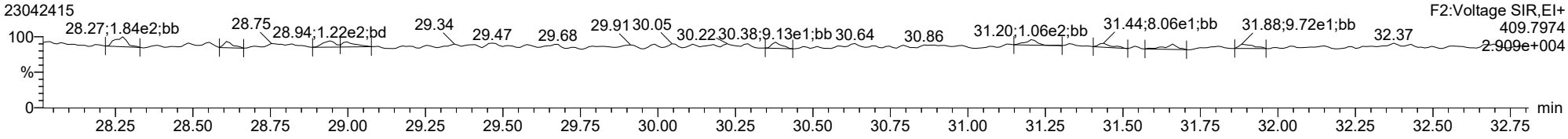
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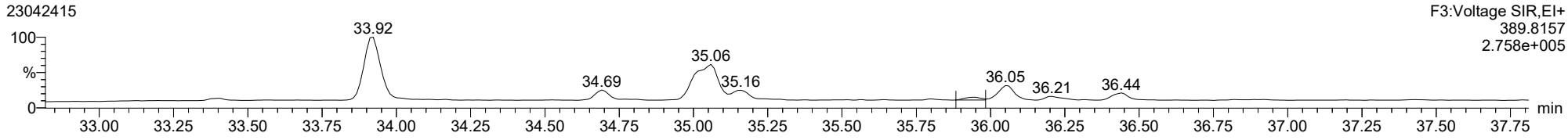


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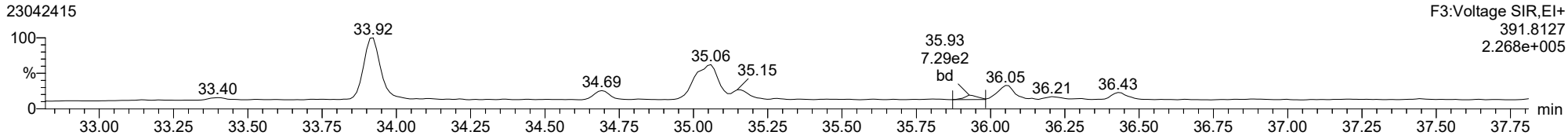


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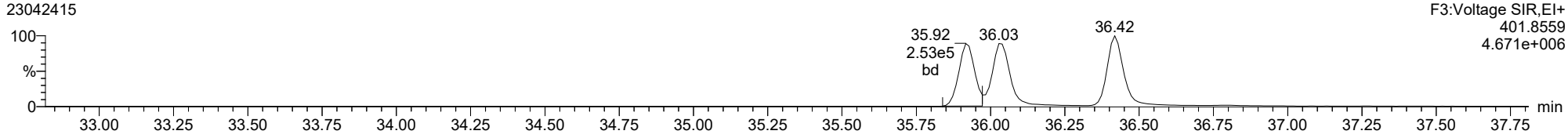
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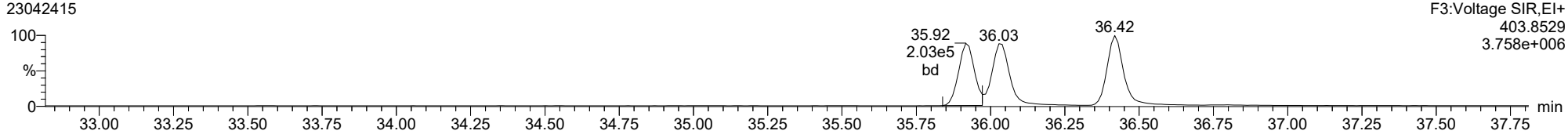
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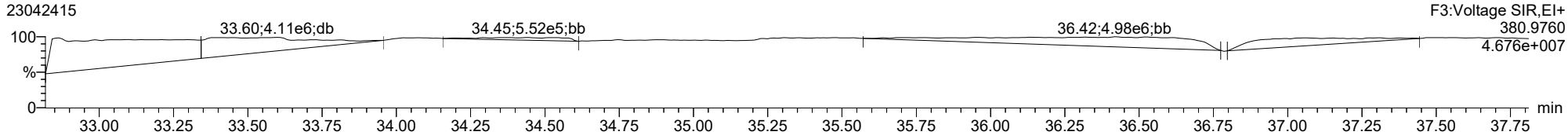
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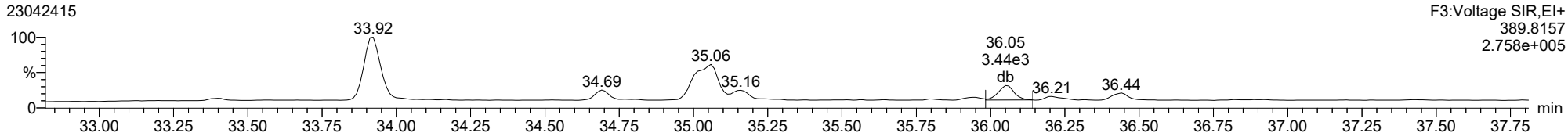
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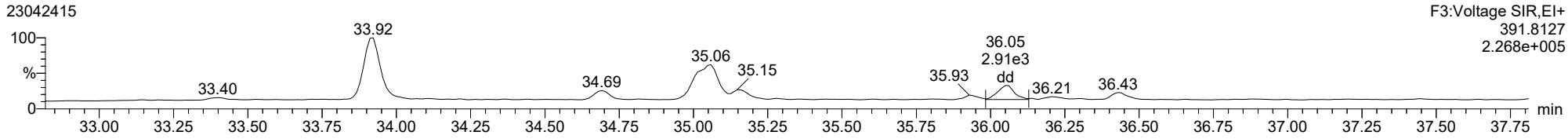
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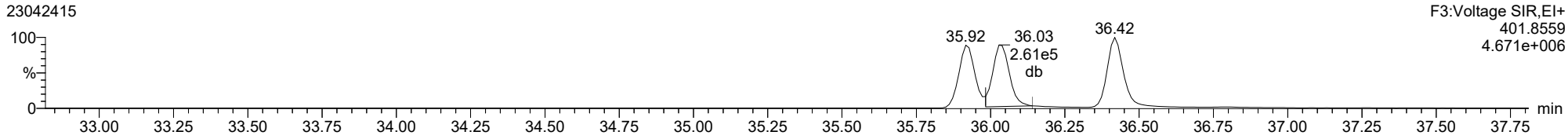
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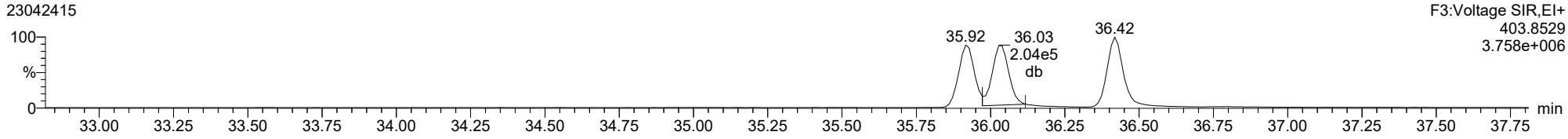
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13C-123678-HxCDD



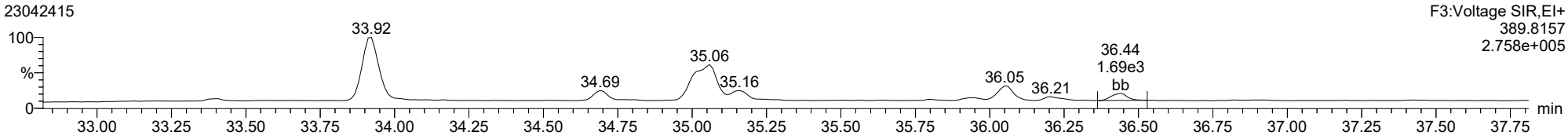
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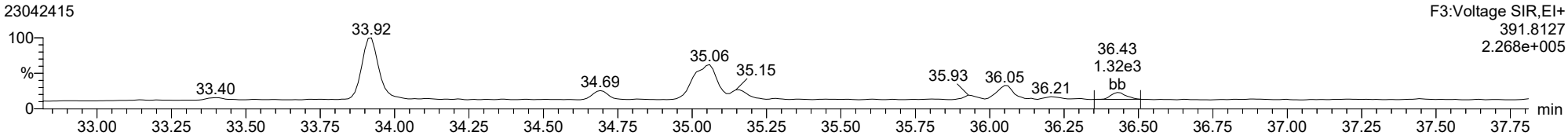
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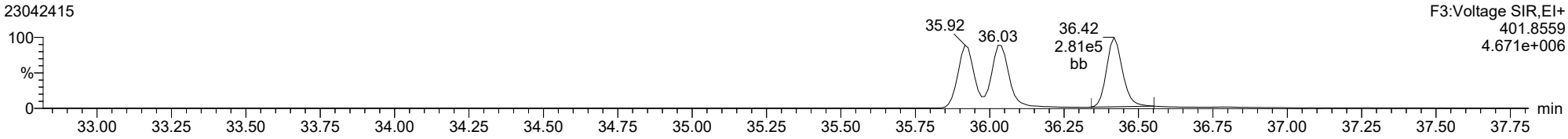
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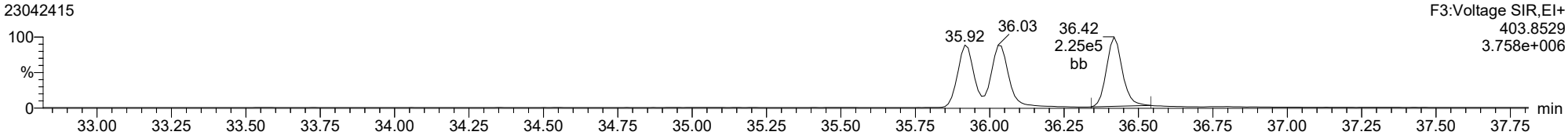
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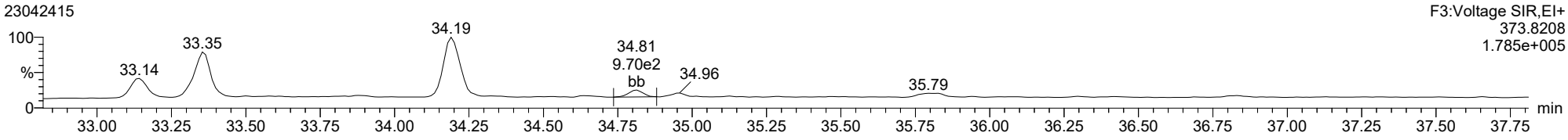


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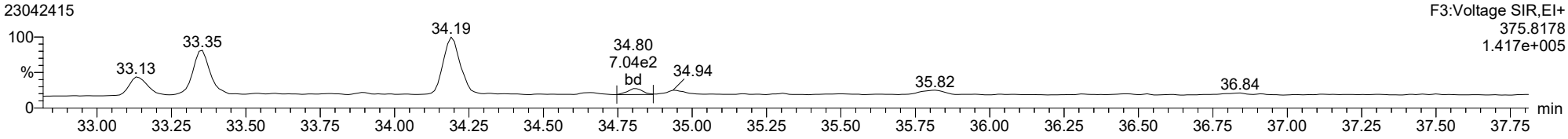


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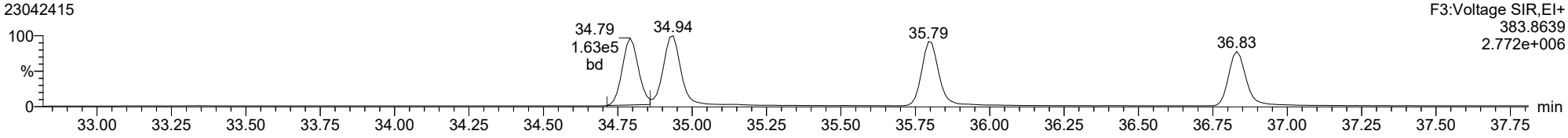
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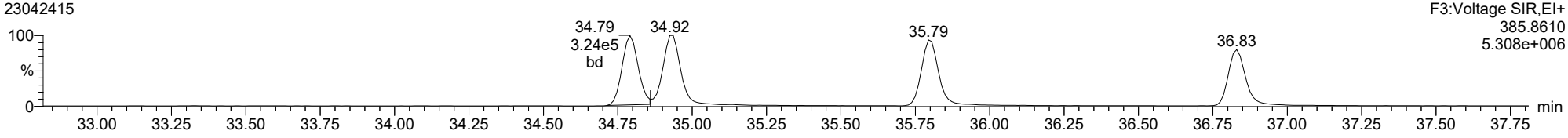
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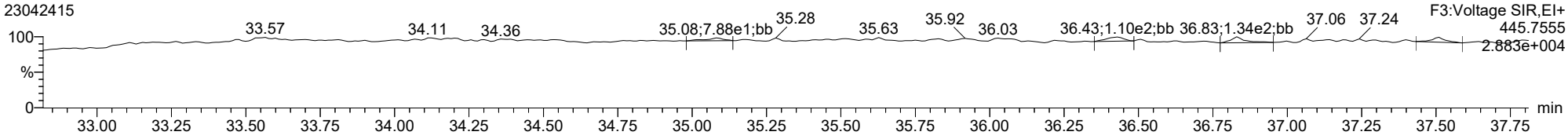
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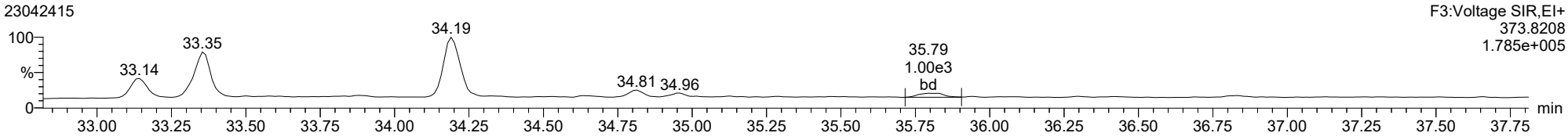


FUNCTION3 OCDPE

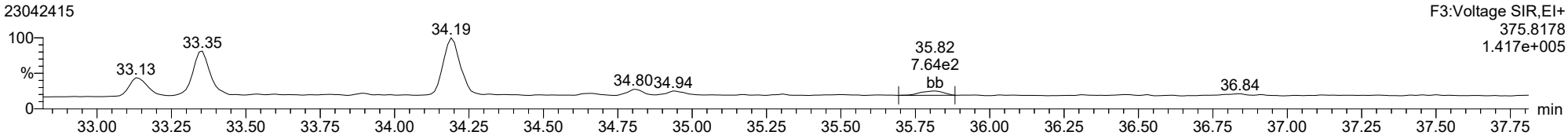


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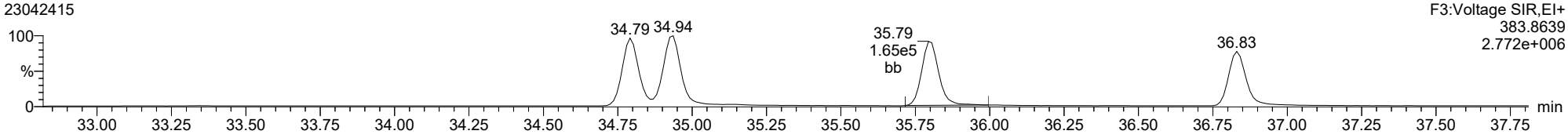
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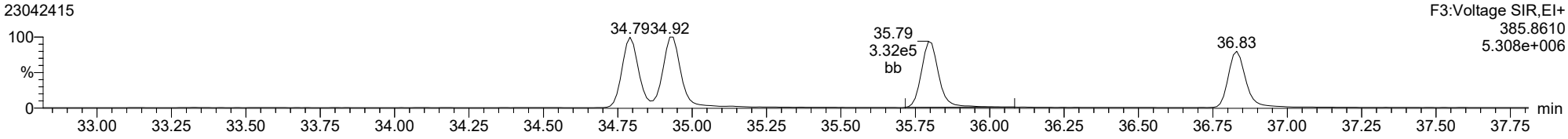
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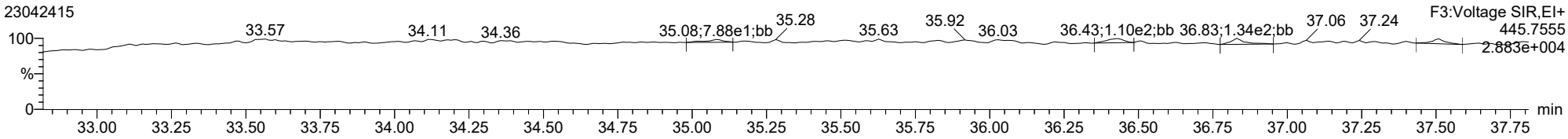
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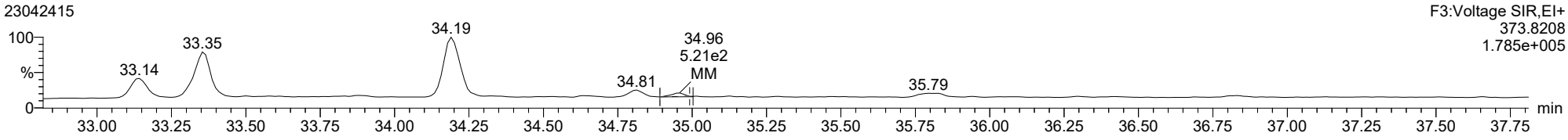


FUNCTION3 OCDPE

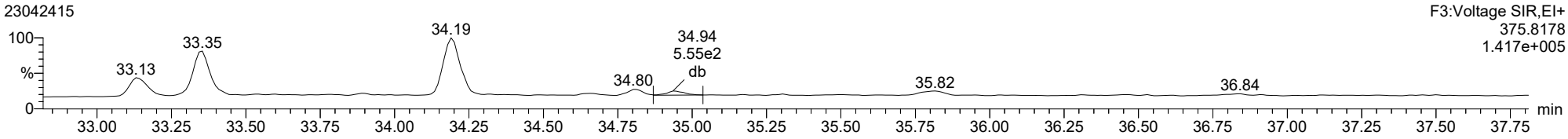


ID: 23C0619-10, Name: 23042415, Date: 25-Apr-2023, Time: 01:58:07, Conditions: AUTOSPEC01, User: pk

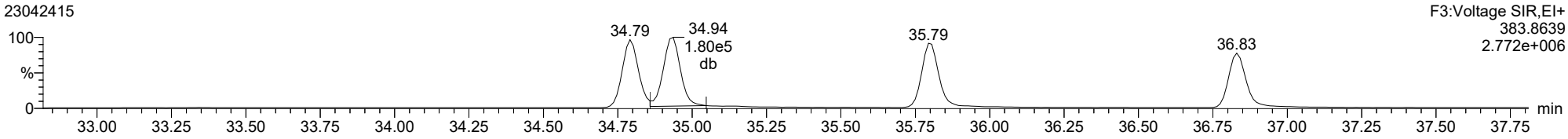
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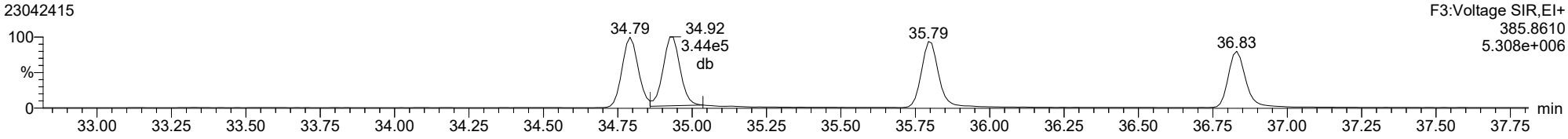
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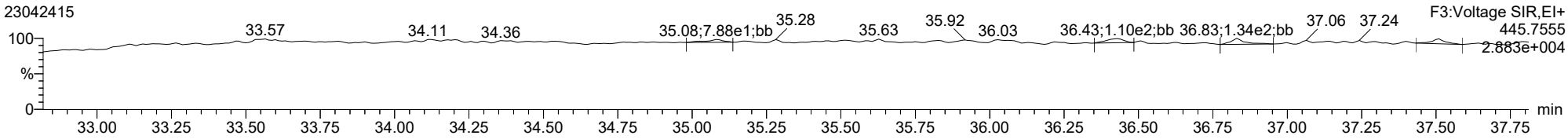
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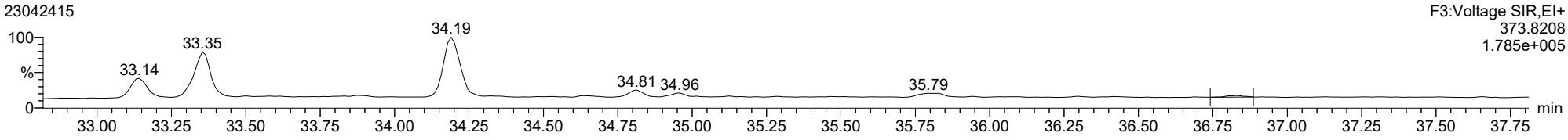


FUNCTION3 OCDPE

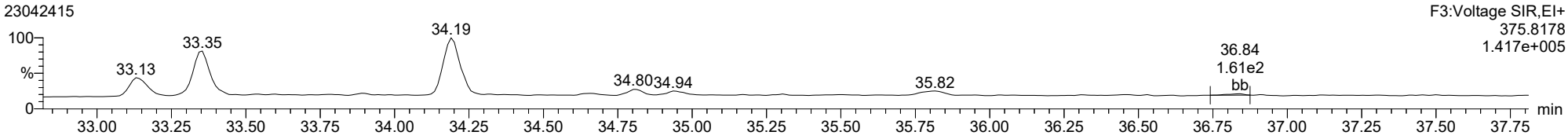


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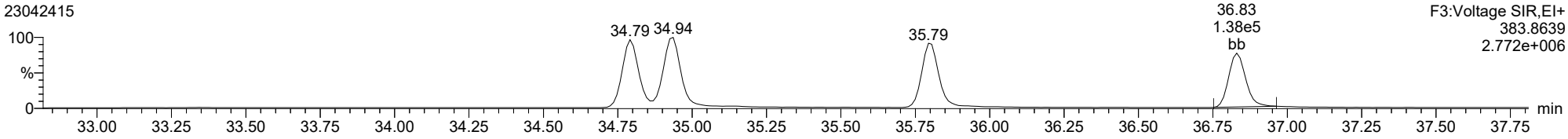
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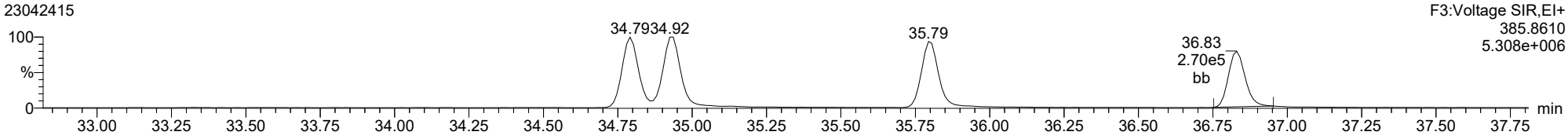
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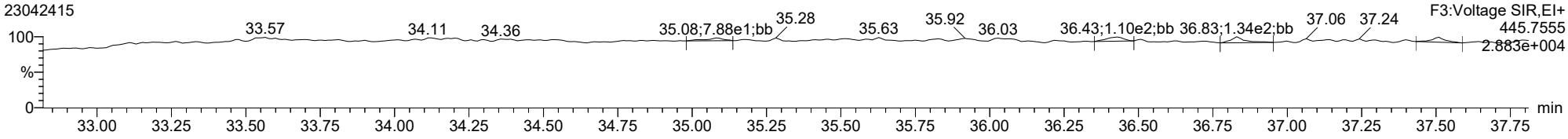
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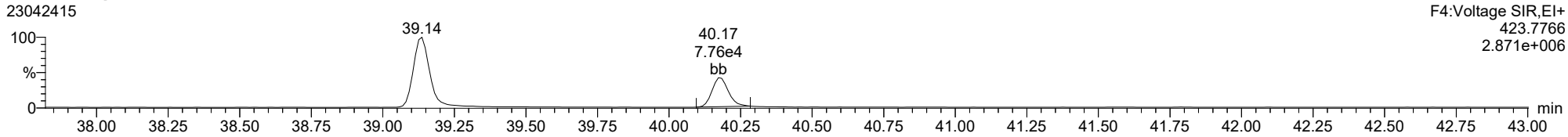


FUNCTION3 OCDPE

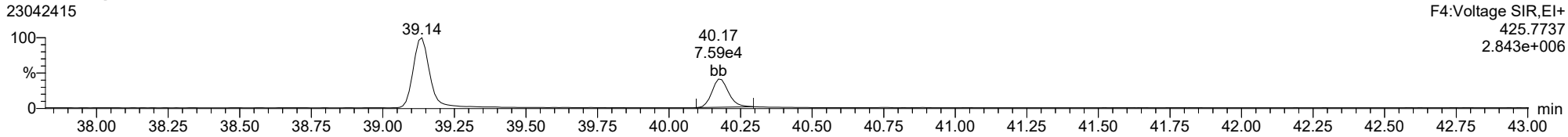


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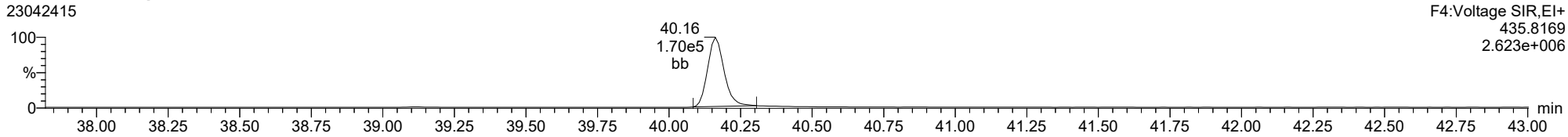
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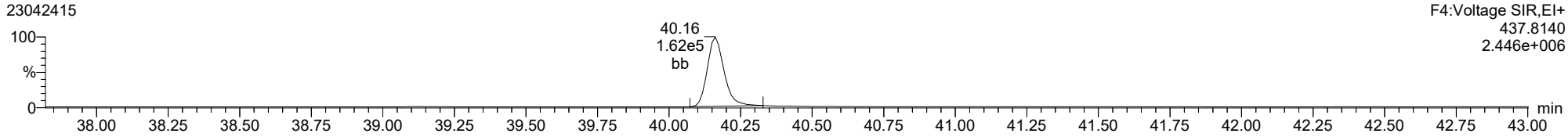
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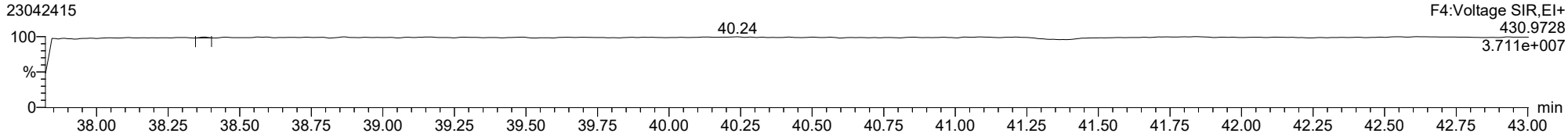
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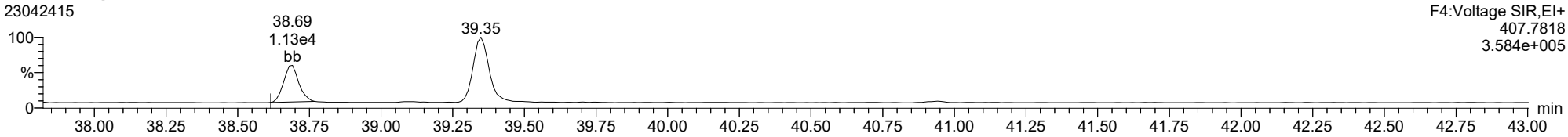


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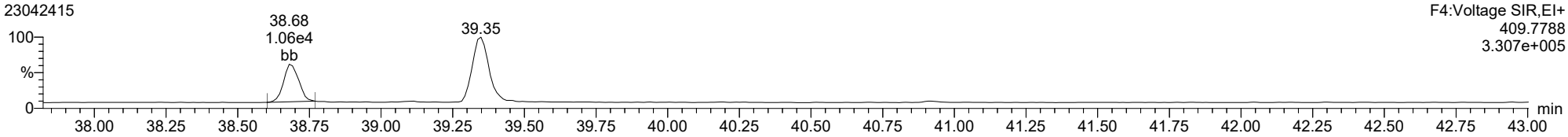


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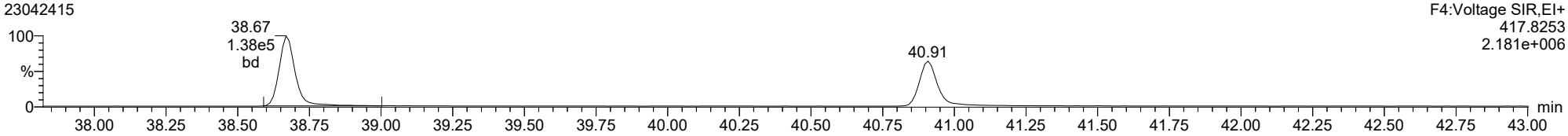
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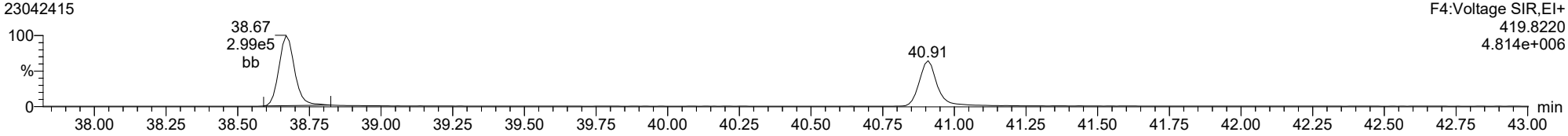
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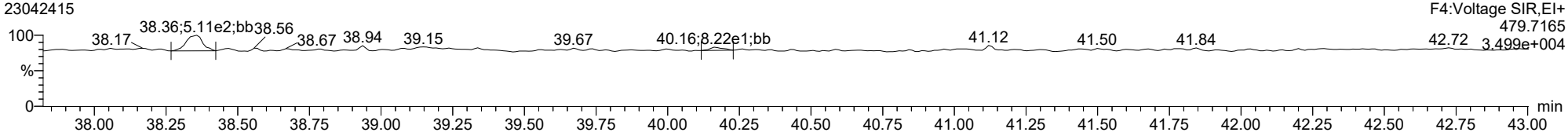
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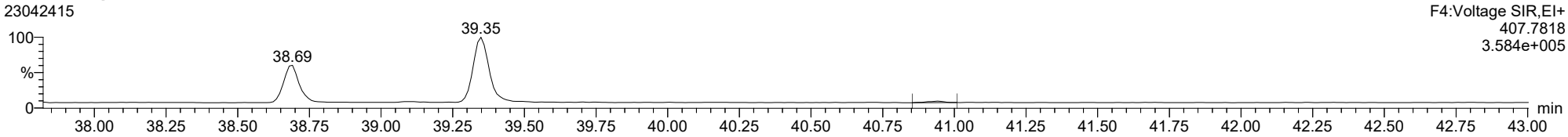


FUNCTION4 NCDPE

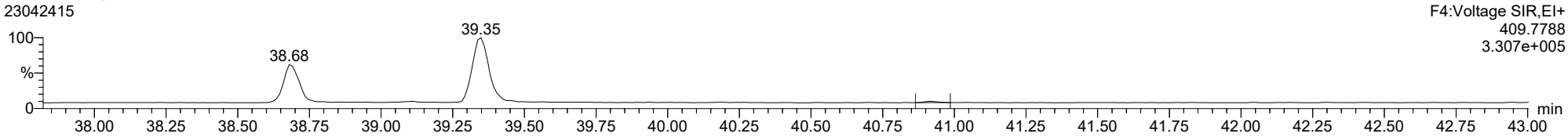


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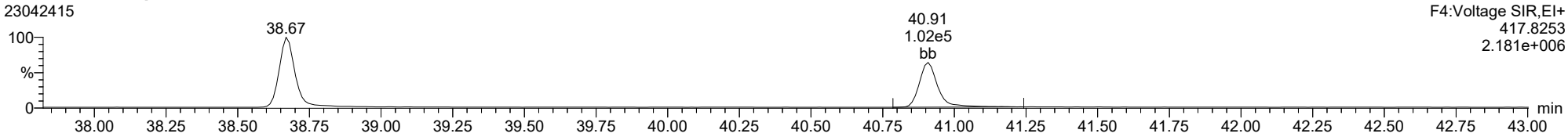
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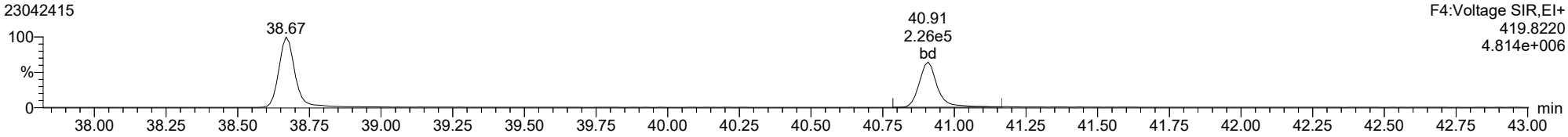
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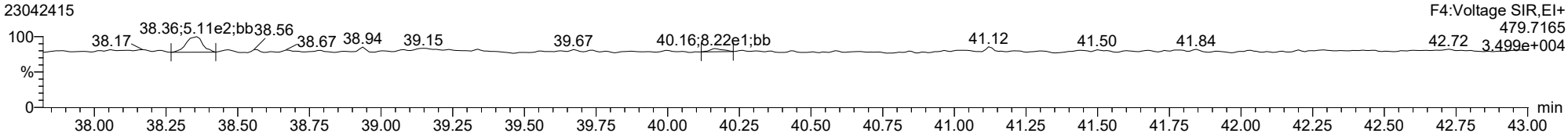
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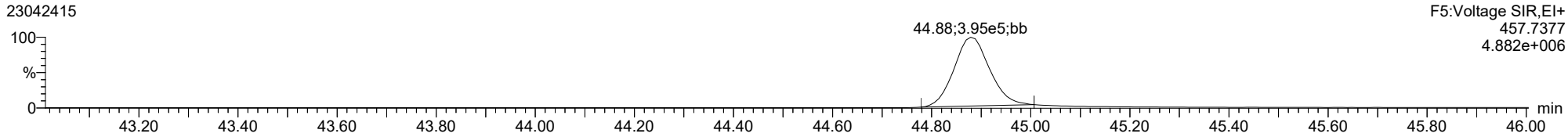


FUNCTION4 NCDPE

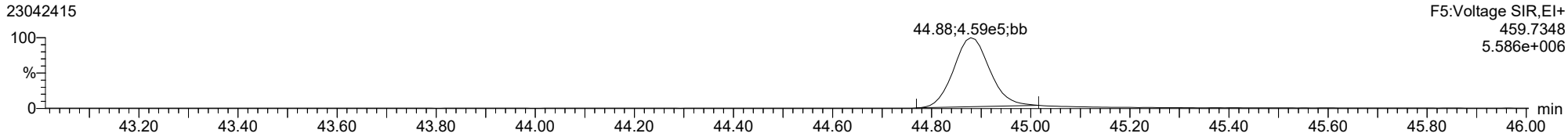


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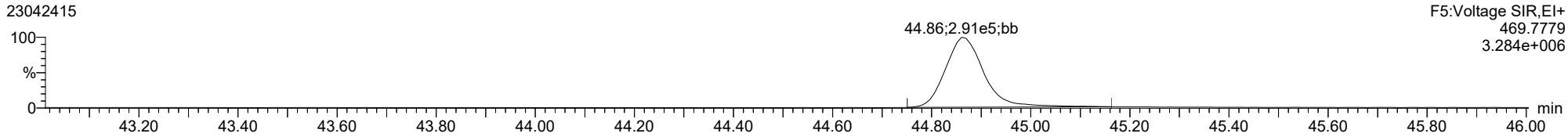
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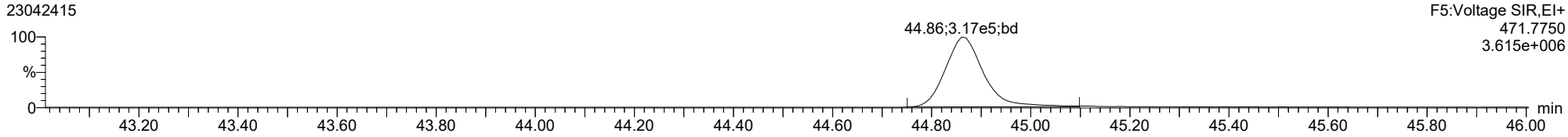
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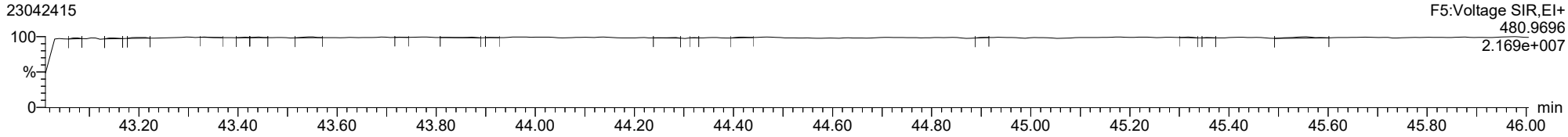
13C-OCDD



13C-OCDD

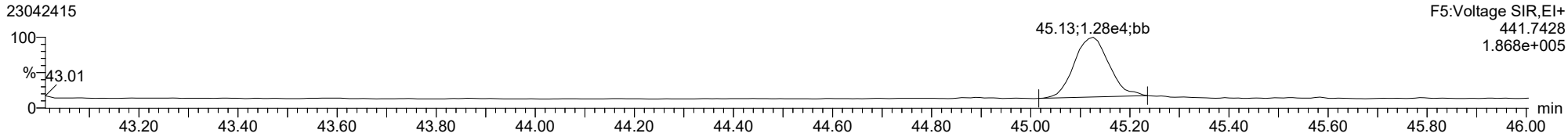


FUNCTION5 PFK

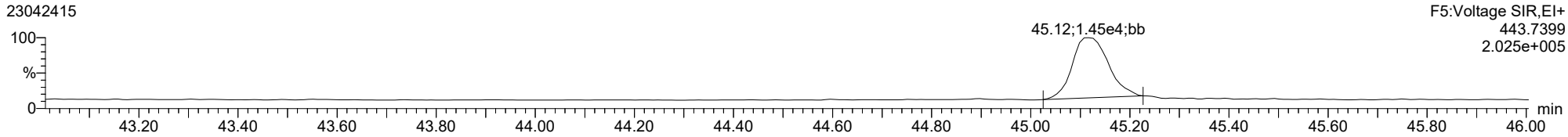


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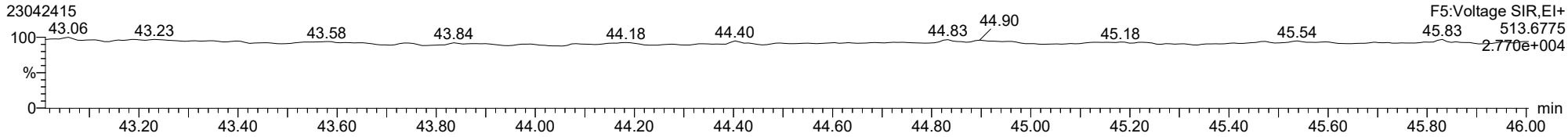
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OCDF

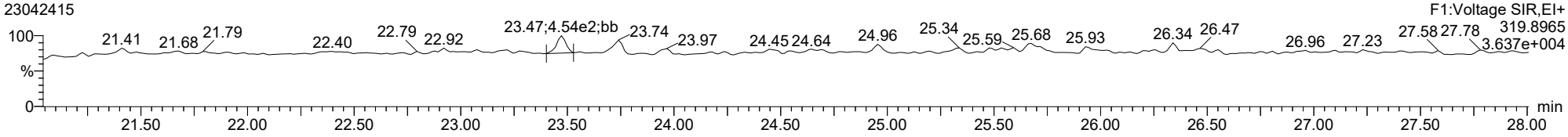


FUNCTION5 DCDPE

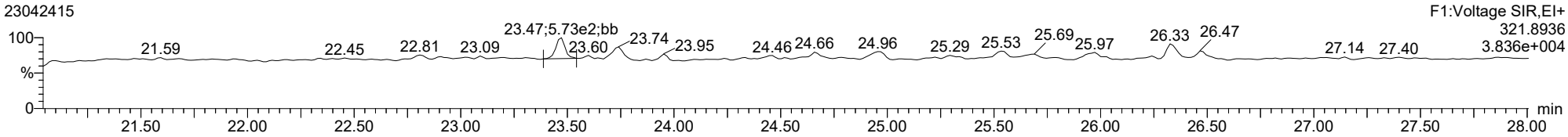


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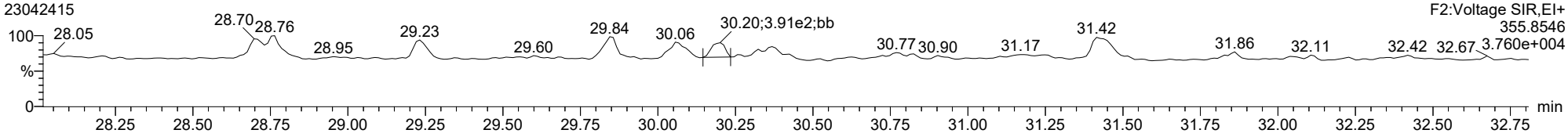
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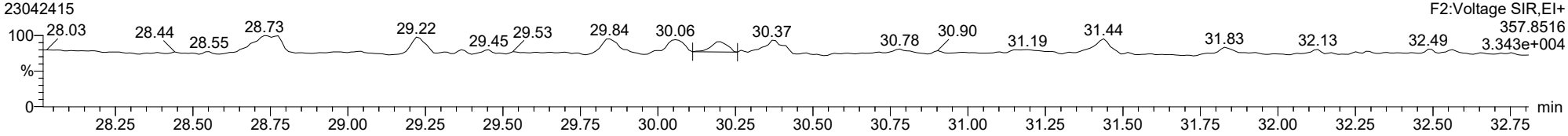
Total-tetradioxins



Total-pentadioxins

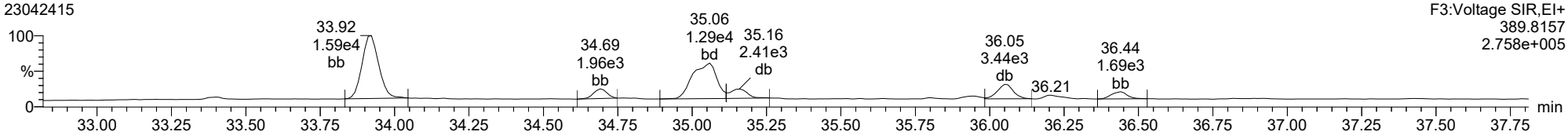


Total-pentadioxins

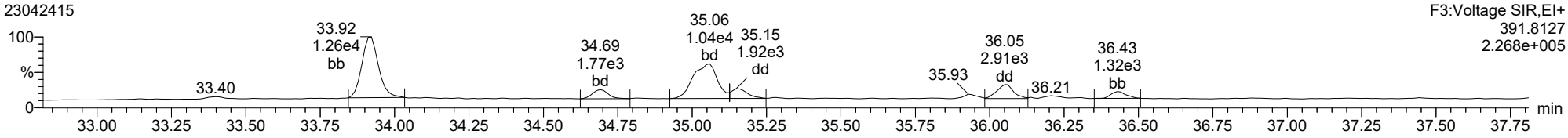


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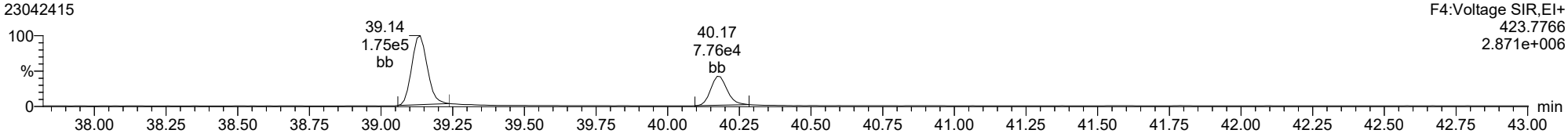
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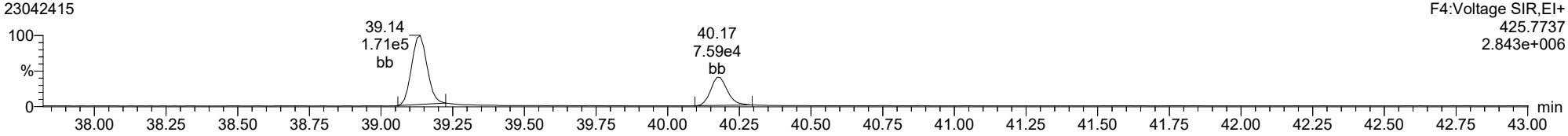
Total-hexadioxins



Total-heptadioxins

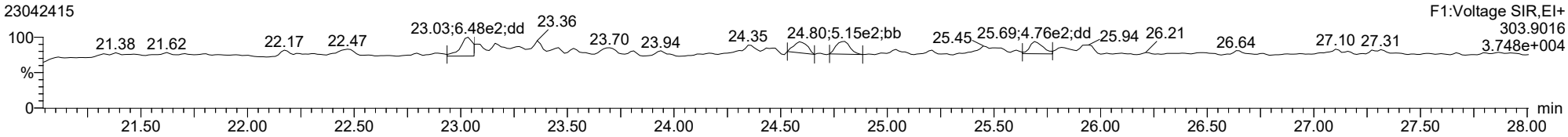


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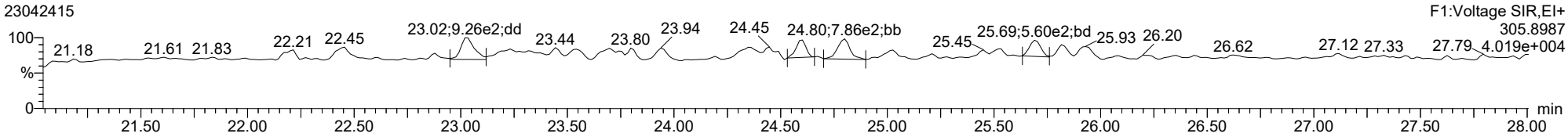


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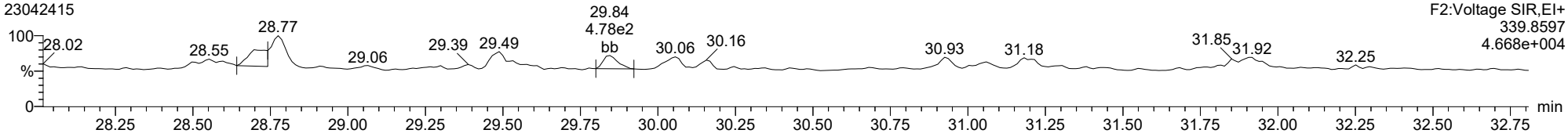
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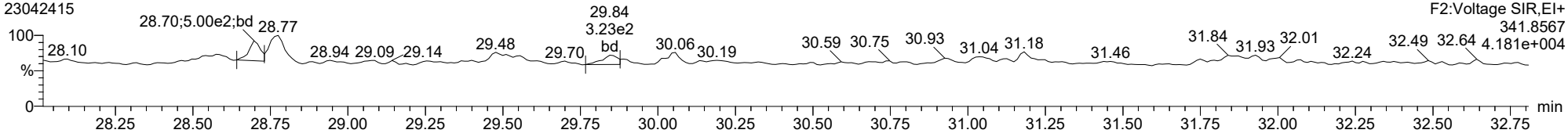
Total-tetrafurans



Total-pentafurans

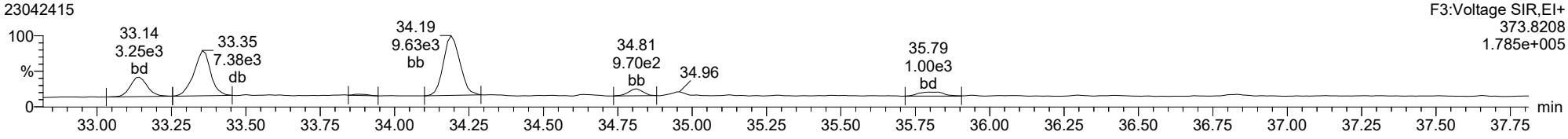


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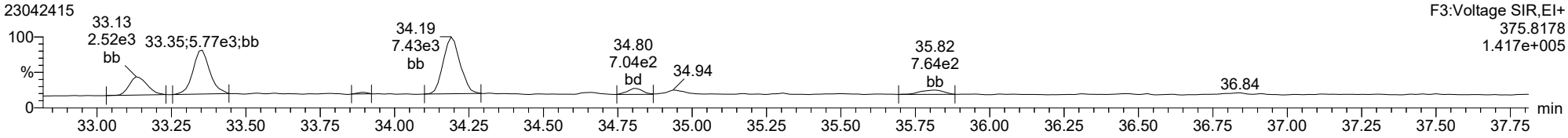


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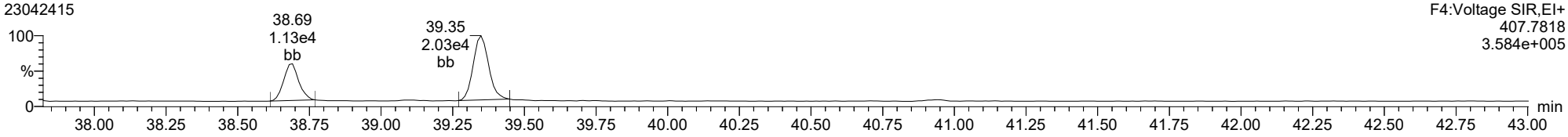
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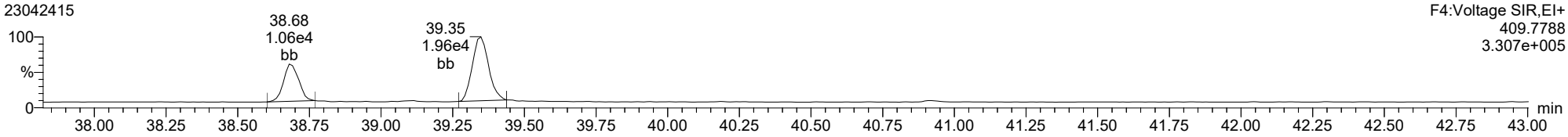
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SED-10C:0-1

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.				
Project:	Port of Friday Harbor				
Matrix:	Sediment	Laboratory ID:	23C0619-12 C	File ID:	23042416
Sampled:	03/23/23 08:17	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 02:47
% Solids:	78.35	Preparation:	EPA 1613	Initial/Final:	12.76 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.725	0.655-0.886	0.217	1.00	0.659	ng/kg	X, J
1746-01-6	2,3,7,8-TCDD	1	0.365	0.655-0.886	0.087	1.00	0.228	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	2.165	1.318-1.783	0.279	1.00	0.478	ng/kg	EMPC, J
57117-31-4	2,3,4,7,8-PeCDF	1	1.342	1.318-1.783	0.256	1.00	0.601	ng/kg	J
40321-76-4	1,2,3,7,8-PeCDD	1	1.281	1.318-1.783	0.178	1.00	1.44	ng/kg	EMPC
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.280	1.054-1.426	0.110	1.00	1.65	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.397	1.054-1.426	0.116	1.00	1.07	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.045	1.054-1.426	0.119	1.00	1.59	ng/kg	EMPC
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.237	1.054-1.426	0.139	1.00	0.354	ng/kg	J
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.216	1.054-1.426	0.208	1.00	1.39	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.313	1.054-1.426	0.204	1.00	7.10	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.001	1.054-1.426	0.227	1.00	3.27	ng/kg	EMPC
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.054	0.893-1.208	0.263	1.00	56.8	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.077	0.893-1.208	0.445	1.00	2.98	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.013	0.893-1.208	0.637	2.50	294	ng/kg	B
39001-02-0	OCDF	1	0.881	0.757-1.024	0.586	2.50	297	ng/kg	
3268-87-9	OCDD	1	0.856	0.757-1.024	0.530	10.0	2470	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	9.10	ng/kg	
41903-57-5	Total TCDD	1	0.000			1.00	7.99	ng/kg	
30402-15-4	Total PeCDF	1	0.000			1.00	9.17	ng/kg	
36088-22-9	Total PeCDD	1	0.000			1.00	4.53	ng/kg	
55684-94-1	Total HxCDF	1	0.000			1.00	49.0	ng/kg	
34465-46-8	Total HxCDD	1	0.000			1.00	60.5	ng/kg	
38998-75-3	Total HpCDF	1	0.000			1.00	228	ng/kg	
37871-00-4	Total HpCDD	1	0.000			1.00	638	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 7.94

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 7.94

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SED-10C:0-1

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Sediment	Laboratory ID:	23C0619-12	File ID:	23042416
Sampled:	03/23/23 08:17	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 02:47
Solids Wt%:	78.35	Preparation:	EPA 1613	Initial/Final:	12.76 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.747	0.655-0.886	0.086	87.1	24 - 169 %	
13C12-2,3,7,8-TCDD		0.787	0.655-0.886	0.151	95.9	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.615	1.318-1.783	0.213	104	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.514	1.318-1.783	0.237	104	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.716	1.318-1.783	0.144	78.6	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.507	0.434-0.587	0.232	90.5	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.530	0.434-0.587	0.196	82.1	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.516	0.434-0.587	0.240	89.4	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.514	0.434-0.587	0.291	90.2	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.241	1.054-1.426	0.244	96.4	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.242	1.054-1.426	0.210	85.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.449	0.374-0.506	0.304	104	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.437	0.374-0.506	0.353	90.8	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.087	0.893-1.208	0.239	83.4	23 - 140 %	
13C12-OCDD		0.908	0.757-1.024	0.280	89.9	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.060	87.9	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:21:48 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23C0619-12, Name: 23042416, Date: 25-Apr-2023, Time: 02:47:00, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.704	1.001	9.103e2	1.256e3	0.702	0.725	0.770	1604	1805	1.33e4	1.91e4	8.3	10.6	NO	bd	bd	0.329
12378-PeCDF	29.855	1.001	9.530e2	4.401e2	0.679	2.165	1.550	1295	2550	1.48e4	7.59e3	11.4	3.0	YES	bb	MM	0.239
23478-PeCDF	31.192	1.001	1.043e3	7.773e2	0.786	1.342	1.550	1295	2550	1.72e4	1.20e4	13.2	4.7	NO	bb	bb	0.300
123478-HxCDF	34.813	1.001	3.342e3	2.611e3	1.166	1.280	1.240	742	1286	4.98e4	4.29e4	67.2	33.4	NO	dd	dd	0.827
234678-HxCDF	35.793	1.000	2.727e3	2.610e3	1.140	1.045	1.240	742	1286	3.21e4	3.04e4	43.3	23.6	YES	bb	bb	0.795
123678-HxCDF	34.947	1.000	2.249e3	1.610e3	1.091	1.397	1.240	742	1286	3.00e4	2.62e4	40.4	20.4	NO	db	db	0.533
123789-HxCDF	36.819	1.000	5.458e2	4.413e2	1.137	1.237	1.240	742	1286	9.38e3	7.76e3	12.6	6.0	NO	bb	MM	0.177
1234678-HpCDF	38.679	1.000	7.918e4	7.515e4	1.003	1.054	1.050	1793	1915	1.32e6	1.29e6	737.0	675.2	NO	bb	bb	28.397
1234789-HpCDF	40.918	1.000	3.008e3	2.792e3	0.953	1.077	1.050	1793	1915	5.00e4	4.19e4	27.9	21.9	NO	bb	bb	1.492
OCDF	45.125	1.006	2.176e5	2.470e5	0.778	0.881	0.890	2287	1230	2.68e6	3.10e6	1171.9	2515.6	NO	bb	bb	148.382
2378-TCDD	26.353	1.002	2.569e2	7.044e2	1.149	0.365	0.770	1046	718	4.39e3	1.04e4	4.2	14.4	YES	bd	bd	0.114
12378-PeCDD	31.437	1.000	1.789e3	1.397e3	1.022	1.281	1.550	867	988	2.32e4	2.04e4	26.7	20.7	YES	bb	bb	0.721
123478-HxCDD	35.938	1.000	2.120e3	1.743e3	0.996	1.216	1.240	1629	1446	3.98e4	2.82e4	24.5	19.5	NO	bd	bd	0.693
123678-HxCDD	36.050	1.000	1.159e4	8.827e3	1.001	1.313	1.240	1629	1446	1.72e5	1.30e5	105.9	90.0	NO	dd	dd	3.549
123789-HxCDD	36.440	1.011	4.202e3	4.200e3	0.907	1.001	1.240	1629	1446	7.27e4	6.86e4	44.6	47.4	YES	bb	bb	1.633
1234678-HpCDD	40.183	1.001	3.141e5	3.102e5	1.039	1.013	1.050	3319	3265	4.66e6	4.52e6	1404.4	1385.2	NO	bb	bb	146.872
OCDD	44.887	1.000	2.113e6	2.467e6	0.920	0.856	0.890	2004	1763	2.61e7	3.06e7	13001.4	17344.2	NO	bb	bb	1236.475
13C-2378-TCDF	25.675	1.007	4.008e5	5.365e5	1.620	0.747	0.770	1011	1380	5.75e6	7.80e6	5688.2	5652.7	NO	bb	bb	87.099
13C-12378-PeCDF	29.833	1.170	5.301e5	3.282e5	1.240	1.615	1.550	2233	2323	7.53e6	4.90e6	3372.1	2107.9	NO	bd	bb	104.175
13C-23478-PeCDF	31.170	1.222	4.642e5	3.066e5	1.118	1.514	1.550	2233	2323	6.90e6	4.56e6	3090.8	1961.7	NO	bb	bb	103.822
13C-123478-HxCDF	34.791	0.955	2.077e5	4.096e5	1.168	0.507	0.510	1869	2190	3.20e6	6.35e6	1713.0	2897.9	NO	bd	bd	90.545
13C-123678-HxCDF	34.936	0.959	2.301e5	4.342e5	1.386	0.530	0.510	1869	2190	3.32e6	6.36e6	1779.3	2902.7	NO	db	db	82.098
13C-234678-HxCDF	35.805	0.983	2.006e5	3.887e5	1.129	0.516	0.510	1869	2190	3.05e6	5.75e6	1629.8	2624.3	NO	bb	bb	89.430
13C-123789-HxCDF	36.830	1.011	1.665e5	3.239e5	0.932	0.514	0.510	1869	2190	2.61e6	5.08e6	1398.5	2317.8	NO	bb	bb	90.201
13C-1234678-HpCDF	38.668	1.062	1.680e5	3.738e5	0.895	0.449	0.440	1729	2339	2.62e6	5.88e6	1514.8	2512.7	NO	bb	bd	103.719
13C-1234789-HpCDF	40.907	1.123	1.241e5	2.838e5	0.770	0.437	0.440	1729	2339	1.60e6	3.55e6	923.2	1519.6	NO	bb	bb	90.807
13C-1234-TCDD	25.506	0.000	2.941e5	3.701e5	1.000	0.794	0.770	1775	1224	4.57e6	5.79e6	2576.0	4730.7	NO	bb	bb	100.000
13C-2378-TCDD	26.311	1.032	3.231e5	4.107e5	1.152	0.787	0.770	1775	1224	4.65e6	5.97e6	2618.3	4875.7	NO	bb	bb	95.873
13C-12378-PeCDD	31.426	1.232	2.733e5	1.593e5	0.829	1.716	1.550	1036	1023	3.87e6	2.33e6	3734.6	2277.1	NO	bb	bb	78.597
13C-123478-HxCDD	35.927	0.987	3.099e5	2.498e5	0.995	1.241	1.240	2006	1620	4.93e6	3.98e6	2456.3	2457.7	NO	bd	bd	96.399
13C-123678-HxCDD	36.039	0.990	3.185e5	2.563e5	1.157	1.242	1.240	2006	1620	5.00e6	4.03e6	2492.6	2485.0	NO	db	db	85.155
13C-1234678-HpCDD	40.161	1.103	2.131e5	1.960e5	0.840	1.087	1.050	1491	1512	3.11e6	2.89e6	2086.4	1911.6	NO	bb	bb	83.448
13C-OCDD	44.869	1.232	3.831e5	4.220e5	0.767	0.908	0.890	2055	1166	4.41e6	4.81e6	2145.8	4122.1	NO	bd	bd	179.774
13C-123789-HxCDD	36.417	0.000	3.188e5	2.648e5	1.000	1.204	1.240	2006	1620	4.91e6	4.14e6	2445.7	2554.1	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.033	3.008e5		1.288			1328		4.53e6		3414.0			bb		35.167

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:21:48 Pacific Daylight Time

ID: 23C0619-12, Name: 23042416, Date: 25-Apr-2023, Time: 02:47:00, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.201	0.865	5.025e2	6.066e2	0.802	0.828	0.770	1604	1805	6.33e3	1.00e4	3.9	5.6	NO	bb	bb	0.148
1289-TCDF					0.678		0.770	1604	1805								
13468-PECDF					1.246		1.550	608	991								
12389-PECDF					0.496		1.550	1295	2550								
123468-HXCDF	33.142	0.953	8.980e3	7.343e3	1.169	1.223	1.240	742	1286	1.40e5	1.06e5	189.0	82.6	NO	bb	bd	2.262
1368-TCDD	23.472	0.892	3.939e3	5.347e3	1.015	0.737	0.770	1046	718	6.62e4	8.46e4	63.3	117.7	NO	bb	bd	1.246
1289-TCDD					0.909		0.770	1046	718								
12479-PECDD	28.752	0.915	4.337e3	3.374e3	2.301	1.286	1.550	867	988	5.03e4	3.33e4	58.0	33.7	YES	MM	MM	0.774
12389-PECDD	31.838	1.013	4.500e2	3.680e2	1.184	1.223	1.550	867	988	8.13e3	4.63e3	9.4	4.7	YES	bb	db	0.160
124679-HXCDD	33.922	0.944	4.238e4	3.525e4	1.115	1.202	1.240	1629	1446	6.58e5	5.19e5	404.0	358.7	NO	bb	bb	12.433
1234679-HPCDD	39.136	0.974	4.061e5	3.945e5	1.137	1.029	1.050	3319	3265	6.45e6	6.25e6	1943.7	1913.3	NO	bb	bb	172.120
Total-tetrafurans			1.348e4		0.727			1604		1.99e5							4.549
Total-penta1			1.791e4					608		2.55e5							3.631
Total-pentafurans			3.149e3		0.654			1295		5.38e4							0.953
Total-hexafurans			9.228e4		1.141			742		1.37e6							24.505
Total-heptafurans			2.776e5		0.978			1793		4.53e6							114.007
Total-Furans			6.221e5		0.922			1604		9.09e6							296.026
Total-tetradioxins			1.313e4		1.024			1046		2.02e5							3.995
Total-pentadioxins			8.843e3		1.502			867		1.28e5							2.266
Total-hexadioxins			9.908e4		1.005			1629		1.37e6							30.254
Total-heptadioxins			7.202e5		1.088			3319		1.11e7							318.992
Total-Dioxins			2.954e6		1.130			1046		3.89e7							1591.982
Total-TEQ			3.576e6					1046		4.80e7							1888.008
FUNCTION1 PFK			7.033e6					341930		1.83e7							
FUNCTION2 PFK			1.454e6					193910		4.77e6							0.000
FUNCTION3 PFK			8.878e6					240928		1.23e7							0.000
FUNCTION4 PFK			0.000e0					208481		0.00e0							
FUNCTION5 PFK			4.421e4					130483		1.34e6							
FUNCTION1 HXCD...			1.531e3					708		2.39e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.094e2					911		1.44e4							0.000
FUNCTION3 OCDPE			1.781e2					495		3.97e3							0.000
FUNCTION4 NCDPE			2.974e3					551		5.09e4							0.000
FUNCTION5 DCDPE			3.962e2					390		3.70e3							0.000

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23C0619-12, Name: 23042416, Date: 25-Apr-2023, Time: 02:47:00, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.95	9.679e2	1.309e3	0.727	0.74	0.77	7.5	YES	NO	db	db	0.334
2	Total-tetrafurans	23.81	5.707e2	7.509e2	0.727	0.76	0.77	6.0	YES	NO	dd	dd	0.194
3	Total-tetrafurans	23.70	1.382e3	1.625e3	0.727	0.85	0.77	14.7	YES	NO	dd	bd	0.441
4	Total-tetrafurans	23.34	1.084e3	1.421e3	0.727	0.76	0.77	8.2	YES	NO	dd	dd	0.368
5	Total-tetrafurans	23.03	1.909e3	2.619e3	0.727	0.73	0.77	16.6	YES	NO	bd	bd	0.665
6	Total-tetrafurans	22.44	1.342e3	1.520e3	0.727	0.88	0.77	11.9	YES	NO	bb	bb	0.420
7	1368-TCDF	22.20	5.025e2	6.066e2	0.802	0.83	0.77	3.9	YES	NO	bb	bb	0.148
8	Total-tetrafurans	25.93	1.125e3	1.718e3	0.727	0.65	0.77	10.6	YES	NO	db	db	0.417
9	Total-tetrafurans	25.83	9.205e2	1.288e3	0.727	0.71	0.77	9.9	YES	NO	dd	dd	0.324
10	2378-TCDF	25.70	9.103e2	1.256e3	0.702	0.72	0.77	8.3	YES	NO	bd	bd	0.329
11	Total-tetrafurans	25.51	4.800e2	5.432e2	0.727	0.88	0.77	4.7	YES	NO	db	db	0.150
12	Total-tetrafurans	25.45	3.347e2	4.639e2	0.727	0.72	0.77	3.5	YES	NO	dd	bd	0.117
13	Total-tetrafurans	25.01	4.639e2	6.955e2	0.727	0.67	0.77	5.3	YES	NO	bd	bb	0.170
14	Total-tetrafurans	24.60	1.490e3	1.725e3	0.727	0.86	0.77	13.2	YES	NO	dd	db	0.472

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.12	1.791e4	1.067e4		1.68	1.55	419.9	YES	NO	bb	bb	3.631

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.19	1.043e3	7.773e2	0.786	1.34	1.55	13.2	YES	NO	bb	bb	0.300
2	Total-pentafurans	30.91	9.637e2	5.749e2	0.654	1.68	1.55	11.7	YES	NO	bd	bb	0.289
3	Total-pentafurans	29.50	1.143e3	7.949e2	0.654	1.44	1.55	16.6	YES	NO	bb	db	0.364

ID: 23C0619-12, Name: 23042416, Date: 25-Apr-2023, Time: 02:47:00, Conditions: AUTOSPEC01, User: pk

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.81	3.342e3	2.611e3	1.166	1.28	1.24	67.2	YES	NO	dd	dd	0.827
2	Total-hexafurans	34.66	8.776e2	7.184e2	1.141	1.22	1.24	19.5	YES	NO	bd	bd	0.237
3	Total-hexafurans	34.19	4.741e4	3.886e4	1.141	1.22	1.24	959.3	YES	NO	bb	bb	12.813
4	Total-hexafurans	33.35	2.852e4	2.236e4	1.141	1.28	1.24	553.2	YES	NO	bd	db	7.557
5	123468-HXCDF	33.14	8.980e3	7.343e3	1.169	1.22	1.24	189.0	YES	NO	bb	bd	2.262
6	123789-HxCDF	36.82	5.458e2	4.413e2	1.137	1.24	1.24	12.6	YES	NO	bb	MM	0.177
7	Total-hexafurans	36.31	3.499e2	3.256e2	1.141	1.07	1.24	9.7	YES	NO	bb	bb	0.100
8	123678-HxCDF	34.95	2.249e3	1.610e3	1.091	1.40	1.24	40.4	YES	NO	db	db	0.533

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.35	1.954e5	1.953e5	0.978	1.00	1.05	1760.7	YES	NO	bb	bb	84.117
2	1234678-HpCDF	38.68	7.918e4	7.515e4	1.003	1.05	1.05	737.0	YES	NO	bb	bb	28.397
3	1234789-HpCDF	40.92	3.008e3	2.792e3	0.953	1.08	1.05	27.9	YES	NO	bb	bb	1.492

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.95	9.679e2	1.309e3	0.727	0.74	0.77	7.5	YES	NO	db	db	0.334
2	Total-tetrafurans	23.81	5.707e2	7.509e2	0.727	0.76	0.77	6.0	YES	NO	dd	dd	0.194
3	Total-tetrafurans	23.70	1.382e3	1.625e3	0.727	0.85	0.77	14.7	YES	NO	dd	bd	0.441
4	Total-tetrafurans	23.34	1.084e3	1.421e3	0.727	0.76	0.77	8.2	YES	NO	dd	dd	0.368
5	Total-tetrafurans	23.03	1.909e3	2.619e3	0.727	0.73	0.77	16.6	YES	NO	bd	bd	0.665
6	Total-tetrafurans	22.44	1.342e3	1.520e3	0.727	0.88	0.77	11.9	YES	NO	bb	bb	0.420
7	1368-TCDF	22.20	5.025e2	6.066e2	0.802	0.83	0.77	3.9	YES	NO	bb	bb	0.148
8	Total-tetrafurans	25.93	1.125e3	1.718e3	0.727	0.65	0.77	10.6	YES	NO	db	db	0.417
9	Total-tetrafurans	25.83	9.205e2	1.288e3	0.727	0.71	0.77	9.9	YES	NO	dd	dd	0.324
10	2378-TCDF	25.70	9.103e2	1.256e3	0.702	0.72	0.77	8.3	YES	NO	bd	bd	0.329
11	Total-tetrafurans	25.51	4.800e2	5.432e2	0.727	0.88	0.77	4.7	YES	NO	db	db	0.150
12	Total-tetrafurans	25.45	3.347e2	4.639e2	0.727	0.72	0.77	3.5	YES	NO	dd	bd	0.117
13	Total-tetrafurans	25.01	4.639e2	6.955e2	0.727	0.67	0.77	5.3	YES	NO	bd	bb	0.170
14	Total-tetrafurans	24.60	1.490e3	1.725e3	0.727	0.86	0.77	13.2	YES	NO	dd	db	0.472
15	23478-PeCDF	31.19	1.043e3	7.773e2	0.786	1.34	1.55	13.2	YES	NO	bb	bb	0.300
16	Total-pentafurans	30.91	9.637e2	5.749e2	0.654	1.68	1.55	11.7	YES	NO	bd	bb	0.289
17	Total-pentafurans	29.50	1.143e3	7.949e2	0.654	1.44	1.55	16.6	YES	NO	bb	db	0.364
18	123478-HxCDF	34.81	3.342e3	2.611e3	1.166	1.28	1.24	67.2	YES	NO	dd	dd	0.827
19	Total-hexafurans	34.66	8.776e2	7.184e2	1.141	1.22	1.24	19.5	YES	NO	bd	bd	0.237
20	Total-hexafurans	34.19	4.741e4	3.886e4	1.141	1.22	1.24	959.3	YES	NO	bb	bb	12.813
21	Total-hexafurans	33.35	2.852e4	2.236e4	1.141	1.28	1.24	553.2	YES	NO	bd	db	7.557
22	123468-HXCDF	33.14	8.980e3	7.343e3	1.169	1.22	1.24	189.0	YES	NO	bb	bd	2.262
23	123789-HxCDF	36.82	5.458e2	4.413e2	1.137	1.24	1.24	12.6	YES	NO	bb	MM	0.177
24	Total-hexafurans	36.31	3.499e2	3.256e2	1.141	1.07	1.24	9.7	YES	NO	bb	bb	0.100
25	123678-HxCDF	34.95	2.249e3	1.610e3	1.091	1.40	1.24	40.4	YES	NO	db	db	0.533
26	Total-heptafurans	39.35	1.954e5	1.953e5	0.978	1.00	1.05	1760.7	YES	NO	bb	bb	84.117
27	1234678-HpCDF	38.68	7.918e4	7.515e4	1.003	1.05	1.05	737.0	YES	NO	bb	bb	28.397
28	1234789-HpCDF	40.92	3.008e3	2.792e3	0.953	1.08	1.05	27.9	YES	NO	bb	bb	1.492
29	OCDF	45.13	2.176e5	2.470e5	0.778	0.88	0.89	1171.9	YES	NO	bb	bb	148.382
30	Total-penta1	27.12	1.791e4	1.067e4		1.68	1.55	419.9	YES	NO	bb	bb	3.631

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.74	3.433e3	4.321e3	1.024	0.79	0.77	48.4	YES	NO	bb	bb	1.032
2	1368-TCDD	23.47	3.939e3	5.347e3	1.015	0.74	0.77	63.3	YES	NO	bb	bd	1.246
3	Total-tetradioxins	25.52	3.560e3	4.184e3	1.024	0.85	0.77	52.1	YES	NO	bd	bd	1.030
4	Total-tetradioxins	24.95	1.590e3	2.118e3	1.024	0.75	0.77	20.8	YES	NO	bb	bb	0.493
5	Total-tetradioxins	24.67	6.066e2	8.475e2	1.024	0.72	0.77	8.7	YES	NO	bb	bb	0.193

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.78	2.284e3	1.558e3	1.502	1.47	1.55	35.7	YES	NO	bb	bb	0.591
2	Total-pentadioxins	30.20	2.113e3	1.573e3	1.502	1.34	1.55	38.9	YES	NO	dd	dd	0.567
3	Total-pentadioxins	29.84	2.674e3	1.721e3	1.502	1.55	1.55	41.5	YES	NO	bb	bb	0.676
4	Total-pentadioxins	29.23	1.772e3	1.036e3	1.502	1.71	1.55	31.7	YES	NO	bb	bb	0.432

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	36.05	1.159e4	8.827e3	1.001	1.31	1.24	105.9	YES	NO	dd	dd	3.549
2	123478-HxCDD	35.94	2.120e3	1.743e3	0.996	1.22	1.24	24.5	YES	NO	bd	bd	0.693
3	Total-hexadioxins	35.16	4.381e3	3.838e3	1.005	1.14	1.24	38.9	YES	NO	db	db	1.442
4	Total-hexadioxins	35.05	3.259e4	2.619e4	1.005	1.24	1.24	216.4	YES	NO	bd	bd	10.312
5	Total-hexadioxins	34.69	6.015e3	4.389e3	1.005	1.37	1.24	53.1	YES	NO	bb	bb	1.825
6	124679-HXCDD	33.92	4.238e4	3.525e4	1.115	1.20	1.24	404.0	YES	NO	bb	bb	12.433

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.14	4.061e5	3.945e5	1.137	1.03	1.05	1943.7	YES	NO	bb	bb	172.120
2	1234678-HpCDD	40.18	3.141e5	3.102e5	1.039	1.01	1.05	1404.4	YES	NO	bb	bb	146.872

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:21:48 Pacific Daylight Time

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.74	3.433e3	4.321e3	1.024	0.79	0.77	48.4	YES	NO	bb	bb	1.032
2	1368-TCDD	23.47	3.939e3	5.347e3	1.015	0.74	0.77	63.3	YES	NO	bb	bd	1.246
3	Total-tetradioxins	25.52	3.560e3	4.184e3	1.024	0.85	0.77	52.1	YES	NO	bd	bd	1.030
4	Total-tetradioxins	24.95	1.590e3	2.118e3	1.024	0.75	0.77	20.8	YES	NO	bb	bb	0.493
5	Total-tetradioxins	24.67	6.066e2	8.475e2	1.024	0.72	0.77	8.7	YES	NO	bb	bb	0.193
6	Total-pentadioxins	30.78	2.284e3	1.558e3	1.502	1.47	1.55	35.7	YES	NO	bb	bb	0.591
7	Total-pentadioxins	30.20	2.113e3	1.573e3	1.502	1.34	1.55	38.9	YES	NO	dd	dd	0.567
8	Total-pentadioxins	29.84	2.674e3	1.721e3	1.502	1.55	1.55	41.5	YES	NO	bb	bb	0.676
9	Total-pentadioxins	29.23	1.772e3	1.036e3	1.502	1.71	1.55	31.7	YES	NO	bb	bb	0.432
10	123678-HxCDD	36.05	1.159e4	8.827e3	1.001	1.31	1.24	105.9	YES	NO	dd	dd	3.549
11	123478-HxCDD	35.94	2.120e3	1.743e3	0.996	1.22	1.24	24.5	YES	NO	bd	bd	0.693
12	Total-hexadioxins	35.16	4.381e3	3.838e3	1.005	1.14	1.24	38.9	YES	NO	db	db	1.442
13	Total-hexadioxins	35.05	3.259e4	2.619e4	1.005	1.24	1.24	216.4	YES	NO	bd	bd	10.312
14	Total-hexadioxins	34.69	6.015e3	4.389e3	1.005	1.37	1.24	53.1	YES	NO	bb	bb	1.825
15	124679-HXCDD	33.92	4.238e4	3.525e4	1.115	1.20	1.24	404.0	YES	NO	bb	bb	12.433
16	1234679-HPCDD	39.14	4.061e5	3.945e5	1.137	1.03	1.05	1943.7	YES	NO	bb	bb	172.120
17	1234678-HpCDD	40.18	3.141e5	3.102e5	1.039	1.01	1.05	1404.4	YES	NO	bb	bb	146.872
18	OCDD	44.89	2.113e6	2.467e6	0.920	0.86	0.89	13001.4	YES	NO	bb	bb	1236.4...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.95	9.679e2	1.309e3	0.727	0.74	0.77	7.5	YES	NO	db	db	0.334
2	Total-tetrafurans	23.81	5.707e2	7.509e2	0.727	0.76	0.77	6.0	YES	NO	dd	dd	0.194
3	Total-tetrafurans	23.70	1.382e3	1.625e3	0.727	0.85	0.77	14.7	YES	NO	dd	bd	0.441
4	Total-tetrafurans	23.34	1.084e3	1.421e3	0.727	0.76	0.77	8.2	YES	NO	dd	dd	0.368
5	Total-tetrafurans	23.03	1.909e3	2.619e3	0.727	0.73	0.77	16.6	YES	NO	bd	bd	0.665
6	Total-tetrafurans	22.44	1.342e3	1.520e3	0.727	0.88	0.77	11.9	YES	NO	bb	bb	0.420
7	1368-TCDF	22.20	5.025e2	6.066e2	0.802	0.83	0.77	3.9	YES	NO	bb	bb	0.148
8	Total-tetrafurans	25.93	1.125e3	1.718e3	0.727	0.65	0.77	10.6	YES	NO	db	db	0.417
9	Total-tetrafurans	25.83	9.205e2	1.288e3	0.727	0.71	0.77	9.9	YES	NO	dd	dd	0.324
10	2378-TCDF	25.70	9.103e2	1.256e3	0.702	0.72	0.77	8.3	YES	NO	bd	bd	0.329
11	Total-tetrafurans	25.51	4.800e2	5.432e2	0.727	0.88	0.77	4.7	YES	NO	db	db	0.150
12	Total-tetrafurans	25.45	3.347e2	4.639e2	0.727	0.72	0.77	3.5	YES	NO	dd	bd	0.117
13	Total-tetrafurans	25.01	4.639e2	6.955e2	0.727	0.67	0.77	5.3	YES	NO	bd	bb	0.170
14	Total-tetrafurans	24.60	1.490e3	1.725e3	0.727	0.86	0.77	13.2	YES	NO	dd	db	0.472
15	23478-PeCDF	31.19	1.043e3	7.773e2	0.786	1.34	1.55	13.2	YES	NO	bb	bb	0.300
16	Total-pentafurans	30.91	9.637e2	5.749e2	0.654	1.68	1.55	11.7	YES	NO	bd	bb	0.289
17	Total-pentafurans	29.50	1.143e3	7.949e2	0.654	1.44	1.55	16.6	YES	NO	bb	db	0.364
18	123478-HxCDF	34.81	3.342e3	2.611e3	1.166	1.28	1.24	67.2	YES	NO	dd	dd	0.827
19	Total-hexafurans	34.66	8.776e2	7.184e2	1.141	1.22	1.24	19.5	YES	NO	bd	bd	0.237
20	Total-hexafurans	34.19	4.741e4	3.886e4	1.141	1.22	1.24	959.3	YES	NO	bb	bb	12.813
21	Total-hexafurans	33.35	2.852e4	2.236e4	1.141	1.28	1.24	553.2	YES	NO	bd	db	7.557
22	123468-HXCDF	33.14	8.980e3	7.343e3	1.169	1.22	1.24	189.0	YES	NO	bb	bd	2.262
23	123789-HxCDF	36.82	5.458e2	4.413e2	1.137	1.24	1.24	12.6	YES	NO	bb	MM	0.177
24	Total-hexafurans	36.31	3.499e2	3.256e2	1.141	1.07	1.24	9.7	YES	NO	bb	bb	0.100
25	123678-HxCDF	34.95	2.249e3	1.610e3	1.091	1.40	1.24	40.4	YES	NO	db	db	0.533
26	Total-heptafurans	39.35	1.954e5	1.953e5	0.978	1.00	1.05	1760.7	YES	NO	bb	bb	84.117
27	1234678-HpCDF	38.68	7.918e4	7.515e4	1.003	1.05	1.05	737.0	YES	NO	bb	bb	28.397
28	1234789-HpCDF	40.92	3.008e3	2.792e3	0.953	1.08	1.05	27.9	YES	NO	bb	bb	1.492
29	OCDF	45.13	2.176e5	2.470e5	0.778	0.88	0.89	1171.9	YES	NO	bb	bb	148.382
30	Total-penta1	27.12	1.791e4	1.067e4		1.68	1.55	419.9	YES	NO	bb	bb	3.631
31	Total-tetradioxins	23.74	3.433e3	4.321e3	1.024	0.79	0.77	48.4	YES	NO	bb	bb	1.032
32	1368-TCDD	23.47	3.939e3	5.347e3	1.015	0.74	0.77	63.3	YES	NO	bb	bd	1.246
33	Total-tetradioxins	25.52	3.560e3	4.184e3	1.024	0.85	0.77	52.1	YES	NO	bd	bd	1.030
34	Total-tetradioxins	24.95	1.590e3	2.118e3	1.024	0.75	0.77	20.8	YES	NO	bb	bb	0.493
35	Total-tetradioxins	24.67	6.066e2	8.475e2	1.024	0.72	0.77	8.7	YES	NO	bb	bb	0.193
36	Total-pentadioxins	30.78	2.284e3	1.558e3	1.502	1.47	1.55	35.7	YES	NO	bb	bb	0.591
37	Total-pentadioxins	30.20	2.113e3	1.573e3	1.502	1.34	1.55	38.9	YES	NO	dd	dd	0.567

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-pentadioxins	29.84	2.674e3	1.721e3	1.502	1.55	1.55	41.5	YES	NO	bb	bb	0.676
39	Total-pentadioxins	29.23	1.772e3	1.036e3	1.502	1.71	1.55	31.7	YES	NO	bb	bb	0.432
40	123678-HxCDD	36.05	1.159e4	8.827e3	1.001	1.31	1.24	105.9	YES	NO	dd	dd	3.549
41	123478-HxCDD	35.94	2.120e3	1.743e3	0.996	1.22	1.24	24.5	YES	NO	bd	bd	0.693
42	Total-hexadioxins	35.16	4.381e3	3.838e3	1.005	1.14	1.24	38.9	YES	NO	db	db	1.442
43	Total-hexadioxins	35.05	3.259e4	2.619e4	1.005	1.24	1.24	216.4	YES	NO	bd	bd	10.312
44	Total-hexadioxins	34.69	6.015e3	4.389e3	1.005	1.37	1.24	53.1	YES	NO	bb	bb	1.825
45	124679-HXCDD	33.92	4.238e4	3.525e4	1.115	1.20	1.24	404.0	YES	NO	bb	bb	12.433
46	1234679-HPCDD	39.14	4.061e5	3.945e5	1.137	1.03	1.05	1943.7	YES	NO	bb	bb	172.120
47	1234678-HpCDD	40.18	3.141e5	3.102e5	1.039	1.01	1.05	1404.4	YES	NO	bb	bb	146.872
48	OCDD	44.89	2.113e6	2.467e6	0.920	0.86	0.89	13001.4	YES	NO	bb	bb	1236.4...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.42	5.371e4					2.6	NO		bb		
2	FUNCTION1 PFK	23.81	4.238e5					3.0	YES		bb		
3	FUNCTION1 PFK	23.46	3.825e5					11.3	YES		db		
4	FUNCTION1 PFK	23.32	3.389e6					14.6	YES		bd		
5	FUNCTION1 PFK	22.65	2.765e6					20.2	YES		bb		
6	FUNCTION1 PFK	21.86	1.856e4					1.8	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.47	3.458e5					7.2	YES		bb		0.000
2	FUNCTION2 PFK	29.15	1.108e6					17.4	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.24	3.705e6					21.5	YES		bb		0.000
2	FUNCTION3 PFK	36.36	5.173e6					29.5	YES		bb		0.000

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PFK4

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

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.50	2.975e3					1.3	NO		bb		
2	FUNCTION5 PFK	44.59	2.190e4					2.8	NO		bb		
3	FUNCTION5 PFK	43.83	2.014e3					1.0	NO		bb		
4	FUNCTION5 PFK	43.59	4.294e3					1.6	NO		bb		
5	FUNCTION5 PFK	43.39	3.405e3					1.5	NO		bb		
6	FUNCTION5 PFK	43.08	9.623e3					2.0	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.54	2.420e2					2.1	NO		bb		0.000
2	FUNCTION1 HXCD...	26.75	8.694e1					1.7	NO		db		0.000
3	FUNCTION1 HXCD...	26.61	9.269e1					1.8	NO		dd		0.000
4	FUNCTION1 HXCD...	26.55	8.116e1					2.5	NO		dd		0.000
5	FUNCTION1 HXCD...	26.51	7.770e1					1.8	NO		bd		0.000
6	FUNCTION1 HXCD...	26.33	9.650e1					1.8	NO		bb		0.000
7	FUNCTION1 HXCD...	25.86	3.513e2					9.3	YES		db		0.000
8	FUNCTION1 HXCD...	25.70	1.468e2					3.0	NO		bd		0.000
9	FUNCTION1 HXCD...	25.60	7.578e1					2.1	NO		db		0.000
10	FUNCTION1 HXCD...	25.51	7.287e1					1.6	NO		bd		0.000
11	FUNCTION1 HXCD...	23.73	9.715e1					3.9	YES		db		0.000
12	FUNCTION1 HXCD...	23.67	1.101e2					2.3	NO		bd		0.000

ETHERS2

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

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.97	9.009e1					2.9	NO		bb		0.000
2	FUNCTION2 HPCD...	30.07	1.423e2					4.2	YES		bb		0.000
3	FUNCTION2 HPCD...	29.61	1.126e2					1.8	NO		bb		0.000
4	FUNCTION2 HPCD...	28.30	9.975e1					2.5	NO		bb		0.000
5	FUNCTION2 HPCD...	32.05	1.347e2					2.5	NO		bb		0.000
6	FUNCTION2 HPCD...	31.26	1.299e2					1.8	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.43	9.407e1					3.7	YES		bb		0.000
2	FUNCTION3 OCDPE	35.93	8.407e1					4.3	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.87	9.596e1					2.6	NO		bb		0.000
2	FUNCTION4 NCDPE	40.15	1.167e2					3.9	YES		bb		0.000
3	FUNCTION4 NCDPE	38.34	2.688e3					82.9	YES		bb		0.000
4	FUNCTION4 NCDPE	38.06	7.317e1					3.0	NO		bb		0.000

ETHERS6

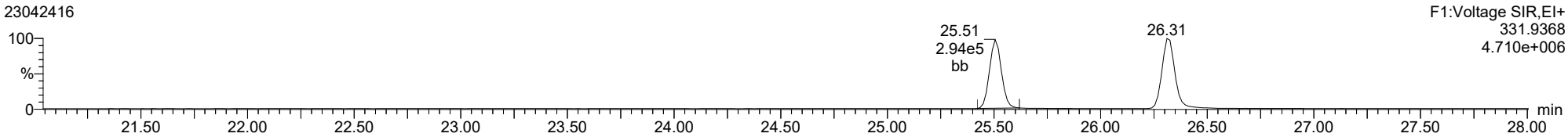
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1	FUNCTION5 DCDPE	44.90	3.962e2					9.5	YES		bb		0.000

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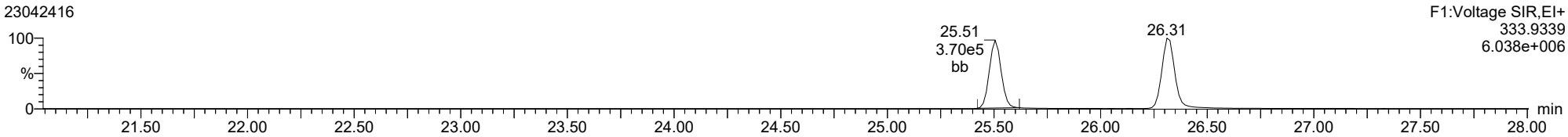
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ID: 23C0619-12, Name: 23042416, Date: 25-Apr-2023, Time: 02:47:00, Conditions: AUTOSPEC01, User: pk

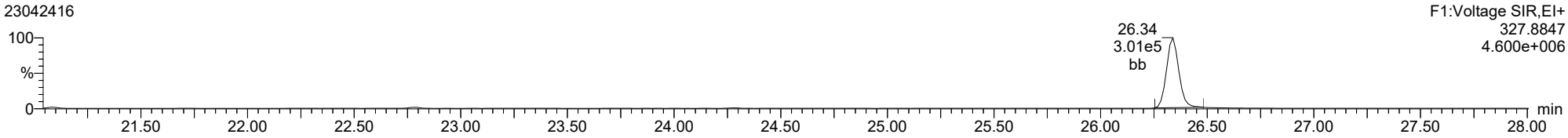
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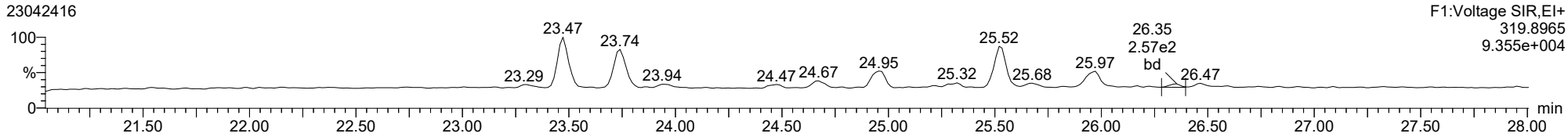


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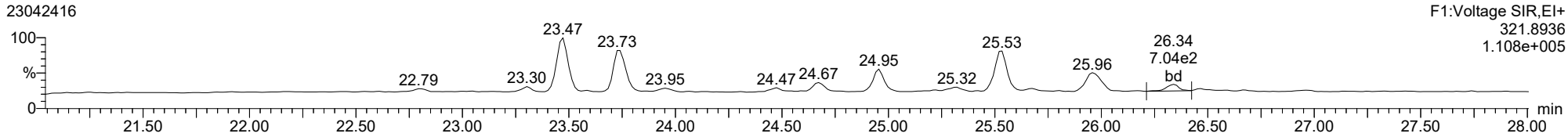


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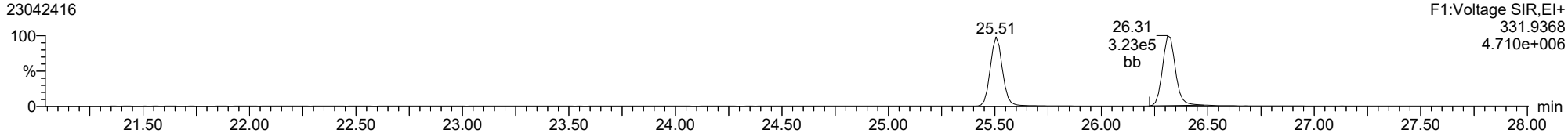
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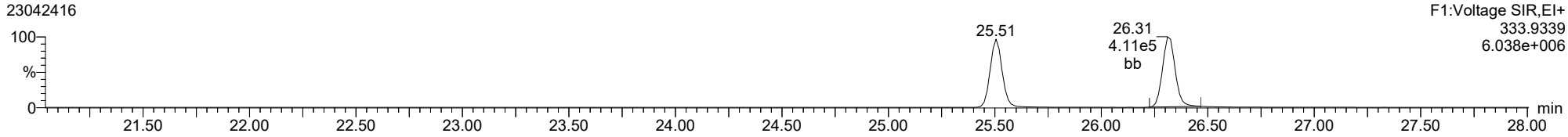
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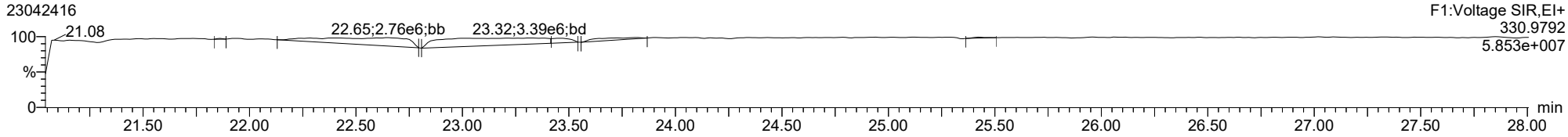
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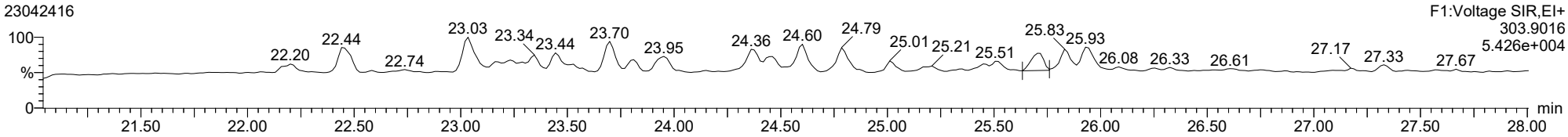


FUNCTION1 PFK

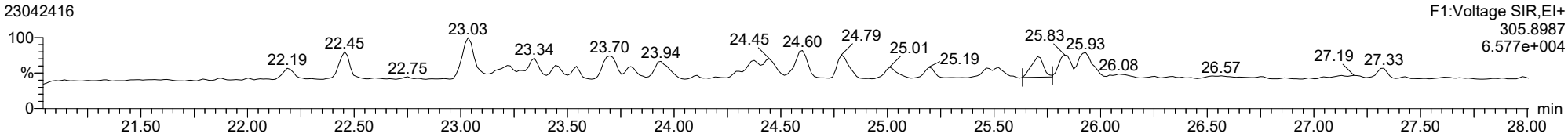


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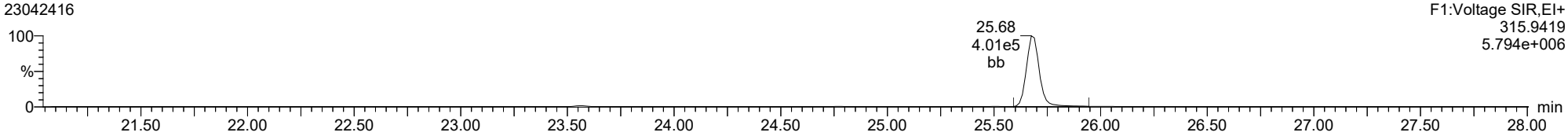
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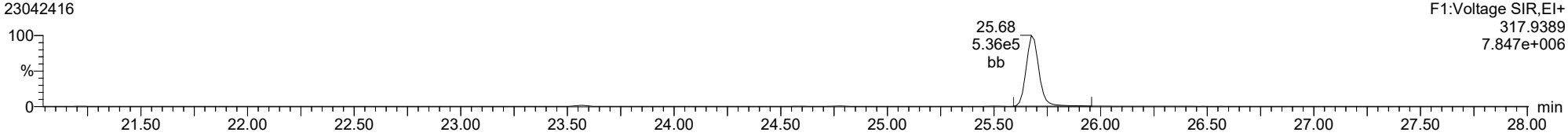
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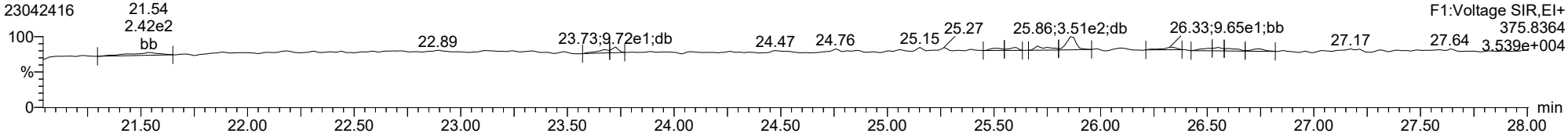
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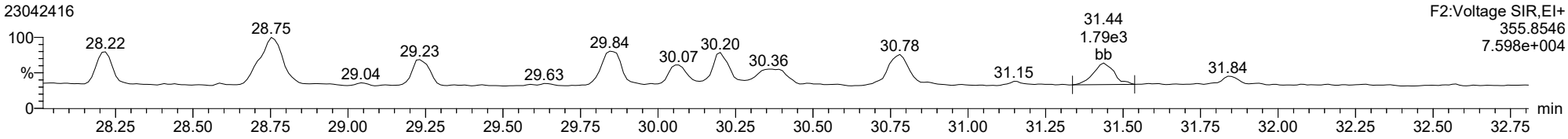


FUNCTION1 HXCDPE

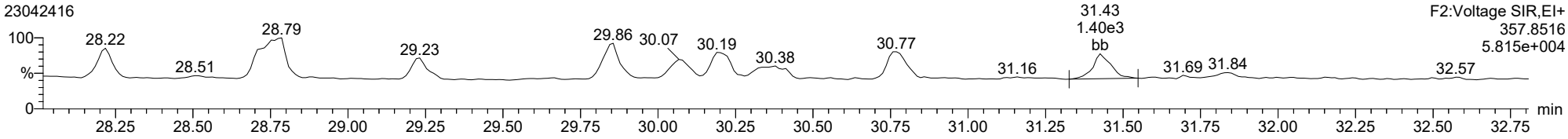


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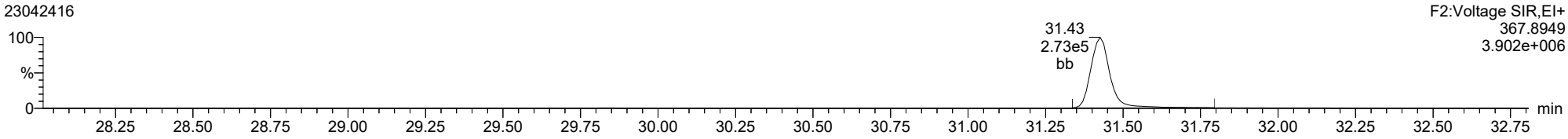
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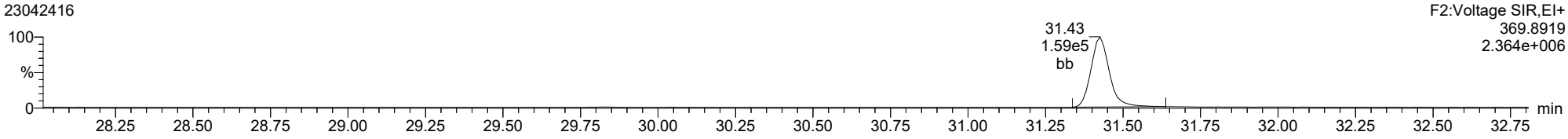
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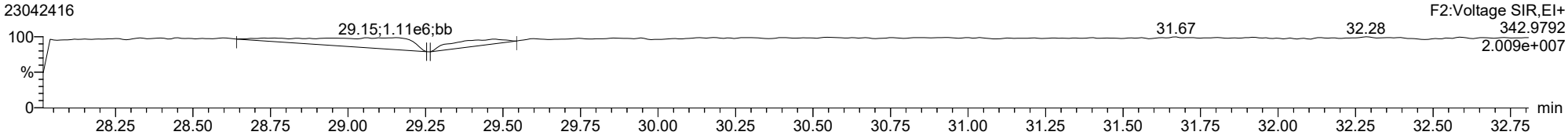
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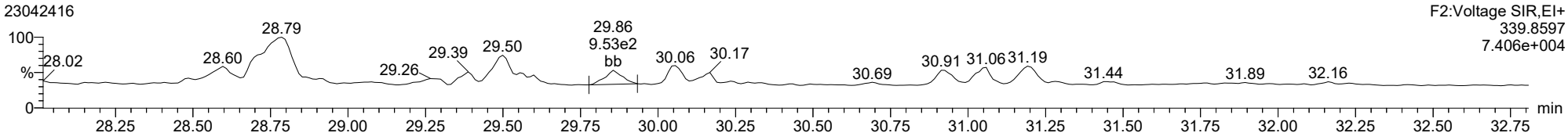


FUNCTION2 PFK

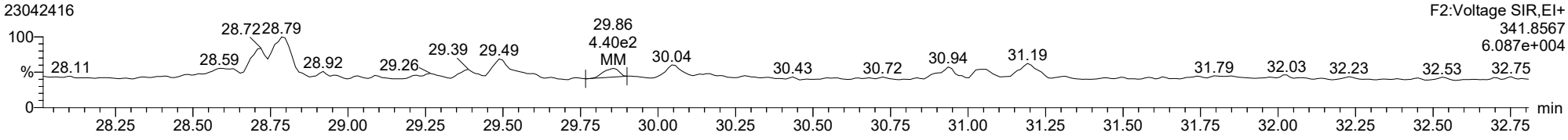


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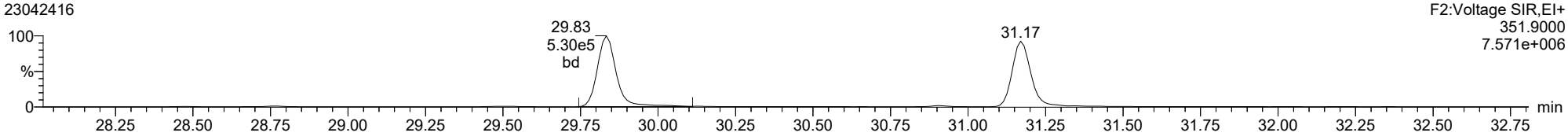
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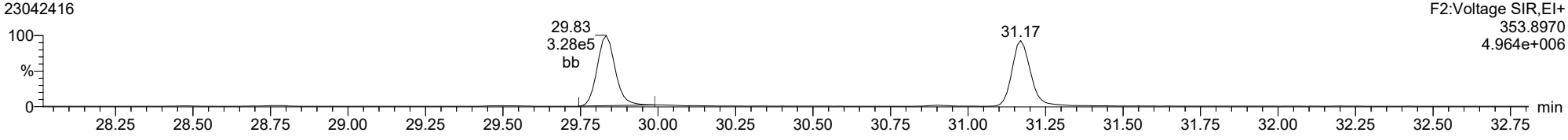
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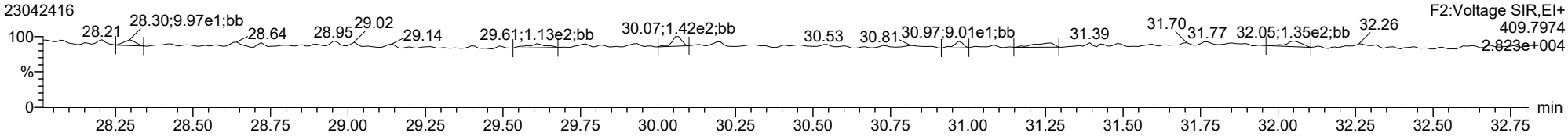
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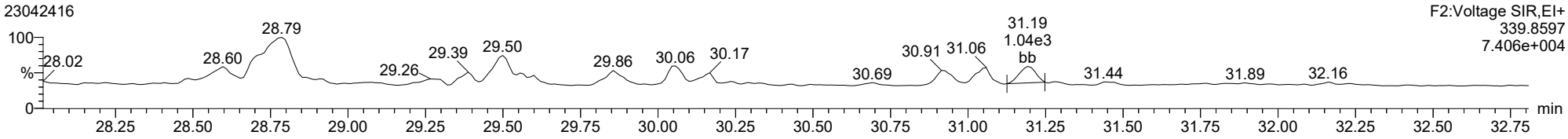


FUNCTION2 HPCDPE

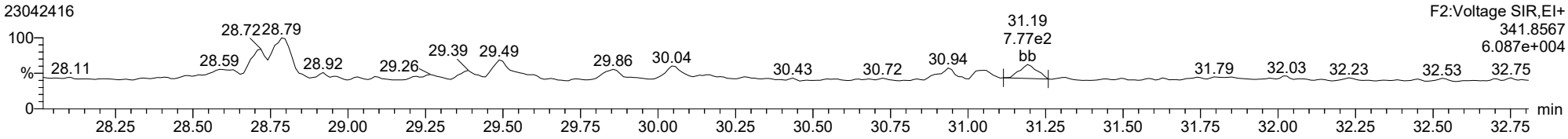


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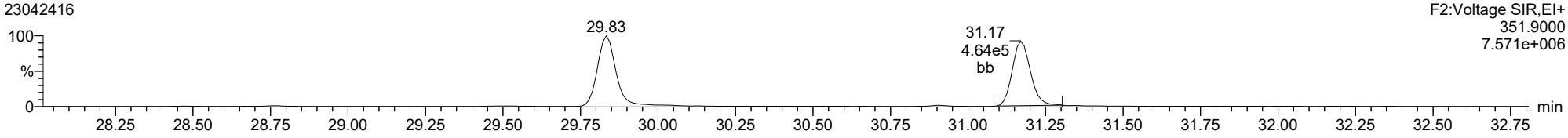
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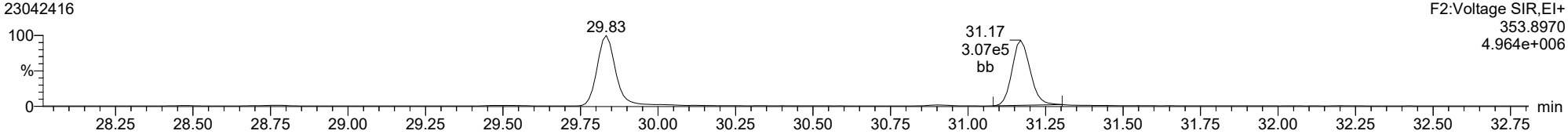
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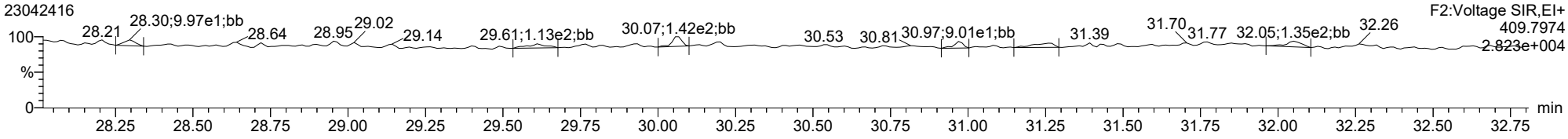
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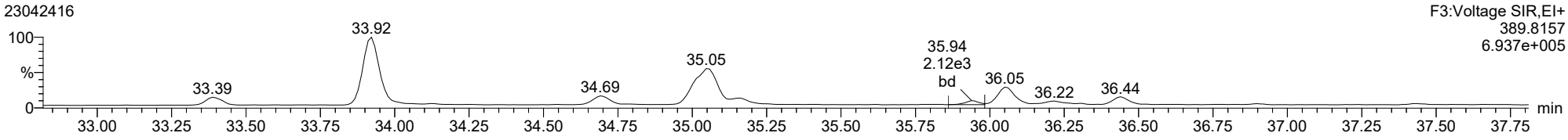


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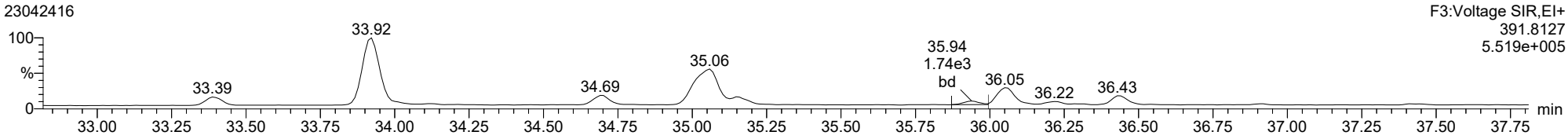


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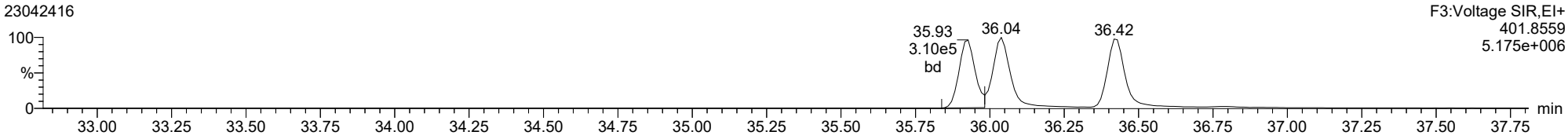
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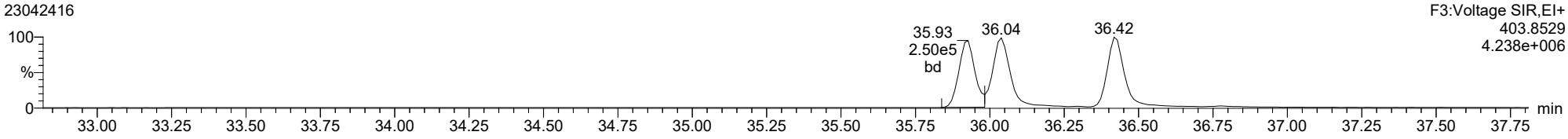
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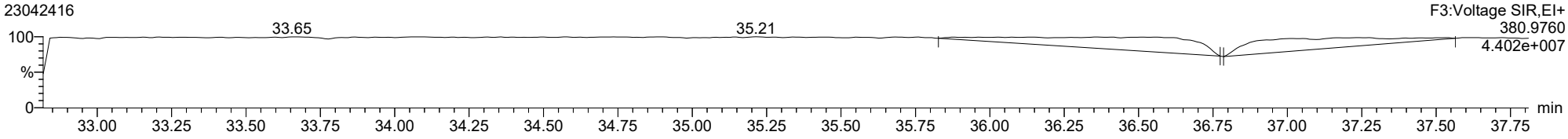
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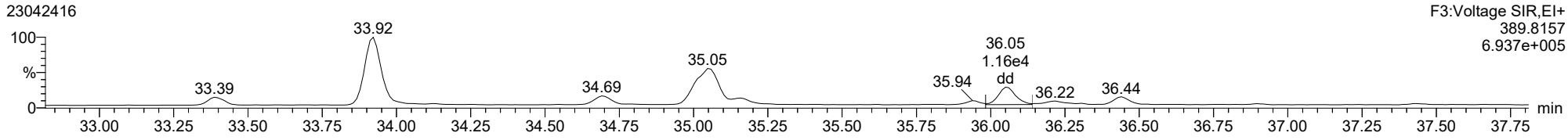


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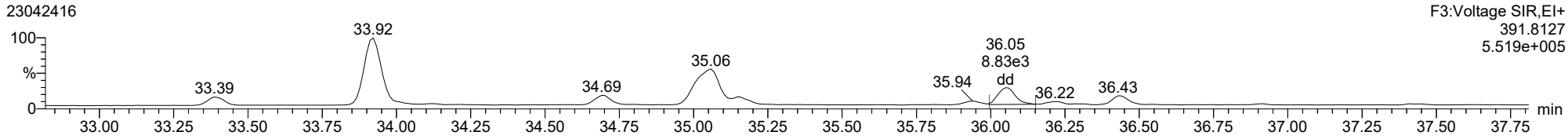


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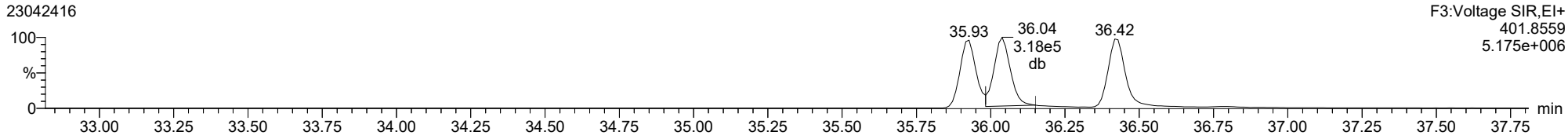
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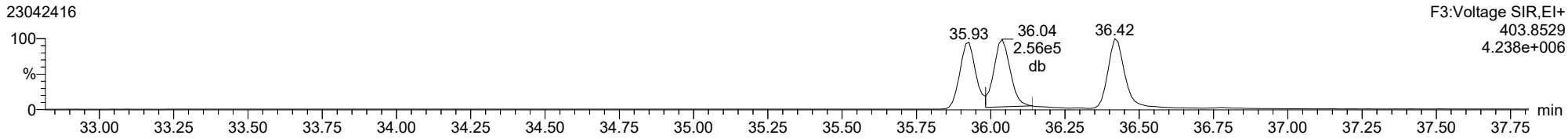
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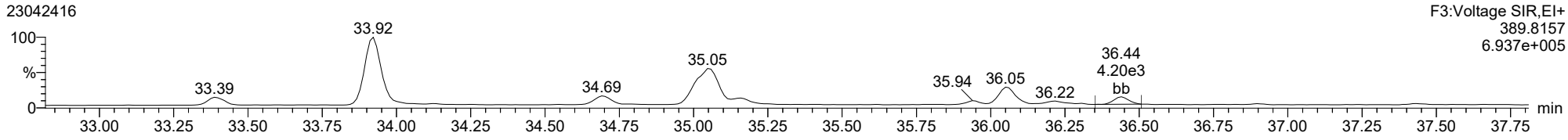


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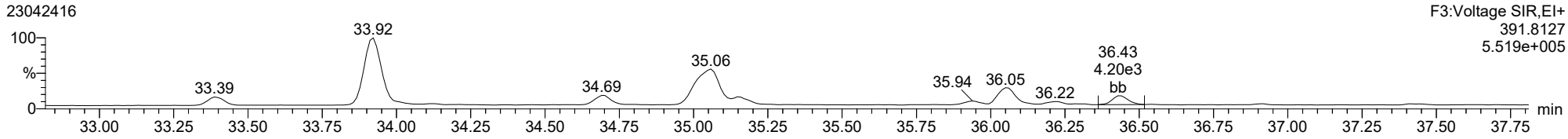


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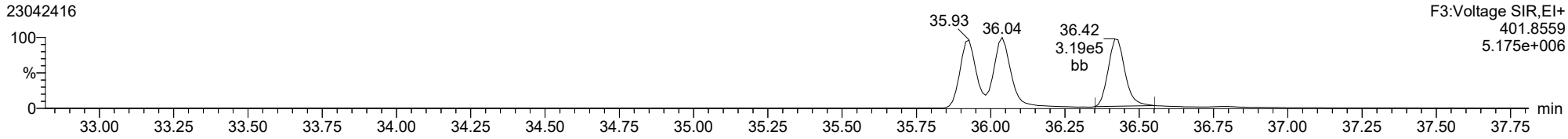
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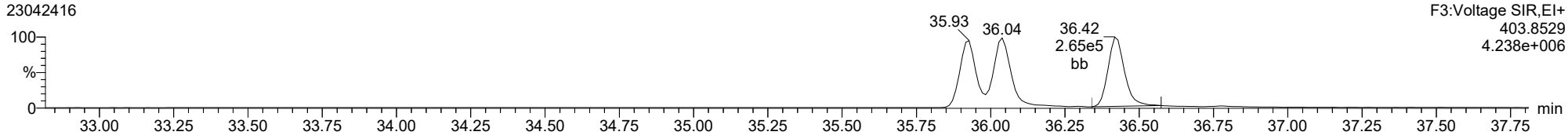
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13C-123789-HxCDD

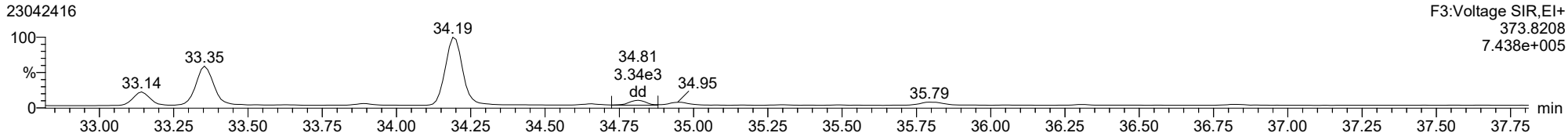


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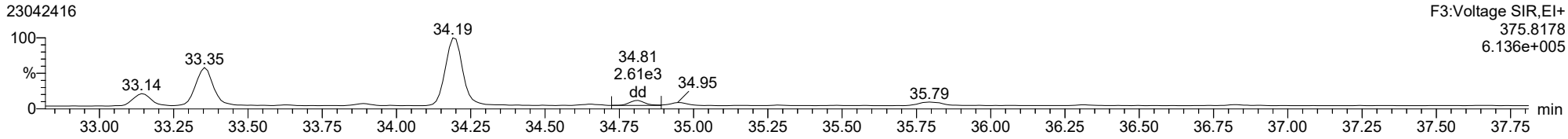


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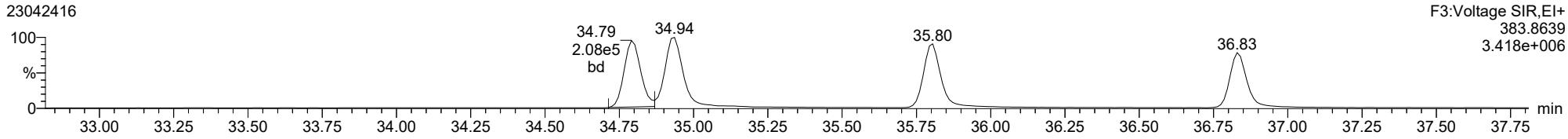
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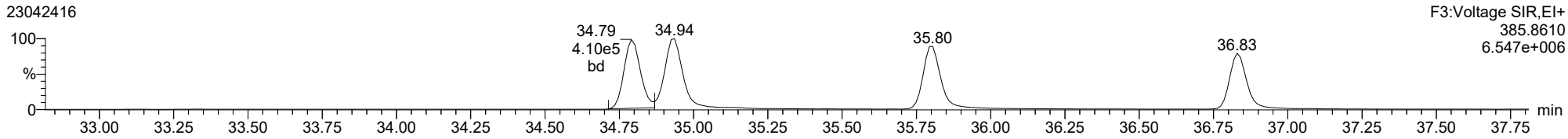
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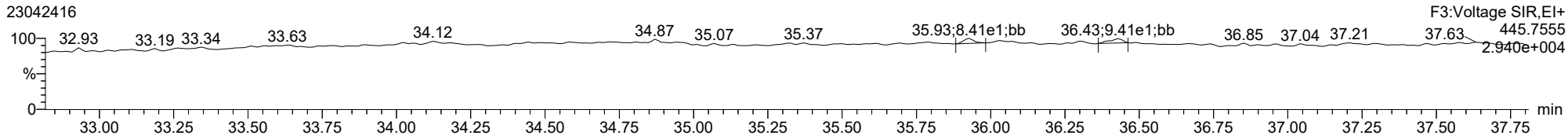
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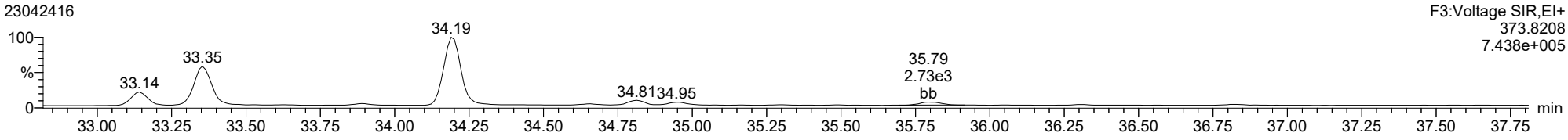


FUNCTION3 OCDPE

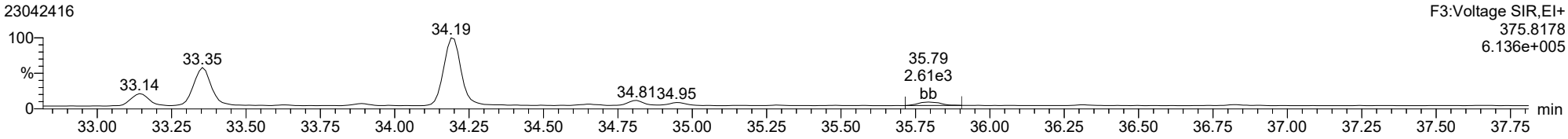


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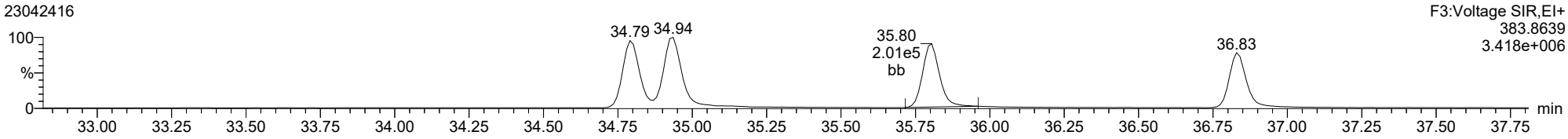
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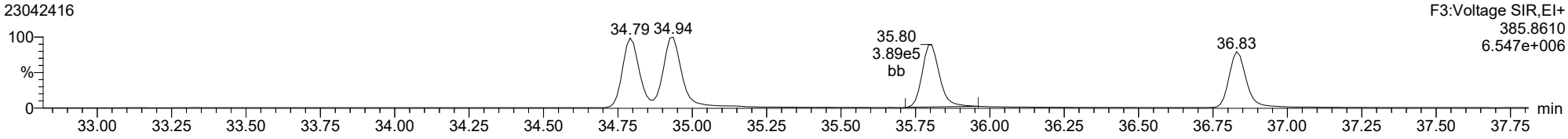
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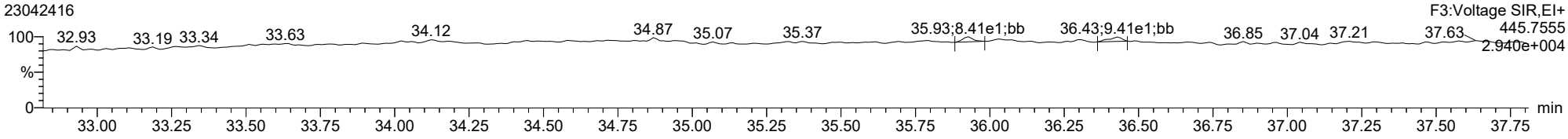
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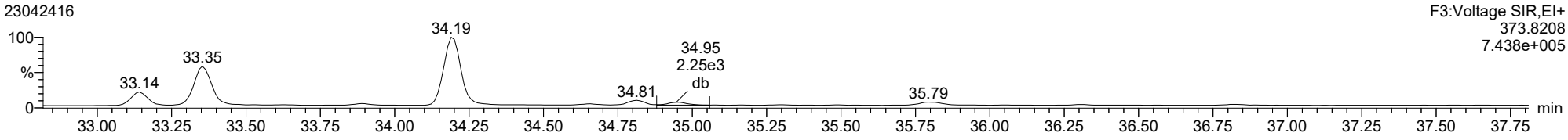


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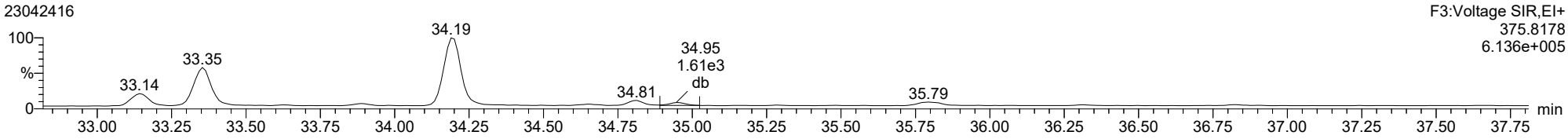


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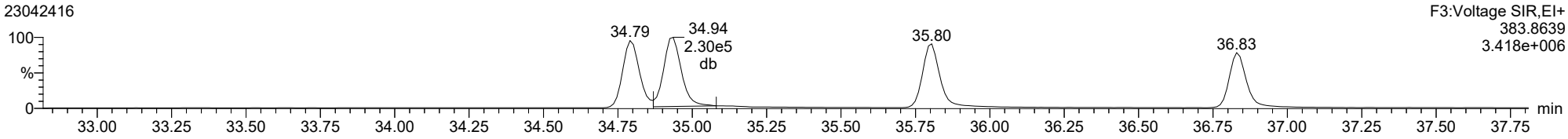
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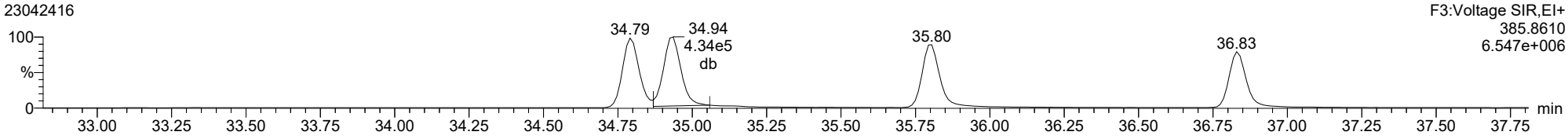
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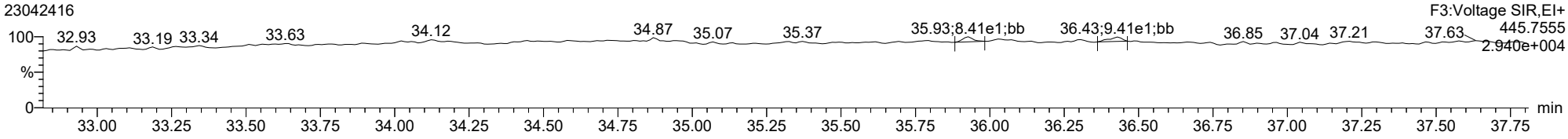
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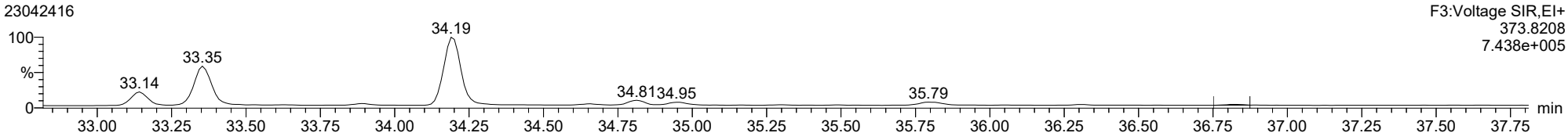


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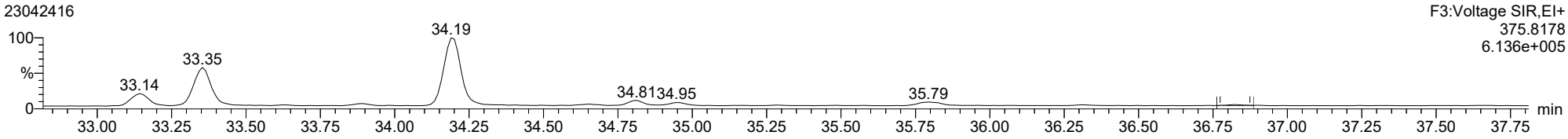


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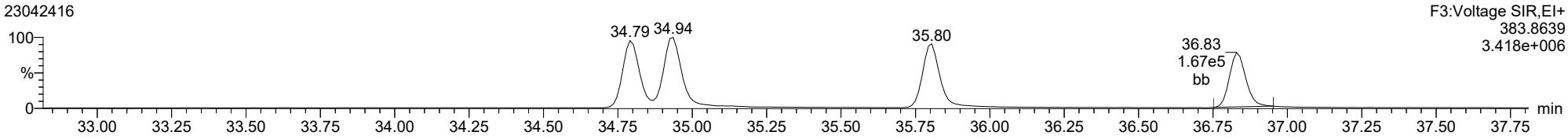
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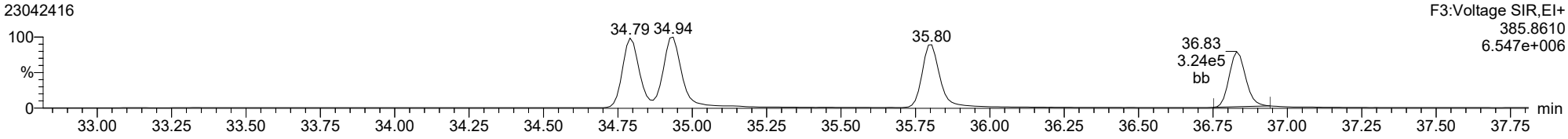
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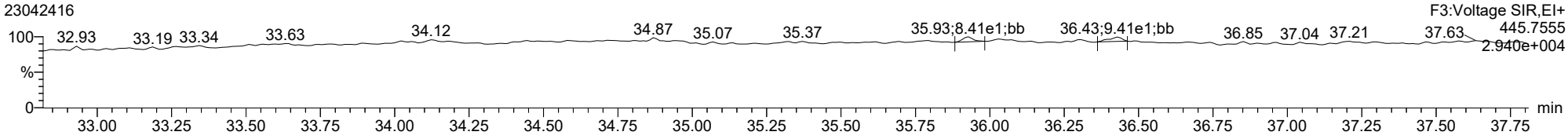
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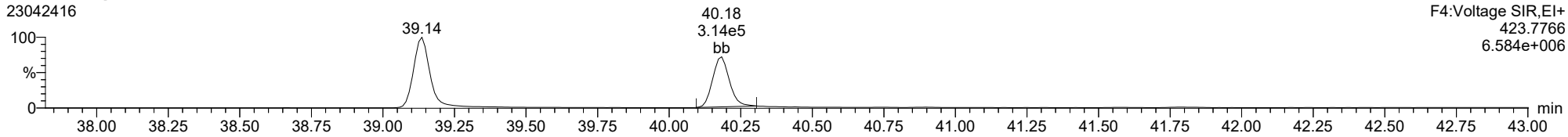


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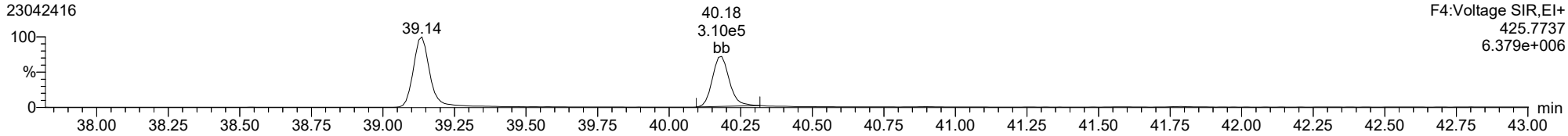


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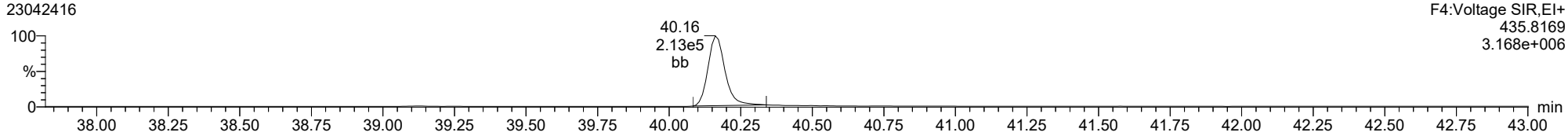
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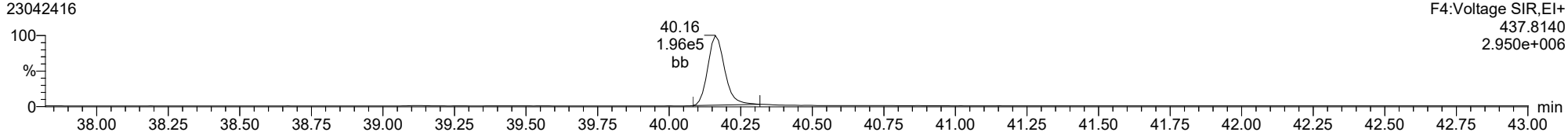
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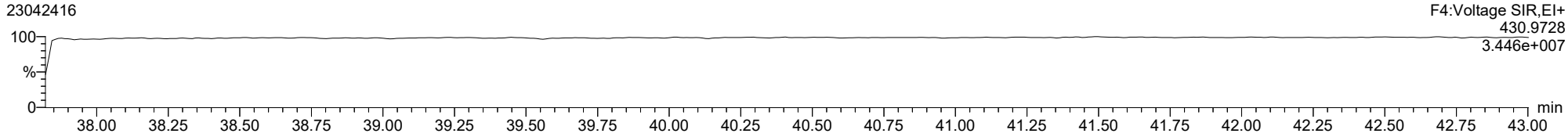
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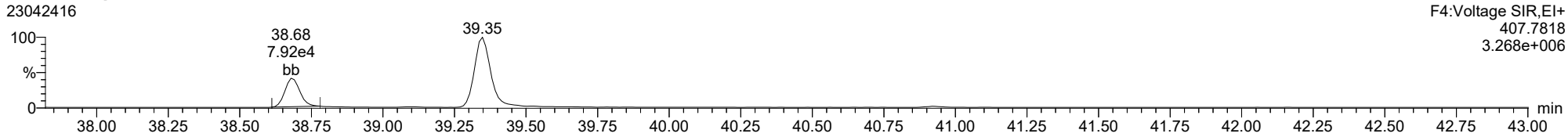


FUNCTION4 PFK

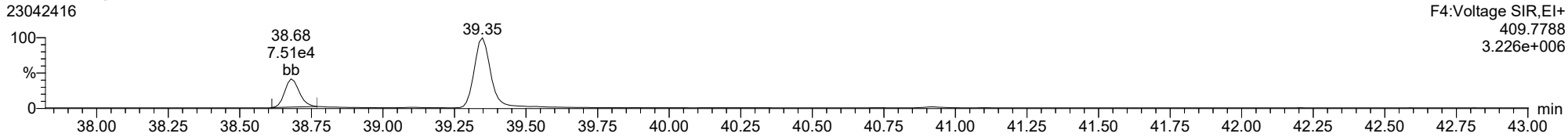


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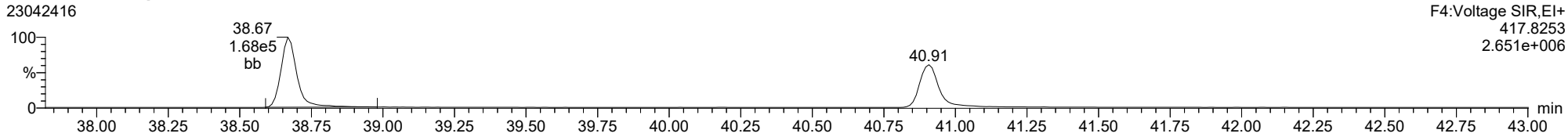
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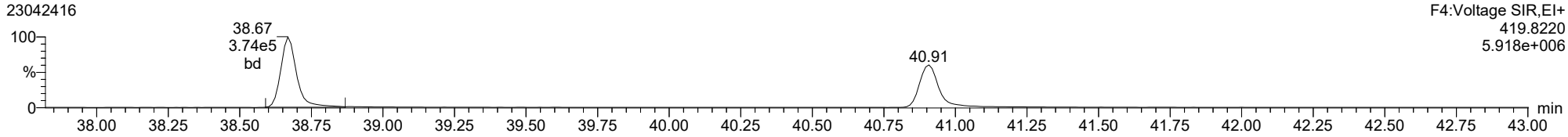
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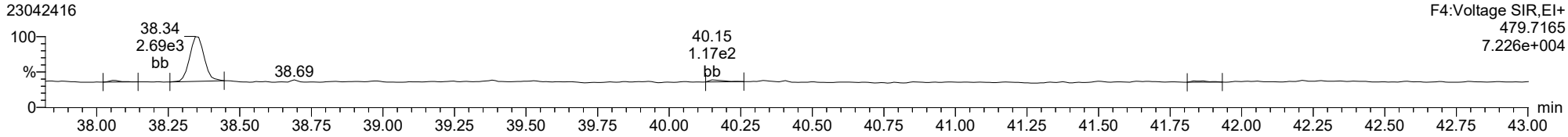
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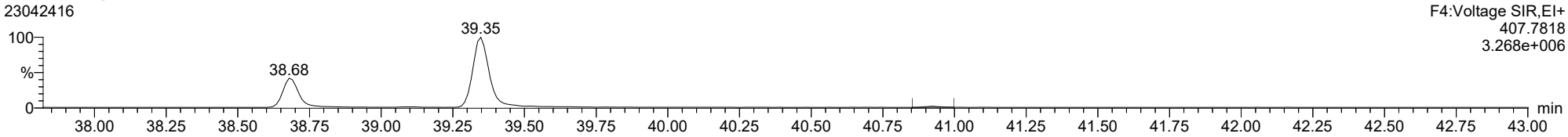


FUNCTION4 NCDPE

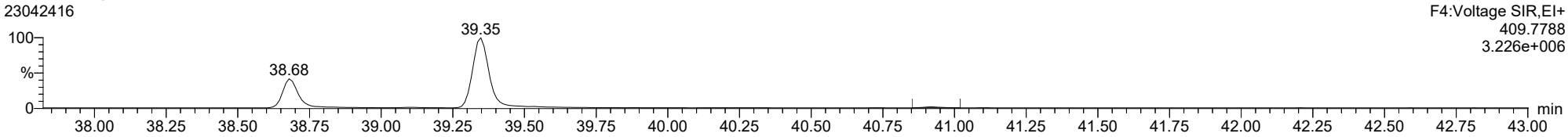


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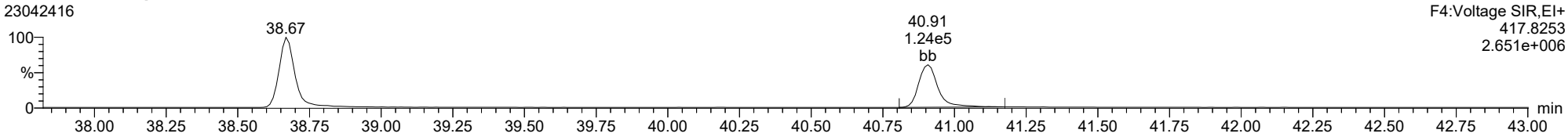
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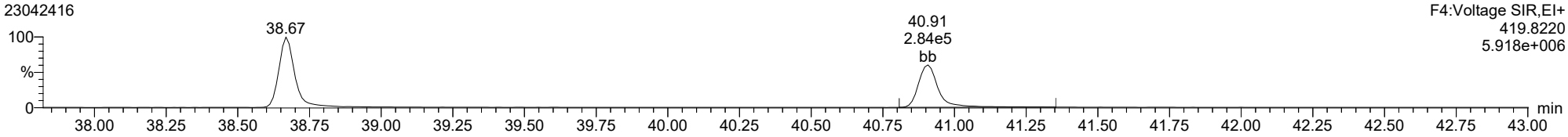
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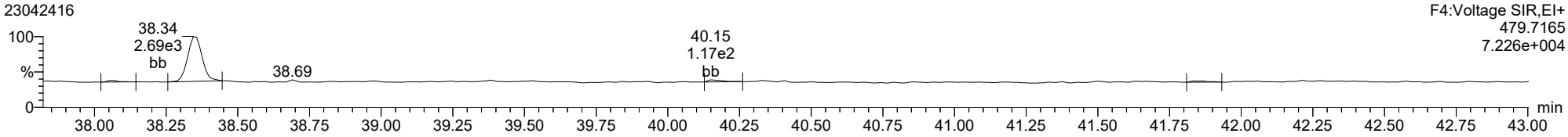
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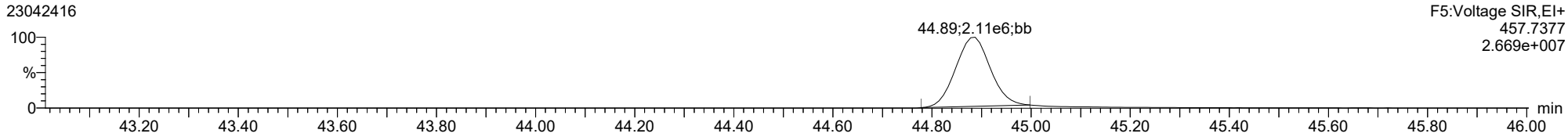


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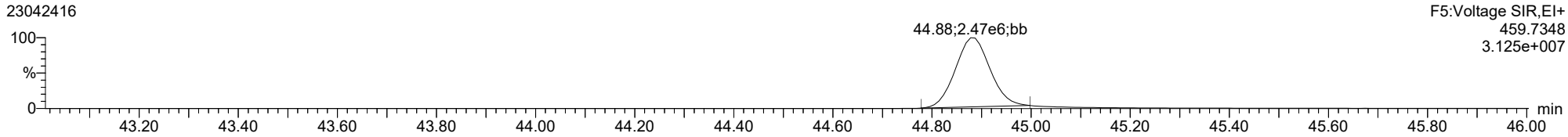


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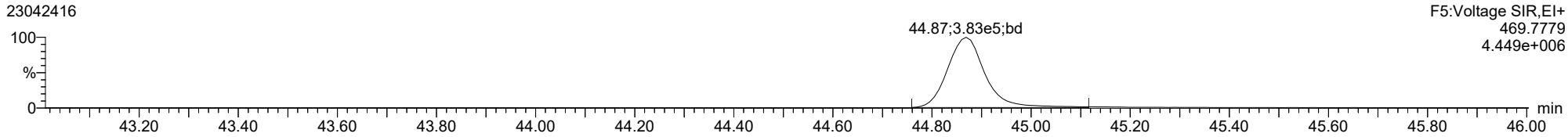
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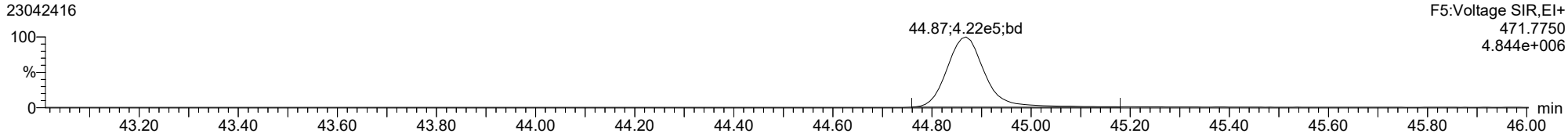
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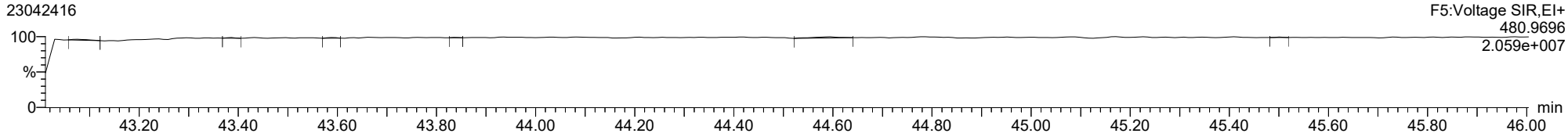
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13C-OCDD

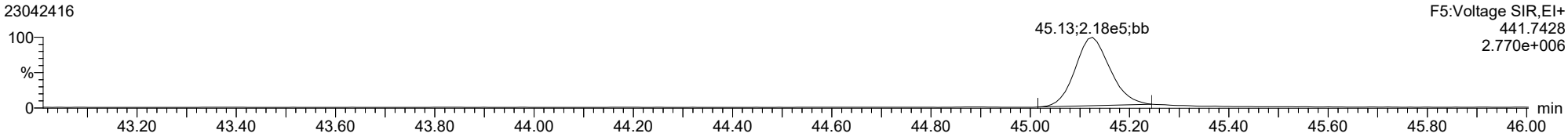


FUNCTION5 PFK

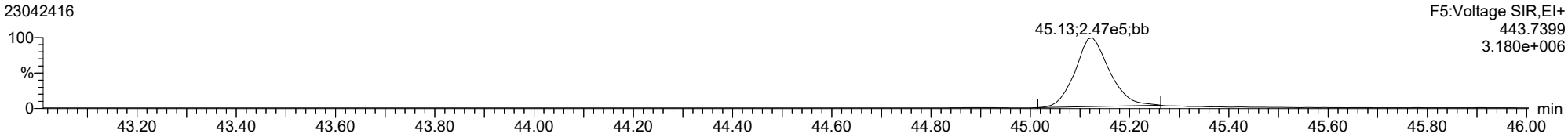


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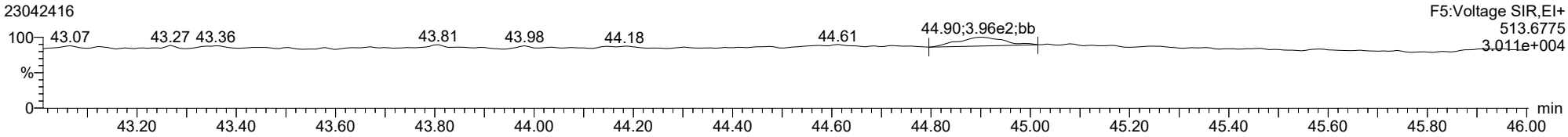
OCDF



OCDF

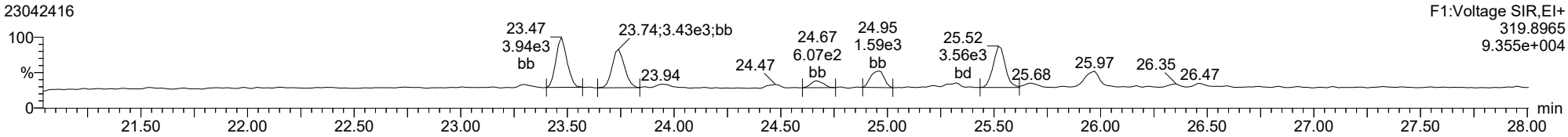


FUNCTION5 DCDPE

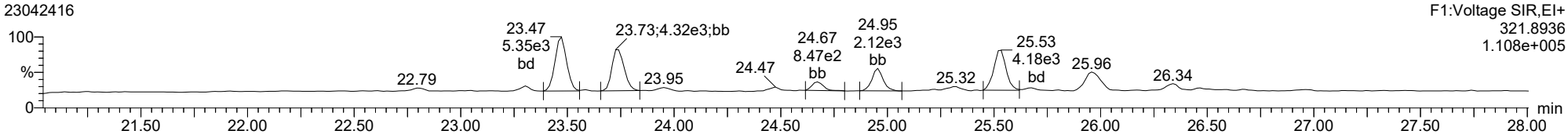


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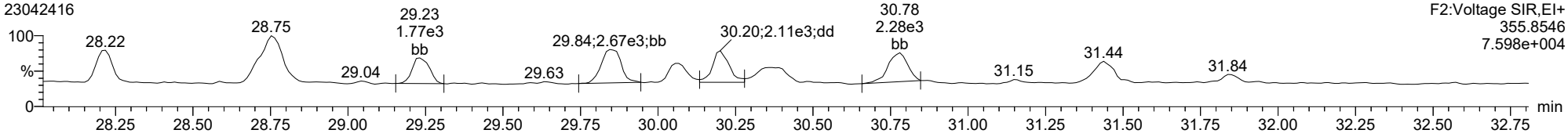
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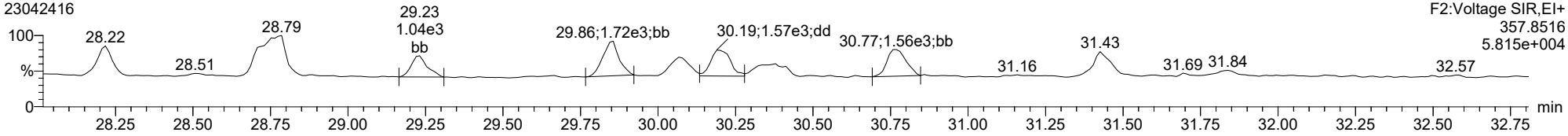
Total-tetradioxins



Total-pentadioxins

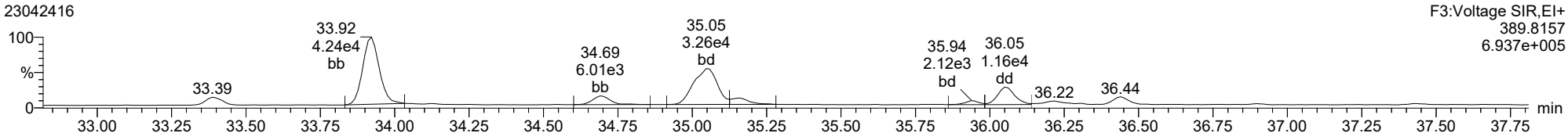


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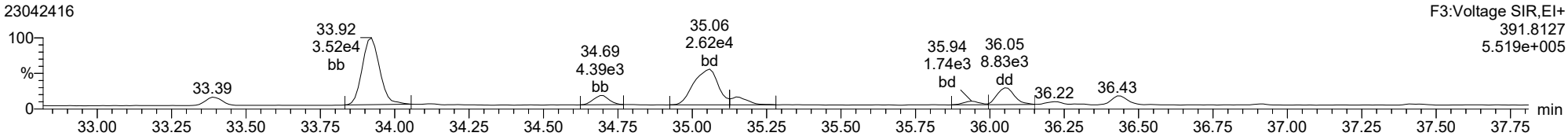


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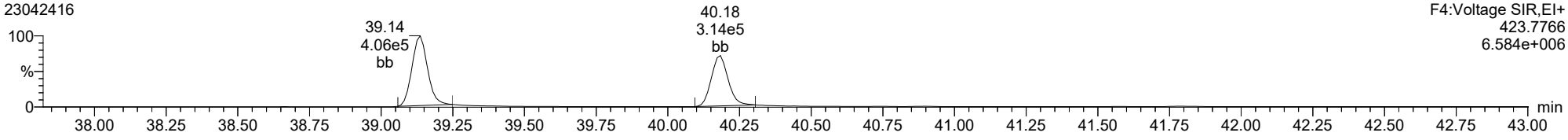
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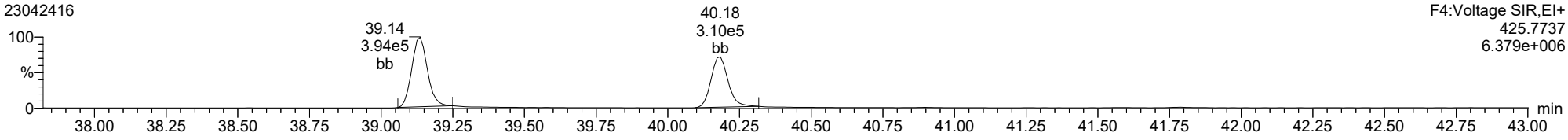
Total-hexadioxins



Total-heptadioxins

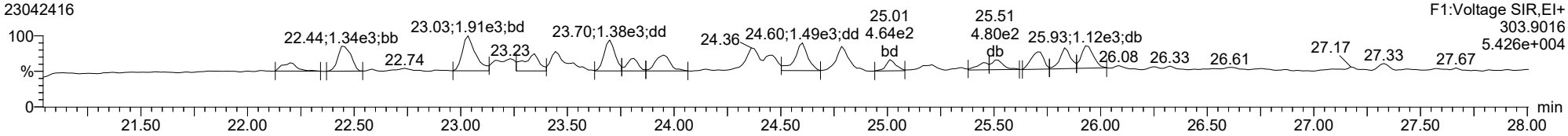


Total-heptadioxins

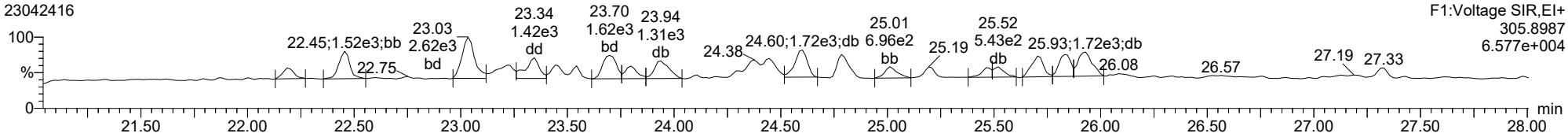


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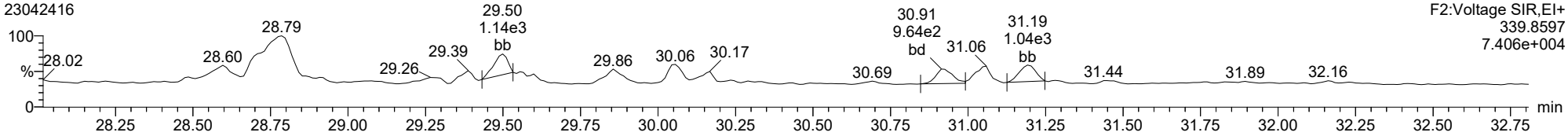
Total-tetrafurans



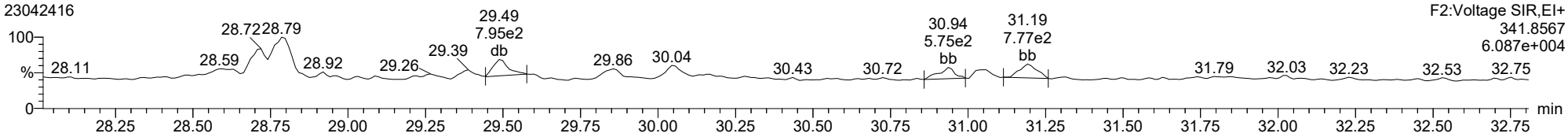
Total-tetrafurans



Total-pentafurans

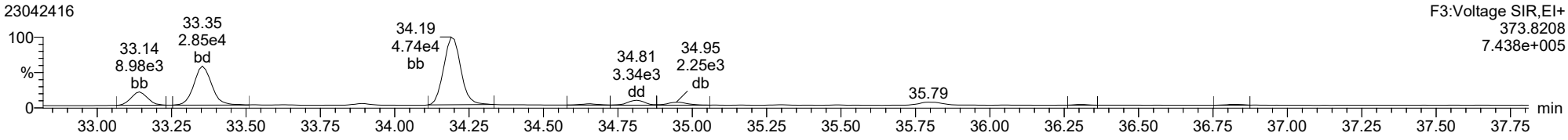


Total-pentafurans

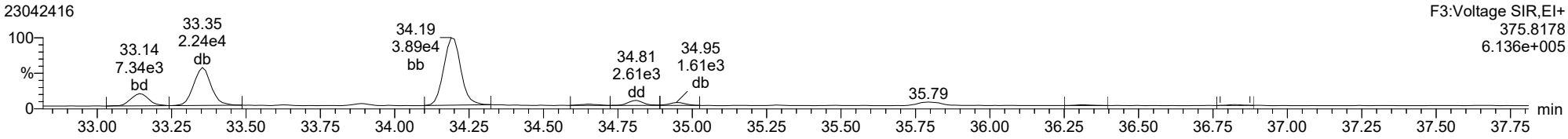


ID: 23C0619-12, Name: 23042416, Date: 25-Apr-2023, Time: 02:47:00, Conditions: AUTOSPEC01, User: pk

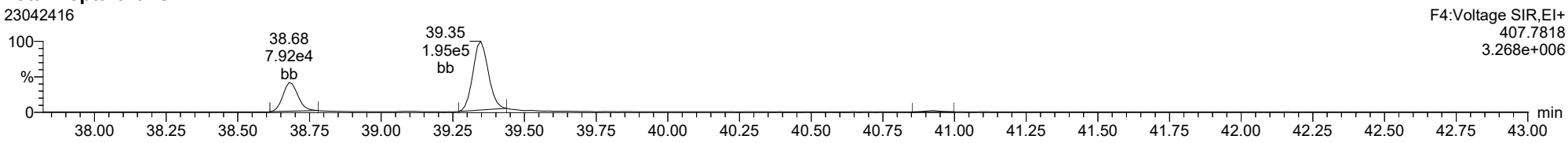
Total-hexafurans



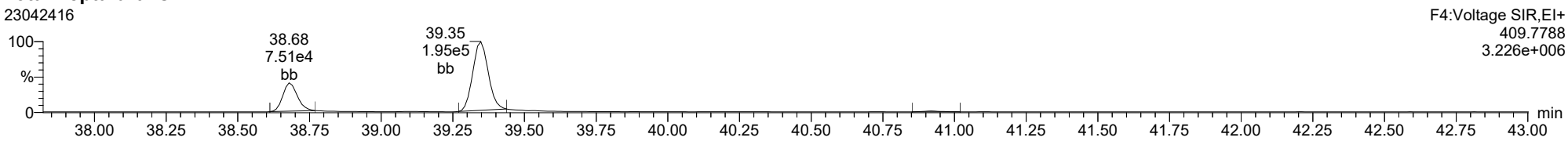
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SED-10C:1-3

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.				
Project:	Port of Friday Harbor				
Matrix:	Sediment	Laboratory ID:	23C0619-13 C	File ID:	23042417
Sampled:	03/23/23 08:17	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 03:36
% Solids:	74.60	Preparation:	EPA 1613	Initial/Final:	13.42 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.628	0.655-0.886	0.184	0.999	0.199	ng/kg	EMPC, J
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.082	0.999	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.214	0.999	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.194	0.999	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1		1.318-1.783	0.198	0.999	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.250	1.054-1.426	0.103	0.999	0.457	ng/kg	J
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.783	1.054-1.426	0.100	0.999	0.309	ng/kg	EMPC, J
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.245	1.054-1.426	0.110	0.999	0.559	ng/kg	J
72918-21-9	1,2,3,7,8,9-HxCDF	1		1.054-1.426	0.143	0.999	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.863	1.054-1.426	0.153	0.999	0.259	ng/kg	EMPC, J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.041	1.054-1.426	0.156	0.999	1.83	ng/kg	EMPC
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.030	1.054-1.426	0.170	0.999	0.772	ng/kg	EMPC, J
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.048	0.893-1.208	0.181	0.999	14.9	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.727	0.893-1.208	0.296	0.999	0.870	ng/kg	EMPC, J
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	0.986	0.893-1.208	0.406	2.50	60.3	ng/kg	B
39001-02-0	OCDF	1	0.876	0.757-1.024	0.488	2.50	62.3	ng/kg	
3268-87-9	OCDD	1	0.845	0.757-1.024	0.874	9.99	447	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	1.80	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.999	0.143	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.999	2.49	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.999	ND	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.999	14.3	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.999	8.24	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.999	54.0	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.999	125	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 1.35

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 1.53

SED-10C:1-3

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Sediment	Laboratory ID:	23C0619-13	File ID:	23042417
Sampled:	03/23/23 08:17	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 03:36
Solids Wt%:	74.60	Preparation:	EPA 1613	Initial/Final:	13.42 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.767	0.655-0.886	0.137	106	24 - 169 %	
13C12-2,3,7,8-TCDD		0.787	0.655-0.886	0.179	115	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.636	1.318-1.783	0.353	120	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.506	1.318-1.783	0.392	119	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.694	1.318-1.783	0.218	96.9	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.498	0.434-0.587	0.309	112	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.511	0.434-0.587	0.261	104	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.513	0.434-0.587	0.320	111	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.508	0.434-0.587	0.388	102	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.260	1.054-1.426	0.353	122	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.240	1.054-1.426	0.304	105	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.439	0.374-0.506	0.422	124	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.456	0.374-0.506	0.490	110	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.055	0.893-1.208	0.357	104	23 - 140 %	
13C12-OCDD		0.929	0.757-1.024	0.401	99.2	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.102	109	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:02 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23C0619-13, Name: 23042417, Date: 25-Apr-2023, Time: 03:36:05, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.704	1.001	2.286e2	3.638e2	0.702	0.628	0.770	1011	1610	4.29e3	5.18e3	4.2	3.2	YES	bd	bd	0.100
12378-PeCDF					0.679		1.550	1376	1107								
23478-PeCDF					0.786		1.550	1376	1107								
123478-HxCDF	34.813	1.001	7.773e2	6.218e2	1.166	1.250	1.240	810	776	1.16e4	8.20e3	14.4	10.6	NO	bd	bd	0.229
234678-HxCDF	35.793	1.000	8.893e2	7.143e2	1.140	1.245	1.240	810	776	1.25e4	6.85e3	15.4	8.8	NO	MM	MM	0.280
123678-HxCDF	34.936	1.000	4.279e2	5.462e2	1.091	0.783	1.240	810	776	7.78e3	9.68e3	9.6	12.5	YES	db	db	0.155
123789-HxCDF					1.137		1.240	810	776								
1234678-HpCDF	38.679	1.000	1.702e4	1.625e4	1.003	1.048	1.050	980	1148	2.78e5	2.82e5	284.1	245.7	NO	bb	bb	7.478
1234789-HpCDF	40.907	1.000	5.925e2	8.152e2	0.953	0.727	1.050	980	1148	1.06e4	1.29e4	10.8	11.2	YES	bb	bb	0.435
OCDF	45.116	1.006	3.447e4	3.933e4	0.778	0.876	0.890	949	1254	4.05e5	4.72e5	427.4	376.6	NO	bb	bd	31.168
2378-TCDD					1.149		0.770	849	685								
12378-PeCDD					1.022		1.550	1191	652								
123478-HxCDD	35.927	1.000	2.895e2	3.353e2	0.996	0.863	1.240	801	1174	5.33e3	6.22e3	6.7	5.3	YES	db	bd	0.130
123678-HxCDD	36.039	1.000	2.272e3	2.183e3	1.001	1.041	1.240	801	1174	3.90e4	3.38e4	48.6	28.8	YES	bb	dd	0.915
123789-HxCDD	36.429	1.011	8.630e2	8.382e2	0.907	1.030	1.240	801	1174	1.39e4	1.29e4	17.4	11.0	YES	bb	bb	0.387
1234678-HpCDD	40.172	1.000	5.422e4	5.498e4	1.039	0.986	1.050	1772	1664	8.32e5	8.14e5	469.2	489.5	NO	bb	bb	30.203
OCDD	44.869	1.000	2.871e5	3.398e5	0.920	0.845	0.890	2479	2188	3.55e6	4.13e6	1430.9	1889.5	NO	bb	bb	223.838
13C-2378-TCDF	25.675	1.007	3.683e5	4.801e5	1.620	0.767	0.770	1349	1481	5.29e6	6.95e6	3916.8	4693.1	NO	bb	bb	105.859
13C-12378-PeCDF	29.822	1.169	4.569e5	2.793e5	1.240	1.636	1.550	3342	2237	6.36e6	4.09e6	1904.3	1830.8	NO	bd	bb	119.985
13C-23478-PeCDF	31.170	1.222	3.968e5	2.634e5	1.118	1.506	1.550	3342	2237	5.86e6	3.86e6	1753.2	1726.3	NO	bb	bb	119.406
13C-123478-HxCDF	34.791	0.955	1.744e5	3.501e5	1.168	0.498	0.510	1829	1844	2.64e6	5.28e6	1440.6	2863.7	NO	bd	bd	112.265
13C-123678-HxCDF	34.924	0.959	1.952e5	3.817e5	1.386	0.511	0.510	1829	1844	2.93e6	5.75e6	1603.6	3118.7	NO	db	db	104.039
13C-234678-HxCDF	35.793	0.983	1.707e5	3.324e5	1.129	0.513	0.510	1829	1844	2.58e6	4.98e6	1408.6	2700.6	NO	bb	bb	111.397
13C-123789-HxCDF	36.829	1.011	1.278e5	2.516e5	0.932	0.508	0.510	1829	1844	1.97e6	3.90e6	1074.3	2114.1	NO	bb	bb	101.827
13C-1234678-HpCDF	38.668	1.062	1.354e5	3.082e5	0.895	0.439	0.440	1931	1904	2.15e6	4.88e6	1111.9	2565.4	NO	bb	bb	123.910
13C-1234789-HpCDF	40.896	1.123	1.063e5	2.330e5	0.770	0.456	0.440	1931	1904	1.42e6	3.05e6	732.7	1602.2	NO	bd	bb	110.225
13C-1234-TCDD	25.506	0.000	2.162e5	2.785e5	1.000	0.776	0.770	1722	902	3.34e6	4.24e6	1939.0	4701.7	NO	bb	bb	100.000
13C-2378-TCDD	26.311	1.032	2.895e5	3.677e5	1.152	0.787	0.770	1722	902	4.30e6	5.45e6	2499.4	6037.3	NO	bb	bb	115.283
13C-12378-PeCDD	31.415	1.232	2.497e5	1.474e5	0.829	1.694	1.550	1354	944	3.44e6	2.01e6	2540.9	2132.7	NO	bb	bb	96.866
13C-123478-HxCDD	35.916	0.986	2.697e5	2.141e5	0.995	1.260	1.240	1844	1725	4.33e6	3.40e6	2346.5	1970.5	NO	bd	bd	121.596
13C-123678-HxCDD	36.027	0.989	2.693e5	2.171e5	1.157	1.240	1.240	1844	1725	4.21e6	3.44e6	2281.3	1994.9	NO	db	db	105.139
13C-1234678-HpCDD	40.161	1.103	1.786e5	1.694e5	0.840	1.055	1.050	1320	1729	2.51e6	2.31e6	1899.5	1337.2	NO	bb	bd	103.580
13C-OCDD	44.860	1.232	2.932e5	3.156e5	0.767	0.929	0.890	1061	2064	3.35e6	3.63e6	3159.9	1760.4	NO	bd	bb	198.376
13C-123789-HxCDD	36.417	0.000	2.215e5	1.784e5	1.000	1.241	1.240	1844	1725	3.37e6	2.72e6	1829.6	1574.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.325	1.032	2.771e5		1.288			1678		3.98e6		2374.8			bb		43.505

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:02 Pacific Daylight Time

ID: 23C0619-13, Name: 23042417, Date: 25-Apr-2023, Time: 03:36:05, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.172	0.864	3.693e2	3.922e2	0.802	0.942	0.770	1011	1610	4.99e3	7.04e3	4.9	4.4	YES	bb	bb	0.112
1289-TCDF	27.116	1.056	9.733e1	1.084e2	0.678	0.898	0.770	1011	1610	1.72e3	1.78e3	1.7	1.1	YES	bb	bb	0.036
13468-PECDF					1.246		1.550	558	1038								
12389-PECDF					0.496		1.550	1376	1107								
123468-HXCDF	33.131	0.952	2.173e3	1.686e3	1.169	1.289	1.240	810	776	3.26e4	2.86e4	40.2	36.8	NO	bb	bb	0.629
1368-TCDD	23.458	0.892	8.346e2	6.613e2	1.015	1.262	0.770	849	685	1.33e4	8.69e3	15.6	12.7	YES	bb	bb	0.224
1289-TCDD					0.909		0.770	849	685								
12479-PECDD	28.752	0.915	9.556e2	1.072e3	2.301	0.891	1.550	1191	652	1.99e4	1.16e4	16.7	17.8	YES	db	bb	0.222
12389-PECDD					1.184		1.550	1191	652								
124679-HXCDD	33.911	0.944	1.083e4	9.139e3	1.115	1.184	1.240	801	1174	1.66e5	1.32e5	206.9	112.3	NO	bb	bb	3.699
1234679-HPCDD	39.125	0.974	6.406e4	6.312e4	1.137	1.015	1.050	1772	1664	9.99e5	9.63e5	563.7	578.8	NO	bb	bd	32.148
Total-tetrafurans			2.490e3		0.727			1011		3.85e4							0.903
Total-penta1			5.089e3					558		7.47e4							1.249
Total-pentafurans			0.000e0		0.654			1376		0.00e0							
Total-hexafurans			2.238e4		1.141			810		3.33e5							7.174
Total-heptafurans			5.457e4		0.978			980		8.83e5							27.012
Total-Furans			1.190e5		0.922			1011		1.73e6							67.506
Total-tetradioxins			1.939e2		1.024			849		3.26e3							0.072
Total-pentadioxins			0.000e0		1.502			1191		0.00e0							
Total-hexadioxins			1.191e4		1.005			801		1.85e5							4.127
Total-heptadioxins			1.183e5		1.088			1772		1.83e6							62.351
Total-Dioxins			4.175e5		1.130			849		5.57e6							290.412
Total-TEQ			5.365e5					849		7.30e6							357.918
FUNCTION1 PFK			6.025e6					336112		1.59e7							
FUNCTION2 PFK			3.260e5					195399		8.10e6							0.000
FUNCTION3 PFK			4.020e6					260380		6.65e6							0.000
FUNCTION4 PFK			3.006e5					208455		9.45e6							
FUNCTION5 PFK			1.185e7					150524		1.92e8							
FUNCTION1 HXCD...			1.218e3					505		1.46e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.021e2					911		8.64e3							0.000
FUNCTION3 OCDPE			7.559e1					413		1.02e3							0.000
FUNCTION4 NCDPE			7.110e2					500		1.20e4							0.000
FUNCTION5 DCDPE			0.000e0					380		0.00e0							

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.68	5.754e2	7.640e2	0.727	0.75	0.77	9.2	YES	NO	dd	dd	0.217
2	Total-tetrafurans	23.54	2.452e2	3.409e2	0.727	0.72	0.77	3.8	YES	NO	dd	dd	0.095
3	Total-tetrafurans	23.02	9.824e2	1.135e3	0.727	0.87	0.77	12.8	YES	NO	bd	bd	0.343
4	Total-tetrafurans	22.45	6.870e2	8.410e2	0.727	0.82	0.77	12.3	YES	NO	bb	bb	0.248

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.12	5.089e3	3.341e3		1.52	1.55	133.9	YES	NO	bb	bb	1.249

PF

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

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.79	8.893e2	7.143e2	1.140	1.24	1.24	15.4	YES	NO	MM	MM	0.280
2	123478-HxCDF	34.81	7.773e2	6.218e2	1.166	1.25	1.24	14.4	YES	NO	bd	bd	0.229
3	Total-hexafurans	34.19	1.122e4	9.559e3	1.141	1.17	1.24	210.1	YES	NO	bb	bd	3.674
4	Total-hexafurans	33.34	7.322e3	6.038e3	1.141	1.21	1.24	131.3	YES	NO	bb	bb	2.362
5	123468-HXCDF	33.13	2.173e3	1.686e3	1.169	1.29	1.24	40.2	YES	NO	bb	bb	0.629

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.34	3.754e4	3.724e4	0.978	1.01	1.05	617.0	YES	NO	bb	bb	19.534
2	1234678-HpCDF	38.68	1.702e4	1.625e4	1.003	1.05	1.05	284.1	YES	NO	bb	bb	7.478

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.68	5.754e2	7.640e2	0.727	0.75	0.77	9.2	YES	NO	dd	dd	0.217
2	Total-tetrafurans	23.54	2.452e2	3.409e2	0.727	0.72	0.77	3.8	YES	NO	dd	dd	0.095
3	Total-tetrafurans	23.02	9.824e2	1.135e3	0.727	0.87	0.77	12.8	YES	NO	bd	bd	0.343
4	Total-tetrafurans	22.45	6.870e2	8.410e2	0.727	0.82	0.77	12.3	YES	NO	bb	bb	0.248
5	234678-HxCDF	35.79	8.893e2	7.143e2	1.140	1.24	1.24	15.4	YES	NO	MM	MM	0.280
6	123478-HxCDF	34.81	7.773e2	6.218e2	1.166	1.25	1.24	14.4	YES	NO	bd	bd	0.229
7	Total-hexafurans	34.19	1.122e4	9.559e3	1.141	1.17	1.24	210.1	YES	NO	bb	bd	3.674
8	Total-hexafurans	33.34	7.322e3	6.038e3	1.141	1.21	1.24	131.3	YES	NO	bb	bb	2.362
9	123468-HXCDF	33.13	2.173e3	1.686e3	1.169	1.29	1.24	40.2	YES	NO	bb	bb	0.629
10	Total-heptafurans	39.34	3.754e4	3.724e4	0.978	1.01	1.05	617.0	YES	NO	bb	bb	19.534
11	1234678-HpCDF	38.68	1.702e4	1.625e4	1.003	1.05	1.05	284.1	YES	NO	bb	bb	7.478
12	OCDF	45.12	3.447e4	3.933e4	0.778	0.88	0.89	427.4	YES	NO	bb	bd	31.168
13	Total-penta1	27.12	5.089e3	3.341e3		1.52	1.55	133.9	YES	NO	bb	bb	1.249

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.94	1.939e2	2.889e2	1.024	0.67	0.77	3.8	YES	NO	bb	bb	0.072

PD

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

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	34.68	1.081e3	1.005e3	1.005	1.08	1.24	24.3	YES	NO	bd	bb	0.428
2	124679-HXCDD	33.91	1.083e4	9.139e3	1.115	1.18	1.24	206.9	YES	NO	bb	bb	3.699

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.17	5.422e4	5.498e4	1.039	0.99	1.05	469.2	YES	NO	bb	bb	30.203
2	1234679-HPCDD	39.12	6.406e4	6.312e4	1.137	1.01	1.05	563.7	YES	NO	bb	bd	32.148

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.94	1.939e2	2.889e2	1.024	0.67	0.77	3.8	YES	NO	bb	bb	0.072
2	Total-Dioxins	22.12	7.281e1	1.091e2	1.130	0.67	0.77	3.0	NO	NO	bb	bb	0.024
3	Total-hexadioxins	34.68	1.081e3	1.005e3	1.005	1.08	1.24	24.3	YES	NO	bd	bb	0.428
4	124679-HXCDD	33.91	1.083e4	9.139e3	1.115	1.18	1.24	206.9	YES	NO	bb	bb	3.699
5	1234678-HpCDD	40.17	5.422e4	5.498e4	1.039	0.99	1.05	469.2	YES	NO	bb	bb	30.203
6	1234679-HPCDD	39.12	6.406e4	6.312e4	1.137	1.01	1.05	563.7	YES	NO	bb	bd	32.148
7	OCDD	44.87	2.871e5	3.398e5	0.920	0.84	0.89	1430.9	YES	NO	bb	bb	223.838

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.68	5.754e2	7.640e2	0.727	0.75	0.77	9.2	YES	NO	dd	dd	0.217
2	Total-tetrafurans	23.54	2.452e2	3.409e2	0.727	0.72	0.77	3.8	YES	NO	dd	dd	0.095
3	Total-tetrafurans	23.02	9.824e2	1.135e3	0.727	0.87	0.77	12.8	YES	NO	bd	bd	0.343
4	Total-tetrafurans	22.45	6.870e2	8.410e2	0.727	0.82	0.77	12.3	YES	NO	bb	bb	0.248
5	234678-HxCDF	35.79	8.893e2	7.143e2	1.140	1.24	1.24	15.4	YES	NO	MM	MM	0.280
6	123478-HxCDF	34.81	7.773e2	6.218e2	1.166	1.25	1.24	14.4	YES	NO	bd	bd	0.229
7	Total-hexafurans	34.19	1.122e4	9.559e3	1.141	1.17	1.24	210.1	YES	NO	bb	bd	3.674
8	Total-hexafurans	33.34	7.322e3	6.038e3	1.141	1.21	1.24	131.3	YES	NO	bb	bb	2.362
9	123468-HXCDF	33.13	2.173e3	1.686e3	1.169	1.29	1.24	40.2	YES	NO	bb	bb	0.629
10	Total-heptafurans	39.34	3.754e4	3.724e4	0.978	1.01	1.05	617.0	YES	NO	bb	bb	19.534
11	1234678-HpCDF	38.68	1.702e4	1.625e4	1.003	1.05	1.05	284.1	YES	NO	bb	bb	7.478
12	OCDF	45.12	3.447e4	3.933e4	0.778	0.88	0.89	427.4	YES	NO	bb	bd	31.168
13	Total-penta1	27.12	5.089e3	3.341e3		1.52	1.55	133.9	YES	NO	bb	bb	1.249
14	Total-tetradioxins	23.94	1.939e2	2.889e2	1.024	0.67	0.77	3.8	YES	NO	bb	bb	0.072
15	Total-Dioxins	22.12	7.281e1	1.091e2	1.130	0.67	0.77	3.0	NO	NO	bb	bb	0.024
16	Total-hexadioxins	34.68	1.081e3	1.005e3	1.005	1.08	1.24	24.3	YES	NO	bd	bb	0.428
17	124679-HXCDD	33.91	1.083e4	9.139e3	1.115	1.18	1.24	206.9	YES	NO	bb	bb	3.699
18	1234678-HpCDD	40.17	5.422e4	5.498e4	1.039	0.99	1.05	469.2	YES	NO	bb	bb	30.203
19	1234679-HPCDD	39.12	6.406e4	6.312e4	1.137	1.01	1.05	563.7	YES	NO	bb	bd	32.148
20	OCDD	44.87	2.871e5	3.398e5	0.920	0.84	0.89	1430.9	YES	NO	bb	bb	223.838

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.25	3.010e4					2.8	NO		db		
2	FUNCTION1 PFK	21.17	8.706e4					3.1	YES		bd		
3	FUNCTION1 PFK	27.96	2.666e4					2.1	NO		bb		
4	FUNCTION1 PFK	27.85	3.482e4					2.1	NO		bb		
5	FUNCTION1 PFK	26.79	2.665e4					1.8	NO		bb		
6	FUNCTION1 PFK	25.69	4.062e4					1.2	NO		bb		
7	FUNCTION1 PFK	24.86	3.685e3					0.8	NO		bb		
8	FUNCTION1 PFK	23.43	3.110e5					7.9	YES		db		
9	FUNCTION1 PFK	23.30	2.670e6					11.0	YES		bd		
10	FUNCTION1 PFK	22.44	2.795e6					14.3	YES		bb		

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:02 Pacific Daylight Time

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.88	5.652e3					1.1	NO		bb		0.000
2	FUNCTION2 PFK	28.56	1.571e4					1.4	NO		db		0.000
3	FUNCTION2 PFK	28.49	1.134e4					1.2	NO		bd		0.000
4	FUNCTION2 PFK	28.33	3.363e3					0.6	NO		db		0.000
5	FUNCTION2 PFK	28.31	2.101e3					0.6	NO		bd		0.000
6	FUNCTION2 PFK	28.25	1.495e4					1.6	NO		bb		0.000
7	FUNCTION2 PFK	28.15	1.440e4					2.2	NO		bb		0.000
8	FUNCTION2 PFK	30.85	5.862e3					1.5	NO		bb		0.000
9	FUNCTION2 PFK	30.58	1.261e3					0.6	NO		bb		0.000
10	FUNCTION2 PFK	30.55	8.714e2					0.4	NO		bb		0.000
11	FUNCTION2 PFK	30.50	5.506e3					0.7	NO		bb		0.000
12	FUNCTION2 PFK	30.29	1.585e3					0.7	NO		db		0.000
13	FUNCTION2 PFK	30.26	2.933e3					0.9	NO		bd		0.000
14	FUNCTION2 PFK	30.03	3.876e3					0.7	NO		bb		0.000
15	FUNCTION2 PFK	29.84	4.635e3					0.9	NO		db		0.000
16	FUNCTION2 PFK	29.80	9.824e3					1.7	NO		dd		0.000
17	FUNCTION2 PFK	29.75	9.416e3					1.6	NO		bd		0.000
18	FUNCTION2 PFK	29.53	3.412e3					0.7	NO		bb		0.000
19	FUNCTION2 PFK	29.48	2.625e3					1.0	NO		db		0.000
20	FUNCTION2 PFK	29.43	1.272e4					2.0	NO		dd		0.000
21	FUNCTION2 PFK	29.38	3.801e4					2.0	NO		bd		0.000
22	FUNCTION2 PFK	29.16	2.487e4					2.2	NO		db		0.000
23	FUNCTION2 PFK	29.10	1.989e4					1.8	NO		bd		0.000
24	FUNCTION2 PFK	32.74	2.657e3					0.8	NO		db		0.000
25	FUNCTION2 PFK	32.71	6.546e3					0.9	NO		bd		0.000
26	FUNCTION2 PFK	32.01	1.295e4					2.2	NO		db		0.000
27	FUNCTION2 PFK	31.96	2.640e4					2.4	NO		bd		0.000
28	FUNCTION2 PFK	31.83	1.044e4					1.4	NO		bb		0.000
29	FUNCTION2 PFK	31.72	1.128e4					1.6	NO		bb		0.000
30	FUNCTION2 PFK	31.62	1.609e4					1.5	NO		bb		0.000
31	FUNCTION2 PFK	31.38	2.165e3					0.6	NO		bb		0.000
32	FUNCTION2 PFK	31.01	7.927e3					0.9	NO		db		0.000
33	FUNCTION2 PFK	30.90	1.478e4					1.2	NO		bd		0.000

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:02 Pacific Daylight Time

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.22	2.130e6					10.8	YES		bb		0.000
2	FUNCTION3 PFK	36.44	1.890e6					14.7	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	37.99	7.191e3					1.4	NO		dd		
2	FUNCTION4 PFK	37.98	3.494e3					1.0	NO		bd		
3	FUNCTION4 PFK	39.54	1.270e3					0.5	NO		bb		
4	FUNCTION4 PFK	39.30	9.115e3					1.4	NO		db		
5	FUNCTION4 PFK	39.25	1.584e4					1.9	NO		dd		
6	FUNCTION4 PFK	39.21	4.805e3					1.1	NO		bd		
7	FUNCTION4 PFK	39.10	2.244e3					0.6	NO		db		
8	FUNCTION4 PFK	39.07	5.756e3					1.1	NO		bd		
9	FUNCTION4 PFK	39.00	6.722e3					1.3	NO		db		
10	FUNCTION4 PFK	38.96	8.181e3					1.5	NO		dd		
11	FUNCTION4 PFK	38.91	8.405e3					1.5	NO		dd		
12	FUNCTION4 PFK	38.83	1.010e4					1.2	NO		bd		
13	FUNCTION4 PFK	38.78	7.362e3					1.4	NO		bb		
14	FUNCTION4 PFK	38.57	3.455e3					0.9	NO		bb		
15	FUNCTION4 PFK	38.42	5.378e3					1.0	NO		bb		
16	FUNCTION4 PFK	38.38	8.604e3					1.9	NO		db		
17	FUNCTION4 PFK	38.34	2.035e4					2.2	NO		bd		
18	FUNCTION4 PFK	38.04	1.036e4					1.4	NO		db		
19	FUNCTION4 PFK	42.54	2.693e3					0.7	NO		bb		
20	FUNCTION4 PFK	42.40	3.232e3					0.9	NO		db		
21	FUNCTION4 PFK	42.36	2.061e4					3.0	YES		bd		
22	FUNCTION4 PFK	42.30	1.345e4					2.1	NO		bb		
23	FUNCTION4 PFK	42.18	1.874e3					0.8	NO		bb		
24	FUNCTION4 PFK	42.13	1.577e4					1.1	NO		bb		
25	FUNCTION4 PFK	41.45	2.684e3					0.7	NO		bb		
26	FUNCTION4 PFK	41.16	1.413e4					1.8	NO		db		
27	FUNCTION4 PFK	41.10	8.963e3					1.4	NO		dd		
28	FUNCTION4 PFK	41.06	1.244e4					1.3	NO		bd		
29	FUNCTION4 PFK	40.85	5.741e3					0.8	NO		bb		
30	FUNCTION4 PFK	40.76	2.668e3					0.5	NO		bb		
31	FUNCTION4 PFK	40.54	1.025e3					0.4	NO		bb		
32	FUNCTION4 PFK	40.33	4.694e3					0.9	NO		bb		
33	FUNCTION4 PFK	40.18	5.744e3					1.1	NO		bb		
34	FUNCTION4 PFK	39.78	2.157e4					2.0	NO		bb		
35	FUNCTION4 PFK	42.81	2.288e4					1.8	NO		bb		
36	FUNCTION4 PFK	42.72	1.834e3					0.6	NO		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.68	4.556e5					48.0	YES		dd		
2	FUNCTION5 PFK	43.61	6.816e5					50.4	YES		dd		
3	FUNCTION5 PFK	43.52	4.327e5					53.5	YES		dd		
4	FUNCTION5 PFK	43.48	3.743e5					55.6	YES		dd		
5	FUNCTION5 PFK	43.47	3.077e5					55.5	YES		dd		
6	FUNCTION5 PFK	43.40	3.124e5					57.5	YES		dd		
7	FUNCTION5 PFK	43.37	4.007e5					58.6	YES		dd		
8	FUNCTION5 PFK	43.28	8.334e5					62.2	YES		dd		
9	FUNCTION5 PFK	43.23	5.187e5					63.4	YES		dd		
10	FUNCTION5 PFK	43.19	3.517e5					64.2	YES		dd		
11	FUNCTION5 PFK	43.16	2.647e5					64.3	YES		dd		
12	FUNCTION5 PFK	43.12	4.436e5					65.2	YES		dd		
13	FUNCTION5 PFK	43.08	7.261e5					66.7	YES		bd		
14	FUNCTION5 PFK	45.12	2.942e4					6.0	YES		dd		
15	FUNCTION5 PFK	45.07	4.846e4					7.9	YES		dd		
16	FUNCTION5 PFK	44.92	2.188e5					12.7	YES		dd		
17	FUNCTION5 PFK	44.82	1.999e5					14.9	YES		dd		
18	FUNCTION5 PFK	44.50	9.618e5					25.4	YES		dd		
19	FUNCTION5 PFK	44.47	1.772e5					26.2	YES		dd		
20	FUNCTION5 PFK	44.39	2.669e5					29.0	YES		dd		
21	FUNCTION5 PFK	44.30	4.550e5					31.4	YES		dd		
22	FUNCTION5 PFK	44.21	7.773e5					33.3	YES		dd		
23	FUNCTION5 PFK	44.10	1.980e5					36.3	YES		dd		
24	FUNCTION5 PFK	44.06	2.055e5					37.9	YES		dd		
25	FUNCTION5 PFK	43.98	7.163e5					41.0	YES		dd		
26	FUNCTION5 PFK	43.90	2.300e5					42.4	YES		dd		
27	FUNCTION5 PFK	43.86	2.360e5					43.3	YES		dd		
28	FUNCTION5 PFK	43.83	2.416e5					44.5	YES		dd		
29	FUNCTION5 PFK	43.74	6.241e5					47.0	YES		dd		
30	FUNCTION5 PFK	45.95	6.982e3					1.3	NO		db		
31	FUNCTION5 PFK	45.92	6.048e3					1.5	NO		bd		
32	FUNCTION5 PFK	45.85	3.486e3					1.1	NO		db		
33	FUNCTION5 PFK	45.82	4.196e3					1.1	NO		bd		
34	FUNCTION5 PFK	45.78	8.513e3					1.7	NO		db		
35	FUNCTION5 PFK	45.71	5.548e3					0.9	NO		dd		
36	FUNCTION5 PFK	45.66	1.708e4					3.0	NO		dd		
37	FUNCTION5 PFK	45.61	8.371e3					1.7	NO		dd		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION5 PFK	45.55	1.984e4					2.0	NO		dd		
39	FUNCTION5 PFK	45.45	5.914e3					1.6	NO		bd		
40	FUNCTION5 PFK	45.41	4.567e3					1.4	NO		bb		
41	FUNCTION5 PFK	45.28	7.734e3					1.5	NO		db		
42	FUNCTION5 PFK	45.19	3.218e4					4.3	YES		dd		
43	FUNCTION5 PFK	45.15	3.353e4					5.5	YES		dd		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.18	2.978e2					3.2	YES		bb		0.000
2	FUNCTION1 HXCD...	26.31	7.275e1					1.9	NO		bb		0.000
3	FUNCTION1 HXCD...	26.08	1.455e2					4.5	YES		bb		0.000
4	FUNCTION1 HXCD...	25.82	1.150e2					4.5	YES		bb		0.000
5	FUNCTION1 HXCD...	25.48	8.214e1					2.2	NO		bb		0.000
6	FUNCTION1 HXCD...	23.77	8.935e1					2.5	NO		db		0.000
7	FUNCTION1 HXCD...	23.71	1.475e2					2.8	NO		dd		0.000
8	FUNCTION1 HXCD...	23.50	9.371e1					2.7	NO		dd		0.000
9	FUNCTION1 HXCD...	23.43	7.168e1					2.4	NO		bd		0.000
10	FUNCTION1 HXCD...	23.03	1.023e2					2.1	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.43	7.594e1					2.5	NO		bb		0.000
2	FUNCTION2 HPCD...	32.23	1.065e2					1.4	NO		bb		0.000
3	FUNCTION2 HPCD...	31.08	7.022e1					2.5	NO		bb		0.000
4	FUNCTION2 HPCD...	30.17	1.494e2					3.1	YES		bb		0.000

ID: 23C0619-13, Name: 23042417, Date: 25-Apr-2023, Time: 03:36:05, Conditions: AUTOSPEC01, User: pk

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.87	7.559e1					2.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.03	8.087e1					3.7	YES		bb		0.000
2	FUNCTION4 NCDPE	38.34	6.302e2					20.3	YES		bb		0.000

ETHERS6

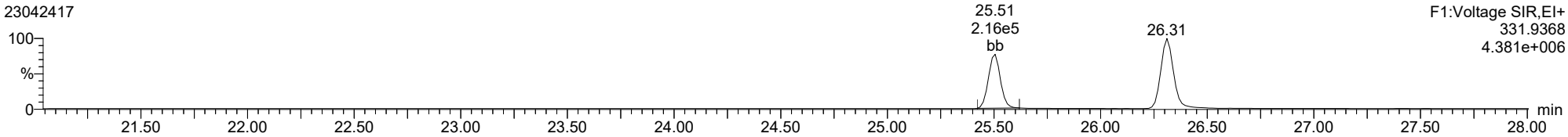
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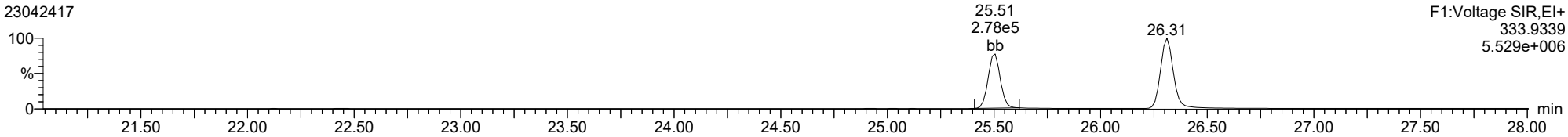
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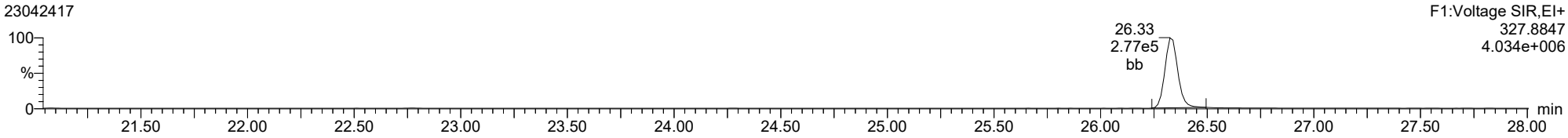
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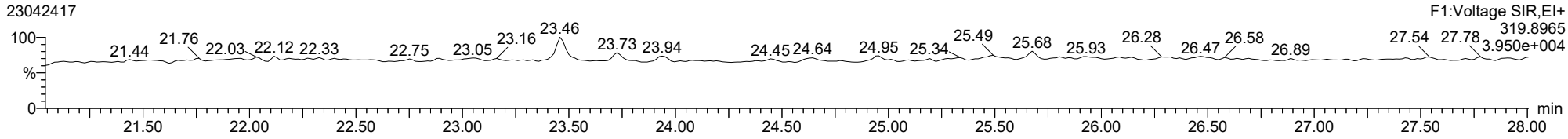


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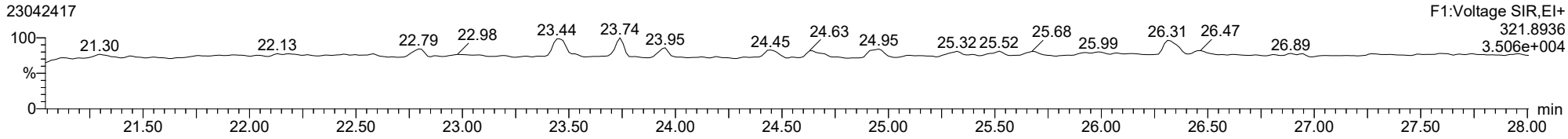


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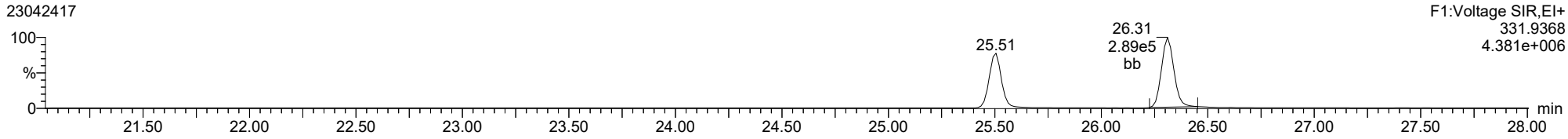
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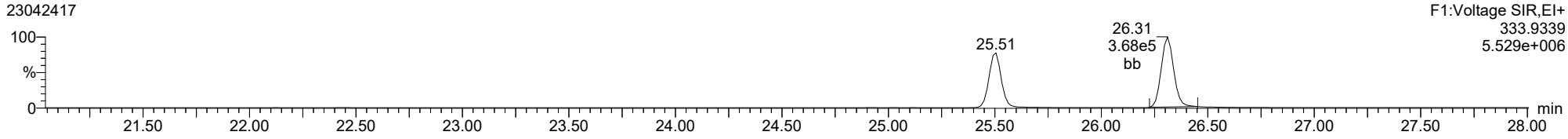
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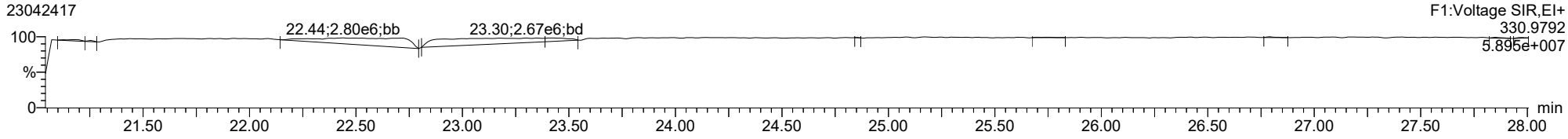
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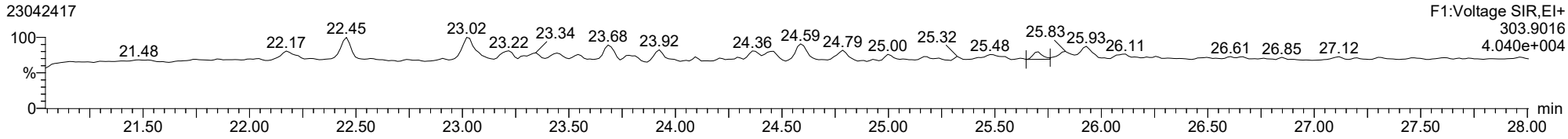


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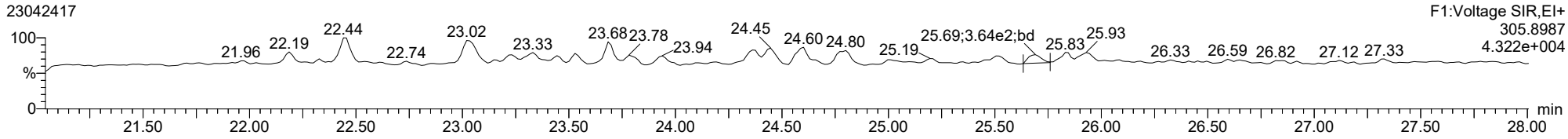


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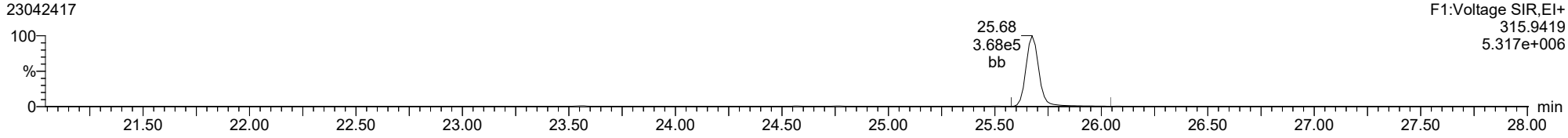
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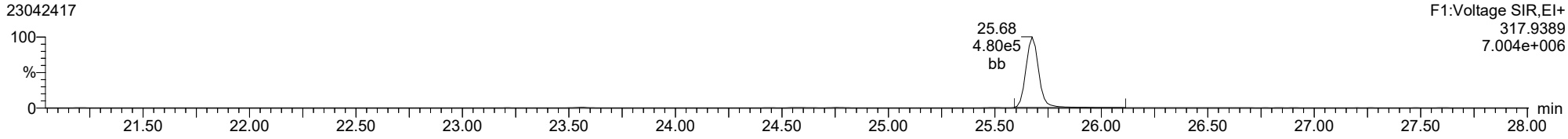
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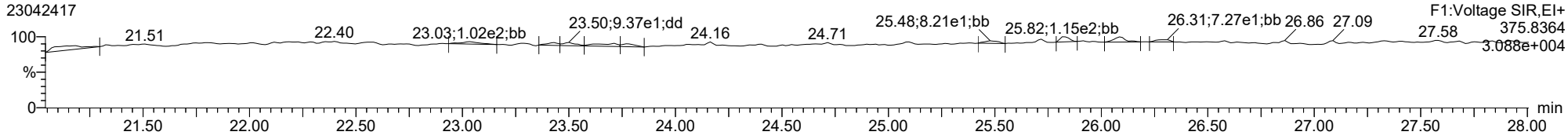
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13C-2378-TCDF

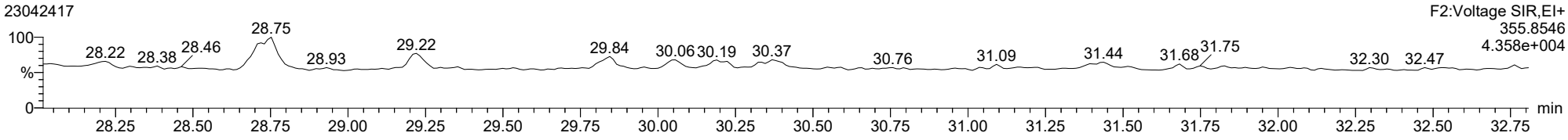


FUNCTION1 HXCDPE

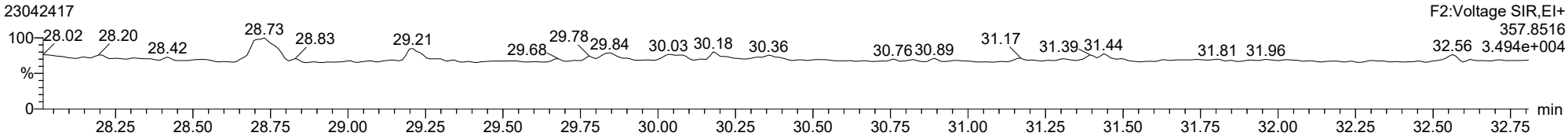


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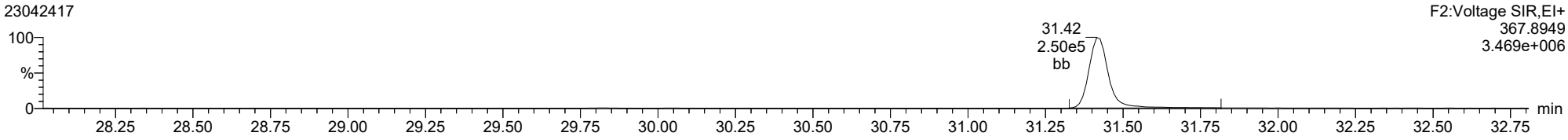
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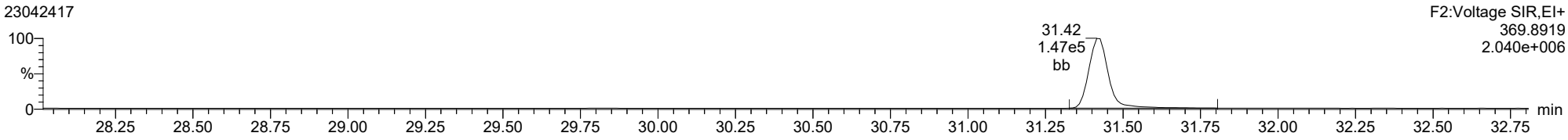
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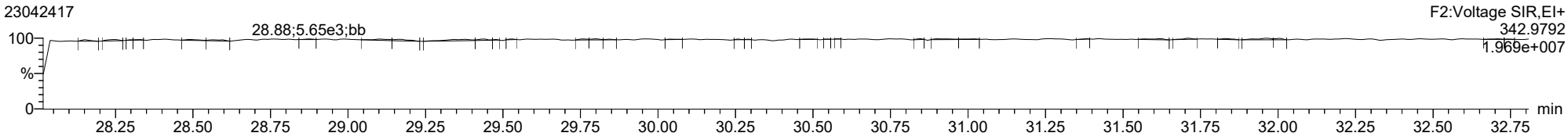
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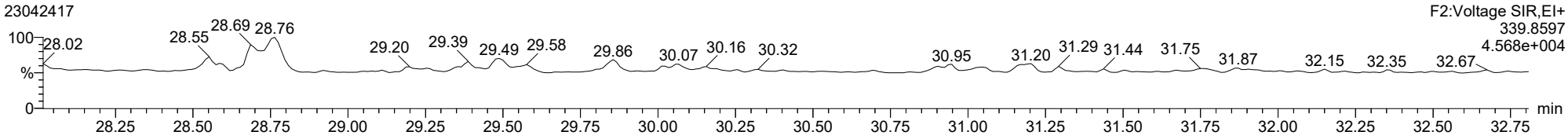


FUNCTION2 PFK

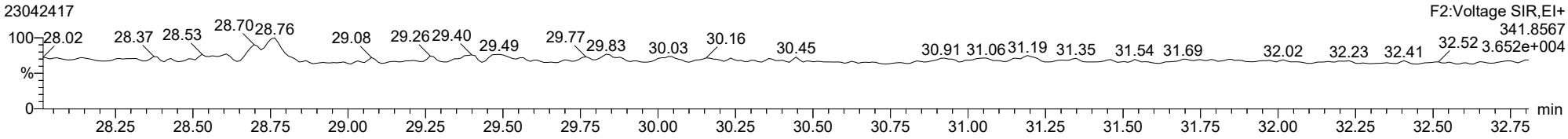


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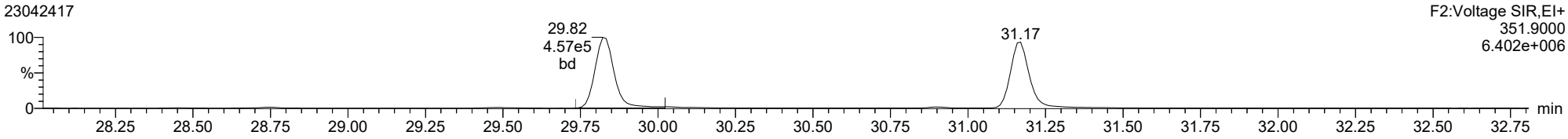
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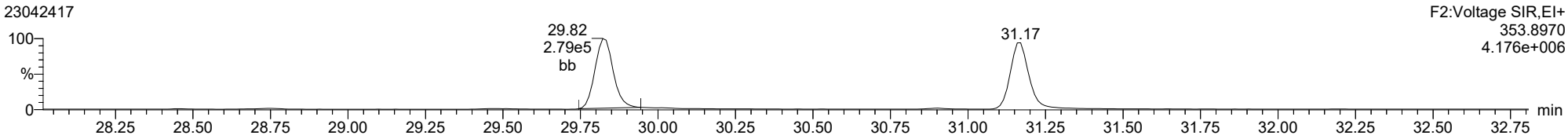
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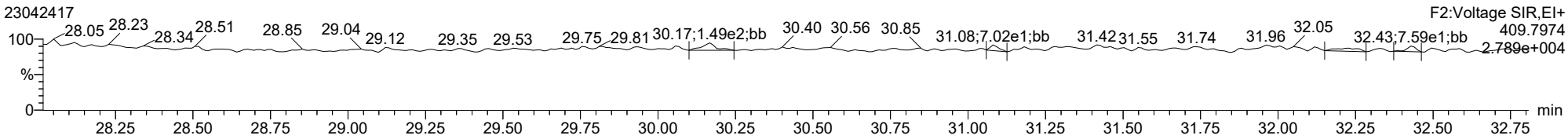
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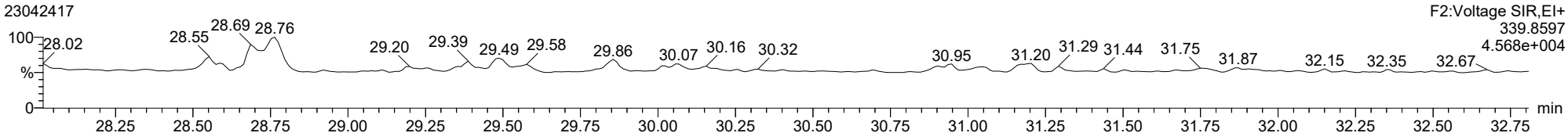


FUNCTION2 HPCDPE

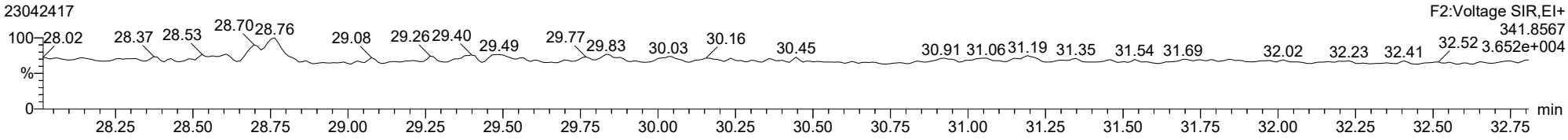


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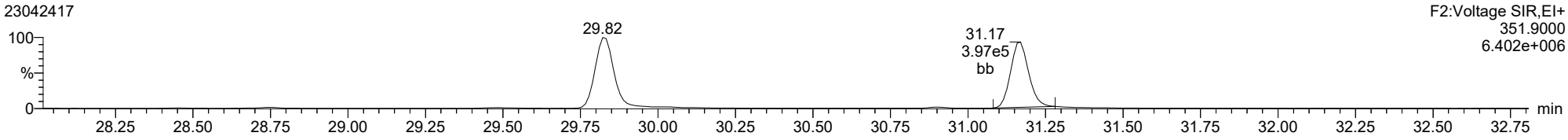
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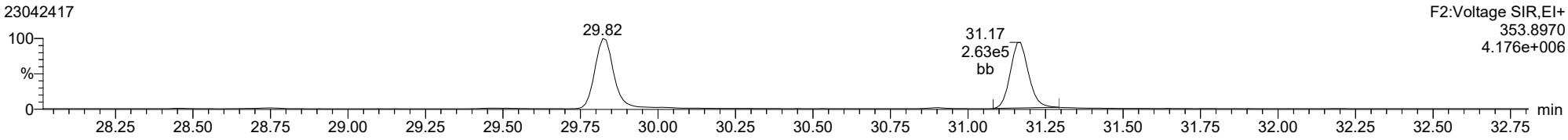
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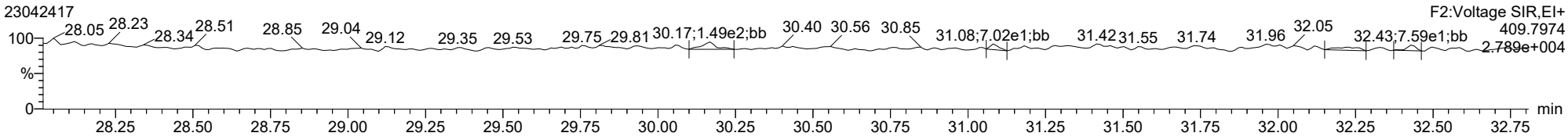
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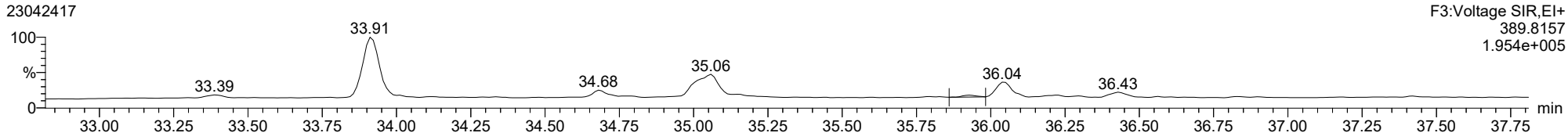


FUNCTION2 HPCDPE

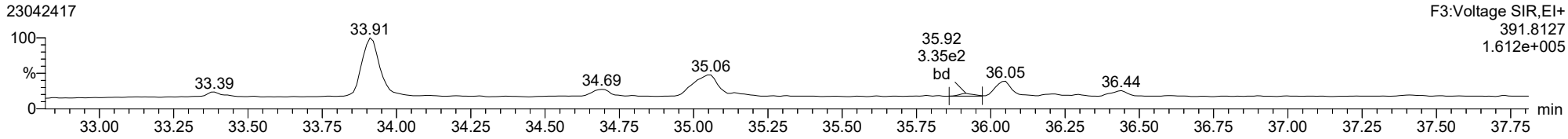


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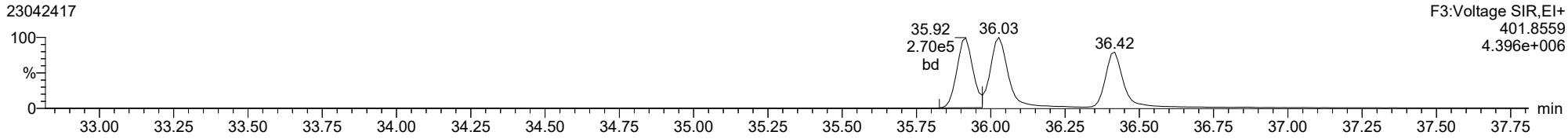
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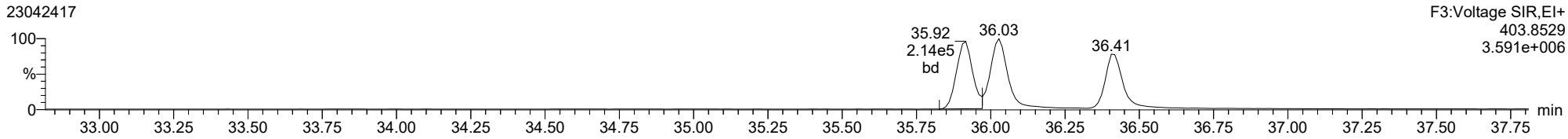
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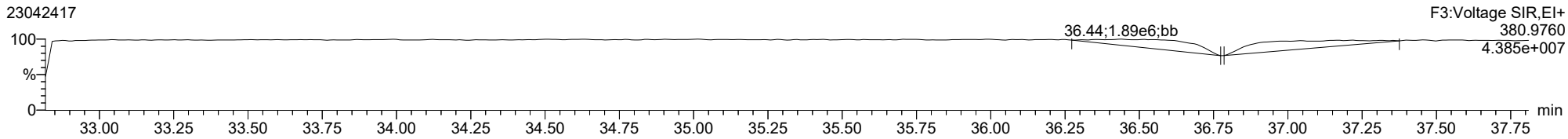
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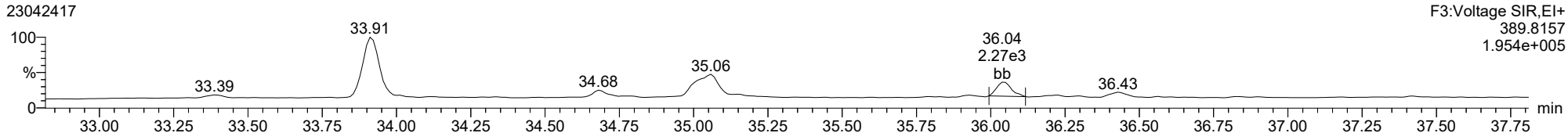


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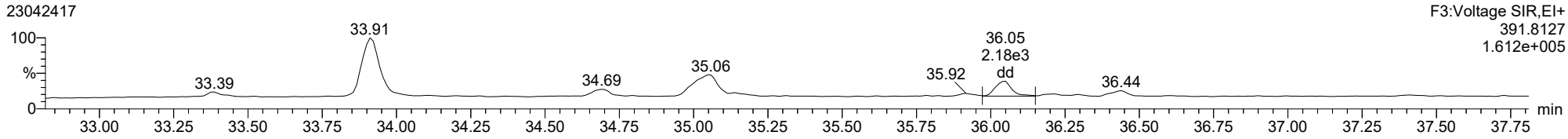


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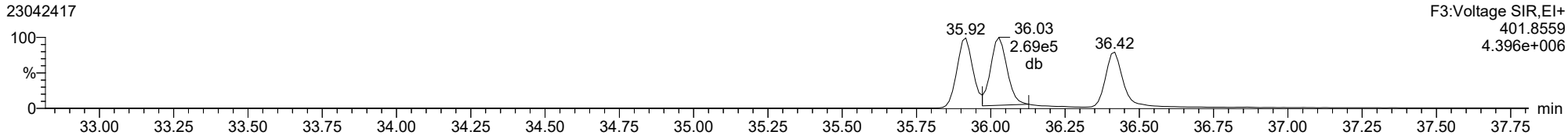
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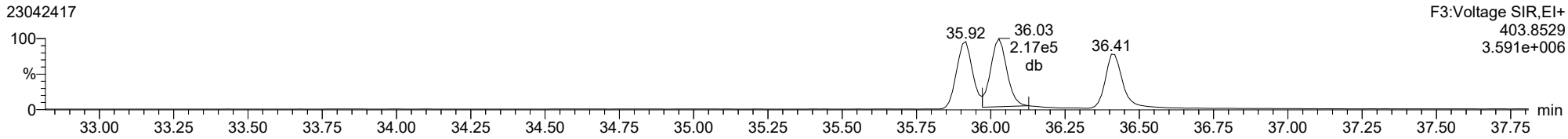
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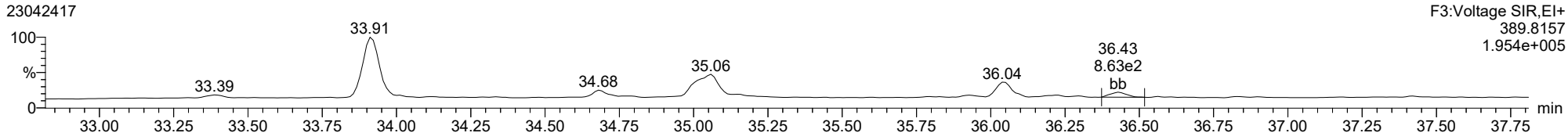
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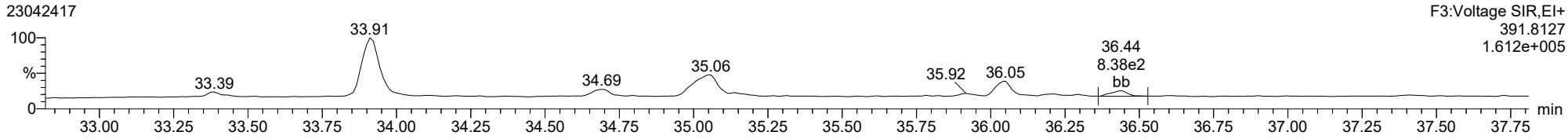
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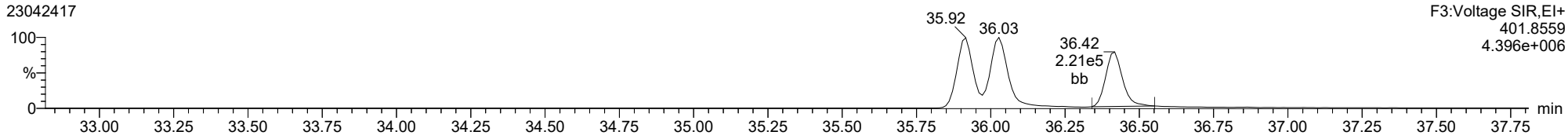
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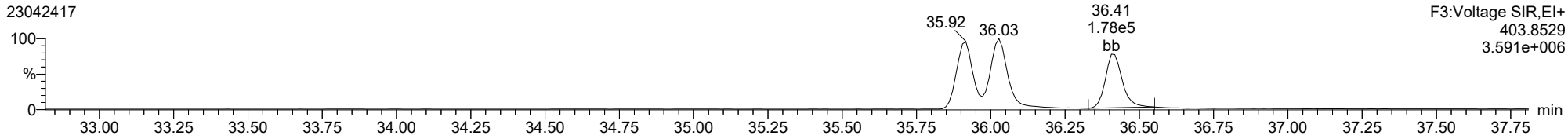
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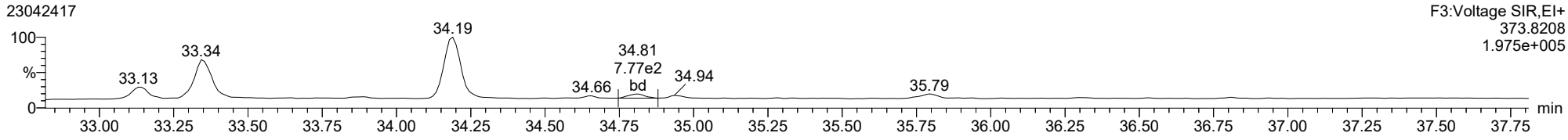


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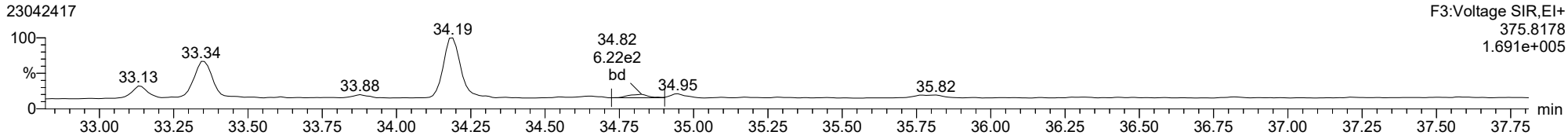


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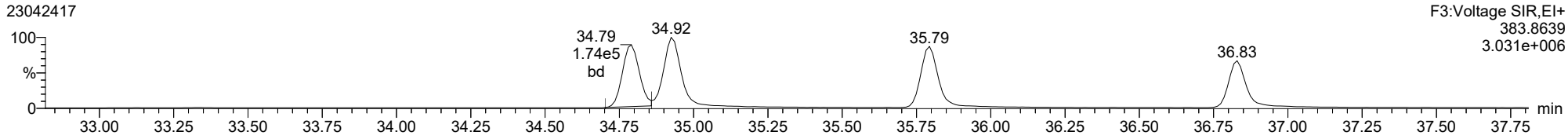
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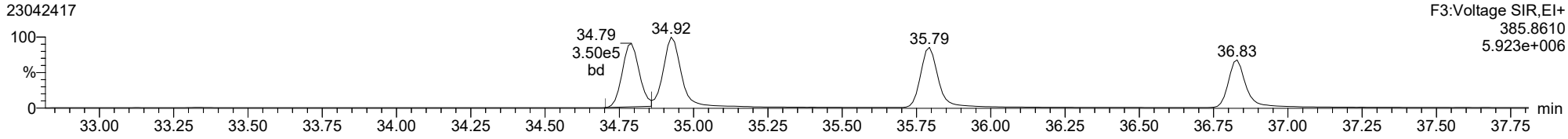
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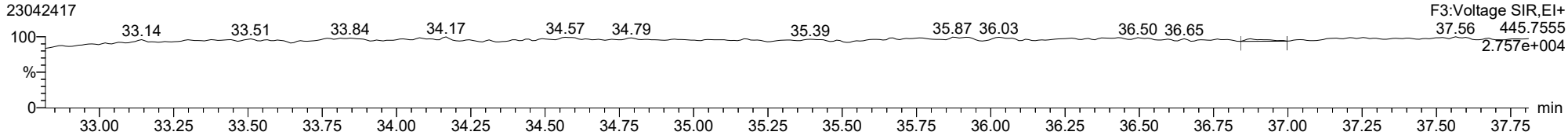
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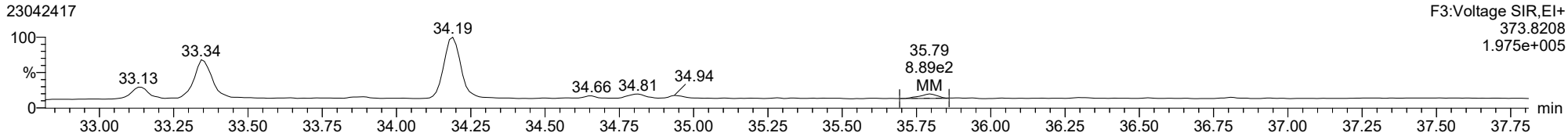


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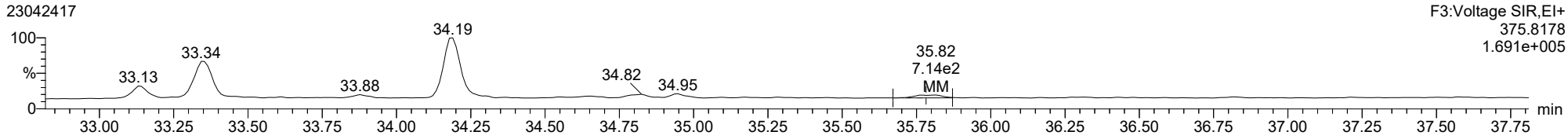


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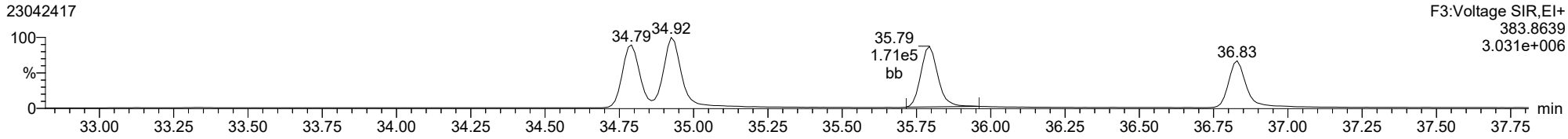
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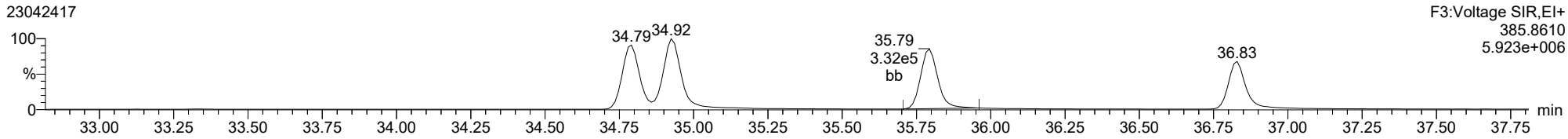
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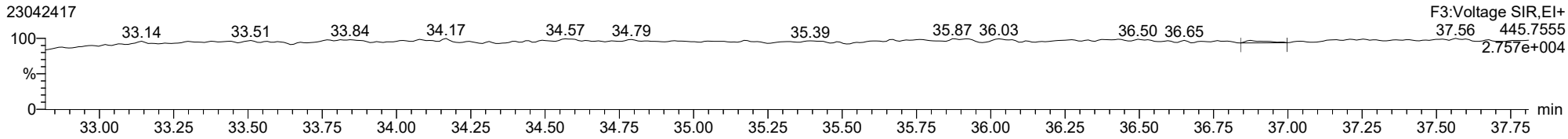
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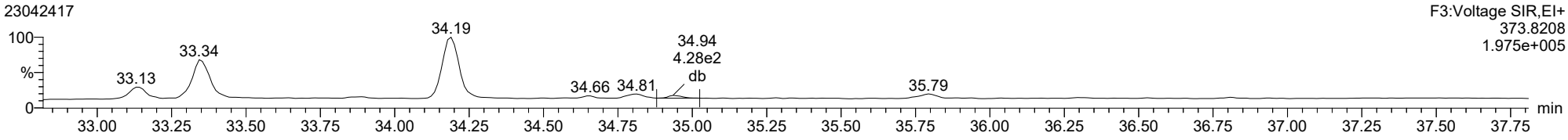


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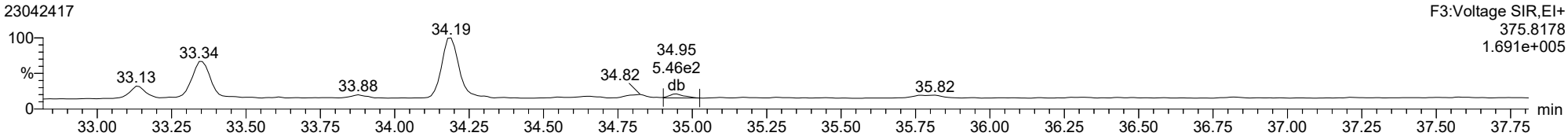


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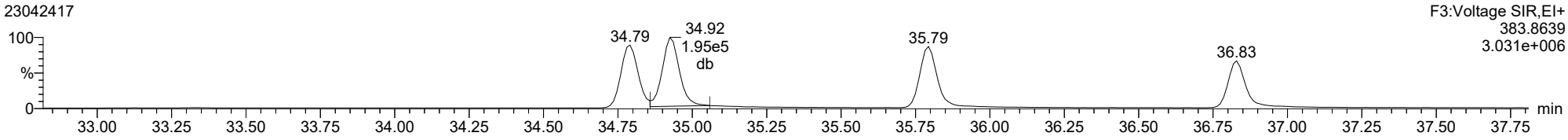
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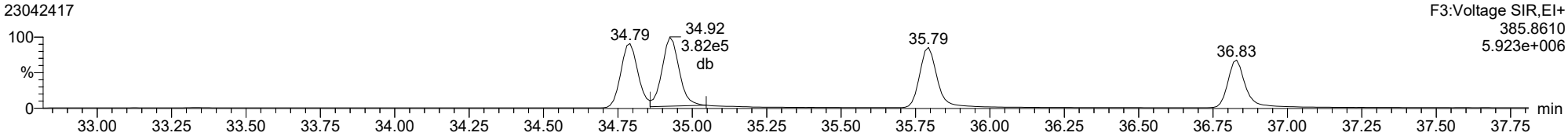
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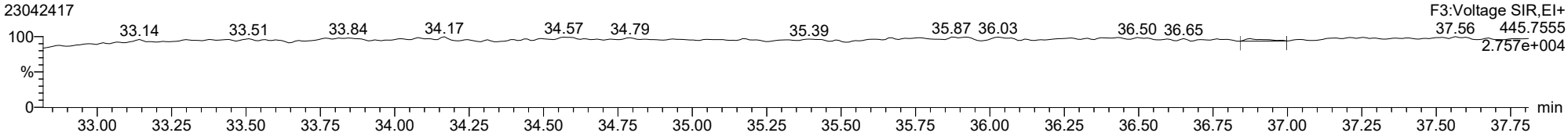
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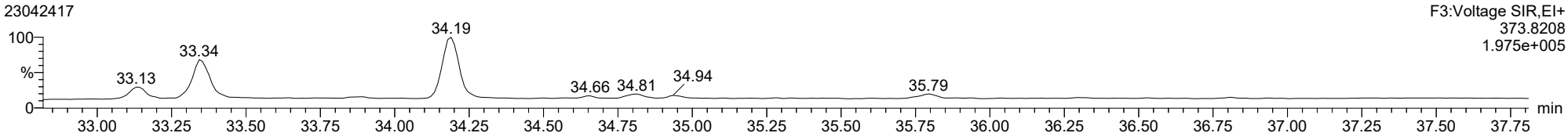


FUNCTION3 OCDPE

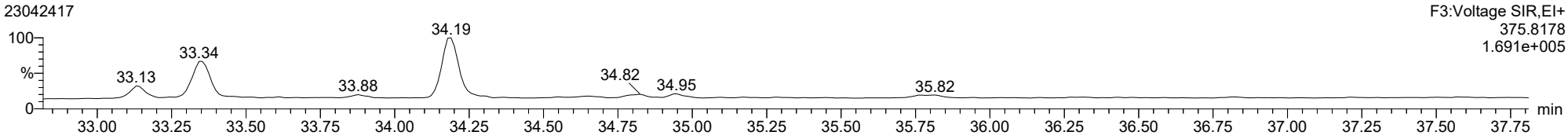


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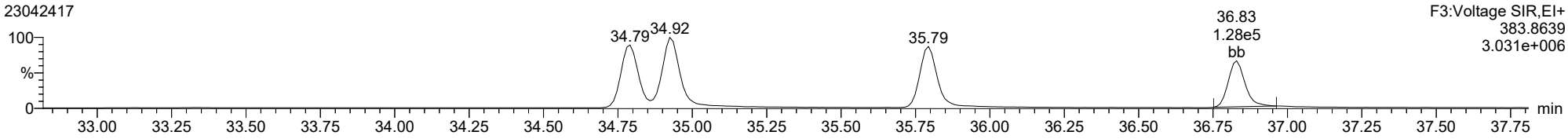
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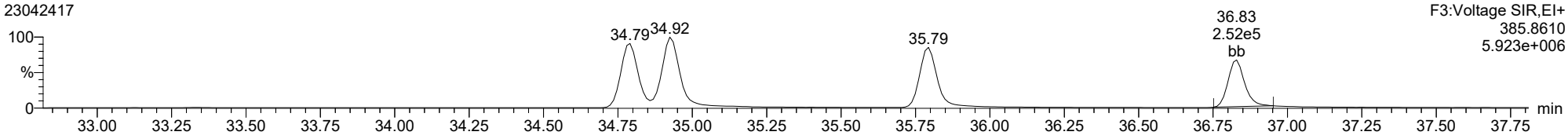
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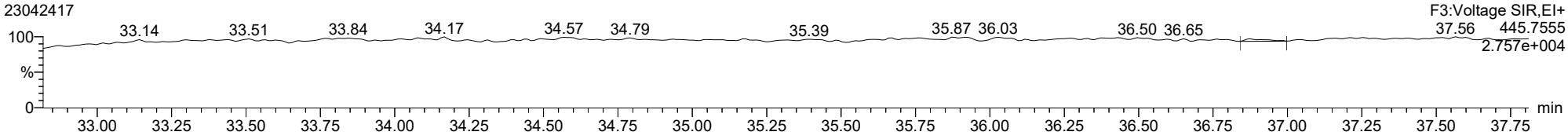
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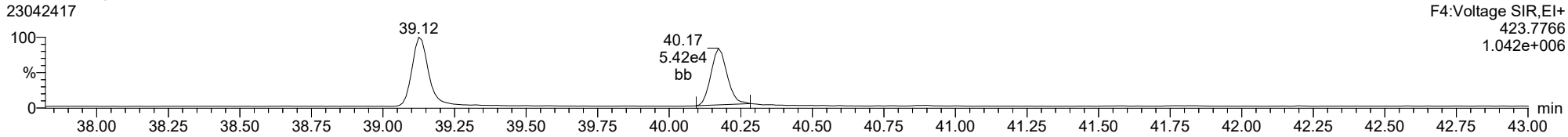


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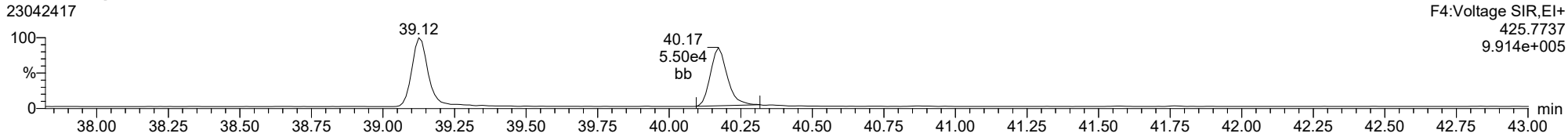


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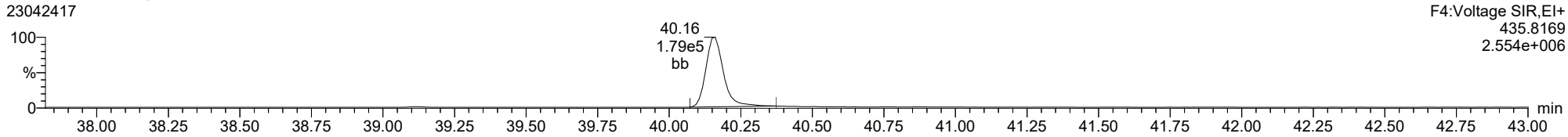
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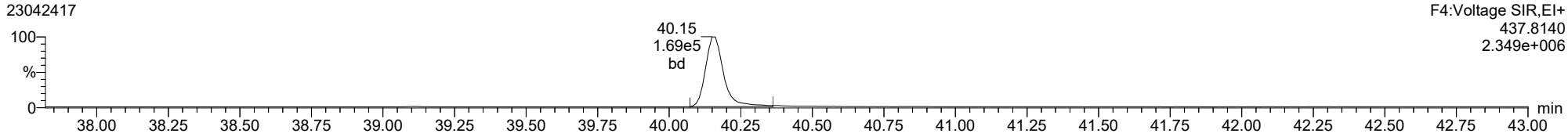
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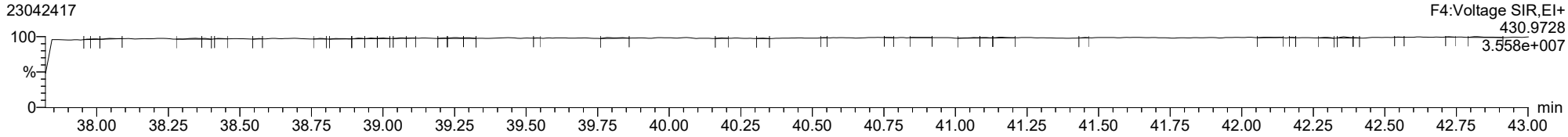
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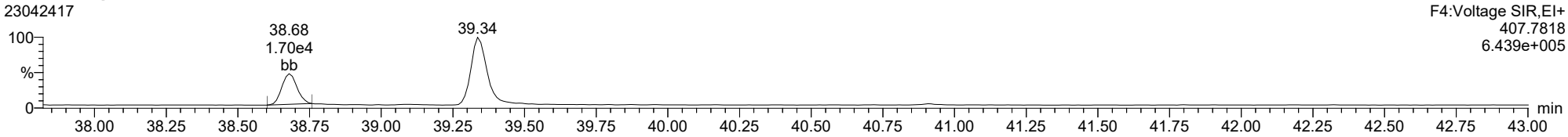


FUNCTION4 PFK

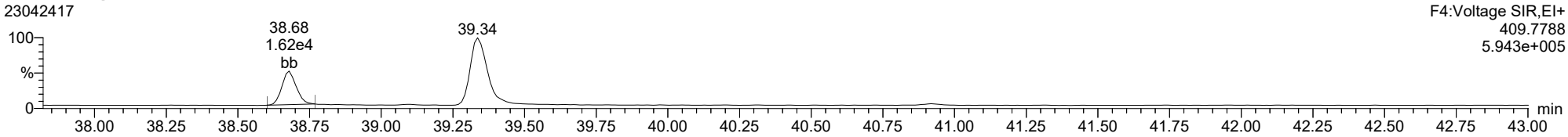


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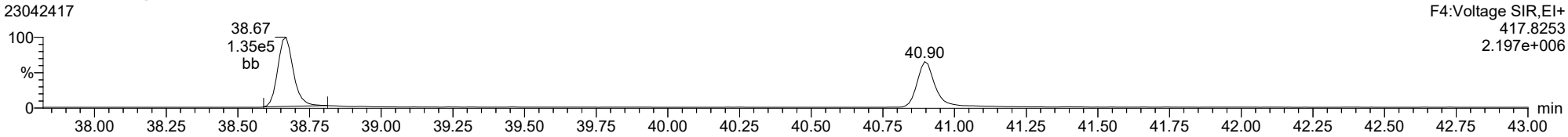
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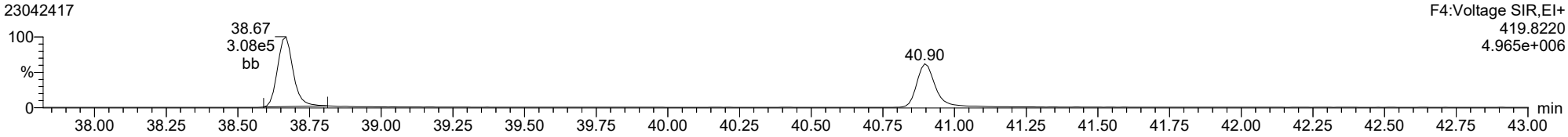
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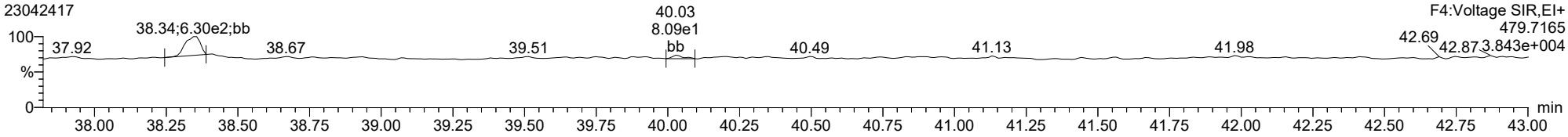
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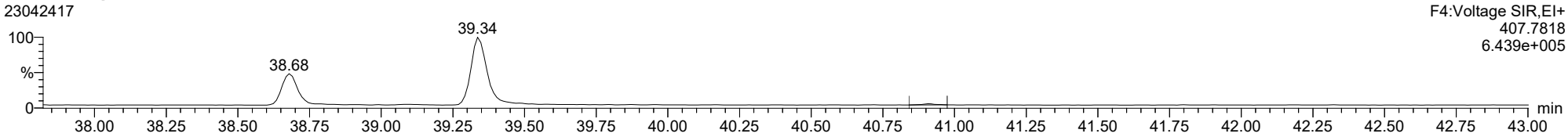


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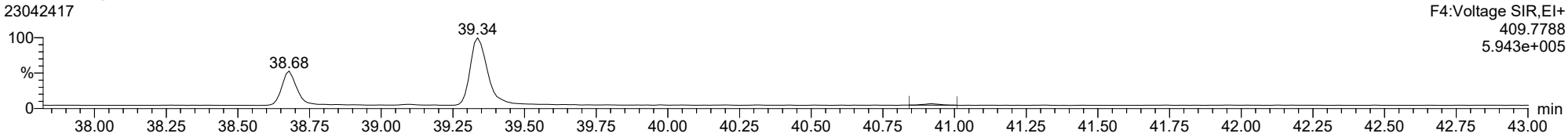


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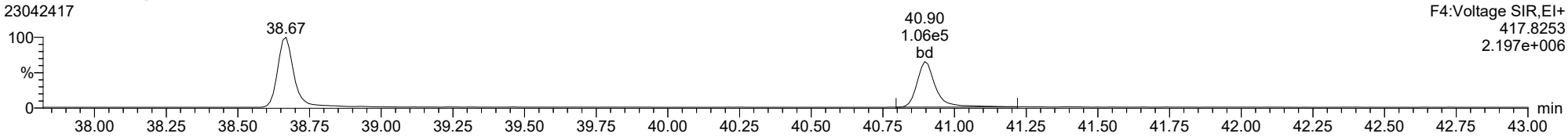
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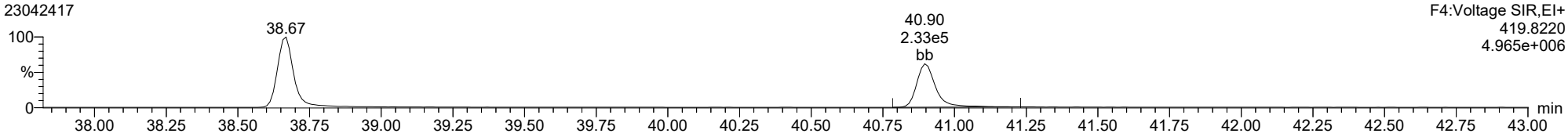
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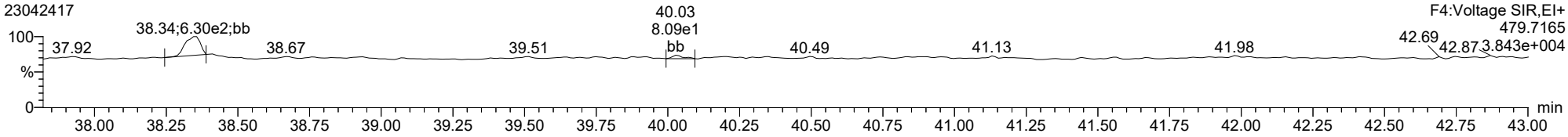
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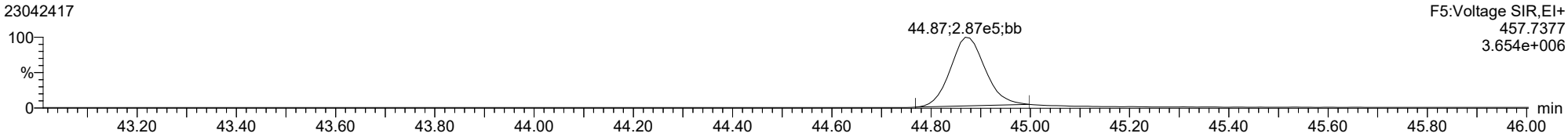


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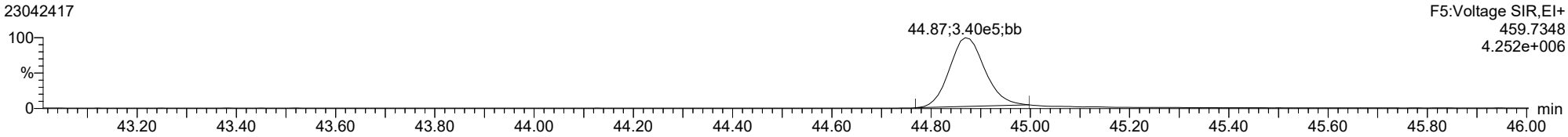


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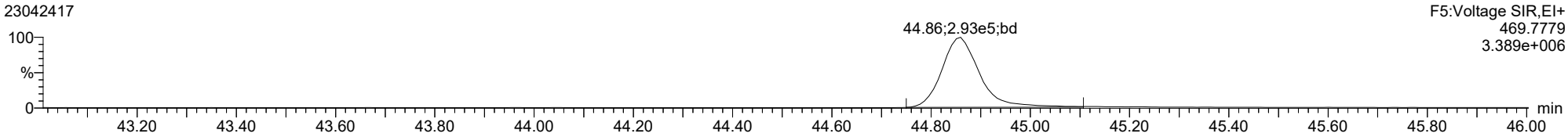
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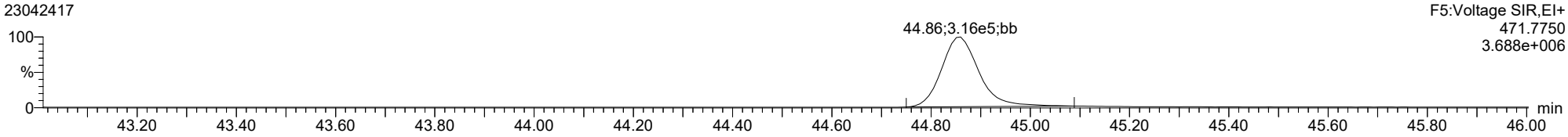
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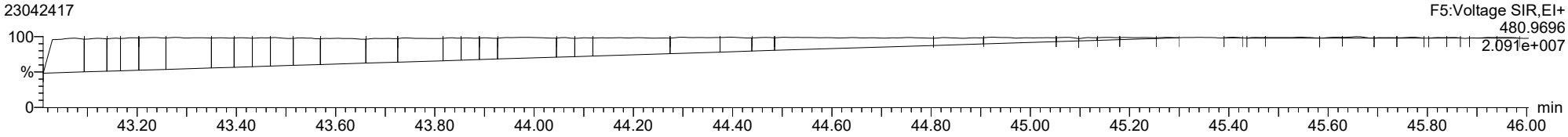
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13C-OCDD

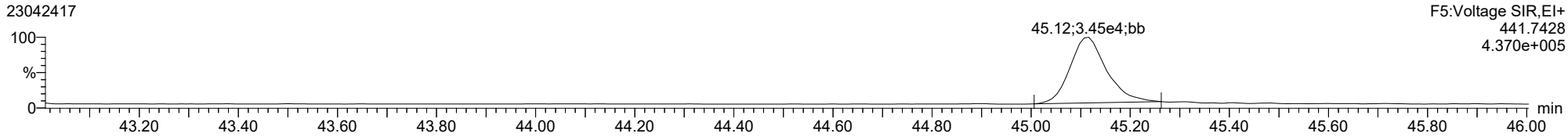


FUNCTION5 PFK

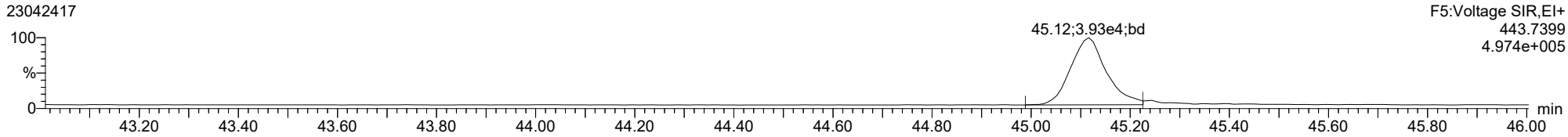


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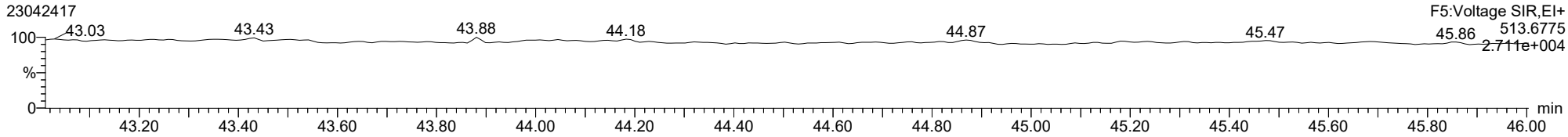
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OCDF

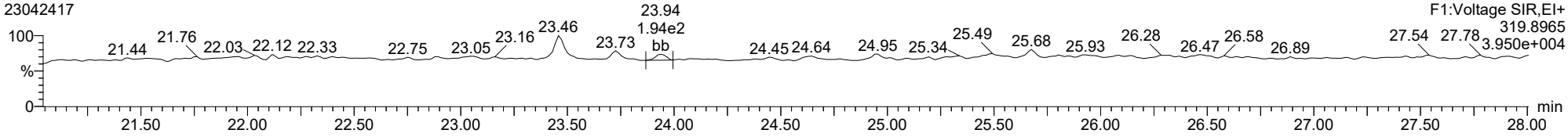


FUNCTION5 DCDPE

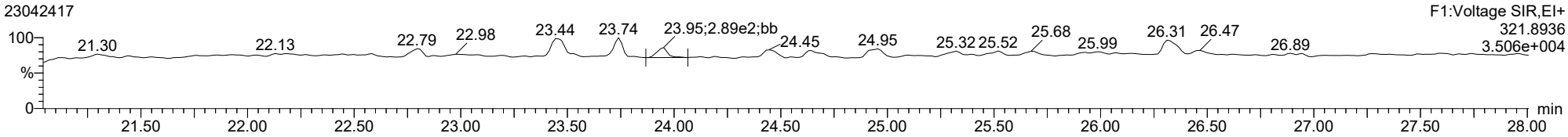


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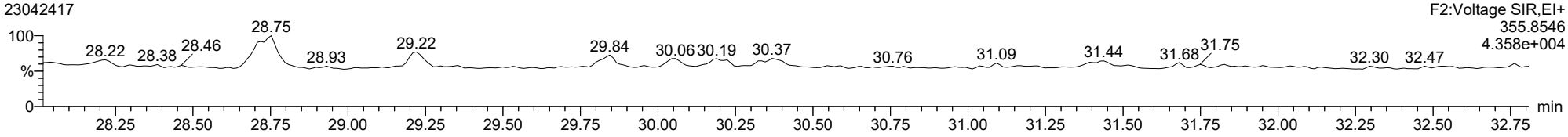
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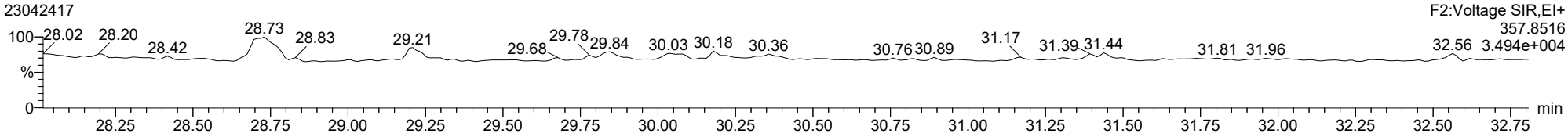
Total-tetradioxins



Total-pentadioxins

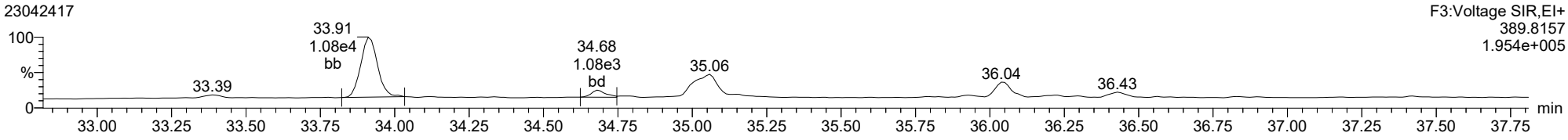


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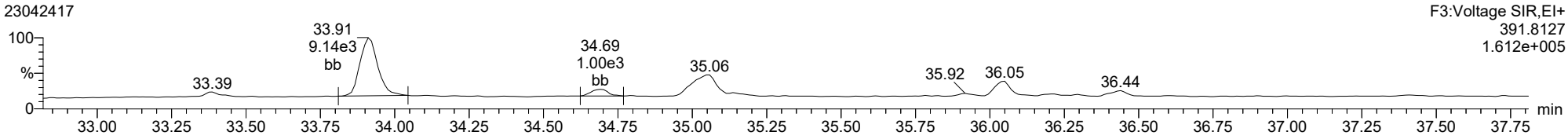


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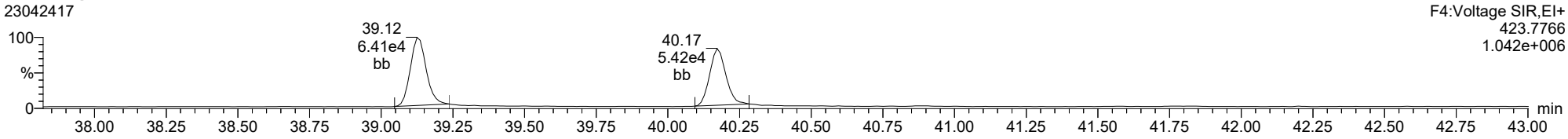
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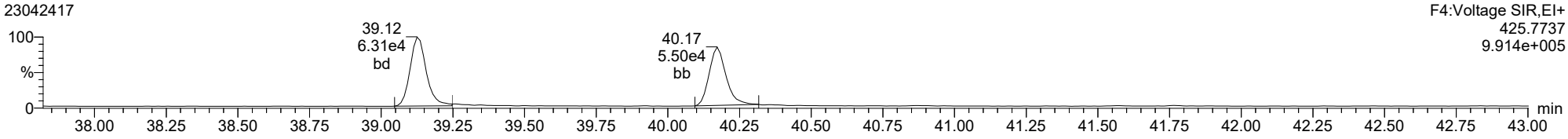
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Total-heptadioxins

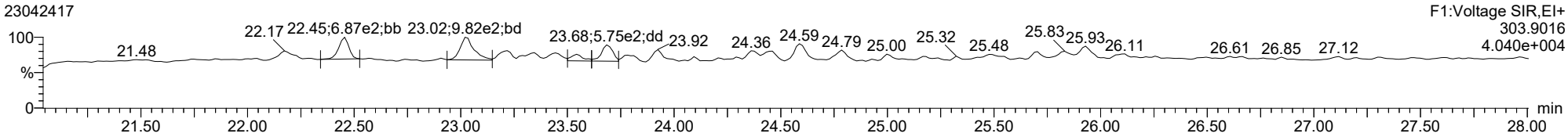


Total-heptadioxins

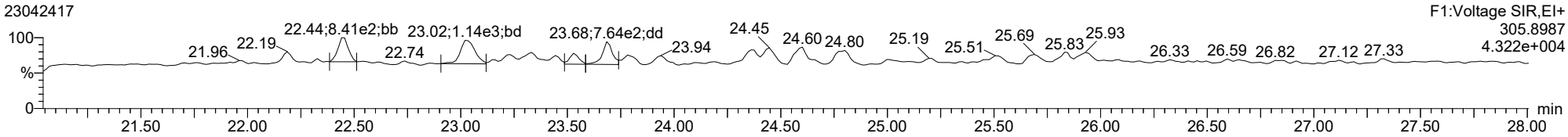


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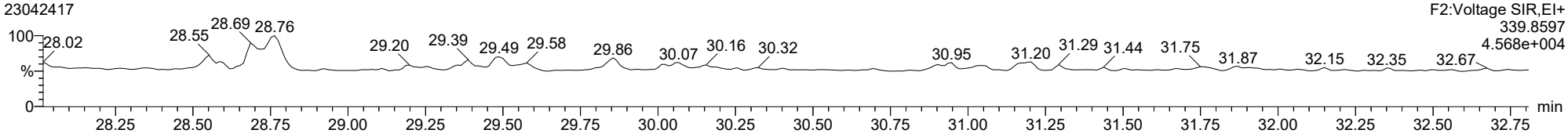
Total-tetrafurans



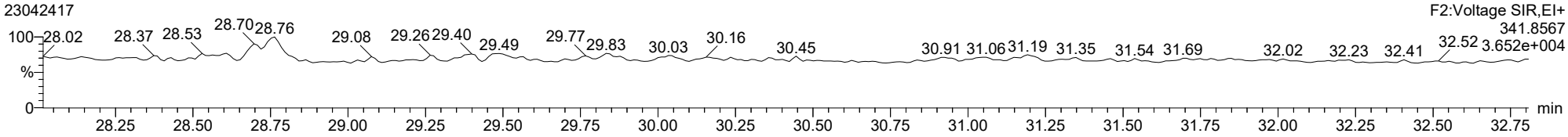
Total-tetrafurans



Total-pentafurans

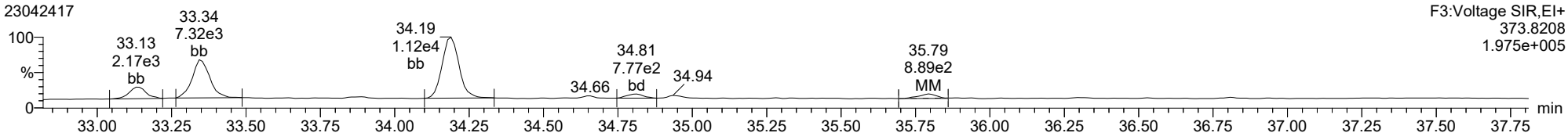


Total-pentafurans

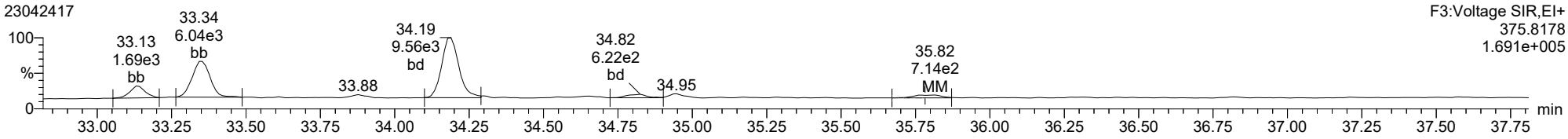


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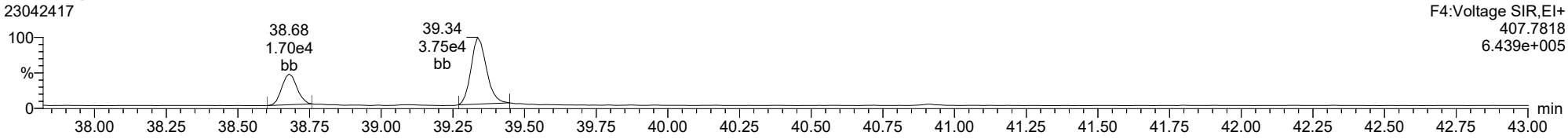
Total-hexafurans



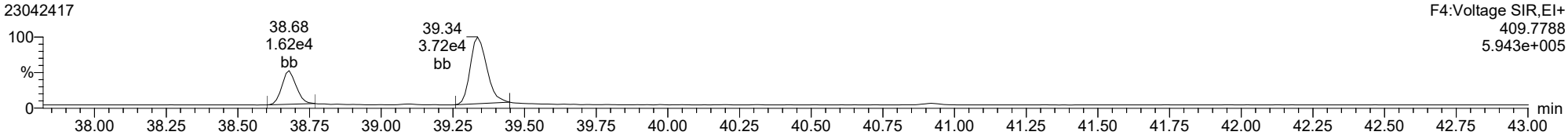
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SED-11C:0-1

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.				
Project:	Port of Friday Harbor				
Matrix:	Sediment	Laboratory ID:	23C0619-14 A	File ID:	23042418
Sampled:	03/23/23 08:42	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 04:24
% Solids:	69.96	Preparation:	EPA 1613	Initial/Final:	14.31 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.665	0.655-0.886	0.168	0.999	1.42	ng/kg	
1746-01-6	2,3,7,8-TCDD	1	0.354	0.655-0.886	0.097	0.999	0.265	ng/kg	EMPC, J
57117-41-6	1,2,3,7,8-PeCDF	1	1.704	1.318-1.783	0.216	0.999	1.08	ng/kg	
57117-31-4	2,3,4,7,8-PeCDF	1	1.663	1.318-1.783	0.200	0.999	0.842	ng/kg	J
40321-76-4	1,2,3,7,8-PeCDD	1	1.527	1.318-1.783	0.348	0.999	1.91	ng/kg	
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.389	1.054-1.426	0.092	0.999	1.73	ng/kg	
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.191	1.054-1.426	0.100	0.999	1.36	ng/kg	
60851-34-5	2,3,4,6,7,8-HxCDF	1	1.184	1.054-1.426	0.105	0.999	1.84	ng/kg	
72918-21-9	1,2,3,7,8,9-HxCDF	1	1.013	1.054-1.426	0.121	0.999	0.461	ng/kg	EMPC, J
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.085	1.054-1.426	0.224	0.999	1.59	ng/kg	
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.333	1.054-1.426	0.218	0.999	6.87	ng/kg	
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.166	1.054-1.426	0.243	0.999	4.09	ng/kg	
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	1.048	0.893-1.208	0.172	0.999	32.6	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	1.036	0.893-1.208	0.279	0.999	1.96	ng/kg	
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.051	0.893-1.208	0.607	2.50	206	ng/kg	B
39001-02-0	OCDF	1	0.811	0.757-1.024	0.302	2.50	95.3	ng/kg	
3268-87-9	OCDD	1	0.854	0.757-1.024	0.880	9.99	1470	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			0.999	17.5	ng/kg	
41903-57-5	Total TCDD	1	0.000			0.999	2.48	ng/kg	
30402-15-4	Total PeCDF	1	0.000			0.999	18.0	ng/kg	
36088-22-9	Total PeCDD	1	0.000			0.999	6.03	ng/kg	
55684-94-1	Total HxCDF	1	0.000			0.999	42.1	ng/kg	
34465-46-8	Total HxCDD	1	0.000			0.999	82.7	ng/kg	
38998-75-3	Total HpCDF	1	0.000			0.999	104	ng/kg	
37871-00-4	Total HpCDD	1	0.000			0.999	638	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 7.27
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 7.27

Analytical Resources, Incorporated
Analytical Chemists and Consultants

SED-11C:0-1

Form 2

ORGANIC ANALYSIS DATA SHEET

EPA 1613B

Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Sediment	Laboratory ID:	23C0619-14	File ID:	23042418
Sampled:	03/23/23 08:42	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 04:24
Solids Wt%:	69.96	Preparation:	EPA 1613	Initial/Final:	14.31 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.748	0.655-0.886	0.102	95.0	24 - 169 %	
13C12-2,3,7,8-TCDD		0.792	0.655-0.886	0.154	102	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.538	1.318-1.783	0.244	113	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.528	1.318-1.783	0.270	112	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.695	1.318-1.783	0.179	85.3	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.510	0.434-0.587	0.244	97.1	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.529	0.434-0.587	0.205	86.8	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.518	0.434-0.587	0.252	97.4	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.517	0.434-0.587	0.305	92.4	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.297	1.054-1.426	0.209	101	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.213	1.054-1.426	0.180	90.2	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.458	0.374-0.506	0.374	107	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.448	0.374-0.506	0.436	92.5	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.056	0.893-1.208	0.239	88.6	23 - 140 %	
13C12-OCDD		0.900	0.757-1.024	0.360	86.5	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.064	91.8	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:16 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.704	1.001	1.862e3	2.799e3	0.702	0.665	0.770	1582	1093	2.69e4	4.34e4	17.0	39.7	NO	dd	dd	0.710
12378-PeCDF	29.844	1.000	1.964e3	1.153e3	0.679	1.704	1.550	1137	1804	2.85e4	1.93e4	25.1	10.7	NO	bb	bb	0.540
23478-PeCDF	31.204	1.001	1.569e3	9.431e2	0.786	1.663	1.550	1137	1804	2.39e4	1.63e4	21.0	9.0	NO	bb	bb	0.421
123478-HxCDF	34.813	1.001	3.400e3	2.447e3	1.166	1.389	1.240	842	764	4.99e4	3.79e4	59.3	49.6	NO	dd	dd	0.866
234678-HxCDF	35.805	1.000	3.196e3	2.700e3	1.140	1.184	1.240	842	764	3.32e4	2.71e4	39.5	35.5	NO	bb	bb	0.921
123678-HxCDF	34.947	1.000	2.476e3	2.079e3	1.091	1.191	1.240	842	764	3.52e4	3.30e4	41.8	43.2	NO	db	dd	0.680
123789-HxCDF	36.819	1.000	5.815e2	5.742e2	1.137	1.013	1.240	842	764	9.47e3	8.45e3	11.3	11.1	YES	bb	MM	0.231
1234678-HpCDF	38.680	1.000	4.083e4	3.896e4	1.003	1.048	1.050	1017	1114	6.64e5	6.56e5	653.2	589.2	NO	bb	bb	16.316
1234789-HpCDF	40.919	1.000	1.731e3	1.670e3	0.953	1.036	1.050	1017	1114	2.31e4	2.18e4	22.8	19.5	NO	bb	bb	0.981
OCDF	45.116	1.006	5.633e4	6.949e4	0.778	0.811	0.890	821	734	6.99e5	7.72e5	851.6	1051.6	NO	bb	bb	47.682
2378-TCDD	26.325	1.001	2.856e2	8.067e2	1.149	0.354	0.770	1152	801	4.25e3	1.12e4	3.7	14.0	YES	bd	bd	0.133
12378-PeCDD	31.438	1.000	2.537e3	1.662e3	1.022	1.527	1.550	2372	1268	3.28e4	2.49e4	13.8	19.6	NO	bb	bb	0.956
123478-HxCDD	35.939	1.000	2.127e3	1.959e3	0.996	1.085	1.240	1525	1471	3.73e4	3.07e4	24.4	20.8	NO	bd	bd	0.798
123678-HxCDD	36.061	1.001	1.048e4	7.864e3	1.001	1.333	1.240	1525	1471	1.61e5	1.25e5	105.4	84.7	NO	dd	dd	3.439
123789-HxCDD	36.440	1.011	5.232e3	4.487e3	0.907	1.166	1.240	1525	1471	7.45e4	6.70e4	48.8	45.6	NO	bb	db	2.046
1234678-HpCDD	40.173	1.000	2.092e5	1.990e5	1.039	1.051	1.050	3532	2218	3.10e6	2.97e6	878.5	1337.1	NO	bb	bb	103.352
OCDD	44.879	1.000	1.055e6	1.236e6	0.920	0.854	0.890	2028	3331	1.30e7	1.50e7	6408.5	4496.7	NO	bb	bb	733.897
13C-2378-TCDF	25.675	1.007	4.003e5	5.351e5	1.620	0.748	0.770	1089	1533	5.82e6	7.86e6	5348.4	5124.3	NO	bb	bb	94.981
13C-12378-PeCDF	29.833	1.170	5.153e5	3.350e5	1.240	1.538	1.550	2649	2156	7.29e6	4.75e6	2752.7	2202.8	NO	bd	bd	112.772
13C-23478-PeCDF	31.170	1.222	4.582e5	2.999e5	1.118	1.528	1.550	2649	2156	6.79e6	4.42e6	2561.6	2050.3	NO	bb	bb	111.588
13C-123478-HxCDF	34.791	0.955	1.956e5	3.838e5	1.168	0.510	0.510	1895	1796	3.03e6	5.90e6	1599.9	3287.5	NO	bd	bd	97.085
13C-123678-HxCDF	34.936	0.959	2.126e5	4.020e5	1.386	0.529	0.510	1895	1796	3.05e6	5.95e6	1607.4	3314.2	NO	db	db	86.783
13C-234678-HxCDF	35.805	0.983	1.917e5	3.701e5	1.129	0.518	0.510	1895	1796	2.74e6	5.35e6	1444.4	2980.3	NO	bd	bb	97.390
13C-123789-HxCDF	36.830	1.011	1.500e5	2.900e5	0.932	0.517	0.510	1895	1796	2.39e6	4.60e6	1260.0	2561.9	NO	bb	bb	92.440
13C-1234678-HpCDF	38.668	1.062	1.533e5	3.343e5	0.895	0.458	0.440	2394	1955	2.33e6	5.21e6	974.0	2663.4	NO	bb	bb	106.631
13C-1234789-HpCDF	40.908	1.123	1.126e5	2.513e5	0.770	0.448	0.440	2394	1955	1.48e6	3.37e6	620.2	1725.9	NO	bb	bb	92.527
13C-1234-TCDD	25.506	0.000	2.671e5	3.407e5	1.000	0.784	0.770	1811	1012	4.19e6	5.31e6	2311.4	5242.0	NO	bb	bb	100.000
13C-2378-TCDD	26.311	1.032	3.162e5	3.994e5	1.152	0.792	0.770	1811	1012	4.62e6	5.89e6	2551.2	5822.2	NO	bb	bb	102.160
13C-12378-PeCDD	31.427	1.232	2.703e5	1.595e5	0.829	1.695	1.550	1400	961	3.86e6	2.28e6	2755.3	2374.3	NO	bb	bd	85.314
13C-123478-HxCDD	35.928	0.987	2.904e5	2.239e5	0.995	1.297	1.240	1656	1041	4.55e6	3.63e6	2745.5	3490.6	NO	bd	bd	101.184
13C-123678-HxCDD	36.039	0.990	2.921e5	2.409e5	1.157	1.213	1.240	1656	1041	4.52e6	3.69e6	2727.0	3543.8	NO	db	db	90.203
13C-1234678-HpCDD	40.161	1.103	1.952e5	1.849e5	0.840	1.056	1.050	1249	1359	2.81e6	2.58e6	2246.9	1896.7	NO	bb	bd	88.570
13C-OCDD	44.860	1.232	3.214e5	3.571e5	0.767	0.900	0.890	1572	2012	3.76e6	4.11e6	2389.5	2040.7	NO	bd	bd	173.075
13C-123789-HxCDD	36.418	0.000	2.871e5	2.237e5	1.000	1.283	1.240	1656	1041	4.37e6	3.46e6	2638.0	3320.6	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.033	2.874e5		1.288			1303		4.32e6		3315.8			bb		36.711

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:16 Pacific Daylight Time

ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.187	0.864	1.005e3	1.354e3	0.802	0.742	0.770	1582	1093	1.58e4	2.31e4	10.0	21.1	NO	bb	bb	0.315
1289-TCDF					0.678		0.770	1582	1093								
13468-PECDF					1.246		1.550	564	975								
12389-PECDF					0.496		1.550	1137	1804								
123468-HXCDF	33.142	0.953	9.336e3	7.618e3	1.169	1.225	1.240	842	764	1.31e5	1.16e5	155.1	151.5	NO	bb	bb	2.503
1368-TCDD	23.472	0.892	1.473e3	2.178e3	1.015	0.676	0.770	1152	801	2.18e4	3.25e4	18.9	40.6	NO	bb	bb	0.502
1289-TCDD					0.909		0.770	1152	801								
12479-PECDD	28.753	0.915	3.399e3	2.669e3	2.301	1.274	1.550	2372	1268	4.86e4	2.77e4	20.5	21.8	YES	db	bb	0.613
12389-PECDD	31.850	1.013	2.886e2	5.934e2	1.184	0.486	1.550	2372	1268	6.65e3	7.78e3	2.8	6.1	YES	db	bd	0.173
124679-HXCDD	33.922	0.944	4.952e4	3.940e4	1.115	1.257	1.240	1525	1471	7.45e5	5.79e5	488.5	393.5	NO	bb	bb	15.500
1234679-HPCDD	39.136	0.974	4.763e5	4.571e5	1.137	1.042	1.050	3532	2218	7.58e6	7.24e6	2146.3	3264.2	NO	bb	bb	216.010
Total-tetrafurans			2.554e4		0.727			1582		3.45e5							8.751
Total-penta1			2.095e4					564		3.01e5							4.443
Total-pentafurans			1.509e4		0.654			1137		2.22e5							4.589
Total-hexafurans			7.434e4		1.141			842		1.09e6							21.084
Total-heptafurans			1.121e5		0.978			1017		1.83e6							51.915
Total-Furans			3.048e5		0.922			1582		4.49e6							138.580
Total-tetradioxins			3.684e3		1.024			1152		5.85e4							1.239
Total-pentadioxins			1.044e4		1.502			2372		1.61e5							3.021
Total-hexadioxins			1.245e5		1.005			1525		1.68e6							41.421
Total-heptadioxins			6.855e5		1.088			3532		1.07e7							319.362
Total-Dioxins			1.879e6		1.130			1152		2.56e7							1098.939
Total-TEQ			2.184e6					1152		3.01e7							1237.519
FUNCTION1 PFK			1.073e7					431856		3.49e7							
FUNCTION2 PFK			7.510e5					191441		2.93e6							0.000
FUNCTION3 PFK			1.522e7					209344		5.02e7							0.000
FUNCTION4 PFK			6.485e5					232963		3.40e6							
FUNCTION5 PFK			1.881e4					146947		9.80e5							
FUNCTION1 HXCD...			1.816e3					721		2.25e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			0.000e0					889		0.00e0							
FUNCTION3 OCDPE			9.148e1					469		1.94e3							0.000
FUNCTION4 NCDPE			1.893e3					568		3.12e4							0.000
FUNCTION5 DCDPE			0.000e0					614		0.00e0							

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.80	9.661e2	1.453e3	0.727	0.67	0.77	8.7	YES	NO	dd	dd	0.356
2	Total-tetrafurans	23.54	1.372e3	1.738e3	0.727	0.79	0.77	15.6	YES	NO	db	dd	0.457
3	Total-tetrafurans	23.22	2.152e3	2.720e3	0.727	0.79	0.77	13.1	YES	NO	dd	dd	0.716
4	Total-tetrafurans	23.03	2.453e3	3.728e3	0.727	0.66	0.77	20.0	YES	NO	bd	dd	0.909
5	Total-tetrafurans	22.45	1.591e3	1.923e3	0.727	0.83	0.77	15.8	YES	NO	bb	bb	0.517
6	1368-TCDF	22.19	1.005e3	1.354e3	0.802	0.74	0.77	10.0	YES	NO	bb	bb	0.315
7	Total-tetrafurans	25.93	2.480e3	3.173e3	0.727	0.78	0.77	22.4	YES	NO	dd	dd	0.831
8	Total-tetrafurans	25.83	1.751e3	2.040e3	0.727	0.86	0.77	18.0	YES	NO	dd	dd	0.557
9	2378-TCDF	25.70	1.862e3	2.799e3	0.702	0.67	0.77	17.0	YES	NO	dd	dd	0.710
10	Total-tetrafurans	25.18	7.726e2	9.621e2	0.727	0.80	0.77	6.4	YES	NO	bd	bb	0.255
11	Total-tetrafurans	25.01	1.131e3	1.401e3	0.727	0.81	0.77	11.5	YES	NO	bb	bb	0.372
12	Total-tetrafurans	24.79	1.963e3	2.646e3	0.727	0.74	0.77	16.4	YES	NO	db	db	0.678
13	Total-tetrafurans	24.59	2.662e3	4.020e3	0.727	0.66	0.77	22.0	YES	NO	dd	dd	0.983
14	Total-tetrafurans	24.36	3.378e3	4.064e3	0.727	0.83	0.77	21.2	YES	NO	dd	dd	1.094

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.12	2.095e4	1.370e4		1.53	1.55	534.2	YES	NO	bb	bb	4.443

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.79	4.241e3	2.909e3	0.654	1.46	1.55	58.4	YES	NO	db	db	1.360
2	Total-pentafurans	28.72	3.801e3	2.276e3	0.654	1.67	1.55	48.6	YES	NO	dd	bd	1.156
3	23478-PeCDF	31.20	1.569e3	9.431e2	0.786	1.66	1.55	21.0	YES	NO	bb	bb	0.421
4	Total-pentafurans	30.94	1.925e3	1.261e3	0.654	1.53	1.55	19.7	YES	NO	bd	bd	0.606
5	Total-pentafurans	30.06	1.590e3	1.077e3	0.654	1.48	1.55	22.6	YES	NO	bd	bd	0.507
6	12378-PeCDF	29.84	1.964e3	1.153e3	0.679	1.70	1.55	25.1	YES	NO	bb	bb	0.540

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HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.81	3.400e3	2.447e3	1.166	1.39	1.24	59.3	YES	NO	dd	dd	0.866
2	Total-hexafurans	34.19	2.857e4	2.289e4	1.141	1.25	1.24	529.7	YES	NO	bb	bb	8.218
3	Total-hexafurans	33.89	8.020e2	7.242e2	1.141	1.11	1.24	15.1	YES	NO	bb	bb	0.244
4	Total-hexafurans	33.35	2.656e4	2.136e4	1.141	1.24	1.24	451.4	YES	NO	bb	bd	7.654
5	123468-HXCDF	33.14	9.336e3	7.618e3	1.169	1.23	1.24	155.1	YES	NO	bb	bb	2.503
6	234678-HxCDF	35.81	3.196e3	2.700e3	1.140	1.18	1.24	39.5	YES	NO	bb	bb	0.921
7	123678-HxCDF	34.95	2.476e3	2.079e3	1.091	1.19	1.24	41.8	YES	NO	db	dd	0.680

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.35	6.864e4	7.359e4	0.978	0.93	1.05	1111.6	YES	NO	bb	bb	34.158
2	Total-heptafurans	39.10	9.224e2	9.935e2	0.978	0.93	1.05	15.5	YES	NO	bb	bb	0.460
3	1234678-HpCDF	38.68	4.083e4	3.896e4	1.003	1.05	1.05	653.2	YES	NO	bb	bb	16.316
4	1234789-HpCDF	40.92	1.731e3	1.670e3	0.953	1.04	1.05	22.8	YES	NO	bb	bb	0.981

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.80	9.661e2	1.453e3	0.727	0.67	0.77	8.7	YES	NO	dd	dd	0.356
2	Total-tetrafurans	23.54	1.372e3	1.738e3	0.727	0.79	0.77	15.6	YES	NO	db	dd	0.457
3	Total-tetrafurans	23.22	2.152e3	2.720e3	0.727	0.79	0.77	13.1	YES	NO	dd	dd	0.716
4	Total-tetrafurans	23.03	2.453e3	3.728e3	0.727	0.66	0.77	20.0	YES	NO	bd	dd	0.909
5	Total-tetrafurans	22.45	1.591e3	1.923e3	0.727	0.83	0.77	15.8	YES	NO	bb	bb	0.517
6	1368-TCDF	22.19	1.005e3	1.354e3	0.802	0.74	0.77	10.0	YES	NO	bb	bb	0.315
7	Total-Furans	21.11	4.056e2	5.877e2	0.922	0.69	0.77	2.6	NO	NO	bb	bb	0.115
8	Total-tetrafurans	25.93	2.480e3	3.173e3	0.727	0.78	0.77	22.4	YES	NO	dd	dd	0.831
9	Total-tetrafurans	25.83	1.751e3	2.040e3	0.727	0.86	0.77	18.0	YES	NO	dd	dd	0.557
10	2378-TCDF	25.70	1.862e3	2.799e3	0.702	0.67	0.77	17.0	YES	NO	dd	dd	0.710
11	Total-tetrafurans	25.18	7.726e2	9.621e2	0.727	0.80	0.77	6.4	YES	NO	bd	bb	0.255
12	Total-tetrafurans	25.01	1.131e3	1.401e3	0.727	0.81	0.77	11.5	YES	NO	bb	bb	0.372
13	Total-tetrafurans	24.79	1.963e3	2.646e3	0.727	0.74	0.77	16.4	YES	NO	db	db	0.678
14	Total-tetrafurans	24.59	2.662e3	4.020e3	0.727	0.66	0.77	22.0	YES	NO	dd	dd	0.983
15	Total-tetrafurans	24.36	3.378e3	4.064e3	0.727	0.83	0.77	21.2	YES	NO	dd	dd	1.094
16	Total-pentafurans	28.79	4.241e3	2.909e3	0.654	1.46	1.55	58.4	YES	NO	db	db	1.360
17	Total-pentafurans	28.72	3.801e3	2.276e3	0.654	1.67	1.55	48.6	YES	NO	dd	bd	1.156
18	23478-PeCDF	31.20	1.569e3	9.431e2	0.786	1.66	1.55	21.0	YES	NO	bb	bb	0.421
19	Total-pentafurans	30.94	1.925e3	1.261e3	0.654	1.53	1.55	19.7	YES	NO	bd	bd	0.606
20	Total-pentafurans	30.06	1.590e3	1.077e3	0.654	1.48	1.55	22.6	YES	NO	bd	bd	0.507
21	12378-PeCDF	29.84	1.964e3	1.153e3	0.679	1.70	1.55	25.1	YES	NO	bb	bb	0.540
22	123478-HxCDF	34.81	3.400e3	2.447e3	1.166	1.39	1.24	59.3	YES	NO	dd	dd	0.866
23	Total-hexafurans	34.19	2.857e4	2.289e4	1.141	1.25	1.24	529.7	YES	NO	bb	bb	8.218
24	Total-hexafurans	33.89	8.020e2	7.242e2	1.141	1.11	1.24	15.1	YES	NO	bb	bb	0.244
25	Total-hexafurans	33.35	2.656e4	2.136e4	1.141	1.24	1.24	451.4	YES	NO	bb	bd	7.654
26	123468-HXCDF	33.14	9.336e3	7.618e3	1.169	1.23	1.24	155.1	YES	NO	bb	bb	2.503
27	234678-HxCDF	35.81	3.196e3	2.700e3	1.140	1.18	1.24	39.5	YES	NO	bb	bb	0.921
28	123678-HxCDF	34.95	2.476e3	2.079e3	1.091	1.19	1.24	41.8	YES	NO	db	dd	0.680
29	Total-heptafurans	39.35	6.864e4	7.359e4	0.978	0.93	1.05	1111.6	YES	NO	bb	bb	34.158
30	Total-heptafurans	39.10	9.224e2	9.935e2	0.978	0.93	1.05	15.5	YES	NO	bb	bb	0.460
31	1234678-HpCDF	38.68	4.083e4	3.896e4	1.003	1.05	1.05	653.2	YES	NO	bb	bb	16.316
32	OCDF	45.12	5.633e4	6.949e4	0.778	0.81	0.89	851.6	YES	NO	bb	bb	47.682
33	1234789-HpCDF	40.92	1.731e3	1.670e3	0.953	1.04	1.05	22.8	YES	NO	bb	bb	0.981
34	Total-penta1	27.12	2.095e4	1.370e4		1.53	1.55	534.2	YES	NO	bb	bb	4.443

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.66	2.866e2	3.935e2	1.024	0.73	0.77	4.5	YES	NO	dd	db	0.093
2	Total-tetradioxins	25.52	4.976e2	7.171e2	1.024	0.69	0.77	7.3	YES	NO	bd	bd	0.166
3	Total-tetradioxins	23.74	9.495e2	1.436e3	1.024	0.66	0.77	14.2	YES	NO	bb	bd	0.326
4	1368-TCDD	23.47	1.473e3	2.178e3	1.015	0.68	0.77	18.9	YES	NO	bb	bb	0.502
5	Total-tetradioxins	26.47	4.777e2	6.429e2	1.024	0.74	0.77	5.9	YES	NO	db	db	0.153

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.38	1.900e3	1.312e3	1.502	1.45	1.55	11.5	YES	NO	db	bb	0.498
2	Total-pentadioxins	30.06	2.161e3	1.260e3	1.502	1.71	1.55	15.3	YES	NO	dd	bd	0.530
3	Total-pentadioxins	29.86	2.096e3	1.552e3	1.502	1.35	1.55	13.4	YES	NO	bd	bb	0.565
4	Total-pentadioxins	29.22	1.747e3	1.302e3	1.502	1.34	1.55	13.7	YES	NO	bb	bb	0.472
5	12378-PeCDD	31.44	2.537e3	1.662e3	1.022	1.53	1.55	13.8	YES	NO	bb	bb	0.956

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	35.16	7.665e3	7.000e3	1.005	1.10	1.24	73.4	YES	NO	db	db	2.787
2	Total-hexadioxins	35.06	3.935e4	3.059e4	1.005	1.29	1.24	258.4	YES	NO	bd	bd	13.294
3	Total-hexadioxins	34.69	7.056e3	5.828e3	1.005	1.21	1.24	73.2	YES	NO	bb	bb	2.449
4	124679-HXCDD	33.92	4.952e4	3.940e4	1.115	1.26	1.24	488.5	YES	NO	bb	bb	15.500
5	123789-HxCDD	36.44	5.232e3	4.487e3	0.907	1.17	1.24	48.8	YES	NO	bb	db	2.046
6	Total-hexadioxins	36.22	3.028e3	2.800e3	1.005	1.08	1.24	27.8	YES	NO	db	dd	1.108
7	123678-HxCDD	36.06	1.048e4	7.864e3	1.001	1.33	1.24	105.4	YES	NO	dd	dd	3.439
8	123478-HxCDD	35.94	2.127e3	1.959e3	0.996	1.09	1.24	24.4	YES	NO	bd	bd	0.798

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.17	2.092e5	1.990e5	1.039	1.05	1.05	878.5	YES	NO	bb	bb	103.352
2	1234679-HPCDD	39.14	4.763e5	4.571e5	1.137	1.04	1.05	2146.3	YES	NO	bb	bb	216.010

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.66	2.866e2	3.935e2	1.024	0.73	0.77	4.5	YES	NO	dd	db	0.093
2	Total-tetradioxins	25.52	4.976e2	7.171e2	1.024	0.69	0.77	7.3	YES	NO	bd	bd	0.166
3	Total-tetradioxins	23.74	9.495e2	1.436e3	1.024	0.66	0.77	14.2	YES	NO	bb	bd	0.326
4	1368-TCDD	23.47	1.473e3	2.178e3	1.015	0.68	0.77	18.9	YES	NO	bb	bb	0.502
5	Total-tetradioxins	26.47	4.777e2	6.429e2	1.024	0.74	0.77	5.9	YES	NO	db	db	0.153
6	Total-pentadioxins	30.38	1.900e3	1.312e3	1.502	1.45	1.55	11.5	YES	NO	db	bb	0.498
7	Total-pentadioxins	30.06	2.161e3	1.260e3	1.502	1.71	1.55	15.3	YES	NO	dd	bd	0.530
8	Total-pentadioxins	29.86	2.096e3	1.552e3	1.502	1.35	1.55	13.4	YES	NO	bd	bb	0.565
9	Total-pentadioxins	29.22	1.747e3	1.302e3	1.502	1.34	1.55	13.7	YES	NO	bb	bb	0.472
10	12378-PeCDD	31.44	2.537e3	1.662e3	1.022	1.53	1.55	13.8	YES	NO	bb	bb	0.956
11	Total-hexadioxins	35.16	7.665e3	7.000e3	1.005	1.10	1.24	73.4	YES	NO	db	db	2.787
12	Total-hexadioxins	35.06	3.935e4	3.059e4	1.005	1.29	1.24	258.4	YES	NO	bd	bd	13.294
13	Total-hexadioxins	34.69	7.056e3	5.828e3	1.005	1.21	1.24	73.2	YES	NO	bb	bb	2.449
14	124679-HXCDD	33.92	4.952e4	3.940e4	1.115	1.26	1.24	488.5	YES	NO	bb	bb	15.500
15	123789-HxCDD	36.44	5.232e3	4.487e3	0.907	1.17	1.24	48.8	YES	NO	bb	db	2.046
16	Total-hexadioxins	36.22	3.028e3	2.800e3	1.005	1.08	1.24	27.8	YES	NO	db	dd	1.108
17	123678-HxCDD	36.06	1.048e4	7.864e3	1.001	1.33	1.24	105.4	YES	NO	dd	dd	3.439
18	123478-HxCDD	35.94	2.127e3	1.959e3	0.996	1.09	1.24	24.4	YES	NO	bd	bd	0.798
19	1234678-HpCDD	40.17	2.092e5	1.990e5	1.039	1.05	1.05	878.5	YES	NO	bb	bb	103.352
20	1234679-HPCDD	39.14	4.763e5	4.571e5	1.137	1.04	1.05	2146.3	YES	NO	bb	bb	216.010
21	OCDD	44.88	1.055e6	1.236e6	0.920	0.85	0.89	6408.5	YES	NO	bb	bb	733.897

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.80	9.661e2	1.453e3	0.727	0.67	0.77	8.7	YES	NO	dd	dd	0.356
2	Total-tetrafurans	23.54	1.372e3	1.738e3	0.727	0.79	0.77	15.6	YES	NO	db	dd	0.457
3	Total-tetrafurans	23.22	2.152e3	2.720e3	0.727	0.79	0.77	13.1	YES	NO	dd	dd	0.716
4	Total-tetrafurans	23.03	2.453e3	3.728e3	0.727	0.66	0.77	20.0	YES	NO	bd	dd	0.909
5	Total-tetrafurans	22.45	1.591e3	1.923e3	0.727	0.83	0.77	15.8	YES	NO	bb	bb	0.517
6	1368-TCDF	22.19	1.005e3	1.354e3	0.802	0.74	0.77	10.0	YES	NO	bb	bb	0.315
7	Total-Furans	21.11	4.056e2	5.877e2	0.922	0.69	0.77	2.6	NO	NO	bb	bb	0.115
8	Total-tetrafurans	25.93	2.480e3	3.173e3	0.727	0.78	0.77	22.4	YES	NO	dd	dd	0.831
9	Total-tetrafurans	25.83	1.751e3	2.040e3	0.727	0.86	0.77	18.0	YES	NO	dd	dd	0.557
10	2378-TCDF	25.70	1.862e3	2.799e3	0.702	0.67	0.77	17.0	YES	NO	dd	dd	0.710
11	Total-tetrafurans	25.18	7.726e2	9.621e2	0.727	0.80	0.77	6.4	YES	NO	bd	bb	0.255
12	Total-tetrafurans	25.01	1.131e3	1.401e3	0.727	0.81	0.77	11.5	YES	NO	bb	bb	0.372
13	Total-tetrafurans	24.79	1.963e3	2.646e3	0.727	0.74	0.77	16.4	YES	NO	db	db	0.678
14	Total-tetrafurans	24.59	2.662e3	4.020e3	0.727	0.66	0.77	22.0	YES	NO	dd	dd	0.983
15	Total-tetrafurans	24.36	3.378e3	4.064e3	0.727	0.83	0.77	21.2	YES	NO	dd	dd	1.094
16	Total-pentafurans	28.79	4.241e3	2.909e3	0.654	1.46	1.55	58.4	YES	NO	db	db	1.360
17	Total-pentafurans	28.72	3.801e3	2.276e3	0.654	1.67	1.55	48.6	YES	NO	dd	bd	1.156
18	23478-PeCDF	31.20	1.569e3	9.431e2	0.786	1.66	1.55	21.0	YES	NO	bb	bb	0.421
19	Total-pentafurans	30.94	1.925e3	1.261e3	0.654	1.53	1.55	19.7	YES	NO	bd	bd	0.606
20	Total-pentafurans	30.06	1.590e3	1.077e3	0.654	1.48	1.55	22.6	YES	NO	bd	bd	0.507
21	12378-PeCDF	29.84	1.964e3	1.153e3	0.679	1.70	1.55	25.1	YES	NO	bb	bb	0.540
22	123478-HxCDF	34.81	3.400e3	2.447e3	1.166	1.39	1.24	59.3	YES	NO	dd	dd	0.866
23	Total-hexafurans	34.19	2.857e4	2.289e4	1.141	1.25	1.24	529.7	YES	NO	bb	bb	8.218
24	Total-hexafurans	33.89	8.020e2	7.242e2	1.141	1.11	1.24	15.1	YES	NO	bb	bb	0.244
25	Total-hexafurans	33.35	2.656e4	2.136e4	1.141	1.24	1.24	451.4	YES	NO	bb	bd	7.654
26	123468-HXCDF	33.14	9.336e3	7.618e3	1.169	1.23	1.24	155.1	YES	NO	bb	bb	2.503
27	234678-HxCDF	35.81	3.196e3	2.700e3	1.140	1.18	1.24	39.5	YES	NO	bb	bb	0.921
28	123678-HxCDF	34.95	2.476e3	2.079e3	1.091	1.19	1.24	41.8	YES	NO	db	dd	0.680
29	Total-heptafurans	39.35	6.864e4	7.359e4	0.978	0.93	1.05	1111.6	YES	NO	bb	bb	34.158
30	Total-heptafurans	39.10	9.224e2	9.935e2	0.978	0.93	1.05	15.5	YES	NO	bb	bb	0.460
31	1234678-HpCDF	38.68	4.083e4	3.896e4	1.003	1.05	1.05	653.2	YES	NO	bb	bb	16.316
32	OCDF	45.12	5.633e4	6.949e4	0.778	0.81	0.89	851.6	YES	NO	bb	bb	47.682
33	1234789-HpCDF	40.92	1.731e3	1.670e3	0.953	1.04	1.05	22.8	YES	NO	bb	bb	0.981
34	Total-penta1	27.12	2.095e4	1.370e4		1.53	1.55	534.2	YES	NO	bb	bb	4.443
35	Total-tetradioxins	25.66	2.866e2	3.935e2	1.024	0.73	0.77	4.5	YES	NO	dd	db	0.093
36	Total-tetradioxins	25.52	4.976e2	7.171e2	1.024	0.69	0.77	7.3	YES	NO	bd	bd	0.166
37	Total-tetradioxins	23.74	9.495e2	1.436e3	1.024	0.66	0.77	14.2	YES	NO	bb	bd	0.326

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1368-TCDD	23.47	1.473e3	2.178e3	1.015	0.68	0.77	18.9	YES	NO	bb	bb	0.502
39	Total-tetradioxins	26.47	4.777e2	6.429e2	1.024	0.74	0.77	5.9	YES	NO	db	db	0.153
40	Total-pentadioxins	30.38	1.900e3	1.312e3	1.502	1.45	1.55	11.5	YES	NO	db	bb	0.498
41	Total-pentadioxins	30.06	2.161e3	1.260e3	1.502	1.71	1.55	15.3	YES	NO	dd	bd	0.530
42	Total-pentadioxins	29.86	2.096e3	1.552e3	1.502	1.35	1.55	13.4	YES	NO	bd	bb	0.565
43	Total-pentadioxins	29.22	1.747e3	1.302e3	1.502	1.34	1.55	13.7	YES	NO	bb	bb	0.472
44	12378-PeCDD	31.44	2.537e3	1.662e3	1.022	1.53	1.55	13.8	YES	NO	bb	bb	0.956
45	Total-hexadioxins	35.16	7.665e3	7.000e3	1.005	1.10	1.24	73.4	YES	NO	db	db	2.787
46	Total-hexadioxins	35.06	3.935e4	3.059e4	1.005	1.29	1.24	258.4	YES	NO	bd	bd	13.294
47	Total-hexadioxins	34.69	7.056e3	5.828e3	1.005	1.21	1.24	73.2	YES	NO	bb	bb	2.449
48	124679-HXCDD	33.92	4.952e4	3.940e4	1.115	1.26	1.24	488.5	YES	NO	bb	bb	15.500
49	123789-HxCDD	36.44	5.232e3	4.487e3	0.907	1.17	1.24	48.8	YES	NO	bb	db	2.046
50	Total-hexadioxins	36.22	3.028e3	2.800e3	1.005	1.08	1.24	27.8	YES	NO	db	dd	1.108
51	123678-HxCDD	36.06	1.048e4	7.864e3	1.001	1.33	1.24	105.4	YES	NO	dd	dd	3.439
52	123478-HxCDD	35.94	2.127e3	1.959e3	0.996	1.09	1.24	24.4	YES	NO	bd	bd	0.798
53	1234678-HpCDD	40.17	2.092e5	1.990e5	1.039	1.05	1.05	878.5	YES	NO	bb	bb	103.352
54	1234679-HPCDD	39.14	4.763e5	4.571e5	1.137	1.04	1.05	2146.3	YES	NO	bb	bb	216.010
55	OCDD	44.88	1.055e6	1.236e6	0.920	0.85	0.89	6408.5	YES	NO	bb	bb	733.897

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.75	8.355e5					6.1	YES		db		
2	FUNCTION1 PFK	23.50	2.875e5					9.5	YES		dd		
3	FUNCTION1 PFK	23.22	1.832e6					19.0	YES		dd		
4	FUNCTION1 PFK	23.15	3.423e6					20.4	YES		bd		
5	FUNCTION1 PFK	22.48	4.124e6					17.2	YES		bb		
6	FUNCTION1 PFK	21.37	1.820e5					5.6	YES		bb		
7	FUNCTION1 PFK	21.21	4.314e4					3.0	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.11	7.510e5					15.3	YES		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.91	3.295e5					24.0	YES		bd		0.000
2	FUNCTION3 PFK	35.66	3.112e5					2.1	NO		bb		0.000
3	FUNCTION3 PFK	35.23	6.251e5					9.2	YES		bb		0.000
4	FUNCTION3 PFK	34.70	6.387e5					7.0	YES		bb		0.000
5	FUNCTION3 PFK	33.84	3.777e4					4.0	YES		bb		0.000
6	FUNCTION3 PFK	33.64	1.210e5					4.1	YES		bb		0.000
7	FUNCTION3 PFK	37.65	1.508e6					13.0	YES		db		0.000
8	FUNCTION3 PFK	37.26	1.617e6					34.1	YES		dd		0.000
9	FUNCTION3 PFK	37.02	9.811e5					47.1	YES		dd		0.000
10	FUNCTION3 PFK	36.99	1.565e6					46.5	YES		bd		0.000
11	FUNCTION3 PFK	36.34	7.489e6					48.7	YES		db		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.86	1.472e5					5.9	YES		bb		
2	FUNCTION4 PFK	38.92	5.013e5					8.7	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.02	6.551e3					1.8	NO		bb		
2	FUNCTION5 PFK	44.14	4.843e3					1.6	NO		bb		
3	FUNCTION5 PFK	43.09	4.507e3					1.9	NO		bb		
4	FUNCTION5 PFK	43.07	2.907e3					1.3	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.75	1.139e2					2.7	NO		bd		0.000
2	FUNCTION1 HXCD...	25.52	1.984e2					2.6	NO		bb		0.000
3	FUNCTION1 HXCD...	27.31	9.002e1					1.1	NO		bb		0.000
4	FUNCTION1 HXCD...	26.73	2.631e2					2.3	NO		db		0.000
5	FUNCTION1 HXCD...	26.48	9.913e1					2.6	NO		dd		0.000
6	FUNCTION1 HXCD...	26.33	2.899e2					3.1	YES		bd		0.000
7	FUNCTION1 HXCD...	26.07	2.384e2					4.3	YES		bb		0.000
8	FUNCTION1 HXCD...	25.84	5.228e2					12.5	YES		db		0.000

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ETHERS2

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

ETHERS3

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

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.71	9.148e1					4.1	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.35	1.893e3					54.8	YES		bb		0.000

ETHERS6

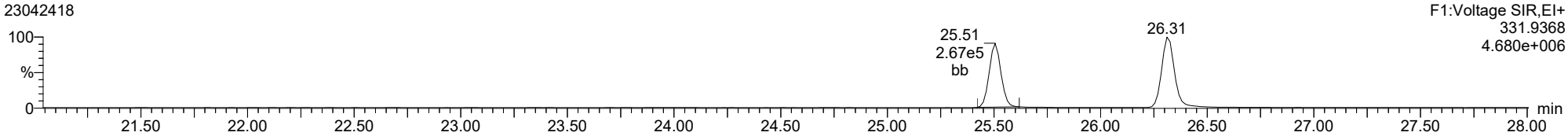
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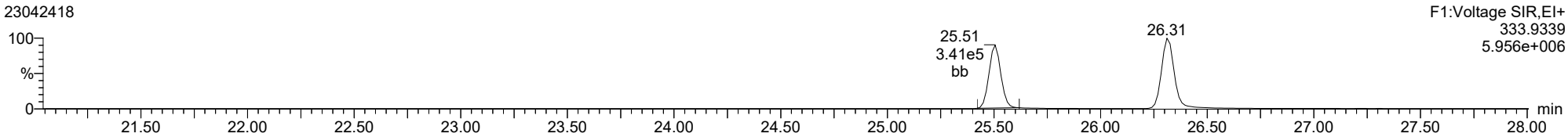
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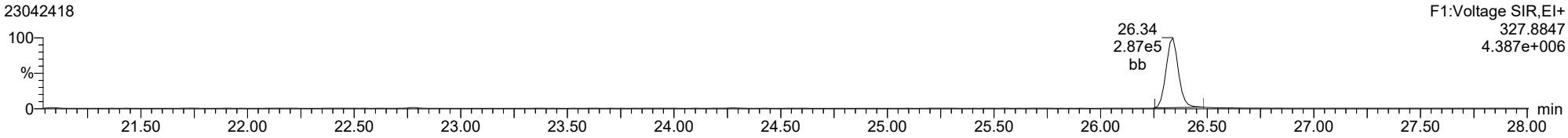
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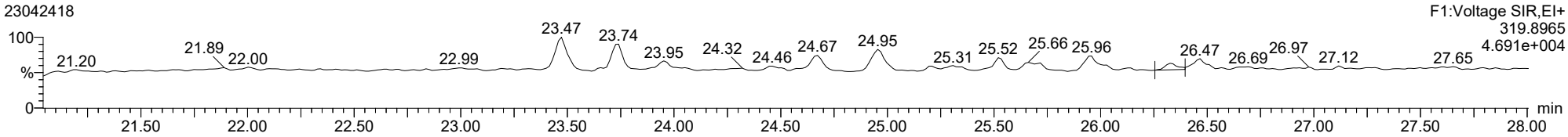


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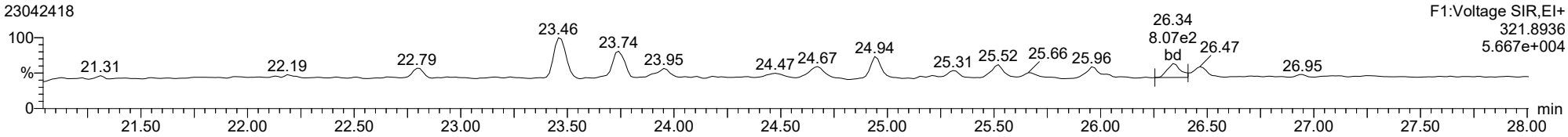


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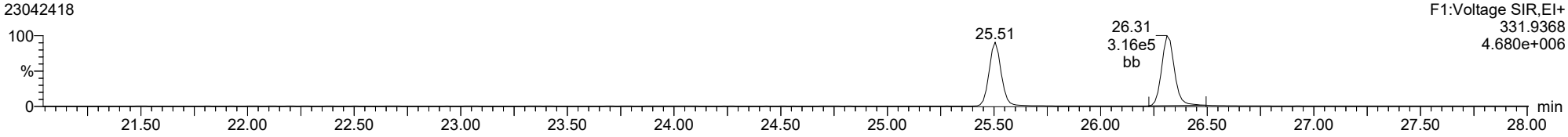
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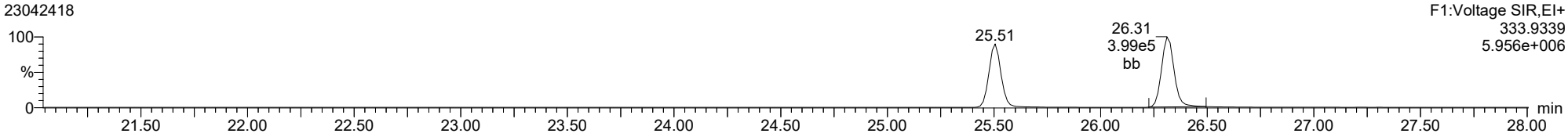
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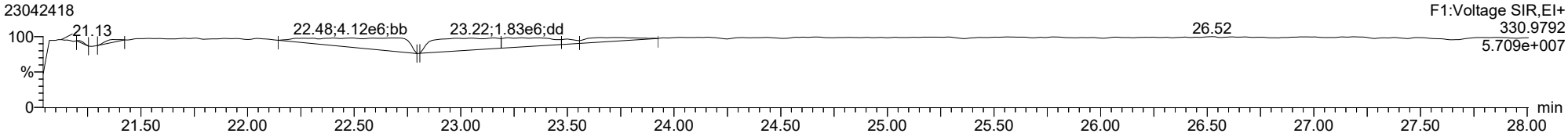
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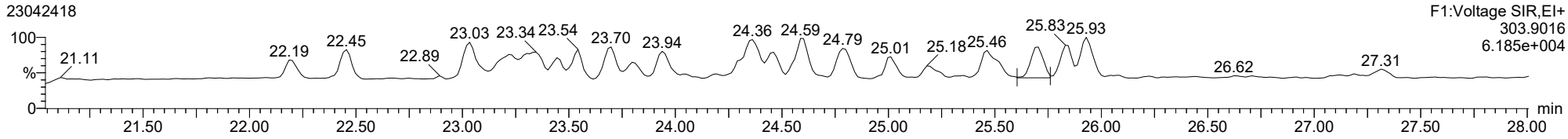


FUNCTION1 PFK

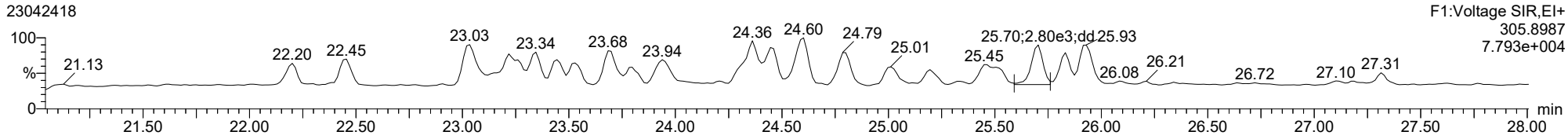


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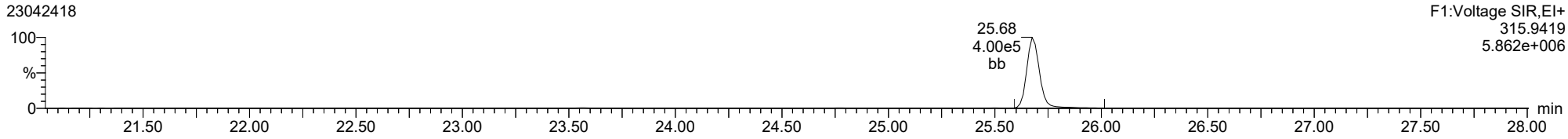
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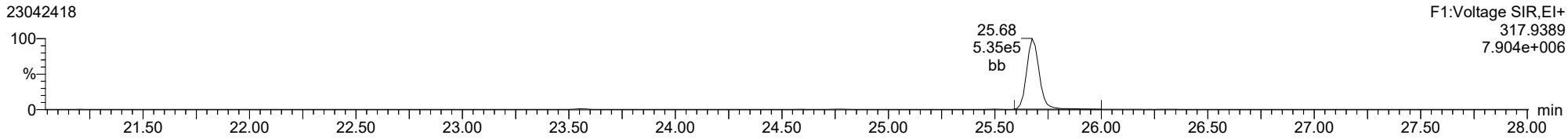
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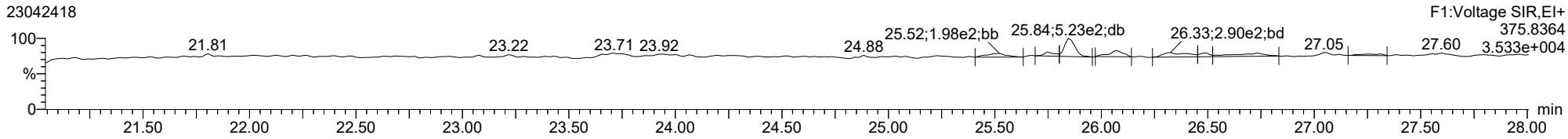
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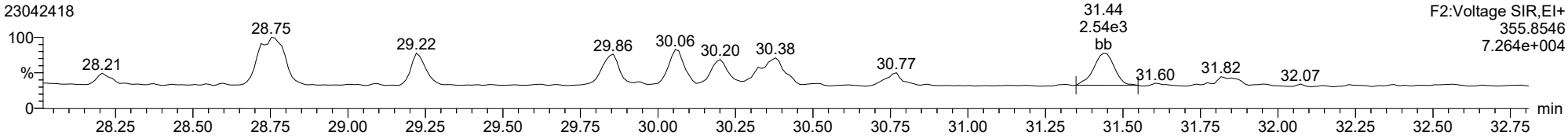


FUNCTION1 HXCDPE

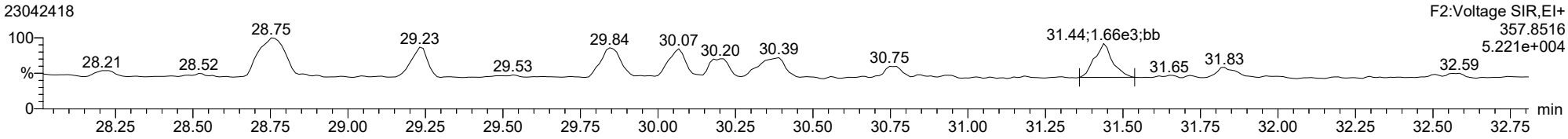


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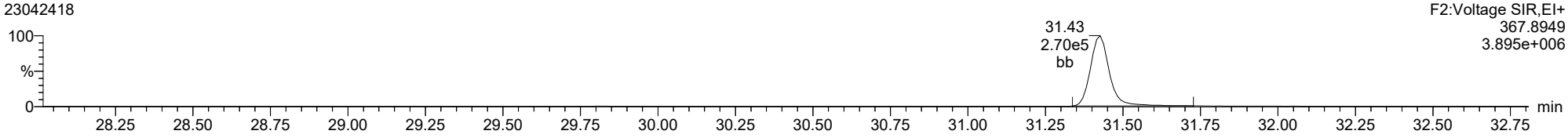
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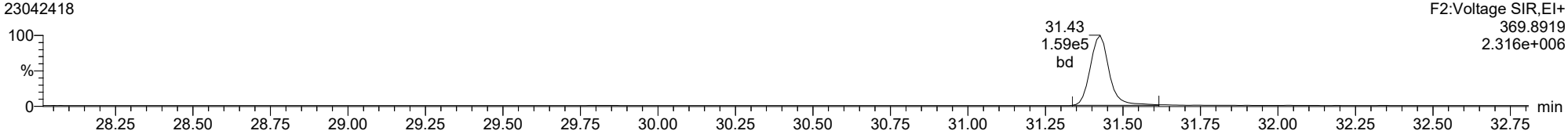
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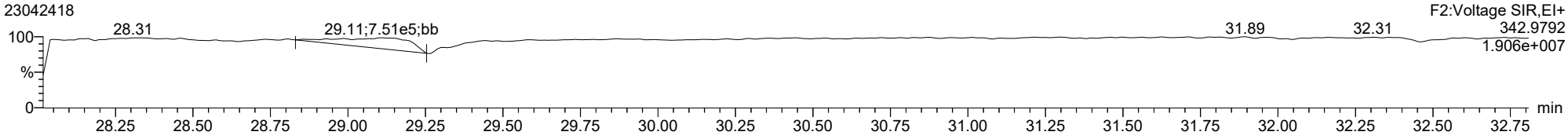
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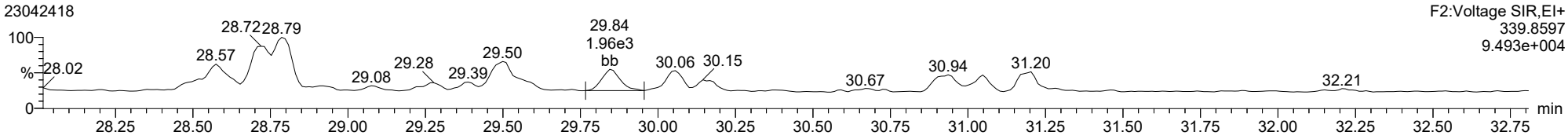


FUNCTION2 PFK

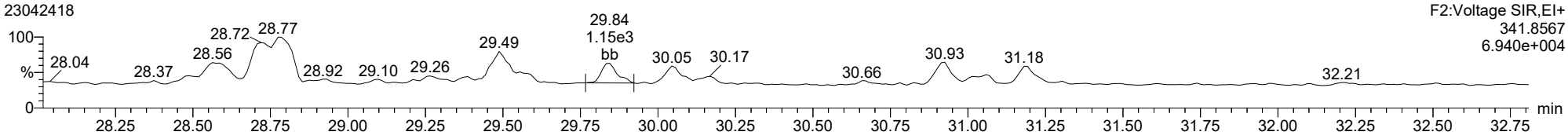


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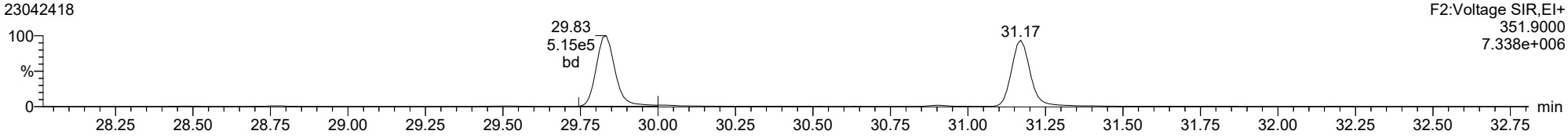
12378-PeCDF



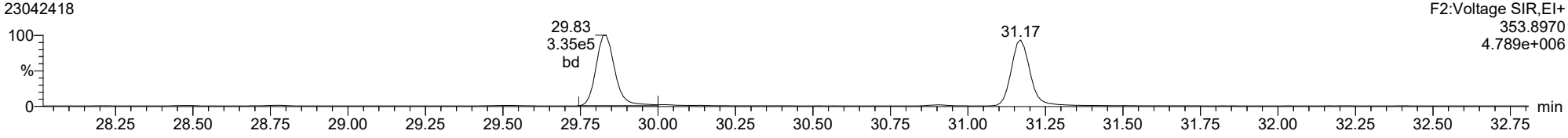
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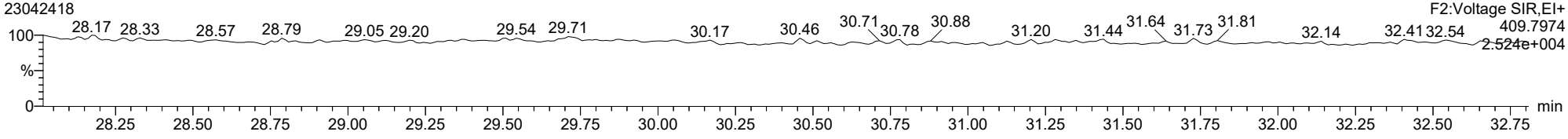
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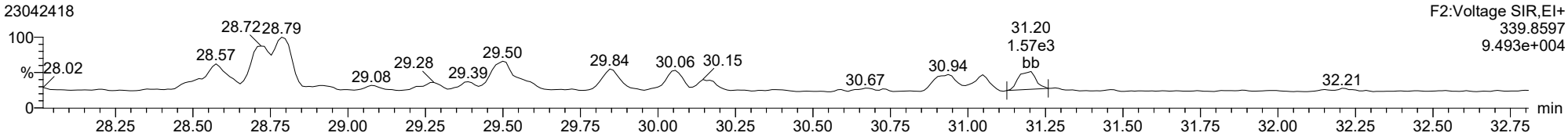


FUNCTION2 HPCDPE

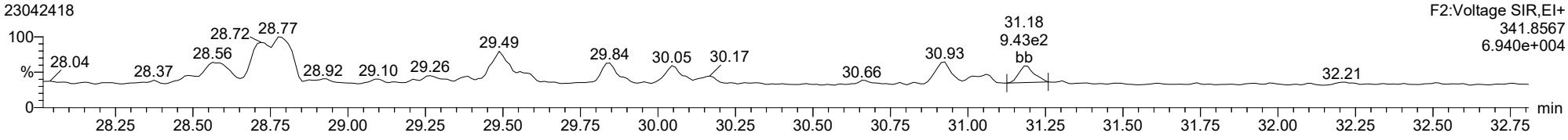


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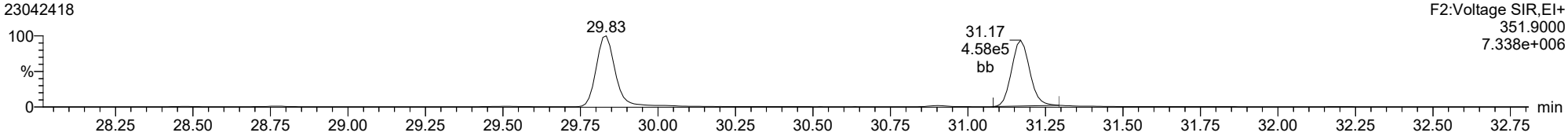
23478-PeCDF



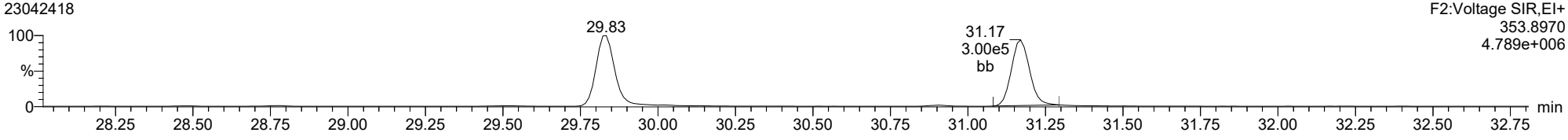
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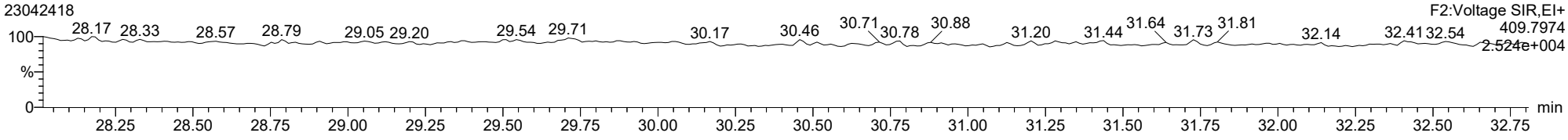
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13C-23478-PeCDF

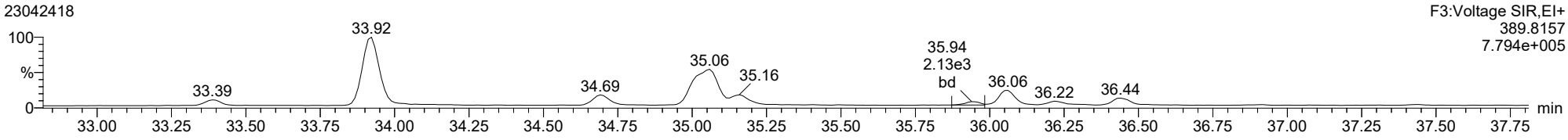


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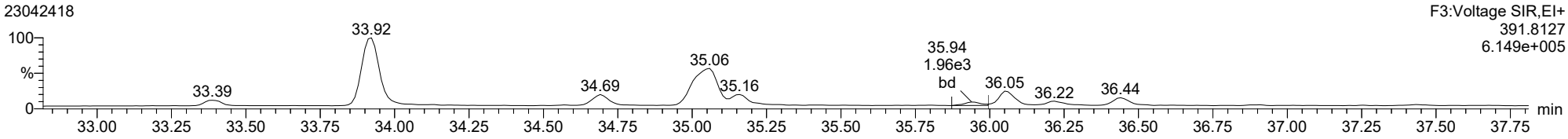


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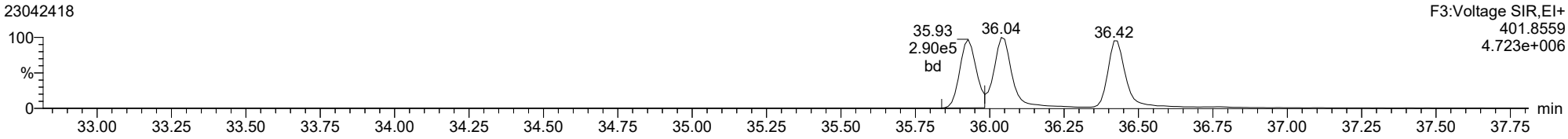
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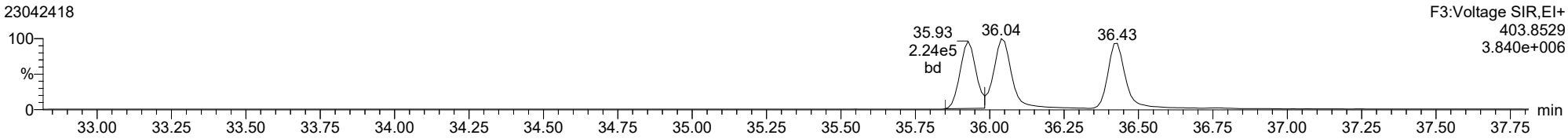
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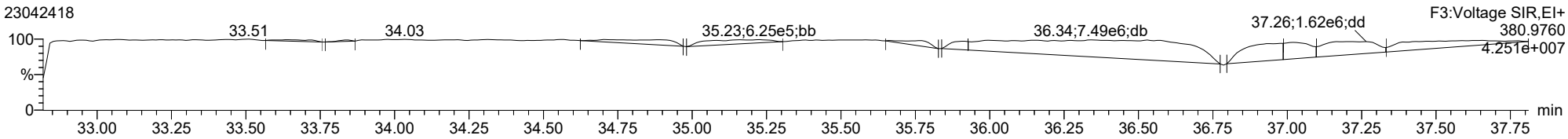
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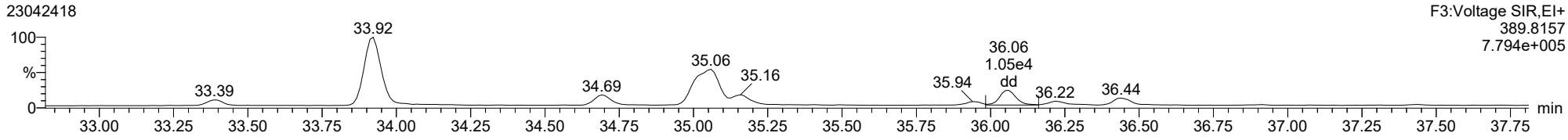


FUNCTION3 PFK

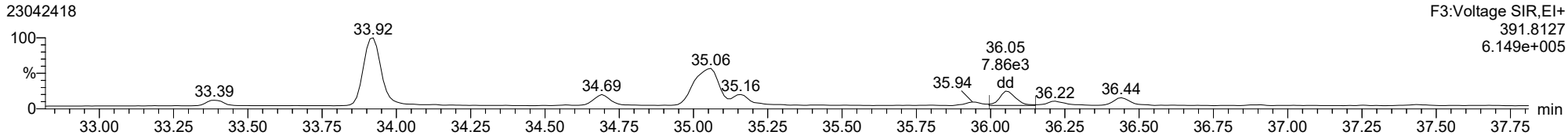


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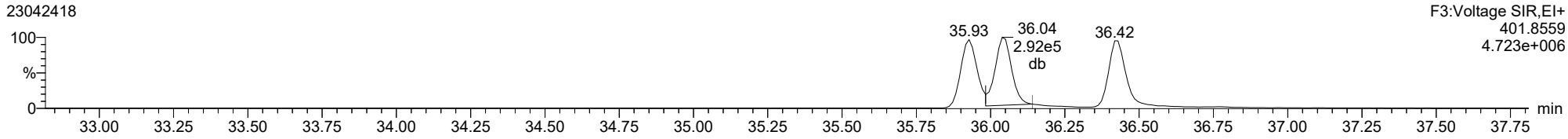
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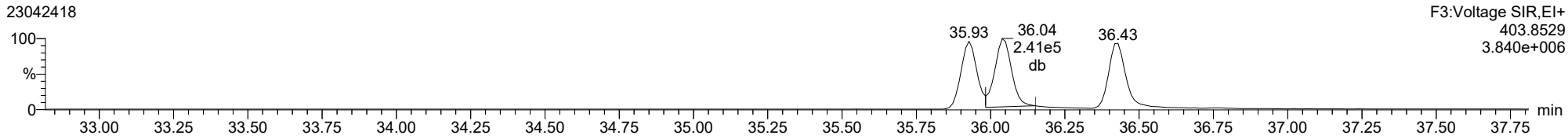
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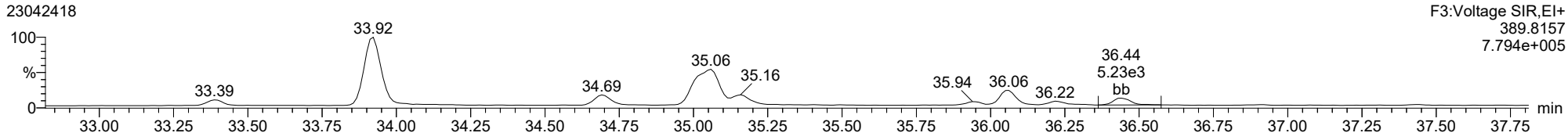


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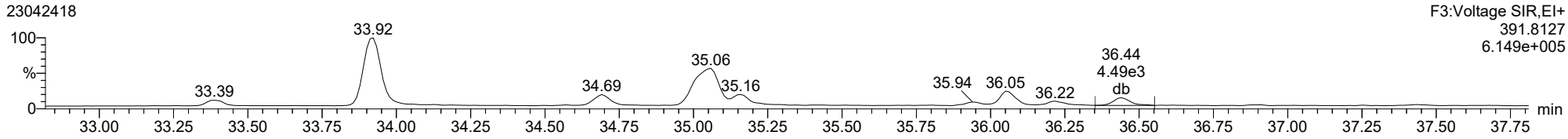


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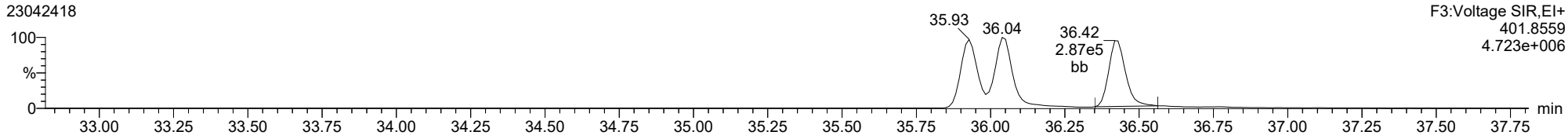
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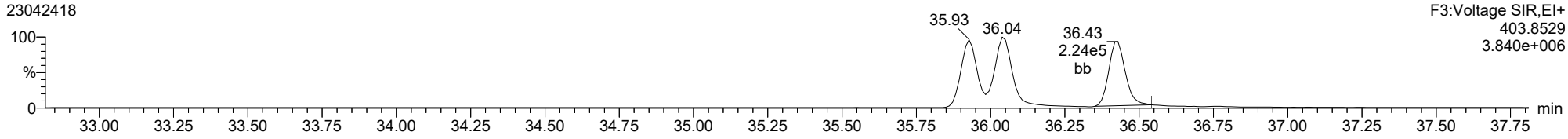
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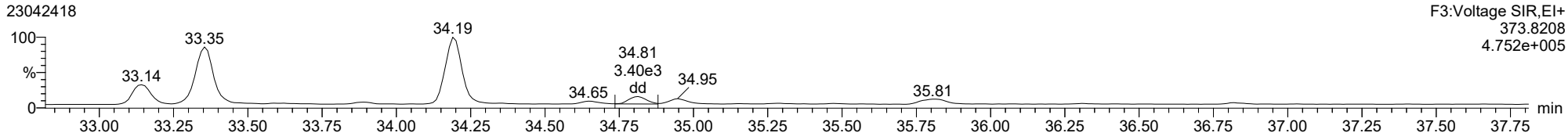


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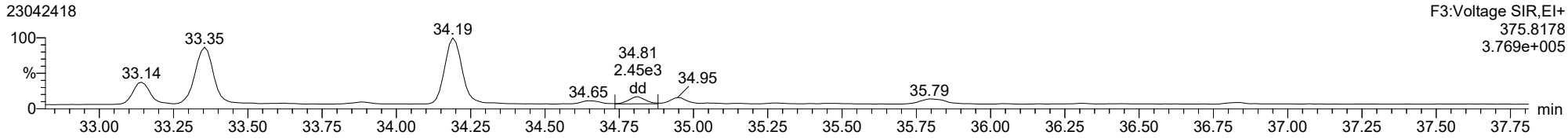


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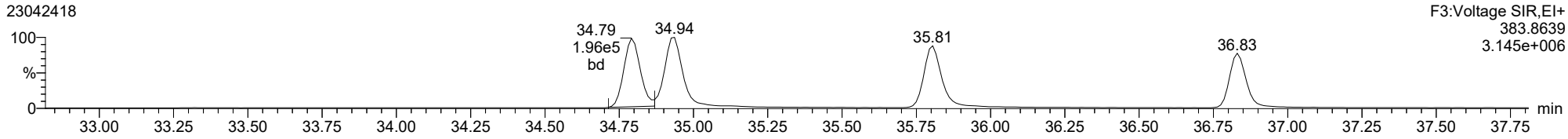
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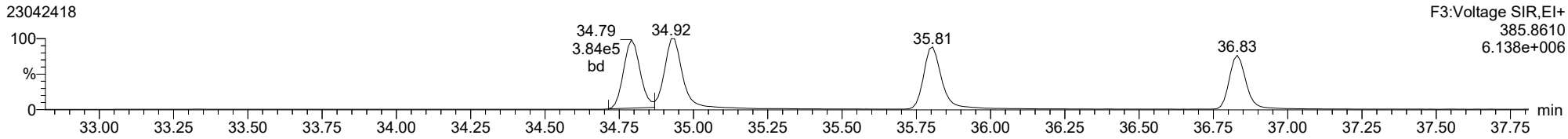
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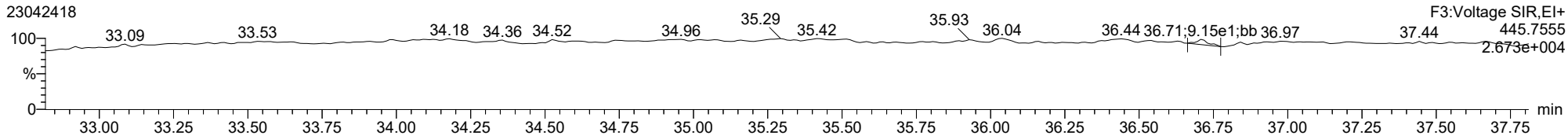
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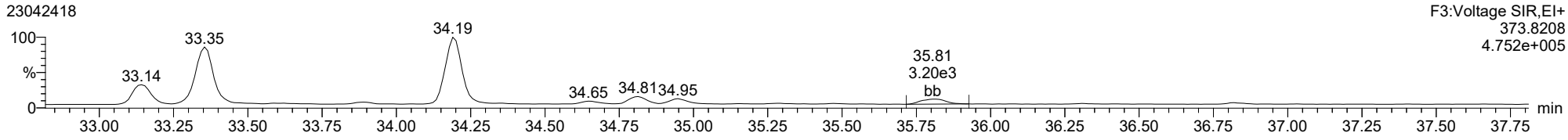


FUNCTION3 OCDPE

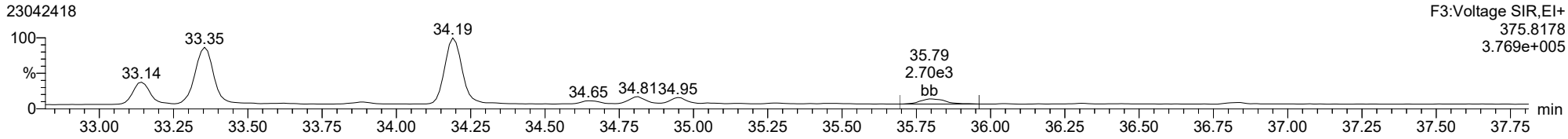


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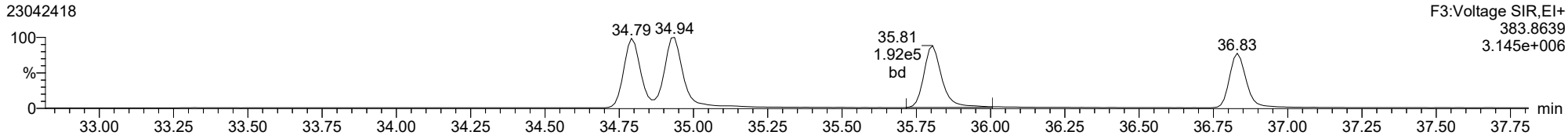
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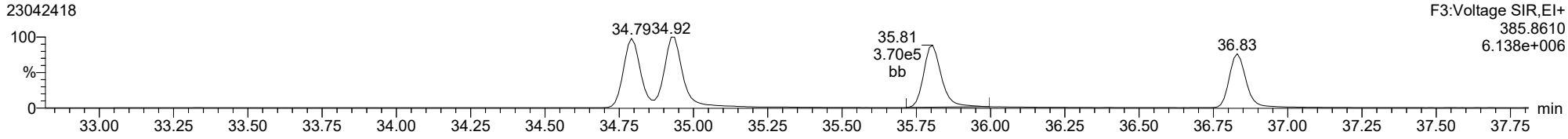
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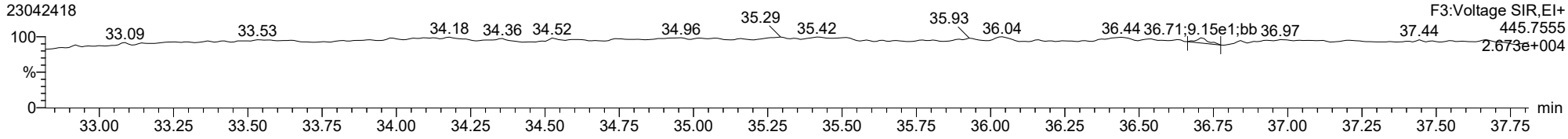
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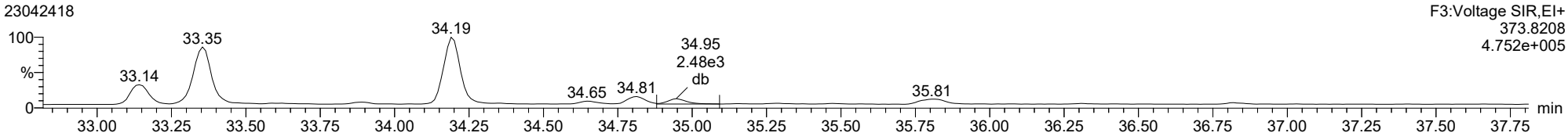


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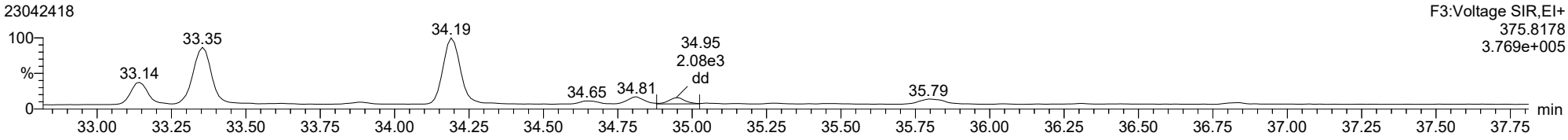


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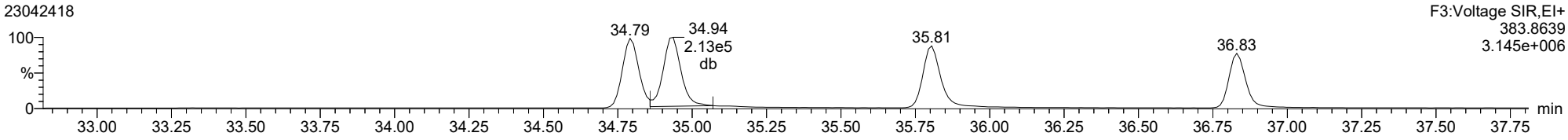
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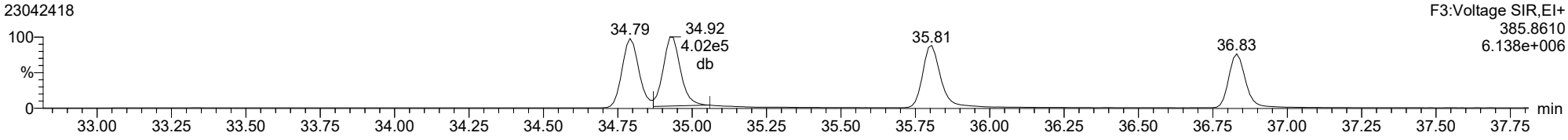
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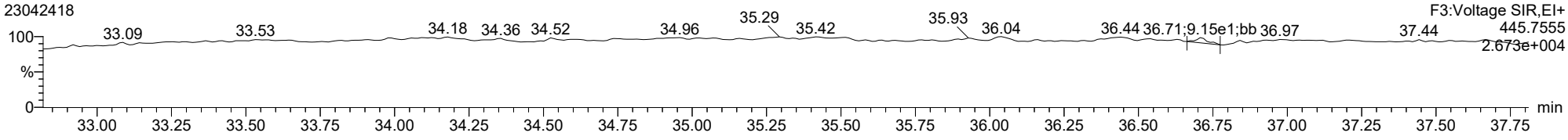
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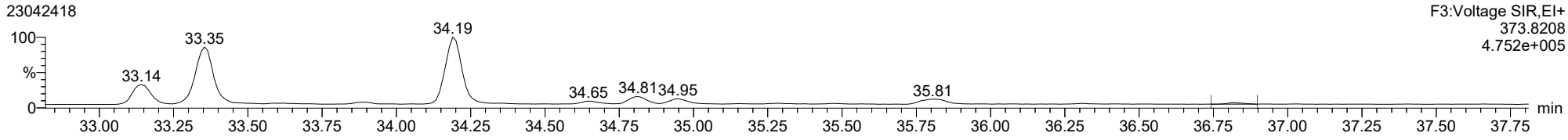


FUNCTION3 OCDPE

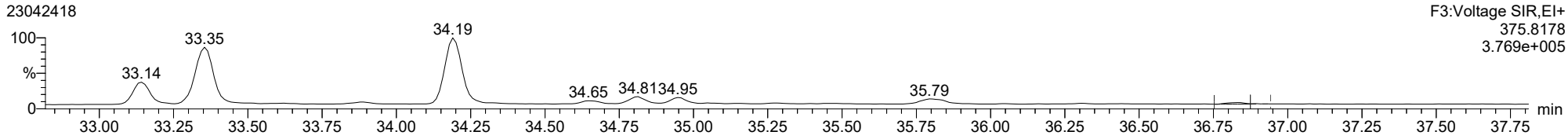


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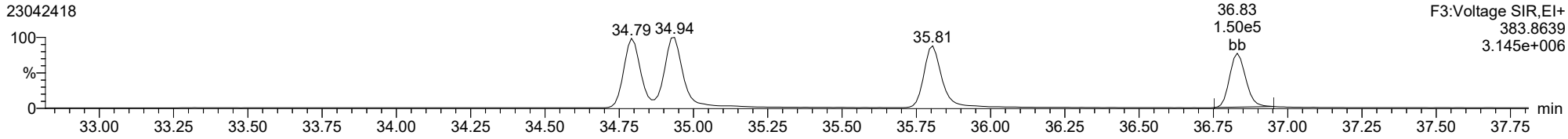
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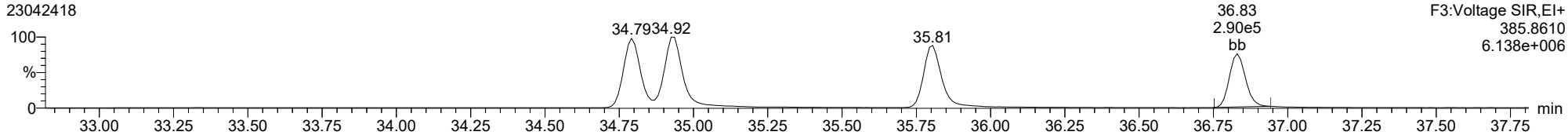
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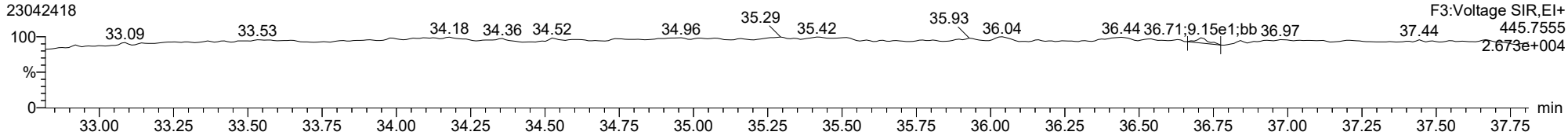
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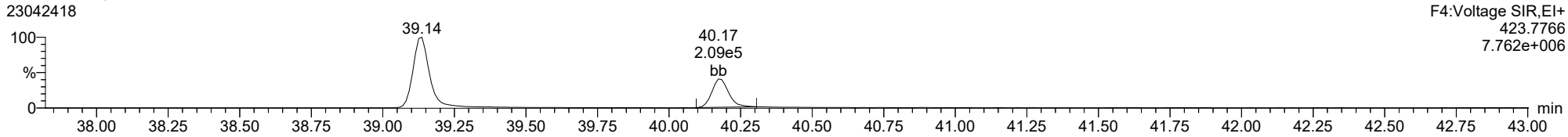


FUNCTION3 OCDPE

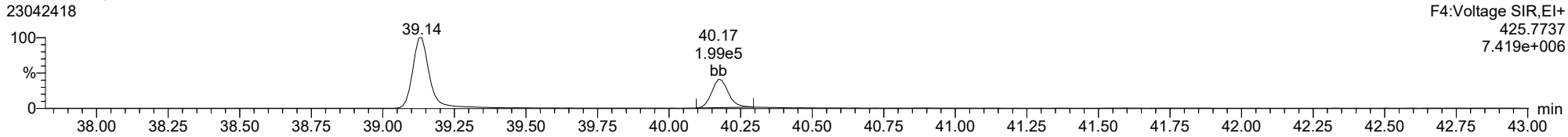


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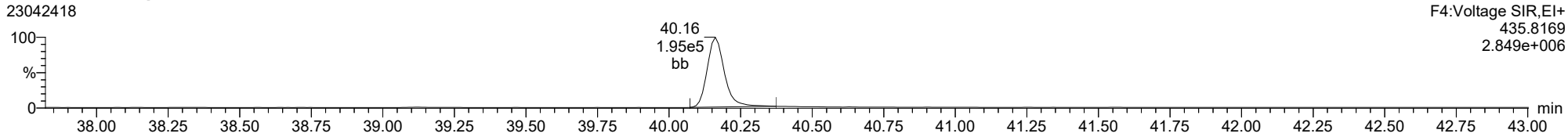
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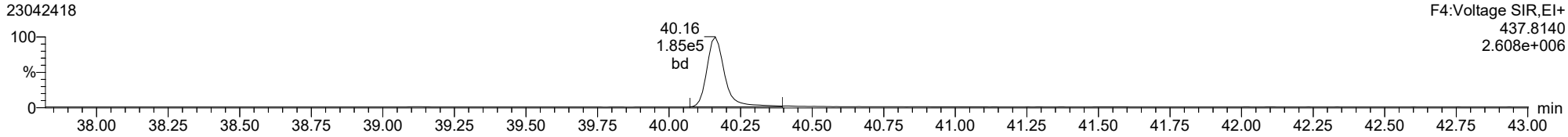
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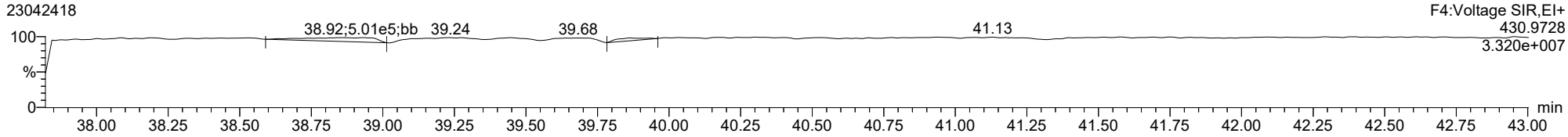
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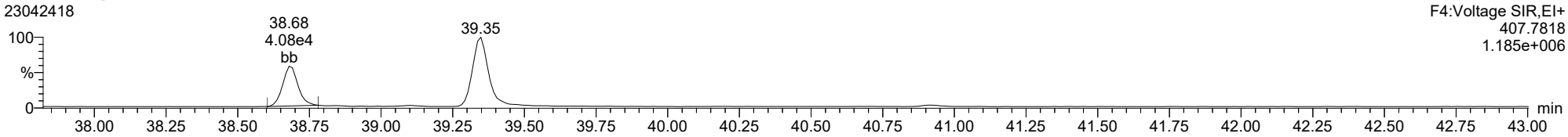


FUNCTION4 PFK

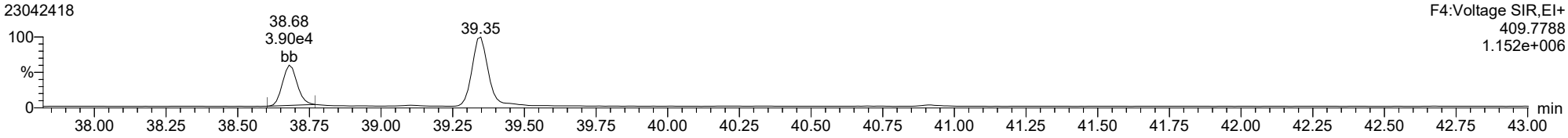


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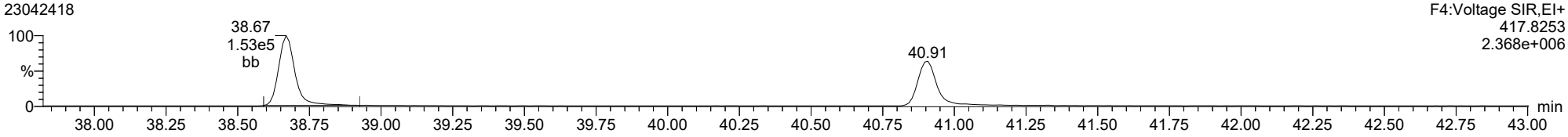
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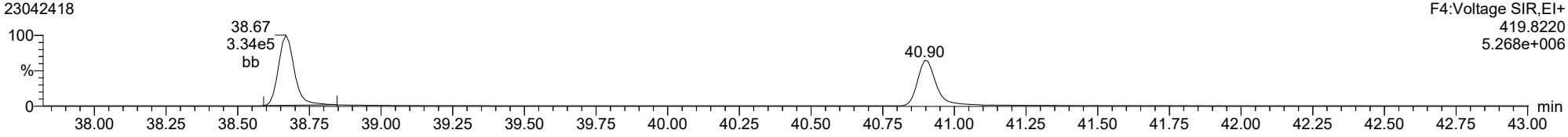
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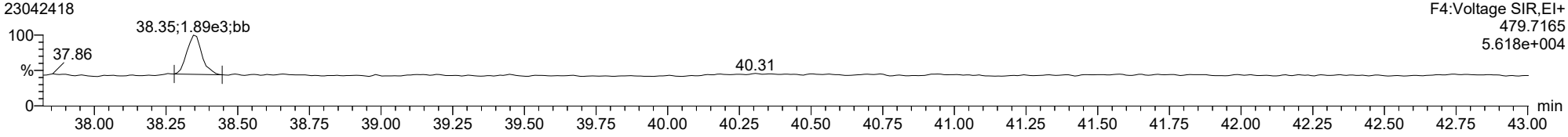
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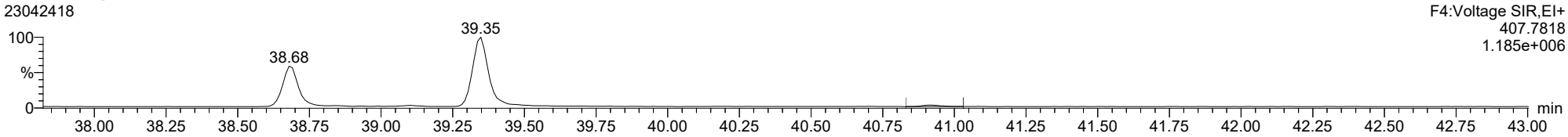


FUNCTION4 NCDPE

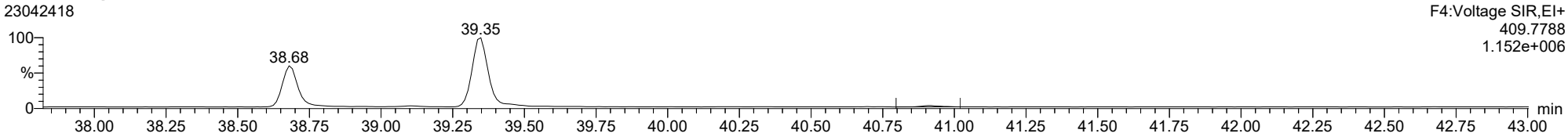


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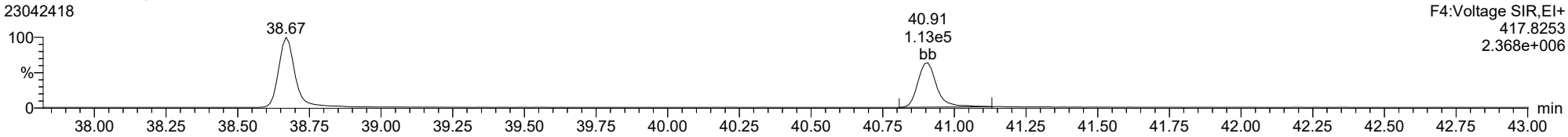
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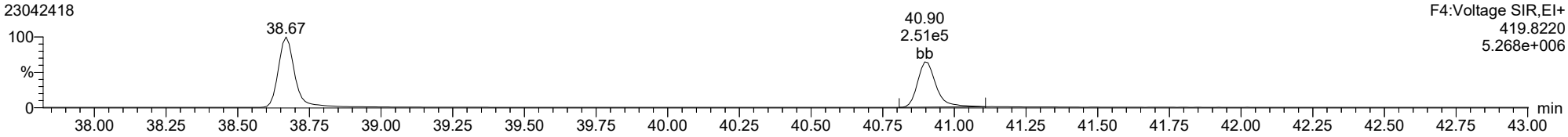
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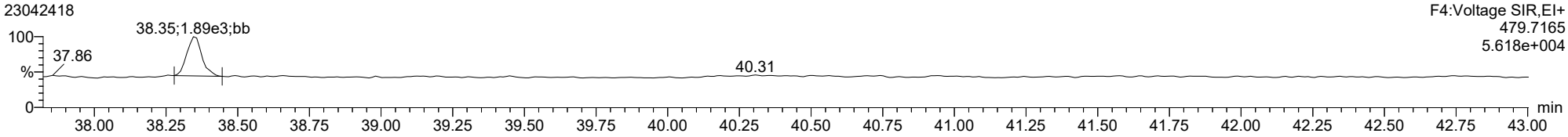
13C-1234789-HpCDF



13C-1234789-HpCDF

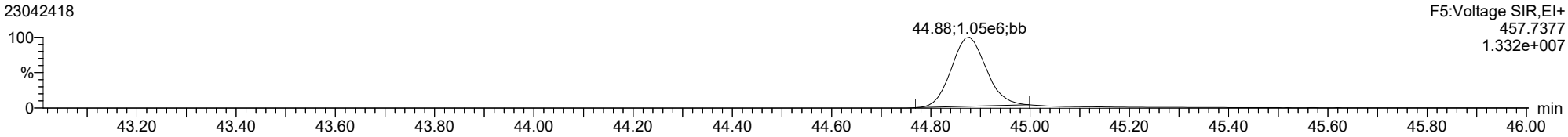


FUNCTION4 NCDPE

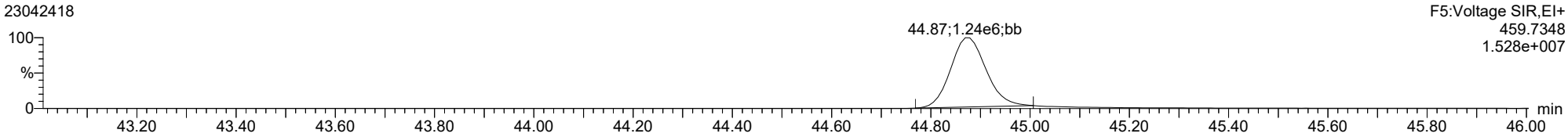


ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

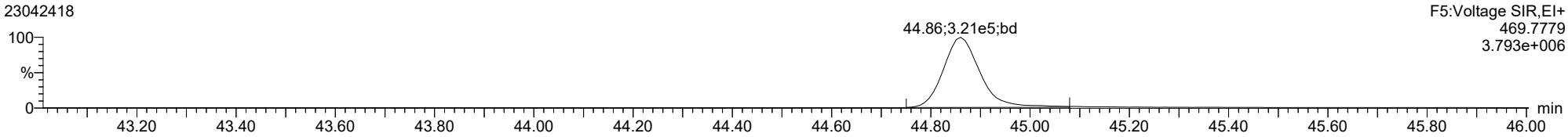
OCDD



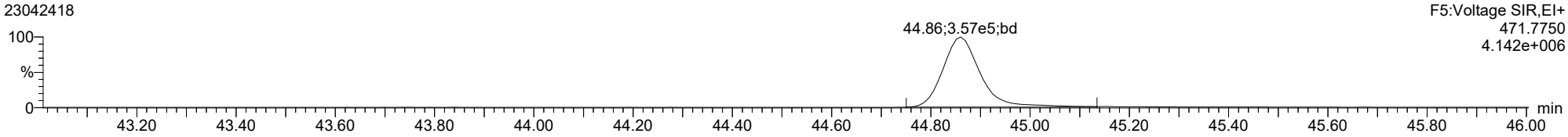
OCDD



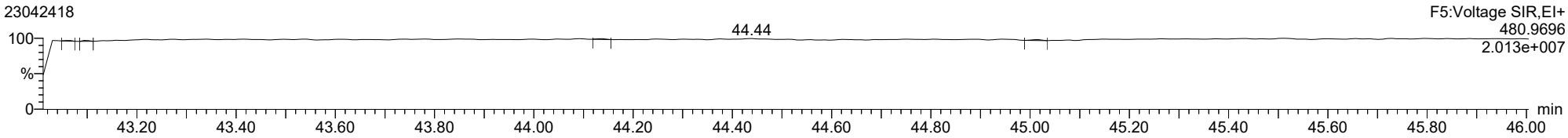
13C-OCDD



13C-OCDD

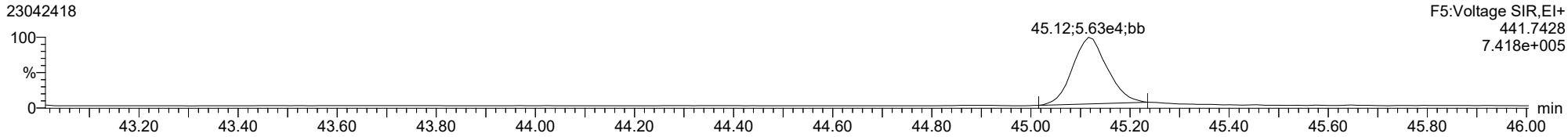


FUNCTION5 PFK

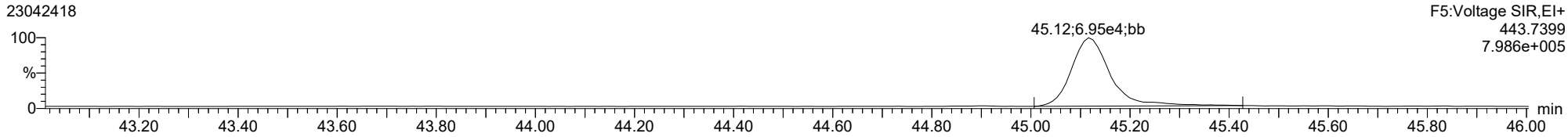


ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

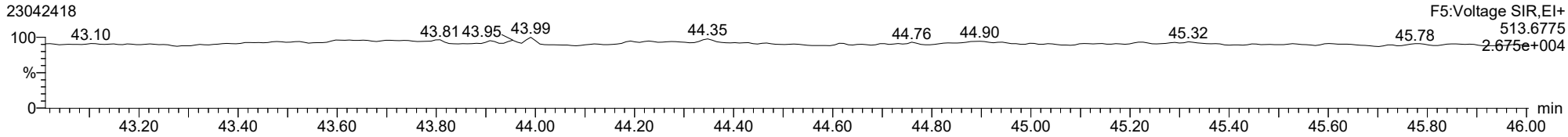
OCDF



OCDF

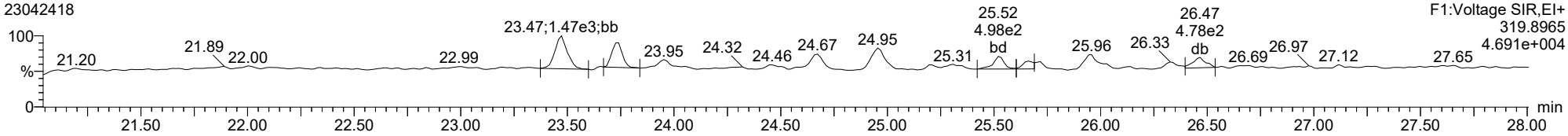


FUNCTION5 DCDPE

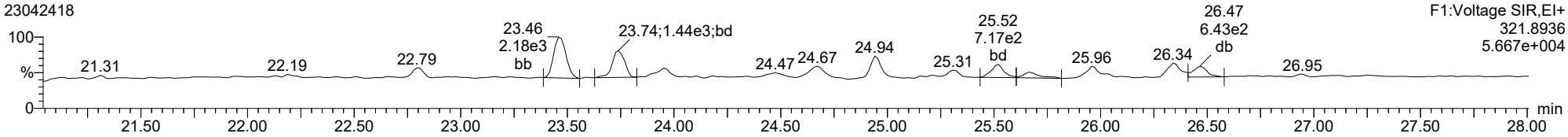


ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

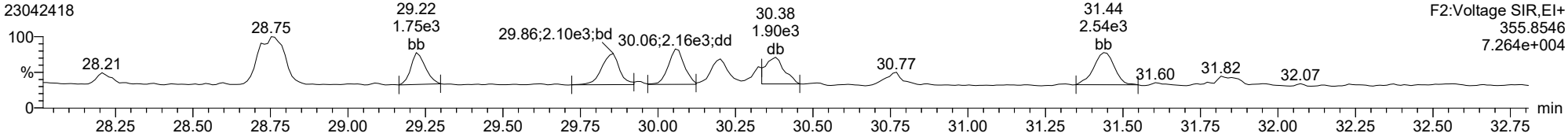
Total-tetradioxins



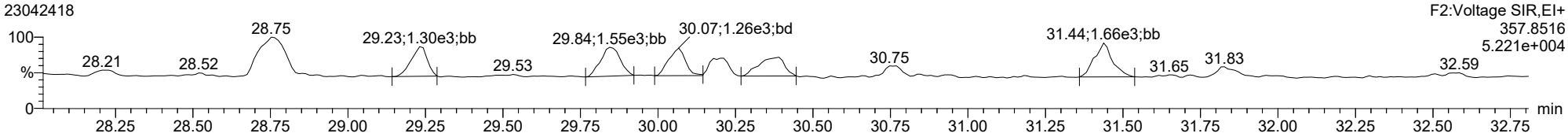
Total-tetradioxins



Total-pentadioxins

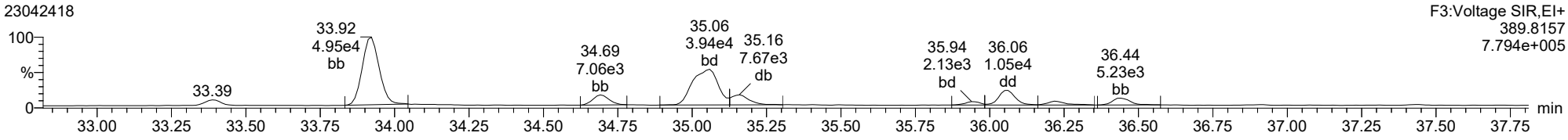


Total-pentadioxins

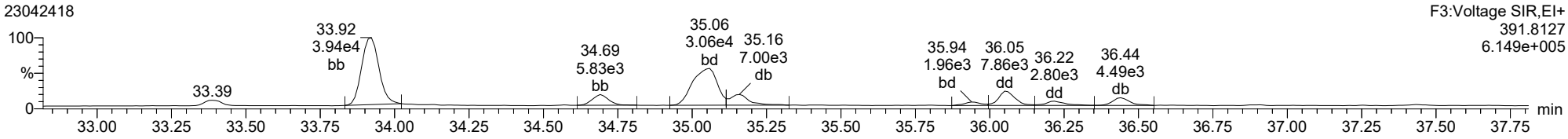


ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

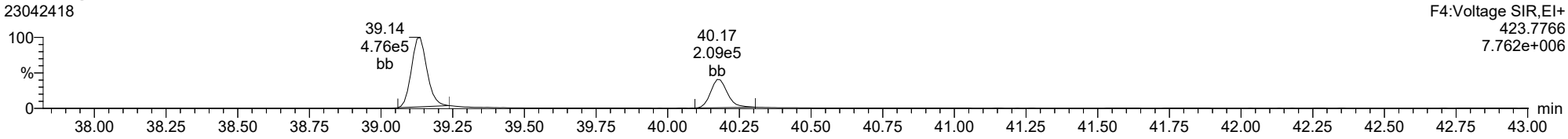
Total-hexadioxins



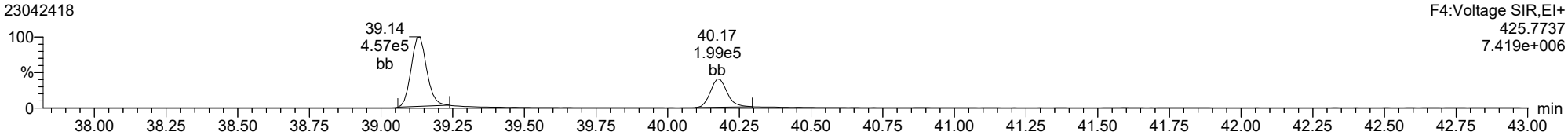
Total-hexadioxins



Total-heptadioxins

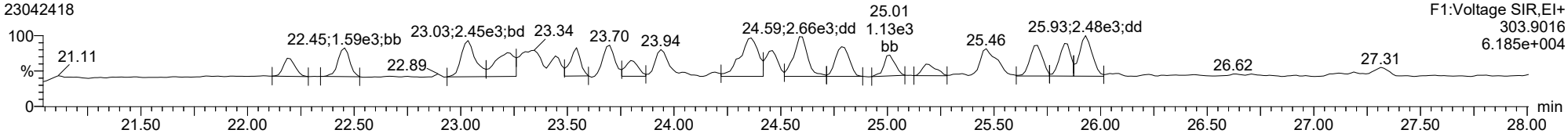


Total-heptadioxins

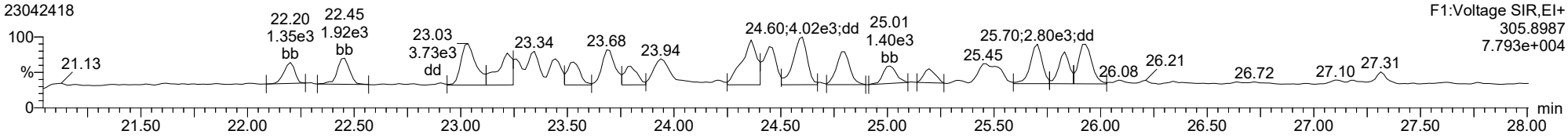


ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

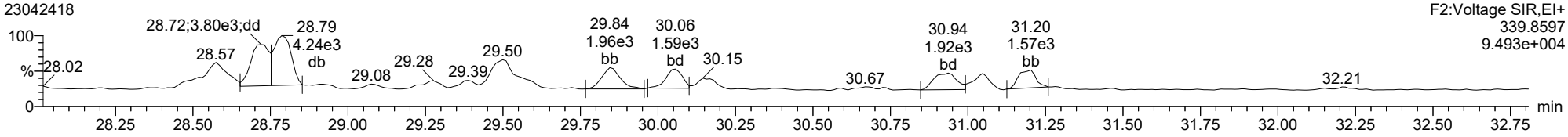
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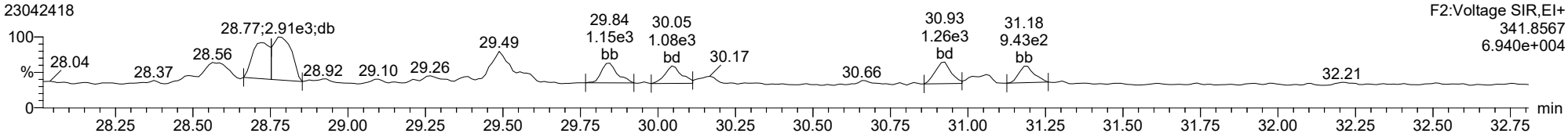
Total-tetrafurans



Total-pentafurans

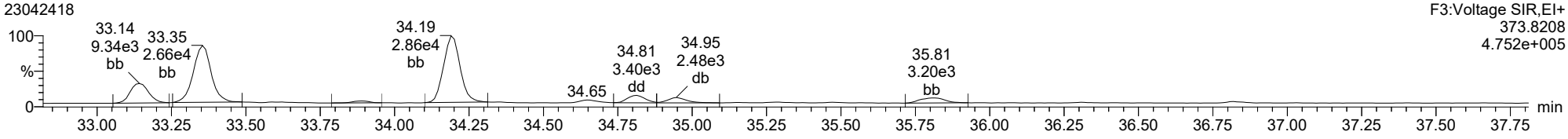


Total-pentafurans

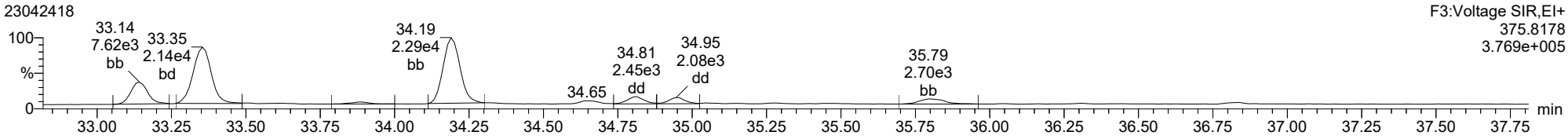


ID: 23C0619-14, Name: 23042418, Date: 25-Apr-2023, Time: 04:24:58, Conditions: AUTOSPEC01, User: pk

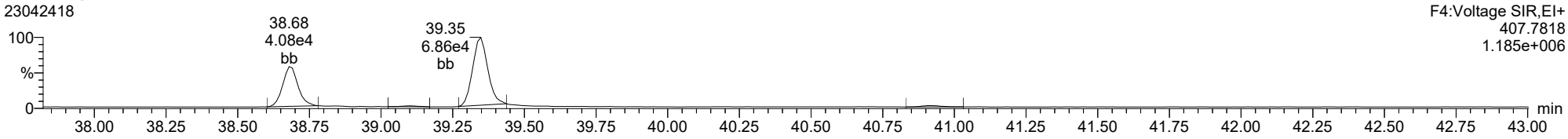
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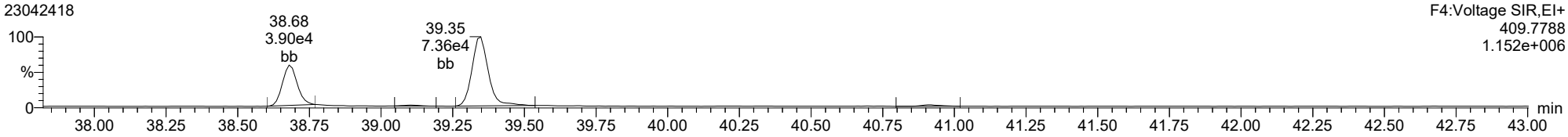
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

SED-11C:1-3

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.				
Project:	Port of Friday Harbor				
Matrix:	Sediment	Laboratory ID:	23C0619-15 A	File ID:	23042419
Sampled:	03/23/23 08:42	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 05:14
% Solids:	75.57	Preparation:	EPA 1613	Initial/Final:	13.23 g Wet / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.850	0.655-0.886	0.168	1.00	0.237	ng/kg	J
1746-01-6	2,3,7,8-TCDD	1		0.655-0.886	0.117	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1		1.318-1.783	0.189	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1		1.318-1.783	0.186	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	1.059	1.318-1.783	0.178	1.00	0.346	ng/kg	EMPC, J
70648-26-9	1,2,3,4,7,8-HxCDF	1	1.705	1.054-1.426	0.083	1.00	0.480	ng/kg	EMPC, J
57117-44-9	1,2,3,6,7,8-HxCDF	1	1.351	1.054-1.426	0.086	1.00	0.315	ng/kg	J
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.812	1.054-1.426	0.088	1.00	0.467	ng/kg	EMPC, J
72918-21-9	1,2,3,7,8,9-HxCDF	1		1.054-1.426	0.100	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	1.479	1.054-1.426	0.138	1.00	0.305	ng/kg	EMPC, J
57653-85-7	1,2,3,6,7,8-HxCDD	1	1.051	1.054-1.426	0.133	1.00	1.42	ng/kg	EMPC
19408-74-3	1,2,3,7,8,9-HxCDD	1	1.023	1.054-1.426	0.149	1.00	0.759	ng/kg	EMPC, J
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.930	0.893-1.208	0.141	1.00	11.5	ng/kg	
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.783	0.893-1.208	0.218	1.00	0.999	ng/kg	EMPC, J
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.003	0.893-1.208	0.316	2.50	44.4	ng/kg	B
39001-02-0	OCDF	1	0.877	0.757-1.024	0.482	2.50	40.6	ng/kg	
3268-87-9	OCDD	1	0.861	0.757-1.024	0.752	10.0	318	ng/kg	B

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	1.03	ng/kg	
41903-57-5	Total TCDD	1	0.000			1.00	1.01	ng/kg	
30402-15-4	Total PeCDF	1	0.000			1.00	2.97	ng/kg	
36088-22-9	Total PeCDD	1	0.000			1.00	0.700	ng/kg	
55684-94-1	Total HxCDF	1	0.000			1.00	8.81	ng/kg	
34465-46-8	Total HxCDD	1	0.000			1.00	8.65	ng/kg	
38998-75-3	Total HpCDF	1	0.000			1.00	39.2	ng/kg	
37871-00-4	Total HpCDD	1	0.000			1.00	101	ng/kg	

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 1.42

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 1.52

SED-11C:1-3

Form 2
ORGANIC ANALYSIS DATA SHEET
EPA 1613B
Dioxins/Furans by HRGC/HRMS

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Sediment	Laboratory ID:	23C0619-15	File ID:	23042419
Sampled:	03/23/23 08:42	Prepared:	04/06/23 13:16	Analyzed:	04/25/23 05:14
Solids Wt%:	75.57	Preparation:	EPA 1613	Initial/Final:	13.23 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0330	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF		0.756	0.655-0.886	0.083	83.4	24 - 169 %	
13C12-2,3,7,8-TCDD		0.787	0.655-0.886	0.152	91.2	25 - 164 %	
13C12-1,2,3,7,8-PeCDF		1.490	1.318-1.783	0.231	98.5	24 - 185 %	
13C12-2,3,4,7,8-PeCDF		1.516	1.318-1.783	0.256	97.1	21 - 178 %	
13C12-1,2,3,7,8-PeCDD		1.681	1.318-1.783	0.137	77.4	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF		0.510	0.434-0.587	0.332	90.3	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF		0.520	0.434-0.587	0.280	81.0	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF		0.512	0.434-0.587	0.344	89.9	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF		0.520	0.434-0.587	0.416	93.8	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD		1.246	1.054-1.426	0.272	95.6	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD		1.212	1.054-1.426	0.234	84.1	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF		0.465	0.374-0.506	0.449	99.7	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF		0.446	0.374-0.506	0.523	91.9	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD		1.057	0.893-1.208	0.260	83.0	23 - 140 %	
13C12-OCDD		0.914	0.757-1.024	0.306	83.1	17 - 157 %	
37Cl4-2,3,7,8-TCDD		328.000		0.059	83.4	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:30 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: 23C0619-15, Name: 23042419, Date: 25-Apr-2023, Time: 05:14:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.704	1.001	3.173e2	3.730e2	0.702	0.850	0.770	990	1382	5.06e3	4.94e3	5.1	3.6	NO	bd	bd	0.118
12378-PeCDF					0.679		1.550	1120	1318								
23478-PeCDF					0.786		1.550	1120	1318								
123478-HxCDF	34.813	1.001	9.808e2	5.752e2	1.166	1.705	1.240	738	620	1.57e4	1.09e4	21.3	17.5	YES	bd	bd	0.240
234678-HxCDF	35.816	1.000	6.392e2	7.874e2	1.140	0.812	1.240	738	620	9.21e3	8.17e3	12.5	13.2	YES	bb	bd	0.234
123678-HxCDF	34.947	1.000	5.840e2	4.324e2	1.091	1.351	1.240	738	620	8.90e3	6.21e3	12.1	10.0	NO	db	db	0.157
123789-HxCDF					1.137		1.240	738	620								
1234678-HpCDF	38.690	1.001	1.309e4	1.408e4	1.003	0.930	1.050	889	819	2.02e5	2.24e5	227.4	273.4	NO	bb	bb	5.752
1234789-HpCDF	40.918	1.000	7.803e2	9.962e2	0.953	0.783	1.050	889	819	9.34e3	1.24e4	10.5	15.1	YES	bb	bb	0.499
OCDF	45.125	1.006	2.480e4	2.829e4	0.778	0.877	0.890	1256	1146	2.81e5	3.24e5	223.7	282.5	NO	bb	bb	20.289
2378-TCDD					1.149		0.770	1372	737								
12378-PeCDD	31.437	1.000	3.585e2	3.387e2	1.022	1.059	1.550	874	899	5.22e3	5.34e3	6.0	5.9	YES	MM	bb	0.173
123478-HxCDD	35.949	1.001	4.539e2	3.069e2	0.996	1.479	1.240	824	986	7.29e3	7.59e3	8.8	7.7	YES	bd	bd	0.152
123678-HxCDD	36.050	1.000	1.870e3	1.780e3	1.001	1.051	1.240	824	986	2.63e4	2.93e4	31.9	29.7	YES	dd	db	0.711
123789-HxCDD	36.440	1.011	8.828e2	8.632e2	0.907	1.023	1.240	824	986	1.40e4	1.40e4	17.0	14.2	YES	bd	bb	0.379
1234678-HpCDD	40.172	1.000	4.249e4	4.235e4	1.039	1.003	1.050	1310	1660	6.25e5	6.17e5	476.8	371.9	NO	bb	bb	22.184
OCDD	44.878	1.000	2.274e5	2.640e5	0.920	0.861	0.890	2354	2075	2.80e6	3.17e6	1190.1	1529.7	NO	bb	bb	158.731
13C-2378-TCDF	25.675	1.007	3.578e5	4.731e5	1.620	0.756	0.770	920	1230	5.19e6	6.79e6	5643.6	5521.3	NO	bb	bb	83.368
13C-12378-PeCDF	29.833	1.170	4.498e5	3.019e5	1.240	1.490	1.550	3017	1569	6.81e6	4.38e6	2258.4	2790.0	NO	bb	bd	98.520
13C-23478-PeCDF	31.170	1.222	4.021e5	2.653e5	1.118	1.516	1.550	3017	1569	6.04e6	3.97e6	2002.6	2529.7	NO	bb	bb	97.063
13C-123478-HxCDF	34.791	0.955	1.880e5	3.684e5	1.168	0.510	0.510	1188	4122	2.86e6	5.60e6	2406.3	1358.6	NO	bd	bd	90.283
13C-123678-HxCDF	34.936	0.959	2.027e5	3.897e5	1.386	0.520	0.510	1188	4122	2.99e6	5.78e6	2514.0	1402.5	NO	db	db	80.985
13C-234678-HxCDF	35.805	0.983	1.814e5	3.543e5	1.129	0.512	0.510	1188	4122	2.76e6	5.31e6	2320.8	1289.3	NO	bb	bb	89.924
13C-123789-HxCDF	36.830	1.011	1.578e5	3.034e5	0.932	0.520	0.510	1188	4122	2.44e6	4.80e6	2056.2	1163.9	NO	bb	bb	93.829
13C-1234678-HpCDF	38.668	1.061	1.495e5	3.215e5	0.895	0.465	0.440	2574	2931	2.30e6	5.12e6	892.4	1747.5	NO	bd	bb	99.714
13C-1234789-HpCDF	40.907	1.123	1.152e5	2.580e5	0.770	0.446	0.440	2574	2931	1.52e6	3.43e6	590.8	1169.7	NO	bb	bb	91.903
13C-1234-TCDD	25.506	0.000	2.708e5	3.443e5	1.000	0.787	0.770	1737	1069	4.23e6	5.37e6	2434.4	5021.3	NO	bb	bb	100.000
13C-2378-TCDD	26.311	1.032	2.848e5	3.620e5	1.152	0.787	0.770	1737	1069	4.15e6	5.26e6	2391.3	4921.2	NO	bb	bb	91.242
13C-12378-PeCDD	31.426	1.232	2.473e5	1.471e5	0.829	1.681	1.550	928	896	3.66e6	2.12e6	3946.9	2362.3	NO	bd	bb	77.364
13C-123478-HxCDD	35.927	0.986	2.784e5	2.234e5	0.995	1.246	1.240	2295	1408	4.39e6	3.52e6	1913.5	2504.2	NO	bd	bd	95.583
13C-123678-HxCDD	36.039	0.989	2.812e5	2.320e5	1.157	1.212	1.240	2295	1408	4.47e6	3.70e6	1946.5	2628.0	NO	db	db	84.095
13C-1234678-HpCDD	40.161	1.102	1.892e5	1.789e5	0.840	1.057	1.050	1317	1677	2.79e6	2.63e6	2121.5	1569.0	NO	bb	bb	83.042
13C-OCDD	44.859	1.231	3.214e5	3.515e5	0.767	0.914	0.890	1768	1441	3.67e6	4.07e6	2075.3	2824.5	NO	bd	bb	166.196
13C-123789-HxCDD	36.429	0.000	2.948e5	2.328e5	1.000	1.266	1.240	2295	1408	4.59e6	3.63e6	1999.8	2578.0	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.033	2.642e5		1.288			1212		4.00e6		3300.1			bb		33.353

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
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Printed: Tuesday, April 25, 2023 11:22:30 Pacific Daylight Time

ID: 23C0619-15, Name: 23042419, Date: 25-Apr-2023, Time: 05:14:02, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.201	0.865	3.454e2	2.388e2	0.802	1.447	0.770	990	1382	4.19e3	3.25e3	4.2	2.4	YES	bd	bb	0.088
1289-TCDF					0.678		0.770	990	1382								
13468-PECDF					1.246		1.550	601	853								
12389-PECDF					0.496		1.550	1120	1318								
123468-HXCDF	33.142	0.953	1.665e3	1.155e3	1.169	1.442	1.240	738	620	2.62e4	1.76e4	35.6	28.5	YES	bb	bb	0.433
1368-TCDD	23.472	0.892	6.767e2	8.277e2	1.015	0.818	0.770	1372	737	1.02e4	1.49e4	7.5	20.2	NO	bb	bb	0.229
1289-TCDD					0.909		0.770	1372	737								
12479-PECDD	28.764	0.915	7.588e2	4.056e2	2.301	1.871	1.550	874	899	8.17e3	7.00e3	9.4	7.8	YES	bb	db	0.128
12389-PECDD	31.838	1.013	9.495e1	1.352e2	1.184	0.702	1.550	874	899	2.08e3	1.63e3	2.4	1.8	YES	bb	bb	0.049
124679-HXCDD	33.922	0.944	6.025e3	5.256e3	1.115	1.146	1.240	824	986	8.66e4	7.82e4	105.1	79.2	NO	bb	bb	2.015
1234679-HPCDD	39.136	0.974	5.849e4	6.099e4	1.137	0.959	1.050	1310	1660	9.39e5	9.16e5	716.3	552.1	NO	bb	bd	28.555
Total-tetrafurans			1.357e3		0.727			990		2.11e4							0.514
Total-penta1			4.329e3					601		6.20e4							1.061
Total-pentafurans			1.207e3		0.654			1120		1.82e4							0.425
Total-hexafurans			1.545e4		1.141			738		2.33e5							4.405
Total-heptafurans			4.189e4		0.978			889		6.62e5							19.606
Total-Furans			8.904e4		0.922			990		1.28e6							46.301
Total-tetradioxins			1.430e3		1.024			1372		2.29e4							0.506
Total-pentadioxins			1.264e3		1.502			874		2.25e4							0.350
Total-hexadioxins			1.238e4		1.005			824		1.60e5							4.322
Total-heptadioxins			1.010e5		1.088			1310		1.56e6							50.739
Total-Dioxins			3.434e5		1.130			1372		4.57e6							214.648
Total-TEQ			4.324e5					1372		5.85e6							260.949
FUNCTION1 PFK			1.488e7					293906		2.74e7							
FUNCTION2 PFK			0.000e0					210428		0.00e0							
FUNCTION3 PFK			6.880e6					253002		6.73e6							0.000
FUNCTION4 PFK			7.294e5					220243		1.73e7							
FUNCTION5 PFK			0.000e0					122345		0.00e0							
FUNCTION1 HXCD...			0.000e0					500		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.032e2					1015		5.77e3							0.000
FUNCTION3 OCDPE			4.758e2					450		7.75e3							0.000
FUNCTION4 NCDPE			4.368e2					513		1.02e4							0.000
FUNCTION5 DCDPE			0.000e0					536		0.00e0							

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.94	2.921e2	4.187e2	0.727	0.70	0.77	4.5	YES	NO	db	dd	0.118
2	Total-tetrafurans	25.93	4.471e2	5.480e2	0.727	0.82	0.77	7.7	YES	NO	db	db	0.165
3	2378-TCDF	25.70	3.173e2	3.730e2	0.702	0.85	0.77	5.1	YES	NO	bd	bd	0.118
4	Total-tetrafurans	25.01	3.010e2	3.809e2	0.727	0.79	0.77	4.1	YES	NO	bb	bb	0.113

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.12	4.329e3	2.987e3		1.45	1.55	103.3	YES	NO	bb	bb	1.061

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.77	1.207e3	7.639e2	0.654	1.58	1.55	16.2	YES	NO	db	db	0.425

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	34.20	8.563e3	6.573e3	1.141	1.30	1.24	183.6	YES	NO	bb	bb	2.474
2	Total-hexafurans	33.35	6.301e3	4.554e3	1.141	1.38	1.24	120.0	YES	NO	bb	bd	1.774
3	123678-HxCDF	34.95	5.840e2	4.324e2	1.091	1.35	1.24	12.1	YES	NO	db	db	0.157

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	39.35	2.880e4	2.839e4	0.978	1.01	1.05	517.3	YES	NO	bb	bb	13.854
2	1234678-HpCDF	38.69	1.309e4	1.408e4	1.003	0.93	1.05	227.4	YES	NO	bb	bb	5.752

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.94	2.921e2	4.187e2	0.727	0.70	0.77	4.5	YES	NO	db	dd	0.118
2	Total-tetrafurans	25.93	4.471e2	5.480e2	0.727	0.82	0.77	7.7	YES	NO	db	db	0.165
3	2378-TCDF	25.70	3.173e2	3.730e2	0.702	0.85	0.77	5.1	YES	NO	bd	bd	0.118
4	Total-tetrafurans	25.01	3.010e2	3.809e2	0.727	0.79	0.77	4.1	YES	NO	bb	bb	0.113
5	Total-pentafurans	28.77	1.207e3	7.639e2	0.654	1.58	1.55	16.2	YES	NO	db	db	0.425
6	Total-hexafurans	34.20	8.563e3	6.573e3	1.141	1.30	1.24	183.6	YES	NO	bb	bb	2.474
7	Total-hexafurans	33.35	6.301e3	4.554e3	1.141	1.38	1.24	120.0	YES	NO	bb	bd	1.774
8	123678-HxCDF	34.95	5.840e2	4.324e2	1.091	1.35	1.24	12.1	YES	NO	db	db	0.157
9	Total-heptafurans	39.35	2.880e4	2.839e4	0.978	1.01	1.05	517.3	YES	NO	bb	bb	13.854
10	1234678-HpCDF	38.69	1.309e4	1.408e4	1.003	0.93	1.05	227.4	YES	NO	bb	bb	5.752
11	OCDF	45.12	2.480e4	2.829e4	0.778	0.88	0.89	223.7	YES	NO	bb	bb	20.289
12	Total-penta1	27.12	4.329e3	2.987e3		1.45	1.55	103.3	YES	NO	bb	bb	1.061

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.74	4.483e2	6.463e2	1.024	0.69	0.77	5.3	YES	NO	bb	bb	0.165
2	1368-TCDD	23.47	6.767e2	8.277e2	1.015	0.82	0.77	7.5	YES	NO	bb	bb	0.229
3	Total-tetradioxins	25.52	3.050e2	4.351e2	1.024	0.70	0.77	4.0	YES	NO	bb	bd	0.112

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.21	3.128e2	2.283e2	1.502	1.37	1.55	5.6	YES	NO	bb	bb	0.091
2	Total-pentadioxins	29.84	6.102e2	3.666e2	1.502	1.66	1.55	13.3	YES	NO	bb	bb	0.165
3	Total-pentadioxins	29.22	3.415e2	2.132e2	1.502	1.60	1.55	6.9	YES	NO	bb	bb	0.094

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	36.22	3.086e2	2.338e2	1.005	1.32	1.24	7.4	YES	NO	db	bb	0.106
2	Total-hexadioxins	35.06	5.126e3	4.494e3	1.005	1.14	1.24	64.7	YES	NO	bd	bd	1.887
3	Total-hexadioxins	34.70	9.196e2	6.784e2	1.005	1.36	1.24	16.8	YES	NO	bb	bb	0.313
4	124679-HXCDD	33.92	6.025e3	5.256e3	1.115	1.15	1.24	105.1	YES	NO	bb	bb	2.015

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.14	5.849e4	6.099e4	1.137	0.96	1.05	716.3	YES	NO	bb	bd	28.555
2	1234678-HpCDD	40.17	4.249e4	4.235e4	1.039	1.00	1.05	476.8	YES	NO	bb	bb	22.184

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.74	4.483e2	6.463e2	1.024	0.69	0.77	5.3	YES	NO	bb	bb	0.165
2	1368-TCDD	23.47	6.767e2	8.277e2	1.015	0.82	0.77	7.5	YES	NO	bb	bb	0.229
3	Total-tetradioxins	25.52	3.050e2	4.351e2	1.024	0.70	0.77	4.0	YES	NO	bb	bd	0.112
4	Total-pentadioxins	30.21	3.128e2	2.283e2	1.502	1.37	1.55	5.6	YES	NO	bb	bb	0.091
5	Total-pentadioxins	29.84	6.102e2	3.666e2	1.502	1.66	1.55	13.3	YES	NO	bb	bb	0.165
6	Total-pentadioxins	29.22	3.415e2	2.132e2	1.502	1.60	1.55	6.9	YES	NO	bb	bb	0.094
7	Total-hexadioxins	36.22	3.086e2	2.338e2	1.005	1.32	1.24	7.4	YES	NO	db	bb	0.106
8	Total-hexadioxins	35.06	5.126e3	4.494e3	1.005	1.14	1.24	64.7	YES	NO	bd	bd	1.887
9	Total-hexadioxins	34.70	9.196e2	6.784e2	1.005	1.36	1.24	16.8	YES	NO	bb	bb	0.313
10	124679-HXCDD	33.92	6.025e3	5.256e3	1.115	1.15	1.24	105.1	YES	NO	bb	bb	2.015
11	1234679-HPCDD	39.14	5.849e4	6.099e4	1.137	0.96	1.05	716.3	YES	NO	bb	bd	28.555
12	OCDD	44.88	2.274e5	2.640e5	0.920	0.86	0.89	1190.1	YES	NO	bb	bb	158.731
13	1234678-HpCDD	40.17	4.249e4	4.235e4	1.039	1.00	1.05	476.8	YES	NO	bb	bb	22.184

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.94	2.921e2	4.187e2	0.727	0.70	0.77	4.5	YES	NO	db	dd	0.118
2	Total-tetrafurans	25.93	4.471e2	5.480e2	0.727	0.82	0.77	7.7	YES	NO	db	db	0.165
3	2378-TCDF	25.70	3.173e2	3.730e2	0.702	0.85	0.77	5.1	YES	NO	bd	bd	0.118
4	Total-tetrafurans	25.01	3.010e2	3.809e2	0.727	0.79	0.77	4.1	YES	NO	bb	bb	0.113
5	Total-pentafurans	28.77	1.207e3	7.639e2	0.654	1.58	1.55	16.2	YES	NO	db	db	0.425
6	Total-hexafurans	34.20	8.563e3	6.573e3	1.141	1.30	1.24	183.6	YES	NO	bb	bb	2.474
7	Total-hexafurans	33.35	6.301e3	4.554e3	1.141	1.38	1.24	120.0	YES	NO	bb	bd	1.774
8	123678-HxCDF	34.95	5.840e2	4.324e2	1.091	1.35	1.24	12.1	YES	NO	db	db	0.157
9	Total-heptafurans	39.35	2.880e4	2.839e4	0.978	1.01	1.05	517.3	YES	NO	bb	bb	13.854
10	1234678-HpCDF	38.69	1.309e4	1.408e4	1.003	0.93	1.05	227.4	YES	NO	bb	bb	5.752
11	OCDF	45.12	2.480e4	2.829e4	0.778	0.88	0.89	223.7	YES	NO	bb	bb	20.289
12	Total-penta1	27.12	4.329e3	2.987e3		1.45	1.55	103.3	YES	NO	bb	bb	1.061
13	Total-tetradioxins	23.74	4.483e2	6.463e2	1.024	0.69	0.77	5.3	YES	NO	bb	bb	0.165
14	1368-TCDD	23.47	6.767e2	8.277e2	1.015	0.82	0.77	7.5	YES	NO	bb	bb	0.229
15	Total-tetradioxins	25.52	3.050e2	4.351e2	1.024	0.70	0.77	4.0	YES	NO	bb	bd	0.112
16	Total-pentadioxins	30.21	3.128e2	2.283e2	1.502	1.37	1.55	5.6	YES	NO	bb	bb	0.091
17	Total-pentadioxins	29.84	6.102e2	3.666e2	1.502	1.66	1.55	13.3	YES	NO	bb	bb	0.165
18	Total-pentadioxins	29.22	3.415e2	2.132e2	1.502	1.60	1.55	6.9	YES	NO	bb	bb	0.094
19	Total-hexadioxins	36.22	3.086e2	2.338e2	1.005	1.32	1.24	7.4	YES	NO	db	bb	0.106
20	Total-hexadioxins	35.06	5.126e3	4.494e3	1.005	1.14	1.24	64.7	YES	NO	bd	bd	1.887
21	Total-hexadioxins	34.70	9.196e2	6.784e2	1.005	1.36	1.24	16.8	YES	NO	bb	bb	0.313
22	124679-HXCDD	33.92	6.025e3	5.256e3	1.115	1.15	1.24	105.1	YES	NO	bb	bb	2.015
23	1234679-HPCDD	39.14	5.849e4	6.099e4	1.137	0.96	1.05	716.3	YES	NO	bb	bd	28.555
24	OCDD	44.88	2.274e5	2.640e5	0.920	0.86	0.89	1190.1	YES	NO	bb	bb	158.731
25	1234678-HpCDD	40.17	4.249e4	4.235e4	1.039	1.00	1.05	476.8	YES	NO	bb	bb	22.184

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.88	3.014e4					2.5	NO		bb		
2	FUNCTION1 PFK	26.24	2.291e4					2.5	NO		bb		
3	FUNCTION1 PFK	23.29	3.218e6					11.5	YES		bb		
4	FUNCTION1 PFK	22.43	5.928e6					33.0	YES		db		
5	FUNCTION1 PFK	21.59	5.352e6					25.2	YES		dd		
6	FUNCTION1 PFK	21.37	3.281e5					18.7	YES		bd		

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PFK2

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

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.17	5.038e6					19.5	YES		bb		0.000
2	FUNCTION3 PFK	37.19	1.843e6					7.1	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.45	2.707e4					2.4	NO		dd		
2	FUNCTION4 PFK	39.35	2.750e4					1.9	NO		dd		
3	FUNCTION4 PFK	39.30	1.866e4					2.6	NO		dd		
4	FUNCTION4 PFK	39.22	3.642e4					2.1	NO		dd		
5	FUNCTION4 PFK	39.15	1.027e4					1.4	NO		bd		
6	FUNCTION4 PFK	38.98	4.299e3					0.8	NO		bb		
7	FUNCTION4 PFK	38.82	1.221e4					1.4	NO		db		
8	FUNCTION4 PFK	38.69	3.893e4					1.9	NO		bd		
9	FUNCTION4 PFK	38.62	1.962e3					0.5	NO		db		
10	FUNCTION4 PFK	38.59	7.308e3					1.1	NO		bd		
11	FUNCTION4 PFK	38.36	1.091e4					1.6	NO		db		
12	FUNCTION4 PFK	38.29	7.128e3					1.0	NO		bd		
13	FUNCTION4 PFK	38.10	6.847e3					1.1	NO		bb		
14	FUNCTION4 PFK	37.94	9.887e3					1.1	NO		bb		
15	FUNCTION4 PFK	40.63	4.531e3					0.8	NO		dd		
16	FUNCTION4 PFK	40.60	1.010e3					0.4	NO		bd		
17	FUNCTION4 PFK	40.55	1.207e3					0.4	NO		bb		
18	FUNCTION4 PFK	40.49	1.546e4					1.2	NO		bb		
19	FUNCTION4 PFK	40.19	3.830e3					0.7	NO		bb		
20	FUNCTION4 PFK	40.04	7.929e3					1.0	NO		bb		
21	FUNCTION4 PFK	39.98	5.181e3					1.1	NO		db		
22	FUNCTION4 PFK	39.95	9.810e3					1.6	NO		dd		
23	FUNCTION4 PFK	39.92	1.546e4					2.2	NO		dd		
24	FUNCTION4 PFK	39.87	1.718e4					1.8	NO		dd		
25	FUNCTION4 PFK	39.82	1.445e4					1.6	NO		bd		
26	FUNCTION4 PFK	39.75	6.606e3					1.3	NO		db		
27	FUNCTION4 PFK	39.70	1.828e4					2.4	NO		dd		
28	FUNCTION4 PFK	39.65	4.845e4					2.6	NO		dd		
29	FUNCTION4 PFK	39.56	1.075e4					1.5	NO		dd		
30	FUNCTION4 PFK	39.48	2.375e4					2.0	NO		dd		
31	FUNCTION4 PFK	42.01	6.443e3					1.2	NO		bd		
32	FUNCTION4 PFK	41.80	2.098e4					1.5	NO		bb		
33	FUNCTION4 PFK	41.53	2.667e4					2.0	NO		db		
34	FUNCTION4 PFK	41.46	4.963e3					0.9	NO		bd		
35	FUNCTION4 PFK	41.40	6.686e3					1.2	NO		bb		
36	FUNCTION4 PFK	41.34	1.200e3					0.5	NO		bb		
37	FUNCTION4 PFK	41.25	4.987e3					0.9	NO		db		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	41.21	2.424e4					2.0	NO		dd		
39	FUNCTION4 PFK	41.14	1.218e4					1.6	NO		dd		
40	FUNCTION4 PFK	41.07	2.274e4					2.0	NO		bd		
41	FUNCTION4 PFK	40.96	8.550e3					1.4	NO		db		
42	FUNCTION4 PFK	40.92	9.023e3					1.4	NO		dd		
43	FUNCTION4 PFK	40.86	1.334e4					1.5	NO		dd		
44	FUNCTION4 PFK	40.81	9.265e3					1.4	NO		dd		
45	FUNCTION4 PFK	40.76	9.557e3					1.6	NO		bd		
46	FUNCTION4 PFK	40.68	1.306e4					1.4	NO		db		
47	FUNCTION4 PFK	42.92	1.113e4					1.6	NO		bb		
48	FUNCTION4 PFK	42.77	1.272e4					1.2	NO		bb		
49	FUNCTION4 PFK	42.60	1.872e4					1.6	NO		bb		
50	FUNCTION4 PFK	42.36	6.387e3					1.0	NO		bb		
51	FUNCTION4 PFK	42.21	1.940e4					2.3	NO		db		
52	FUNCTION4 PFK	42.18	7.533e3					1.5	NO		dd		
53	FUNCTION4 PFK	42.13	6.012e3					1.0	NO		dd		
54	FUNCTION4 PFK	42.08	3.038e4					2.3	NO		dd		

PFK5

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

ETHERS1

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

ETHERS2

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

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.87	7.146e1					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.04	1.287e2					2.1	NO		bb		0.000
3	FUNCTION2 HPCD...	28.90	1.031e2					1.9	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	35.93	1.179e2					3.8	YES		bd		0.000
2	FUNCTION3 OCDPE	37.60	7.174e1					2.0	NO		bb		0.000
3	FUNCTION3 OCDPE	36.72	8.628e1					4.4	YES		bb		0.000
4	FUNCTION3 OCDPE	36.43	1.215e2					3.9	YES		bb		0.000
5	FUNCTION3 OCDPE	36.04	7.837e1					3.1	YES		db		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.34	3.624e2					16.4	YES		bb		0.000
2	FUNCTION4 NCDPE	38.16	7.437e1					3.4	YES		bb		0.000

ETHERS6

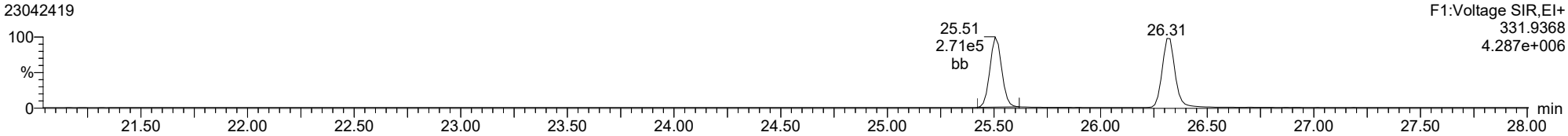
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1													

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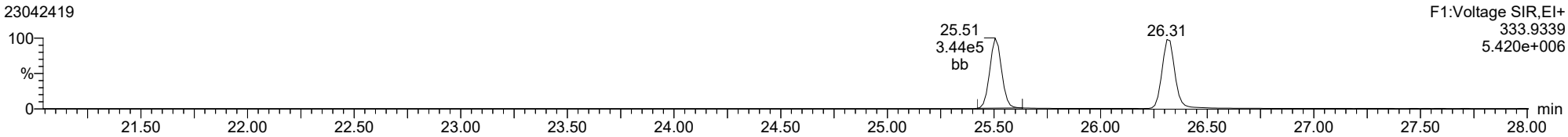
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ID: 23C0619-15, Name: 23042419, Date: 25-Apr-2023, Time: 05:14:02, Conditions: AUTOSPEC01, User: pk

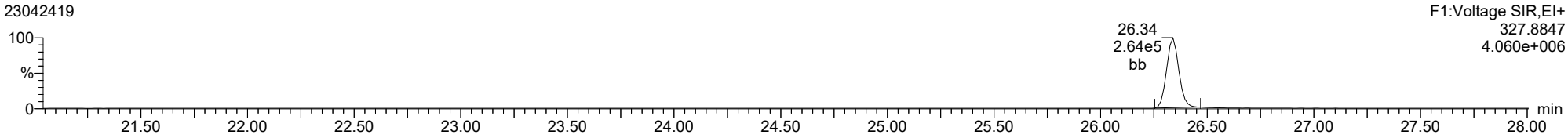
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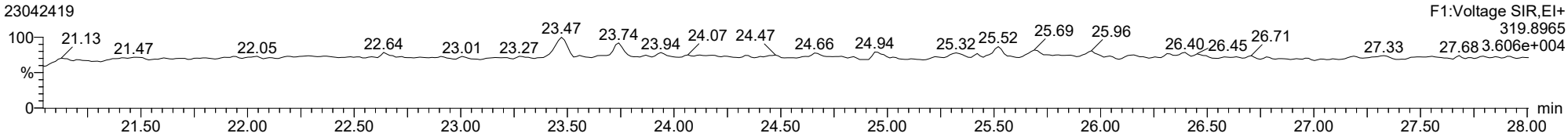


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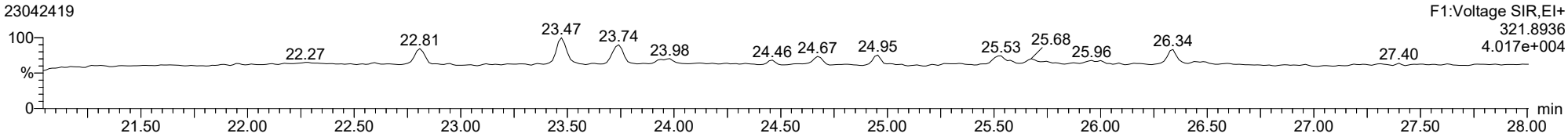


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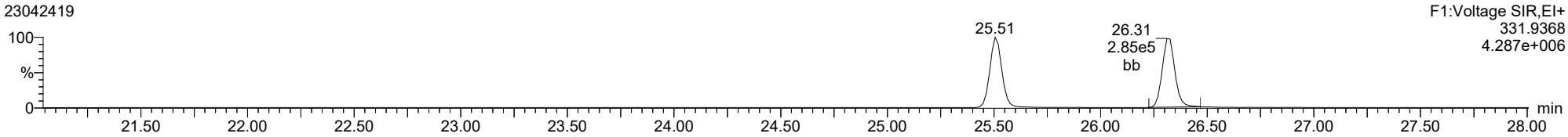
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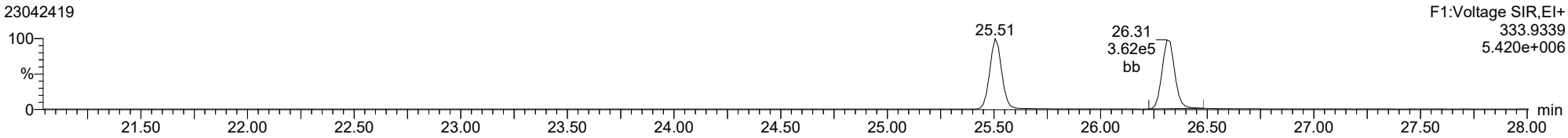
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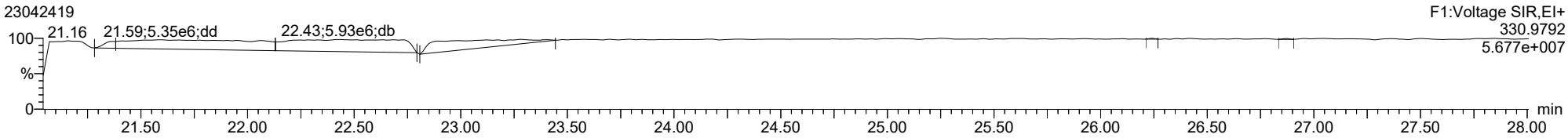
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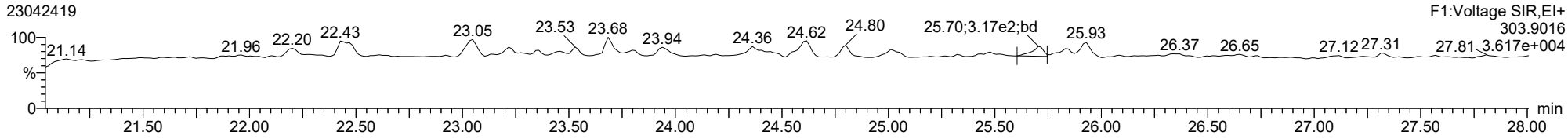


FUNCTION1 PFK

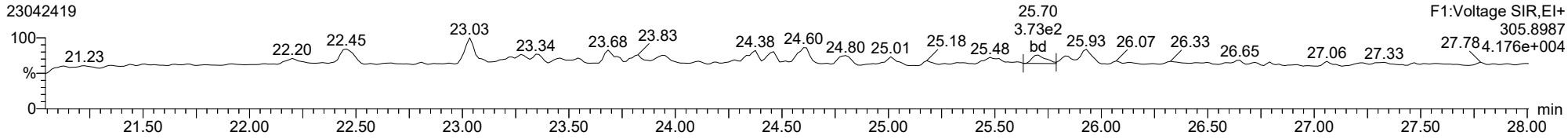


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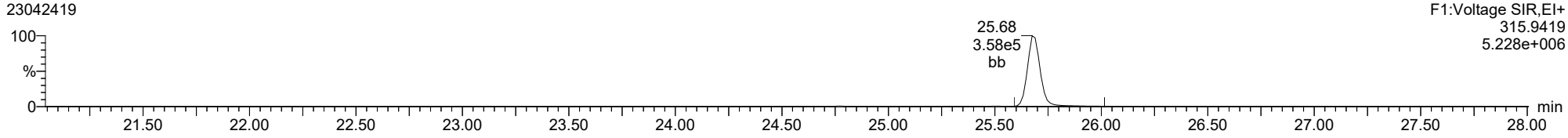
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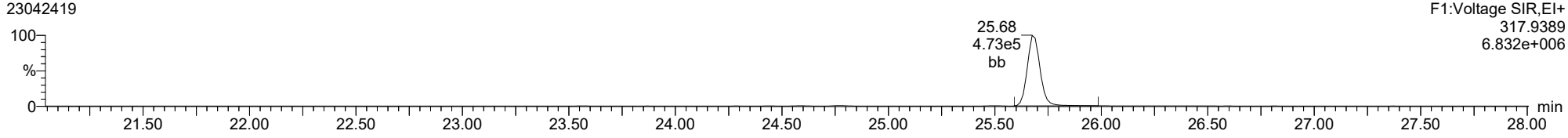
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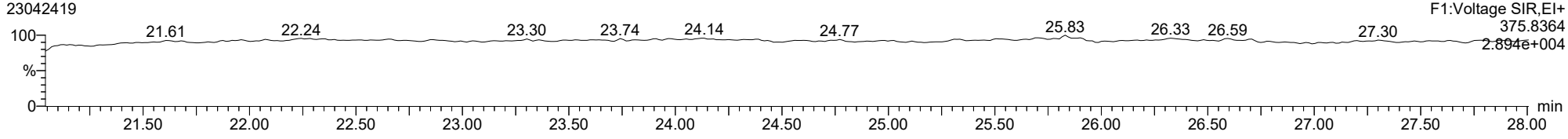
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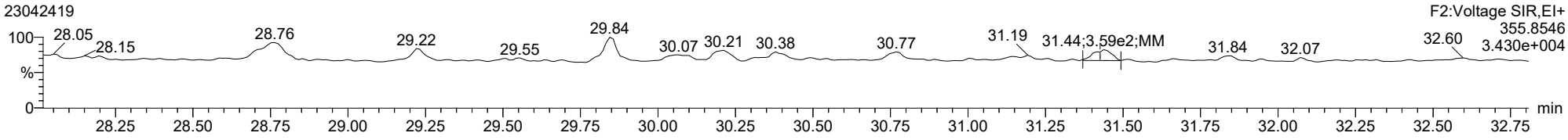


FUNCTION1 HXCDPE

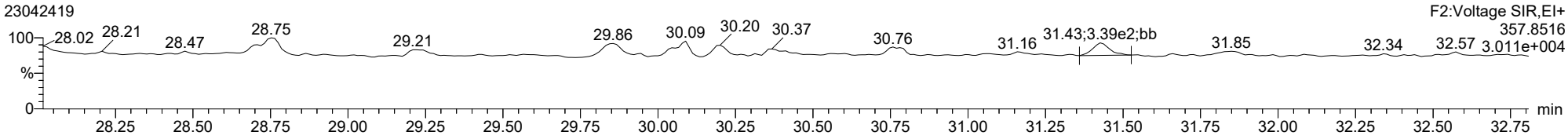


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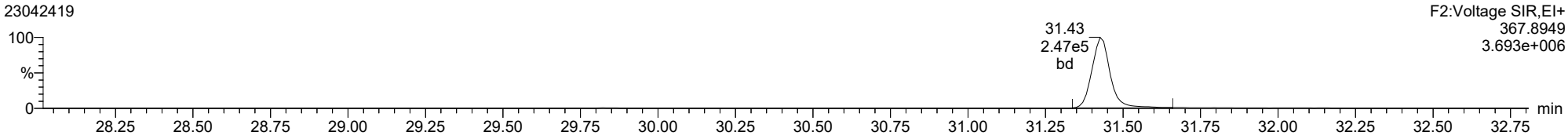
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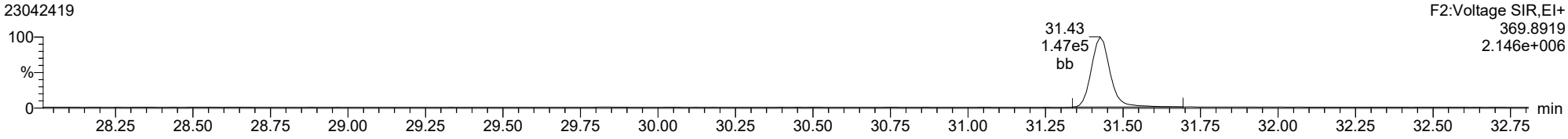
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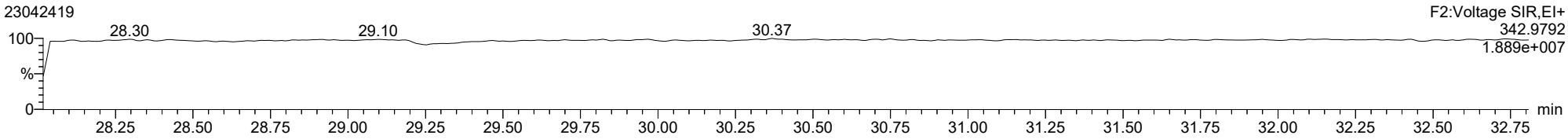
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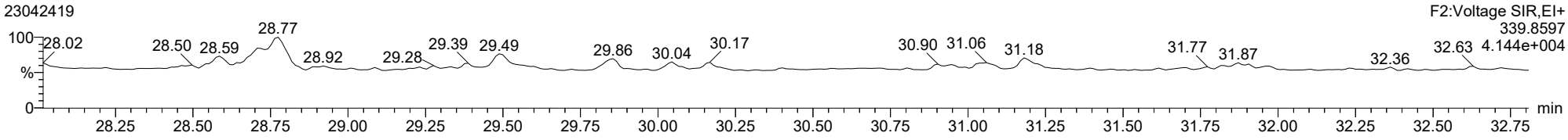


FUNCTION2 PFK

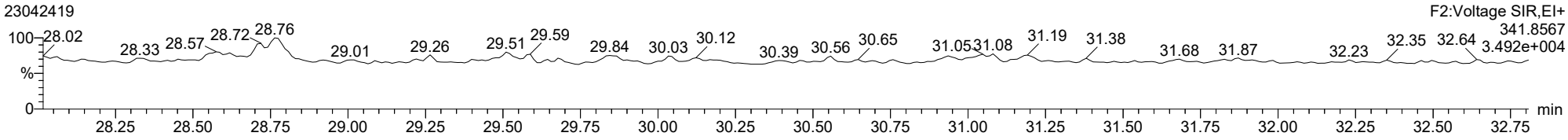


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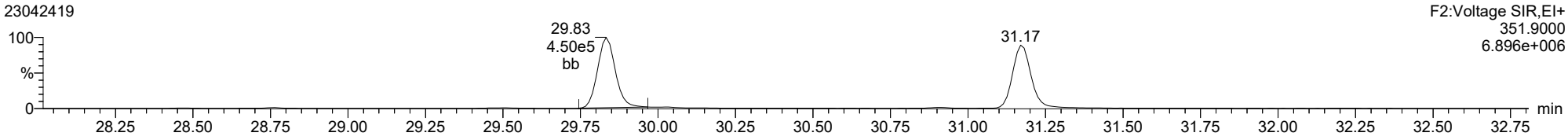
12378-PeCDF



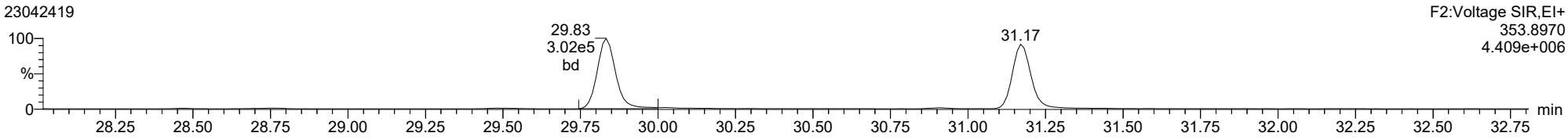
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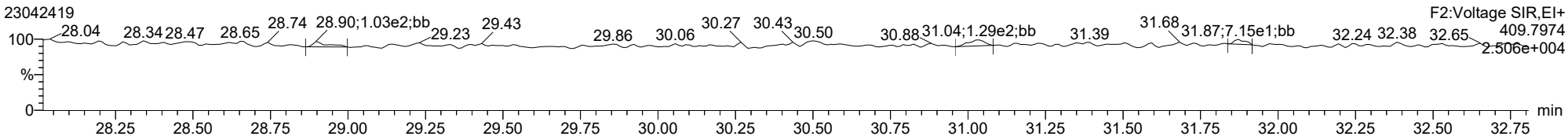
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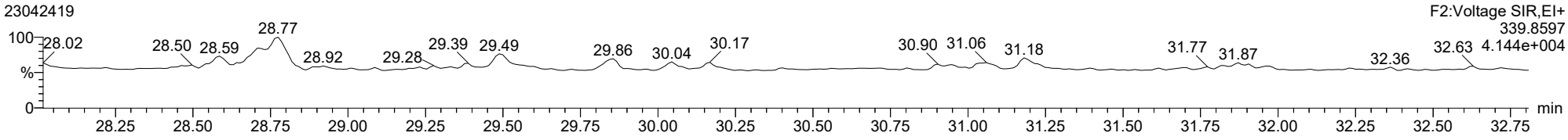


FUNCTION2 HPCDPE

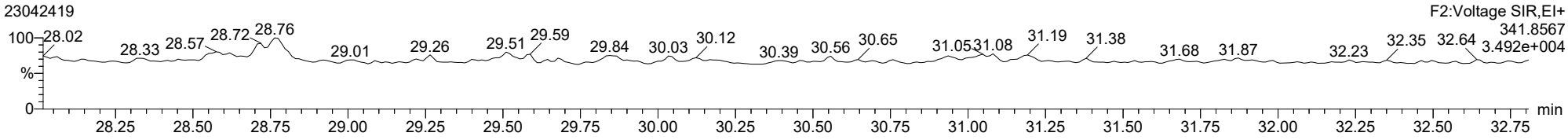


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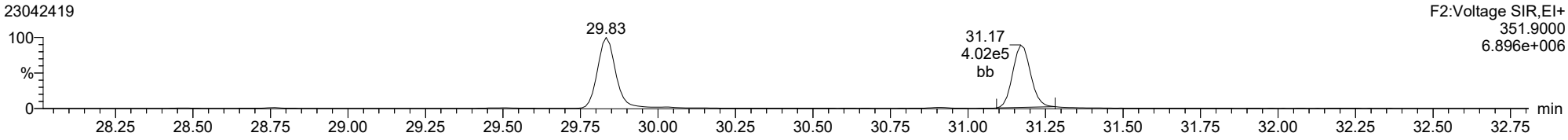
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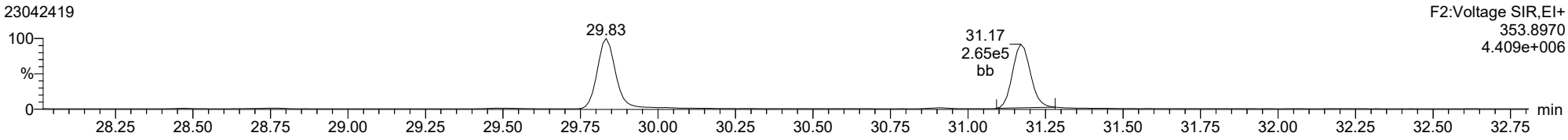
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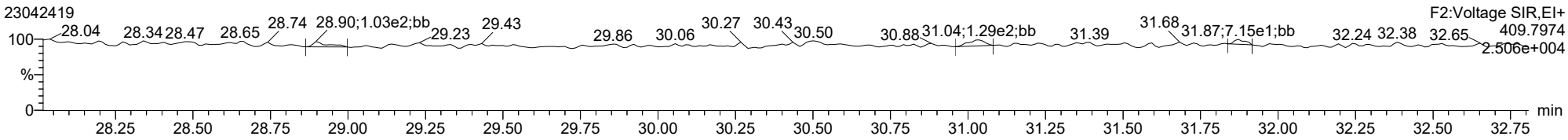
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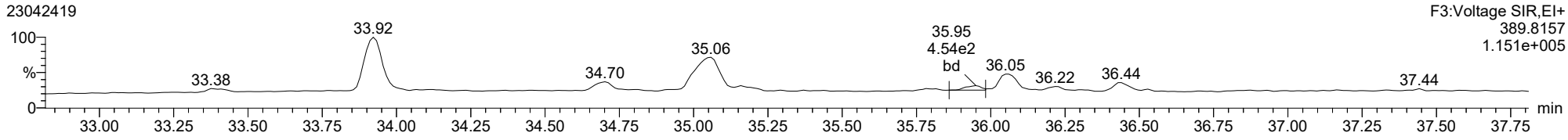


FUNCTION2 HPCDPE

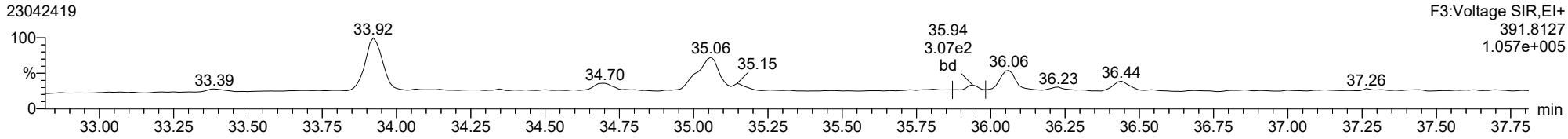


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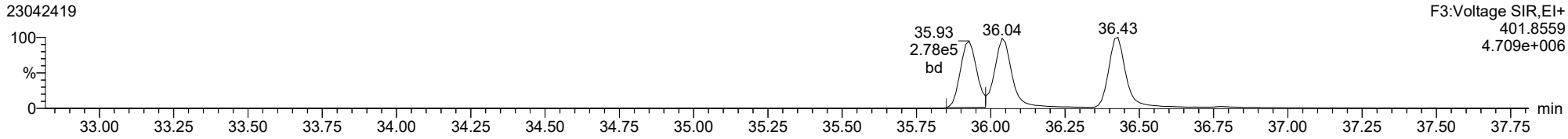
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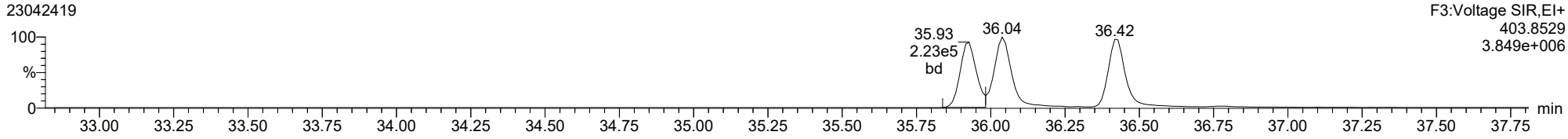
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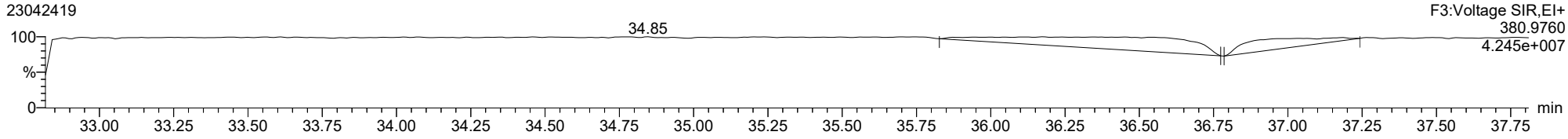
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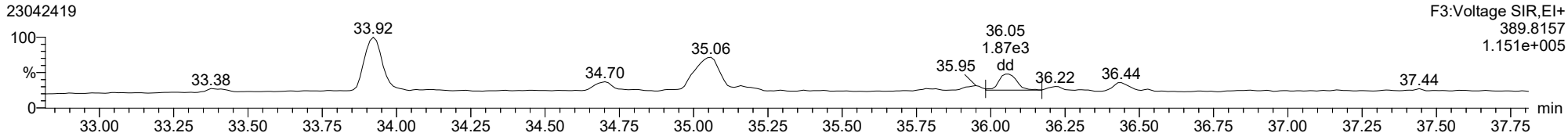


FUNCTION3 PFK

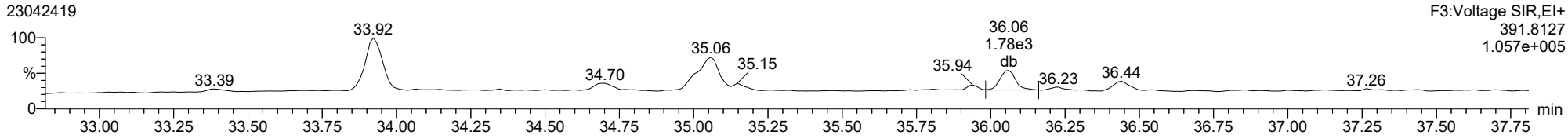


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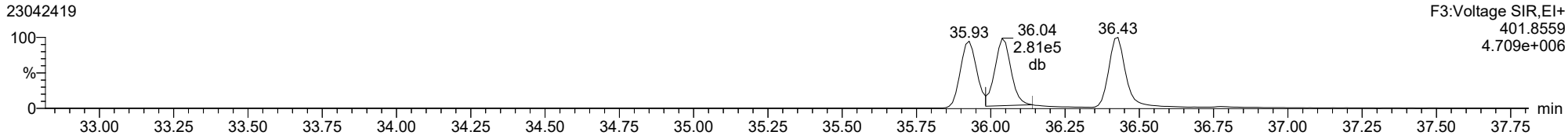
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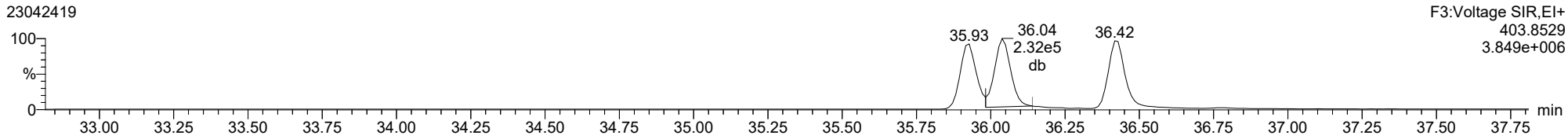
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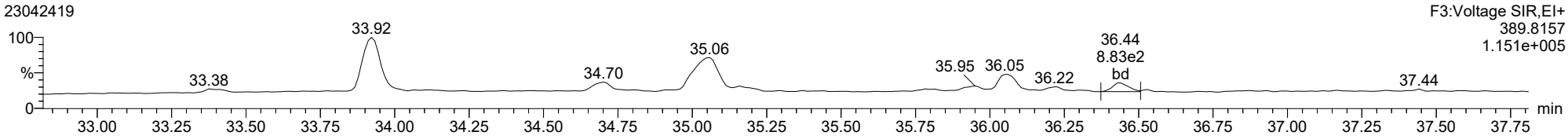
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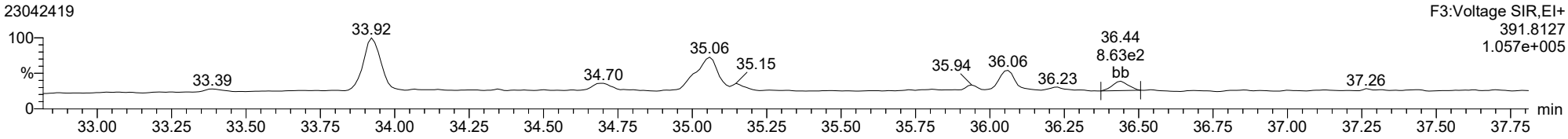
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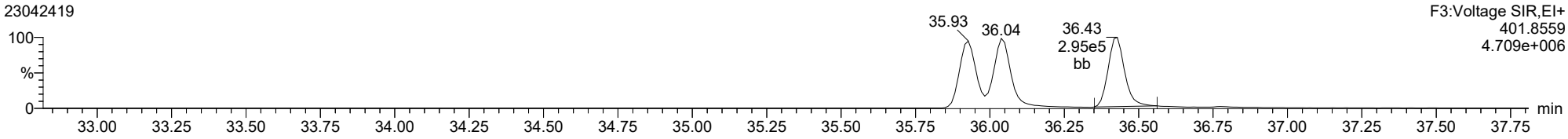
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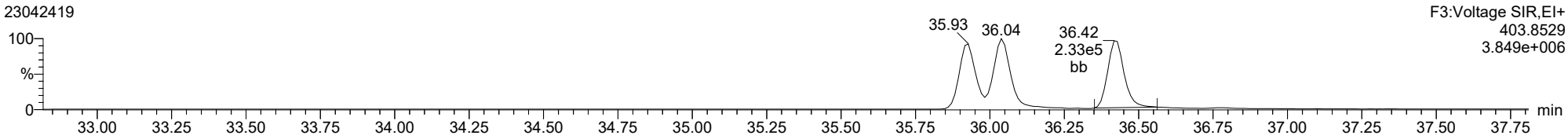
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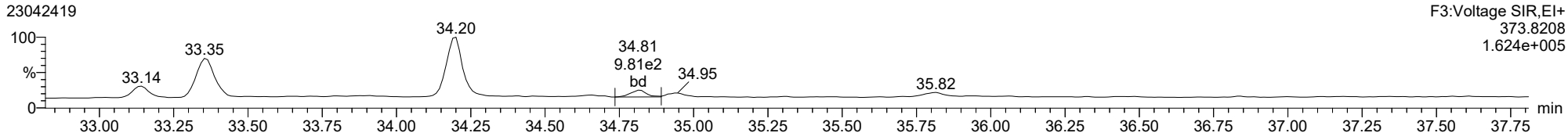


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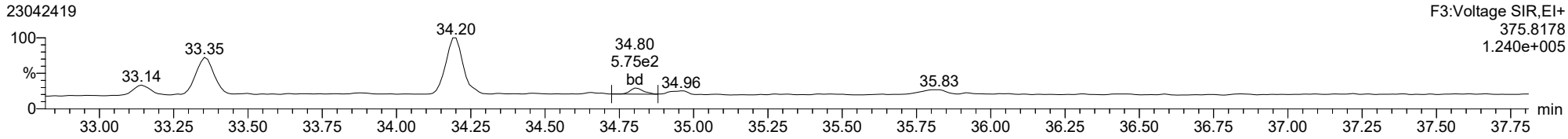


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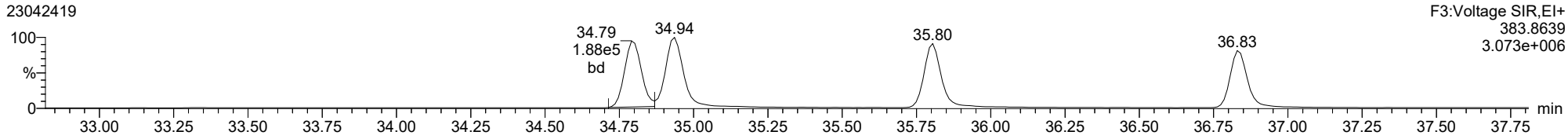
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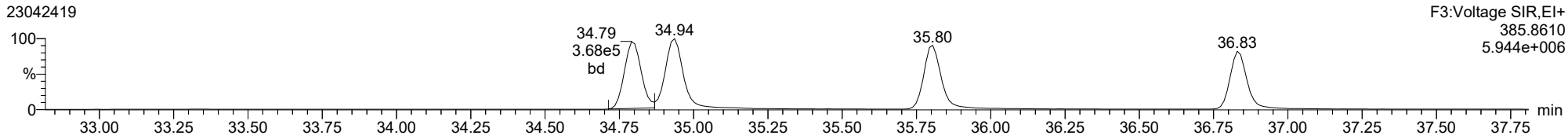
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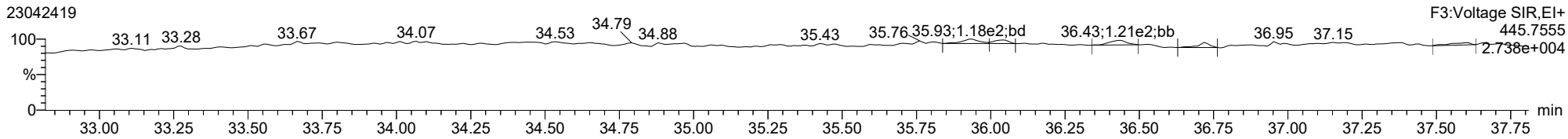
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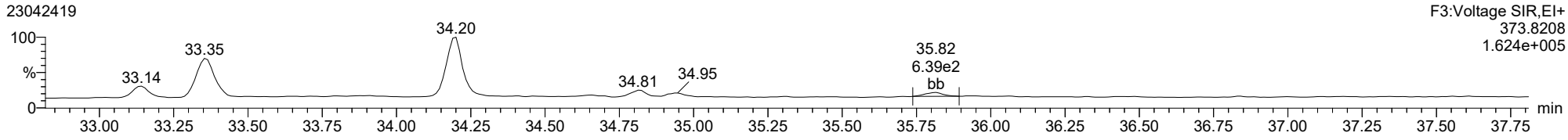


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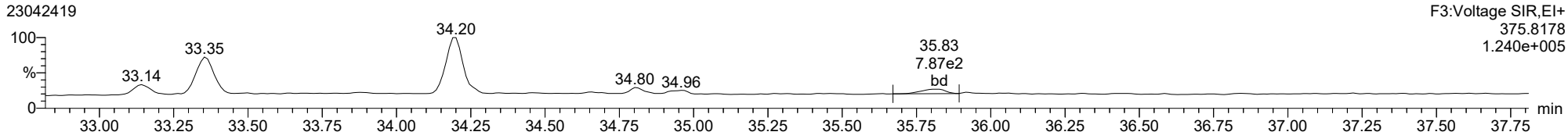


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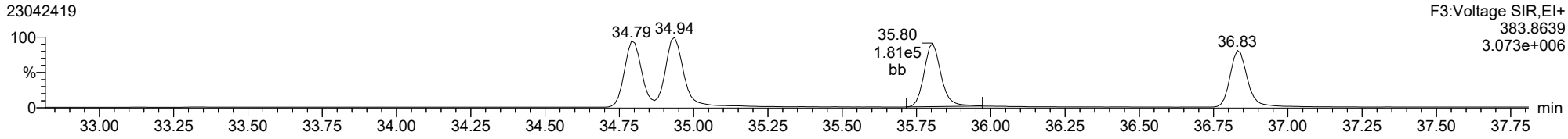
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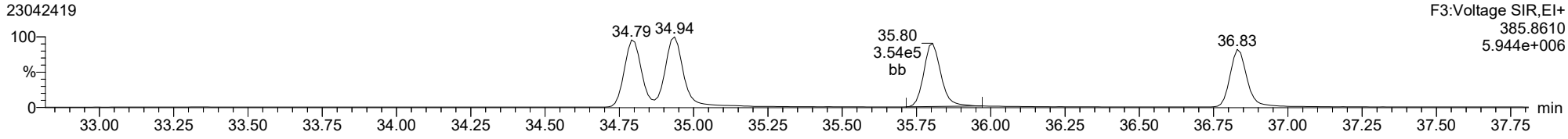
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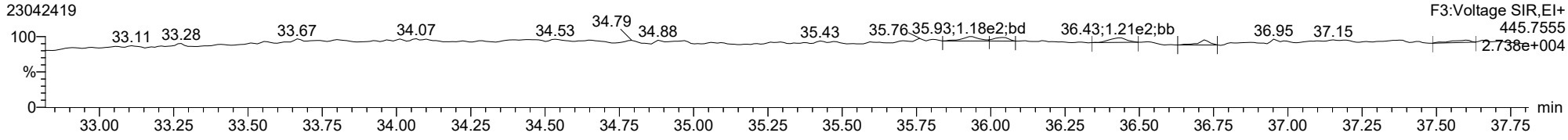
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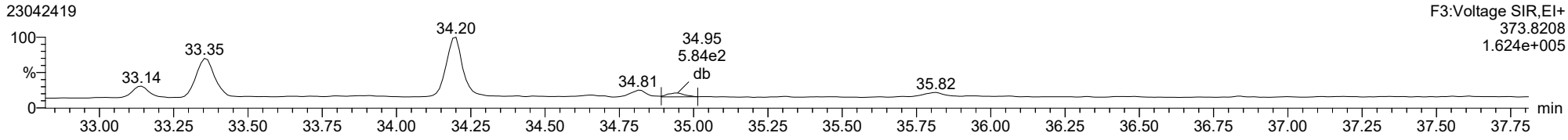


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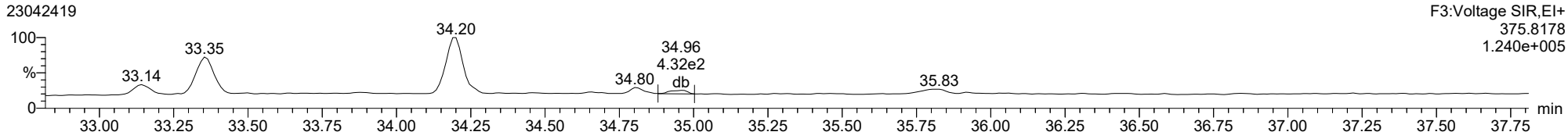


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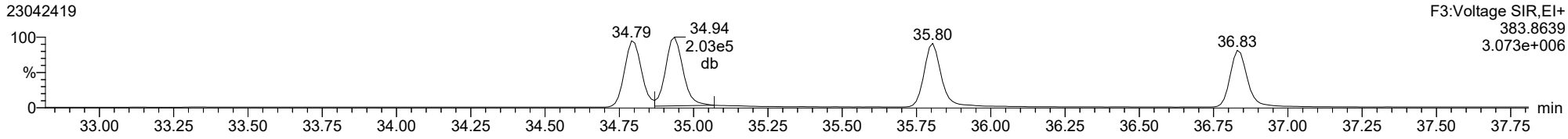
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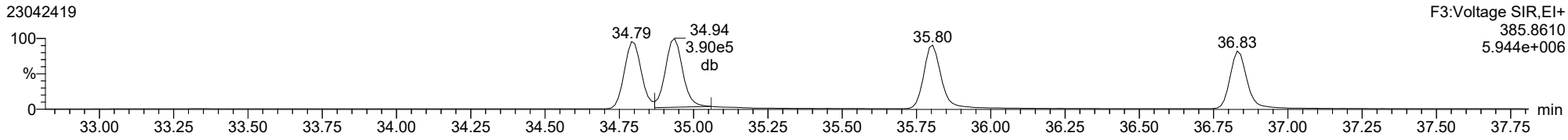
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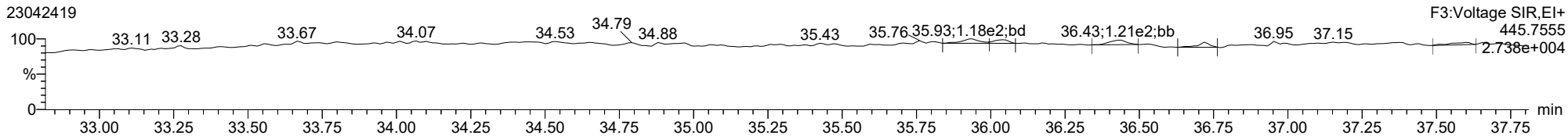
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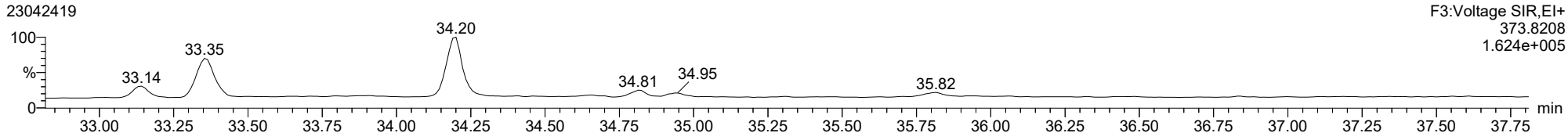


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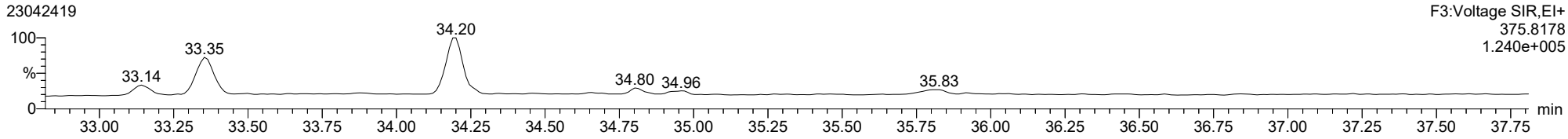


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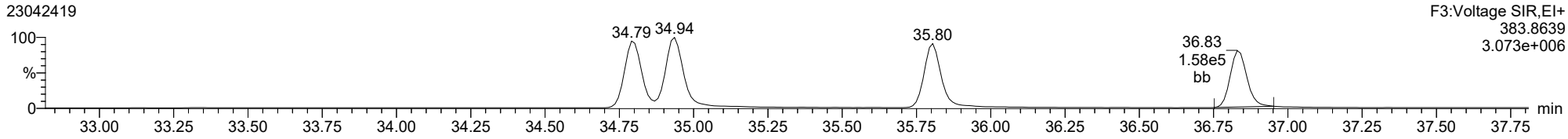
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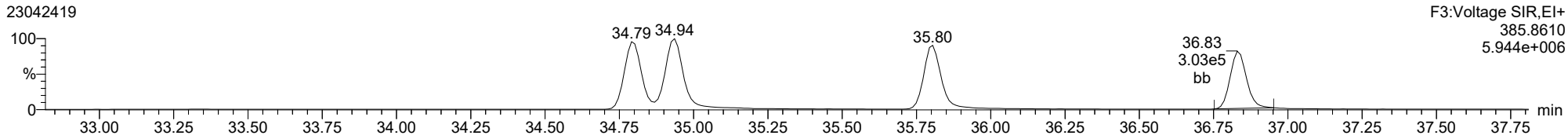
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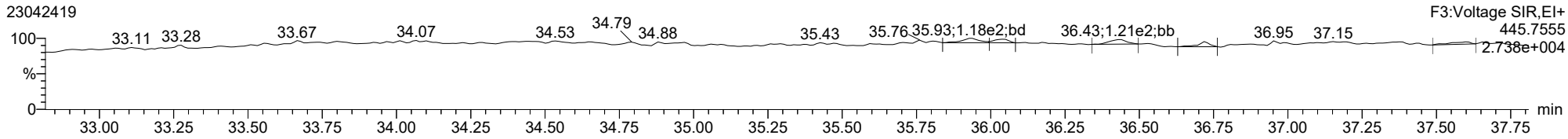
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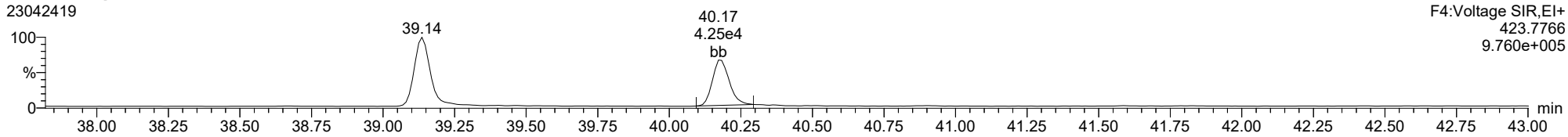


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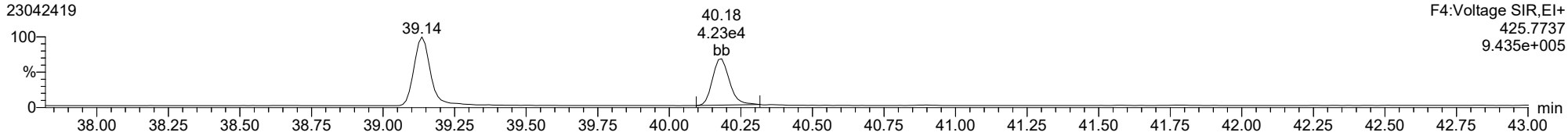


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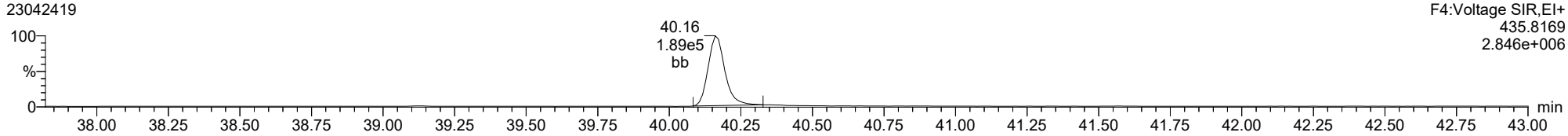
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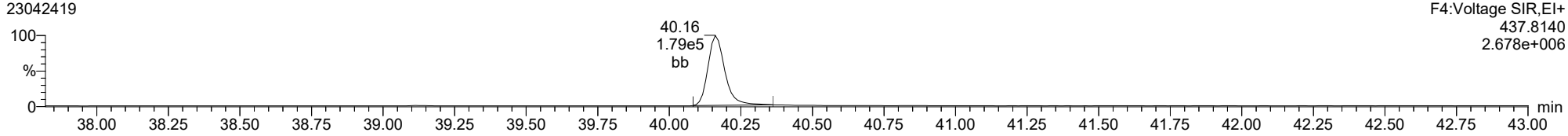
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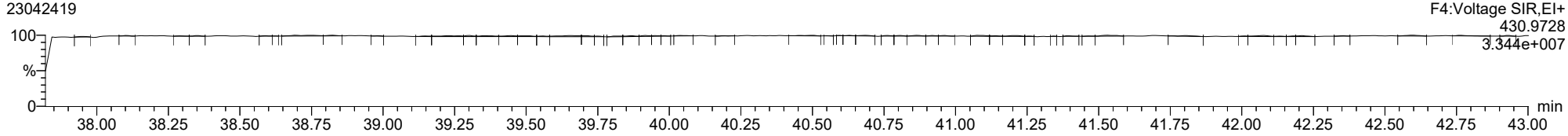
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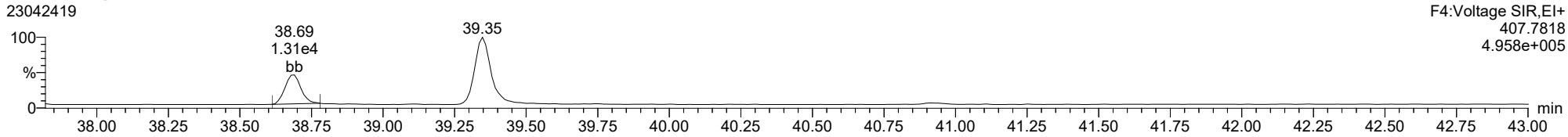


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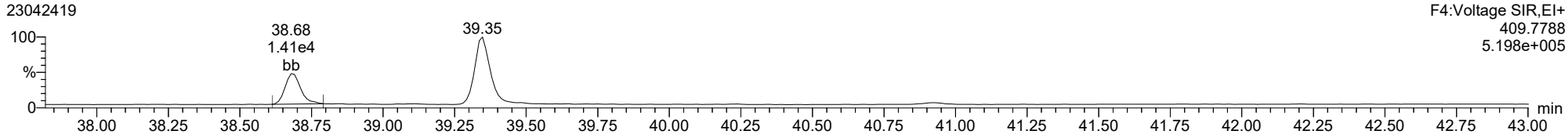


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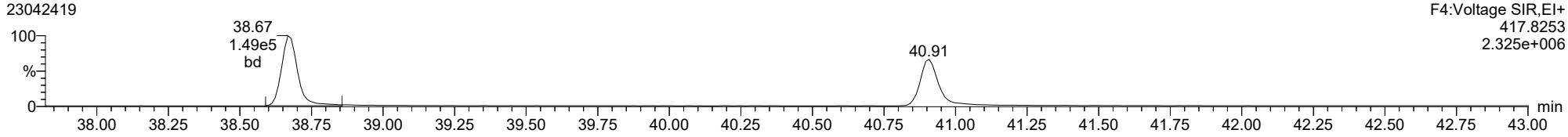
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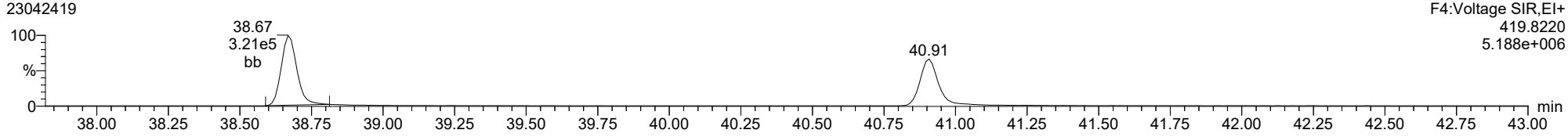
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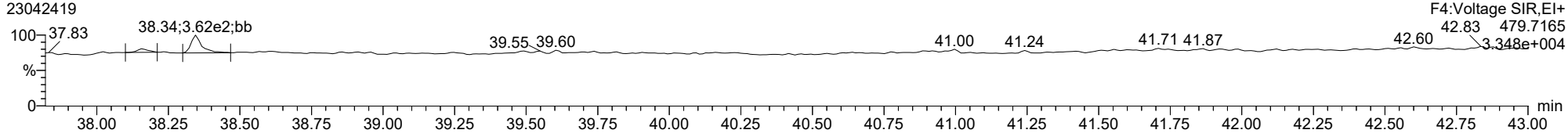
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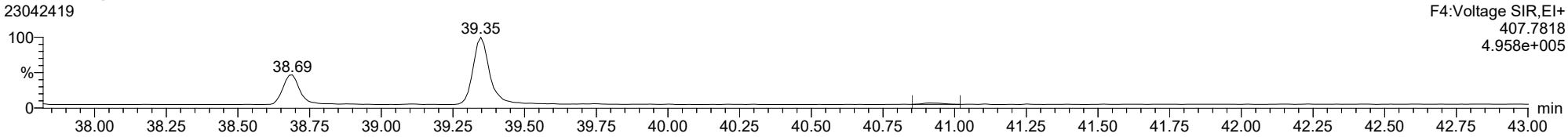


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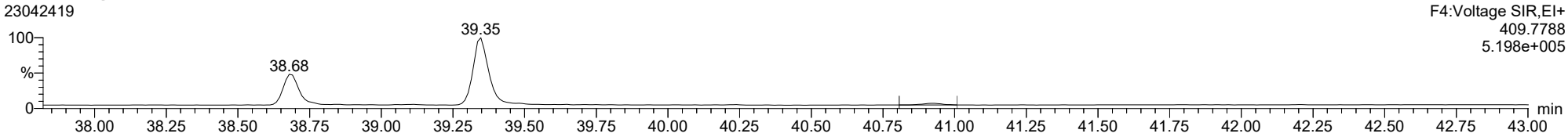


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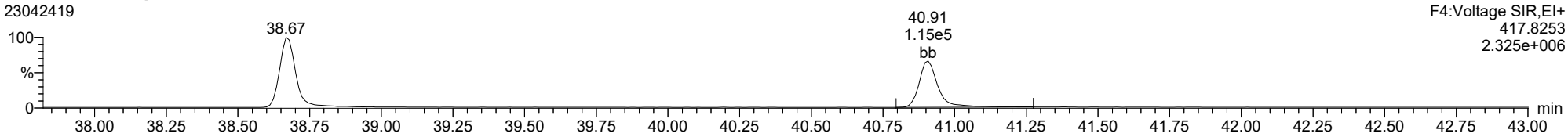
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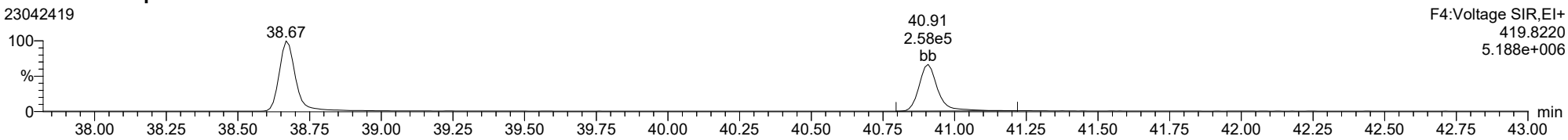
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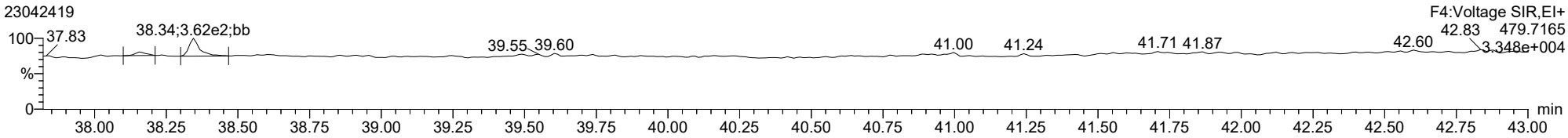
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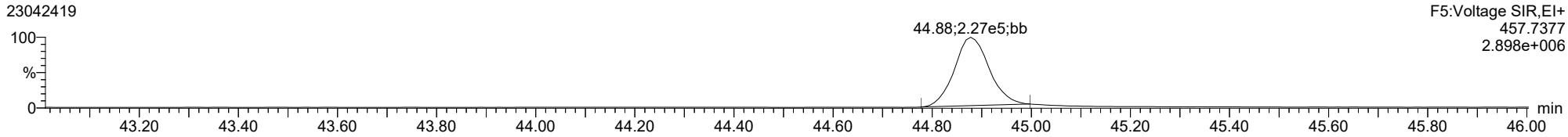


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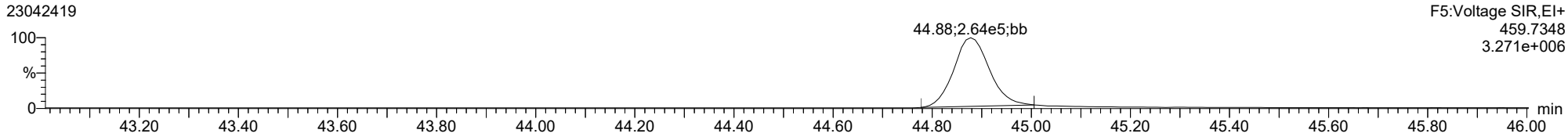


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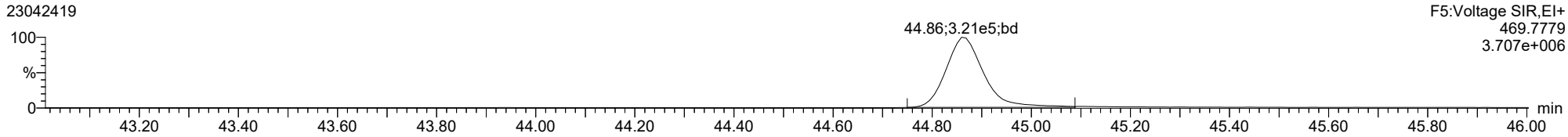
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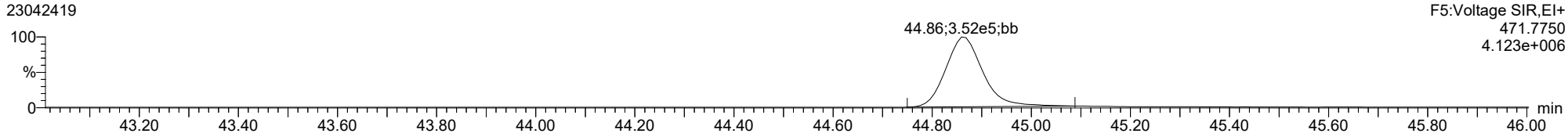
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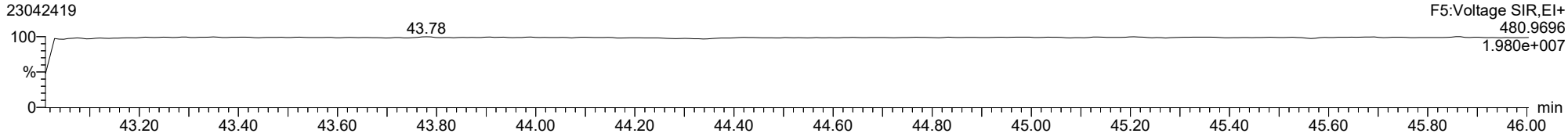
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13C-OCDD



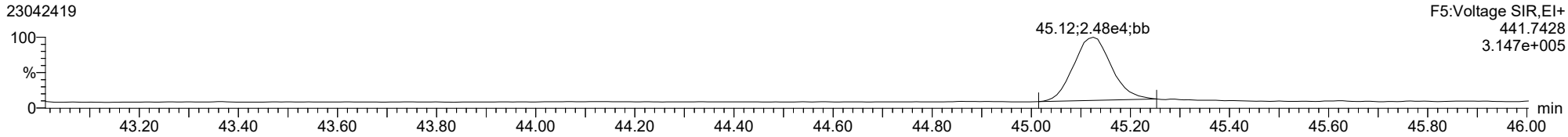
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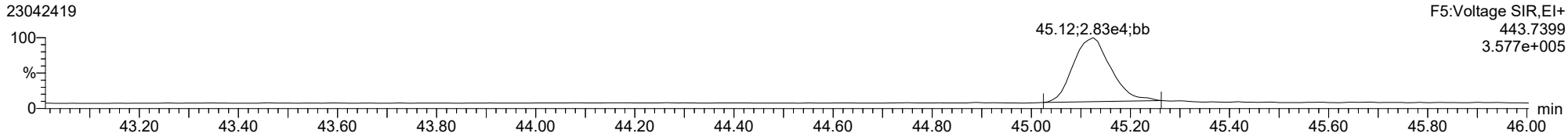
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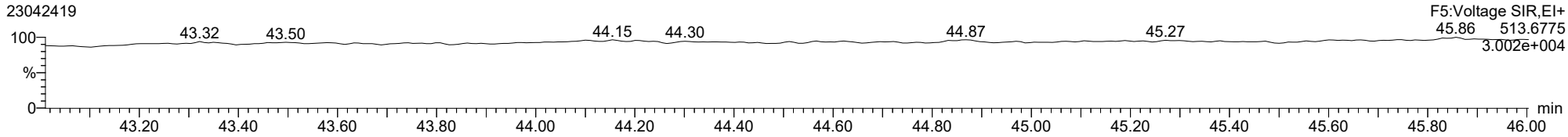
OCDF



OCDF

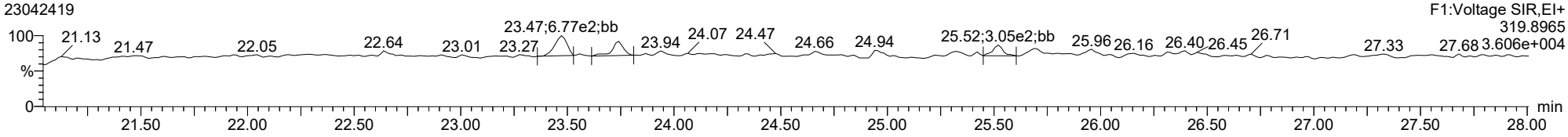


FUNCTION5 DCDPE

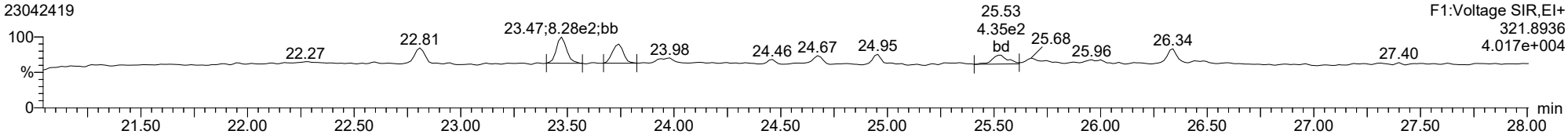


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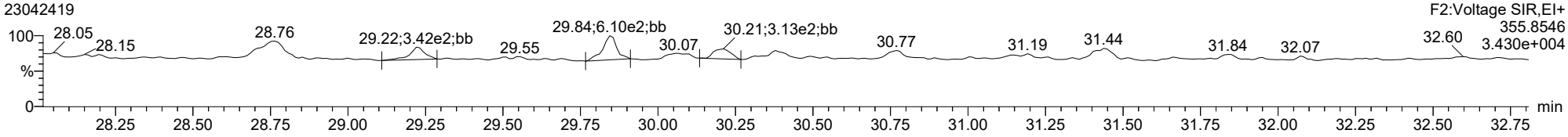
Total-tetradioxins



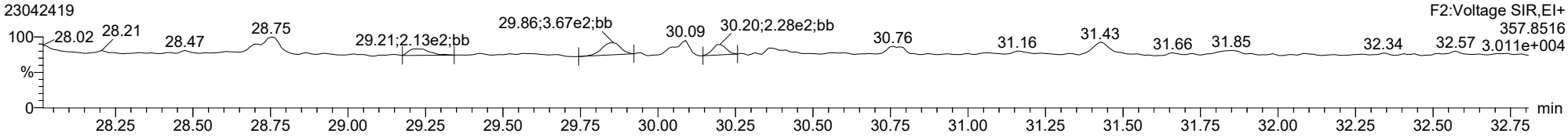
Total-tetradioxins



Total-pentadioxins

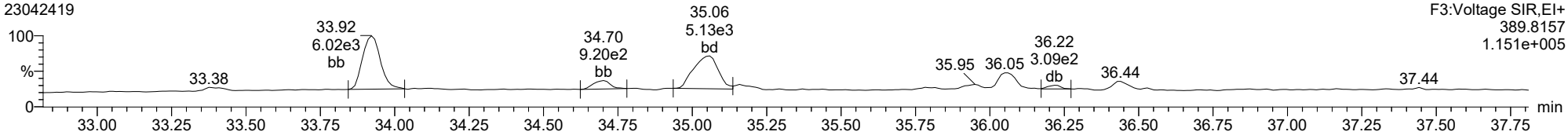


Total-pentadioxins

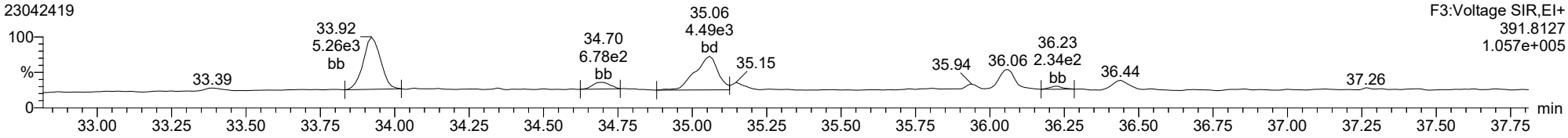


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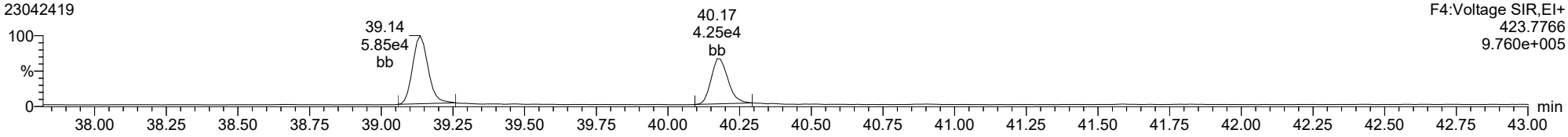
Total-hexadioxins



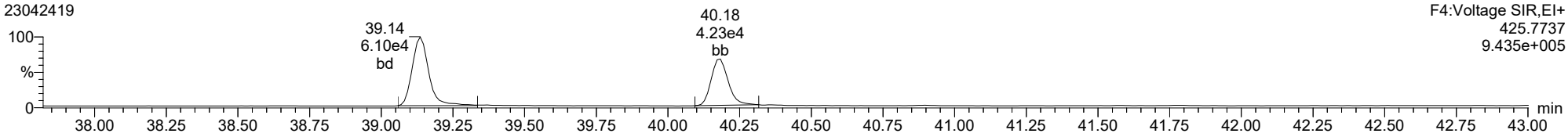
Total-hexadioxins



Total-heptadioxins

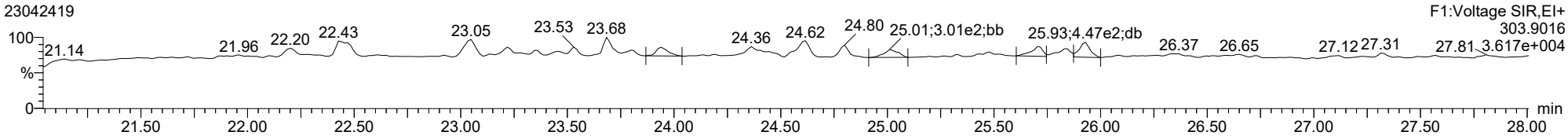


Total-heptadioxins

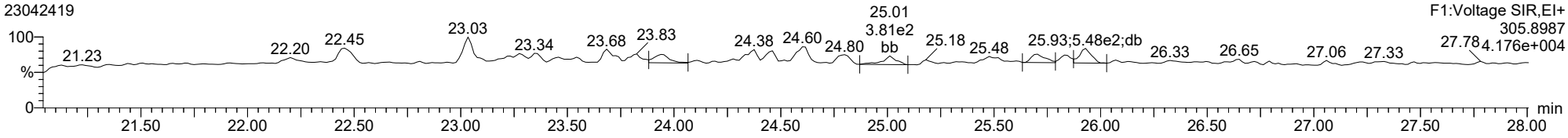


ID: 23C0619-15, Name: 23042419, Date: 25-Apr-2023, Time: 05:14:02, Conditions: AUTOSPEC01, User: pk

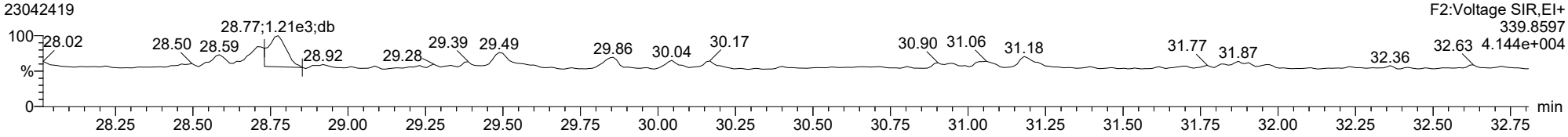
Total-tetrafurans



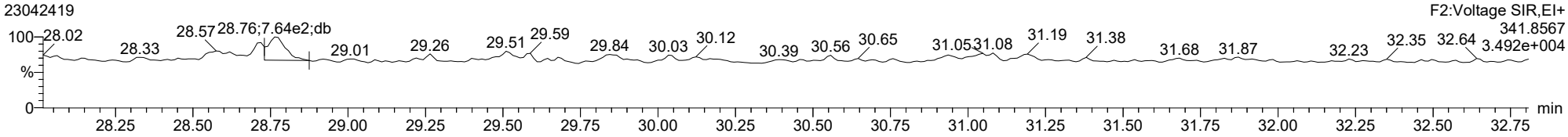
Total-tetrafurans



Total-pentafurans

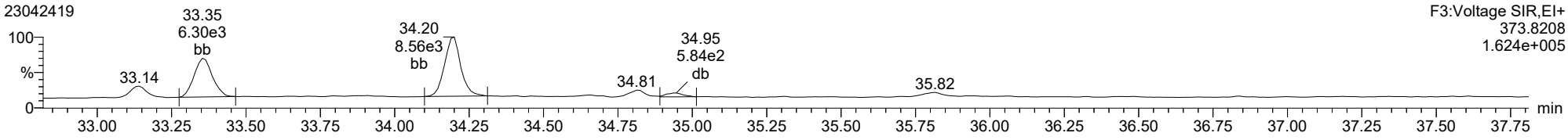


Total-pentafurans

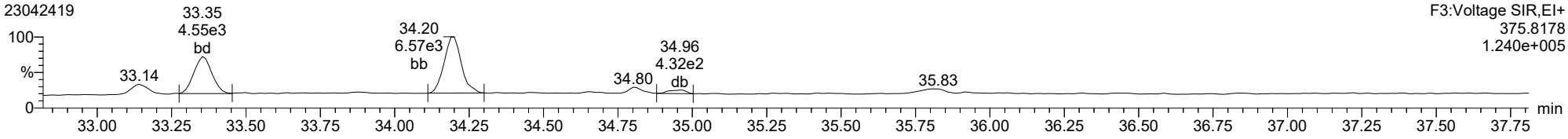


ID: 23C0619-15, Name: 23042419, Date: 25-Apr-2023, Time: 05:14:02, Conditions: AUTOSPEC01, User: pk

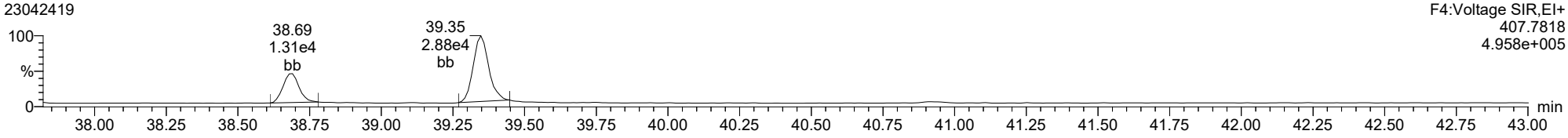
Total-hexafurans



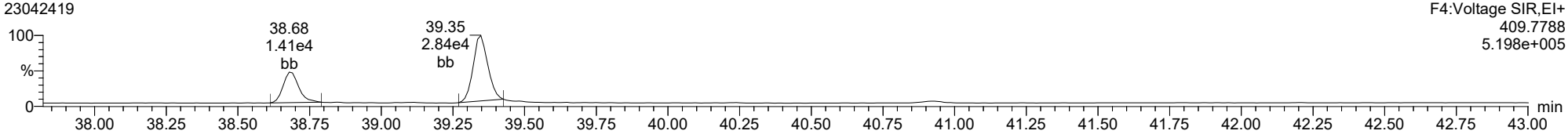
Total-hexafurans



Total-heptafurans



Total-heptafurans



PREPARATION BATCH SUMMARY

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor
Batch: BLD0089 Batch Matrix: Solid
Preparation: EPA 1613

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SED-08C:0-1	23C0619-03	23042408	04/06/23 13:16	
SED-09C:0-1	23C0619-05	23042409	04/06/23 13:16	
SED-09C:1-3	23C0619-06	23042410	04/06/23 13:16	
SED-12C:0-1	23C0619-07	23042411	04/06/23 13:16	
SED-26C:0-1	23C0619-08	23042414	04/06/23 13:16	
SED-25C:0-1	23C0619-10	23042415	04/06/23 13:16	
SED-10C:0-1	23C0619-12	23042416	04/06/23 13:16	
SED-10C:1-3	23C0619-13	23042417	04/06/23 13:16	
SED-11C:0-1	23C0619-14	23042418	04/06/23 13:16	
SED-11C:1-3	23C0619-15	23042419	04/06/23 13:16	
Blank	BLD0089-BLK2	23041934A	04/06/23 13:16	
LCS	BLD0089-BS2	23041935A	04/06/23 13:16	
Reference	BLD0089-SRM1	23042406	04/06/23 13:16	

Analytical Resources, LLC
Analytical Chemists and Consultants

HRGCMS Dioxin/Furan Preparation Bench Sheet EPA Methods 8290A, 1613B or HRSM02.1

Batch: BLD0089

Solid Samples

ARI Work Orders:	23C0447,23C0592,23C0619,23D0008		
Matrix (circle one)	(Soil) Sediment Oil Tissue		
Extraction Method	Start Date/Time:	End Date/Time:	
(Soxhlet) SepF Shake out	4/6/23 13:16	4/7/23 0548	

Reagents/Equipment Used	NA	ID / Lot Number	Initials	Date
Glasswool		JQ12850	TW	4/11/23
Basic Silica		L000710	TW	4/11/23
Acid Silica		L001728	TW	4/11/23
Activated Florisil		K005956	TW	4/11/23
Balance		24650344	TW	4/6/23
Toluene		L003023	TW	4/6/23
Hexane		L001957	TW	4/10/23
CH2Cl2		L002621	TW	4/11/23
H2SO4		L001033	TW	4/10/23
Na2SO4		L002971/L003261	TW	4/6/23 4/11/23
Other (RM)		L001274	TW	4/6/23
0% Silica		L002081	TW	4/11/23
Nonane		H006038	TW	4/12/23

Lab Number & Container	Sample Name	% Solids	Sample Weight Equal to dry (g) (Target Dry)	Actual	RotoVap 45 °C	Water Trap Vol (mL)	Final Vol. (uL)
23C0447-05 A	PCB946	32.5	(30.77)	30.77	1 (2)	17.5	20
23C0447-06 A	PCB948	51.95	(19.25)	19.28	(1) 2	9.0	20
23C0592-05 A	PCB963	82.23	(12.16)	12.18	1 (2)	2.0	20
23C0619-03 C	SED-08C:0-1	66.22	(15.10)	15.12	(1) 2	5.0	20
23C0619-05 C	SED-09C:0-1	71.65	(13.96)	13.97	1 (2)	4.0	20
23C0619-06 C	SED-09C:1-3	78.03	(12.82)	12.82	(1) 2	2.5	20
23C0619-07 A	SED-12C:0-1	80.27	(12.46)	12.47	1 (2)	2.0	20
23C0619-08 C	SED-26C:0-1	60.92	(16.42)	16.46	(1) 2	7.5	20
23C0619-10 C	SED-25C:0-1	75.54	(13.24)	13.24	1 (2)	3.0	20
23C0619-12 C	SED-10C:0-1	78.35	(12.76)	12.76	(1) 2	3.0	20
23C0619-13 C	SED-10C:1-3	74.6	(13.41)	13.42	1 (2)	3.0	20
23C0619-14 A	SED-11C:0-1	69.96	(14.29)	M.31	(1) 2	4.5	20
23C0619-15 A	SED-11C:1-3	75.57	(13.23)	13.23	1 (2)	2.5	20
23D0008-01 C	LDW23-SS1816	50.23	(19.91)	19.91	(1) 2	9.5	20
~~23D0008-01 C~~	~~LDW23-SS1816~~	~~50.23~~	~~(19.91)~~		1 / 2		~~20~~
BLD0089-BLK1	DBLK06	100	()		(1) 2	0.0	20
BLD0089-BS1	DLCS06	100	()		1 (2)	0.0	20
BLD0089-BSD1	DLCSD06	100	()		(1) 2	0.0	20
BLD0089-DUP1	Duplicate 23D0008-01C	50.23	(19.91)	19.91	1 (2)	6.5	20
BLD0089-SRM1	Reference	100	()	10.01	(1) 2	0.0	20
Prep Analyst / Date:				TW 4/6/23	TW 4/10/23	TW 4/7/23	

Standards Used	Vol	ID / Lot Number	Concentration	Expiration Date	Analyst	Witness	Date
Recovery Standard	1.0 mL	L002305	2/4 ng/mL	3/2/24	TW	M	4/6/23
OPR	1.0 mL	L000046	0.2/1.0/2.0 ng/mL	1/3/24	TW	M	4/6/23
~~QLS Standard~~	~~1.0 mL~~		~~0.1/0.5/0.1ng/mL ng/L~~				
Cleanu-up Standard	1.0 mL	L002306	0.8 ng/mL	3/2/24	TW	TW x2	4/11/23

Verify Client ID

Analyst / Date: TW 4/6/23

Acid Clean (Y / N)

Analyst / Date: TW 4/10/23

Silica-Florisil Clean (Y / N)

Analyst / Date: TW 4/11/23

Supervisor Review By 4/19/23 Date

TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Instrumentation

Batch:	BLC0566
Date:	4/1/2023 8:31
Analyst:	NL
Drying Oven:	18
Analytical Balance:	24650344

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	3/31/2023 13:27
Date/time out:	4/1/2023 8:31
Elapsed hrs:	19.1

Oven Temp, C	**TS (%) calculated as:**
113	Final dry wt (g) = (Dry Wt - Tare Wt)
112	TS = (Final Dry Wt X 100)/ (sample & dish -dish tare)

Oven Temps, °C	
Start Temp:	113
End Temp:	112

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23C0447-06	0.8100	11.3400	6.2800	5.47	51.95%	No
23C0592-05	0.8100	11.3900	9.5100	8.70	82.23%	No
23C0619-03	0.8200	11.2100	7.7000	6.88	66.22%	No
23C0619-05	0.8000	10.3600	7.6500	6.85	71.65%	No
23C0619-06	0.8100	10.3700	8.2700	7.46	78.03%	No
23C0619-07	0.8300	10.4600	8.5600	7.73	80.27%	No
23C0619-08	0.8200	10.1600	6.5100	5.69	60.92%	No
23C0619-10	0.8000	10.5300	8.1500	7.35	75.54%	No
23C0619-12	0.8400	10.6300	8.5100	7.67	78.35%	No
23C0619-13	0.8000	10.6800	8.1700	7.37	74.60%	No
23C0619-14	0.8000	10.6200	7.6700	6.87	69.96%	No
23C0619-15	0.8100	10.1000	7.8300	7.02	75.57%	No

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TOTAL SOLIDS BENCHSHEET

Method HRSM01.2

(dry at 110 C)

Batch:	BLC0566
Date:	
Analyst:	LO IN2
Drying Oven:	019
Analytical Balance:	2460344

Instrumentation

Batch drying time

Record times as mm/dd/yy hh:mm

Date/time in oven:	3/31/23	13:27
Date/time out:	4/1/23	08:31
Elapsed hrs:	0.0	

Oven Temp, C: 113 / 112

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:	113
End Temp:	112

SAMPLE ID	Dish Tare Wt (g)	Dish with Sample (g)	Dry Wt (g)	Solids Wt (g)	TS (%)	Sample Decanted
23C0447-06	0.91	11.74	6.28			No
23C0592-05	0.91	11.39	9.51			No
23C0619-03	0.92	11.21	7.70			No
23C0619-05	0.98	10.36	7.65			No
23C0619-06	0.91	10.37	8.27			No
23C0619-07	0.93	10.40	8.56			No
23C0619-08	0.92	10.16	6.51			No
23C0619-10	0.98	10.53	8.15			No
23C0619-12	0.94	10.63	8.51			No
23C0619-13	0.90	10.09	8.17			No
23C0619-14	0.90	10.62	7.67			No
23C0619-15	0.91	10.18	7.88			No

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

Extraction Parameter: Dioxin Extraction Batch: BLD0089

Total Solids Batch: BLC0566 Work Order(s): 23C0447, 23C0592, 23C0619

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
[X] No Anomalies (standard soil/wet sediment/sand/gravel)= 447-06	
[X] Standing Water Decanted (Not shared)= LO ~~Light~~. <1mL samples 619-14 and 15. <5mL samples 619-05, 06, 07, 10, 12.	LD 7/31/23
[ ] Standing Water Homogenized (Shared samples)=	
[ ] Clay/Clumps (Difficult to homogenize)=	
[X] Rocks (%+size)? 55% shells size 1/8-1/2 in. in sample 619-05. 10% shells & rock in samples 619-06, 12 sized 1/8-1/2 in. <1% 1/8-1/2 in. rocks in samples 592-05, 619-03, 619-10	LD 7/31/23
[X] Organics (Leaves/sticks/grass)= ~40% shells 1/4-1/2 in. in sample 619-14	LD 7/31/23
[X] Oily, obvious fuel/sulfur odors= sulfur odor in samples 619-10, and 619-14.	LD 7/31/23
[ ] Received in 32oz jar(s)=Homogenized in Pyrex dish=	
[ ] Previously Frozen =	
[X] ~~Other (Details)=~~ rocks (continued). 40% rocks and shells 1/8-1/2 in. in size in sample 619-07. <1% rocks 1/8 in. in size in sample 619-08. 70% rocks & shells 1/8-1/2 in. in size sample 619-13. 20% shells 1/4-1/2 in. in size sample 619-16.	LD 7/31/23
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	
[ ] Multiple Jars Y / N	
[ ] Sample Pre-Screens indicate analyte activity=	
[ ] Sample weights/volumes reduced based on Pre-Screen=	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Dioxin Extraction Laboratory – Glassware

Batch ID: BLD0089 Work Order: 23C0447, 23C0592, 23C0619, 23D0008 Extraction Parameter: Dioxin ARI Analyst: TW

ARI Sample ID	300 mL Flat Bottom	Small Soxhlet	Large Soxhlet	250 mL Beaker	Funnel	Column	Florisil Column	Turbo Tube	Sep Funnel	Erlenmeyer Flask	Centrifuge Bottle	Turbo-Vap	Vortex Mixer	Heating Mantle
BLD0089 -BLK1	18	60		37	95	204	150	44				4	4	A1
-BS1	26	69		28	45	170	167	24				4	4	A2
-BSD1	29	27		32	2	177	6	11				4	4	A3
-DUP1	31		63	4	59	72	175	39				4	4	A5
-SRM1	51	56		51	29	29	68	26				4	4	A6
23C0447 -05	24		58	23	70	185	40	6				4	4	B1
-06	79		28	9	24	36	171	55				4	4	B2
23C0592 -05	40	20		1	9	51	19	25				4	4	B3
23C0619 -03	87	114		52	44	18	79	58				4	4	B4
-05	44	59		88	39	13	172	1				4	4	B5
-06	63	77		19	51	19	174	27				4	4	B6
-07	45	18		18	46	198	53	43				4	4	C1 ~~B7~~
-08	3	75		24	15	44	120	46				4	4	C2
-10	47	17		49	84	102	119	48				4	4	C3
-12	13	116		12	41	35	176	84				4	4	C4
-13	17	10		29	96	50	15	9				4	4	C5
-14	5	8		6	27	217	128	76				4	4	C6
-15	22	87		33	20	200	173	13				4	4	D1
23D0008 -01	68		71	35	62	21	168	70				4	4	D2
												4	4	
												4	4	
												4	4	
												4	4	

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CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Cleanup Batch:	CLD0067	Cleanup Type:	Sulfuric Acid
Cleanup Method:	EPA 3665 Sulfuric Acid Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SED-09C:0-1	23C0619-05	23042409	04/10/2023	
SED-26C:0-1	23C0619-08	23042414	04/10/2023	
SED-08C:0-1	23C0619-03	23042408	04/10/2023	
SED-09C:1-3	23C0619-06	23042410	04/10/2023	
SED-10C:0-1	23C0619-12	23042416	04/10/2023	
SED-10C:1-3	23C0619-13	23042417	04/10/2023	
SED-11C:0-1	23C0619-14	23042418	04/10/2023	
SED-11C:1-3	23C0619-15	23042419	04/10/2023	
SED-12C:0-1	23C0619-07	23042411	04/10/2023	
SED-25C:0-1	23C0619-10	23042415	04/10/2023	
Reference	BLD0089-SRM1	23042406	04/10/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLD0067

Matrix: Solid **Cleanup using: Organics - EPA 3665 Sulfuric Acid Cleanup - uL** **Printed: 4/12/2023 9:47:31AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23C0447-05	A	PCB946	A 01	20	20	HRSM02.x	4/10/2023	TW	
23C0447-06	A	PCB948	A 01	20	20	HRSM02.x	4/10/2023	TW	
23C0592-05	A	PCB963	A 01	20	20	HRSM02.x	4/10/2023	TW	
23C0619-03	C	SED-08C:0-1	C 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-05	C	SED-09C:0-1	C 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-06	C	SED-09C:1-3	C 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-07	A	SED-12C:0-1	A 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-08	C	SED-26C:0-1	C 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-10	C	SED-25C:0-1	C 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-12	C	SED-10C:0-1	C 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-13	C	SED-10C:1-3	C 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-14	A	SED-11C:0-1	A 01	20	20	1613B Dioxin	4/10/2023	TW	
23C0619-15	A	SED-11C:1-3	A 01	20	20	1613B Dioxin	4/10/2023	TW	
23D0008-01	C	LDW23-SS1816	C 01	20	20	HRSM02.x	4/10/2023	TW	
23D0008-01	C	LDW23-SS1816	C 01	20	20	1613B Dioxin	4/10/2023	TW	
BLD0089-BLK1	-	DBLK06	-	20	20	-	4/10/2023	TW	
BLD0089-BS1	-	DLCS06	-	20	20	-	4/10/2023	TW	
BLD0089-BSD1	-	DLCSD06	-	20	20	-	4/10/2023	TW	
BLD0089-DUP1	-	Duplicate	-	20	20	-	4/10/2023	TW	
BLD0089-SRM1	-	Reference	-	20	20	-	4/10/2023	TW	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Cleanup Batch:	CLD0068	Cleanup Type:	Silica Gel
Cleanup Method:	EPA 3630C Silica Gel Cleanup - uL	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SED-09C:1-3	23C0619-06	23042410	04/11/2023	
SED-08C:0-1	23C0619-03	23042408	04/11/2023	
SED-26C:0-1	23C0619-08	23042414	04/11/2023	
SED-25C:0-1	23C0619-10	23042415	04/11/2023	
SED-12C:0-1	23C0619-07	23042411	04/11/2023	
SED-11C:1-3	23C0619-15	23042419	04/11/2023	
SED-11C:0-1	23C0619-14	23042418	04/11/2023	
Reference	BLD0089-SRM1	23042406	04/11/2023	
SED-10C:0-1	23C0619-12	23042416	04/11/2023	
SED-09C:0-1	23C0619-05	23042409	04/11/2023	
SED-10C:1-3	23C0619-13	23042417	04/11/2023	

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CLEANUP BENCH SHEET

CLD0068

Matrix: Solid **Cleanup using: Organics - EPA 3630C Silica Gel Cleanup - uL** **Printed: 4/12/2023 9:48:56AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23C0447-05	A	PCB946	A 01	20	20	HRSM02.x	4/11/2023	TW	
23C0447-06	A	PCB948	A 01	20	20	HRSM02.x	4/11/2023	TW	
23C0592-05	A	PCB963	A 01	20	20	HRSM02.x	4/11/2023	TW	
23C0619-03	C	SED-08C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-05	C	SED-09C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-06	C	SED-09C:1-3	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-07	A	SED-12C:0-1	A 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-08	C	SED-26C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-10	C	SED-25C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-12	C	SED-10C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-13	C	SED-10C:1-3	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-14	A	SED-11C:0-1	A 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-15	A	SED-11C:1-3	A 01	20	20	1613B Dioxin	4/11/2023	TW	
23D0008-01	C	LDW23-SS1816	C 01	20	20	HRSM02.x	4/11/2023	TW	
23D0008-01	C	LDW23-SS1816	C 01	20	20	1613B Dioxin	4/11/2023	TW	
BLD0089-BLK1	-	DBLK06	-	20	20	-	4/11/2023	TW	
BLD0089-BS1	-	DLCS06	-	20	20	-	4/11/2023	TW	
BLD0089-BSD1	-	DLCSD06	-	20	20	-	4/11/2023	TW	
BLD0089-DUP1	-	Duplicate	-	20	20	-	4/11/2023	TW	
BLD0089-SRM1	-	Reference	-	20	20	-	4/11/2023	TW	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BATCH SUMMARY

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Cleanup Batch:	CLD0069	Cleanup Type:	Florisil
Cleanup Method:	EPA 3620B Florisil Cleanup (uL)	Analysis:	EPA 1613B

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SED-09C:1-3	23C0619-06	23042410	04/11/2023	
Reference	BLD0089-SRM1	23042406	04/11/2023	
SED-09C:0-1	23C0619-05	23042409	04/11/2023	
SED-10C:0-1	23C0619-12	23042416	04/11/2023	
SED-10C:1-3	23C0619-13	23042417	04/11/2023	
SED-11C:0-1	23C0619-14	23042418	04/11/2023	
SED-11C:1-3	23C0619-15	23042419	04/11/2023	
SED-12C:0-1	23C0619-07	23042411	04/11/2023	
SED-25C:0-1	23C0619-10	23042415	04/11/2023	
SED-26C:0-1	23C0619-08	23042414	04/11/2023	
SED-08C:0-1	23C0619-03	23042408	04/11/2023	

Analytical Resources, LLC
Analytical Chemists and Consultants

CLEANUP BENCH SHEET

CLD0069

Matrix: Solid **Cleanup using: Organics - EPA 3620B Florisil Cleanup (uL)** **Check Standard: CKK0015-FLO1** **Printed: 4/12/2023 9:49:42AM**

Lab Number	Sample Container	Sample Name	Extract Container	Initial (uL)	Final (uL)	Analysis	Clean Up Date	Cleaned By	Cleanup Comments
23C0447-05	A	PCB946	A 01	20	20	HRSM02.x	4/11/2023	TW	
23C0447-06	A	PCB948	A 01	20	20	HRSM02.x	4/11/2023	TW	
23C0592-05	A	PCB963	A 01	20	20	HRSM02.x	4/11/2023	TW	
23C0619-03	C	SED-08C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-05	C	SED-09C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-06	C	SED-09C:1-3	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-07	A	SED-12C:0-1	A 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-08	C	SED-26C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-10	C	SED-25C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-12	C	SED-10C:0-1	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-13	C	SED-10C:1-3	C 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-14	A	SED-11C:0-1	A 01	20	20	1613B Dioxin	4/11/2023	TW	
23C0619-15	A	SED-11C:1-3	A 01	20	20	1613B Dioxin	4/11/2023	TW	
23D0008-01	C	LDW23-SS1816	C 01	20	20	HRSM02.x	4/11/2023	TW	
23D0008-01	C	LDW23-SS1816	C 01	20	20	1613B Dioxin	4/11/2023	TW	
BLD0089-BLK1	-	DBLK06	-	20	20	-	4/11/2023	TW	
BLD0089-BS1	-	DLCS06	-	20	20	-	4/11/2023	TW	
BLD0089-BSD1	-	DLCSD06	-	20	20	-	4/11/2023	TW	
BLD0089-DUP1	-	Duplicate	-	20	20	-	4/11/2023	TW	
BLD0089-SRM1	-	Reference	-	20	20	-	4/11/2023	TW	

Analytical Resources, LLC
Analytical Chemists and Consultants

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Solid	Laboratory ID:	BLD0089-BLK2	File ID:	23041934A
Sampled:	N/A	Prepared:	04/06/23 13:16	Analyzed:	04/20/23 18:18
Solids Wt%:		Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0342	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

CAS NO.	COMPOUND	DF/Split	Ion Ratio	Ratio Limits	EDL	RL	Result	Units	Q
51207-31-9	2,3,7,8-TCDF	1	0.000	0.655-0.886	0.224	1.00	ND	ng/kg	U
1746-01-6	2,3,7,8-TCDD	1	0.000	0.655-0.886	0.156	1.00	ND	ng/kg	U
57117-41-6	1,2,3,7,8-PeCDF	1	0.000	1.318-1.783	0.225	1.00	ND	ng/kg	U
57117-31-4	2,3,4,7,8-PeCDF	1	0.000	1.318-1.783	0.212	1.00	ND	ng/kg	U
40321-76-4	1,2,3,7,8-PeCDD	1	0.000	1.318-1.783	0.191	1.00	ND	ng/kg	U
70648-26-9	1,2,3,4,7,8-HxCDF	1	0.000	1.054-1.426	0.130	1.00	ND	ng/kg	U
57117-44-9	1,2,3,6,7,8-HxCDF	1	0.000	1.054-1.426	0.127	1.00	ND	ng/kg	U
60851-34-5	2,3,4,6,7,8-HxCDF	1	0.000	1.054-1.426	0.136	1.00	ND	ng/kg	U
72918-21-9	1,2,3,7,8,9-HxCDF	1	0.000	1.054-1.426	0.208	1.00	ND	ng/kg	U
39227-28-6	1,2,3,4,7,8-HxCDD	1	0.000	1.054-1.426	0.157	1.00	ND	ng/kg	U
57653-85-7	1,2,3,6,7,8-HxCDD	1	0.000	1.054-1.426	0.149	1.00	ND	ng/kg	U
19408-74-3	1,2,3,7,8,9-HxCDD	1	0.000	1.054-1.426	0.168	1.00	ND	ng/kg	U
67562-39-4	1,2,3,4,6,7,8-HpCDF	1	0.000	0.893-1.208	0.171	1.00	ND	ng/kg	U
55673-89-7	1,2,3,4,7,8,9-HpCDF	1	0.000	0.893-1.208	0.254	1.00	ND	ng/kg	U
35822-46-9	1,2,3,4,6,7,8-HpCDD	1	1.201	0.893-1.208	0.301	2.50	0.508	ng/kg	J
39001-02-0	OCDF	1	0.000	0.757-1.024	0.448	2.50	ND	ng/kg	U
3268-87-9	OCDD	1	0.775	0.757-1.024	0.409	10.0	2.35	ng/kg	J

Homologue Groups

55722-27-5	Total TCDF	1	0.000			1.00	ND	ng/kg
41903-57-5	Total TCDD	1	0.000			1.00	ND	ng/kg
30402-15-4	Total PeCDF	1	0.000			1.00	ND	ng/kg
36088-22-9	Total PeCDD	1	0.000			1.00	ND	ng/kg
55684-94-1	Total HxCDF	1	0.000			1.00	ND	ng/kg
34465-46-8	Total HxCDD	1	0.000			1.00	ND	ng/kg
38998-75-3	Total HpCDF	1	0.000			1.00	ND	ng/kg
37871-00-4	Total HpCDD	1	0.000			1.00	0.508	ng/kg

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC): 0.006
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC): 0.281

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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

Laboratory:	Analytical Resources, LLC			SDG:	23C0619
Client:	Friedman & Bruya Inc.			Project:	Port of Friday Harbor
Matrix:	Solid	Laboratory ID:	BLD0089-BLK2	File ID:	23041934A
Sampled:	N/A	Prepared:	04/06/23 13:16	Analyzed:	04/20/23 18:18
Solids Wt%:	0.00	Preparation:	EPA 1613	Initial/Final:	10 g / 20 uL
Result Basis:	Dry	Sequence:	SLD0342	Calibration:	GC00015
Batch:	BLD0089	Instrument:	AUTOSPEC01	Column:	RTX-Dioxin2

Labels	DF/Split	Ion Ratio	Ratio Limits	EDL	% REC	QC LIMITS	Q
13C12-2,3,7,8-TCDF	1	0.745	0.655-0.886	0.15	85.6	24 - 169 %	
13C12-2,3,7,8-TCDD	1	0.780	0.655-0.886	0.26	89.4	25 - 164 %	
13C12-1,2,3,7,8-PeCDF	1	1.413	1.318-1.783	0.50	116	24 - 185 %	
13C12-2,3,4,7,8-PeCDF	1	1.536	1.318-1.783	0.55	118	21 - 178 %	
13C12-1,2,3,7,8-PeCDD	1	1.615	1.318-1.783	0.35	104	25 - 181 %	
13C12-1,2,3,4,7,8-HxCDF	1	0.520	0.434-0.587	0.56	102	26 - 152 %	
13C12-1,2,3,6,7,8-HxCDF	1	0.506	0.434-0.587	0.47	104	26 - 123 %	
13C12-2,3,4,6,7,8-HxCDF	1	0.499	0.434-0.587	0.58	112	28 - 136 %	
13C12-1,2,3,7,8,9-HxCDF	1	0.512	0.434-0.587	0.70	89.2	29 - 147 %	
13C12-1,2,3,4,7,8-HxCDD	1	1.254	1.054-1.426	0.46	117	32 - 141 %	
13C12-1,2,3,6,7,8-HxCDD	1	1.279	1.054-1.426	0.39	118	28 - 130 %	
13C12-1,2,3,4,6,7,8-HpCDF	1	0.448	0.374-0.506	0.90	109	28 - 143 %	
13C12-1,2,3,4,7,8,9-HpCDF	1	0.445	0.374-0.506	1.04	100	26 - 138 %	
13C12-1,2,3,4,6,7,8-HpCDD	1	1.064	0.893-1.208	0.61	79.7	23 - 140 %	
13C12-OCDD	1	0.939	0.757-1.024	0.78	96.8	17 - 157 %	
37Cl4-2,3,7,8-TCDD	1	328.000		0.12	82.5	35 - 197 %	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:06:32 Pacific Daylight Time

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.702		0.770	620	1086								
12378-PeCDF					0.679		1.550	509	1207								
23478-PeCDF					0.786		1.550	509	1207								
123478-HxCDF					1.166		1.240	586	649								
234678-HxCDF					1.140		1.240	586	649								
123678-HxCDF					1.091		1.240	586	649								
123789-HxCDF					1.137		1.240	586	649								
1234678-HpCDF					1.003		1.050	629	439								
1234789-HpCDF					0.953		1.050	629	439								
OCDF					0.778		0.890	581	588								
2378-TCDD					1.149		0.770	866	536								
12378-PeCDD					1.022		1.550	659	550								
123478-HxCDD					0.996		1.240	618	653								
123678-HxCDD					1.001		1.240	618	653								
123789-HxCDD					0.907		1.240	618	653								
1234678-HpCDD	40.239	1.001	2.683e2	2.235e2	1.039	1.201	1.050	663	615	3.65e3	1.94e3	5.5	3.2	NO	bb	bb	0.254
OCDD	44.952	1.000	9.755e2	1.259e3	0.920	0.775	0.890	776	486	1.41e4	1.62e4	18.2	33.3	NO	MM	bb	1.174
13C-2378-TCDF	25.732	1.007	1.920e5	2.577e5	1.620	0.745	0.770	1109	897	2.78e6	3.59e6	2508.5	4000.4	NO	bb	dd	85.577
13C-12378-PeCDF	29.889	1.169	2.727e5	1.929e5	1.240	1.413	1.550	2644	2395	3.95e6	2.60e6	1495.4	1086.7	NO	bb	bd	115.752
13C-23478-PeCDF	31.226	1.222	2.580e5	1.680e5	1.118	1.536	1.550	2644	2395	3.75e6	2.41e6	1417.0	1004.9	NO	bb	bb	117.510
13C-123478-HxCDF	34.847	0.956	1.138e5	2.190e5	1.168	0.520	0.510	1481	2632	1.68e6	3.26e6	1132.5	1238.0	NO	bd	bd	102.286
13C-123678-HxCDF	34.980	0.959	1.346e5	2.661e5	1.386	0.506	0.510	1481	2632	1.80e6	3.56e6	1215.2	1352.1	NO	db	db	103.770
13C-234678-HxCDF	35.849	0.983	1.172e5	2.349e5	1.129	0.499	0.510	1481	2632	1.59e6	3.07e6	1071.3	1165.0	NO	bd	bd	111.942
13C-123789-HxCDF	36.875	1.011	7.837e4	1.530e5	0.932	0.512	0.510	1481	2632	1.06e6	2.11e6	716.2	801.7	NO	bb	bb	89.157
13C-1234678-HpCDF	38.724	1.062	8.382e4	1.873e5	0.895	0.448	0.440	1967	3109	1.15e6	2.52e6	586.4	809.6	NO	bd	bd	108.736
13C-1234789-HpCDF	40.952	1.123	6.627e4	1.490e5	0.770	0.445	0.440	1967	3109	8.14e5	1.83e6	413.6	587.7	NO	bb	bb	100.400
13C-1234-TCDD	25.562	0.000	1.430e5	1.813e5	1.000	0.789	0.770	1501	949	2.16e6	2.77e6	1438.5	2917.1	NO	bb	bb	100.000
13C-2378-TCDD	26.368	1.031	1.464e5	1.876e5	1.152	0.780	0.770	1501	949	2.06e6	2.67e6	1375.1	2815.2	NO	bb	bb	89.362
13C-12378-PeCDD	31.482	1.232	1.729e5	1.070e5	0.829	1.615	1.550	1370	1022	2.30e6	1.40e6	1677.0	1371.1	NO	bb	bb	104.123
13C-123478-HxCDD	35.972	0.987	1.807e5	1.441e5	0.995	1.254	1.240	1587	1295	2.72e6	2.16e6	1714.3	1671.5	NO	bd	bd	117.198
13C-123678-HxCDD	36.083	0.990	2.130e5	1.666e5	1.157	1.279	1.240	1587	1295	2.87e6	2.27e6	1810.2	1755.9	NO	db	db	117.831
13C-1234678-HpCDD	40.217	1.103	9.609e4	9.030e4	0.840	1.064	1.050	1725	1535	1.26e6	1.16e6	731.4	755.1	NO	bb	bb	79.659
13C-OCDD	44.934	1.232	2.004e5	2.135e5	0.767	0.939	0.890	1988	1817	1.95e6	2.09e6	980.8	1148.2	NO	bd	bd	193.624
13C-123789-HxCDD	36.462	0.000	1.548e5	1.238e5	1.000	1.250	1.240	1587	1295	2.11e6	1.71e6	1329.4	1320.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	1.377e5		1.288			1302		1.91e6		1470.7			bb		32.982

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Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:06:32 Pacific Daylight Time

ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	620	1086								
1289-TCDF					0.678		0.770	620	1086								
13468-PECDF					1.246		1.550	636	727								
12389-PECDF					0.496		1.550	509	1207								
123468-HXCDF					1.169		1.240	586	649								
1368-TCDD					1.015		0.770	866	536								
1289-TCDD					0.909		0.770	866	536								
12479-PECDD					2.301		1.550	659	550								
12389-PECDD					1.184		1.550	659	550								
124679-HXCDD					1.115		1.240	618	653								
1234679-HPCDD					1.137		1.050	663	615								
Total-tetrafurans			0.000e0		0.727			620		0.00e0							
Total-penta1			0.000e0					636		0.00e0							
Total-pentafurans			0.000e0		0.654			509		0.00e0							
Total-hexafurans			0.000e0		1.141			586		0.00e0							
Total-heptafurans			0.000e0		0.978			629		0.00e0							
Total-Furans			0.000e0		0.922			620		0.00e0							
Total-tetradioxins			0.000e0		1.024			866		0.00e0							
Total-pentadioxins			0.000e0		1.502			659		0.00e0							
Total-hexadioxins			0.000e0		1.005			618		0.00e0							
Total-heptadioxins			2.683e2		1.088			663		3.65e3							0.254
Total-Dioxins			1.371e3		1.130			866		2.10e4							1.506
Total-TEQ			1.371e3					866		2.10e4							1.506
FUNCTION1 PFK			3.244e7					349467		4.04e7							
FUNCTION2 PFK			1.877e5					211021		4.33e6							0.000
FUNCTION3 PFK			5.718e7					348296		2.76e7							0.000
FUNCTION4 PFK			2.261e5					282029		7.23e6							
FUNCTION5 PFK			0.000e0					220932		0.00e0							
FUNCTION1 HXCD...			9.163e1					501		1.62e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.988e2					910		1.40e4							0.000
FUNCTION3 OCDPE			9.238e1					742		1.11e3							0.000
FUNCTION4 NCDPE			4.239e2					656		5.72e3							0.000
FUNCTION5 DCDPE			0.000e0					416		0.00e0							

Method: T:\Autospec\Methods\Dioxin230420IH.mdb 25 Apr 2023 09:50:41
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

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

PP

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

PF

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

HF

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

HPF

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

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

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

TD

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

PD

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

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HD

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

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.24	2.683e2	2.235e2	1.039	1.20	1.05	5.5	YES	NO	bb	bb	0.254

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-Dioxins	21.08	1.268e2	1.692e2	1.130	0.75	0.77	3.7	YES	NO	bd	bb	0.078
2	OCDD	44.95	9.755e2	1.259e3	0.920	0.77	0.89	18.2	YES	NO	MM	bb	1.174
3	1234678-HpCDD	40.24	2.683e2	2.235e2	1.039	1.20	1.05	5.5	YES	NO	bb	bb	0.254

TotalTEQ,Furans,Dioxins

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

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.95	3.293e5					2.4	NO		bb		
2	FUNCTION1 PFK	25.04	9.906e5					0.0	NO		bb		
3	FUNCTION1 PFK	23.75	9.145e6					17.9	YES		db		
4	FUNCTION1 PFK	22.13	4.652e6					34.1	YES		dd		
5	FUNCTION1 PFK	21.13	1.732e7					61.3	YES		bd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.60	9.679e3					0.9	NO		bd		0.000
2	FUNCTION2 PFK	31.50	1.391e4					1.6	NO		bb		0.000
3	FUNCTION2 PFK	30.79	2.998e4					2.4	NO		bb		0.000
4	FUNCTION2 PFK	30.62	3.048e3					0.7	NO		bb		0.000
5	FUNCTION2 PFK	29.33	1.138e3					0.5	NO		bb		0.000
6	FUNCTION2 PFK	28.84	5.877e3					1.1	NO		bb		0.000
7	FUNCTION2 PFK	28.27	3.993e4					2.1	NO		bb		0.000
8	FUNCTION2 PFK	28.13	5.951e3					1.2	NO		bb		0.000
9	FUNCTION2 PFK	32.76	4.098e4					2.8	NO		db		0.000
10	FUNCTION2 PFK	32.67	1.166e4					2.0	NO		bd		0.000
11	FUNCTION2 PFK	32.14	1.226e4					1.9	NO		bb		0.000
12	FUNCTION2 PFK	32.06	1.929e3					0.6	NO		bb		0.000
13	FUNCTION2 PFK	31.97	6.516e3					1.3	NO		bb		0.000
14	FUNCTION2 PFK	31.82	1.164e3					0.5	NO		bb		0.000
15	FUNCTION2 PFK	31.65	3.725e3					0.8	NO		db		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.36	8.043e6					31.3	YES		db		0.000
2	FUNCTION3 PFK	33.55	4.914e7					47.8	YES		bd		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.22	9.241e3					1.1	NO		bb		
2	FUNCTION4 PFK	38.04	1.823e4					1.4	NO		bb		
3	FUNCTION4 PFK	37.99	1.338e3					0.4	NO		bb		
4	FUNCTION4 PFK	37.91	1.723e4					2.1	NO		db		
5	FUNCTION4 PFK	37.89	6.029e3					1.2	NO		bd		
6	FUNCTION4 PFK	42.66	4.587e3					0.8	NO		bb		
7	FUNCTION4 PFK	42.45	1.178e4					1.2	NO		bb		
8	FUNCTION4 PFK	41.88	1.204e4					1.3	NO		bb		
9	FUNCTION4 PFK	41.74	6.810e3					1.1	NO		bb		
10	FUNCTION4 PFK	41.64	1.924e4					1.2	NO		db		
11	FUNCTION4 PFK	41.61	1.558e4					1.7	NO		bd		
12	FUNCTION4 PFK	41.49	1.120e4					1.6	NO		bb		
13	FUNCTION4 PFK	41.33	5.836e3					0.6	NO		bb		
14	FUNCTION4 PFK	41.24	1.802e4					2.1	NO		bb		
15	FUNCTION4 PFK	40.58	2.113e4					1.3	NO		bb		
16	FUNCTION4 PFK	40.33	1.399e3					0.4	NO		bb		
17	FUNCTION4 PFK	40.28	6.169e3					0.8	NO		bb		
18	FUNCTION4 PFK	39.90	4.063e3					0.8	NO		bb		
19	FUNCTION4 PFK	39.66	7.553e3					1.0	NO		bb		
20	FUNCTION4 PFK	39.19	1.394e4					1.4	NO		bb		
21	FUNCTION4 PFK	39.14	7.481e3					1.0	NO		bb		
22	FUNCTION4 PFK	42.70	7.156e3					0.9	NO		bb		

PFK5

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

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.08	9.163e1					3.2	YES		bb		0.000

ETHERS2

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

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.28	1.247e2					4.2	YES		bb		0.000
2	FUNCTION2 HPCD...	30.13	1.148e2					4.2	YES		bb		0.000
3	FUNCTION2 HPCD...	30.01	7.816e1					2.1	NO		bb		0.000
4	FUNCTION2 HPCD...	29.53	1.022e2					3.4	YES		bb		0.000
5	FUNCTION2 HPCD...	29.38	7.904e1					1.5	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.87	9.238e1					1.5	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.45	7.726e1					2.5	NO		bb		0.000
2	FUNCTION4 NCDPE	41.09	1.750e2					2.5	NO		bb		0.000
3	FUNCTION4 NCDPE	40.73	8.894e1					2.7	NO		bb		0.000
4	FUNCTION4 NCDPE	42.74	8.261e1					1.1	NO		bb		0.000

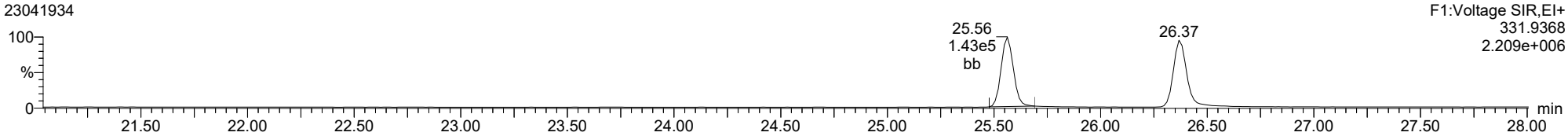
ETHERS6

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

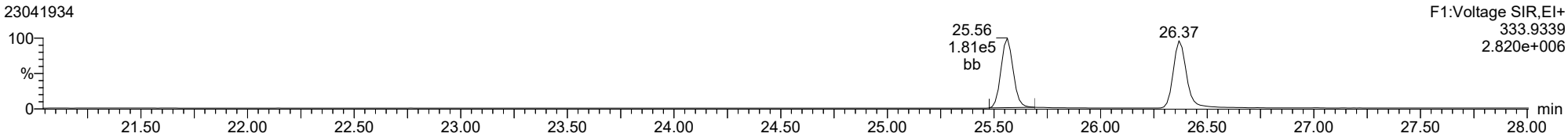
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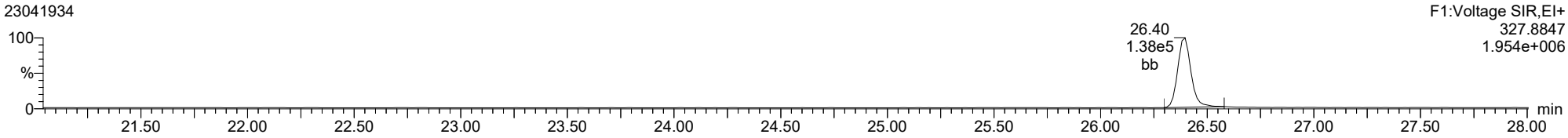
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13C-1234-TCDD

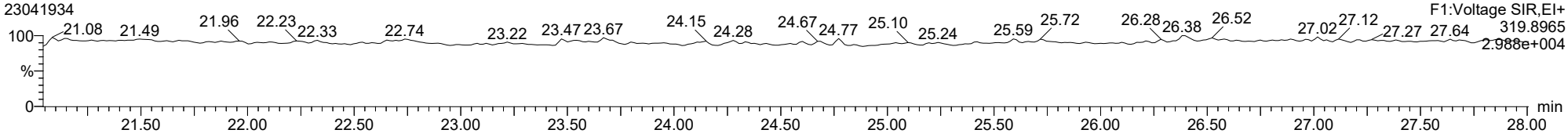


37CL-2378-TCDD

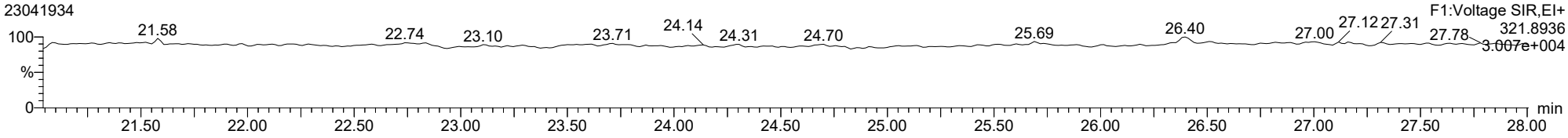


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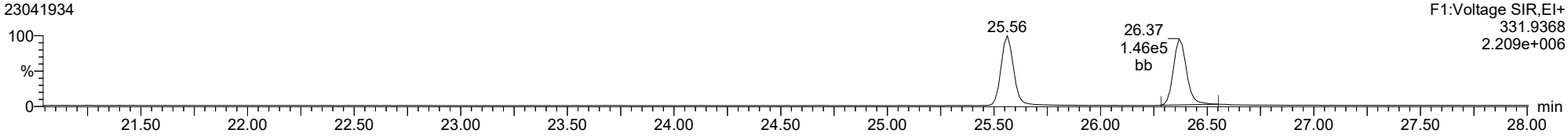
2378-TCDD



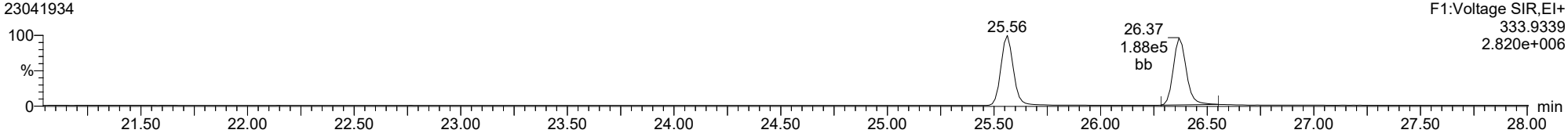
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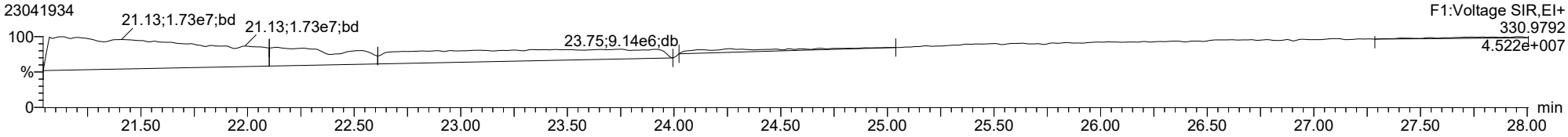
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13C-2378-TCDD

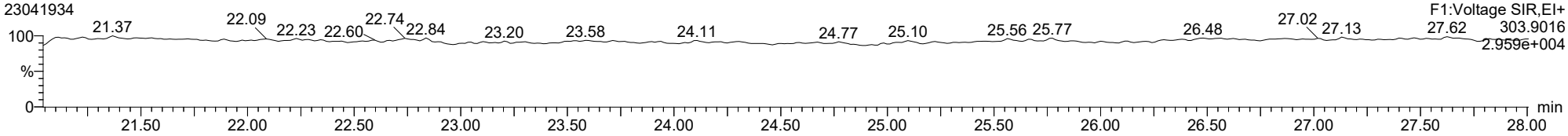


FUNCTION1 PFK

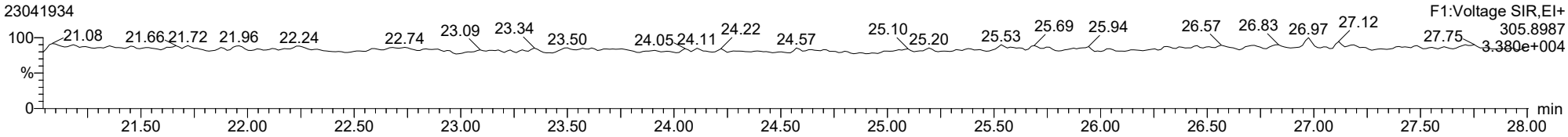


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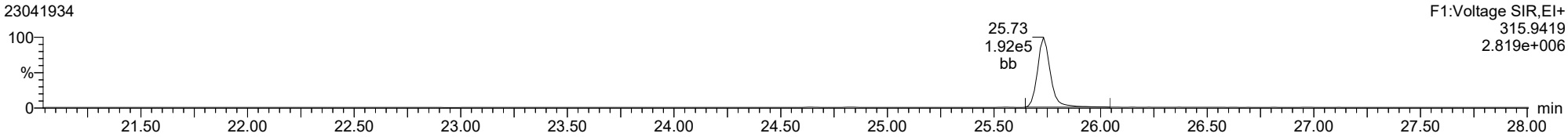
2378-TCDF



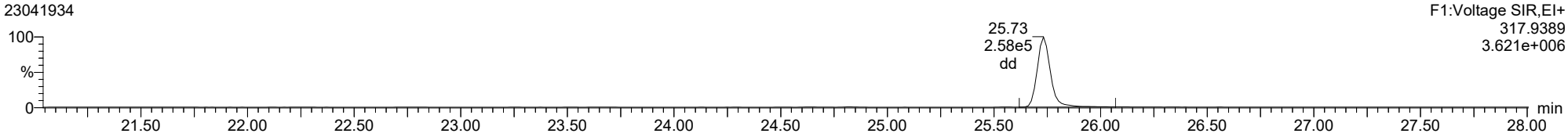
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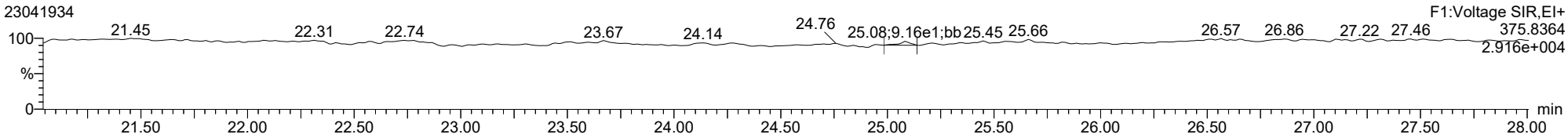
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13C-2378-TCDF

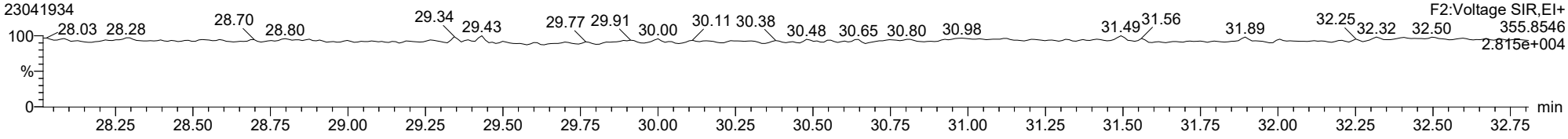


FUNCTION1 HXCDPE

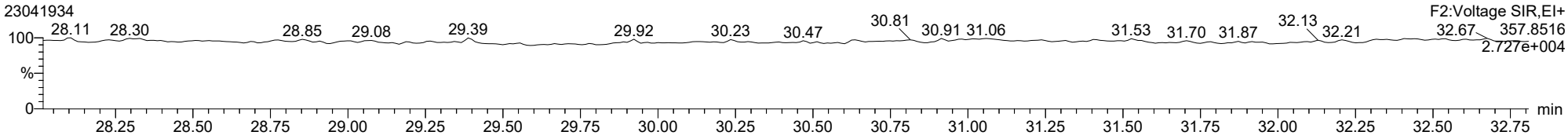


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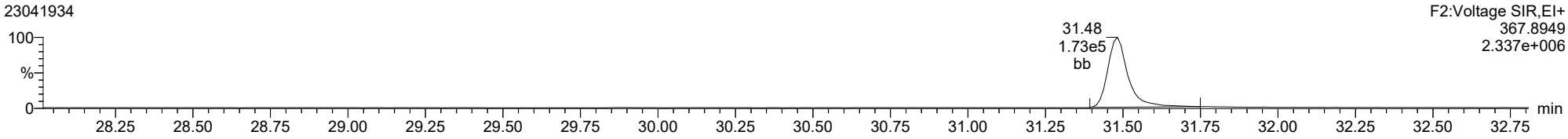
12378-PeCDD



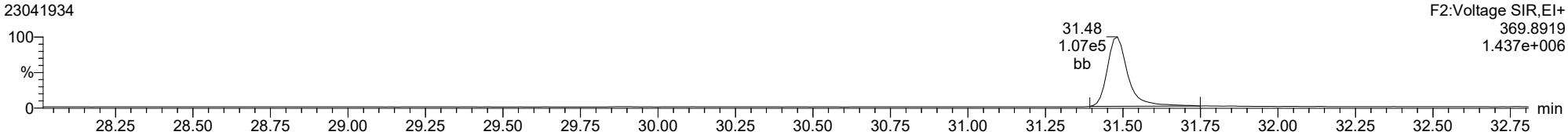
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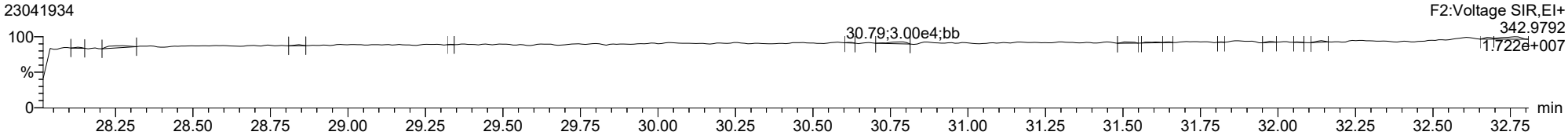
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13C-12378-PeCDD

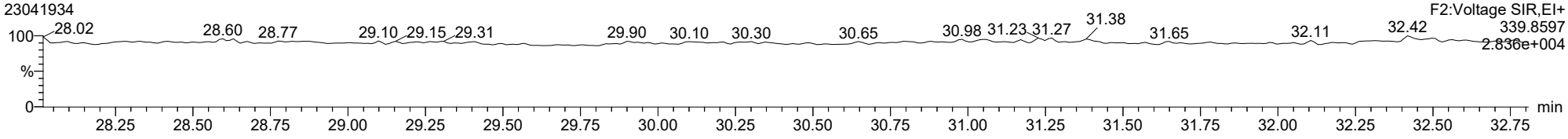


FUNCTION2 PFK

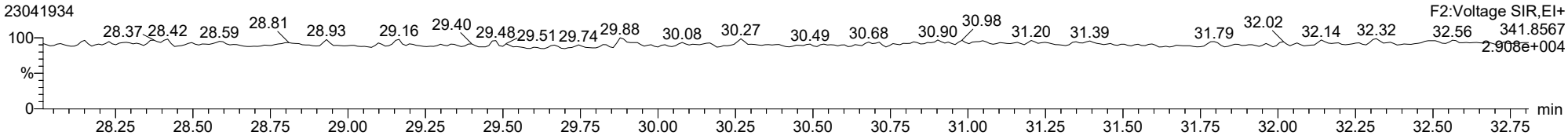


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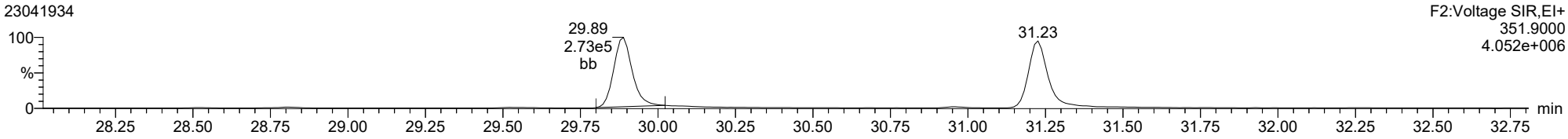
12378-PeCDF



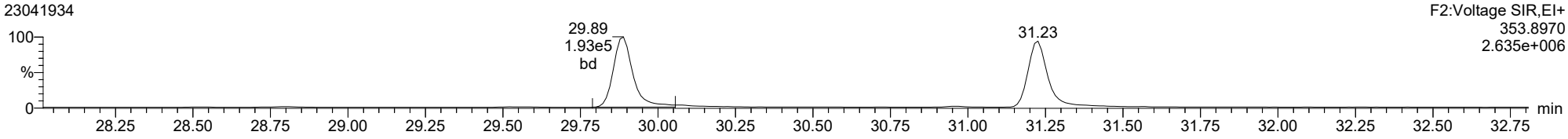
12378-PeCDF



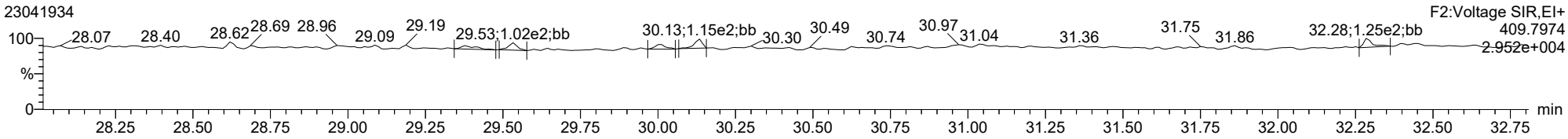
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13C-12378-PeCDF

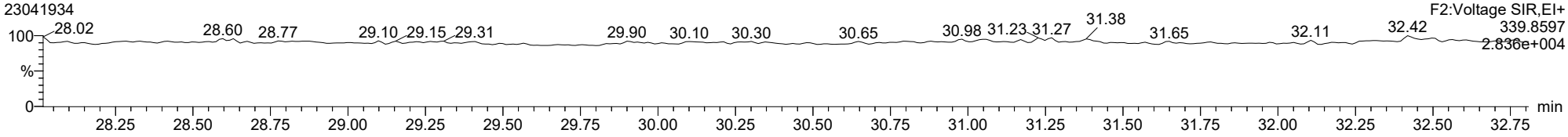


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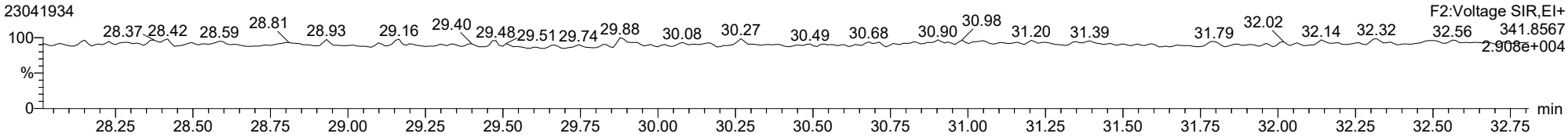


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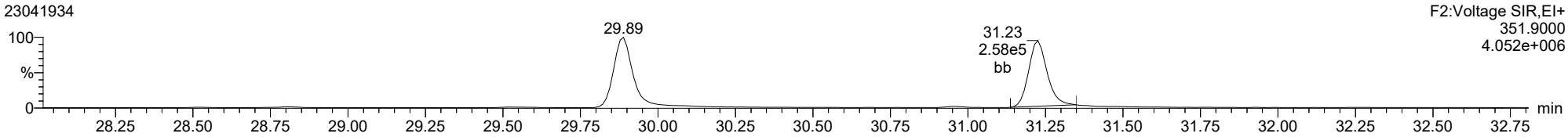
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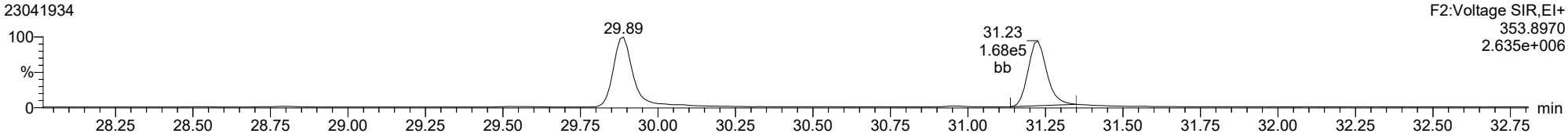
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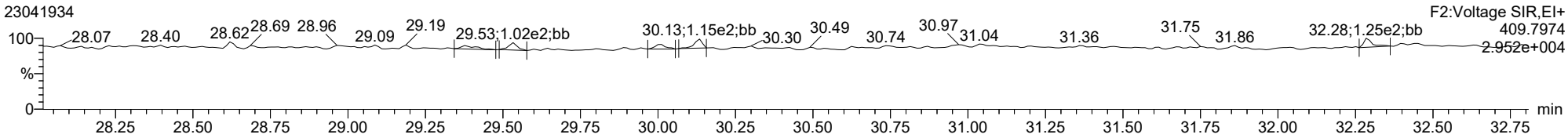
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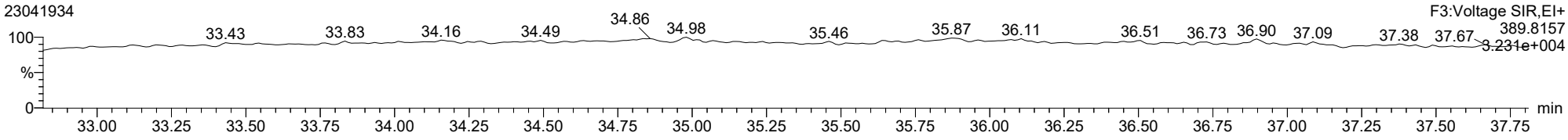


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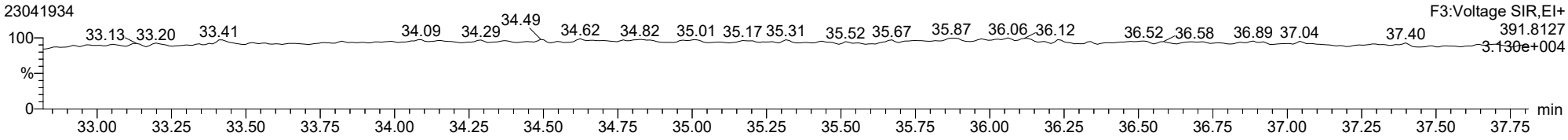


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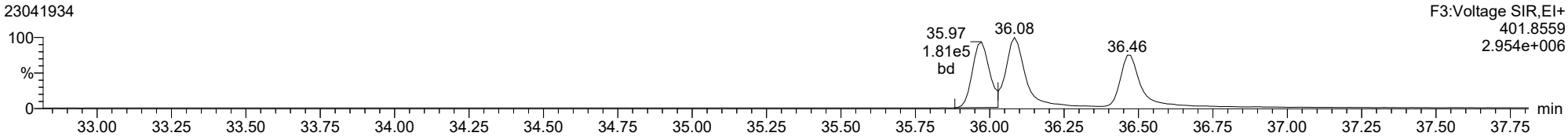
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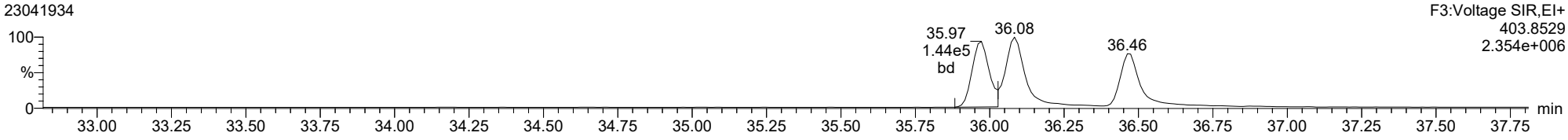
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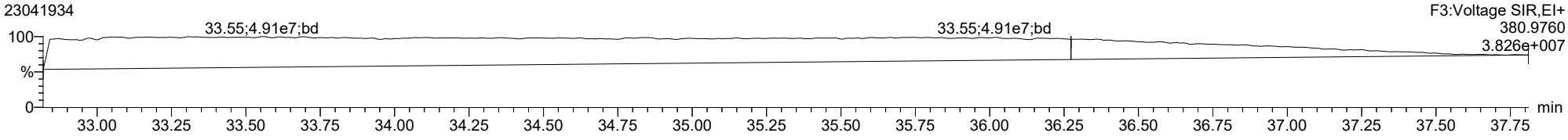
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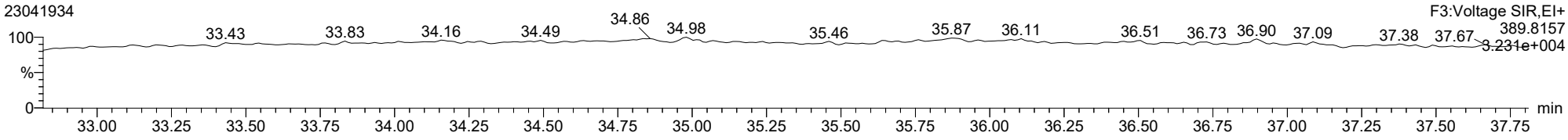


FUNCTION3 PFK

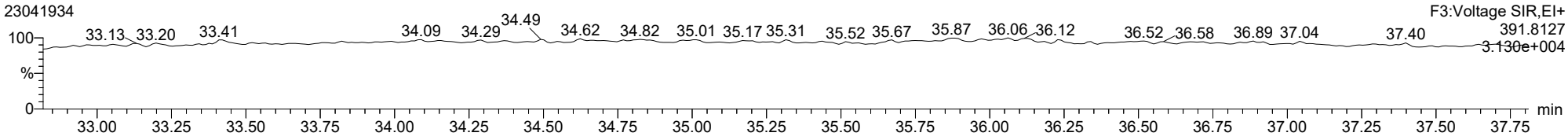


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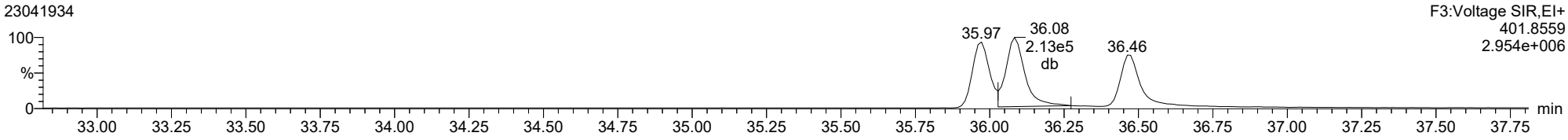
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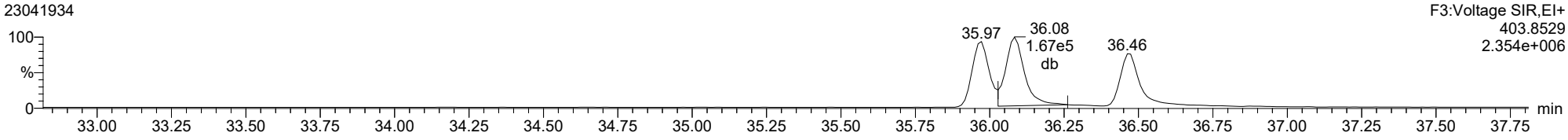
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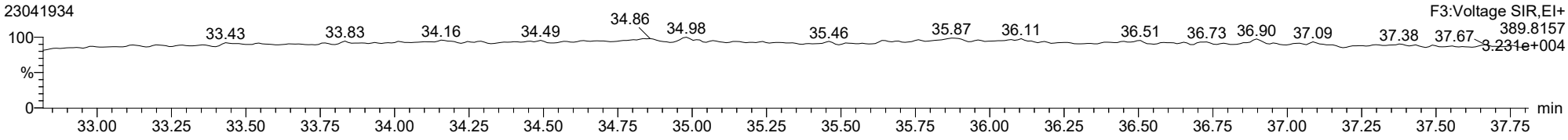


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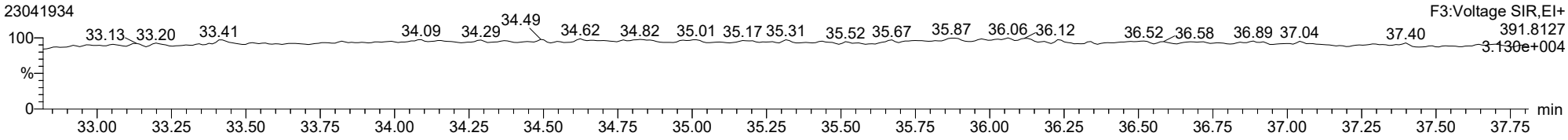


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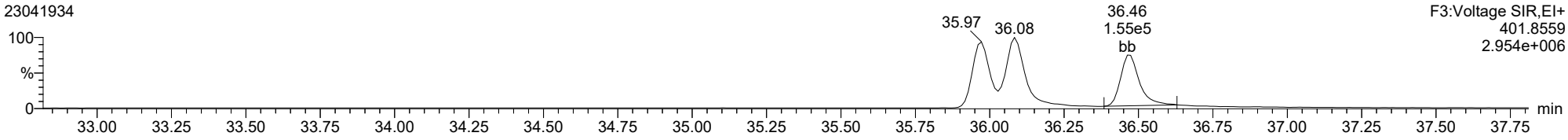
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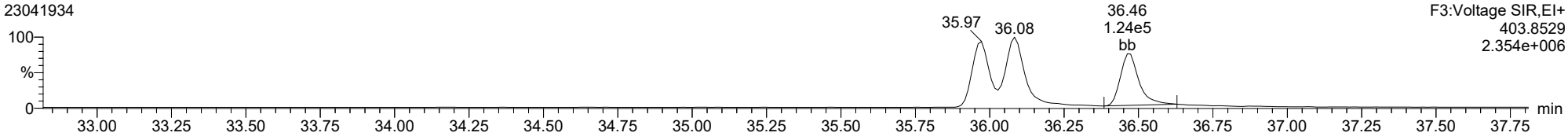
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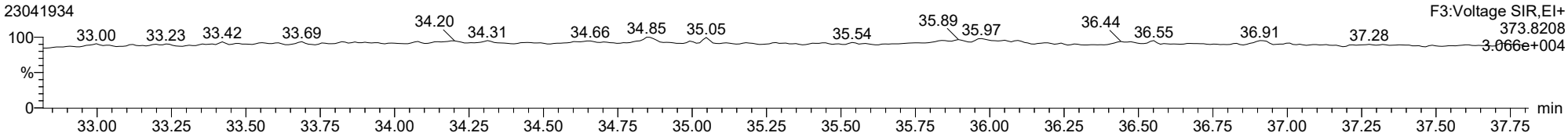


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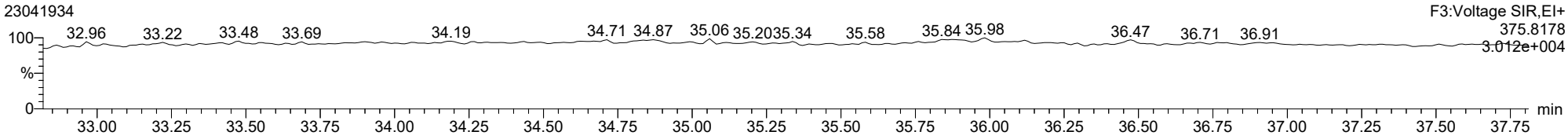


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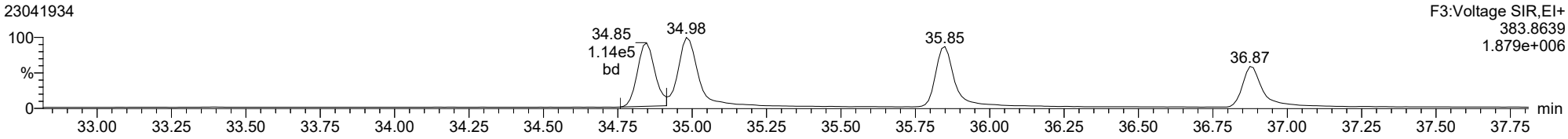
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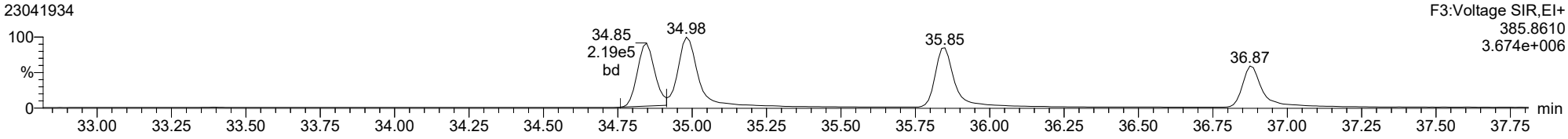
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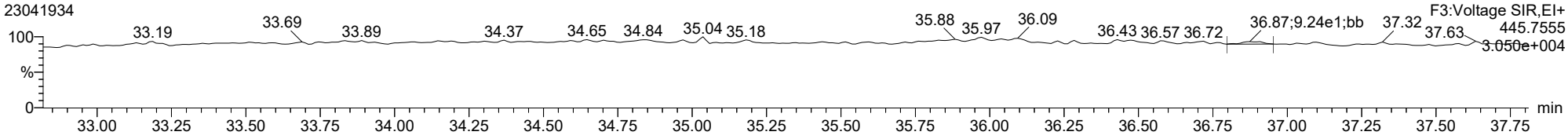
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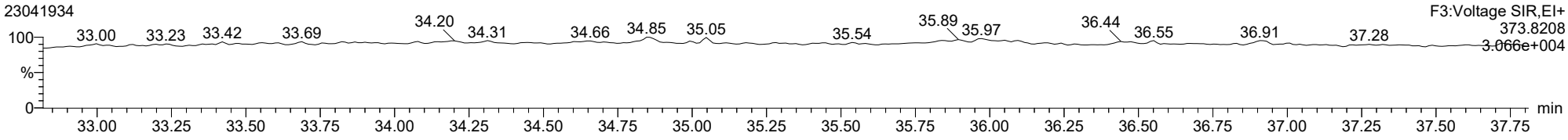


FUNCTION3 OCDPE

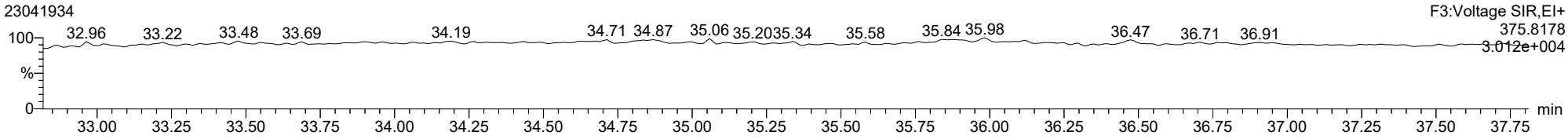


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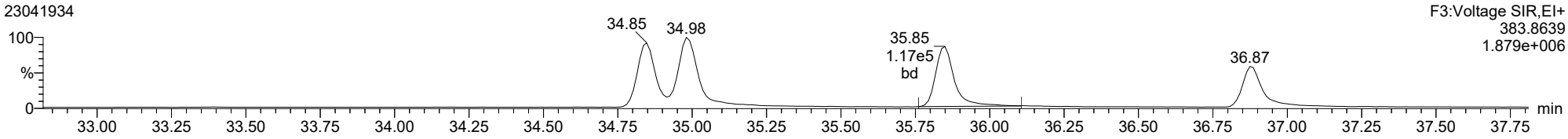
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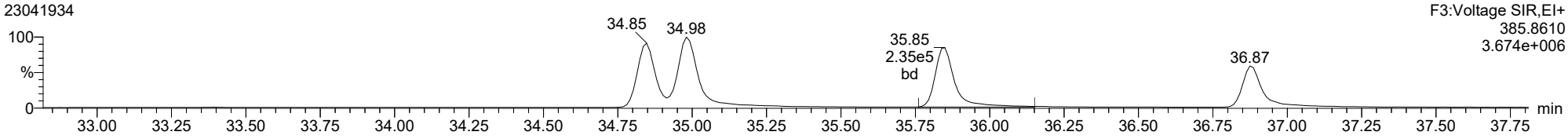
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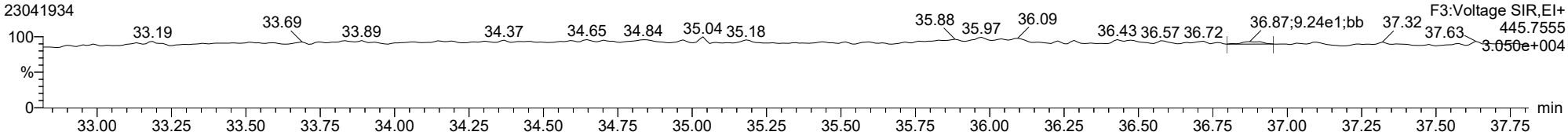
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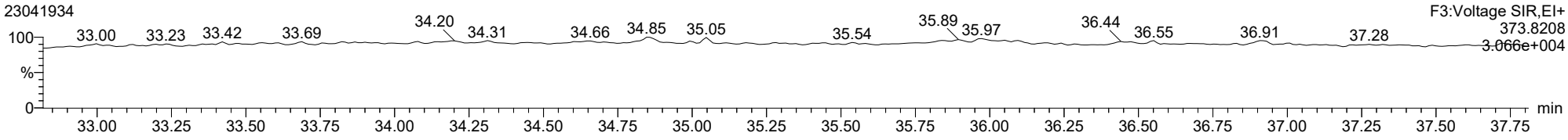


FUNCTION3 OCDPE

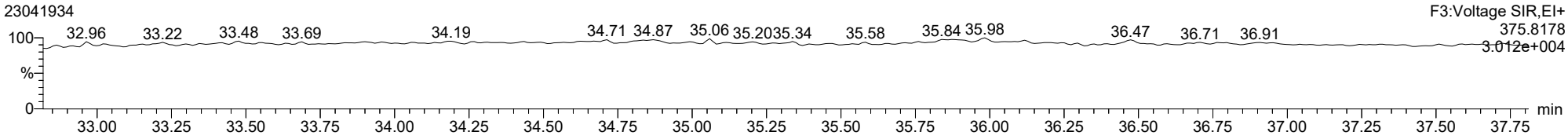


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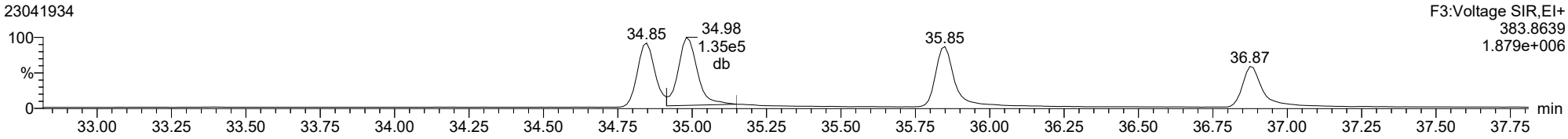
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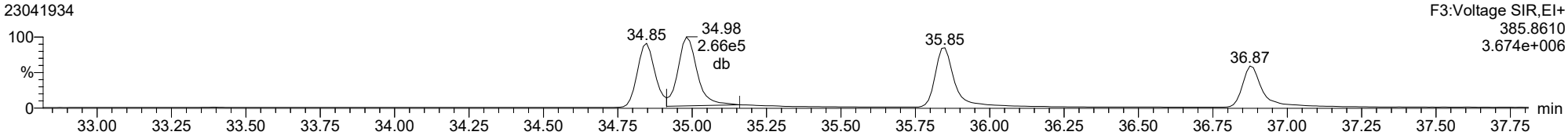
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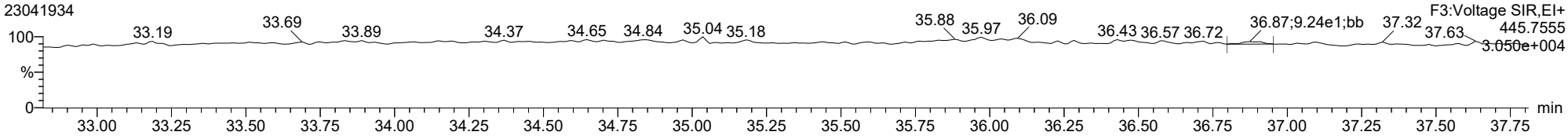
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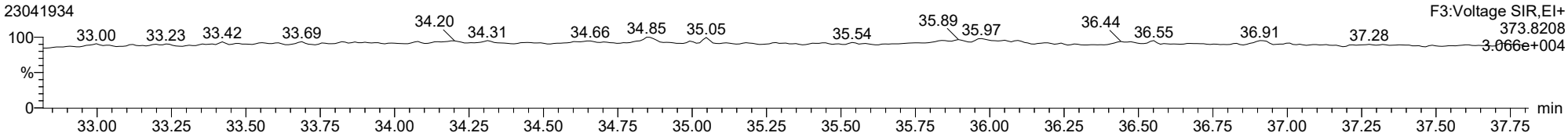


FUNCTION3 OCDPE

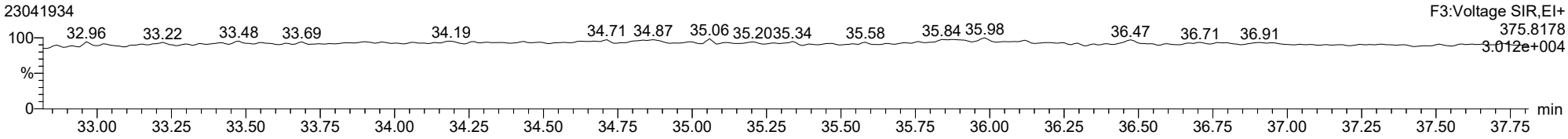


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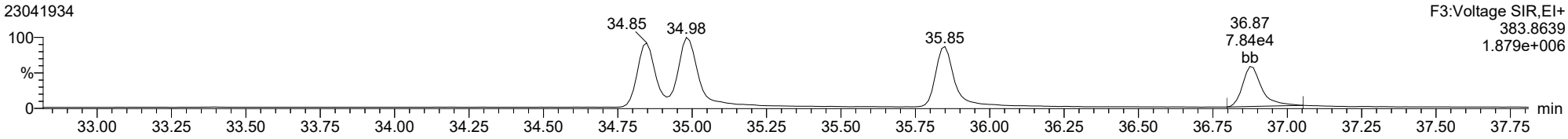
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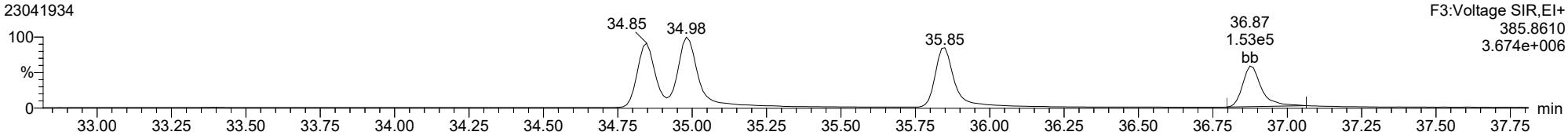
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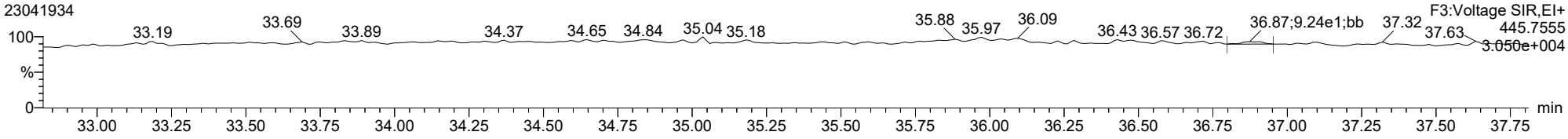
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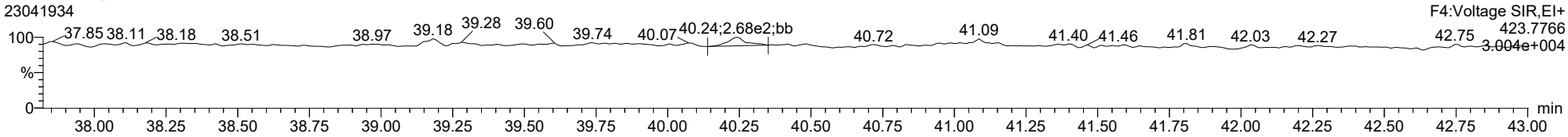


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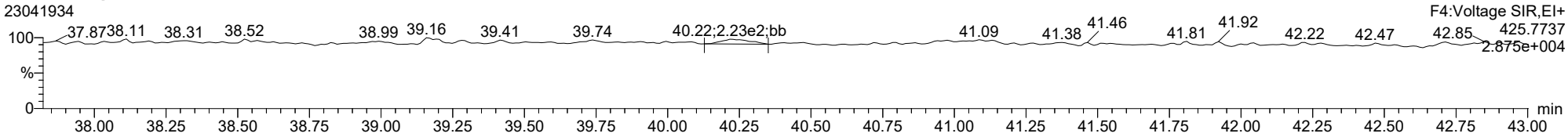


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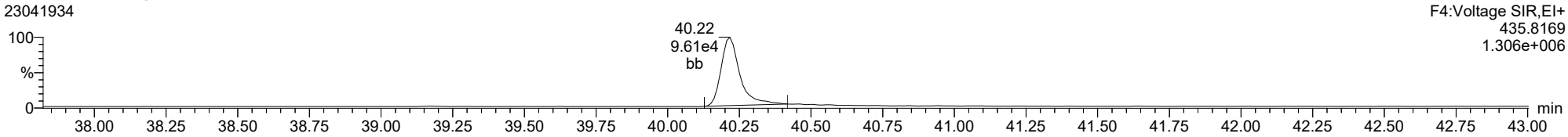
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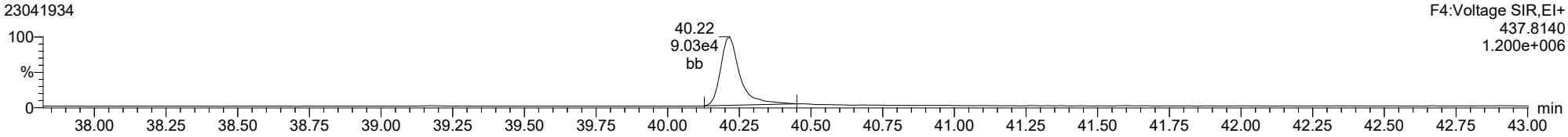
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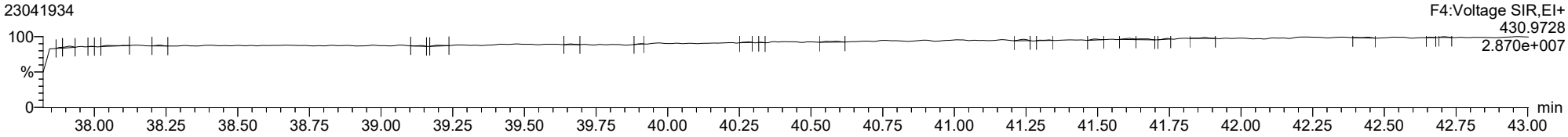
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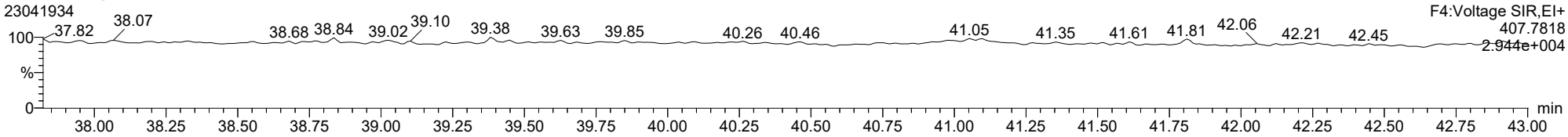


FUNCTION4 PFK

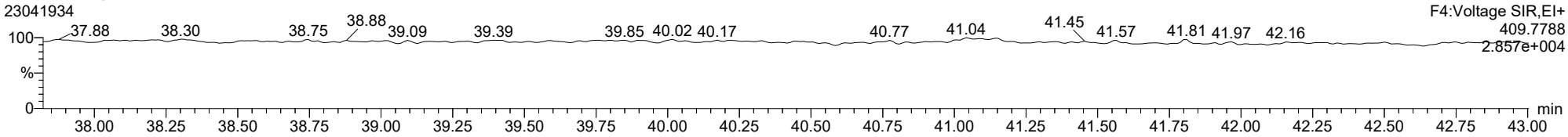


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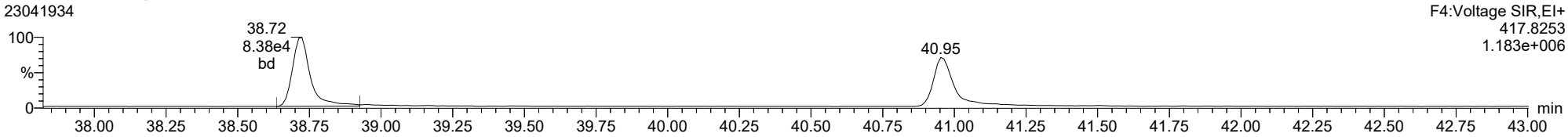
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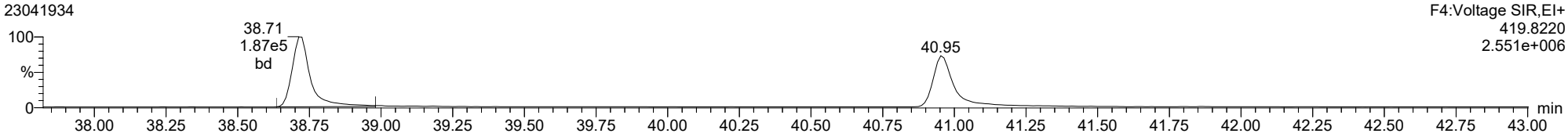
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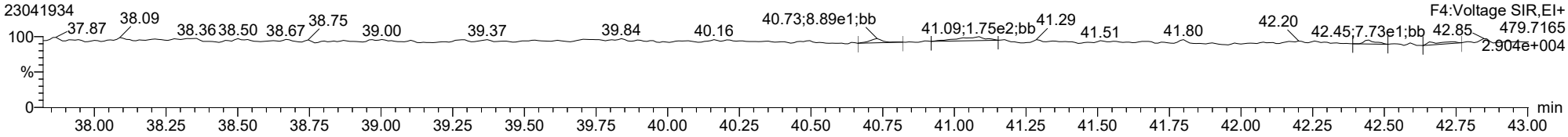
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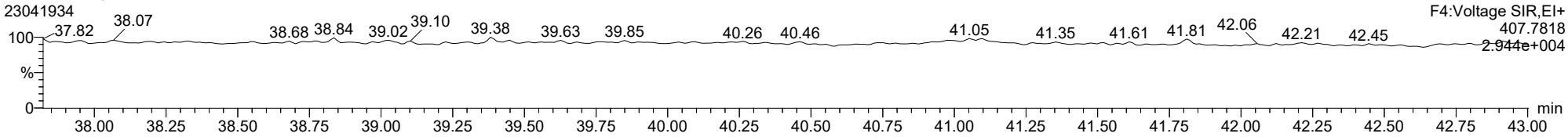


FUNCTION4 NCDPE

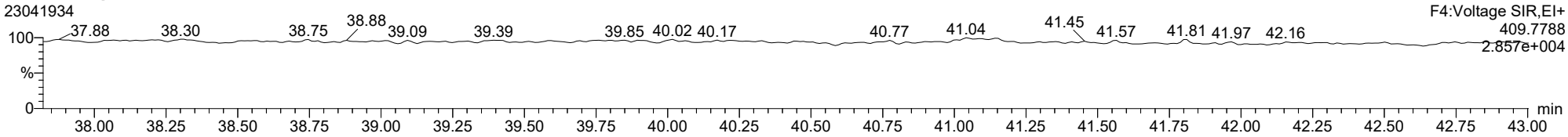


ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

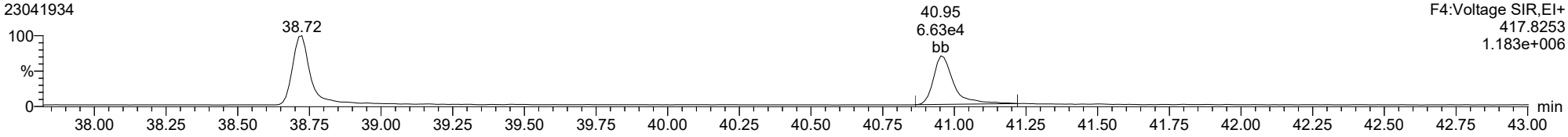
1234789-HpCDF



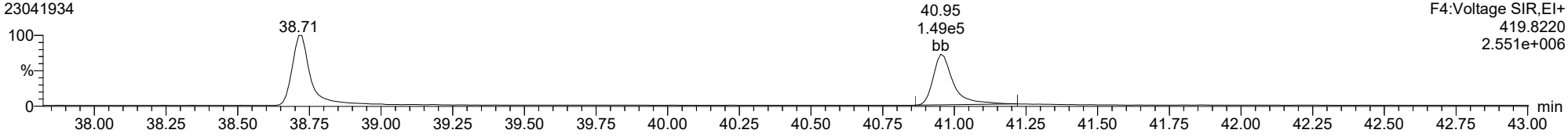
1234789-HpCDF



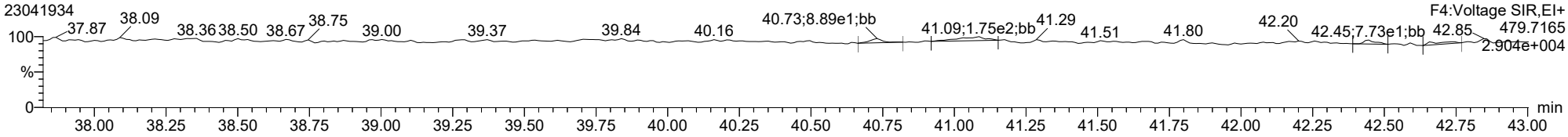
13C-1234789-HpCDF



13C-1234789-HpCDF

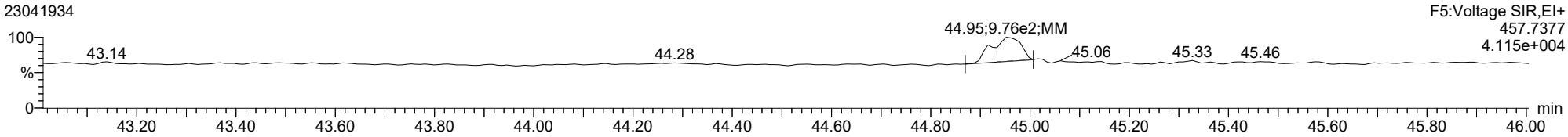


FUNCTION4 NCDPE

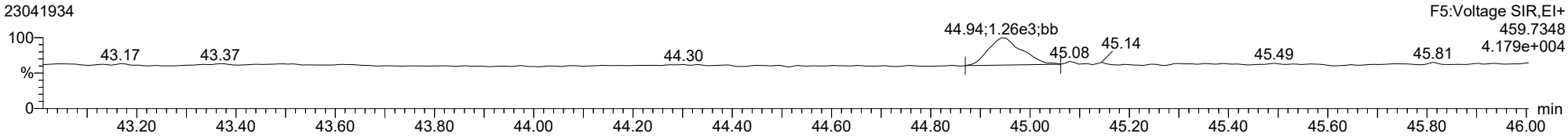


ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

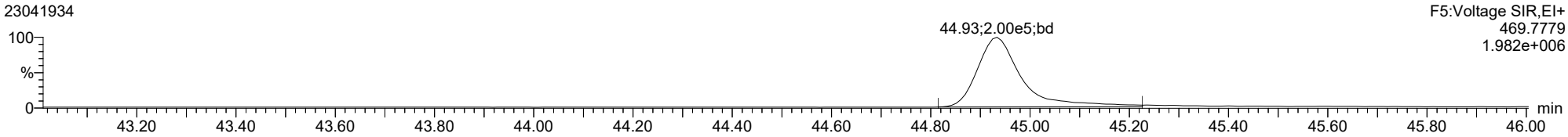
OCDD



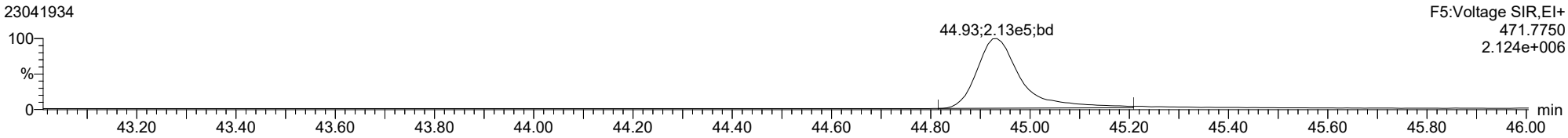
OCDD



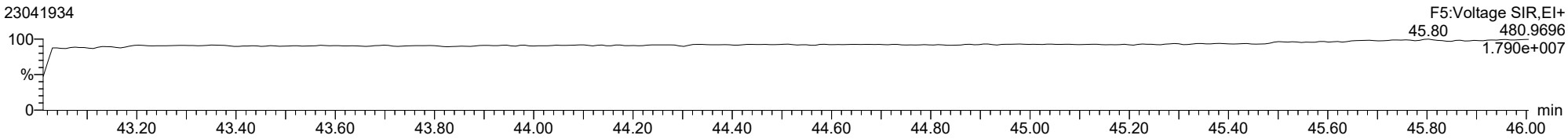
13C-OCDD



13C-OCDD

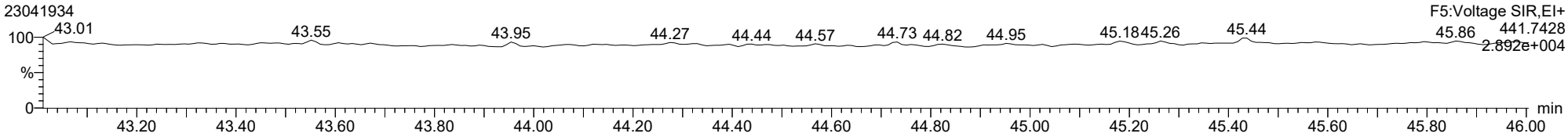


FUNCTION5 PFK

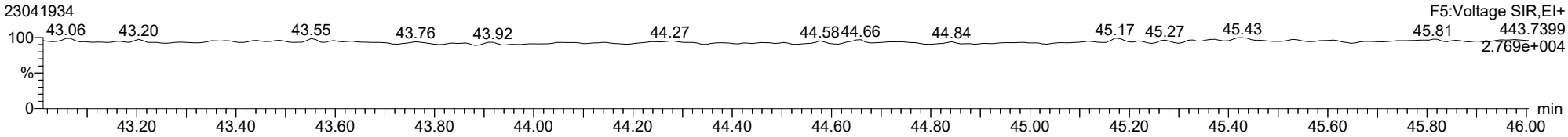


ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

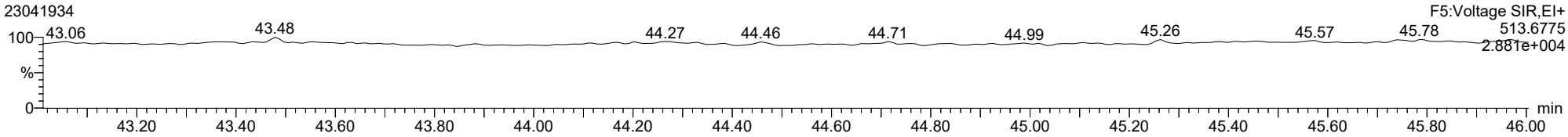
OCDF



OCDF

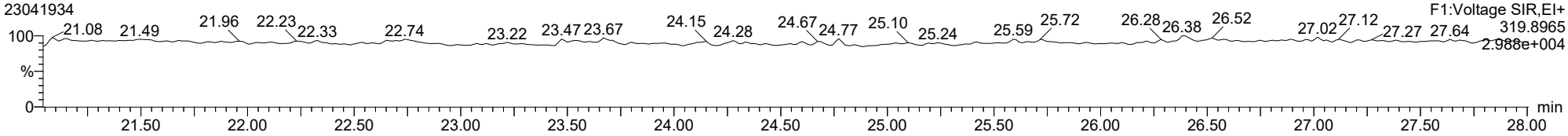


FUNCTION5 DCDPE

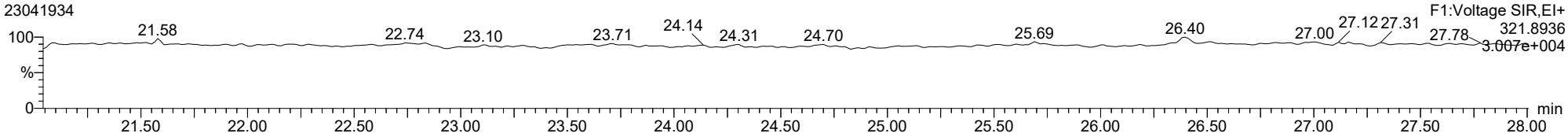


ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

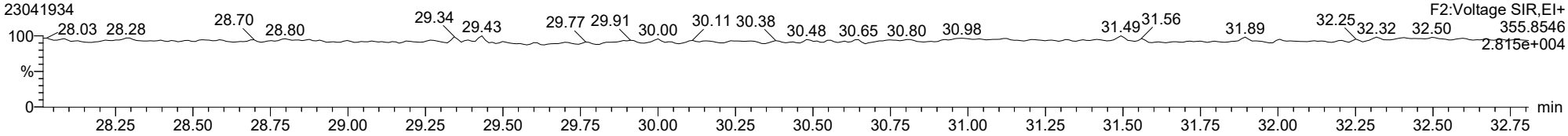
Total-tetradioxins



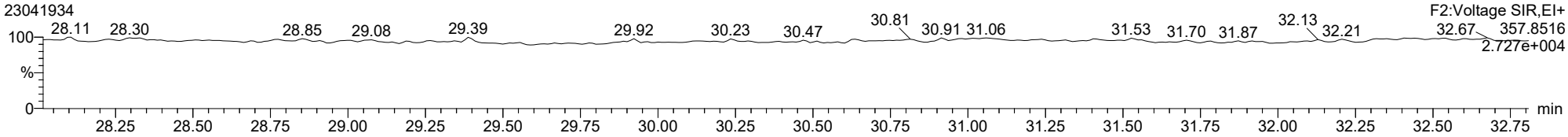
Total-tetradioxins



Total-pentadioxins

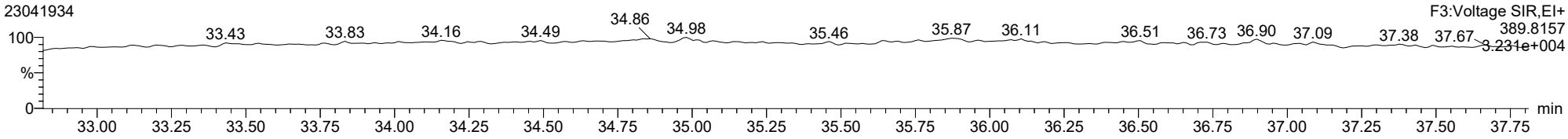


Total-pentadioxins

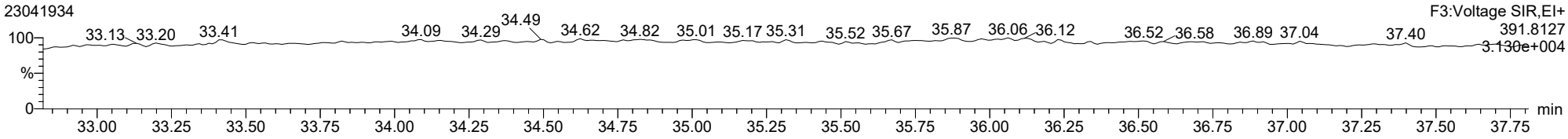


ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

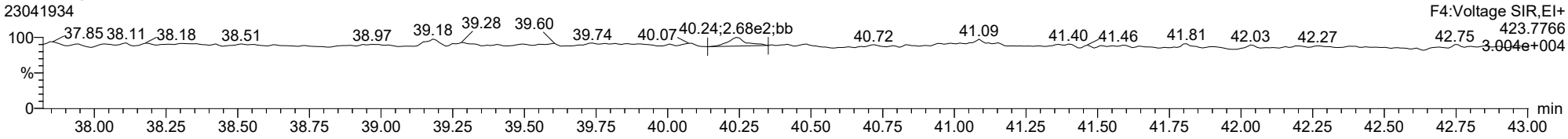
Total-hexadioxins



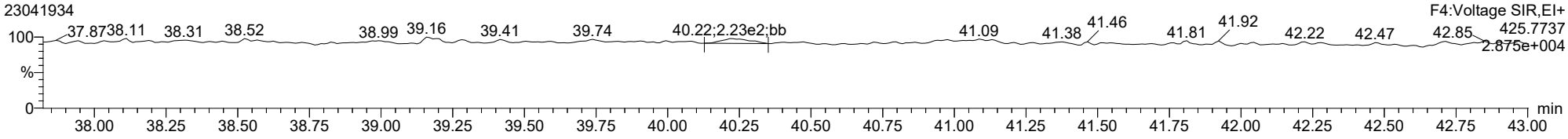
Total-hexadioxins



Total-heptadioxins

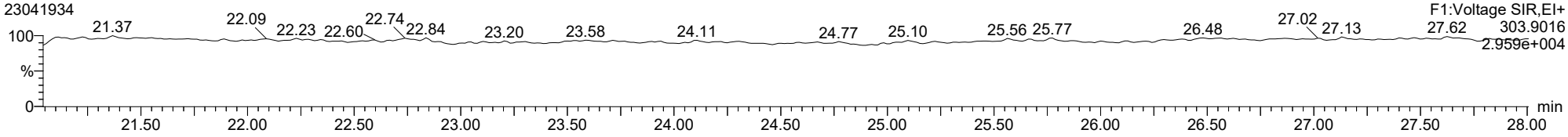


Total-heptadioxins

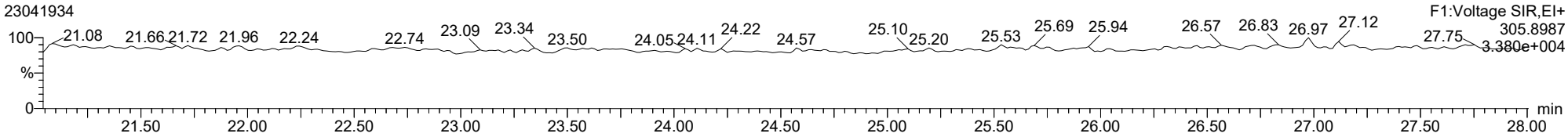


ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

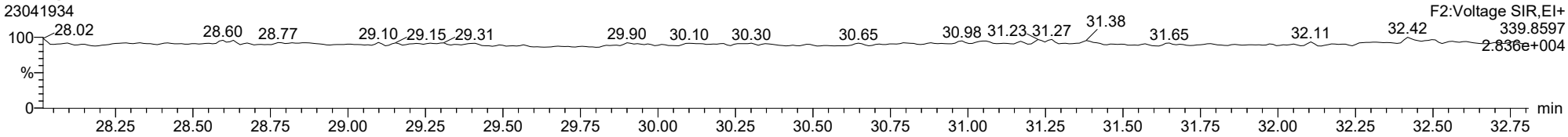
Total-tetrafurans



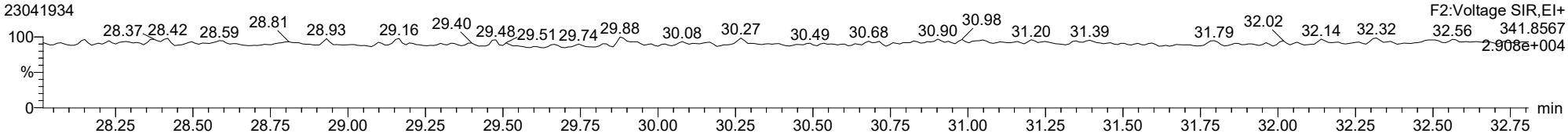
Total-tetrafurans



Total-pentafurans



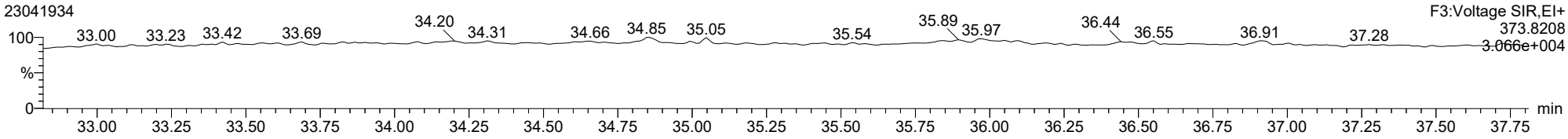
Total-pentafurans



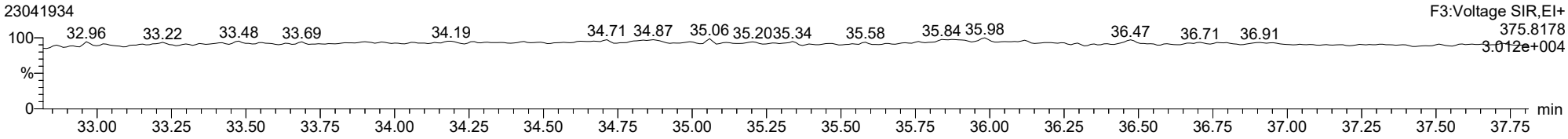
Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:06:32 Pacific Daylight Time

ID: DBLK06, Name: 23041934, Date: 20-Apr-2023, Time: 18:18:51, Conditions: AUTOSPEC01, User: pk

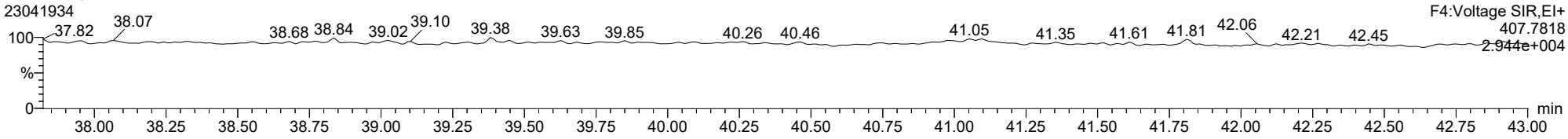
Total-hexafurans



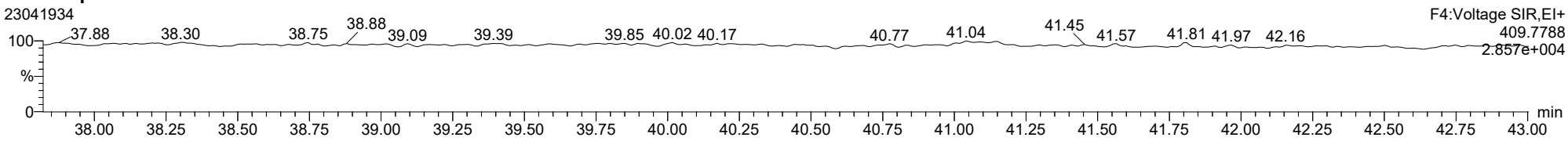
Total-hexafurans



Total-heptafurans



Total-heptafurans



LCS RECOVERY
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Matrix:	Solid	Analyzed:	04/20/23 19:07
Batch:	BLD0089	Laboratory ID:	BLD0089-BS2
Preparation:	EPA 1613	Sequence Name:	LCS
Initial/Final:	10 g / 20 uL		

COMPOUND	SPIKE ADDED (ng/kg wet)	LCS CONCENTRATION (ng/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
2,3,7,8-TCDF	20.0	24.2		121	75 - 158
2,3,7,8-TCDD	20.0	21.7		109	67 - 158
1,2,3,7,8-PeCDF	100	118		118	80 - 134
2,3,4,7,8-PeCDF	100	120		120	68 - 160
1,2,3,7,8-PeCDD	100	115		115	70 - 142
1,2,3,4,7,8-HxCDF	100	104		104	72 - 134
1,2,3,6,7,8-HxCDF	100	114		114	84 - 130
2,3,4,6,7,8-HxCDF	100	104		104	70 - 156
1,2,3,7,8,9-HxCDF	100	103		103	78 - 130
1,2,3,4,7,8-HxCDD	100	98.1		98.1	70 - 164
1,2,3,6,7,8-HxCDD	100	104		104	76 - 134
1,2,3,7,8,9-HxCDD	100	98.1		98.1	64 - 162
1,2,3,4,6,7,8-HpCDF	100	107		107	82 - 122
1,2,3,4,7,8,9-HpCDF	100	112		112	78 - 138
1,2,3,4,6,7,8-HpCDD	100	117	B	117	70 - 140
OCDF	200	239		119	63 - 170
OCDD	200	229	B	114	78 - 144

* Indicates values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:06:43 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230420IH.mdb 25 Apr 2023 09:50:41
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: DLCS06, Name: 23041935, Date: 20-Apr-2023, Time: 19:07:55, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.746	1.001	2.478e4	2.948e4	0.702	0.840	0.770	892	1774	3.79e5	4.40e5	424.2	248.0	NO	bb	bb	12.108
12378-PeCDF	29.900	1.000	1.283e5	8.207e4	0.679	1.563	1.550	1942	2030	1.88e6	1.21e6	967.1	595.5	NO	bb	bb	58.953
23478-PeCDF	31.237	1.000	1.436e5	9.070e4	0.786	1.583	1.550	1942	2030	2.12e6	1.34e6	1091.0	661.6	NO	bb	bb	59.888
123478-HxCDF	34.858	1.000	9.597e4	7.737e4	1.166	1.240	1.240	1516	1682	1.39e6	1.11e6	915.3	661.0	NO	bd	bd	51.909
234678-HxCDF	35.861	1.000	1.022e5	8.139e4	1.140	1.256	1.240	1516	1682	1.46e6	1.16e6	961.9	689.4	NO	bb	bd	52.001
123678-HxCDF	35.003	1.001	1.158e5	8.914e4	1.091	1.298	1.240	1516	1682	1.51e6	1.21e6	994.4	717.6	NO	dd	dd	56.862
123789-HxCDF	36.897	1.001	8.584e4	6.582e4	1.137	1.304	1.240	1516	1682	1.11e6	9.05e5	735.2	538.4	NO	bd	bd	51.409
1234678-HpCDF	38.735	1.000	8.618e4	8.505e4	1.003	1.013	1.050	2338	2302	1.40e6	1.35e6	597.5	584.9	NO	bb	bb	53.517
1234789-HpCDF	40.975	1.000	7.075e4	6.709e4	0.953	1.054	1.050	2338	2302	9.50e5	9.07e5	406.4	393.9	NO	bb	bb	55.960
OCDF	45.190	1.006	1.019e5	1.085e5	0.778	0.939	0.890	1698	1937	1.20e6	1.30e6	707.0	672.5	NO	bb	bb	119.375
2378-TCDD	26.396	1.001	2.487e4	3.052e4	1.149	0.815	0.770	1200	808	3.54e5	4.32e5	295.2	534.9	NO	bd	bd	10.871
12378-PeCDD	31.493	1.000	1.148e5	7.589e4	1.022	1.513	1.550	1057	1047	1.60e6	1.00e6	1511.1	956.3	NO	bb	bd	57.449
123478-HxCDD	35.983	1.000	7.968e4	6.696e4	0.996	1.190	1.240	1632	952	1.27e6	1.07e6	776.0	1126.1	NO	bd	bd	49.033
123678-HxCDD	36.106	1.001	9.978e4	8.238e4	1.001	1.211	1.240	1632	952	1.31e6	1.09e6	804.4	1149.3	NO	db	dd	52.067
123789-HxCDD	36.485	1.011	7.890e4	6.572e4	0.907	1.201	1.240	1632	952	1.14e6	9.52e5	698.3	1000.8	NO	bb	bb	49.062
1234678-HpCDD	40.228	1.000	7.575e4	6.305e4	1.039	1.201	1.050	1497	1598	9.54e5	8.75e5	637.2	547.4	NO	bd	bb	58.320
OCDD	44.952	1.000	1.074e5	1.308e5	0.920	0.821	0.890	1402	1448	1.19e6	1.41e6	847.1	975.5	NO	bb	bd	114.289
13C-2378-TCDF	25.732	1.007	2.766e5	3.622e5	1.620	0.764	0.770	1460	2014	3.86e6	5.03e6	2641.8	2495.5	NO	bb	bb	91.942
13C-12378-PeCDF	29.889	1.169	3.094e5	2.160e5	1.240	1.432	1.550	2947	2252	4.41e6	2.87e6	1497.9	1274.7	NO	bb	bb	98.772
13C-23478-PeCDF	31.226	1.222	3.007e5	1.969e5	1.118	1.528	1.550	2947	2252	4.40e6	2.84e6	1491.9	1261.3	NO	bb	bb	103.816
13C-123478-HxCDF	34.847	0.955	9.702e4	1.894e5	1.168	0.512	0.510	2445	2903	1.42e6	2.84e6	582.5	979.4	NO	bd	bd	77.127
13C-123678-HxCDF	34.980	0.959	1.105e5	2.199e5	1.386	0.503	0.510	2445	2903	1.57e6	3.09e6	640.8	1064.0	NO	db	db	74.974
13C-234678-HxCDF	35.849	0.983	1.018e5	2.081e5	1.129	0.489	0.510	2445	2903	1.48e6	2.94e6	605.4	1013.0	NO	bb	bb	86.338
13C-123789-HxCDF	36.875	1.011	9.316e4	1.663e5	0.932	0.560	0.510	2445	2903	1.20e6	2.28e6	491.0	785.1	NO	bd	bb	87.612
13C-1234678-HpCDF	38.724	1.062	1.002e5	2.188e5	0.895	0.458	0.440	2087	2698	1.41e6	3.16e6	674.5	1170.6	NO	bd	bb	112.124
13C-1234789-HpCDF	40.964	1.123	8.094e4	1.775e5	0.770	0.456	0.440	2087	2698	9.64e5	2.16e6	461.9	798.8	NO	bd	bd	105.644
13C-1234-TCDD	25.562	0.000	1.904e5	2.384e5	1.000	0.799	0.770	1621	856	2.90e6	3.63e6	1787.8	4245.6	NO	bb	bb	100.000
13C-2378-TCDD	26.367	1.031	1.935e5	2.501e5	1.152	0.774	0.770	1621	856	2.79e6	3.61e6	1718.7	4218.2	NO	bb	bb	89.777
13C-12378-PeCDD	31.482	1.232	2.011e5	1.237e5	0.829	1.625	1.550	1180	1159	2.71e6	1.63e6	2299.6	1405.7	NO	bb	bb	91.392
13C-123478-HxCDD	35.972	0.986	1.674e5	1.330e5	0.995	1.259	1.240	2108	2404	2.61e6	2.02e6	1237.4	840.4	NO	bd	bd	94.988
13C-123678-HxCDD	36.083	0.989	1.931e5	1.564e5	1.157	1.235	1.240	2108	2404	2.67e6	2.13e6	1267.4	885.2	NO	db	db	95.082
13C-1234678-HpCDD	40.217	1.103	1.184e5	1.107e5	0.840	1.069	1.050	1903	1847	1.56e6	1.47e6	821.5	794.0	NO	bb	bb	85.786
13C-OCDD	44.934	1.232	2.124e5	2.407e5	0.767	0.883	0.890	2862	2075	2.28e6	2.50e6	794.8	1202.7	NO	bb	bd	185.757
13C-123789-HxCDD	36.473	0.000	1.759e5	1.419e5	1.000	1.240	1.240	2108	2404	2.53e6	1.96e6	1202.3	815.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	1.878e5		1.288			1394		2.68e6		1920.2			bb		34.002

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:06:43 Pacific Daylight Time

ID: DLCS06, Name: 23041935, Date: 20-Apr-2023, Time: 19:07:55, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	892	1774								
1289-TCDF					0.678		0.770	892	1774								
13468-PECDF					1.246		1.550	494	945								
12389-PECDF	32.284	1.080	1.052e3	6.890e2	0.496	1.527	1.550	1942	2030	1.52e4	9.91e3	7.8	4.9	NO	bb	bb	0.668
123468-HXCDF					1.169		1.240	1516	1682								
1368-TCDD					1.015		0.770	1200	808								
1289-TCDD					0.909		0.770	1200	808								
12479-PECDD					2.301		1.550	1057	1047								
12389-PECDD	31.872	1.012	1.895e2	4.531e2	1.184	0.418	1.550	1057	1047	3.76e3	6.19e3	3.6	5.9	YES	bb	db	0.167
124679-HXCDD					1.115		1.240	1632	952								
1234679-HPCDD	39.192	0.975	6.975e2	6.675e2	1.137	1.045	1.050	1497	1598	1.04e4	1.05e4	6.9	6.6	NO	bb	bb	0.524
Total-tetrafurans			2.478e4		0.727			892		3.79e5							12.108
Total-penta1			0.000e0					494		0.00e0							
Total-pentafurans			2.729e5		0.654			1942		4.01e6							119.508
Total-hexafurans			3.998e5		1.141			1516		5.47e6							212.180
Total-heptafurans			1.569e5		0.978			2338		2.35e6							109.477
Total-Furans			9.563e5		0.922			892		1.34e7							572.648
Total-tetradioxins			2.487e4		1.024			1200		3.54e5							10.871
Total-pentadioxins			1.148e5		1.502			1057		1.60e6							57.449
Total-hexadioxins			2.584e5		1.005			1632		3.72e6							150.161
Total-heptadioxins			7.644e4		1.088			1497		9.64e5							58.844
Total-Dioxins			5.818e5		1.130			1200		7.82e6							391.614
Total-TEQ			1.538e6					1200		2.12e7							964.262
FUNCTION1 PFK			7.755e4					497961		1.18e6							
FUNCTION2 PFK			2.418e7					223335		9.70e6							0.000
FUNCTION3 PFK			4.160e7					233980		2.89e7							0.000
FUNCTION4 PFK			5.187e6					289243		5.83e7							
FUNCTION5 PFK			1.774e5					231097		7.07e6							
FUNCTION1 HXCD...			5.365e2					585		7.07e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.929e2					788		1.30e4							0.000
FUNCTION3 OCDPE			0.000e0					722		0.00e0							
FUNCTION4 NCDPE			1.688e2					597		3.57e3							0.000
FUNCTION5 DCDPE			0.000e0					713		0.00e0							

Method: T:\Autospec\Methods\Dioxin230420IH.mdb 25 Apr 2023 09:50:41
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.75	2.478e4	2.948e4	0.702	0.84	0.77	424.2	YES	NO	bb	bb	12.108

PP

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

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.28	1.052e3	6.890e2	0.496	1.53	1.55	7.8	YES	NO	bb	bb	0.668
2	23478-PeCDF	31.24	1.436e5	9.070e4	0.786	1.58	1.55	1091.0	YES	NO	bb	bb	59.888
3	12378-PeCDF	29.90	1.283e5	8.207e4	0.679	1.56	1.55	967.1	YES	NO	bb	bb	58.953

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.00	1.158e5	8.914e4	1.091	1.30	1.24	994.4	YES	NO	dd	dd	56.862
2	123478-HxCDF	34.86	9.597e4	7.737e4	1.166	1.24	1.24	915.3	YES	NO	bd	bd	51.909
3	123789-HxCDF	36.90	8.584e4	6.582e4	1.137	1.30	1.24	735.2	YES	NO	bd	bd	51.409
4	234678-HxCDF	35.86	1.022e5	8.139e4	1.140	1.26	1.24	961.9	YES	NO	bb	bd	52.001

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.97	7.075e4	6.709e4	0.953	1.05	1.05	406.4	YES	NO	bb	bb	55.960
2	1234678-HpCDF	38.74	8.618e4	8.505e4	1.003	1.01	1.05	597.5	YES	NO	bb	bb	53.517

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.75	2.478e4	2.948e4	0.702	0.84	0.77	424.2	YES	NO	bb	bb	12.108
2	12389-PECDF	32.28	1.052e3	6.890e2	0.496	1.53	1.55	7.8	YES	NO	bb	bb	0.668
3	23478-PeCDF	31.24	1.436e5	9.070e4	0.786	1.58	1.55	1091.0	YES	NO	bb	bb	59.888
4	12378-PeCDF	29.90	1.283e5	8.207e4	0.679	1.56	1.55	967.1	YES	NO	bb	bb	58.953
5	123678-HxCDF	35.00	1.158e5	8.914e4	1.091	1.30	1.24	994.4	YES	NO	dd	dd	56.862
6	123478-HxCDF	34.86	9.597e4	7.737e4	1.166	1.24	1.24	915.3	YES	NO	bd	bd	51.909
7	123789-HxCDF	36.90	8.584e4	6.582e4	1.137	1.30	1.24	735.2	YES	NO	bd	bd	51.409
8	234678-HxCDF	35.86	1.022e5	8.139e4	1.140	1.26	1.24	961.9	YES	NO	bb	bd	52.001
9	1234789-HpCDF	40.97	7.075e4	6.709e4	0.953	1.05	1.05	406.4	YES	NO	bb	bb	55.960
10	1234678-HpCDF	38.74	8.618e4	8.505e4	1.003	1.01	1.05	597.5	YES	NO	bb	bb	53.517
11	OCDF	45.19	1.019e5	1.085e5	0.778	0.94	0.89	707.0	YES	NO	bb	bb	119.375

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.40	2.487e4	3.052e4	1.149	0.81	0.77	295.2	YES	NO	bd	bd	10.871

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.49	1.148e5	7.589e4	1.022	1.51	1.55	1511.1	YES	NO	bb	bd	57.449

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDD	35.98	7.968e4	6.696e4	0.996	1.19	1.24	776.0	YES	NO	bd	bd	49.033
2	123789-HxCDD	36.48	7.890e4	6.572e4	0.907	1.20	1.24	698.3	YES	NO	bb	bb	49.062
3	123678-HxCDD	36.11	9.978e4	8.238e4	1.001	1.21	1.24	804.4	YES	NO	db	dd	52.067

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.23	7.575e4	6.305e4	1.039	1.20	1.05	637.2	YES	NO	bd	bb	58.320
2	1234679-HPCDD	39.19	6.975e2	6.675e2	1.137	1.05	1.05	6.9	YES	NO	bb	bb	0.524

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.40	2.487e4	3.052e4	1.149	0.81	0.77	295.2	YES	NO	bd	bd	10.871
2	123478-HxCDD	35.98	7.968e4	6.696e4	0.996	1.19	1.24	776.0	YES	NO	bd	bd	49.033
3	12378-PeCDD	31.49	1.148e5	7.589e4	1.022	1.51	1.55	1511.1	YES	NO	bb	bd	57.449
4	123789-HxCDD	36.48	7.890e4	6.572e4	0.907	1.20	1.24	698.3	YES	NO	bb	bb	49.062
5	123678-HxCDD	36.11	9.978e4	8.238e4	1.001	1.21	1.24	804.4	YES	NO	db	dd	52.067
6	1234678-HpCDD	40.23	7.575e4	6.305e4	1.039	1.20	1.05	637.2	YES	NO	bd	bb	58.320
7	1234679-HPCDD	39.19	6.975e2	6.675e2	1.137	1.05	1.05	6.9	YES	NO	bb	bb	0.524
8	OCDD	44.95	1.074e5	1.308e5	0.920	0.82	0.89	847.1	YES	NO	bb	bd	114.289

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.75	2.478e4	2.948e4	0.702	0.84	0.77	424.2	YES	NO	bb	bb	12.108
2	12389-PECDF	32.28	1.052e3	6.890e2	0.496	1.53	1.55	7.8	YES	NO	bb	bb	0.668
3	23478-PeCDF	31.24	1.436e5	9.070e4	0.786	1.58	1.55	1091.0	YES	NO	bb	bb	59.888
4	12378-PeCDF	29.90	1.283e5	8.207e4	0.679	1.56	1.55	967.1	YES	NO	bb	bb	58.953
5	123678-HxCDF	35.00	1.158e5	8.914e4	1.091	1.30	1.24	994.4	YES	NO	dd	dd	56.862
6	123478-HxCDF	34.86	9.597e4	7.737e4	1.166	1.24	1.24	915.3	YES	NO	bd	bd	51.909
7	123789-HxCDF	36.90	8.584e4	6.582e4	1.137	1.30	1.24	735.2	YES	NO	bd	bd	51.409
8	234678-HxCDF	35.86	1.022e5	8.139e4	1.140	1.26	1.24	961.9	YES	NO	bb	bd	52.001
9	1234789-HpCDF	40.97	7.075e4	6.709e4	0.953	1.05	1.05	406.4	YES	NO	bb	bb	55.960
10	1234678-HpCDF	38.74	8.618e4	8.505e4	1.003	1.01	1.05	597.5	YES	NO	bb	bb	53.517
11	OCDF	45.19	1.019e5	1.085e5	0.778	0.94	0.89	707.0	YES	NO	bb	bb	119.375
12	2378-TCDD	26.40	2.487e4	3.052e4	1.149	0.81	0.77	295.2	YES	NO	bd	bd	10.871
13	123478-HxCDD	35.98	7.968e4	6.696e4	0.996	1.19	1.24	776.0	YES	NO	bd	bd	49.033
14	12378-PeCDD	31.49	1.148e5	7.589e4	1.022	1.51	1.55	1511.1	YES	NO	bb	bd	57.449
15	123789-HxCDD	36.48	7.890e4	6.572e4	0.907	1.20	1.24	698.3	YES	NO	bb	bb	49.062
16	123678-HxCDD	36.11	9.978e4	8.238e4	1.001	1.21	1.24	804.4	YES	NO	db	dd	52.067
17	1234678-HpCDD	40.23	7.575e4	6.305e4	1.039	1.20	1.05	637.2	YES	NO	bd	bb	58.320
18	1234679-HPCDD	39.19	6.975e2	6.675e2	1.137	1.05	1.05	6.9	YES	NO	bb	bb	0.524
19	OCDD	44.95	1.074e5	1.308e5	0.920	0.82	0.89	847.1	YES	NO	bb	bd	114.289

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.53	7.755e4					2.4	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.62	3.051e6					21.6	YES		db		0.000
2	FUNCTION2 PFK	31.48	2.113e7					21.9	YES		bd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.80	1.868e6					0.8	NO		bb		0.000
2	FUNCTION3 PFK	36.93	1.120e6					33.0	YES		db		0.000
3	FUNCTION3 PFK	36.89	1.571e7					34.1	YES		dd		0.000
4	FUNCTION3 PFK	32.84	2.290e7					55.6	YES		bd		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.12	3.199e5					20.9	YES		dd		
2	FUNCTION4 PFK	38.06	4.677e5					21.2	YES		dd		
3	FUNCTION4 PFK	38.00	2.782e5					22.6	YES		dd		
4	FUNCTION4 PFK	37.91	9.696e5					25.0	YES		bd		
5	FUNCTION4 PFK	40.29	3.216e4					1.7	NO		bb		
6	FUNCTION4 PFK	39.83	1.764e4					1.6	NO		db		
7	FUNCTION4 PFK	39.74	3.065e4					1.6	NO		bd		
8	FUNCTION4 PFK	39.67	6.997e3					0.7	NO		bb		
9	FUNCTION4 PFK	39.56	4.335e3					0.8	NO		bb		
10	FUNCTION4 PFK	39.51	6.045e3					0.8	NO		db		
11	FUNCTION4 PFK	39.46	6.740e3					0.8	NO		bd		
12	FUNCTION4 PFK	39.41	9.996e3					0.9	NO		db		
13	FUNCTION4 PFK	39.33	1.101e4					1.0	NO		bd		
14	FUNCTION4 PFK	39.00	2.442e5					4.4	YES		db		
15	FUNCTION4 PFK	38.86	1.396e5					6.3	YES		dd		
16	FUNCTION4 PFK	38.76	1.106e5					6.7	YES		dd		
17	FUNCTION4 PFK	38.56	5.357e5					11.8	YES		dd		
18	FUNCTION4 PFK	38.55	5.318e5					11.8	YES		dd		
19	FUNCTION4 PFK	38.36	3.330e5					15.6	YES		dd		
20	FUNCTION4 PFK	38.26	8.538e5					17.8	YES		dd		
21	FUNCTION4 PFK	41.75	1.548e3					0.4	NO		bb		
22	FUNCTION4 PFK	41.70	8.216e3					1.3	NO		db		
23	FUNCTION4 PFK	41.67	2.272e4					1.9	NO		dd		
24	FUNCTION4 PFK	41.60	2.201e4					1.9	NO		dd		
25	FUNCTION4 PFK	41.52	1.494e4					1.3	NO		dd		
26	FUNCTION4 PFK	41.46	1.054e4					1.2	NO		dd		
27	FUNCTION4 PFK	41.41	1.567e4					1.0	NO		bd		
28	FUNCTION4 PFK	41.34	1.732e4					1.7	NO		bb		
29	FUNCTION4 PFK	41.19	4.262e3					0.8	NO		bb		
30	FUNCTION4 PFK	41.04	8.557e3					1.2	NO		bb		
31	FUNCTION4 PFK	40.95	5.260e3					0.6	NO		db		
32	FUNCTION4 PFK	40.89	2.840e3					0.5	NO		bd		
33	FUNCTION4 PFK	40.75	1.453e4					2.2	NO		db		
34	FUNCTION4 PFK	40.70	4.243e4					2.6	NO		bd		
35	FUNCTION4 PFK	40.62	1.343e4					1.6	NO		bb		
36	FUNCTION4 PFK	40.47	6.357e3					0.8	NO		bb		
37	FUNCTION4 PFK	42.70	1.321e3					0.4	NO		bb		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	42.41	1.570e3					0.4	NO		db		
39	FUNCTION4 PFK	42.38	2.012e3					0.4	NO		bd		
40	FUNCTION4 PFK	42.32	8.757e3					1.1	NO		bb		
41	FUNCTION4 PFK	42.17	1.842e4					1.4	NO		bb		
42	FUNCTION4 PFK	42.11	2.406e4					1.1	NO		bb		
43	FUNCTION4 PFK	41.87	1.254e3					0.4	NO		bb		
44	FUNCTION4 PFK	41.82	9.391e3					1.3	NO		bb		

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.49	2.569e3					0.8	NO		bb		
2	FUNCTION5 PFK	43.37	9.997e2					0.5	NO		bb		
3	FUNCTION5 PFK	43.27	6.813e3					1.0	NO		bb		
4	FUNCTION5 PFK	43.23	1.394e4					2.4	NO		db		
5	FUNCTION5 PFK	43.19	2.286e4					2.5	NO		dd		
6	FUNCTION5 PFK	43.12	1.145e4					1.6	NO		bd		
7	FUNCTION5 PFK	43.08	7.236e3					1.3	NO		bb		
8	FUNCTION5 PFK	45.02	5.917e3					1.0	NO		bb		
9	FUNCTION5 PFK	44.97	4.211e3					0.9	NO		bb		
10	FUNCTION5 PFK	44.76	9.765e3					1.4	NO		db		
11	FUNCTION5 PFK	44.70	7.390e3					1.1	NO		bd		
12	FUNCTION5 PFK	44.65	6.080e3					1.2	NO		db		
13	FUNCTION5 PFK	44.62	9.157e3					1.6	NO		bd		
14	FUNCTION5 PFK	44.55	1.022e4					1.3	NO		bb		
15	FUNCTION5 PFK	44.38	7.703e3					1.0	NO		bb		
16	FUNCTION5 PFK	44.24	2.268e3					0.6	NO		bb		
17	FUNCTION5 PFK	44.20	4.502e3					0.7	NO		bb		
18	FUNCTION5 PFK	44.01	3.208e3					0.7	NO		bb		
19	FUNCTION5 PFK	43.95	3.232e3					0.9	NO		bb		
20	FUNCTION5 PFK	43.89	1.888e3					0.5	NO		bb		
21	FUNCTION5 PFK	43.71	3.187e3					0.9	NO		bb		
22	FUNCTION5 PFK	43.63	2.876e3					0.8	NO		bb		
23	FUNCTION5 PFK	43.58	6.970e3					1.1	NO		bb		
24	FUNCTION5 PFK	45.93	4.130e3					0.7	NO		bb		
25	FUNCTION5 PFK	45.89	8.029e2					0.4	NO		bb		
26	FUNCTION5 PFK	45.66	5.572e3					0.9	NO		bb		
27	FUNCTION5 PFK	45.50	9.324e2					0.4	NO		bb		
28	FUNCTION5 PFK	45.45	4.393e3					0.7	NO		bb		
29	FUNCTION5 PFK	45.27	5.758e2					0.3	NO		bb		
30	FUNCTION5 PFK	45.20	3.807e3					0.7	NO		bb		
31	FUNCTION5 PFK	45.15	2.785e3					0.7	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.82	9.493e1					2.8	NO		db		0.000
2	FUNCTION1 HXCD...	27.74	1.562e2					2.5	NO		bd		0.000
3	FUNCTION1 HXCD...	27.47	7.173e1					2.3	NO		bb		0.000
4	FUNCTION1 HXCD...	24.63	7.699e1					2.1	NO		bb		0.000
5	FUNCTION1 HXCD...	21.17	1.367e2					2.4	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	28.40	7.246e1					2.3	NO		bb		0.000
2	FUNCTION2 HPCD...	32.64	9.422e1					2.9	NO		bb		0.000
3	FUNCTION2 HPCD...	31.57	7.644e1					2.0	NO		bb		0.000
4	FUNCTION2 HPCD...	30.69	1.693e2					6.6	YES		bb		0.000
5	FUNCTION2 HPCD...	30.00	8.048e1					2.8	NO		bb		0.000

ETHERS4

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

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.77	9.256e1					2.4	NO		bb		0.000
2	FUNCTION4 NCDPE	38.04	7.620e1					3.6	YES		bb		0.000

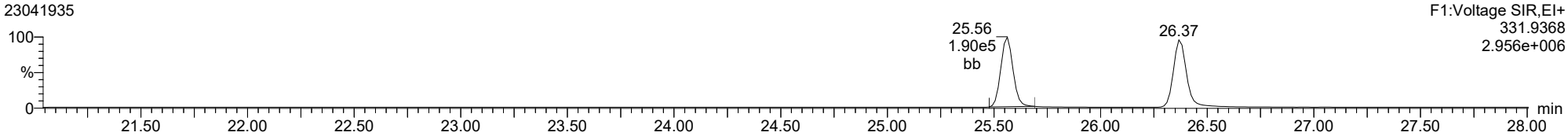
ETHERS6

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

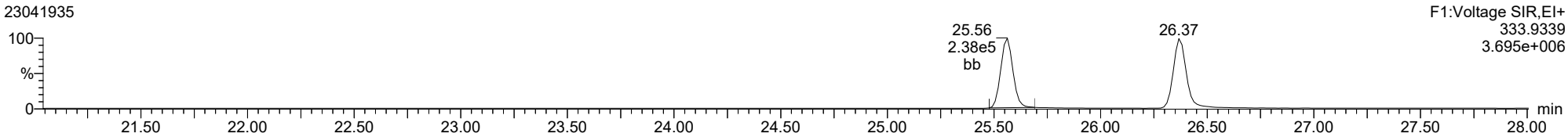
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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: DLCS06, Name: 23041935, Date: 20-Apr-2023, Time: 19:07:55, Conditions: AUTOSPEC01, User: pk

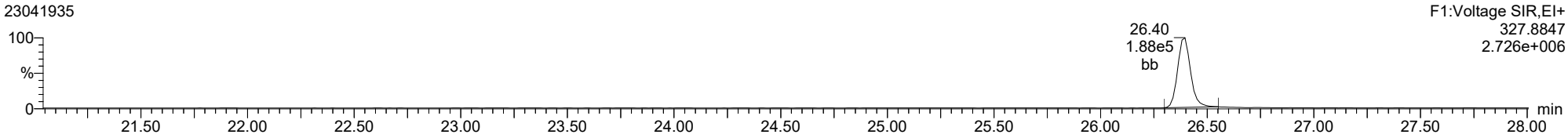
13C-1234-TCDD



13C-1234-TCDD

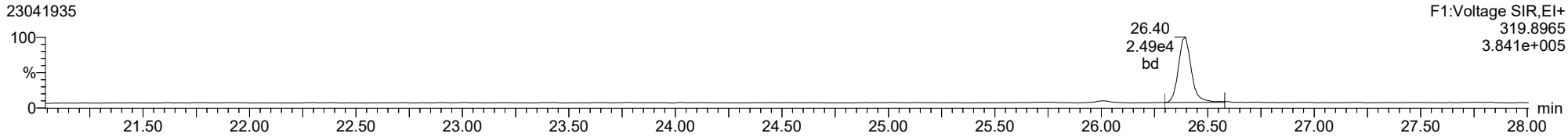


37CL-2378-TCDD

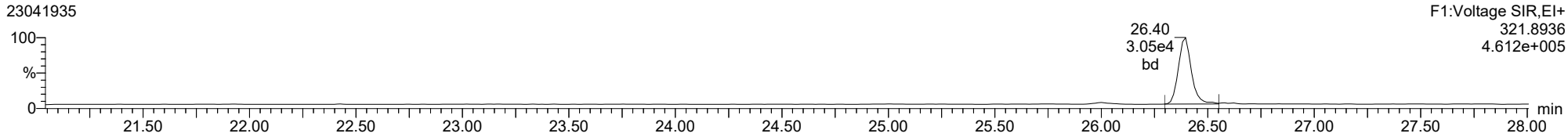


ID: DLCS06, Name: 23041935, Date: 20-Apr-2023, Time: 19:07:55, Conditions: AUTOSPEC01, User: pk

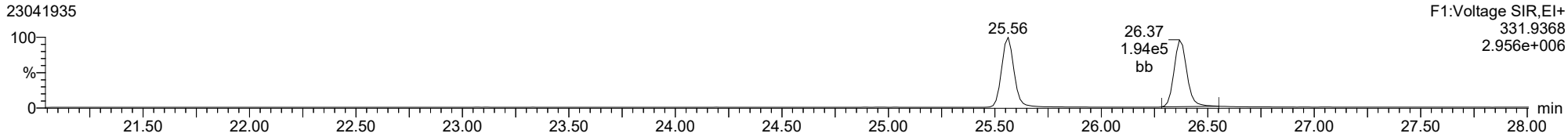
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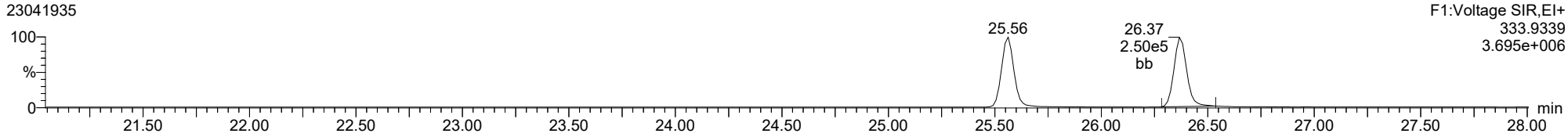
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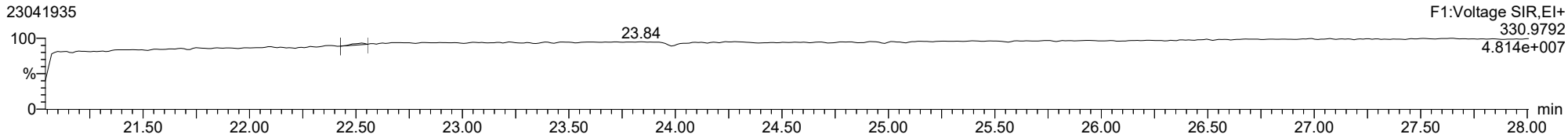
13C-2378-TCDD



13C-2378-TCDD

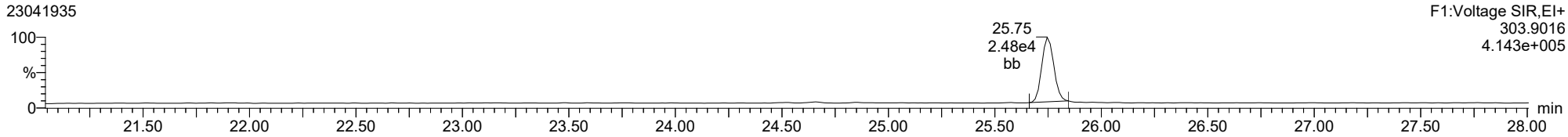


FUNCTION1 PFK

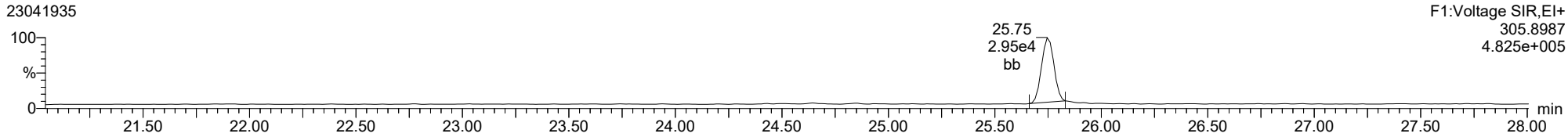


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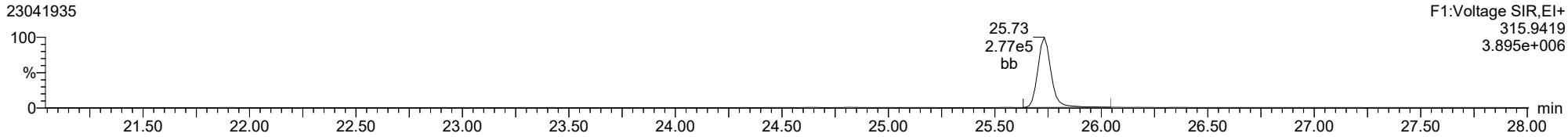
2378-TCDF



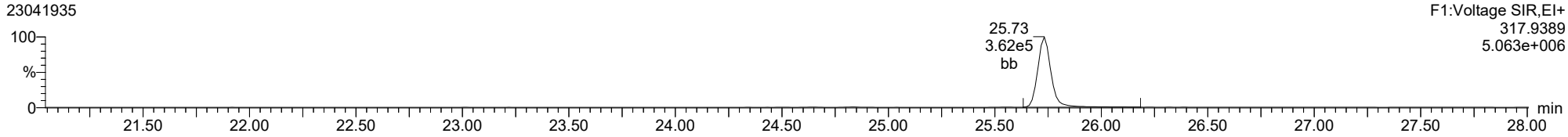
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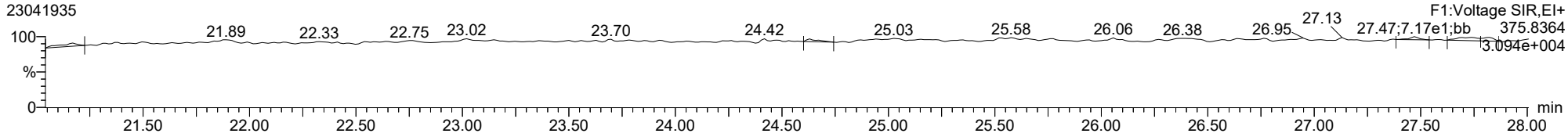
13C-2378-TCDF



13C-2378-TCDF

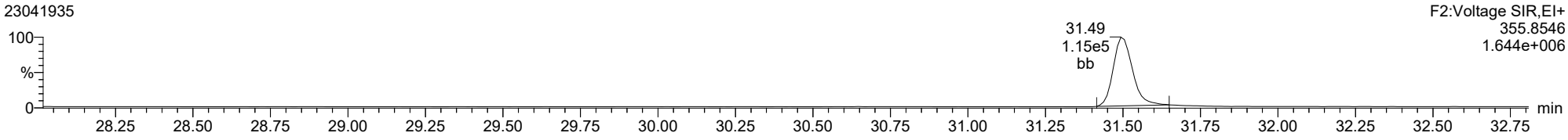


FUNCTION1 HXCDPE

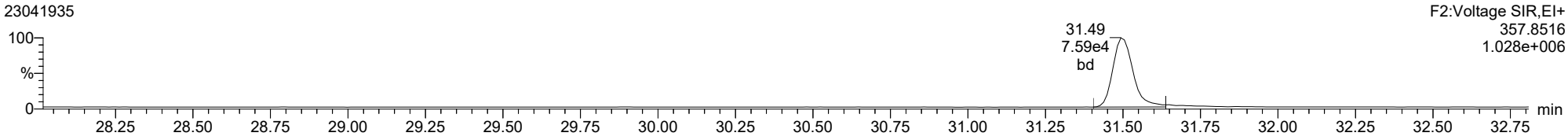


ID: DLCS06, Name: 23041935, Date: 20-Apr-2023, Time: 19:07:55, Conditions: AUTOSPEC01, User: pk

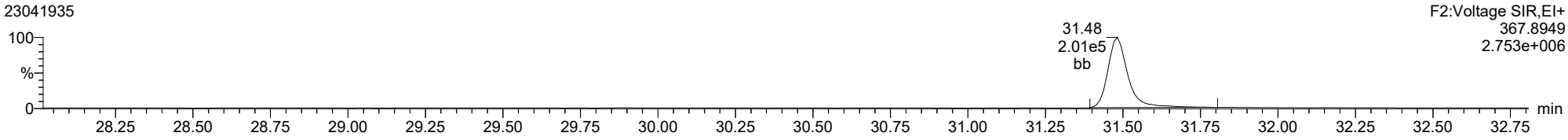
12378-PeCDD



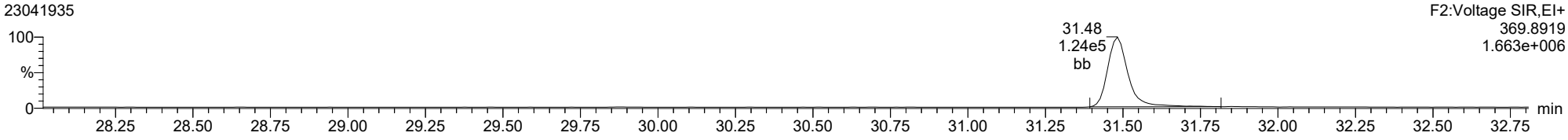
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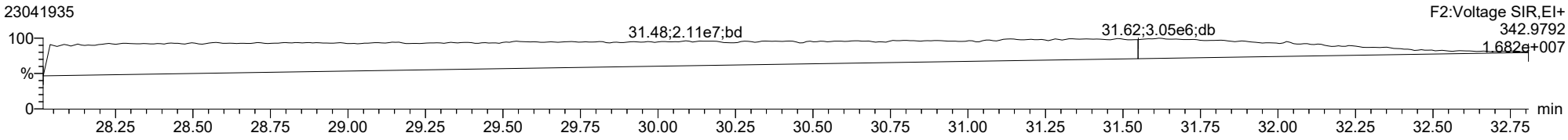
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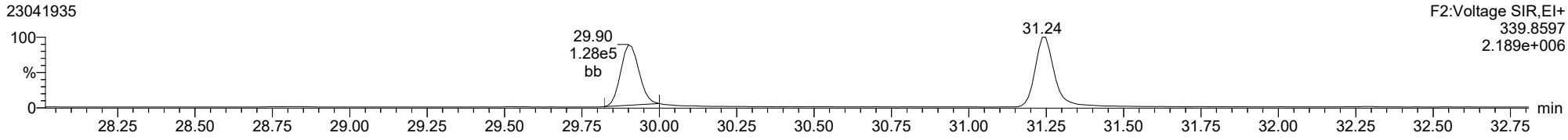


FUNCTION2 PFK

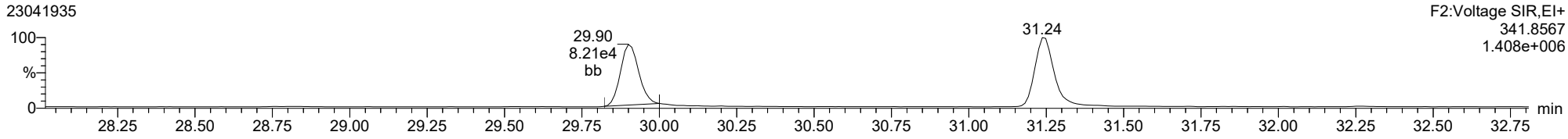


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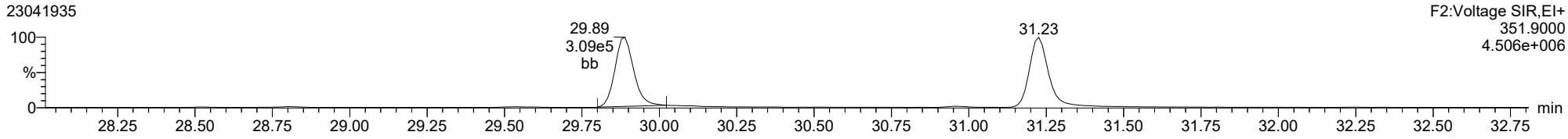
12378-PeCDF



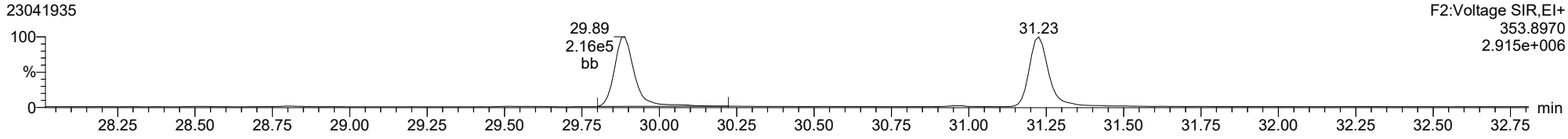
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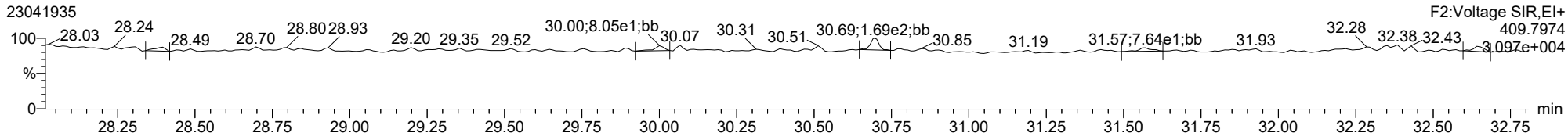
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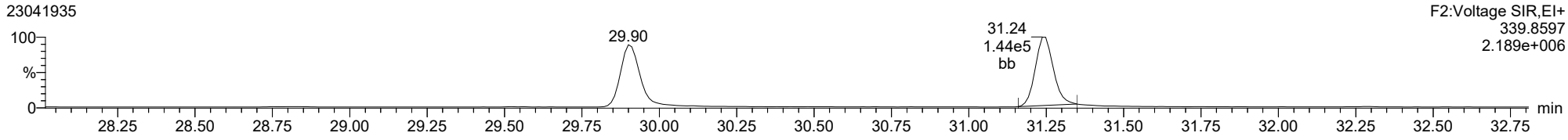


FUNCTION2 HPCDPE

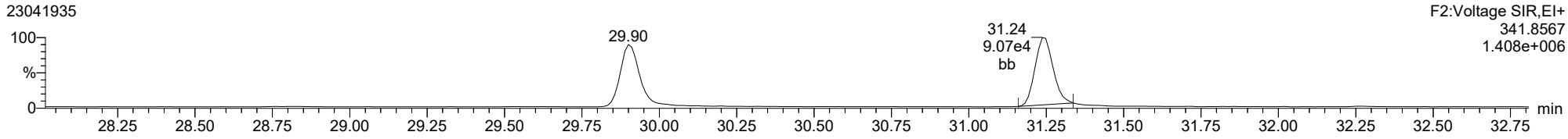


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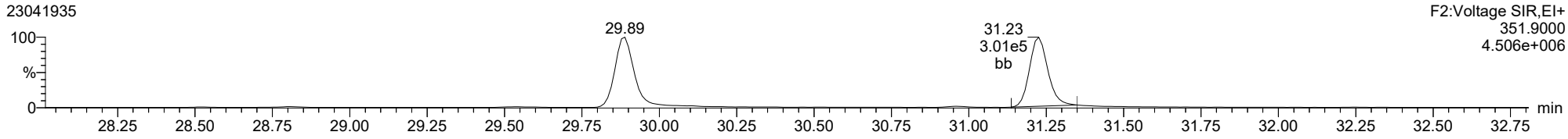
23478-PeCDF



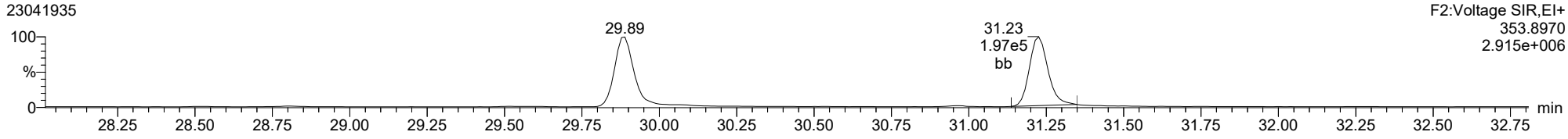
23478-PeCDF



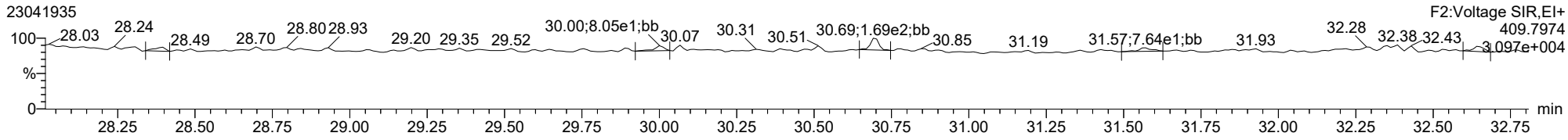
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13C-23478-PeCDF

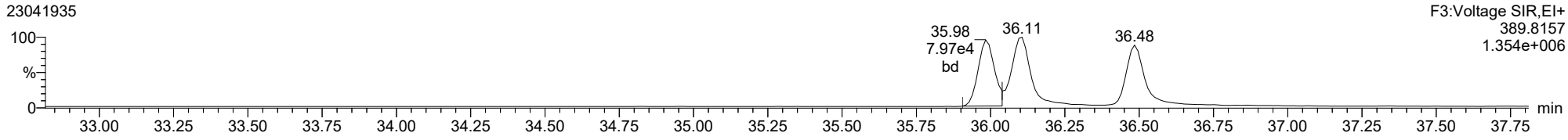


FUNCTION2 HPCDPE

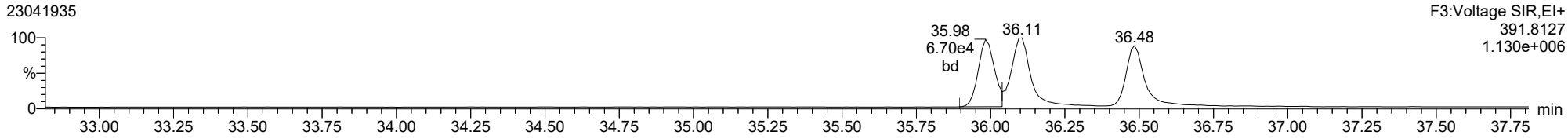


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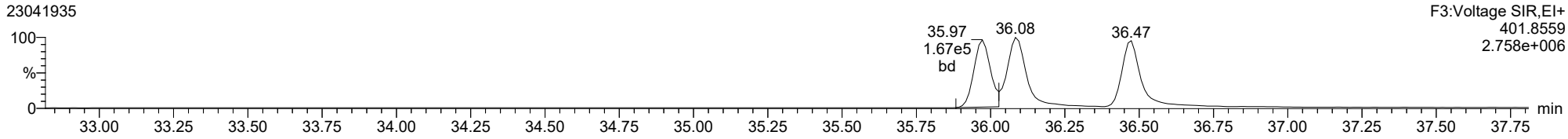
123478-HxCDD



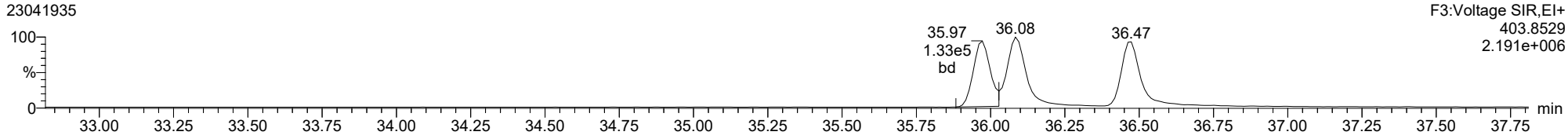
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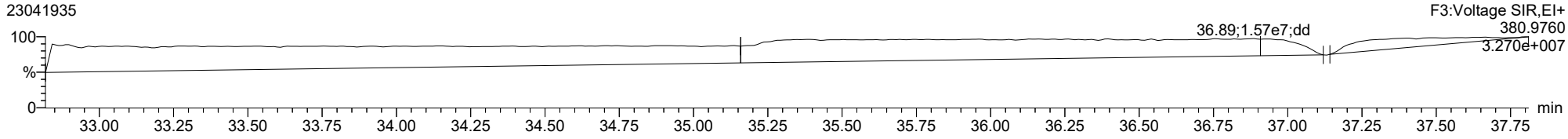
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13C-123478-HxCDD

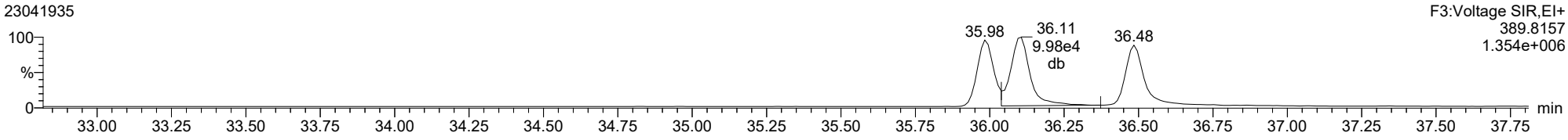


FUNCTION3 PFK

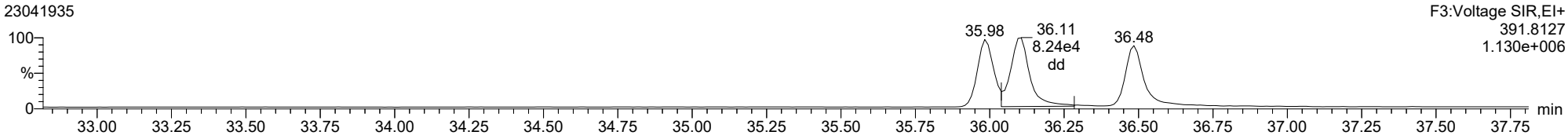


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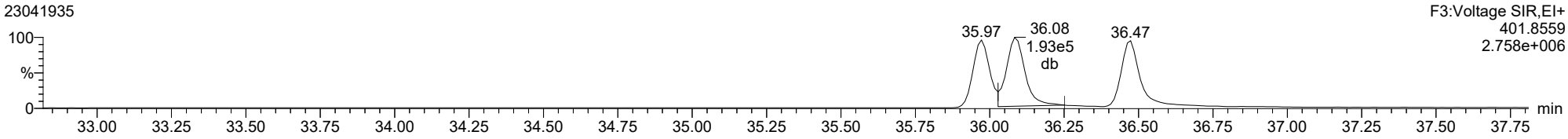
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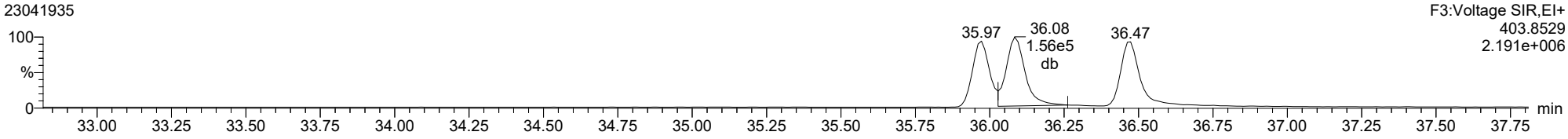
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13C-123678-HxCDD

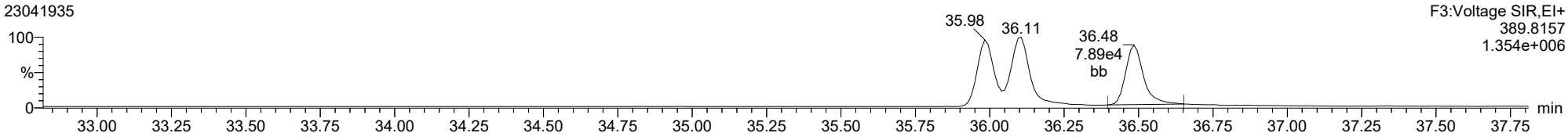


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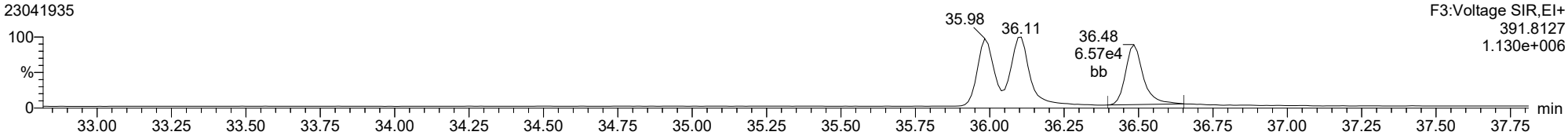


ID: DLCS06, Name: 23041935, Date: 20-Apr-2023, Time: 19:07:55, Conditions: AUTOSPEC01, User: pk

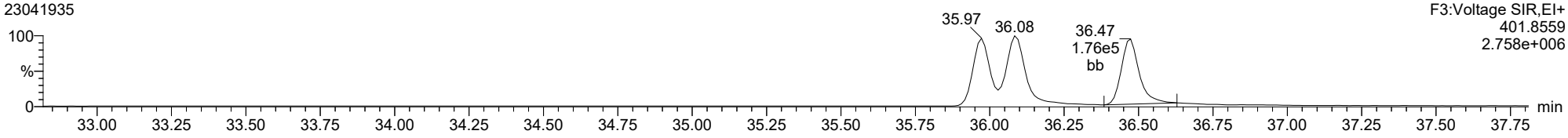
123789-HxCDD



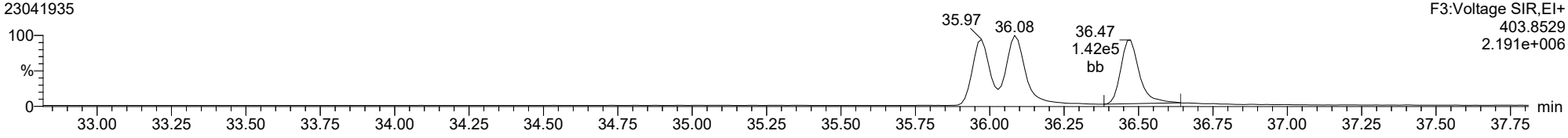
123789-HxCDD



13C-123789-HxCDD

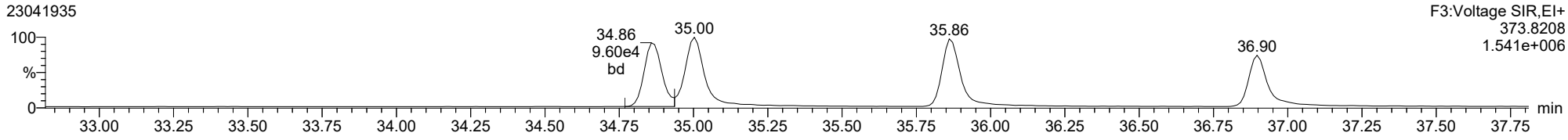


13C-123789-HxCDD

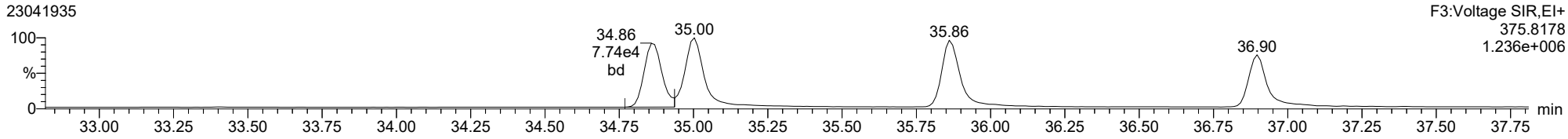


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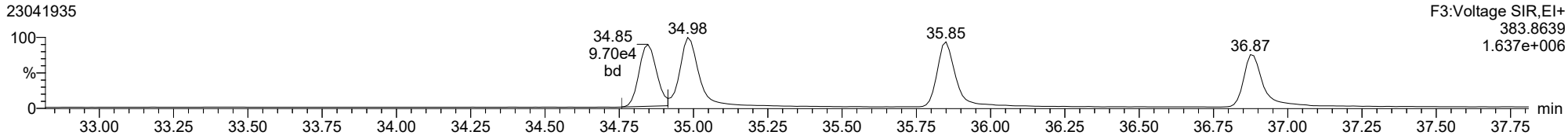
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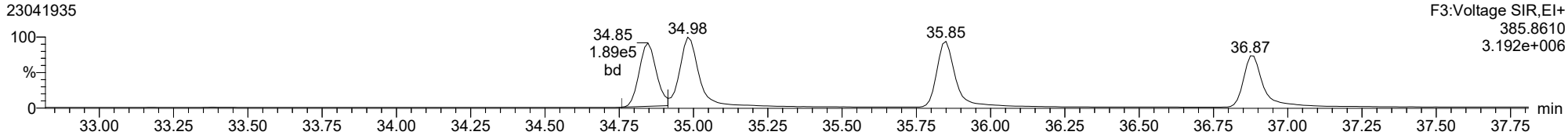
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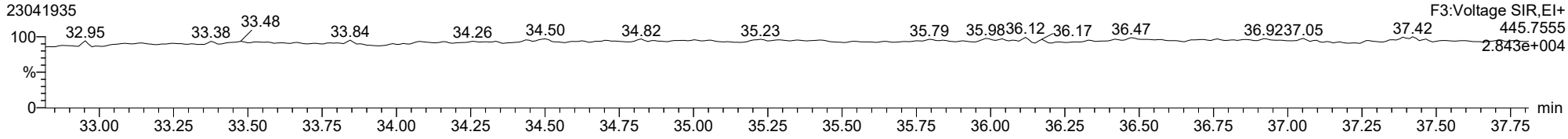
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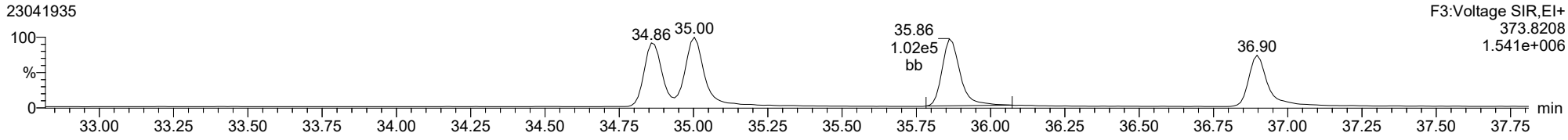


FUNCTION3 OCDPE

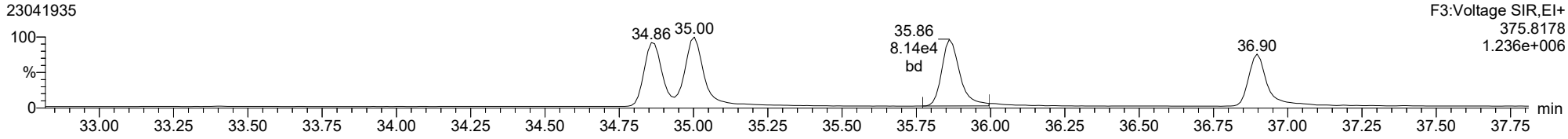


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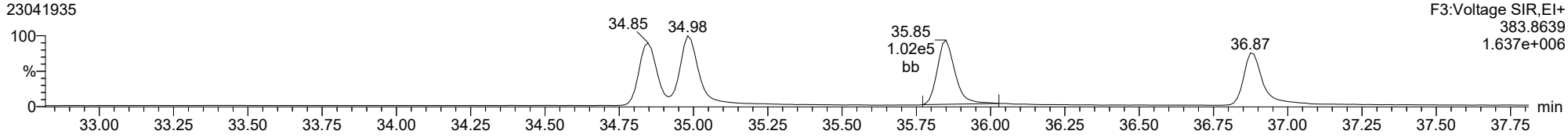
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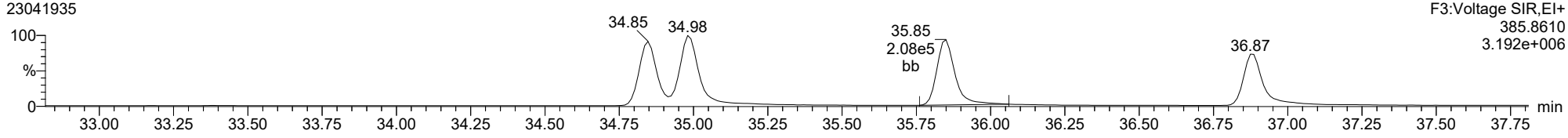
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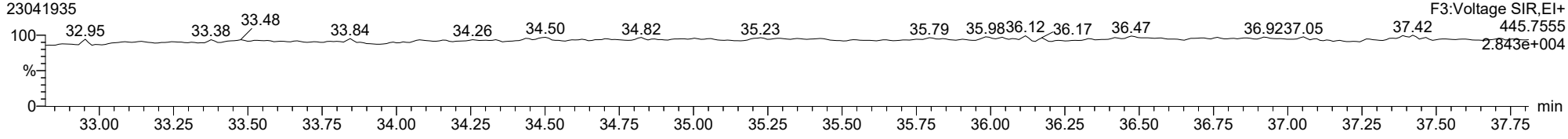
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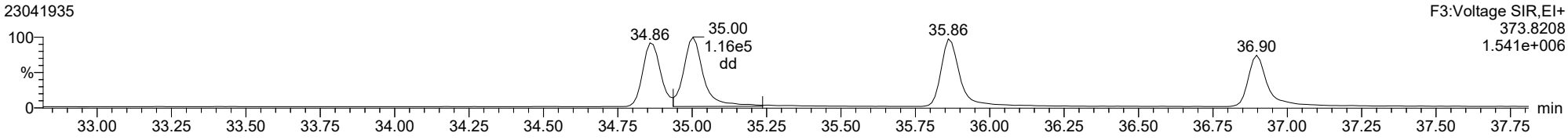


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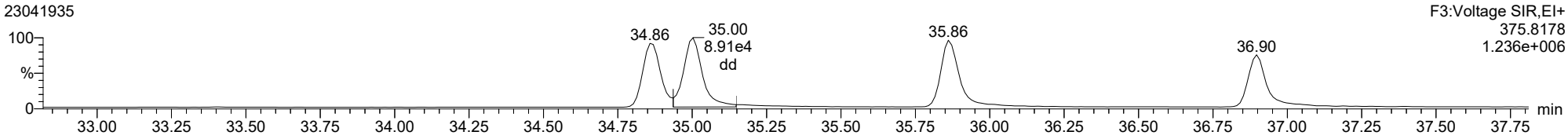


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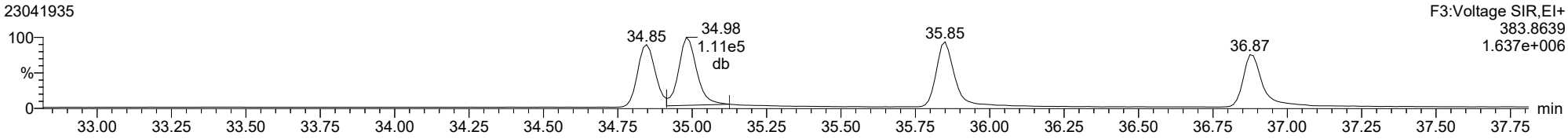
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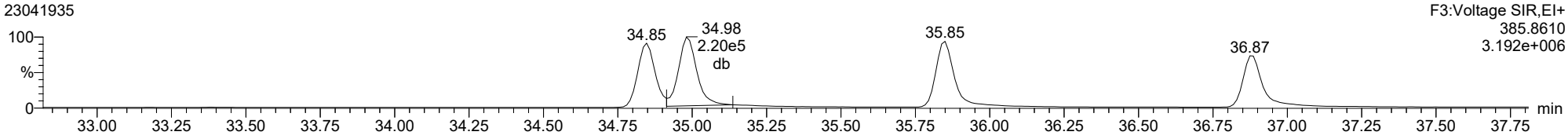
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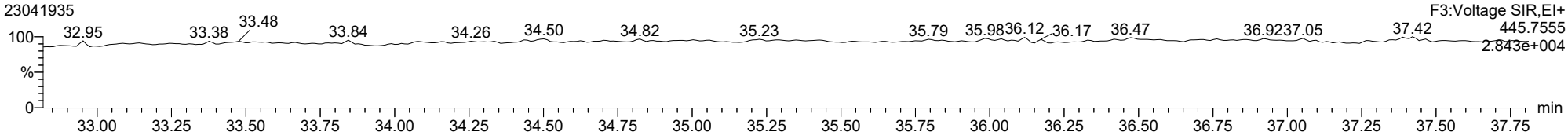
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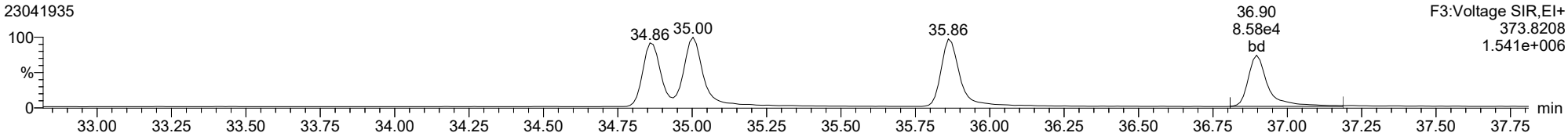


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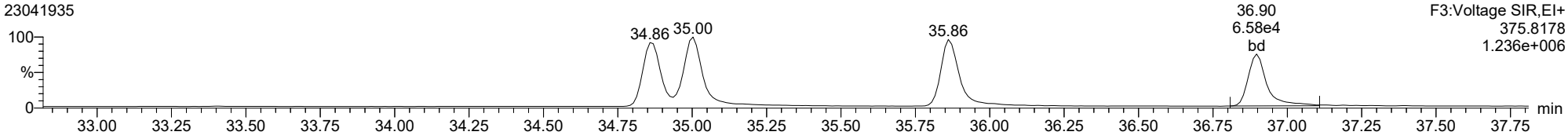


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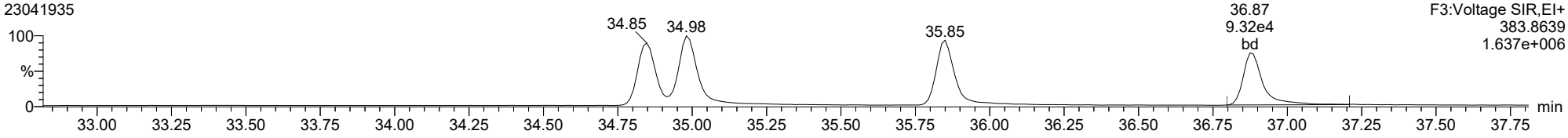
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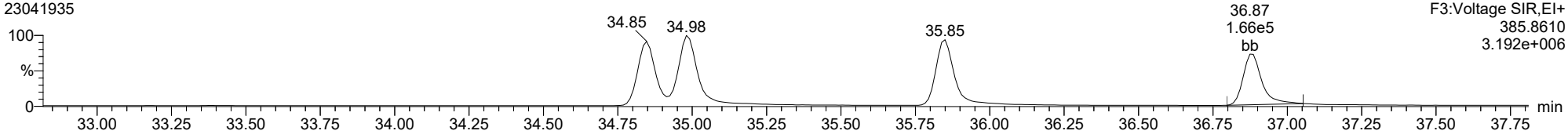
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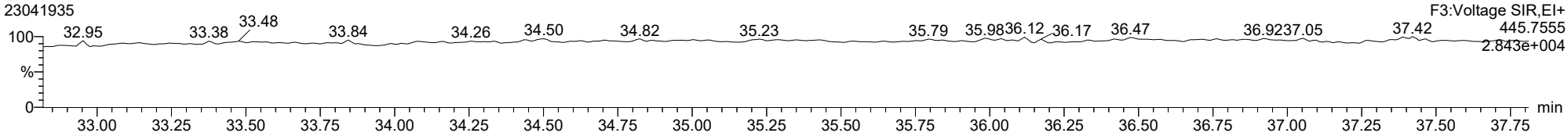
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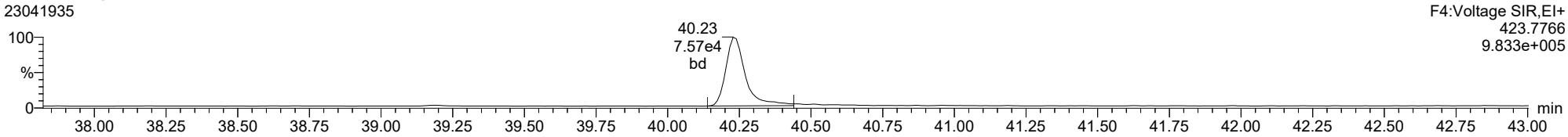


FUNCTION3 OCDPE

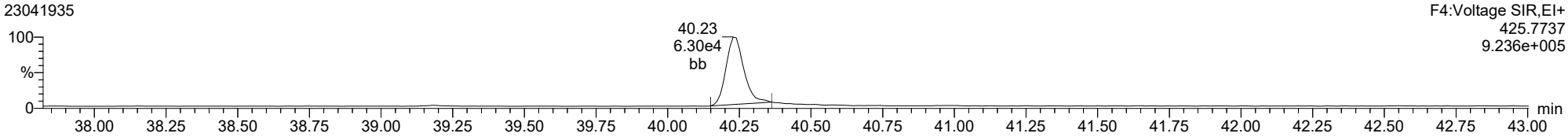


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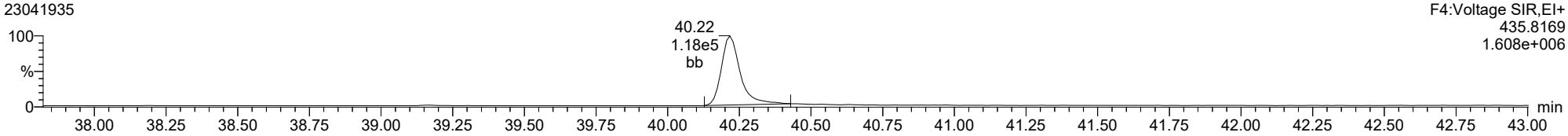
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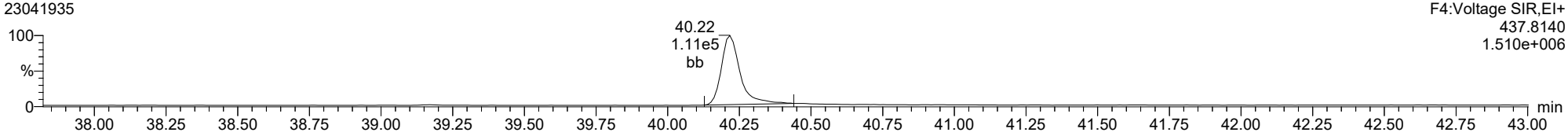
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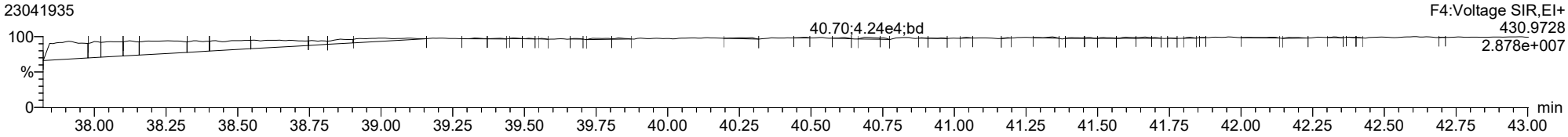
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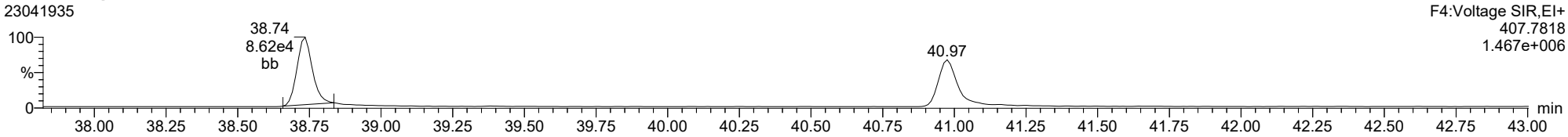


FUNCTION4 PFK

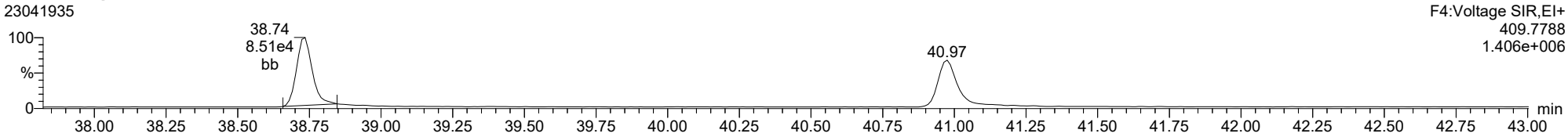


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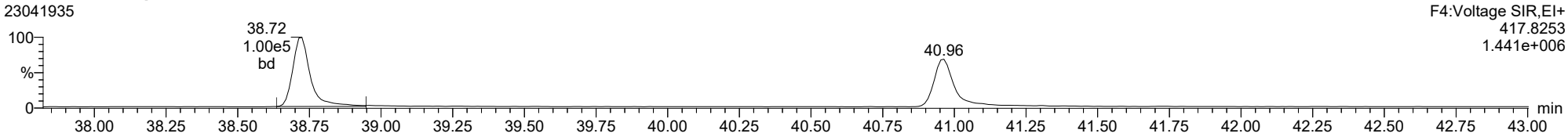
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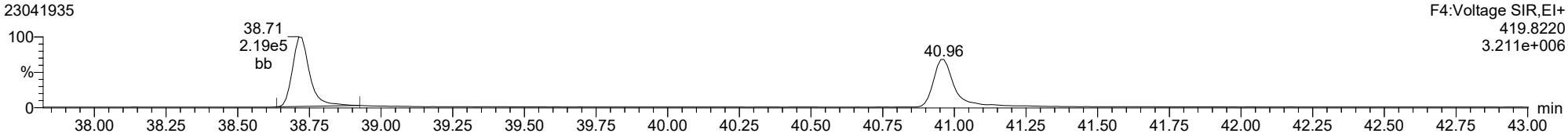
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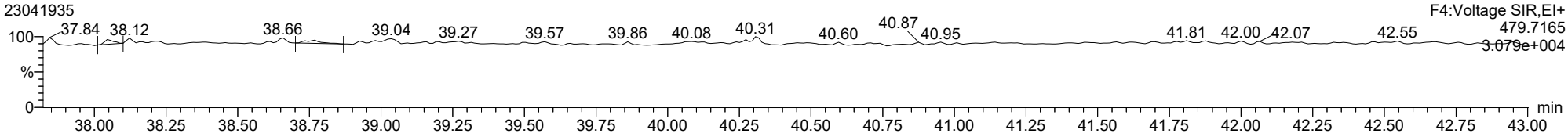
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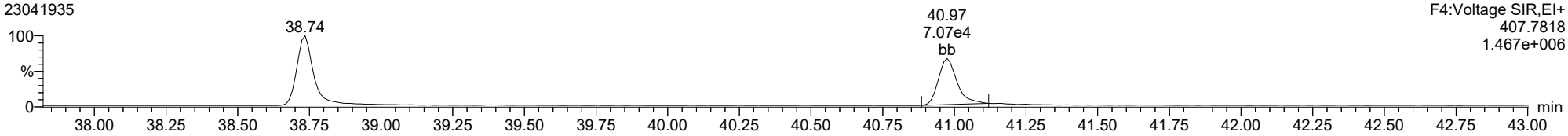


FUNCTION4 NCDPE

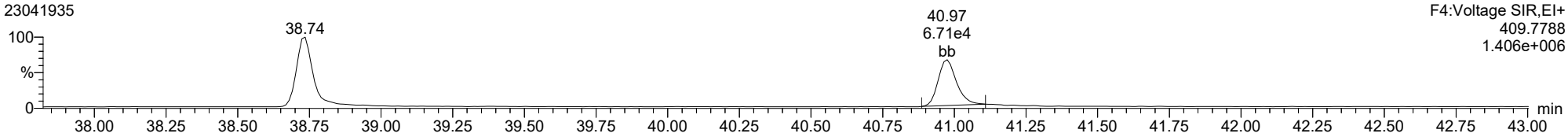


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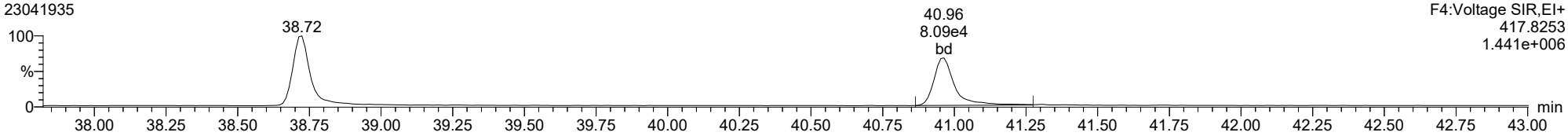
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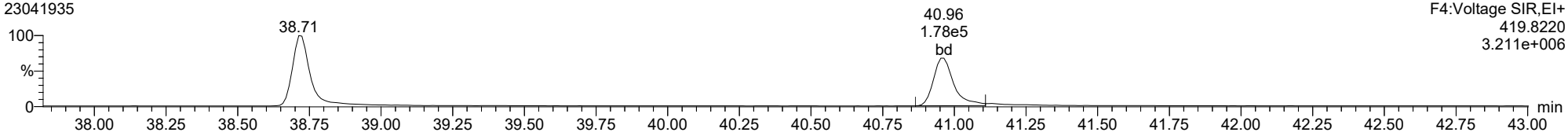
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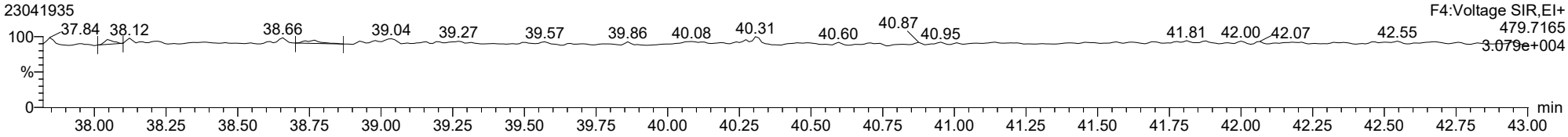
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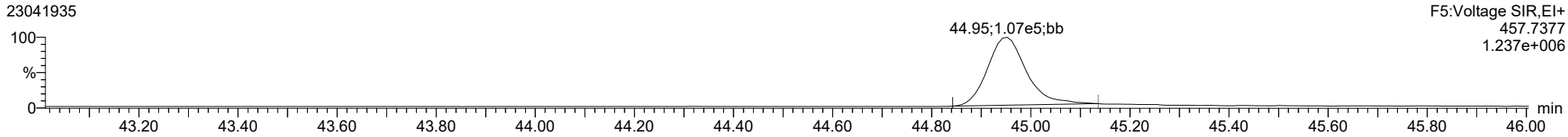


FUNCTION4 NCDPE

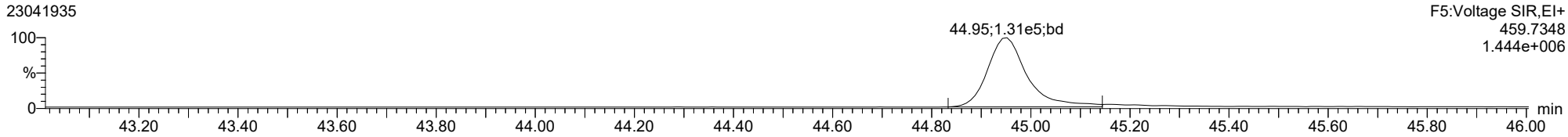


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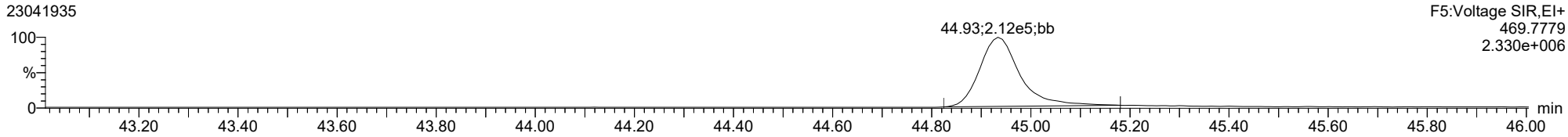
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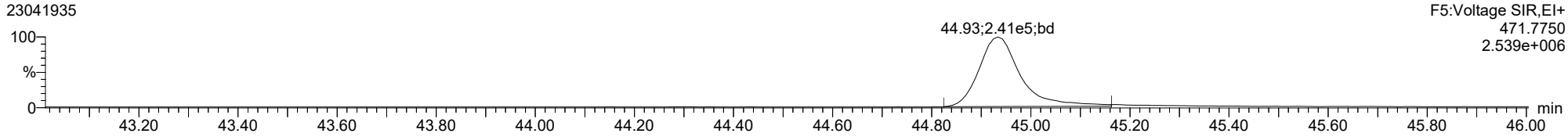
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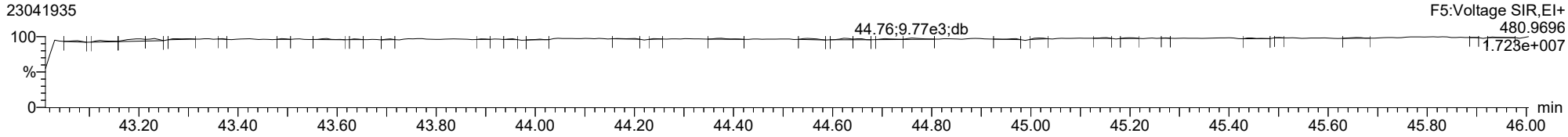
13C-OCDD



13C-OCDD

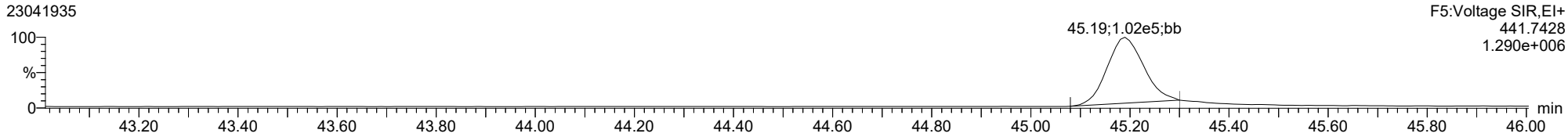


FUNCTION5 PFK

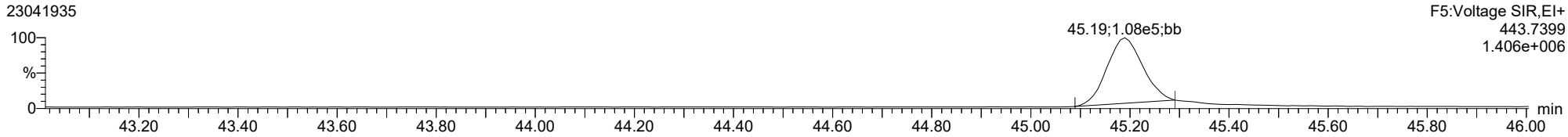


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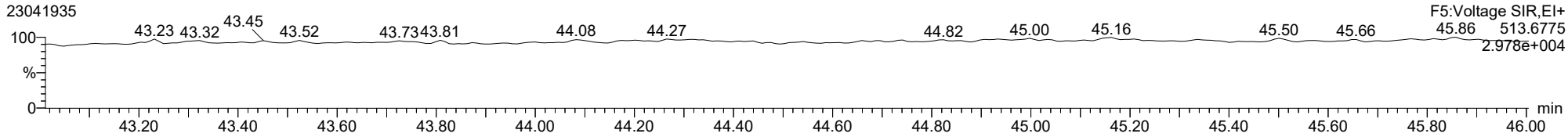
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OCDF

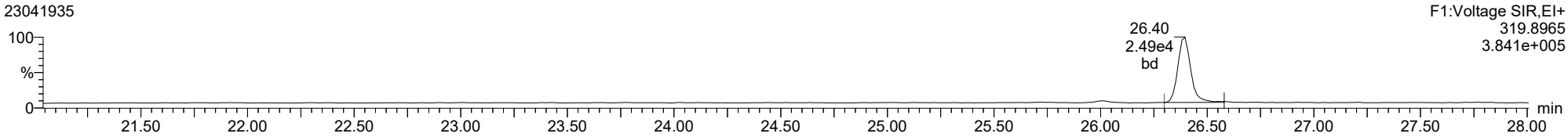


FUNCTION5 DCDPE

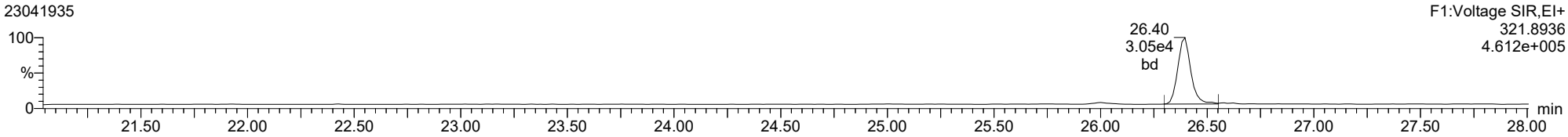


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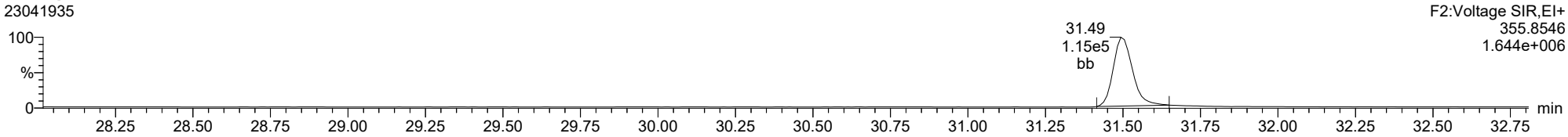
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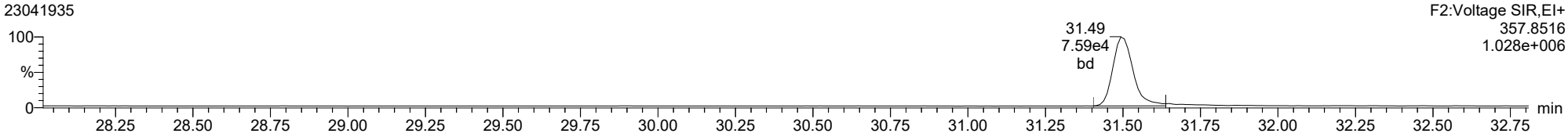
Total-tetradioxins



Total-pentadioxins

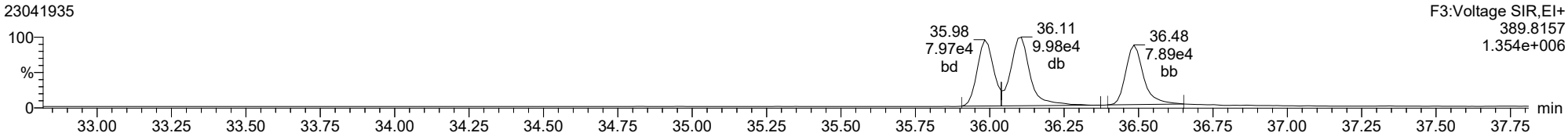


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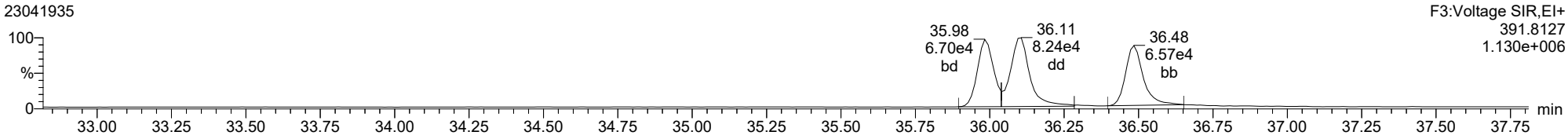


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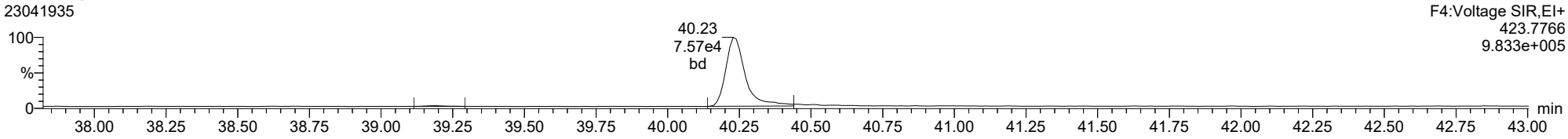
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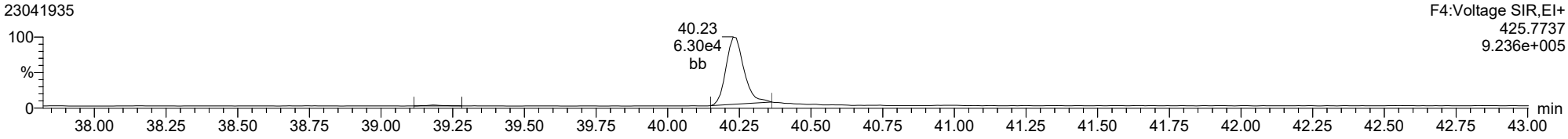
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Total-heptadioxins

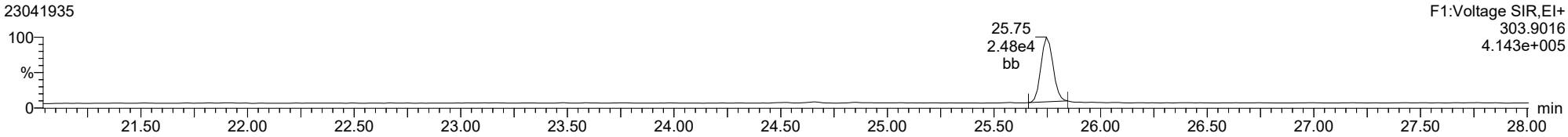


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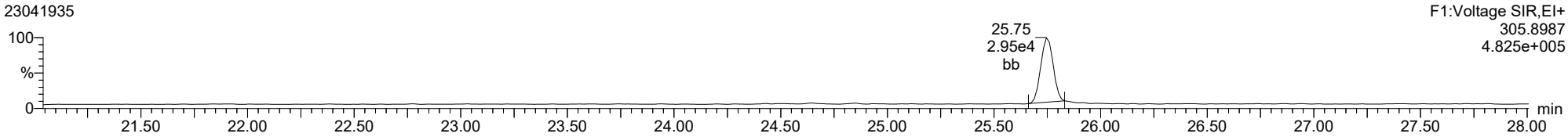


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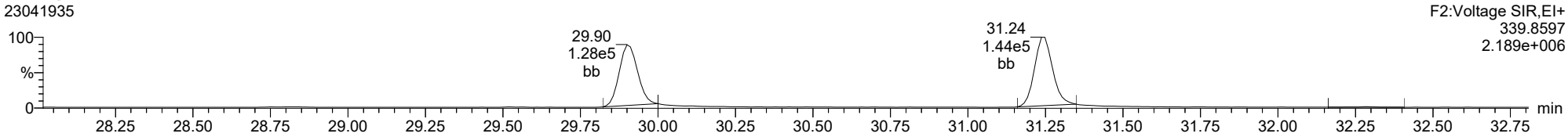
Total-tetrafurans



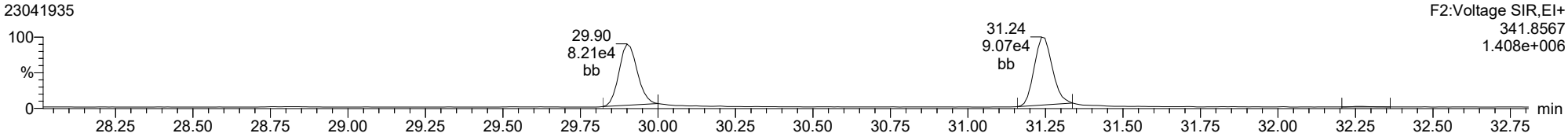
Total-tetrafurans



Total-pentafurans

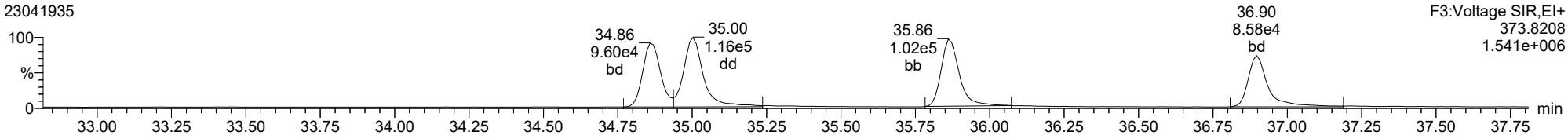


Total-pentafurans

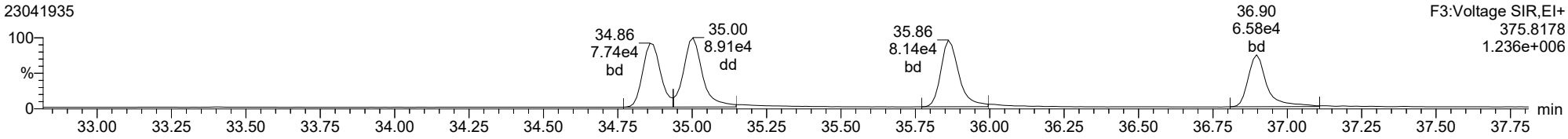


ID: DLCS06, Name: 23041935, Date: 20-Apr-2023, Time: 19:07:55, Conditions: AUTOSPEC01, User: pk

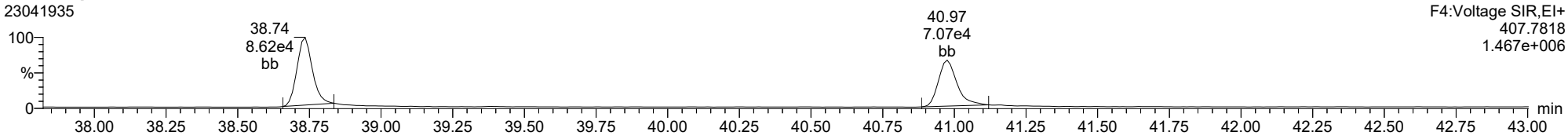
Total-hexafurans



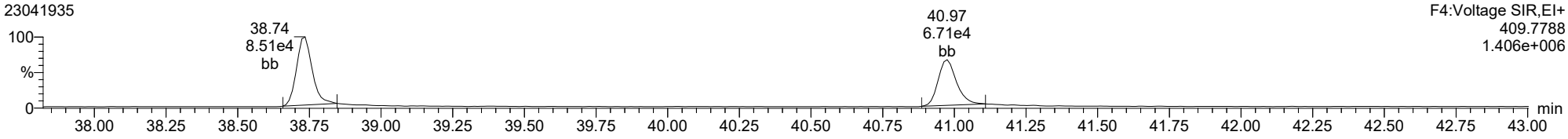
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

STANDARD REFERENCE MATERIAL RECOVERY

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor
Matrix: Solid
Laboratory ID: BLD0089-SRM1
Batch: BLD0089
Initial/Final: 10.01 g / 20 uL
Preparation: EPA 1613
Analyzed: 04/24/2023 18:30
Standard ID: L001274
Expires: 07/31/2024
Standard Lot#: PSRM0173
Description: Puget Sound reference-SRM

ANALYTE	TRUE (ng/kg wet)	FOUND (ng/kg wet)	MDL	MRL	Q	SRM % REC.	QC LIMITS REC.
2,3,7,8-TCDF	1.1100	1.02	0.201	0.999		91.7	50 - 150
2,3,7,8-TCDD	1.0500	1.01	0.150	0.999		96.2	50 - 150
1,2,3,7,8-PeCDF	1.2300	1.35	0.290	0.999	EMPC	110	50 - 150
2,3,4,7,8-PeCDF	1.0700	1.22	0.256	0.999		114	50 - 150
1,2,3,7,8-PeCDD	1.0800	1.43	0.255	0.999	EMPC	132	50 - 150
1,2,3,4,7,8-HxCDF	3.0200	2.44	0.280	0.999		80.8	50 - 150
1,2,3,6,7,8-HxCDF	1.0900	0.863	0.200	0.999	J	79.1	50 - 150
2,3,4,6,7,8-HxCDF	1.8300	1.93	0.170	0.999		105	50 - 150
1,2,3,7,8,9-HxCDF	0.51100	0.682	0.190	0.999	J	133	50 - 150
1,2,3,4,7,8-HxCDD	1.5900	1.51	0.202	0.999		95.1	50 - 150
1,2,3,6,7,8-HxCDD	3.8800	3.45	0.190	0.999		88.8	50 - 150
1,2,3,7,8,9-HxCDD	3.0400	2.65	0.220	0.999		87.3	50 - 150
1,2,3,4,6,7,8-HpCDF	18.700	19.1	0.210	0.999		102	50 - 150
1,2,3,4,7,8,9-HpCDF	1.6300	1.70	0.271	0.999		105	50 - 150
1,2,3,4,6,7,8-HpCDD	90.600	101	0.593	2.50	B	112	50 - 150
OCDF	58.400	65.2	1.10	2.50		112	50 - 150
OCDD	811.00	802	4.60	9.99	B	98.9	50 - 150

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:19:25 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.704	1.001	1.565e3	1.822e3	0.702	0.859	0.770	1859	1275	2.07e4	2.94e4	11.1	23.1	NO	dd	dd	0.510
12378-PeCDF	29.855	1.001	1.978e3	1.822e3	0.679	1.085	1.550	2044	1781	3.47e4	2.14e4	17.0	12.0	YES	bb	MM	0.676
23478-PeCDF	31.192	1.001	2.312e3	1.335e3	0.786	1.732	1.550	2044	1781	3.56e4	1.59e4	17.4	8.9	NO	db	bb	0.610
123478-HxCDF	34.813	1.001	4.281e3	3.669e3	1.166	1.167	1.240	943	957	6.64e4	5.22e4	70.4	54.5	NO	bd	bd	1.221
234678-HxCDF	35.816	1.000	3.206e3	2.705e3	1.140	1.185	1.240	943	957	3.99e4	3.22e4	42.3	33.7	NO	bb	bb	0.965
123678-HxCDF	34.958	1.001	1.586e3	1.231e3	1.091	1.288	1.240	943	957	2.36e4	1.82e4	25.0	19.0	NO	db	db	0.432
123789-HxCDF	36.819	1.000	8.747e2	6.878e2	1.137	1.272	1.240	943	957	1.28e4	7.82e3	13.6	8.2	NO	bd	bb	0.341
1234678-HpCDF	38.680	1.000	2.470e4	2.184e4	1.003	1.131	1.050	1158	1122	4.11e5	3.73e5	355.0	332.0	NO	bb	bb	9.575
1234789-HpCDF	40.908	1.000	1.565e3	1.728e3	0.953	0.906	1.050	1158	1122	2.02e4	2.31e4	17.5	20.6	NO	bd	bb	0.853
OCDF	45.116	1.006	4.022e4	4.174e4	0.778	0.964	0.890	806	1124	4.65e5	5.13e5	576.7	455.9	NO	bd	bb	32.621
2378-TCDD	26.354	1.001	1.647e3	2.359e3	1.149	0.698	0.770	1270	862	2.20e4	3.28e4	17.4	38.1	NO	bb	bd	0.505
12378-PeCDD	31.438	1.000	1.685e3	1.545e3	1.022	1.091	1.550	1637	1061	2.67e4	2.04e4	16.3	19.3	YES	bb	bb	0.715
123478-HxCDD	35.950	1.001	2.019e3	1.901e3	0.996	1.062	1.240	1213	1433	3.03e4	2.86e4	25.0	20.0	NO	bd	bd	0.757
123678-HxCDD	36.061	1.000	4.841e3	4.352e3	1.001	1.112	1.240	1213	1433	6.81e4	7.18e4	56.1	50.1	NO	dd	dd	1.725
123789-HxCDD	36.440	1.011	3.478e3	2.861e3	0.907	1.215	1.240	1213	1433	5.65e4	4.73e4	46.6	33.0	NO	bb	bb	1.328
1234678-HpCDD	40.172	1.000	1.049e5	1.009e5	1.039	1.040	1.050	3330	2392	1.60e6	1.55e6	480.3	646.9	NO	bb	bb	50.610
OCDD	44.878	1.000	5.557e5	6.372e5	0.920	0.872	0.890	2020	1292	6.85e6	7.81e6	3392.2	6047.7	NO	bb	bb	401.447
13C-2378-TCDF	25.690	1.007	4.061e5	5.412e5	1.620	0.750	0.770	2268	1366	5.70e6	7.66e6	2514.4	5604.4	NO	bb	bb	91.561
13C-12378-PeCDF	29.833	1.170	5.019e5	3.255e5	1.240	1.542	1.550	2815	2363	7.05e6	4.60e6	2504.4	1944.9	NO	bd	bd	104.469
13C-23478-PeCDF	31.170	1.222	4.635e5	2.972e5	1.118	1.560	1.550	2815	2363	6.94e6	4.49e6	2463.8	1900.6	NO	bb	bb	106.579
13C-123478-HxCDF	34.791	0.955	1.906e5	3.677e5	1.168	0.518	0.510	1520	2329	2.85e6	5.56e6	1873.2	2389.4	NO	bd	bd	87.494
13C-123678-HxCDF	34.936	0.959	2.066e5	3.915e5	1.386	0.528	0.510	1520	2329	3.00e6	5.77e6	1970.5	2479.1	NO	db	db	78.982
13C-234678-HxCDF	35.805	0.983	1.841e5	3.534e5	1.129	0.521	0.510	1520	2329	2.66e6	5.10e6	1750.9	2189.5	NO	bb	bb	87.160
13C-123789-HxCDF	36.830	1.011	1.378e5	2.647e5	0.932	0.521	0.510	1520	2329	2.18e6	4.12e6	1434.0	1768.8	NO	bb	bb	79.098
13C-1234678-HpCDF	38.668	1.061	1.479e5	3.368e5	0.895	0.439	0.440	1321	2043	2.39e6	5.37e6	1807.1	2628.6	NO	bb	bb	99.127
13C-1234789-HpCDF	40.908	1.123	1.239e5	2.814e5	0.770	0.440	0.440	1321	2043	1.62e6	3.64e6	1222.6	1779.2	NO	bb	bb	96.417
13C-1234-TCDD	25.506	0.000	2.836e5	3.549e5	1.000	0.799	0.770	2131	1281	4.20e6	5.25e6	1971.4	4102.0	NO	bb	bb	100.000
13C-2378-TCDD	26.325	1.032	3.058e5	3.845e5	1.152	0.795	0.770	2131	1281	4.50e6	5.61e6	2113.7	4380.5	NO	bb	bb	93.802
13C-12378-PeCDD	31.427	1.232	2.777e5	1.642e5	0.829	1.692	1.550	1229	1312	3.89e6	2.26e6	3168.6	1725.3	NO	bb	bb	83.488
13C-123478-HxCDD	35.928	0.986	2.882e5	2.320e5	0.995	1.242	1.240	1760	1359	4.38e6	3.58e6	2489.2	2633.7	NO	bd	bd	95.741
13C-123678-HxCDD	36.050	0.990	2.929e5	2.394e5	1.157	1.223	1.240	1760	1359	4.58e6	3.68e6	2602.7	2710.5	NO	db	db	84.268
13C-1234678-HpCDD	40.161	1.102	2.049e5	1.864e5	0.840	1.099	1.050	1663	2435	2.91e6	2.65e6	1752.8	1088.0	NO	bd	bd	85.291
13C-OCDD	44.860	1.231	3.025e5	3.436e5	0.767	0.880	0.890	2640	2570	3.60e6	4.03e6	1365.1	1569.3	NO	bd	bd	154.127
13C-123789-HxCDD	36.429	0.000	3.021e5	2.441e5	1.000	1.238	1.240	1760	1359	4.63e6	3.77e6	2632.7	2777.2	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.033	2.855e5		1.288			1612		4.17e6		2584.9			bb		34.716

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:19:25 Pacific Daylight Time

ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.215	0.865	4.321e2	4.532e2	0.802	0.953	0.770	1859	1275	6.04e3	5.95e3	3.3	4.7	YES	bb	bb	0.117
1289-TCDF					0.678		0.770	1859	1275								
13468-PECDF					1.246		1.550	845	1453								
12389-PECDF					0.496		1.550	2044	1781								
123468-HXCDF	33.142	0.953	4.654e3	3.570e3	1.169	1.304	1.240	943	957	7.01e4	5.50e4	74.4	57.4	NO	bb	bb	1.260
1368-TCDD	23.486	0.892	1.443e3	1.545e3	1.015	0.934	0.770	1270	862	2.26e4	2.13e4	17.8	24.7	YES	bb	bb	0.426
1289-TCDD					0.909		0.770	1270	862								
12479-PECDD	28.764	0.915	3.072e3	1.610e3	2.301	1.908	1.550	1637	1061	3.02e4	1.83e4	18.5	17.3	YES	bb	bb	0.460
12389-PECDD					1.184		1.550	1637	1061								
124679-HXCDD	33.922	0.944	1.344e4	1.045e4	1.115	1.286	1.240	1213	1433	2.06e5	1.69e5	169.6	118.1	NO	bb	bb	4.118
1234679-HPCDD	39.136	0.975	1.584e5	1.513e5	1.137	1.047	1.050	3330	2392	2.54e6	2.42e6	762.3	1010.7	NO	bb	bb	69.606
Total-tetrafurans			1.022e4		0.727			1859		1.50e5							3.412
Total-penta1			1.330e4					845		1.96e5							3.027
Total-pentafurans			1.561e4		0.654			2044		2.14e5							4.650
Total-hexafurans			4.992e4		1.141			943		7.35e5							14.910
Total-heptafurans			7.381e4		0.978			1158		1.16e6							31.443
Total-Furans			2.037e5		0.922			1859		2.93e6							90.245
Total-tetradioxins			6.096e3		1.024			1270		9.28e4							1.951
Total-pentadioxins			1.565e3		1.502			1637		2.22e4							0.384
Total-hexadioxins			4.282e4		1.005			1213		5.76e5							14.389
Total-heptadioxins			2.633e5		1.088			3330		4.14e6							120.216
Total-Dioxins			8.695e5		1.130			1270		1.17e7							538.387
Total-TEQ			1.073e6					1270		1.46e7							628.632
FUNCTION1 PFK			5.991e7					525040		4.48e8							
FUNCTION2 PFK			7.830e5					299945		3.99e6							0.000
FUNCTION3 PFK			2.787e7					255631		1.05e8							0.000
FUNCTION4 PFK			2.412e5					292159		3.47e6							
FUNCTION5 PFK			0.000e0					201458		0.00e0							
FUNCTION1 HXCD...			1.574e3					731		1.66e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.420e2					1306		1.32e4							0.000
FUNCTION3 OCDPE			1.241e2					547		2.51e3							0.000
FUNCTION4 NCDPE			8.131e3					715		1.34e5							0.000
FUNCTION5 DCDPE			0.000e0					545		0.00e0							

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.83	1.193e3	1.677e3	0.727	0.71	0.77	7.1	YES	NO	dd	dd	0.417
2	Total-tetrafurans	23.70	9.683e2	1.096e3	0.727	0.88	0.77	8.0	YES	NO	bd	bd	0.300
3	Total-tetrafurans	23.51	4.609e2	5.613e2	0.727	0.82	0.77	4.2	YES	NO	db	db	0.148
4	Total-tetrafurans	23.03	1.960e3	2.779e3	0.727	0.71	0.77	18.9	YES	NO	bb	bd	0.688
5	Total-tetrafurans	25.84	6.989e2	9.895e2	0.727	0.71	0.77	5.1	YES	NO	dd	dd	0.245
6	2378-TCDF	25.70	1.565e3	1.822e3	0.702	0.86	0.77	11.1	YES	NO	dd	dd	0.510
7	Total-tetrafurans	24.46	2.787e3	3.507e3	0.727	0.79	0.77	21.5	YES	NO	dd	dd	0.914
8	Total-tetrafurans	27.33	5.868e2	7.189e2	0.727	0.82	0.77	4.8	YES	NO	db	bb	0.190

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-penta1	27.22	1.761e3	1.008e3		1.75	1.55	33.6	YES	NO	db	db	0.365
2	Total-penta1	27.13	1.154e4	8.660e3		1.33	1.55	198.2	YES	NO	dd	dd	2.662

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	28.61	1.344e3	8.471e2	0.654	1.59	1.55	8.9	YES	NO	dd	bd	0.422
2	Total-pentafurans	28.37	6.426e2	4.681e2	0.654	1.37	1.55	8.7	YES	NO	bd	bd	0.214
3	23478-PeCDF	31.19	2.312e3	1.335e3	0.786	1.73	1.55	17.4	YES	NO	db	bb	0.610
4	Total-pentafurans	30.93	7.570e2	4.406e2	0.654	1.72	1.55	5.6	YES	NO	bd	bb	0.231
5	Total-pentafurans	28.80	7.511e3	4.217e3	0.654	1.78	1.55	39.6	YES	NO	MM	MM	2.259
6	Total-pentafurans	28.44	3.042e3	1.707e3	0.654	1.78	1.55	24.3	YES	NO	MM	db	0.915

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123468-HXCDF	33.14	4.654e3	3.570e3	1.169	1.30	1.24	74.4	YES	NO	bb	bb	1.260
2	123789-HxCDF	36.82	8.747e2	6.878e2	1.137	1.27	1.24	13.6	YES	NO	bd	bb	0.341
3	234678-HxCDF	35.82	3.206e3	2.705e3	1.140	1.18	1.24	42.3	YES	NO	bb	bb	0.965
4	123678-HxCDF	34.96	1.586e3	1.231e3	1.091	1.29	1.24	25.0	YES	NO	db	db	0.432
5	123478-HxCDF	34.81	4.281e3	3.669e3	1.166	1.17	1.24	70.4	YES	NO	bd	bd	1.221
6	Total-hexafurans	34.19	1.972e4	1.604e4	1.141	1.23	1.24	313.7	YES	NO	bd	bb	5.982
7	Total-hexafurans	33.35	1.560e4	1.255e4	1.141	1.24	1.24	240.2	YES	NO	bb	bb	4.709

ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.68	2.470e4	2.184e4	1.003	1.13	1.05	355.0	YES	NO	bb	bb	9.575
2	1234789-HpCDF	40.91	1.565e3	1.728e3	0.953	0.91	1.05	17.5	YES	NO	bd	bb	0.853
3	Total-heptafurans	39.35	4.754e4	4.392e4	0.978	1.08	1.05	633.1	YES	NO	bb	bb	21.015

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.83	1.193e3	1.677e3	0.727	0.71	0.77	7.1	YES	NO	dd	dd	0.417
2	Total-tetrafurans	23.70	9.683e2	1.096e3	0.727	0.88	0.77	8.0	YES	NO	bd	bd	0.300
3	Total-tetrafurans	23.51	4.609e2	5.613e2	0.727	0.82	0.77	4.2	YES	NO	db	db	0.148
4	Total-tetrafurans	23.03	1.960e3	2.779e3	0.727	0.71	0.77	18.9	YES	NO	bb	bd	0.688
5	Total-tetrafurans	25.84	6.989e2	9.895e2	0.727	0.71	0.77	5.1	YES	NO	dd	dd	0.245
6	2378-TCDF	25.70	1.565e3	1.822e3	0.702	0.86	0.77	11.1	YES	NO	dd	dd	0.510
7	Total-tetrafurans	24.46	2.787e3	3.507e3	0.727	0.79	0.77	21.5	YES	NO	dd	dd	0.914
8	Total-Furans	27.79	6.392e2	9.625e2	0.922	0.66	0.77	4.5	YES	NO	bb	bb	0.183
9	Total-tetrafurans	27.33	5.868e2	7.189e2	0.727	0.82	0.77	4.8	YES	NO	db	bb	0.190
10	Total-pentafurans	28.61	1.344e3	8.471e2	0.654	1.59	1.55	8.9	YES	NO	dd	bd	0.422
11	Total-pentafurans	28.37	6.426e2	4.681e2	0.654	1.37	1.55	8.7	YES	NO	bd	bd	0.214
12	23478-PeCDF	31.19	2.312e3	1.335e3	0.786	1.73	1.55	17.4	YES	NO	db	bb	0.610
13	Total-pentafurans	30.93	7.570e2	4.406e2	0.654	1.72	1.55	5.6	YES	NO	bd	bb	0.231
14	Total-pentafurans	28.80	7.511e3	4.217e3	0.654	1.78	1.55	39.6	YES	NO	MM	MM	2.259
15	123468-HXCDF	33.14	4.654e3	3.570e3	1.169	1.30	1.24	74.4	YES	NO	bb	bb	1.260
16	123789-HxCDF	36.82	8.747e2	6.878e2	1.137	1.27	1.24	13.6	YES	NO	bd	bb	0.341
17	234678-HxCDF	35.82	3.206e3	2.705e3	1.140	1.18	1.24	42.3	YES	NO	bb	bb	0.965
18	123678-HxCDF	34.96	1.586e3	1.231e3	1.091	1.29	1.24	25.0	YES	NO	db	db	0.432
19	123478-HxCDF	34.81	4.281e3	3.669e3	1.166	1.17	1.24	70.4	YES	NO	bd	bd	1.221
20	Total-hexafurans	34.19	1.972e4	1.604e4	1.141	1.23	1.24	313.7	YES	NO	bd	bb	5.982
21	Total-hexafurans	33.35	1.560e4	1.255e4	1.141	1.24	1.24	240.2	YES	NO	bb	bb	4.709
22	1234678-HpCDF	38.68	2.470e4	2.184e4	1.003	1.13	1.05	355.0	YES	NO	bb	bb	9.575
23	1234789-HpCDF	40.91	1.565e3	1.728e3	0.953	0.91	1.05	17.5	YES	NO	bd	bb	0.853
24	Total-heptafurans	39.35	4.754e4	4.392e4	0.978	1.08	1.05	633.1	YES	NO	bb	bb	21.015
25	OCDF	45.12	4.022e4	4.174e4	0.778	0.96	0.89	576.7	YES	NO	bd	bb	32.621
26	Total-penta1	27.22	1.761e3	1.008e3		1.75	1.55	33.6	YES	NO	db	db	0.365
27	Total-penta1	27.13	1.154e4	8.660e3		1.33	1.55	198.2	YES	NO	dd	dd	2.662
28	Total-pentafurans	28.44	3.042e3	1.707e3	0.654	1.78	1.55	24.3	YES	NO	MM	db	0.915

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.74	9.814e2	1.425e3	1.024	0.69	0.77	12.4	YES	NO	bb	bb	0.340
2	2378-TCDD	26.35	1.647e3	2.359e3	1.149	0.70	0.77	17.4	YES	NO	bb	bd	0.505
3	Total-tetradioxins	25.53	1.169e3	1.436e3	1.024	0.81	0.77	13.5	YES	NO	bb	bb	0.369
4	Total-tetradioxins	24.95	1.190e3	1.570e3	1.024	0.76	0.77	15.6	YES	NO	bb	bb	0.390
5	Total-tetradioxins	24.46	1.108e3	1.341e3	1.024	0.83	0.77	14.2	YES	NO	MM	MM	0.346

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.07	1.565e3	9.862e2	1.502	1.59	1.55	13.6	YES	NO	bd	bd	0.384

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.44	3.478e3	2.861e3	0.907	1.22	1.24	46.6	YES	NO	bb	bb	1.328
2	Total-hexadioxins	36.22	9.808e2	8.094e2	1.005	1.21	1.24	13.1	YES	NO	db	db	0.339
3	123678-HxCDD	36.06	4.841e3	4.352e3	1.001	1.11	1.24	56.1	YES	NO	dd	dd	1.725
4	123478-HxCDD	35.95	2.019e3	1.901e3	0.996	1.06	1.24	25.0	YES	NO	bd	bd	0.757
5	Total-hexadioxins	35.06	1.537e4	1.243e4	1.005	1.24	1.24	128.3	YES	NO	bd	bd	5.256
6	Total-hexadioxins	34.69	2.692e3	1.889e3	1.005	1.42	1.24	35.8	YES	NO	bb	bb	0.866
7	124679-HXCDD	33.92	1.344e4	1.045e4	1.115	1.29	1.24	169.6	YES	NO	bb	bb	4.118

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.17	1.049e5	1.009e5	1.039	1.04	1.05	480.3	YES	NO	bb	bb	50.610
2	1234679-HPCDD	39.14	1.584e5	1.513e5	1.137	1.05	1.05	762.3	YES	NO	bb	bb	69.606

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:19:25 Pacific Daylight Time

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	23.74	9.814e2	1.425e3	1.024	0.69	0.77	12.4	YES	NO	bb	bb	0.340
2	2378-TCDD	26.35	1.647e3	2.359e3	1.149	0.70	0.77	17.4	YES	NO	bb	bd	0.505
3	Total-tetradioxins	25.53	1.169e3	1.436e3	1.024	0.81	0.77	13.5	YES	NO	bb	bb	0.369
4	Total-tetradioxins	24.95	1.190e3	1.570e3	1.024	0.76	0.77	15.6	YES	NO	bb	bb	0.390
5	Total-pentadioxins	30.07	1.565e3	9.862e2	1.502	1.59	1.55	13.6	YES	NO	bd	bd	0.384
6	123789-HxCDD	36.44	3.478e3	2.861e3	0.907	1.22	1.24	46.6	YES	NO	bb	bb	1.328
7	Total-hexadioxins	36.22	9.808e2	8.094e2	1.005	1.21	1.24	13.1	YES	NO	db	db	0.339
8	123678-HxCDD	36.06	4.841e3	4.352e3	1.001	1.11	1.24	56.1	YES	NO	dd	dd	1.725
9	123478-HxCDD	35.95	2.019e3	1.901e3	0.996	1.06	1.24	25.0	YES	NO	bd	bd	0.757
10	Total-hexadioxins	35.06	1.537e4	1.243e4	1.005	1.24	1.24	128.3	YES	NO	bd	bd	5.256
11	Total-hexadioxins	34.69	2.692e3	1.889e3	1.005	1.42	1.24	35.8	YES	NO	bb	bb	0.866
12	124679-HXCDD	33.92	1.344e4	1.045e4	1.115	1.29	1.24	169.6	YES	NO	bb	bb	4.118
13	1234678-HpCDD	40.17	1.049e5	1.009e5	1.039	1.04	1.05	480.3	YES	NO	bb	bb	50.610
14	1234679-HPCDD	39.14	1.584e5	1.513e5	1.137	1.05	1.05	762.3	YES	NO	bb	bb	69.606
15	OCDD	44.88	5.557e5	6.372e5	0.920	0.87	0.89	3392.2	YES	NO	bb	bb	401.447
16	Total-tetradioxins	24.46	1.108e3	1.341e3	1.024	0.83	0.77	14.2	YES	NO	MM	MM	0.346

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetrafurans	23.83	1.193e3	1.677e3	0.727	0.71	0.77	7.1	YES	NO	dd	dd	0.417
2	Total-tetrafurans	23.70	9.683e2	1.096e3	0.727	0.88	0.77	8.0	YES	NO	bd	bd	0.300
3	Total-tetrafurans	23.51	4.609e2	5.613e2	0.727	0.82	0.77	4.2	YES	NO	db	db	0.148
4	Total-tetrafurans	23.03	1.960e3	2.779e3	0.727	0.71	0.77	18.9	YES	NO	bb	bd	0.688
5	Total-tetrafurans	25.84	6.989e2	9.895e2	0.727	0.71	0.77	5.1	YES	NO	dd	dd	0.245
6	2378-TCDF	25.70	1.565e3	1.822e3	0.702	0.86	0.77	11.1	YES	NO	dd	dd	0.510
7	Total-tetrafurans	24.46	2.787e3	3.507e3	0.727	0.79	0.77	21.5	YES	NO	dd	dd	0.914
8	Total-Furans	27.79	6.392e2	9.625e2	0.922	0.66	0.77	4.5	YES	NO	bb	bb	0.183
9	Total-tetrafurans	27.33	5.868e2	7.189e2	0.727	0.82	0.77	4.8	YES	NO	db	bb	0.190
10	Total-pentafurans	28.61	1.344e3	8.471e2	0.654	1.59	1.55	8.9	YES	NO	dd	bd	0.422
11	Total-pentafurans	28.37	6.426e2	4.681e2	0.654	1.37	1.55	8.7	YES	NO	bd	bd	0.214
12	23478-PeCDF	31.19	2.312e3	1.335e3	0.786	1.73	1.55	17.4	YES	NO	db	bb	0.610
13	Total-pentafurans	30.93	7.570e2	4.406e2	0.654	1.72	1.55	5.6	YES	NO	bd	bb	0.231
14	Total-pentafurans	28.80	7.511e3	4.217e3	0.654	1.78	1.55	39.6	YES	NO	MM	MM	2.259
15	123468-HXCDF	33.14	4.654e3	3.570e3	1.169	1.30	1.24	74.4	YES	NO	bb	bb	1.260
16	123789-HxCDF	36.82	8.747e2	6.878e2	1.137	1.27	1.24	13.6	YES	NO	bd	bb	0.341
17	234678-HxCDF	35.82	3.206e3	2.705e3	1.140	1.18	1.24	42.3	YES	NO	bb	bb	0.965
18	123678-HxCDF	34.96	1.586e3	1.231e3	1.091	1.29	1.24	25.0	YES	NO	db	db	0.432
19	123478-HxCDF	34.81	4.281e3	3.669e3	1.166	1.17	1.24	70.4	YES	NO	bd	bd	1.221
20	Total-hexafurans	34.19	1.972e4	1.604e4	1.141	1.23	1.24	313.7	YES	NO	bd	bb	5.982
21	Total-hexafurans	33.35	1.560e4	1.255e4	1.141	1.24	1.24	240.2	YES	NO	bb	bb	4.709
22	1234678-HpCDF	38.68	2.470e4	2.184e4	1.003	1.13	1.05	355.0	YES	NO	bb	bb	9.575
23	1234789-HpCDF	40.91	1.565e3	1.728e3	0.953	0.91	1.05	17.5	YES	NO	bd	bb	0.853
24	Total-heptafurans	39.35	4.754e4	4.392e4	0.978	1.08	1.05	633.1	YES	NO	bb	bb	21.015
25	OCDF	45.12	4.022e4	4.174e4	0.778	0.96	0.89	576.7	YES	NO	bd	bb	32.621
26	Total-penta1	27.22	1.761e3	1.008e3		1.75	1.55	33.6	YES	NO	db	db	0.365
27	Total-penta1	27.13	1.154e4	8.660e3		1.33	1.55	198.2	YES	NO	dd	dd	2.662
28	Total-pentafurans	28.44	3.042e3	1.707e3	0.654	1.78	1.55	24.3	YES	NO	MM	db	0.915
29	Total-tetradioxins	23.74	9.814e2	1.425e3	1.024	0.69	0.77	12.4	YES	NO	bb	bb	0.340
30	2378-TCDD	26.35	1.647e3	2.359e3	1.149	0.70	0.77	17.4	YES	NO	bb	bd	0.505
31	Total-tetradioxins	25.53	1.169e3	1.436e3	1.024	0.81	0.77	13.5	YES	NO	bb	bb	0.369
32	Total-tetradioxins	24.95	1.190e3	1.570e3	1.024	0.76	0.77	15.6	YES	NO	bb	bb	0.390
33	Total-pentadioxins	30.07	1.565e3	9.862e2	1.502	1.59	1.55	13.6	YES	NO	bd	bd	0.384
34	123789-HxCDD	36.44	3.478e3	2.861e3	0.907	1.22	1.24	46.6	YES	NO	bb	bb	1.328
35	Total-hexadioxins	36.22	9.808e2	8.094e2	1.005	1.21	1.24	13.1	YES	NO	db	db	0.339
36	123678-HxCDD	36.06	4.841e3	4.352e3	1.001	1.11	1.24	56.1	YES	NO	dd	dd	1.725
37	123478-HxCDD	35.95	2.019e3	1.901e3	0.996	1.06	1.24	25.0	YES	NO	bd	bd	0.757

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-hexadioxins	35.06	1.537e4	1.243e4	1.005	1.24	1.24	128.3	YES	NO	bd	bd	5.256
39	Total-hexadioxins	34.69	2.692e3	1.889e3	1.005	1.42	1.24	35.8	YES	NO	bb	bb	0.866
40	124679-HXCDD	33.92	1.344e4	1.045e4	1.115	1.29	1.24	169.6	YES	NO	bb	bb	4.118
41	1234678-HpCDD	40.17	1.049e5	1.009e5	1.039	1.04	1.05	480.3	YES	NO	bb	bb	50.610
42	1234679-HPCDD	39.14	1.584e5	1.513e5	1.137	1.05	1.05	762.3	YES	NO	bb	bb	69.606
43	OCDD	44.88	5.557e5	6.372e5	0.920	0.87	0.89	3392.2	YES	NO	bb	bb	401.447
44	Total-tetradioxins	24.46	1.108e3	1.341e3	1.024	0.83	0.77	14.2	YES	NO	MM	MM	0.346

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.40	3.338e6					47.2	YES		bd		
2	FUNCTION1 PFK	21.17	1.336e6					14.4	YES		bb		
3	FUNCTION1 PFK	23.33	2.081e6					26.2	YES		db		
4	FUNCTION1 PFK	23.23	2.189e6					26.9	YES		dd		
5	FUNCTION1 PFK	23.05	2.570e6					29.7	YES		dd		
6	FUNCTION1 PFK	22.94	6.642e5					30.0	YES		dd		
7	FUNCTION1 PFK	22.88	2.214e6					30.1	YES		dd		
8	FUNCTION1 PFK	22.69	1.616e6					32.9	YES		dd		
9	FUNCTION1 PFK	22.62	2.130e6					33.2	YES		dd		
10	FUNCTION1 PFK	22.48	1.501e6					35.6	YES		dd		
11	FUNCTION1 PFK	22.43	2.345e6					36.5	YES		dd		
12	FUNCTION1 PFK	22.20	3.924e6					39.7	YES		dd		
13	FUNCTION1 PFK	22.10	2.062e6					37.9	YES		dd		
14	FUNCTION1 PFK	21.95	2.870e6					43.3	YES		dd		
15	FUNCTION1 PFK	21.85	9.420e5					42.7	YES		dd		
16	FUNCTION1 PFK	21.72	3.282e6					45.4	YES		dd		
17	FUNCTION1 PFK	21.58	3.443e6					48.1	YES		dd		
18	FUNCTION1 PFK	21.52	2.091e6					47.9	YES		dd		
19	FUNCTION1 PFK	27.24	7.517e5					13.5	YES		dd		
20	FUNCTION1 PFK	27.12	5.978e5					12.8	YES		dd		
21	FUNCTION1 PFK	27.02	5.872e5					14.0	YES		dd		
22	FUNCTION1 PFK	26.88	1.845e6					13.9	YES		dd		
23	FUNCTION1 PFK	26.65	1.820e6					13.0	YES		dd		
24	FUNCTION1 PFK	26.38	1.538e6					11.4	YES		dd		
25	FUNCTION1 PFK	26.13	4.906e5					9.4	YES		bd		
26	FUNCTION1 PFK	25.93	5.406e5					7.9	YES		db		
27	FUNCTION1 PFK	25.82	3.089e5					5.5	YES		bd		
28	FUNCTION1 PFK	25.11	1.856e4					1.2	NO		bb		
29	FUNCTION1 PFK	24.98	6.392e3					0.5	NO		db		
30	FUNCTION1 PFK	24.88	8.539e4					2.4	NO		dd		
31	FUNCTION1 PFK	24.70	4.092e6					4.9	YES		dd		
32	FUNCTION1 PFK	23.84	2.054e6					16.3	YES		dd		
33	FUNCTION1 PFK	23.64	1.207e6					18.3	YES		dd		
34	FUNCTION1 PFK	23.53	6.078e5					18.4	YES		bd		
35	FUNCTION1 PFK	27.88	2.382e5					6.3	YES		db		
36	FUNCTION1 PFK	27.79	9.771e5					8.8	YES		bd		
37	FUNCTION1 PFK	27.50	1.029e6					13.6	YES		db		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	27.31	5.206e5					13.1	YES		dd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	29.31	2.637e4					2.3	NO		bb		0.000
2	FUNCTION2 PFK	29.14	7.566e5					11.0	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.58	1.479e6					41.9	YES		dd		0.000
2	FUNCTION3 PFK	35.42	1.086e6					32.3	YES		dd		0.000
3	FUNCTION3 PFK	35.27	9.626e5					27.0	YES		dd		0.000
4	FUNCTION3 PFK	35.14	6.491e5					21.7	YES		bd		0.000
5	FUNCTION3 PFK	34.80	5.763e5					8.5	YES		bb		0.000
6	FUNCTION3 PFK	33.92	3.477e5					7.0	YES		bb		0.000
7	FUNCTION3 PFK	33.63	2.565e4					2.6	NO		bb		0.000
8	FUNCTION3 PFK	33.51	2.150e5					7.0	YES		bb		0.000
9	FUNCTION3 PFK	37.45	1.698e5					3.4	YES		bb		0.000
10	FUNCTION3 PFK	37.25	1.540e6					28.3	YES		db		0.000
11	FUNCTION3 PFK	37.02	3.194e6					52.3	YES		bd		0.000
12	FUNCTION3 PFK	36.55	1.298e7					80.5	YES		db		0.000
13	FUNCTION3 PFK	36.01	2.290e6					56.2	YES		dd		0.000
14	FUNCTION3 PFK	35.66	2.360e6					42.8	YES		dd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	42.52	7.322e3					1.2	NO		bb		
2	FUNCTION4 PFK	42.27	2.043e3					0.6	NO		bb		
3	FUNCTION4 PFK	40.85	2.107e4					1.9	NO		bb		
4	FUNCTION4 PFK	39.94	2.560e4					2.5	NO		db		
5	FUNCTION4 PFK	39.92	1.021e5					2.4	NO		bd		
6	FUNCTION4 PFK	38.03	6.611e4					0.9	NO		db		
7	FUNCTION4 PFK	37.89	1.698e4					2.3	NO		bd		

ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

PFK5

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

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.31	1.398e2					2.4	NO		bb		0.000
2	FUNCTION1 HXCD...	25.97	1.543e2					3.3	YES		db		0.000
3	FUNCTION1 HXCD...	25.87	3.504e2					5.3	YES		bd		0.000
4	FUNCTION1 HXCD...	22.26	1.060e2					2.2	NO		bb		0.000
5	FUNCTION1 HXCD...	21.40	2.177e2					3.5	YES		bb		0.000
6	FUNCTION1 HXCD...	21.17	6.058e2					5.9	YES		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.35	9.703e1					1.1	NO		bb		0.000
2	FUNCTION2 HPCD...	31.72	1.917e2					1.2	NO		bb		0.000
3	FUNCTION2 HPCD...	31.18	8.666e1					1.8	NO		bb		0.000
4	FUNCTION2 HPCD...	29.54	8.823e1					2.3	NO		bb		0.000
5	FUNCTION2 HPCD...	29.21	7.113e1					1.1	NO		bb		0.000
6	FUNCTION2 HPCD...	28.50	8.605e1					1.1	NO		bb		0.000
7	FUNCTION2 HPCD...	28.10	1.212e2					1.4	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.43	1.241e2					4.6	YES		bb		0.000

ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.58	7.094e1					2.9	NO		bb		0.000
2	FUNCTION4 NCDPE	42.23	9.869e1					2.9	NO		bb		0.000
3	FUNCTION4 NCDPE	41.60	8.513e1					2.6	NO		bb		0.000
4	FUNCTION4 NCDPE	41.26	7.342e1					2.6	NO		bb		0.000
5	FUNCTION4 NCDPE	38.35	7.803e3					176.9	YES		bb		0.000

ETHERS6

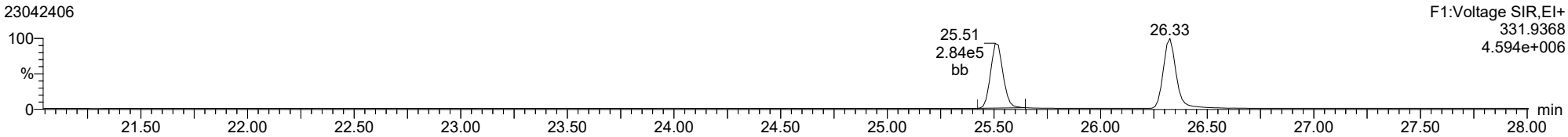
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1													

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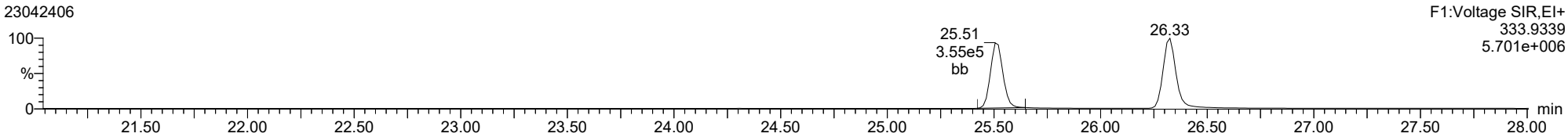
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ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

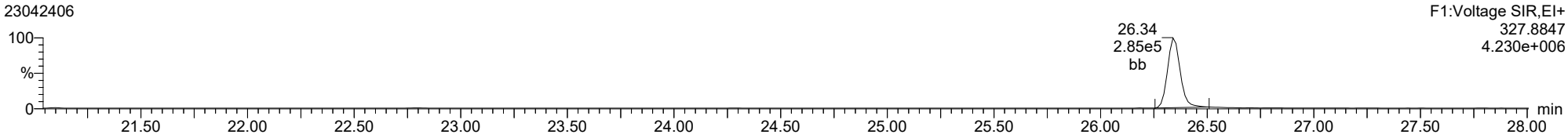
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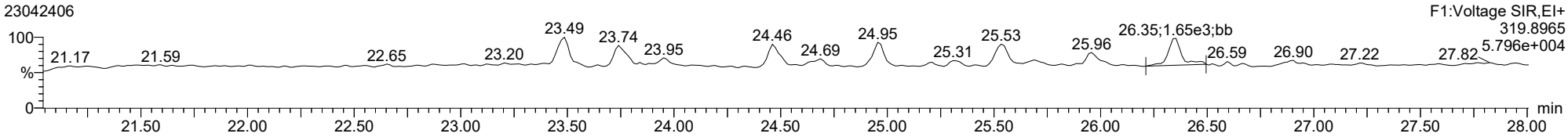


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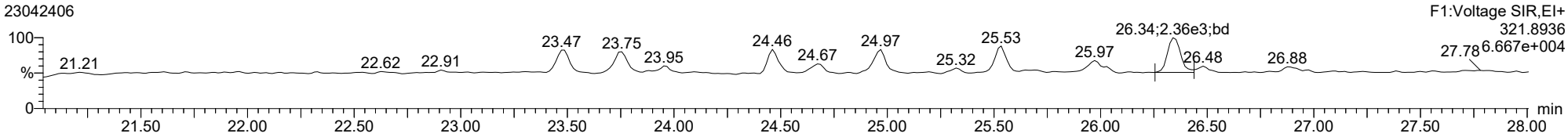


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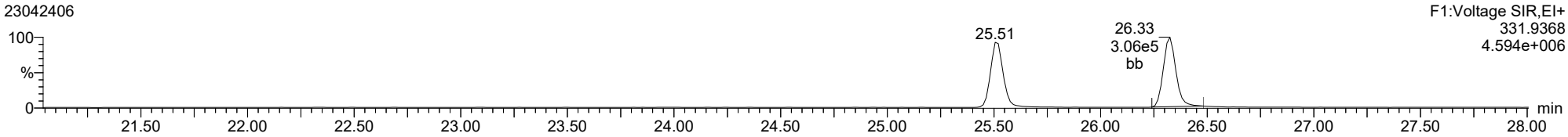
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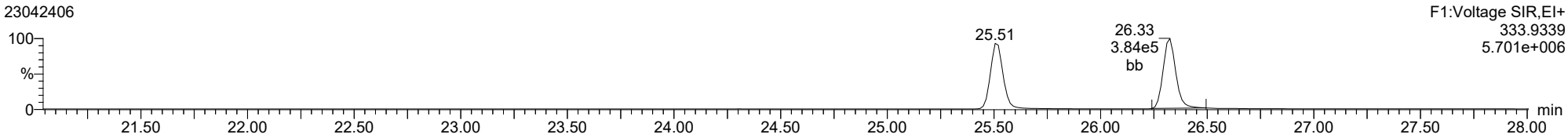
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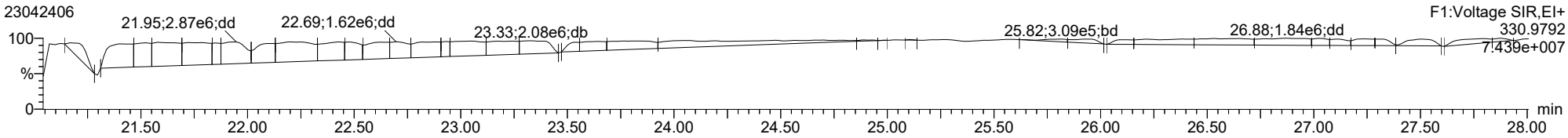
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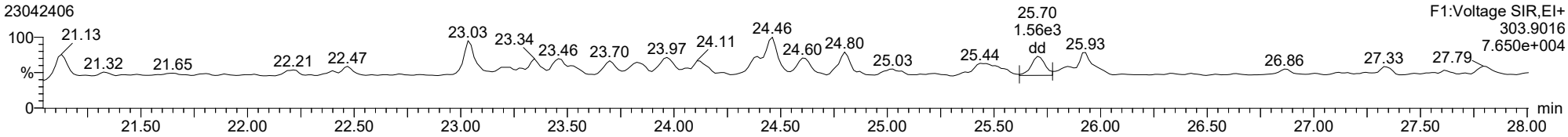


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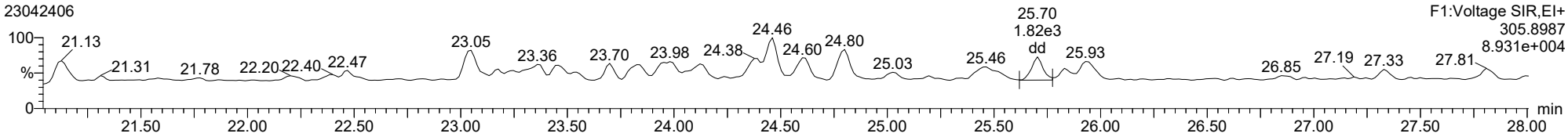


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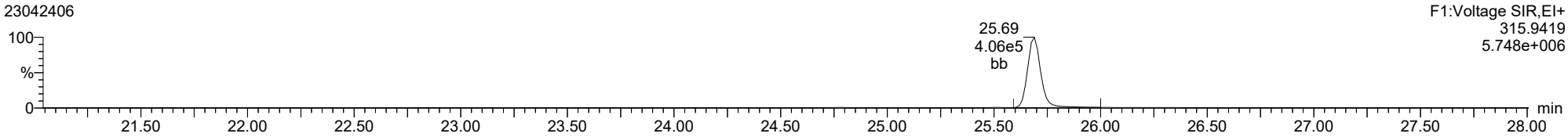
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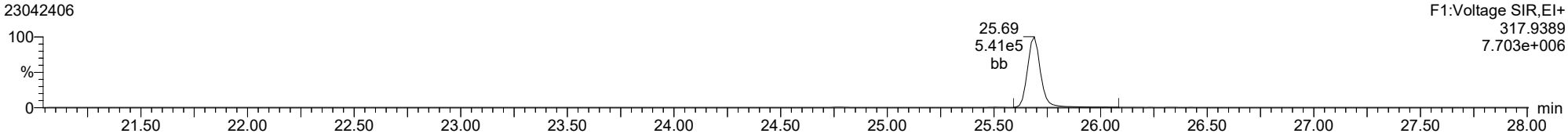
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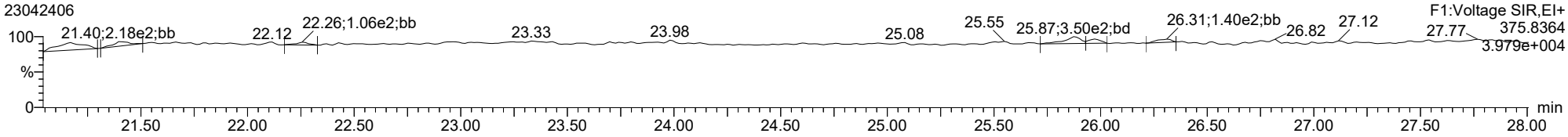
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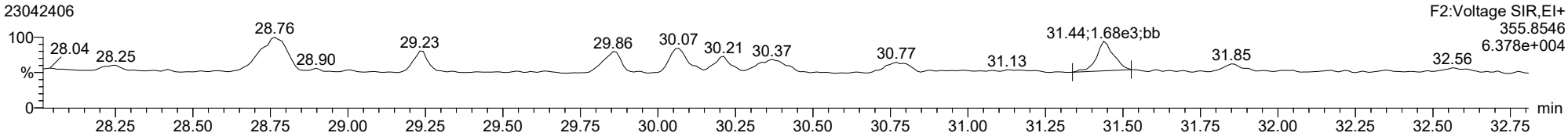


FUNCTION1 HXCDPE

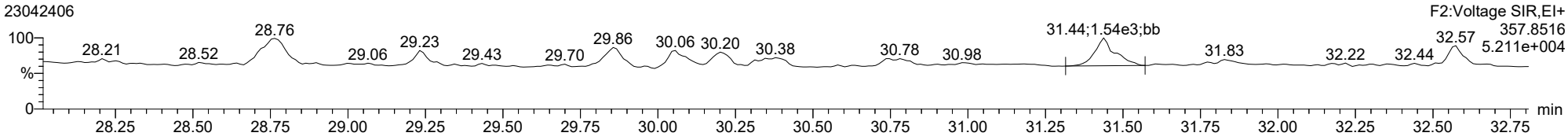


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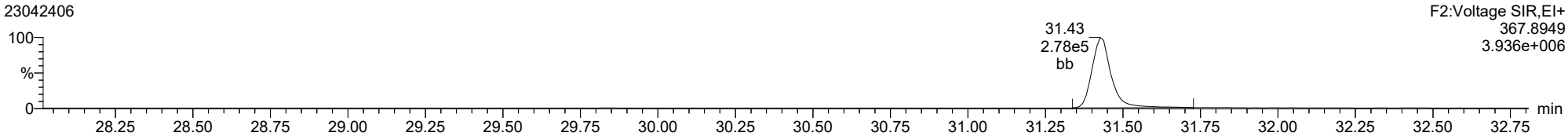
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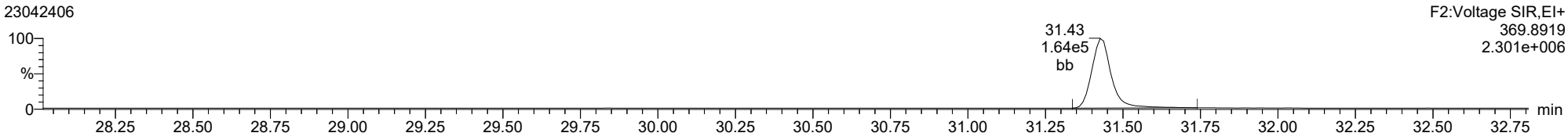
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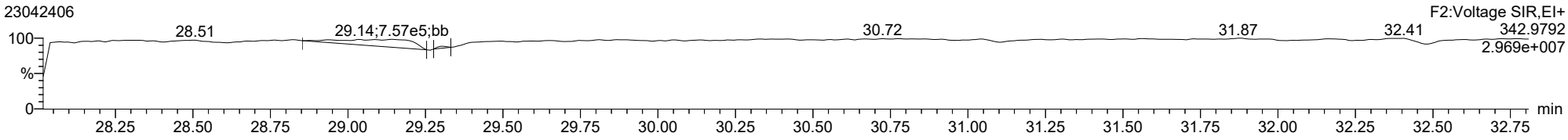
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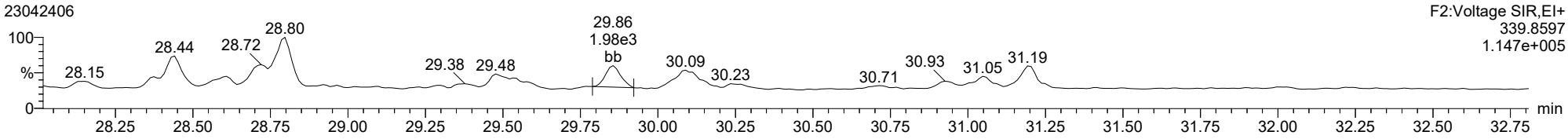


FUNCTION2 PFK

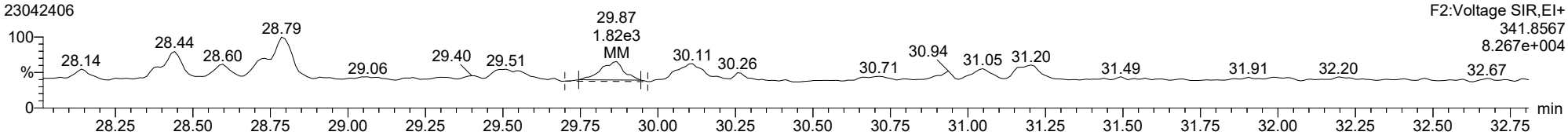


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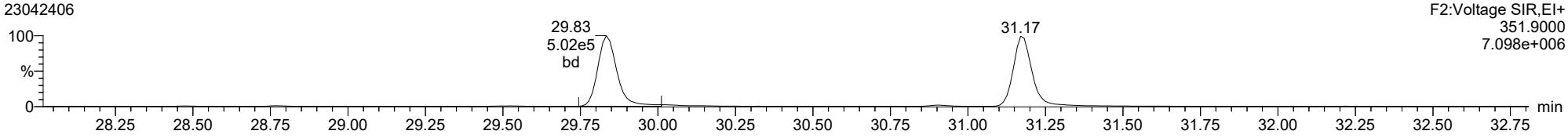
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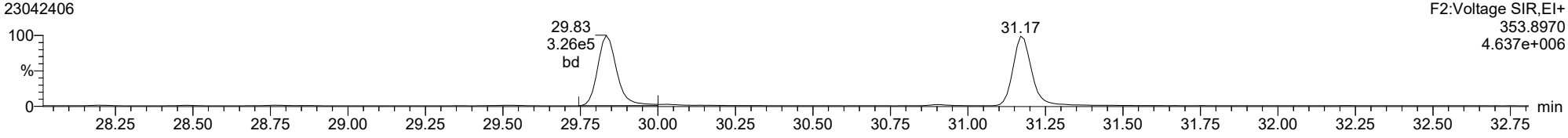
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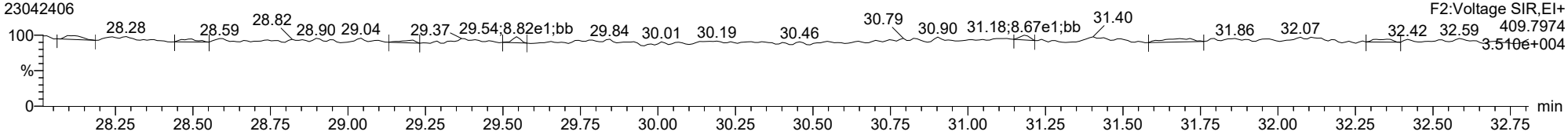
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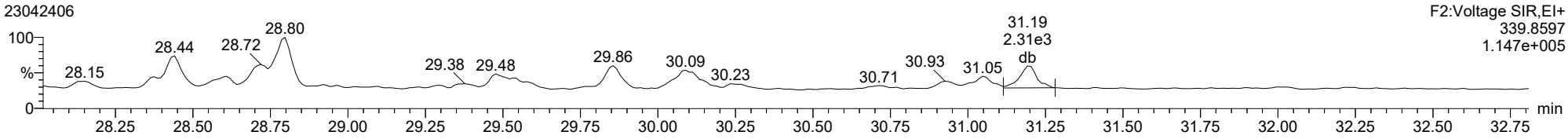


FUNCTION2 HPCDPE

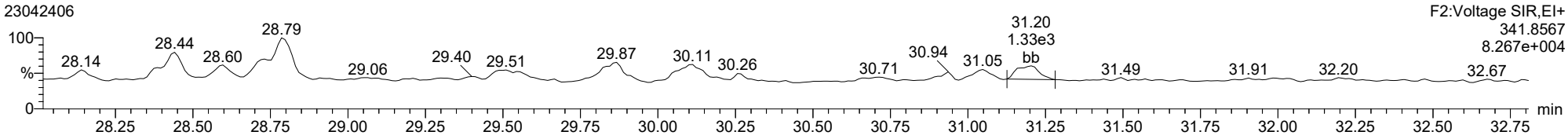


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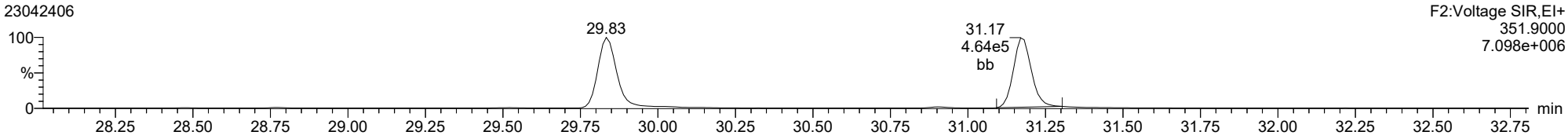
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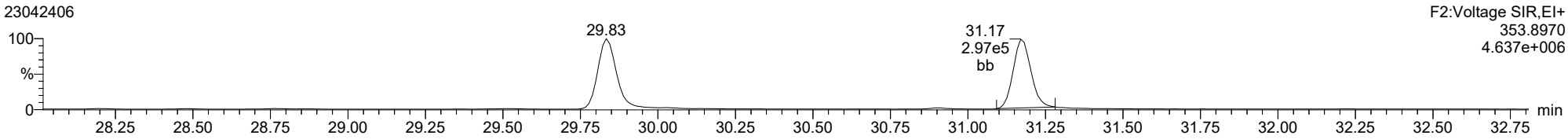
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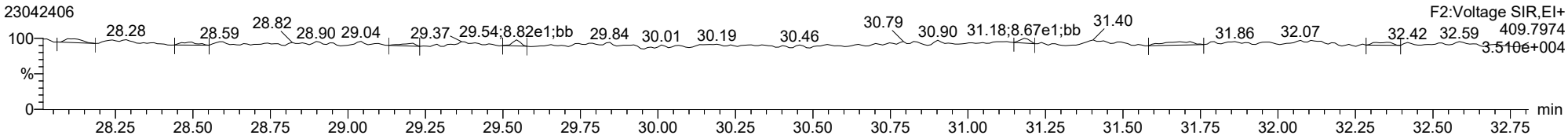
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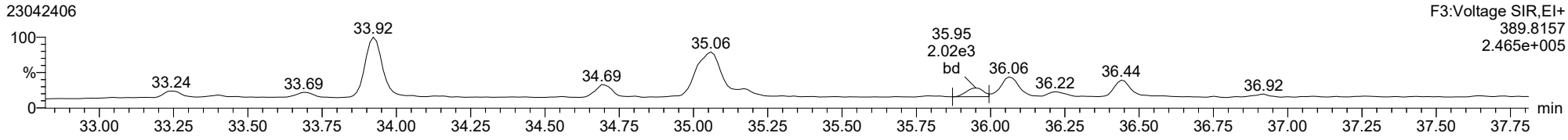


FUNCTION2 HPCDPE

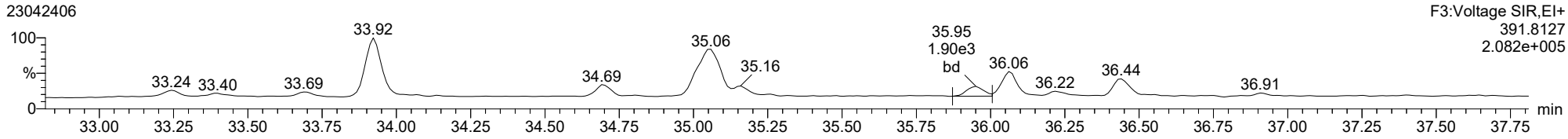


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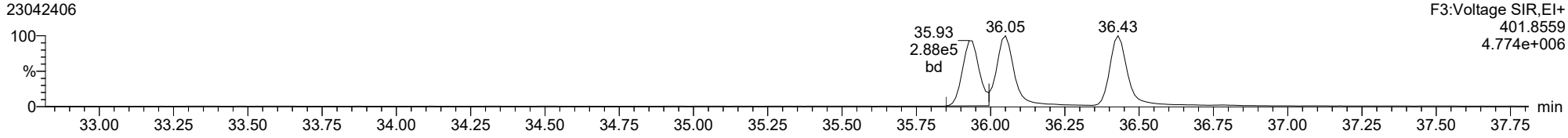
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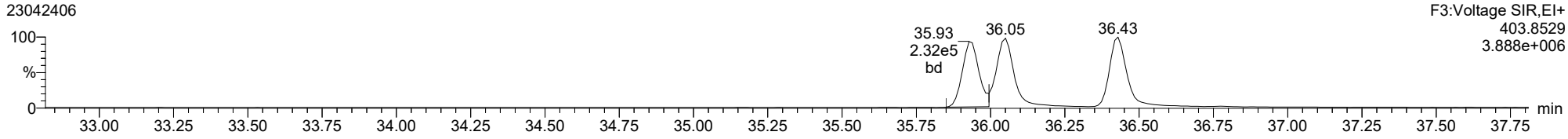
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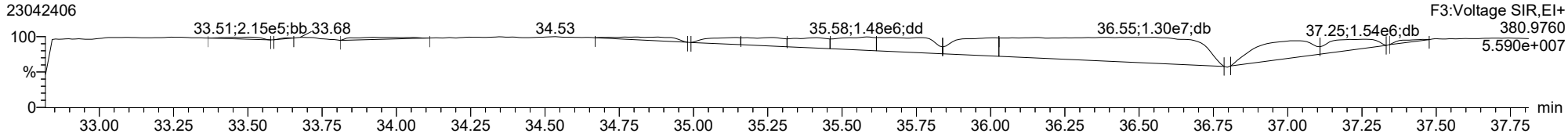
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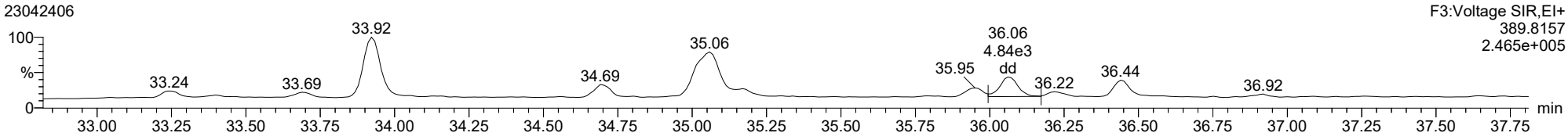


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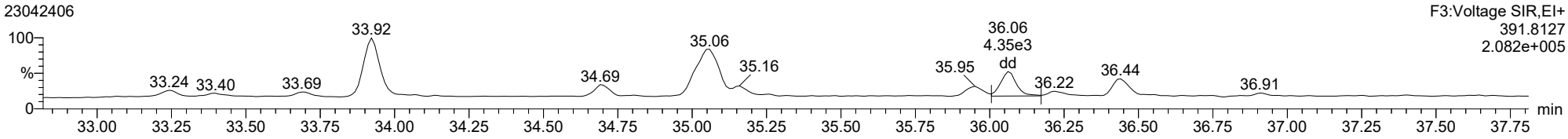


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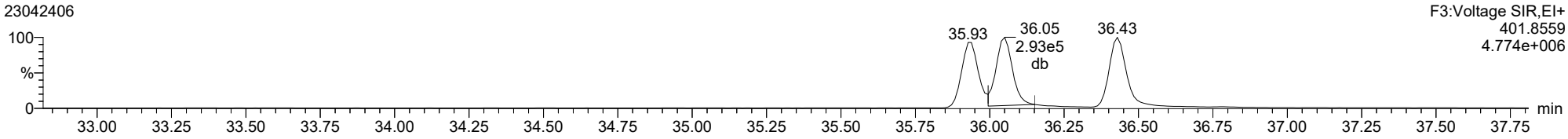
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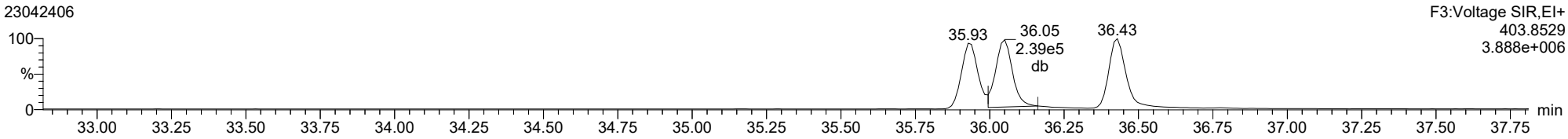
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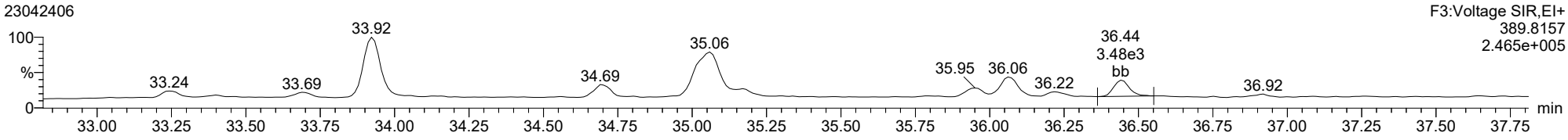


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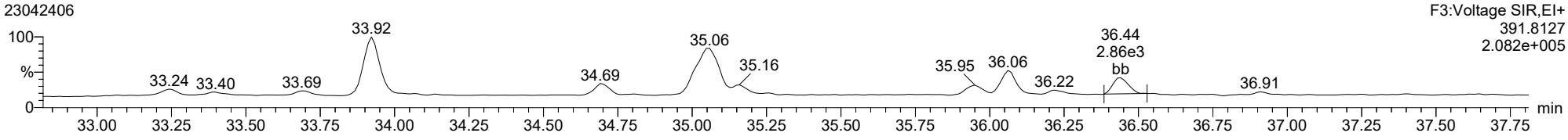


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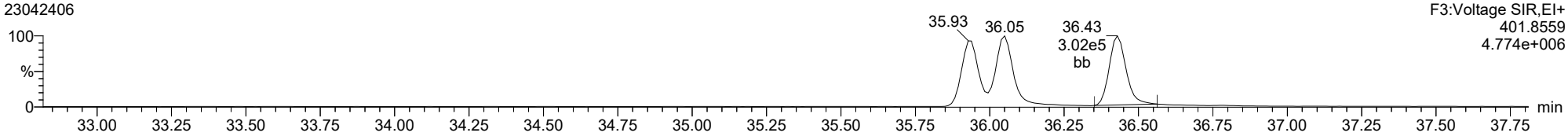
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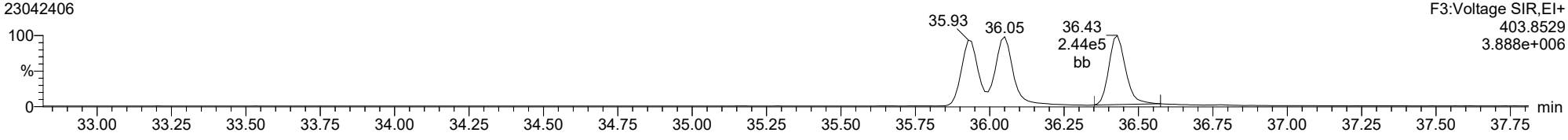
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13C-123789-HxCDD

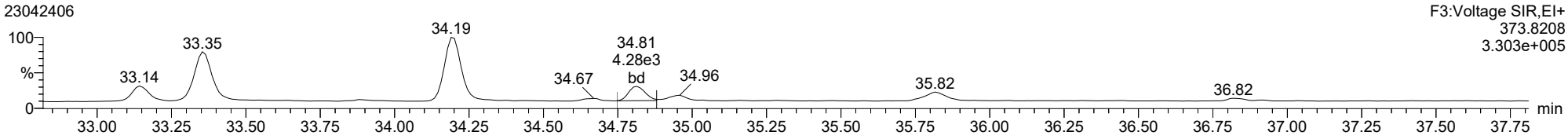


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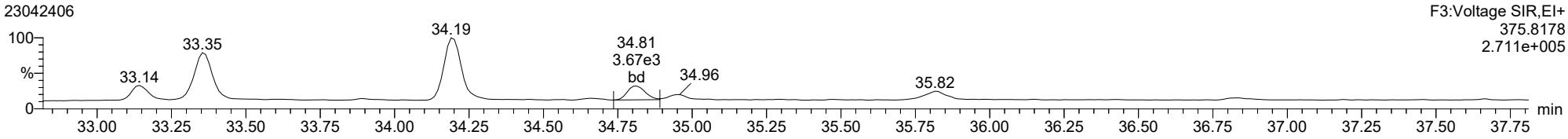


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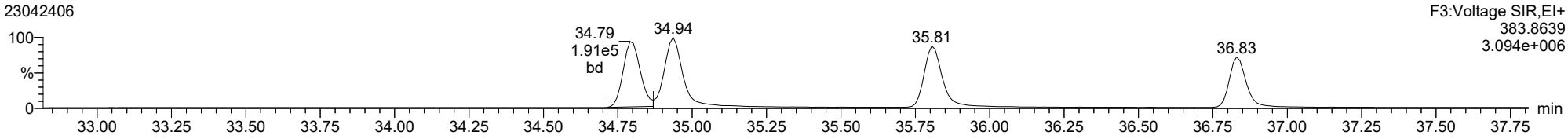
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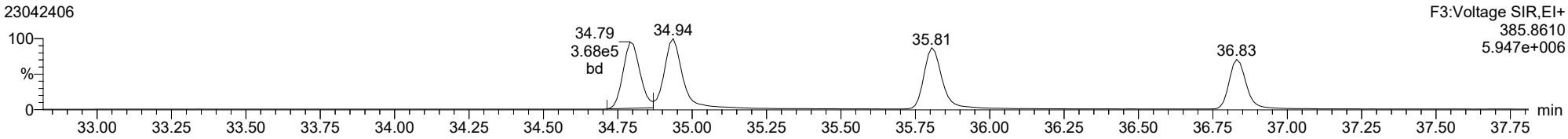
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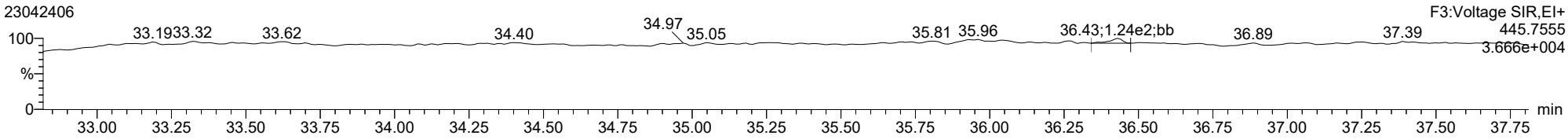
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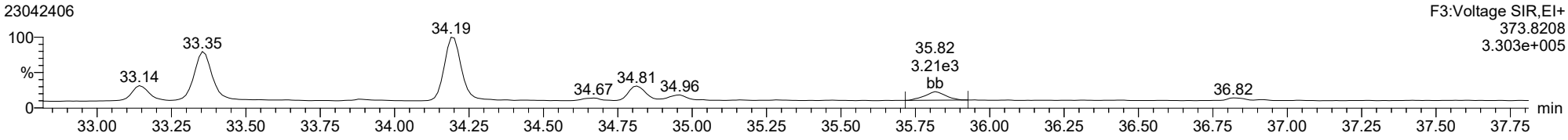


FUNCTION3 OCDPE

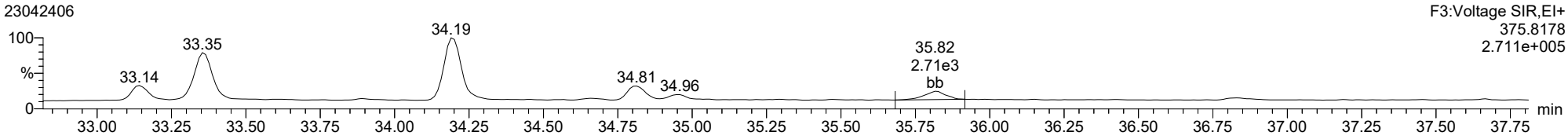


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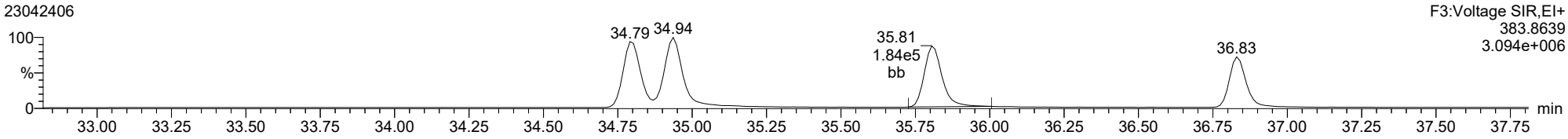
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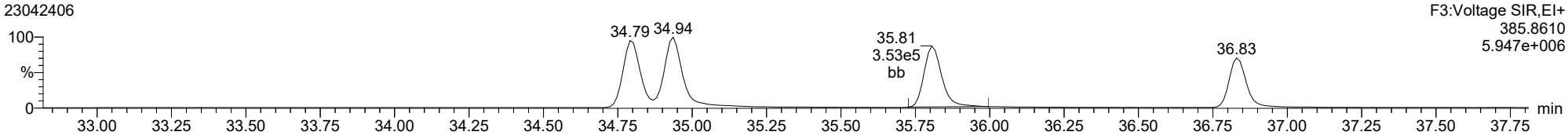
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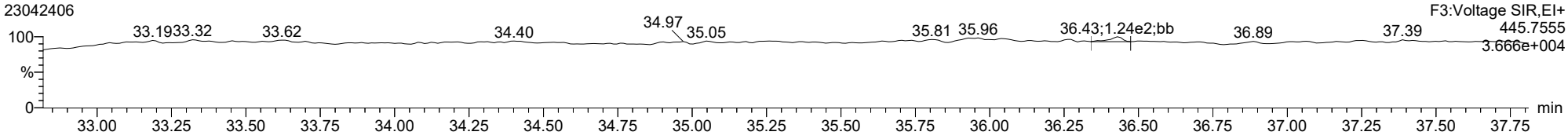
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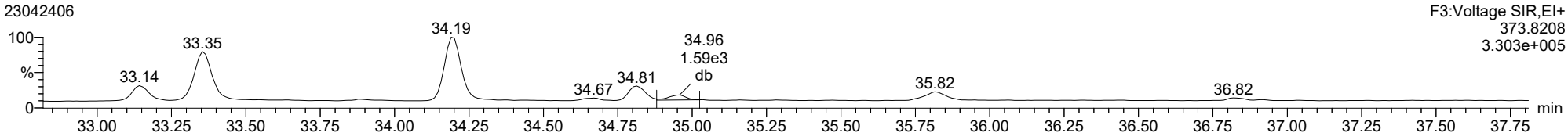


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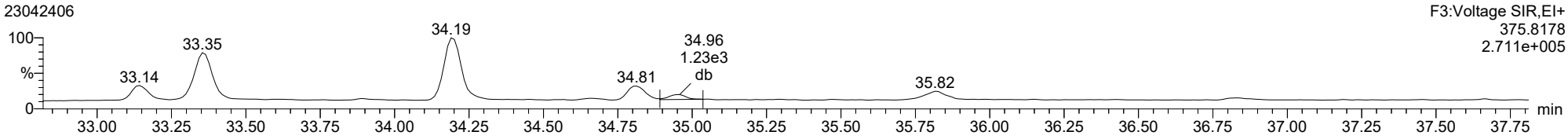


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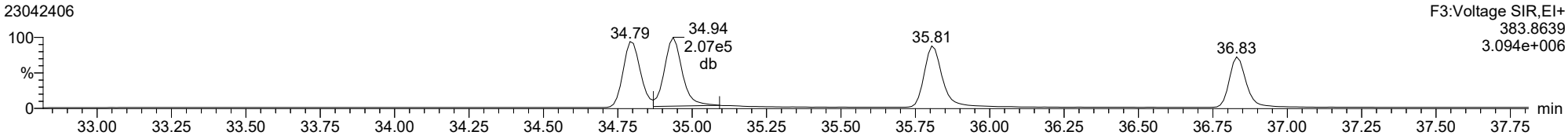
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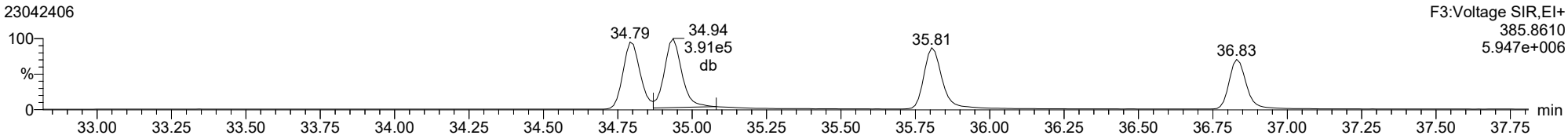
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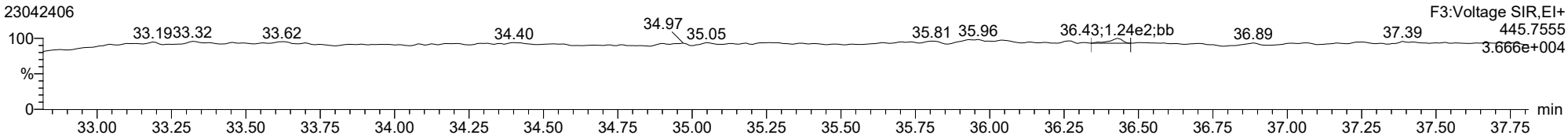
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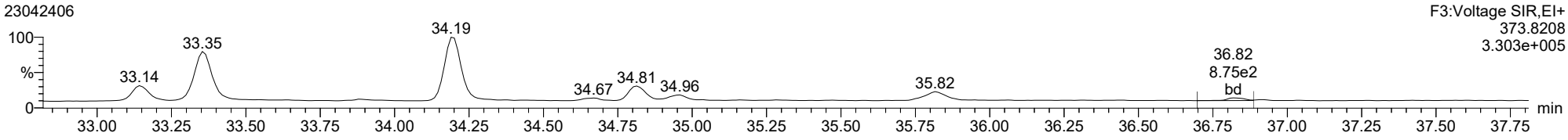


FUNCTION3 OCDPE

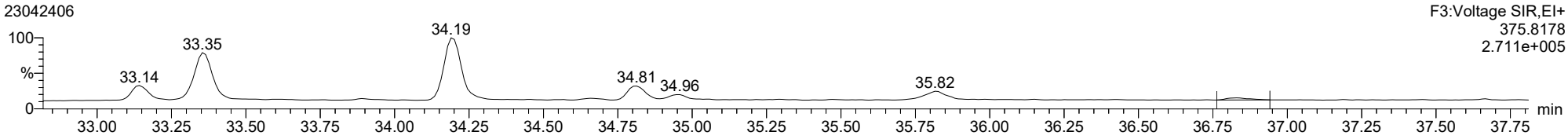


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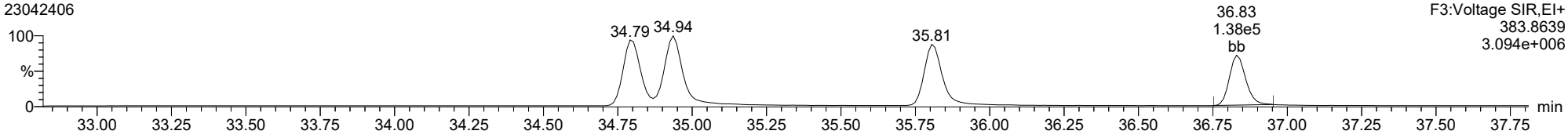
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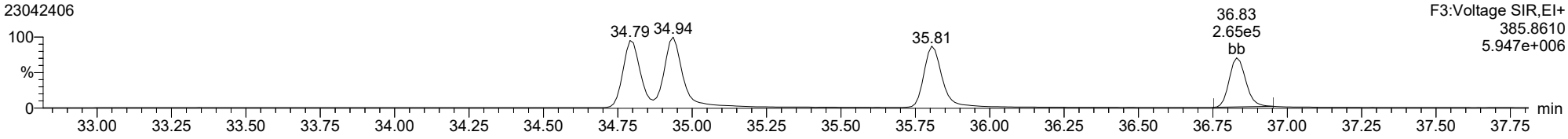
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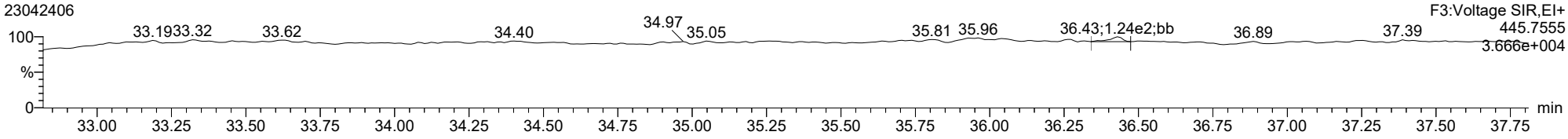
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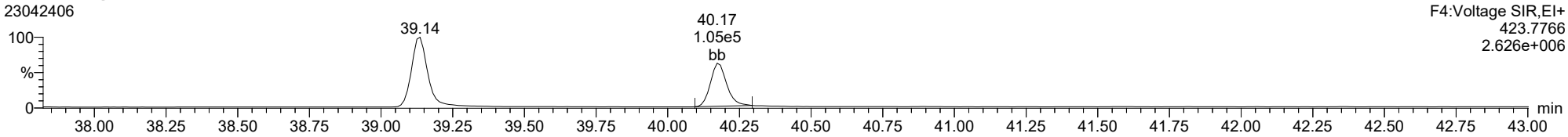


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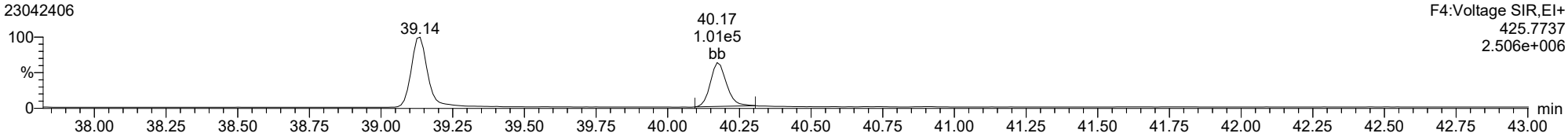


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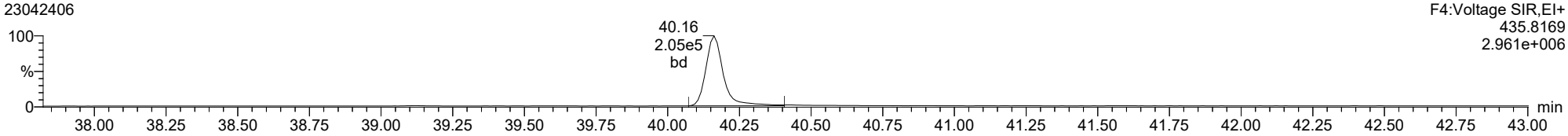
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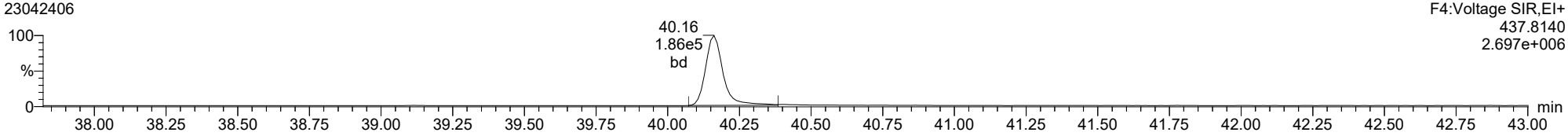
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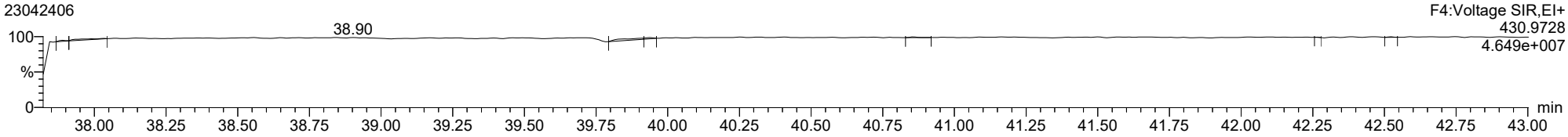
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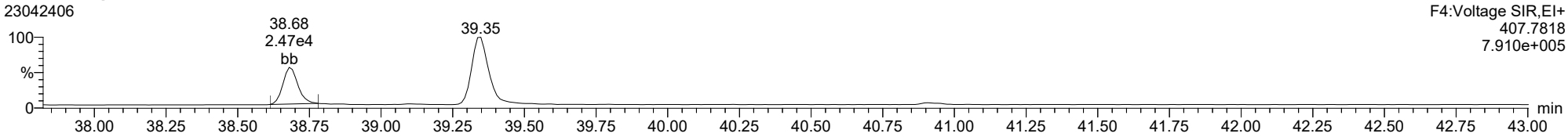


FUNCTION4 PFK

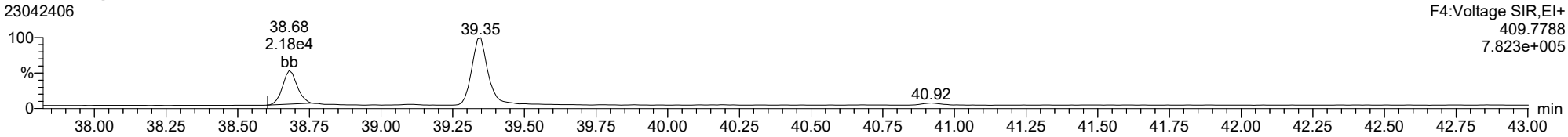


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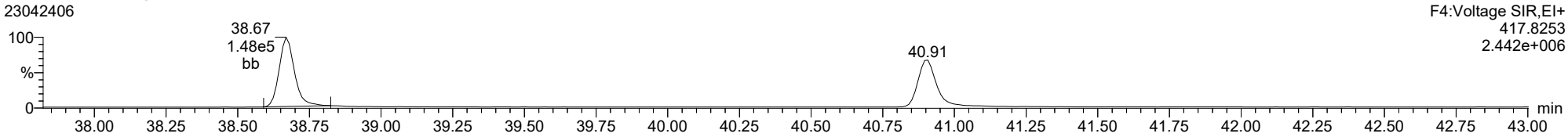
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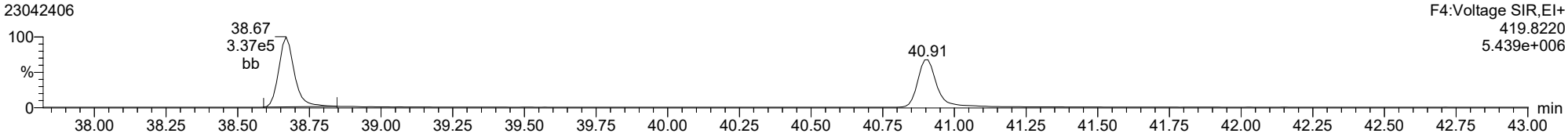
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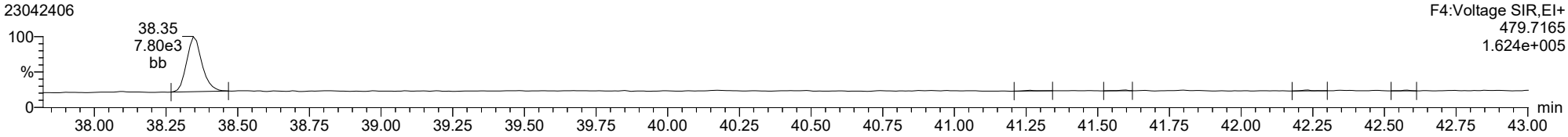
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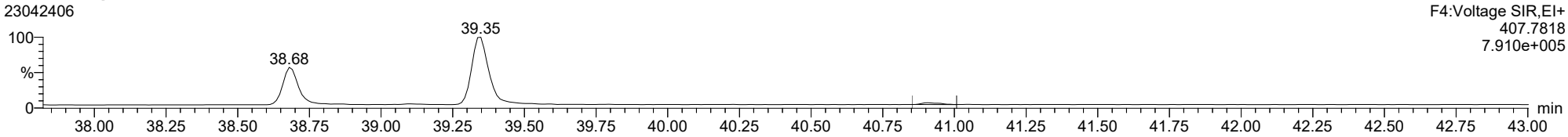


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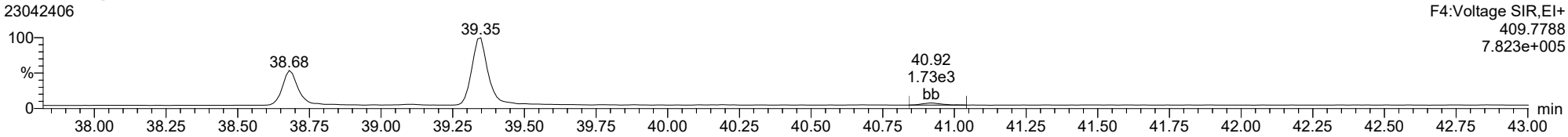


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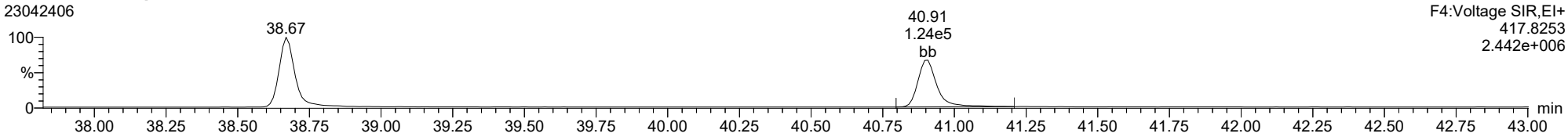
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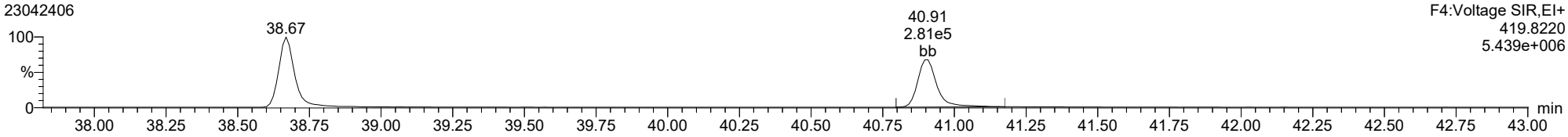
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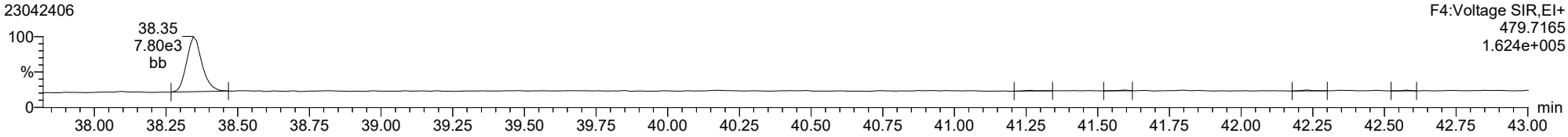
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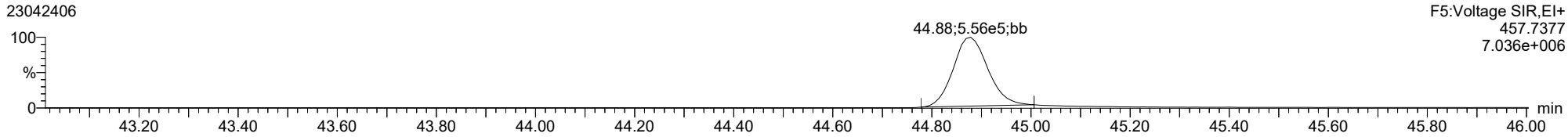


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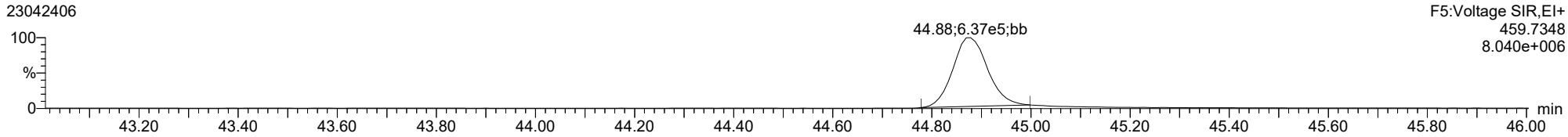


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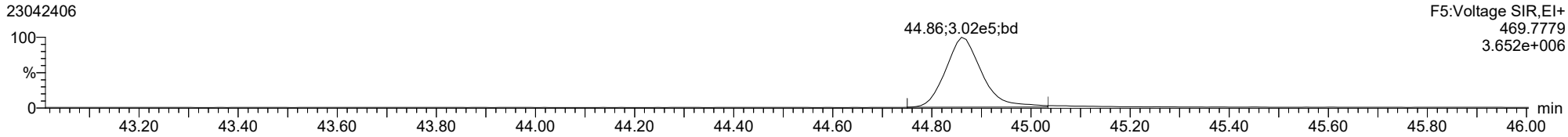
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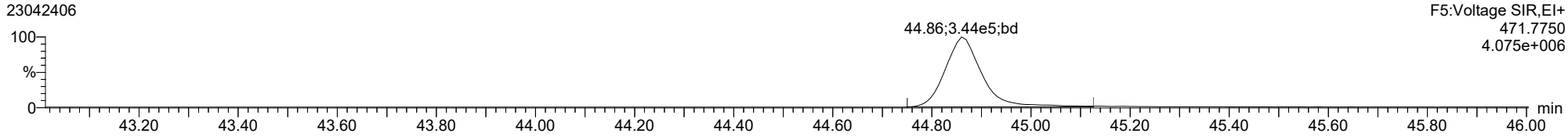
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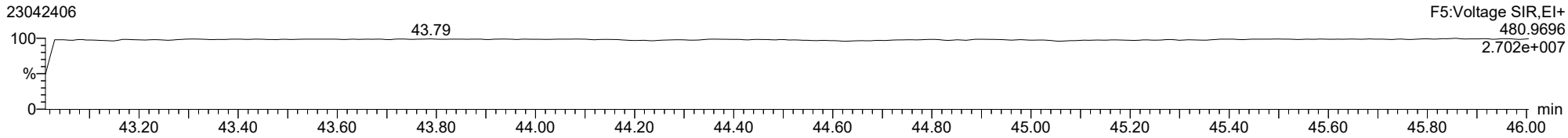
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13C-OCDD



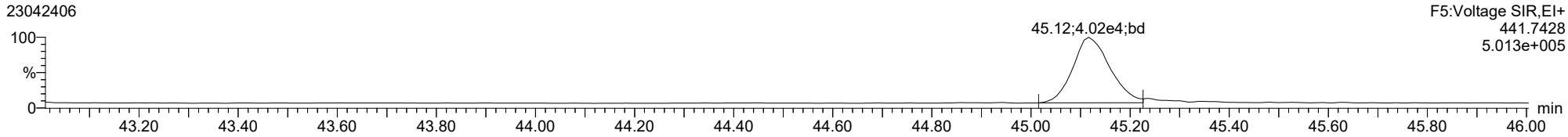
FUNCTION5 PFK



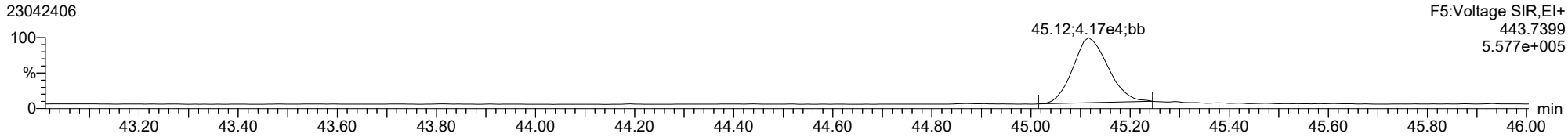
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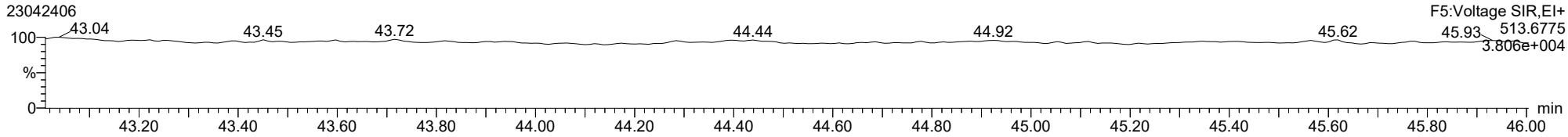
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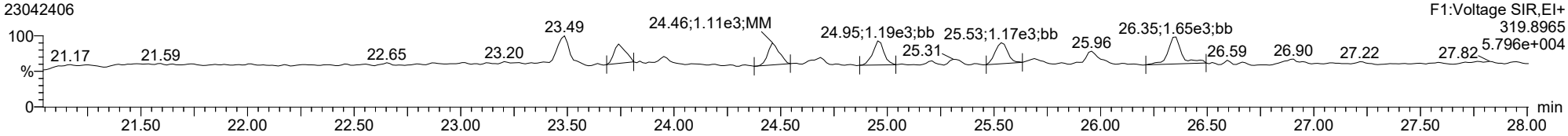


FUNCTION5 DCDPE

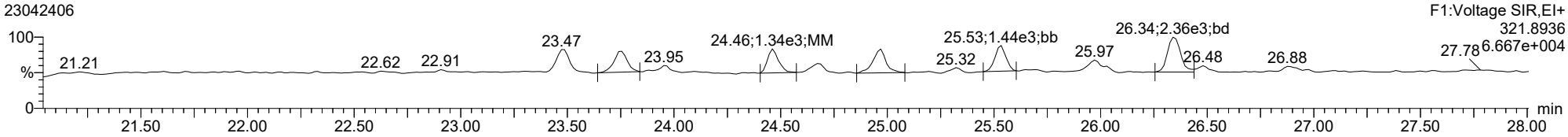


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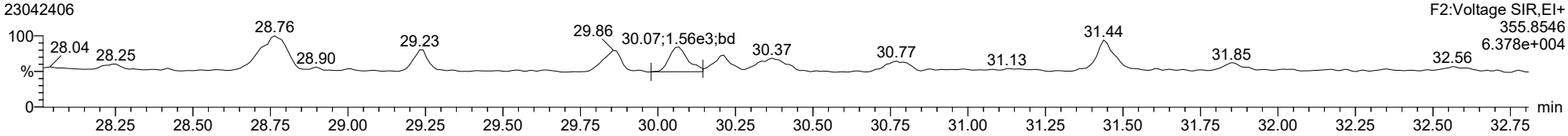
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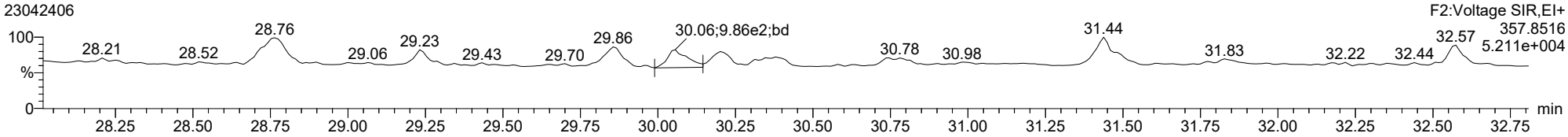
Total-tetradioxins



Total-pentadioxins

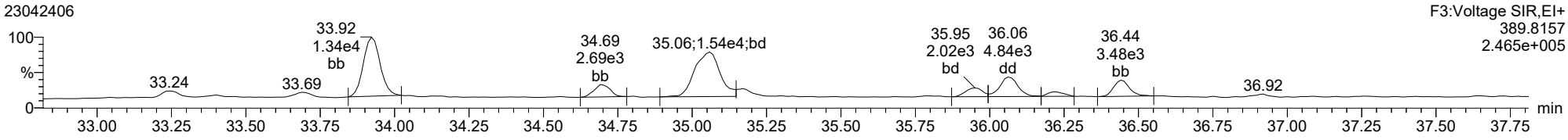


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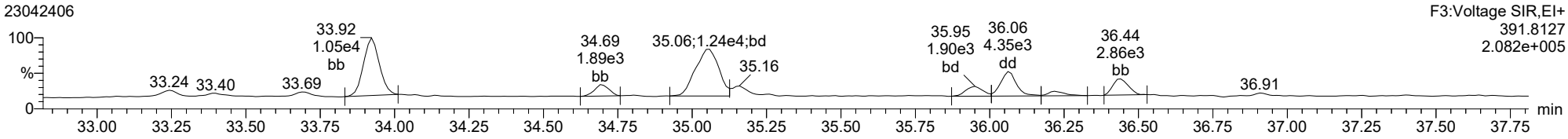


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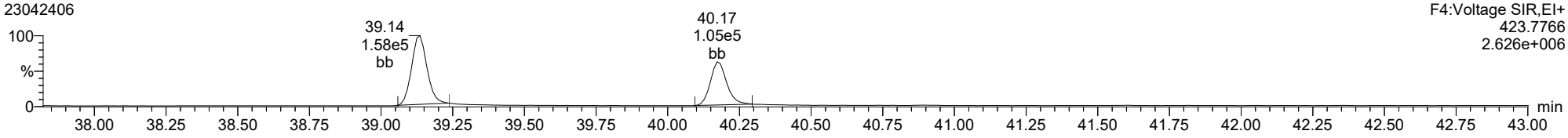
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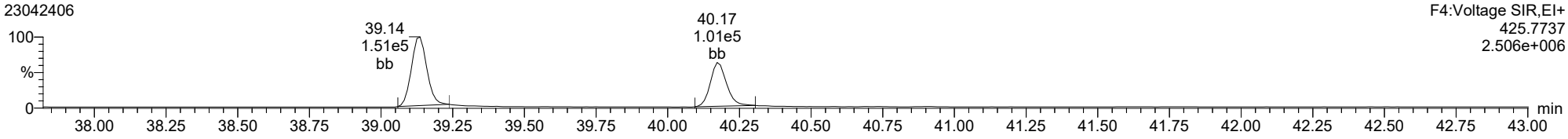
Total-hexadioxins



Total-heptadioxins

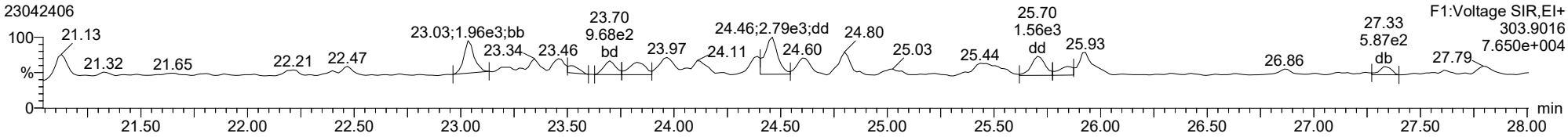


Total-heptadioxins

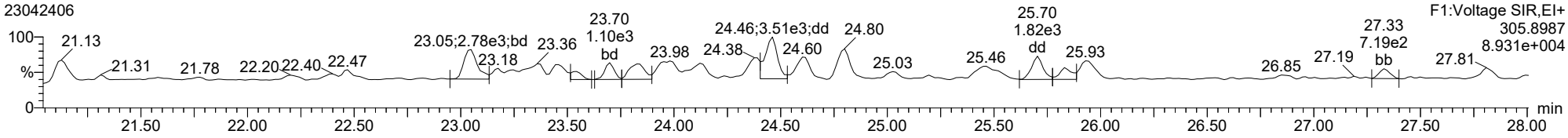


ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

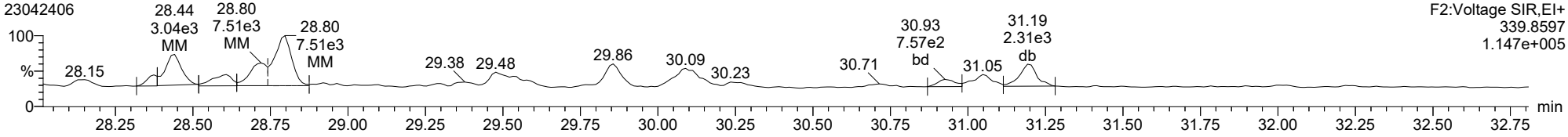
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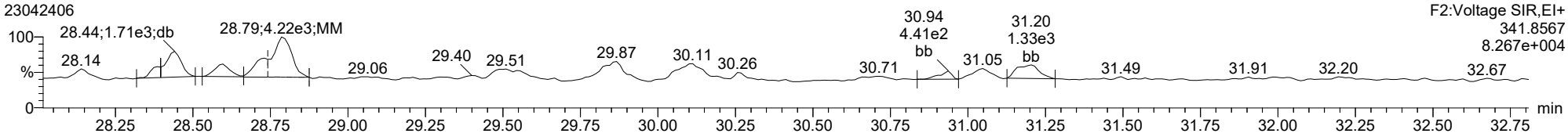
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Total-pentafurans

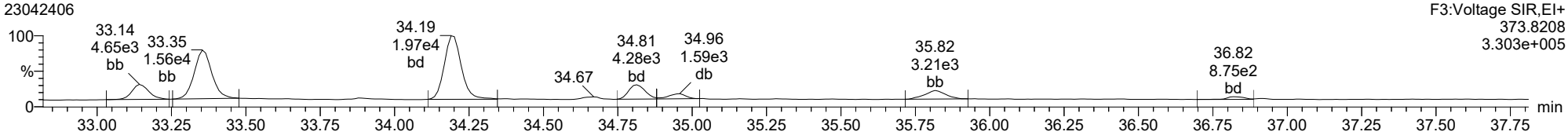


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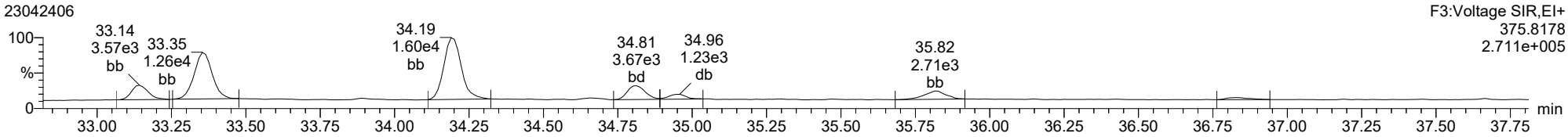


ID: BLD0089-SRM1, Name: 23042406, Date: 24-Apr-2023, Time: 18:30:19, Conditions: AUTOSPEC01, User: pk

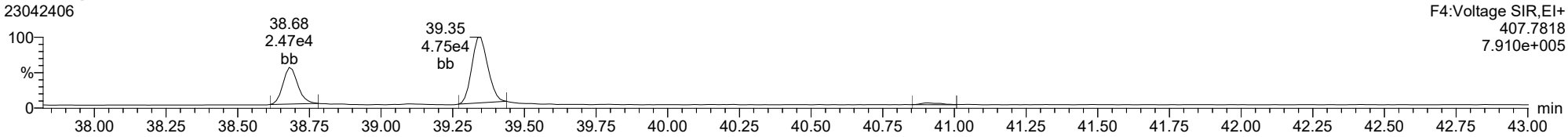
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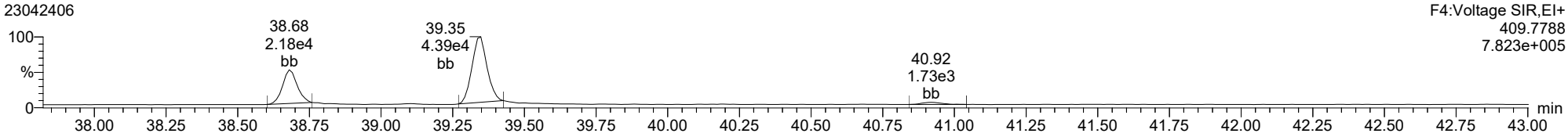
Total-hexafurans



Total-heptafurans



Total-heptafurans



Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION DATA
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

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**
2,3,7,8-TCDF			0.5	0.6926363	2	0.6813225	10	0.7107923	40	0.719723	200	0.703162
2,3,7,8-TCDD			0.5	1.116738	2	1.187915	10	1.134128	40	1.147736	200	1.156792
1,2,3,7,8-PeCDF	0.5	0.7064839	2.5	0.5889757	10	0.710829	50	0.6668491	200	0.6891968	1000	0.7130453
2,3,4,7,8-PeCDF	0.5	0.7979673	2.5	0.750268	10	0.8092124	50	0.7777683	200	0.7907891	1000	0.7910175
1,2,3,7,8-PeCDD	0.5	1.103364	2.5	0.959607	10	1.01992	50	1.019473	200	1.01999	1000	1.008719
1,2,3,4,7,8-HxCDF	0.5	1.217557	2.5	1.181192	10	1.149885	50	1.142227	200	1.15269	1000	1.152678
1,2,3,6,7,8-HxCDF	0.5	1.080855	2.5	1.053928	10	1.175308	50	1.102076	200	1.035098	1000	1.097184
2,3,4,6,7,8-HxCDF	0.5	1.045907	2.5	1.140857	10	1.199347	50	1.11691	200	1.197861	1000	1.13731
1,2,3,7,8,9-HxCDF	0.5	1.190403	2.5	1.119796	10	1.130872	50	1.147742	200	1.139146	1000	1.094601
1,2,3,4,7,8-HxCDD	0.5	1.079554	2.5	0.961704	10	0.973768	50	0.967789	200	0.9862736	1000	1.004325
1,2,3,6,7,8-HxCDD	0.5	0.9586431	2.5	0.9983677	10	0.9838912	50	1.030566	200	1.022077	1000	1.012084
1,2,3,7,8,9-HxCDD	0.5	0.930997	2.5	0.8854269	10	0.8092562	50	0.9267543	200	0.9251392	1000	0.9651099
1,2,3,4,6,7,8-HpCDF	0.5	0.934103	2.5	1.075239	10	1.011687	50	0.9661089	200	1.026311	1000	1.004508
1,2,3,4,7,8,9-HpCDF	0.5	0.8861422	2.5	0.8930411	10	1.006144	50	0.9387033	200	0.9934576	1000	1.001203
1,2,3,4,6,7,8-HpCDD	0.5	1.103772	2.5	0.971421	10	1.040117	50	1.038088	200	1.030577	1000	1.050103
OCDF	1	0.8118871	5	0.7091624	20	0.7657645	100	0.7266152	400	0.8162858	2000	0.8371317
OCDD			5	1.012935	20	0.8906655	100	0.878436	400	0.9061913	2000	0.9115405
13C12-2,3,7,8-TCDF	100	1.631571	100	1.588495	100	1.670669	100	1.492829	100	1.645068	100	1.692541
13C12-2,3,7,8-TCDD	100	1.103543	100	1.165686	100	1.103763	100	1.147762	100	1.181831	100	1.211872
13C12-1,2,3,7,8-PeCDF	100	1.373516	100	0.8861478	100	1.254697	100	1.157546	100	1.425701	100	1.345107
13C12-2,3,4,7,8-PeCDF	100	1.219579	100	0.8983995	100	1.113808	100	0.8611233	100	1.32733	100	1.286474
13C12-1,2,3,7,8-PeCDD	100	0.9177021	100	0.7002528	100	0.8365419	100	0.5962156	100	0.9821822	100	0.939983
13C12-1,2,3,4,7,8-HxCDF	100	1.152029	100	1.095885	100	1.513935	100	1.121285	100	1.094572	100	1.032122
13C12-1,2,3,6,7,8-HxCDF	100	1.353853	100	1.348693	100	1.689158	100	1.367383	100	1.37092	100	1.188788
13C12-2,3,4,6,7,8-HxCDF	100	1.092029	100	1.127896	100	1.240354	100	1.126074	100	1.087409	100	1.101774
13C12-1,2,3,7,8,9-HxCDF	100	0.8958406	100	0.9493947	100	0.9152119	100	0.9630403	100	0.8996667	100	0.9673701
13C12-1,2,3,4,7,8-HxCDD	100	0.9718531	100	0.9656819	100	1.113686	100	0.9864835	100	0.9766715	100	0.95586
13C12-1,2,3,6,7,8-HxCDD	100	1.184228	100	1.157253	100	1.278683	100	1.163318	100	1.111106	100	1.045546

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

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
13C12-1,2,3,4,6,7,8-HpCDF	100	0.7396157	100	0.9023055	100	1.063192	100	0.9589237	100	0.7622694	100	0.9449039
13C12-1,2,3,4,7,8,9-HpCDF	100	0.6488087	100	0.8119515	100	0.8176949	100	0.8667001	100	0.665459	100	0.8078955
13C12-1,2,3,4,6,7,8-HpCDD	100	0.724191	100	0.8737196	100	0.9555336	100	0.9094052	100	0.7229358	100	0.8549505
13C12-OCDD	200	0.701507	200	0.6312376	200	0.823691	200	0.8980531	200	0.7066522	200	0.8436876
37Cl4-2,3,7,8-TCDD	0.1	1.576039	0.5	1.320077	2	1.177166	10	1.132717	40	1.2366	200	1.284223
13C12-1,2,3,4-TCDD	100	1	100	1	100	1	100	1	100	1	100	1
13C12-1,2,3,7,8,9-HxCDD	100	1	100	1	100	1	100	1	100	1	100	1

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
2,3,7,8-TCDF	0.7015272	2.1			RSD ()	
2,3,7,8-TCDD	1.148662	2.3			RSD ()	
1,2,3,7,8-PeCDF	0.67923	7.0			RSD ()	
2,3,4,7,8-PeCDF	0.7861704	2.6			RSD ()	
1,2,3,7,8-PeCDD	1.021845	4.5			RSD ()	
1,2,3,4,7,8-HxCDF	1.166038	2.4			RSD ()	
1,2,3,6,7,8-HxCDF	1.090741	4.5			RSD ()	
2,3,4,6,7,8-HxCDF	1.139699	5.0			RSD ()	
1,2,3,7,8,9-HxCDF	1.137093	2.8			RSD ()	
1,2,3,4,7,8-HxCDD	0.9955689	4.4			RSD ()	
1,2,3,6,7,8-HxCDD	1.000938	2.7			RSD ()	
1,2,3,7,8,9-HxCDD	0.9071139	6.0			RSD ()	
1,2,3,4,6,7,8-HpCDF	1.002993	4.9			RSD ()	
1,2,3,4,7,8,9-HpCDF	0.9531152	5.8			RSD ()	
1,2,3,4,6,7,8-HpCDD	1.039013	4.1			RSD ()	
OCDF	0.7778078	6.7			RSD ()	
OCDD	0.9199537	5.8			RSD ()	
13C12-2,3,7,8-TCDF	1.620196	4.4			RSD ()	
13C12-2,3,7,8-TCDD	1.152409	3.8			RSD ()	
13C12-1,2,3,7,8-PeCDF	1.240452	15.9			RSD ()	
13C12-2,3,4,7,8-PeCDF	1.117786	17.7			RSD ()	
13C12-1,2,3,7,8-PeCDD	0.8288129	18.3			RSD ()	
13C12-1,2,3,4,7,8-HxCDF	1.168305	14.9			RSD ()	
13C12-1,2,3,6,7,8-HxCDF	1.386466	11.8			RSD ()	
13C12-2,3,4,6,7,8-HxCDF	1.129256	5.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDF	0.9317541	3.4			RSD ()	
13C12-1,2,3,4,7,8-HxCDD	0.9950393	5.9			RSD ()	
13C12-1,2,3,6,7,8-HxCDD	1.156689	6.7			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDF	0.8952017	13.8			RSD ()	
13C12-1,2,3,4,7,8,9-HpCDF	0.7697516	11.7			RSD ()	
13C12-1,2,3,4,6,7,8-HpCDD	0.8401226	11.5			RSD ()	

INITIAL CALIBRATION DATA

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Calibration:	GC00015	Instrument:	AUTOSPEC01
Calibration Date:	03/03/2023	Column (1):	RTX-Dioxin2

COMPOUND	Mean RRF	RRF RSD	Linear COD	Quad COD	Limit Type & Limit	Q
13C12-OCDD	0.7674714	13.4			RSD ()	
37Cl4-2,3,7,8-TCDD	1.287804	12.2			RSD ()	
13C12-1,2,3,4-TCDD	1	0.0			RSD ()	
13C12-1,2,3,7,8,9-HxCDD	1	0.0			RSD ()	

Printed: 3/6/2023 2:56:51PM

ANALYSIS SEQUENCE

SLC0045

Instrument: AUTOSPEC01 HRGCMS Column ID: K2310
Calibration ID: GC00015 Tune File: FEB0923_1-5
EM Voltage: 350 Resolution check times : 9:51, 18:18

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLC0045-ICV1	CS3W1	QC		1	K009821		03/03/2023 09:51	23030302	PK	
SLC0045-RES1	ISCW1	QC		2	L002084		03/03/2023 10:39	23030303	PK	
SLC0045-CAL1	CSLCW	QC		3	I005460		03/03/2023 11:28	23030304	PK	
SLC0045-CAL2	CS1CW	QC		4	I005456		03/03/2023 12:23	23030305	PK	
SLC0045-CAL3	CS2CW	QC		5	I005457		03/03/2023 13:16	23030306	PK	
SLC0045-CAL4	CS3CW	QC		6	K009821		03/03/2023 14:06	23030307	PK	
SLC0045-CAL5	CS4CW	QC		7	I005458		03/03/2023 14:59	23030308	PK	
SLC0045-CAL6	CS5CW	QC		8	I005459		03/03/2023 15:47	23030309	PK	
SLC0045-SCV1	ICVCW	QC		9	H008219		03/03/2023 16:36	23030310	PK	
SLC0045-CCV1	CS3V4	QC		10	K009821		03/03/2023 17:25	23030311	PK	
SLC0045-RES2	ISCV4	QC		11	L002084		03/03/2023 18:18	23030312	PK	

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 10:58:44 Pacific Standard Time

3/6/23 PK

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Calibrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:23030304, Compound:TD, RT:26.410	1
Peak deleted	Sample:23030304, Compound:OD, RT:44.990	1
Peak deleted	Sample:23030304, Compound:TF, RT:25.774	1
Pre modification peak	Sample:23030305, Compound:TF, RT:25.774	2
Peak modified	Sample:23030305, Compound:TF, RT:25.774	2
Pre modification peak	Sample:23030304, Compound:HPD, RT:40.261	1
Peak modified	Sample:23030304, Compound:HPD, RT:40.261	1
Peak deleted	Sample:23030308, Compound:PF, RT:32.328	5
Peak deleted	Sample:23030309, Compound:PF, RT:32.307	6
Peak deleted	Sample:23030309, Compound:HF, RT:33.220	6
Peak deleted	Sample:23030309, Compound:TD, RT:27.017	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.995	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.917	6
Peak deleted	Sample:23030308, Compound:HD, RT:34.000	5
Peak deleted	Sample:23030308, Compound:HPD, RT:39.225	5
Peak deleted	Sample:23030309, Compound:HPD, RT:39.214	6
Pre modification peak	Sample:23030305, Compound:OF, RT:45.237	2
Peak modified	Sample:23030305, Compound:OF, RT:45.237	2
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230303ICIH.qld'	

Dataset: T:\Autospec\Processed Data Batch\230303IHOP.qld
Last Altered: Monday, March 06, 2023 11:36:30 Pacific Standard Time
Printed: Monday, March 06, 2023 11:37:17 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS3W1, Name: 23030302, Date: 03-Mar-2023, Time: 09:51:40, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	4.469e4	5.839e4	0.702	0.765	0.770	894	1638	6.87e5	9.09e5	769.3	554.8	NO	bb	bb	9.550
12378-PeCDF	29.956	1.001	2.355e5	1.540e5	0.679	1.529	1.550	2187	1572	3.61e6	2.40e6	1652.4	1526.9	NO	bb	bb	49.641
23478-PeCDF	31.293	1.001	2.214e5	1.482e5	0.786	1.494	1.550	2187	1572	3.41e6	2.30e6	1560.8	1464.8	NO	bb	bb	47.528
123478-HxCDF	34.914	1.001	2.600e5	2.102e5	1.166	1.237	1.240	1592	1910	4.13e6	3.31e6	2594.2	1730.9	NO	bd	bd	47.118
234678-HxCDF	35.917	1.001	2.733e5	2.175e5	1.140	1.257	1.240	1592	1910	4.33e6	3.47e6	2719.2	1818.9	NO	bb	bb	49.341
123678-HxCDF	35.048	1.000	2.727e5	2.151e5	1.091	1.268	1.240	1592	1910	4.23e6	3.33e6	2659.9	1743.3	NO	db	db	49.569
123789-HxCDF	36.941	1.000	2.420e5	1.912e5	1.137	1.266	1.240	1592	1910	3.95e6	3.13e6	2482.2	1637.3	NO	bb	bb	46.959
1234678-HpCDF	38.780	1.000	1.767e5	1.776e5	1.003	0.995	1.050	1849	2300	2.99e6	3.02e6	1618.0	1311.0	NO	bb	bb	47.490
1234789-HpCDF	41.019	1.000	1.595e5	1.575e5	0.953	1.013	1.050	1849	2300	2.36e6	2.33e6	1274.2	1012.6	NO	bb	bb	50.221
OCDF	45.246	1.005	2.326e5	2.612e5	0.778	0.891	0.890	910	1225	2.82e6	3.14e6	3100.2	2559.9	NO	bb	bb	88.591
2378-TCDD	26.438	1.001	5.709e4	7.150e4	1.149	0.798	0.770	1506	757	9.09e5	1.12e6	603.1	1485.0	NO	bb	bb	9.450
12378-PeCDD	31.549	1.001	2.156e5	1.424e5	1.022	1.514	1.550	2044	1419	3.32e6	2.17e6	1626.0	1530.4	NO	bb	bb	49.654
123478-HxCDD	36.028	1.000	2.225e5	1.815e5	0.996	1.226	1.240	1845	1377	3.65e6	2.93e6	1979.4	2130.4	NO	bd	bd	50.053
123678-HxCDD	36.150	1.000	2.361e5	1.995e5	1.001	1.184	1.240	1845	1377	3.83e6	3.15e6	2076.5	2285.7	NO	db	db	49.648
123789-HxCDD	36.529	1.011	2.267e5	1.883e5	0.907	1.204	1.240	1845	1377	3.65e6	3.02e6	1979.8	2191.3	NO	bb	bb	54.229
1234678-HpCDD	40.284	1.001	1.918e5	1.891e5	1.039	1.015	1.050	2026	1655	2.99e6	2.92e6	1477.4	1764.9	NO	bb	bb	47.619
OCDD	45.008	1.000	3.015e5	3.475e5	0.920	0.868	0.890	1418	1100	3.70e6	4.29e6	2606.9	3904.9	NO	bb	bb	98.432
13C-2378-TCDF	25.774	1.007	6.611e5	8.775e5	1.620	0.753	0.770	2458	1918	1.00e7	1.34e7	4080.0	6997.2	NO	bb	bb	94.015
13C-12378-PeCDF	29.934	1.169	6.937e5	4.618e5	1.240	1.502	1.550	2176	1857	1.07e7	7.10e6	4925.2	3826.5	NO	bb	bb	92.213
13C-23478-PeCDF	31.271	1.221	5.928e5	3.963e5	1.118	1.496	1.550	2176	1857	9.20e6	6.25e6	4229.1	3368.5	NO	bb	bb	87.601
13C-123478-HxCDF	34.891	0.955	2.871e5	5.687e5	1.168	0.505	0.510	1657	1593	4.56e6	9.04e6	2750.7	5674.1	NO	bd	bd	84.013
13C-123678-HxCDF	35.036	0.959	3.069e5	5.954e5	1.386	0.515	0.510	1657	1593	4.75e6	9.14e6	2868.0	5738.5	NO	db	db	74.642
13C-234678-HxCDF	35.894	0.983	2.954e5	5.775e5	1.129	0.512	0.510	1657	1593	4.85e6	9.48e6	2926.1	5951.0	NO	bb	bb	88.651
13C-123789-HxCDF	36.930	1.011	2.724e5	5.390e5	0.932	0.505	0.510	1657	1593	4.39e6	8.57e6	2648.2	5379.8	NO	bb	bb	99.871
13C-1234678-HpCDF	38.769	1.062	2.262e5	5.177e5	0.895	0.437	0.440	2036	2545	3.83e6	8.70e6	1881.8	3416.5	NO	bb	bb	95.295
13C-1234789-HpCDF	41.008	1.123	1.995e5	4.627e5	0.770	0.431	0.440	2036	2545	2.95e6	6.70e6	1450.8	2632.3	NO	bb	bb	98.667
13C-1234-TCDD	25.605	0.000	4.500e5	5.601e5	1.000	0.803	0.770	1910	1117	7.08e6	8.81e6	3705.2	7891.1	NO	bb	bb	100.000
13C-2378-TCDD	26.424	1.032	5.241e5	6.605e5	1.152	0.794	0.770	1910	1117	7.92e6	9.96e6	4144.8	8917.7	NO	bb	bb	101.762
13C-12378-PeCDD	31.527	1.231	4.348e5	2.708e5	0.829	1.606	1.550	951	872	6.72e6	4.16e6	7062.4	4771.1	NO	bb	bb	84.283
13C-123478-HxCDD	36.017	0.986	4.575e5	3.533e5	0.995	1.295	1.240	1714	1036	7.67e6	5.90e6	4475.1	5696.2	NO	bd	bd	93.458
13C-123678-HxCDD	36.139	0.990	4.929e5	3.835e5	1.157	1.285	1.240	1714	1036	7.72e6	6.07e6	4504.9	5859.4	NO	db	db	86.905
13C-1234678-HpCDD	40.262	1.103	3.870e5	3.828e5	0.840	1.011	1.050	1736	1260	5.92e6	5.62e6	3411.3	4462.2	NO	bb	bb	105.085
13C-OCDD	44.999	1.232	6.781e5	7.554e5	0.767	0.898	0.890	1440	1232	8.22e6	9.13e6	5710.3	7413.0	NO	bb	bb	214.218
13C-123789-HxCDD	36.518	0.000	4.889e5	3.830e5	1.000	1.277	1.240	1714	1036	7.91e6	6.13e6	4618.2	5918.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.438	1.033	1.177e5		1.288			2053		1.80e6		877.6			bb		9.046

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Last Altered: Monday, March 06, 2023 11:36:30 Pacific Standard Time
Printed: Monday, March 06, 2023 11:37:17 Pacific Standard Time

ID: CS3W1, Name: 23030302, Date: 03-Mar-2023, Time: 09:51:40, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.285	0.865	4.825e4	6.619e4	0.802	0.729	0.770	894	1638	7.69e5	1.08e6	860.8	657.5	NO	bb	bb	9.280
1289-TCDF	27.286	1.059	4.233e4	5.922e4	0.678	0.715	0.770	894	1638	6.48e5	8.96e5	725.0	547.0	NO	db	db	9.735
13468-PECDF	27.145	0.907	4.529e5	2.964e5	1.246	1.528	1.550	639	866	7.07e6	4.64e6	11052.6	5356.5	NO	bb	bb	52.031
12389-PECDF	32.329	1.080	1.727e5	1.137e5	0.496	1.519	1.550	2187	1572	2.66e6	1.70e6	1217.2	1080.5	NO	bb	bb	49.938
123468-HXCDF	33.243	0.953	2.450e5	1.964e5	1.169	1.248	1.240	1592	1910	3.71e6	2.99e6	2333.1	1567.3	NO	bb	bb	44.113
1368-TCDD	23.571	0.892	5.082e4	6.674e4	1.015	0.761	0.770	1506	757	8.30e5	1.09e6	551.2	1438.0	NO	bb	bb	9.774
1289-TCDD	27.031	1.023	4.817e4	6.482e4	0.909	0.743	0.770	1506	757	7.39e5	9.76e5	490.7	1289.2	NO	bb	bb	10.496
12479-PECDD	28.831	0.914	4.117e5	2.743e5	2.301	1.501	1.550	2044	1419	3.99e6	2.64e6	1950.7	1862.6	NO	bb	bb	42.238
12389-PECDD	31.939	1.013	2.280e5	1.502e5	1.184	1.518	1.550	2044	1419	3.50e6	2.32e6	1711.4	1633.6	NO	bb	bb	45.288
124679-HXCDD	34.022	0.945	2.111e5	1.738e5	1.115	1.214	1.240	1845	1377	3.36e6	2.72e6	1819.4	1971.8	NO	bb	bb	42.563
1234679-HPCDD	39.236	0.975	2.063e5	2.043e5	1.137	1.010	1.050	2026	1655	3.38e6	3.38e6	1668.0	2041.4	NO	bb	bb	46.924
Total-tetrafurans			1.368e5		0.727			894		2.13e6							28.888
Total-penta1			4.529e5					639		7.07e6							52.031
Total-pentafurans			6.685e5		0.654			2187		1.03e7							156.333
Total-hexafurans			1.293e6		1.141			1592		2.04e7							237.100
Total-heptafurans			3.381e5		0.978			1849		5.38e6							98.217
Total-Furans			3.122e6		0.922			894		4.80e7							661.160
Total-tetradioxins			2.626e5		1.024			1506		3.74e6							49.711
Total-pentadioxins			8.563e5		1.502			2044		1.08e7							137.339
Total-hexadioxins			8.975e5		1.005			1845		1.45e7							196.701
Total-heptadioxins			3.982e5		1.088			2026		6.38e6							94.566
Total-Dioxins			2.716e6		1.130			1506		3.92e7							576.750
Total-TEQ			5.838e6					1506		8.72e7							1237.909
FUNCTION1 PFK			0.000e0					705807		0.00e0							
FUNCTION2 PFK			1.098e6					272509		2.65e6							0.000
FUNCTION3 PFK			8.030e5					419872		3.44e6							0.000
FUNCTION4 PFK			2.346e5					346452		6.90e6							
FUNCTION5 PFK			5.429e4					176842		2.44e6							
FUNCTION1 HXCD...			8.708e2					511		1.38e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.374e3					1181		2.70e4							0.000
FUNCTION3 OCDPE			4.232e2					570		6.10e3							0.000
FUNCTION4 NCDPE			7.938e2					683		4.57e3							0.000
FUNCTION5 DCDPE			0.000e0					526		0.00e0							

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.233e4	5.922e4	0.678	0.71	0.77	725.0	YES	NO	db	db	9.735
2	Total-tetrafurans	27.16	6.976e2	1.059e3	0.727	0.66	0.77	14.1	YES	NO	bd	bd	0.157
3	2378-TCDF	25.79	4.469e4	5.839e4	0.702	0.77	0.77	769.3	YES	NO	bb	bb	9.550
4	Total-tetrafurans	24.88	4.805e2	5.664e2	0.727	0.85	0.77	7.5	YES	NO	bb	bb	0.094
5	Total-tetrafurans	24.57	3.491e2	4.664e2	0.727	0.75	0.77	6.2	YES	NO	bd	bd	0.073
6	1368-TCDF	22.29	4.825e4	6.619e4	0.802	0.73	0.77	860.8	YES	NO	bb	bb	9.280

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.14	4.529e5	2.964e5	1.246	1.53	1.55	11052.6	YES	NO	bb	bb	52.031

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.96	2.355e5	1.540e5	0.679	1.53	1.55	1652.4	YES	NO	bb	bb	49.641
2	Total-pentafurans	28.81	3.891e4	2.579e4	0.654	1.51	1.55	273.1	YES	NO	bb	bb	9.226
3	12389-PECDF	32.33	1.727e5	1.137e5	0.496	1.52	1.55	1217.2	YES	NO	bb	bb	49.938
4	23478-PeCDF	31.29	2.214e5	1.482e5	0.786	1.49	1.55	1560.8	YES	NO	bb	bb	47.528

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	2.420e5	1.912e5	1.137	1.27	1.24	2482.2	YES	NO	bb	bb	46.959
2	234678-HxCDF	35.92	2.733e5	2.175e5	1.140	1.26	1.24	2719.2	YES	NO	bb	bb	49.341
3	123678-HxCDF	35.05	2.727e5	2.151e5	1.091	1.27	1.24	2659.9	YES	NO	db	db	49.569
4	123478-HxCDF	34.91	2.600e5	2.102e5	1.166	1.24	1.24	2594.2	YES	NO	bd	bd	47.118
5	123468-HXCDF	33.24	2.450e5	1.964e5	1.169	1.25	1.24	2333.1	YES	NO	bb	bb	44.113

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	41.38	1.097e2	1.037e2	0.978	1.06	1.05	1.8	NO	NO	bb	bb	0.031
2	1234789-HpCDF	41.02	1.595e5	1.575e5	0.953	1.01	1.05	1274.2	YES	NO	bb	bb	50.221
3	Total-heptafurans	39.45	1.654e3	1.420e3	0.978	1.17	1.05	14.3	YES	NO	bb	bb	0.447
4	Total-heptafurans	39.28	9.725e1	9.433e1	0.978	1.03	1.05	1.5	NO	NO	bb	bb	0.028
5	1234678-HpCDF	38.78	1.767e5	1.776e5	1.003	1.00	1.05	1618.0	YES	NO	bb	bb	47.490

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.233e4	5.922e4	0.678	0.71	0.77	725.0	YES	NO	db	db	9.735
2	Total-tetrafurans	27.16	6.976e2	1.059e3	0.727	0.66	0.77	14.1	YES	NO	bd	bd	0.157
3	2378-TCDF	25.79	4.469e4	5.839e4	0.702	0.77	0.77	769.3	YES	NO	bb	bb	9.550
4	Total-tetrafurans	24.88	4.805e2	5.664e2	0.727	0.85	0.77	7.5	YES	NO	bb	bb	0.094
5	Total-tetrafurans	24.57	3.491e2	4.664e2	0.727	0.75	0.77	6.2	YES	NO	bd	bd	0.073
6	1368-TCDF	22.29	4.825e4	6.619e4	0.802	0.73	0.77	860.8	YES	NO	bb	bb	9.280
7	12378-PeCDF	29.96	2.355e5	1.540e5	0.679	1.53	1.55	1652.4	YES	NO	bb	bb	49.641
8	Total-pentafurans	28.81	3.891e4	2.579e4	0.654	1.51	1.55	273.1	YES	NO	bb	bb	9.226
9	12389-PECDF	32.33	1.727e5	1.137e5	0.496	1.52	1.55	1217.2	YES	NO	bb	bb	49.938
10	23478-PeCDF	31.29	2.214e5	1.482e5	0.786	1.49	1.55	1560.8	YES	NO	bb	bb	47.528
11	123789-HxCDF	36.94	2.420e5	1.912e5	1.137	1.27	1.24	2482.2	YES	NO	bb	bb	46.959
12	234678-HxCDF	35.92	2.733e5	2.175e5	1.140	1.26	1.24	2719.2	YES	NO	bb	bb	49.341
13	123678-HxCDF	35.05	2.727e5	2.151e5	1.091	1.27	1.24	2659.9	YES	NO	db	db	49.569
14	123478-HxCDF	34.91	2.600e5	2.102e5	1.166	1.24	1.24	2594.2	YES	NO	bd	bd	47.118
15	123468-HXCDF	33.24	2.450e5	1.964e5	1.169	1.25	1.24	2333.1	YES	NO	bb	bb	44.113
16	Total-heptafurans	41.38	1.097e2	1.037e2	0.978	1.06	1.05	1.8	NO	NO	bb	bb	0.031
17	1234789-HpCDF	41.02	1.595e5	1.575e5	0.953	1.01	1.05	1274.2	YES	NO	bb	bb	50.221
18	Total-heptafurans	39.45	1.654e3	1.420e3	0.978	1.17	1.05	14.3	YES	NO	bb	bb	0.447
19	Total-heptafurans	39.28	9.725e1	9.433e1	0.978	1.03	1.05	1.5	NO	NO	bb	bb	0.028
20	1234678-HpCDF	38.78	1.767e5	1.776e5	1.003	1.00	1.05	1618.0	YES	NO	bb	bb	47.490
21	OCDF	45.25	2.326e5	2.612e5	0.778	0.89	0.89	3100.2	YES	NO	bb	bb	88.591
22	13468-PECDF	27.14	4.529e5	2.964e5	1.246	1.53	1.55	11052.6	YES	NO	bb	bb	52.031

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TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.57	5.082e4	6.674e4	1.015	0.76	0.77	551.2	YES	NO	bb	bb	9.774
2	1289-TCDD	27.03	4.817e4	6.482e4	0.909	0.74	0.77	490.7	YES	NO	bb	bb	10.496
3	2378-TCDD	26.44	5.709e4	7.150e4	1.149	0.80	0.77	603.1	YES	NO	bb	bb	9.450
4	Total-tetradioxins	26.11	8.149e4	1.045e5	1.024	0.78	0.77	583.1	YES	NO	bb	bb	15.330
5	Total-tetradioxins	25.62	2.499e4	3.156e4	1.024	0.79	0.77	257.1	YES	NO	bb	bb	4.660

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.94	2.280e5	1.502e5	1.184	1.52	1.55	1711.4	YES	NO	bb	bb	45.288
2	12378-PeCDD	31.55	2.156e5	1.424e5	1.022	1.51	1.55	1626.0	YES	NO	bb	bb	49.654
3	Total-pentadioxins	30.87	1.016e3	6.817e2	1.502	1.49	1.55	7.9	YES	NO	bb	bb	0.160
4	12479-PECDD	28.83	4.117e5	2.743e5	2.301	1.50	1.55	1950.7	YES	NO	bb	bb	42.238

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	2.267e5	1.883e5	0.907	1.20	1.24	1979.8	YES	NO	bb	bb	54.229
2	123678-HxCDD	36.15	2.361e5	1.995e5	1.001	1.18	1.24	2076.5	YES	NO	db	db	49.648
3	123478-HxCDD	36.03	2.225e5	1.815e5	0.996	1.23	1.24	1979.4	YES	NO	bd	bd	50.053
4	Total-hexadioxins	35.14	9.946e2	7.755e2	1.005	1.28	1.24	9.3	YES	NO	db	bd	0.209
5	124679-HXCDD	34.02	2.111e5	1.738e5	1.115	1.21	1.24	1819.4	YES	NO	bb	bb	42.563

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.24	2.063e5	2.043e5	1.137	1.01	1.05	1668.0	YES	NO	bb	bb	46.924
2	Total-heptadioxins	40.58	1.040e2	8.729e1	1.088	1.19	1.05	2.1	NO	NO	bb	bb	0.023
3	1234678-HpCDD	40.28	1.918e5	1.891e5	1.039	1.01	1.05	1477.4	YES	NO	bb	bb	47.619

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.57	5.082e4	6.674e4	1.015	0.76	0.77	551.2	YES	NO	bb	bb	9.774
2	1289-TCDD	27.03	4.817e4	6.482e4	0.909	0.74	0.77	490.7	YES	NO	bb	bb	10.496
3	2378-TCDD	26.44	5.709e4	7.150e4	1.149	0.80	0.77	603.1	YES	NO	bb	bb	9.450
4	Total-tetradioxins	26.11	8.149e4	1.045e5	1.024	0.78	0.77	583.1	YES	NO	bb	bb	15.330
5	Total-tetradioxins	25.62	2.499e4	3.156e4	1.024	0.79	0.77	257.1	YES	NO	bb	bb	4.660
6	12389-PECDD	31.94	2.280e5	1.502e5	1.184	1.52	1.55	1711.4	YES	NO	bb	bb	45.288
7	12378-PeCDD	31.55	2.156e5	1.424e5	1.022	1.51	1.55	1626.0	YES	NO	bb	bb	49.654
8	Total-pentadioxins	30.87	1.016e3	6.817e2	1.502	1.49	1.55	7.9	YES	NO	bb	bb	0.160
9	12479-PECDD	28.83	4.117e5	2.743e5	2.301	1.50	1.55	1950.7	YES	NO	bb	bb	42.238
10	123789-HxCDD	36.53	2.267e5	1.883e5	0.907	1.20	1.24	1979.8	YES	NO	bb	bb	54.229
11	123678-HxCDD	36.15	2.361e5	1.995e5	1.001	1.18	1.24	2076.5	YES	NO	db	db	49.648
12	123478-HxCDD	36.03	2.225e5	1.815e5	0.996	1.23	1.24	1979.4	YES	NO	bd	bd	50.053
13	Total-hexadioxins	35.14	9.946e2	7.755e2	1.005	1.28	1.24	9.3	YES	NO	db	bd	0.209
14	124679-HXCDD	34.02	2.111e5	1.738e5	1.115	1.21	1.24	1819.4	YES	NO	bb	bb	42.563
15	1234679-HPCDD	39.24	2.063e5	2.043e5	1.137	1.01	1.05	1668.0	YES	NO	bb	bb	46.924
16	Total-heptadioxins	40.58	1.040e2	8.729e1	1.088	1.19	1.05	2.1	NO	NO	bb	bb	0.023
17	1234678-HpCDD	40.28	1.918e5	1.891e5	1.039	1.01	1.05	1477.4	YES	NO	bb	bb	47.619
18	OCDD	45.01	3.015e5	3.475e5	0.920	0.87	0.89	2606.9	YES	NO	bb	bb	98.432

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.233e4	5.922e4	0.678	0.71	0.77	725.0	YES	NO	db	db	9.735
2	Total-tetrafurans	27.16	6.976e2	1.059e3	0.727	0.66	0.77	14.1	YES	NO	bd	bd	0.157
3	2378-TCDF	25.79	4.469e4	5.839e4	0.702	0.77	0.77	769.3	YES	NO	bb	bb	9.550
4	Total-tetrafurans	24.88	4.805e2	5.664e2	0.727	0.85	0.77	7.5	YES	NO	bb	bb	0.094
5	Total-tetrafurans	24.57	3.491e2	4.664e2	0.727	0.75	0.77	6.2	YES	NO	bd	bd	0.073
6	1368-TCDF	22.29	4.825e4	6.619e4	0.802	0.73	0.77	860.8	YES	NO	bb	bb	9.280
7	12378-PeCDF	29.96	2.355e5	1.540e5	0.679	1.53	1.55	1652.4	YES	NO	bb	bb	49.641
8	Total-pentafurans	28.81	3.891e4	2.579e4	0.654	1.51	1.55	273.1	YES	NO	bb	bb	9.226
9	12389-PECDF	32.33	1.727e5	1.137e5	0.496	1.52	1.55	1217.2	YES	NO	bb	bb	49.938
10	23478-PeCDF	31.29	2.214e5	1.482e5	0.786	1.49	1.55	1560.8	YES	NO	bb	bb	47.528
11	123789-HxCDF	36.94	2.420e5	1.912e5	1.137	1.27	1.24	2482.2	YES	NO	bb	bb	46.959
12	234678-HxCDF	35.92	2.733e5	2.175e5	1.140	1.26	1.24	2719.2	YES	NO	bb	bb	49.341
13	123678-HxCDF	35.05	2.727e5	2.151e5	1.091	1.27	1.24	2659.9	YES	NO	db	db	49.569
14	123478-HxCDF	34.91	2.600e5	2.102e5	1.166	1.24	1.24	2594.2	YES	NO	bd	bd	47.118
15	123468-HXCDF	33.24	2.450e5	1.964e5	1.169	1.25	1.24	2333.1	YES	NO	bb	bb	44.113
16	Total-heptafurans	41.38	1.097e2	1.037e2	0.978	1.06	1.05	1.8	NO	NO	bb	bb	0.031
17	1234789-HpCDF	41.02	1.595e5	1.575e5	0.953	1.01	1.05	1274.2	YES	NO	bb	bb	50.221
18	Total-heptafurans	39.45	1.654e3	1.420e3	0.978	1.17	1.05	14.3	YES	NO	bb	bb	0.447
19	Total-heptafurans	39.28	9.725e1	9.433e1	0.978	1.03	1.05	1.5	NO	NO	bb	bb	0.028
20	1234678-HpCDF	38.78	1.767e5	1.776e5	1.003	1.00	1.05	1618.0	YES	NO	bb	bb	47.490
21	OCDF	45.25	2.326e5	2.612e5	0.778	0.89	0.89	3100.2	YES	NO	bb	bb	88.591
22	13468-PECDF	27.14	4.529e5	2.964e5	1.246	1.53	1.55	11052.6	YES	NO	bb	bb	52.031
23	1368-TCDD	23.57	5.082e4	6.674e4	1.015	0.76	0.77	551.2	YES	NO	bb	bb	9.774
24	1289-TCDD	27.03	4.817e4	6.482e4	0.909	0.74	0.77	490.7	YES	NO	bb	bb	10.496
25	2378-TCDD	26.44	5.709e4	7.150e4	1.149	0.80	0.77	603.1	YES	NO	bb	bb	9.450
26	Total-tetradioxins	26.11	8.149e4	1.045e5	1.024	0.78	0.77	583.1	YES	NO	bb	bb	15.330
27	Total-tetradioxins	25.62	2.499e4	3.156e4	1.024	0.79	0.77	257.1	YES	NO	bb	bb	4.660
28	12389-PECDD	31.94	2.280e5	1.502e5	1.184	1.52	1.55	1711.4	YES	NO	bb	bb	45.288
29	12378-PeCDD	31.55	2.156e5	1.424e5	1.022	1.51	1.55	1626.0	YES	NO	bb	bb	49.654
30	Total-pentadioxins	30.87	1.016e3	6.817e2	1.502	1.49	1.55	7.9	YES	NO	bb	bb	0.160
31	12479-PECDD	28.83	4.117e5	2.743e5	2.301	1.50	1.55	1950.7	YES	NO	bb	bb	42.238
32	123789-HxCDD	36.53	2.267e5	1.883e5	0.907	1.20	1.24	1979.8	YES	NO	bb	bb	54.229
33	123678-HxCDD	36.15	2.361e5	1.995e5	1.001	1.18	1.24	2076.5	YES	NO	db	db	49.648
34	123478-HxCDD	36.03	2.225e5	1.815e5	0.996	1.23	1.24	1979.4	YES	NO	bd	bd	50.053
35	Total-hexadioxins	35.14	9.946e2	7.755e2	1.005	1.28	1.24	9.3	YES	NO	db	bd	0.209
36	124679-HXCDD	34.02	2.111e5	1.738e5	1.115	1.21	1.24	1819.4	YES	NO	bb	bb	42.563
37	1234679-HPCDD	39.24	2.063e5	2.043e5	1.137	1.01	1.05	1668.0	YES	NO	bb	bb	46.924

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	Total-heptadioxins	40.58	1.040e2	8.729e1	1.088	1.19	1.05	2.1	NO	NO	bb	bb	0.023
39	1234678-HpCDD	40.28	1.918e5	1.891e5	1.039	1.01	1.05	1477.4	YES	NO	bb	bb	47.619
40	OCDD	45.01	3.015e5	3.475e5	0.920	0.87	0.89	2606.9	YES	NO	bb	bb	98.432

PFK1

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

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.96	1.058e5					1.1	NO		bb		0.000
2	FUNCTION2 PFK	30.15	5.471e5					3.7	YES		bb		0.000
3	FUNCTION2 PFK	28.28	4.455e5					4.9	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.89	2.667e5					4.7	YES		bb		0.000
2	FUNCTION3 PFK	33.03	5.362e5					3.5	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.07	4.905e4					2.0	NO		db		
2	FUNCTION4 PFK	37.96	1.071e4					1.3	NO		bd		
3	FUNCTION4 PFK	37.89	4.848e3					0.7	NO		bb		
4	FUNCTION4 PFK	42.18	1.359e4					1.2	NO		bb		
5	FUNCTION4 PFK	41.91	8.056e3					0.9	NO		db		
6	FUNCTION4 PFK	41.83	2.292e4					1.6	NO		bd		
7	FUNCTION4 PFK	41.77	1.673e4					1.5	NO		bb		
8	FUNCTION4 PFK	41.48	1.418e4					1.4	NO		bb		
9	FUNCTION4 PFK	41.32	2.104e3					0.5	NO		bb		
10	FUNCTION4 PFK	41.13	8.695e3					1.0	NO		bb		
11	FUNCTION4 PFK	40.63	8.163e3					0.8	NO		bb		
12	FUNCTION4 PFK	40.08	1.008e4					1.1	NO		db		
13	FUNCTION4 PFK	40.04	1.572e4					1.4	NO		bd		
14	FUNCTION4 PFK	39.51	7.181e3					1.0	NO		bb		
15	FUNCTION4 PFK	39.44	5.021e3					0.7	NO		bb		
16	FUNCTION4 PFK	38.96	9.511e3					1.3	NO		db		
17	FUNCTION4 PFK	38.92	2.806e4					1.5	NO		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.57	1.411e3					0.9	NO		bb		
2	FUNCTION5 PFK	45.95	2.307e4					3.9	YES		bb		
3	FUNCTION5 PFK	45.69	1.018e3					0.6	NO		bb		
4	FUNCTION5 PFK	45.54	1.146e3					0.7	NO		bb		
5	FUNCTION5 PFK	45.12	9.805e3					2.3	NO		bb		
6	FUNCTION5 PFK	44.83	5.276e3					1.3	NO		bb		
7	FUNCTION5 PFK	44.58	5.554e3					1.4	NO		bb		
8	FUNCTION5 PFK	44.38	2.760e3					0.9	NO		db		
9	FUNCTION5 PFK	44.35	3.252e3					1.1	NO		bd		
10	FUNCTION5 PFK	42.99	9.959e2					0.6	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	25.01	7.970e1					3.2	YES		bb		0.000
2	FUNCTION1 HXCD...	23.47	8.919e1					3.0	YES		db		0.000
3	FUNCTION1 HXCD...	23.40	8.065e1					2.9	NO		dd		0.000
4	FUNCTION1 HXCD...	23.32	1.305e2					3.4	YES		dd		0.000
5	FUNCTION1 HXCD...	23.22	1.146e2					2.8	NO		bd		0.000
6	FUNCTION1 HXCD...	22.41	7.936e1					4.3	YES		bb		0.000
7	FUNCTION1 HXCD...	27.40	7.698e1					2.2	NO		bb		0.000
8	FUNCTION1 HXCD...	27.14	1.376e2					3.3	YES		bb		0.000
9	FUNCTION1 HXCD...	25.79	8.222e1					1.9	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.53	2.999e2					2.9	NO		bb		0.000
2	FUNCTION2 HPCD...	31.17	3.219e2					4.5	YES		bb		0.000
3	FUNCTION2 HPCD...	29.58	8.369e1					1.2	NO		db		0.000
4	FUNCTION2 HPCD...	29.50	8.185e1					1.4	NO		bd		0.000
5	FUNCTION2 HPCD...	29.43	9.066e1					2.2	NO		bb		0.000
6	FUNCTION2 HPCD...	28.26	1.049e2					2.5	NO		db		0.000
7	FUNCTION2 HPCD...	28.22	1.658e2					2.8	NO		bd		0.000
8	FUNCTION2 HPCD...	28.15	1.360e2					3.3	YES		db		0.000
9	FUNCTION2 HPCD...	28.11	8.921e1					2.1	NO		bd		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.53	2.562e2					6.2	YES		bb		0.000
2	FUNCTION3 OCDPE	36.14	1.671e2					4.5	YES		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.04	8.282e1					2.4	NO		bb		0.000
2	FUNCTION4 NCDPE	38.07	5.777e2					4.3	YES		bb		0.000
3	FUNCTION4 NCDPE	37.82	1.333e2					0.0	NO		bb		0.000

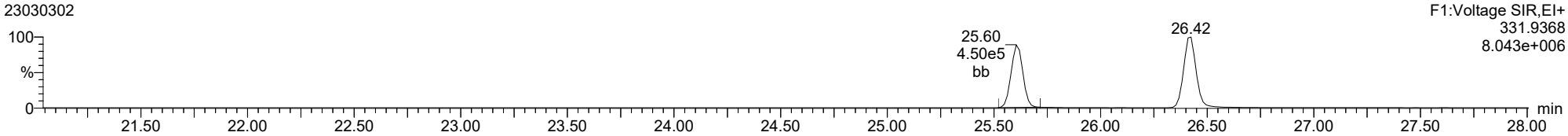
ETHERS6

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

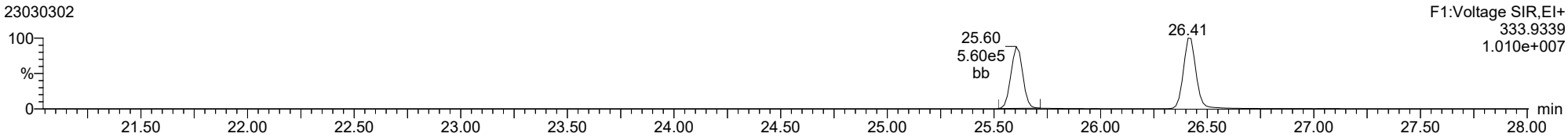
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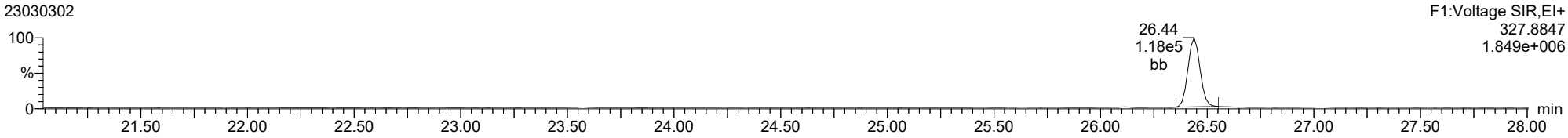
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13C-1234-TCDD

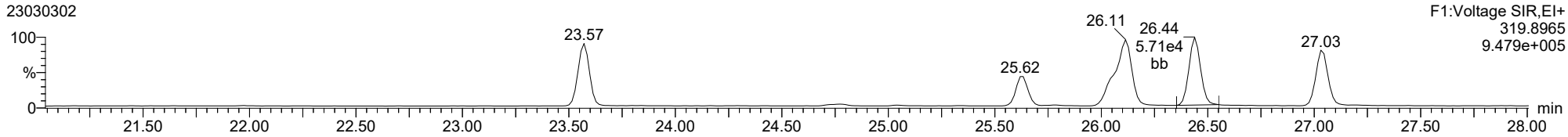


37CL-2378-TCDD

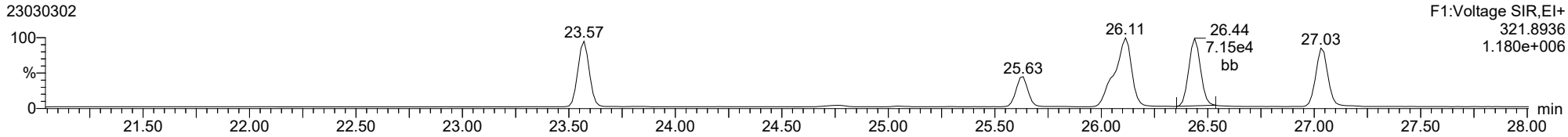


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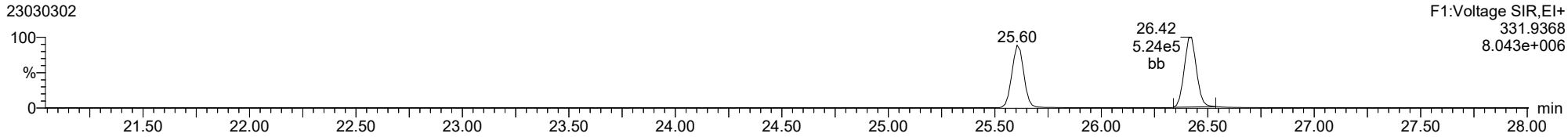
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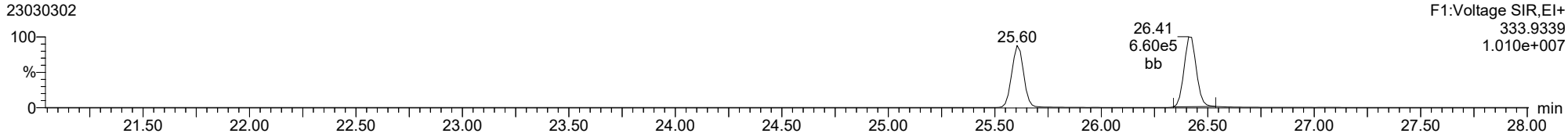
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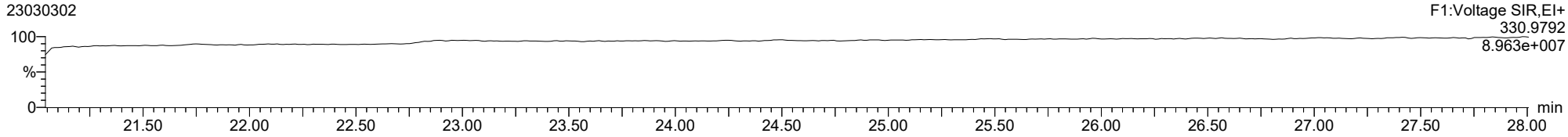
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13C-2378-TCDD

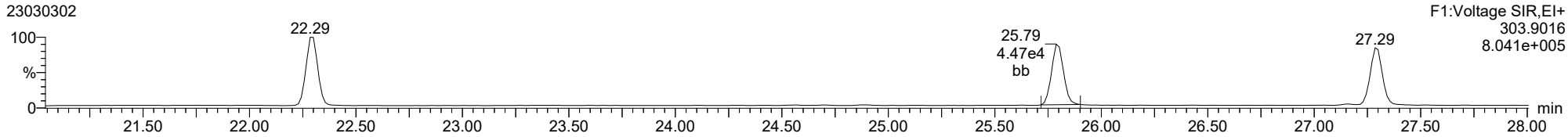


FUNCTION1 PFK

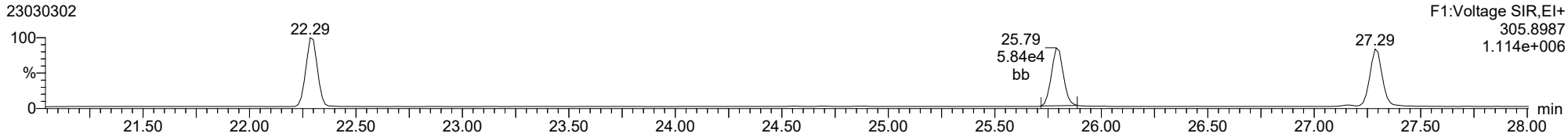


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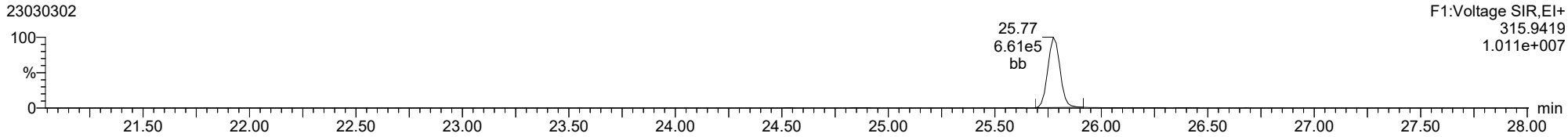
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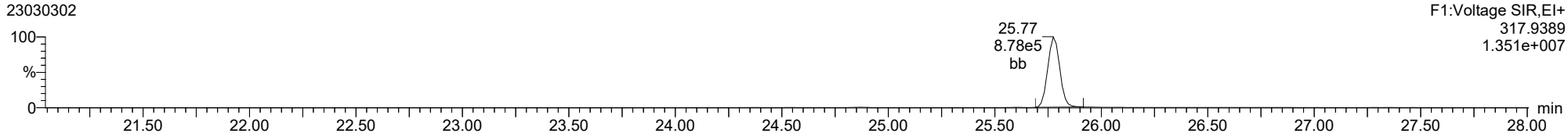
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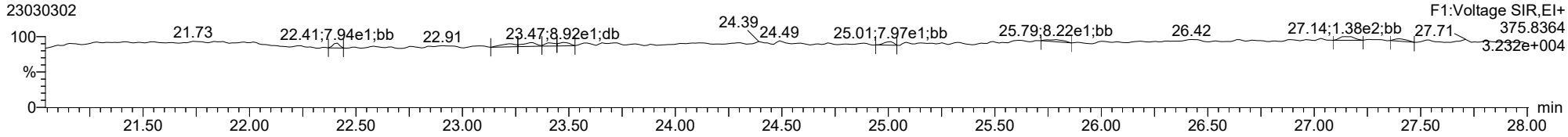
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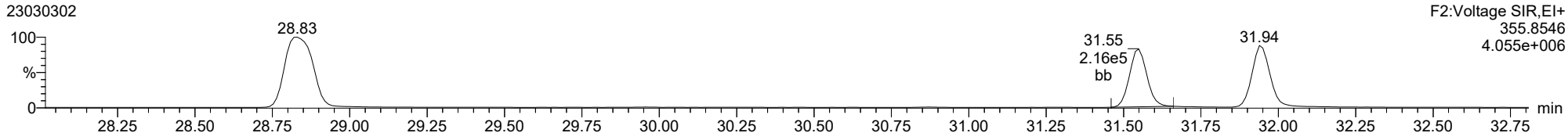


FUNCTION1 HXCDPE

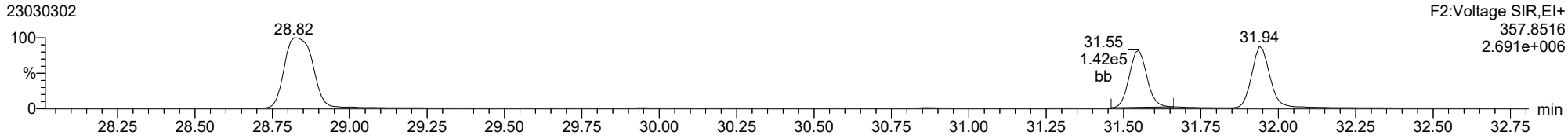


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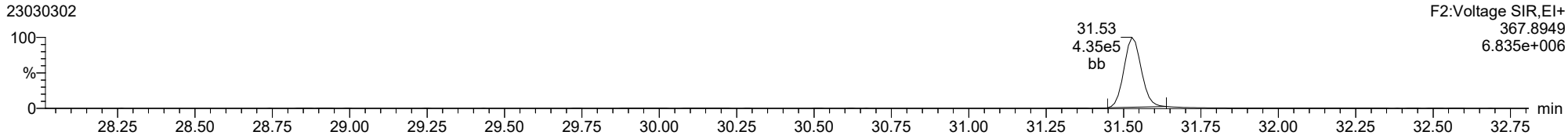
12378-PeCDD



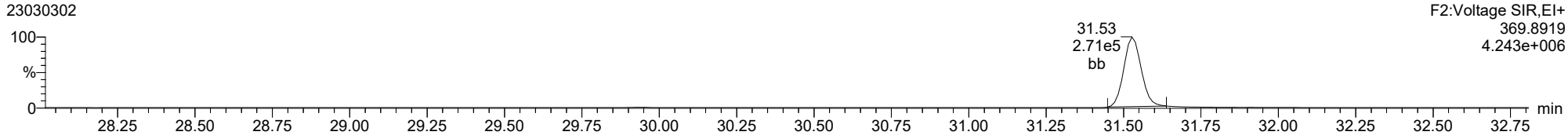
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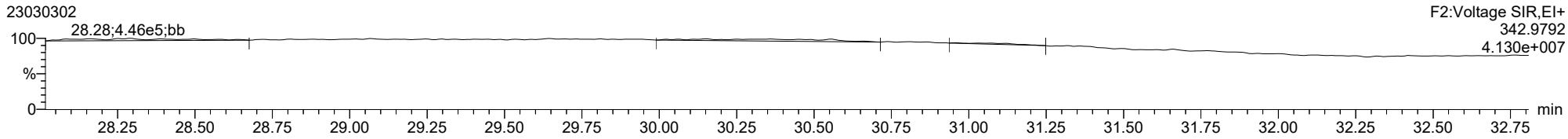
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13C-12378-PeCDD

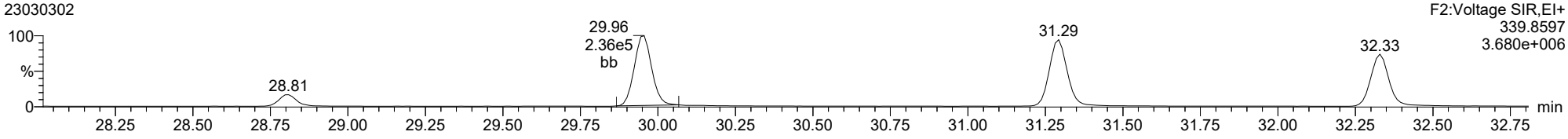


FUNCTION2 PFK

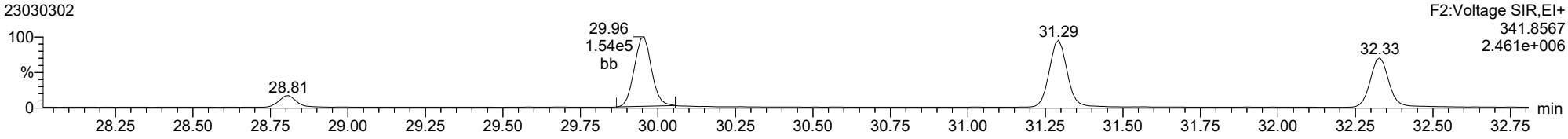


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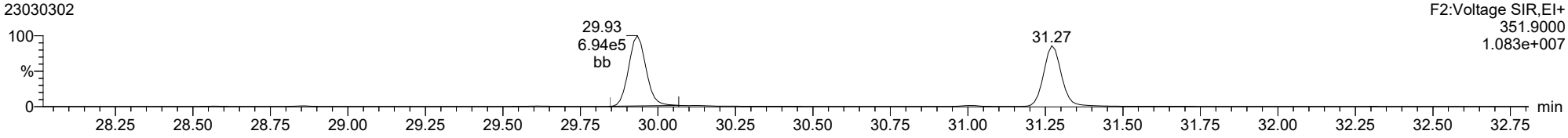
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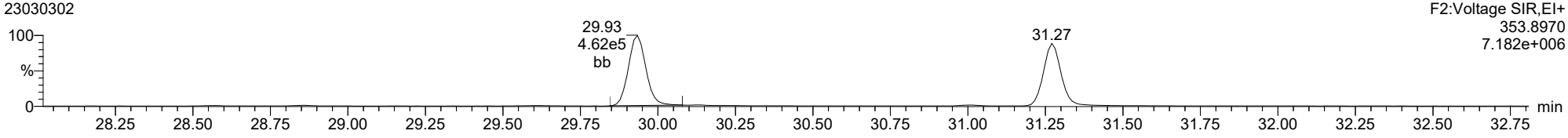
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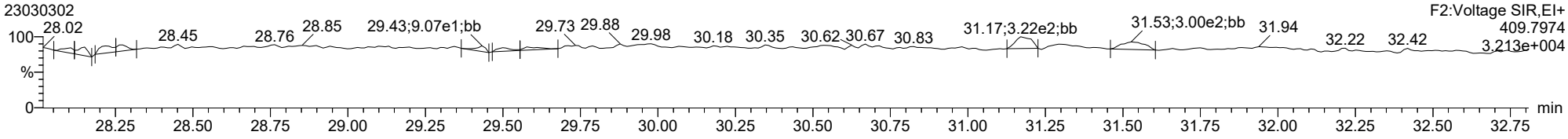
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13C-12378-PeCDF

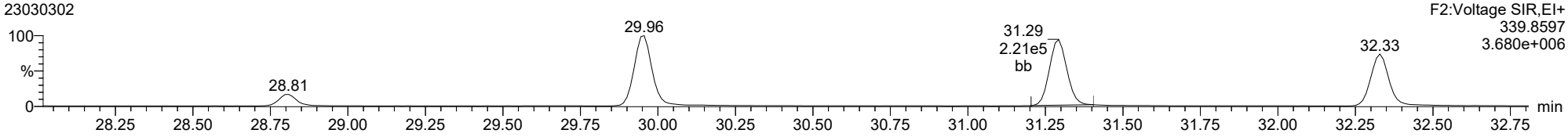


FUNCTION2 HPCDPE

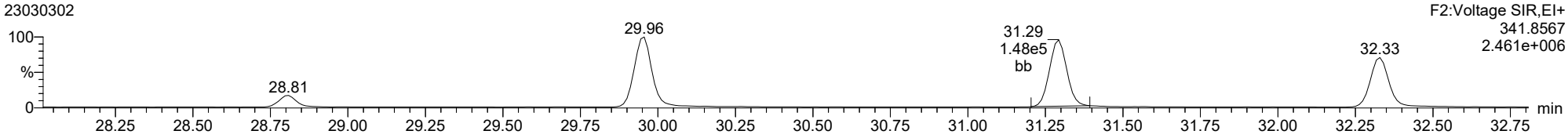


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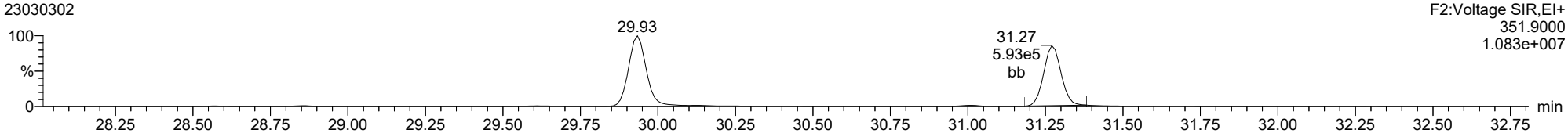
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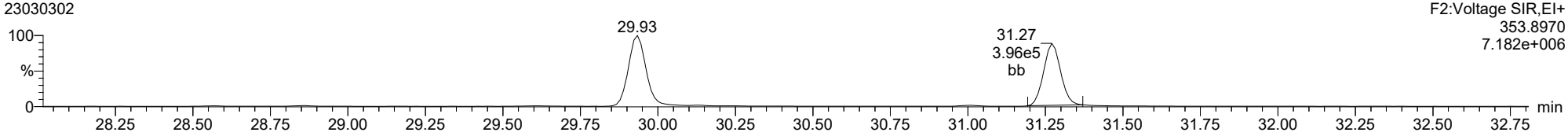
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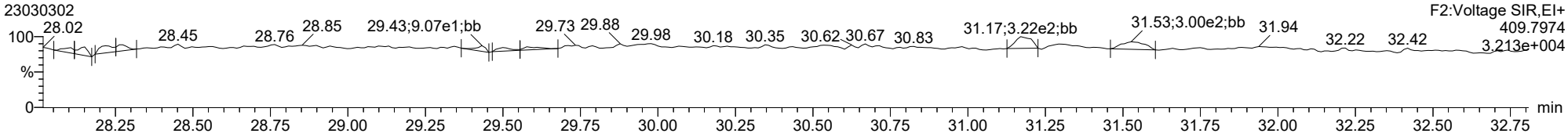
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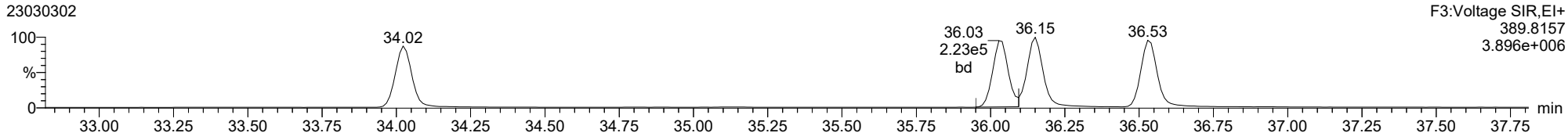


FUNCTION2 HPCDPE

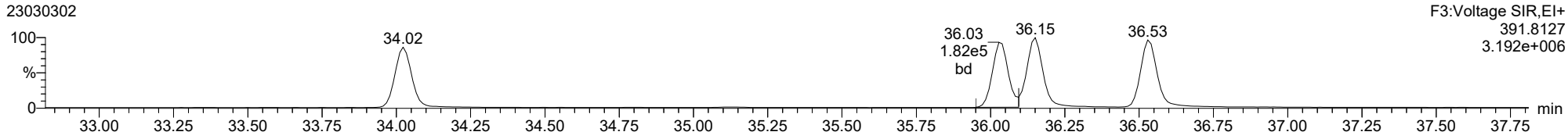


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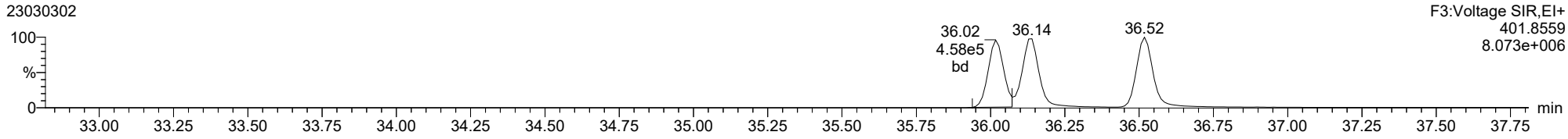
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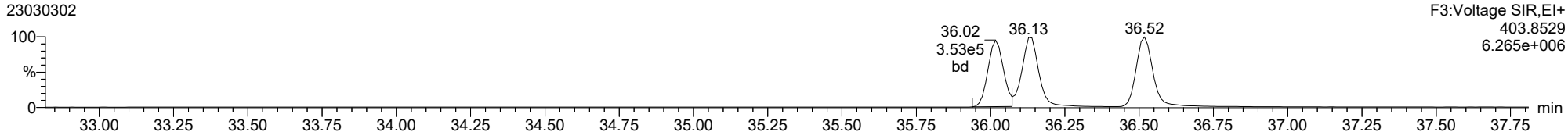
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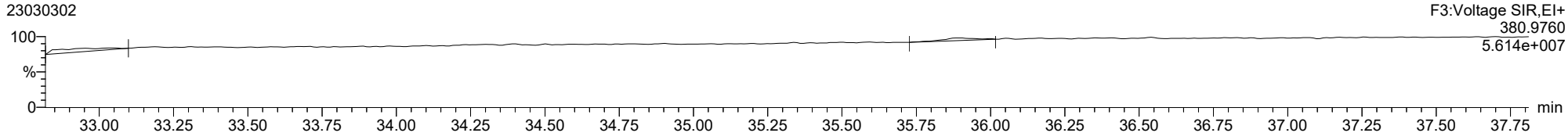
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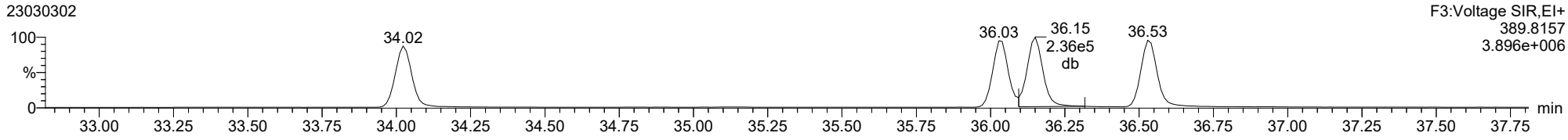


FUNCTION3 PFK

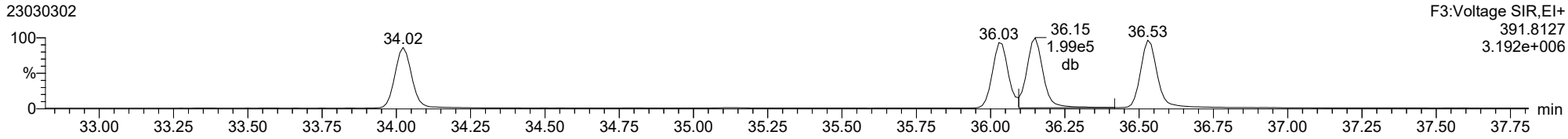


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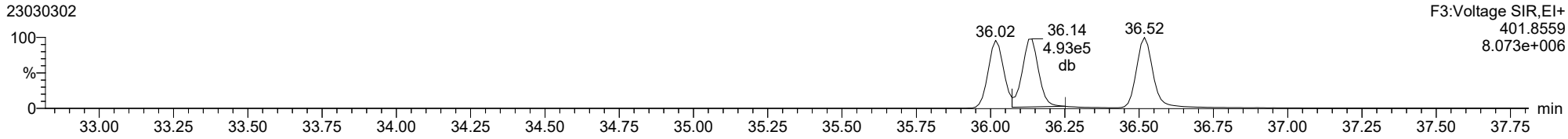
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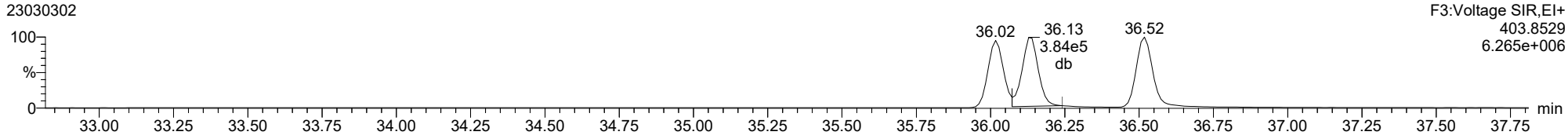
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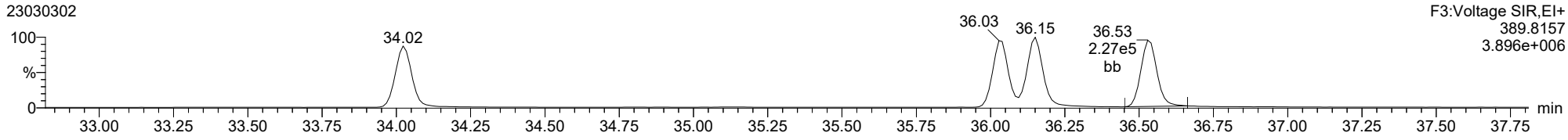


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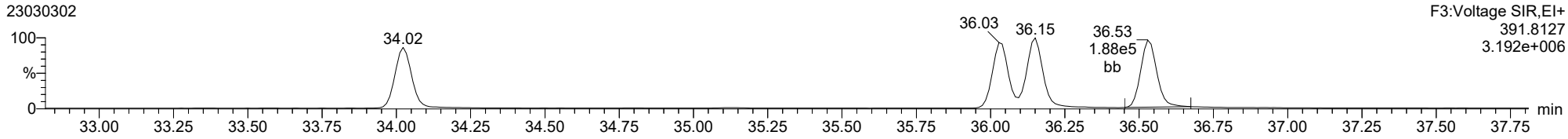


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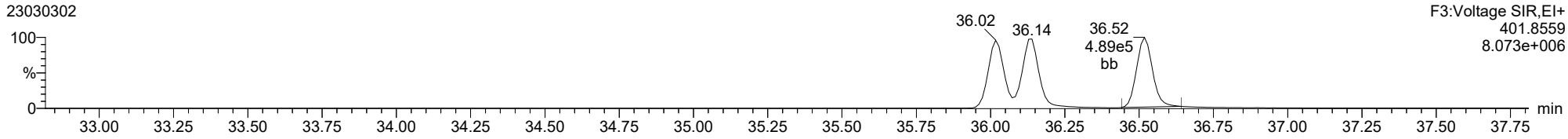
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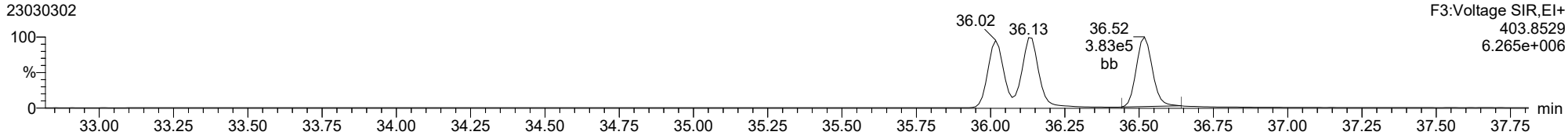
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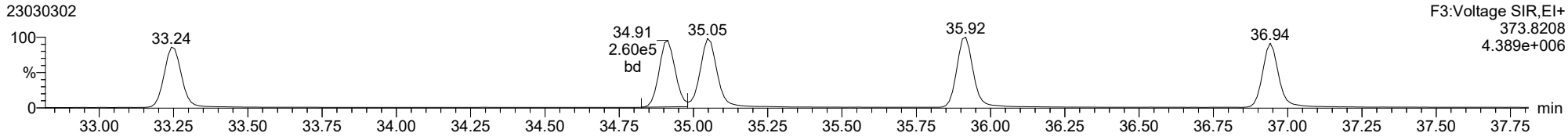


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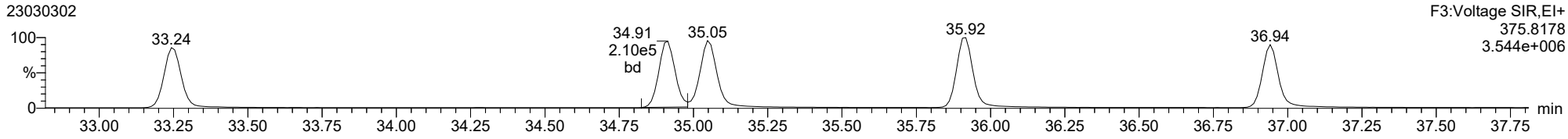


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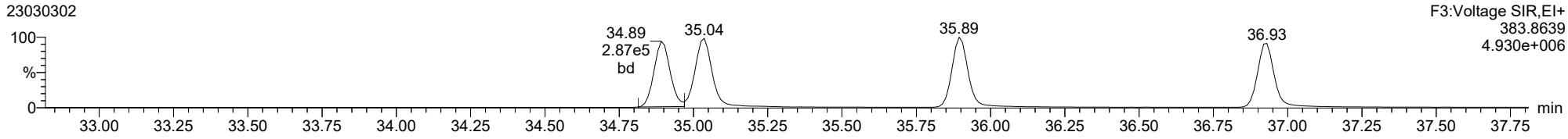
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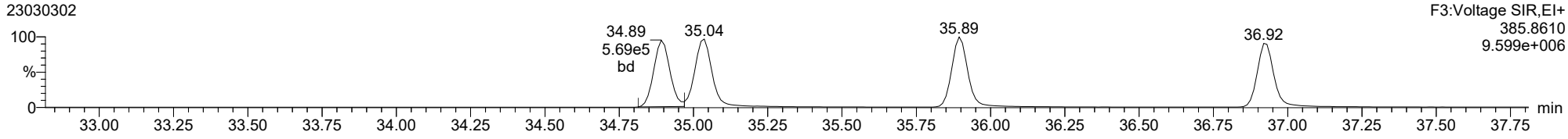
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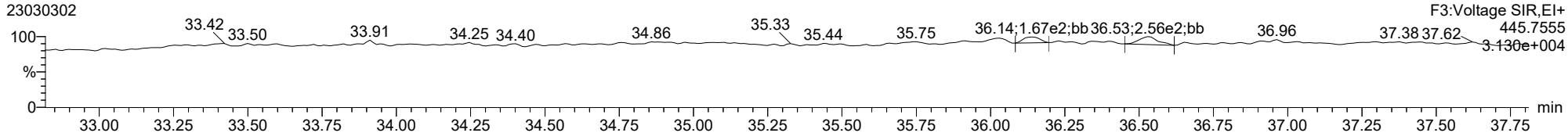
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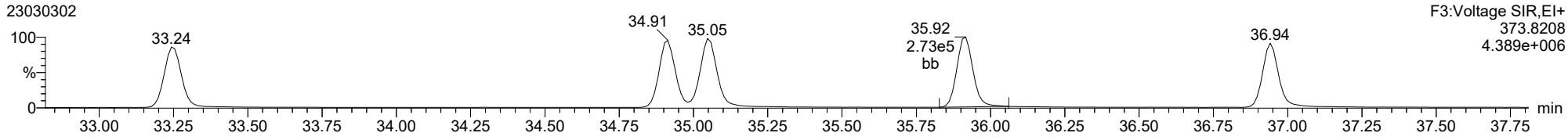


FUNCTION3 OCDPE

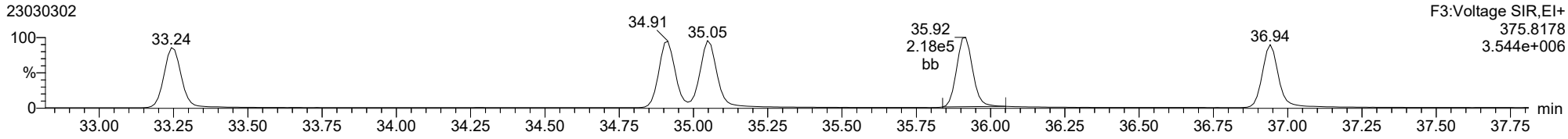


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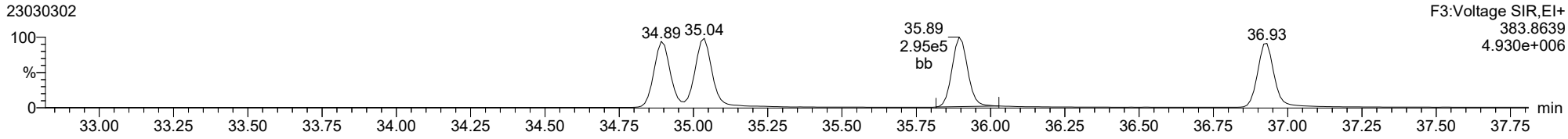
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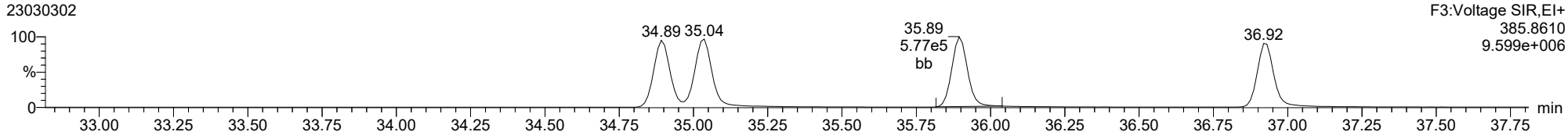
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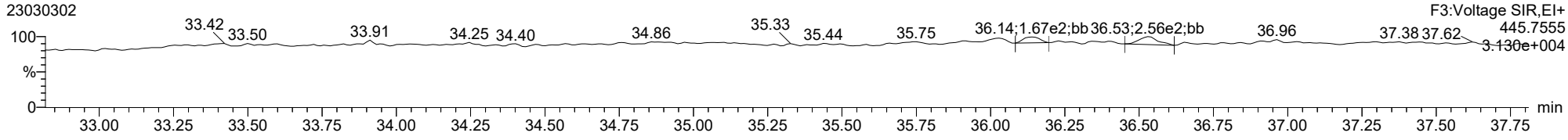
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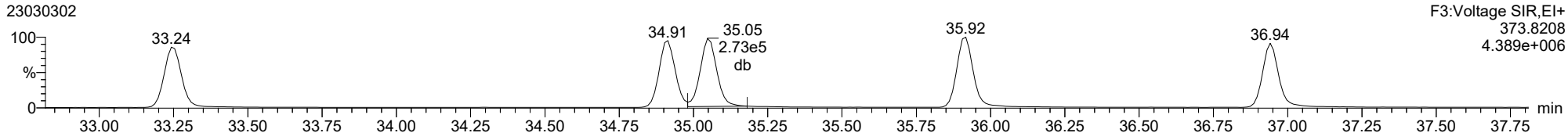


FUNCTION3 OCDPE

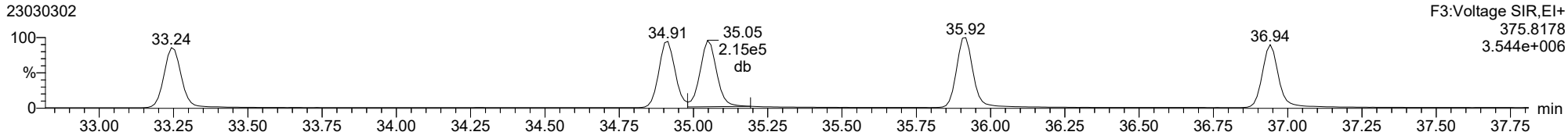


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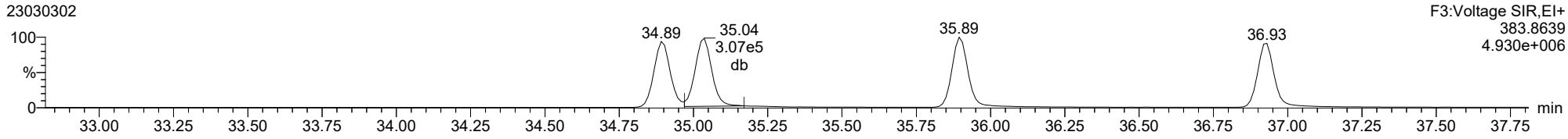
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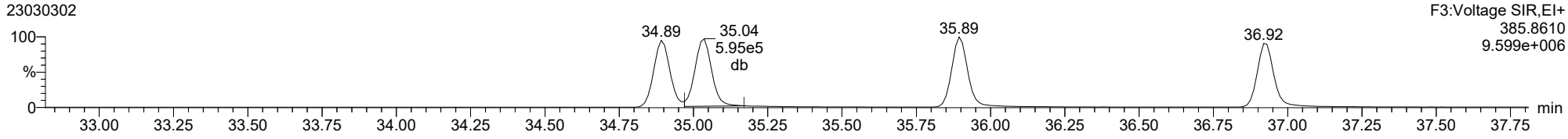
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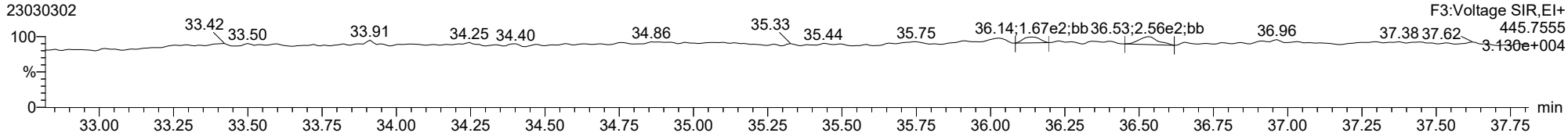
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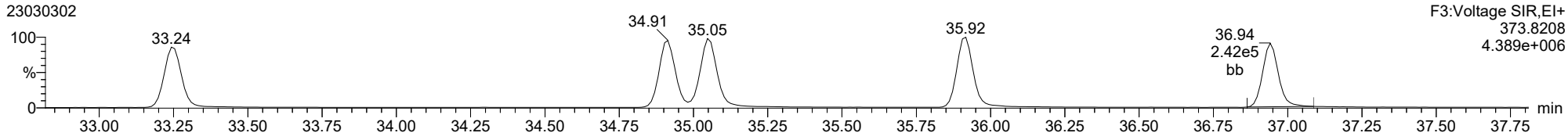


FUNCTION3 OCDPE

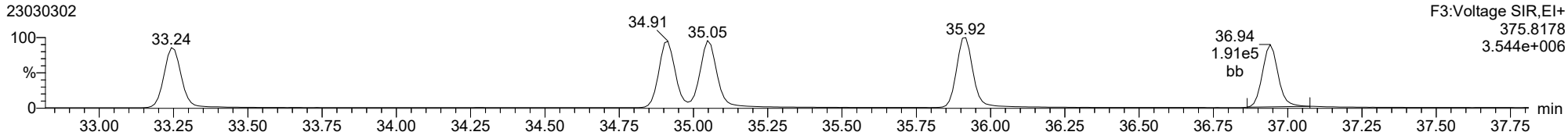


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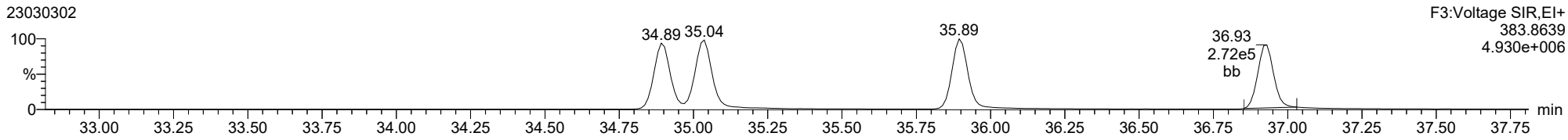
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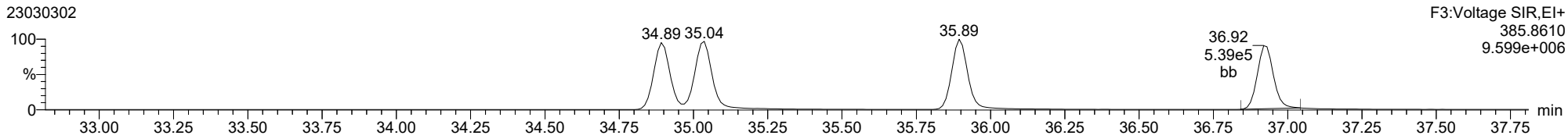
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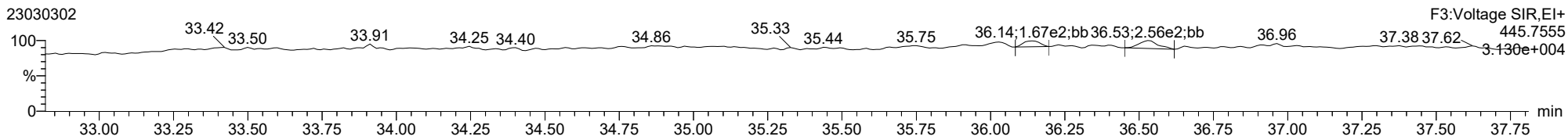
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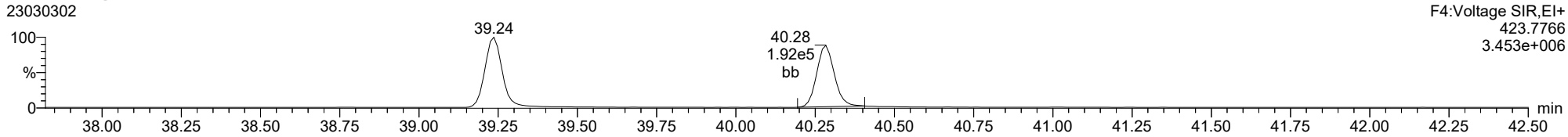


FUNCTION3 OCDPE

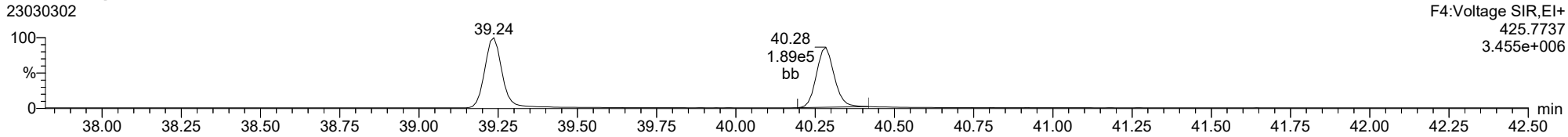


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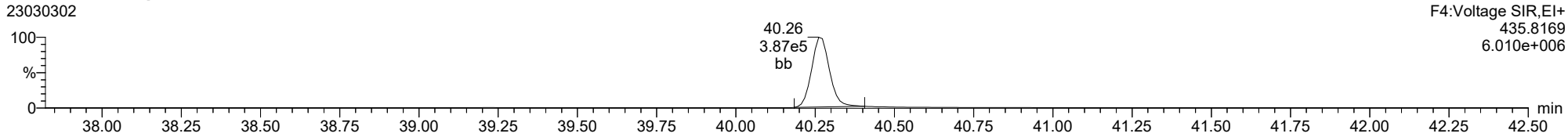
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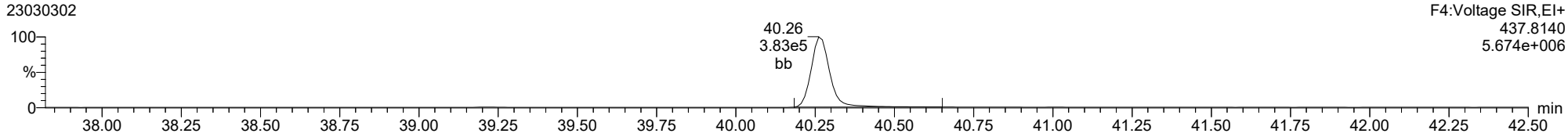
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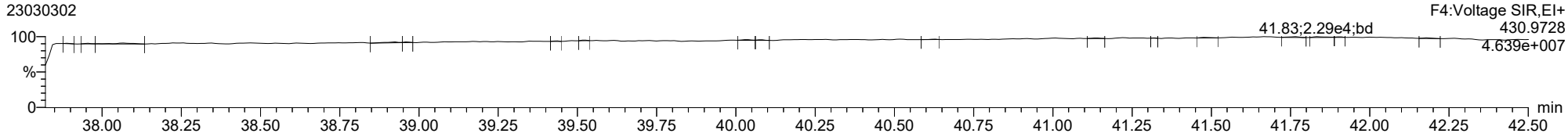
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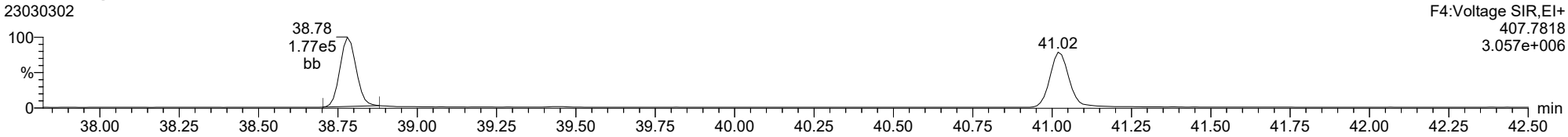


FUNCTION4 PFK

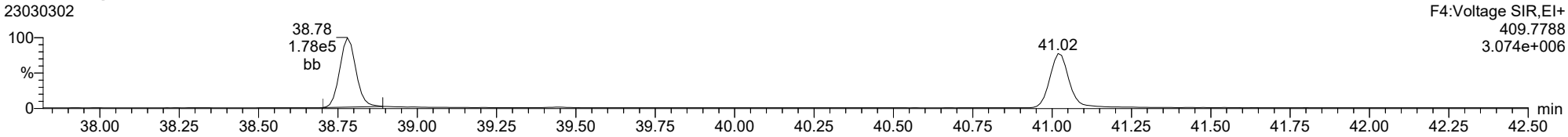


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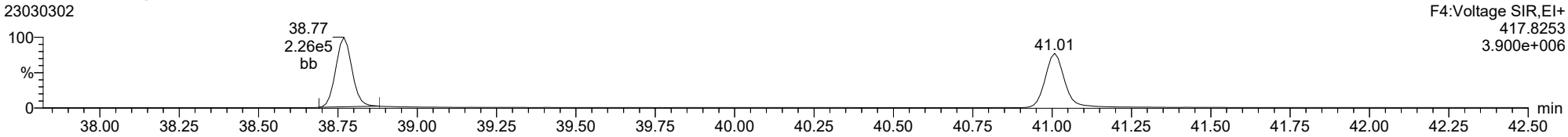
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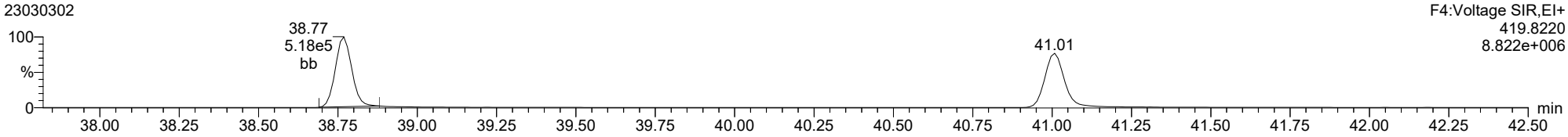
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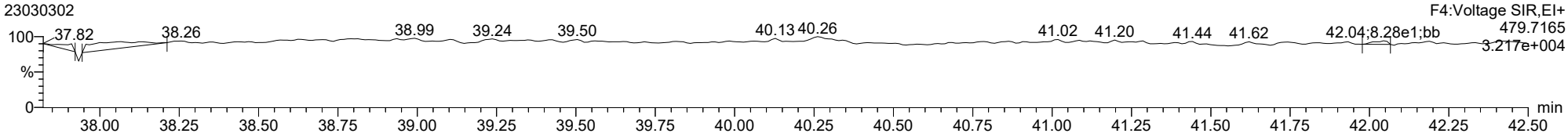
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13C-1234678-HpCDF

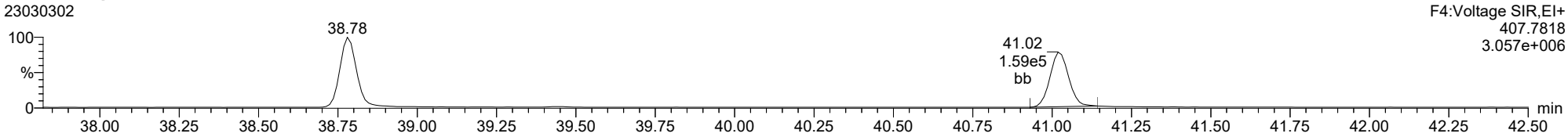


FUNCTION4 NCDPE

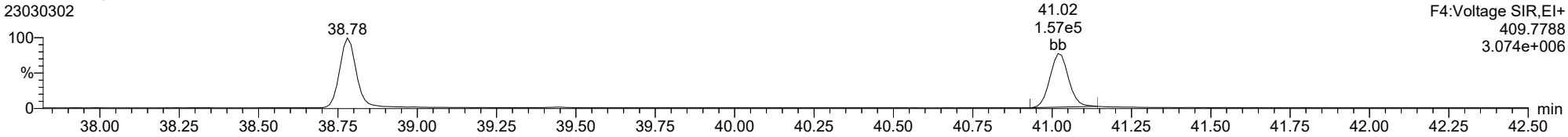


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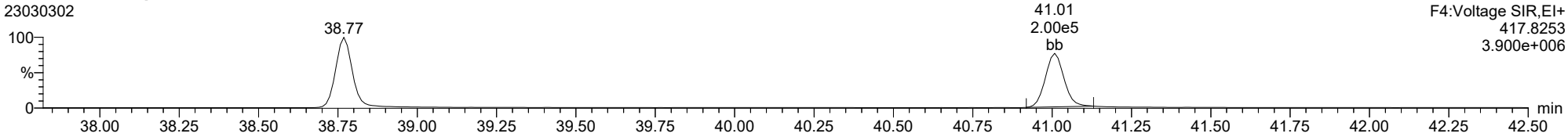
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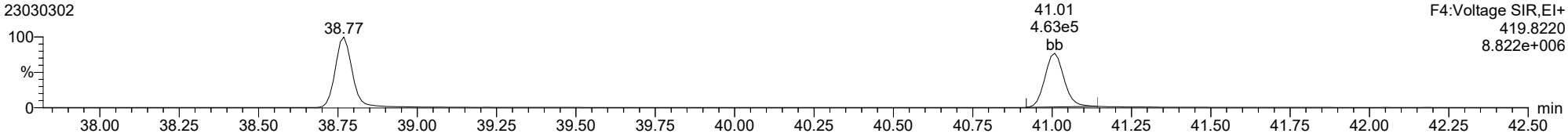
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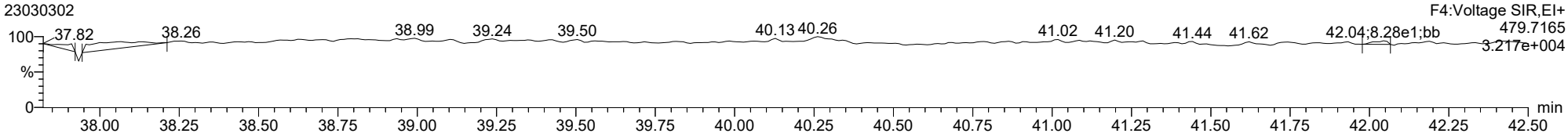
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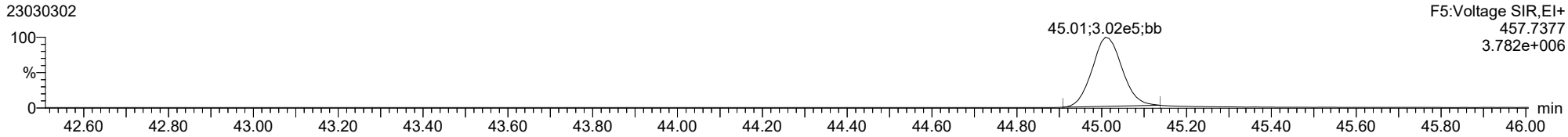


FUNCTION4 NCDPE

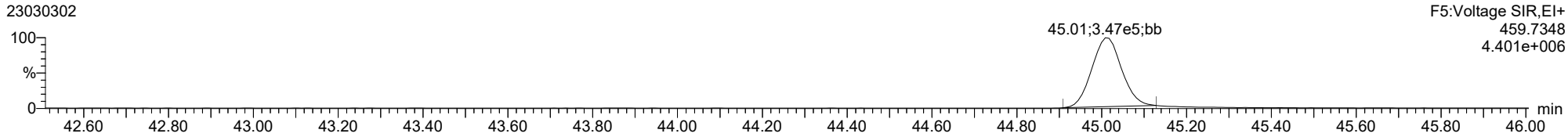


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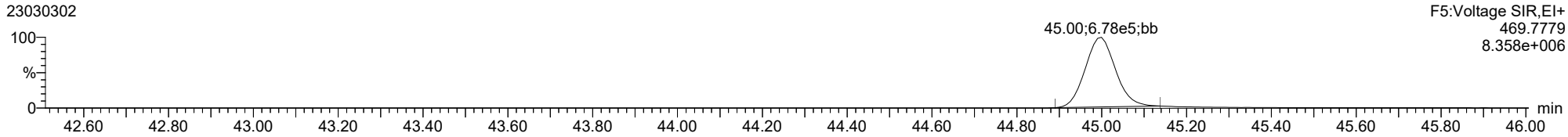
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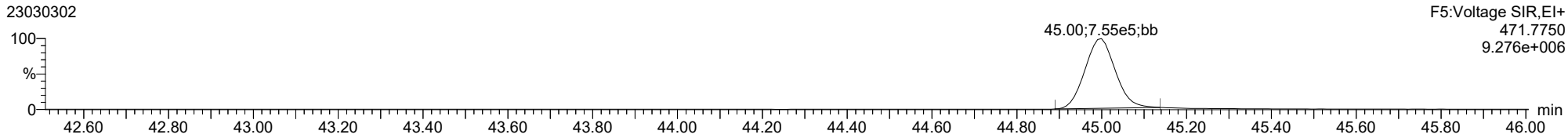
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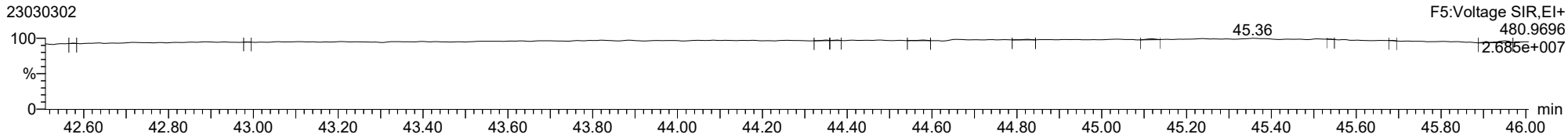
13C-OCDD



13C-OCDD

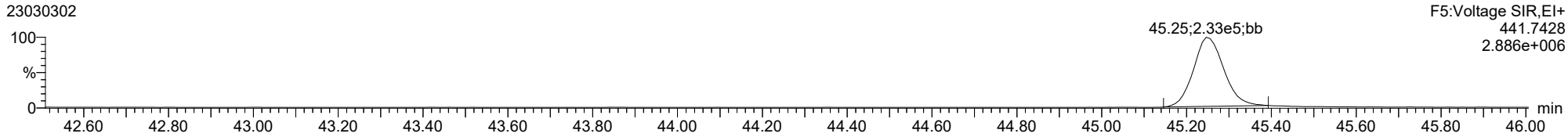


FUNCTION5 PFK

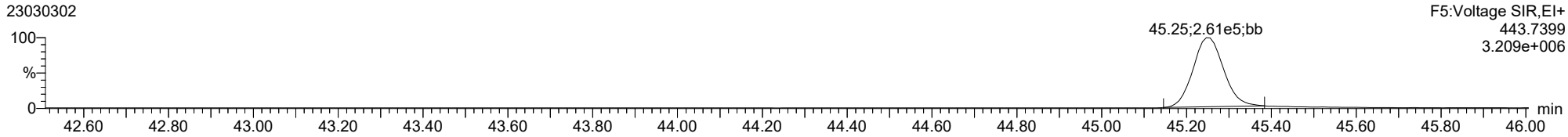


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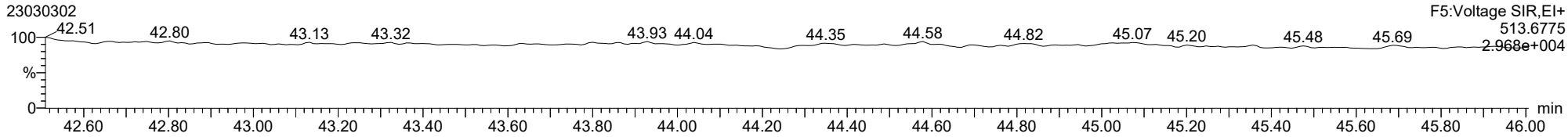
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OCDF

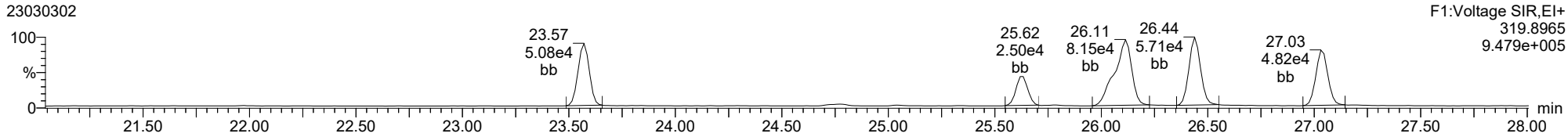


FUNCTION5 DCDPE

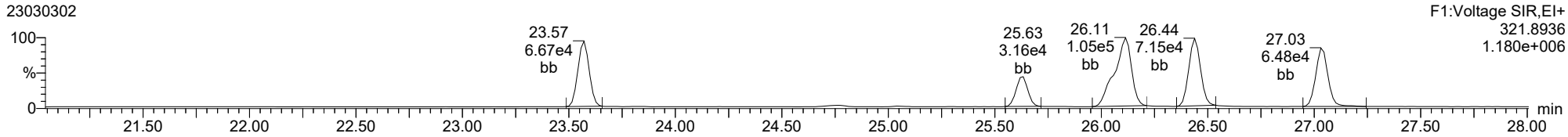


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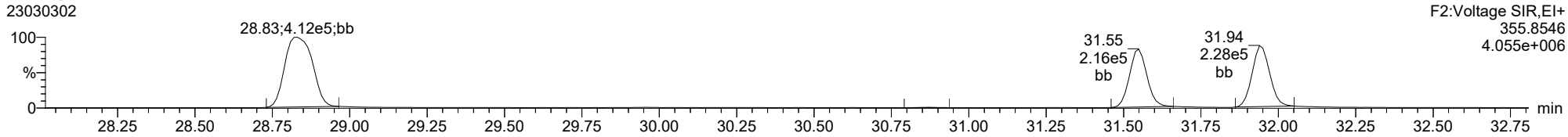
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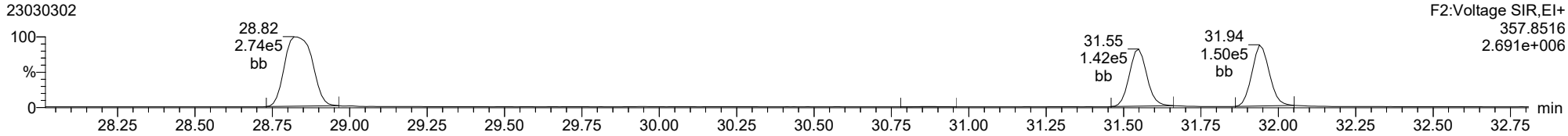
Total-tetradioxins



Total-pentadioxins

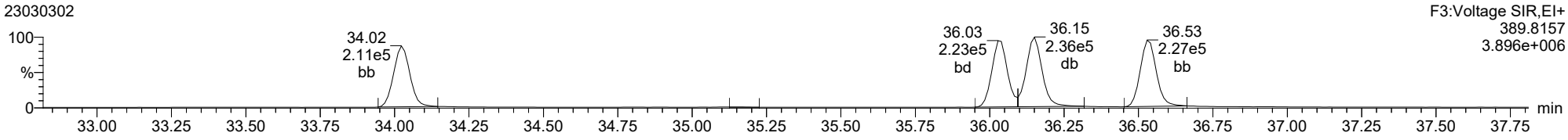


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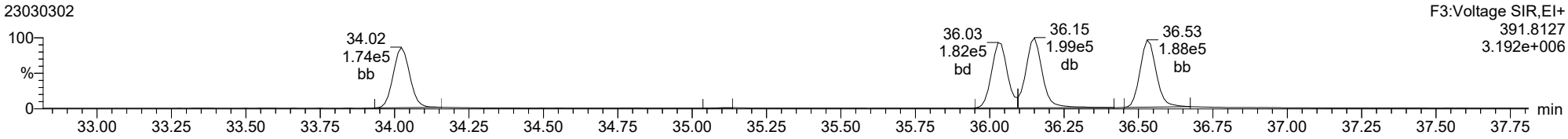


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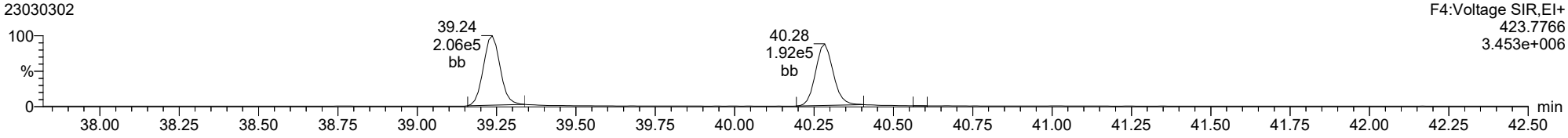
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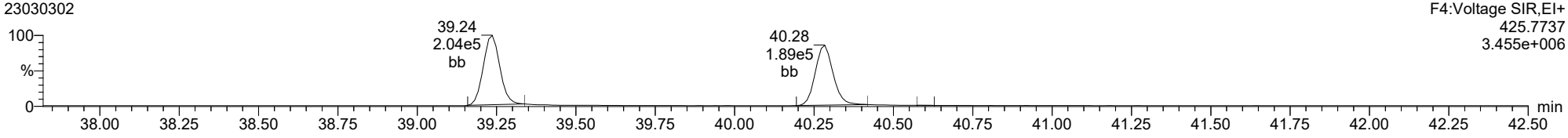
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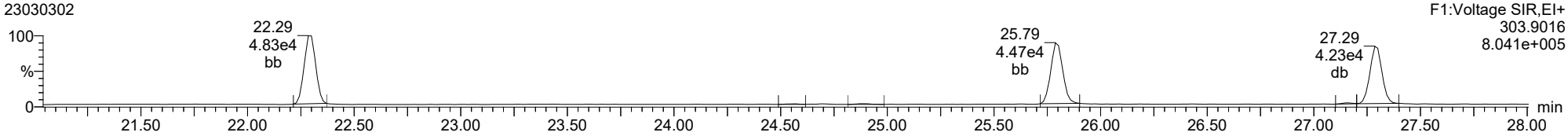


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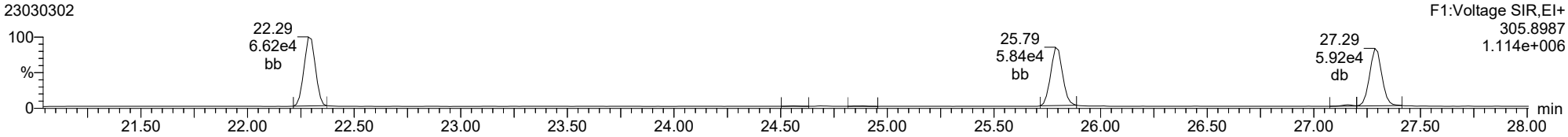


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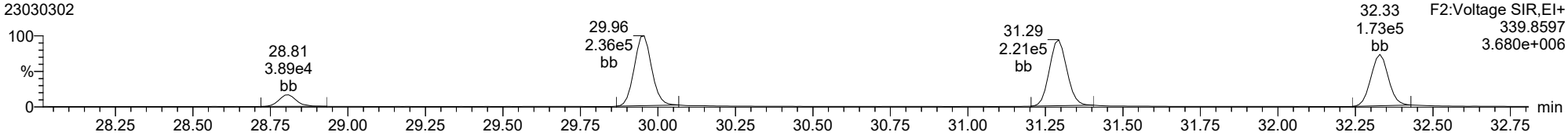
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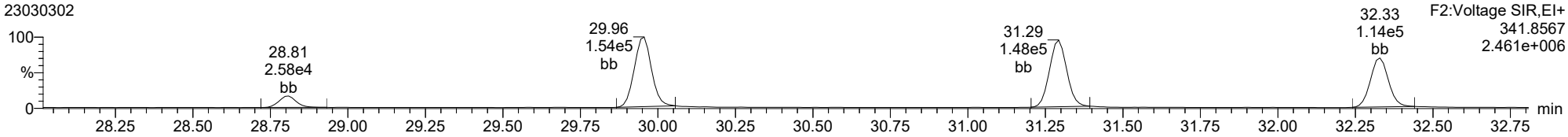
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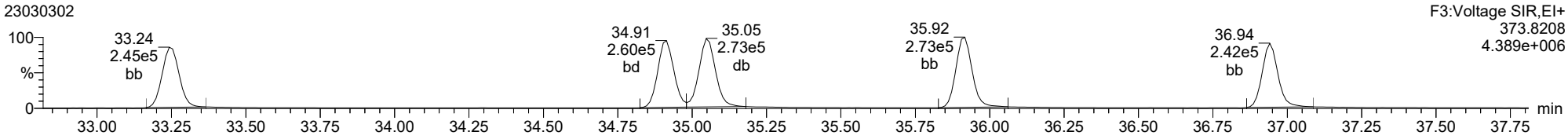


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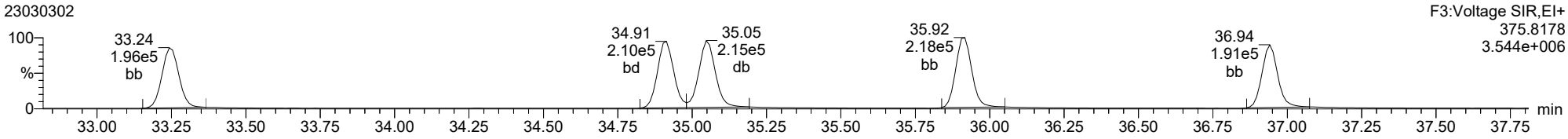


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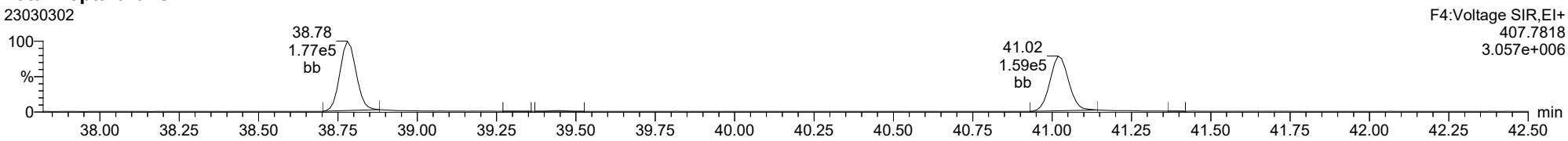
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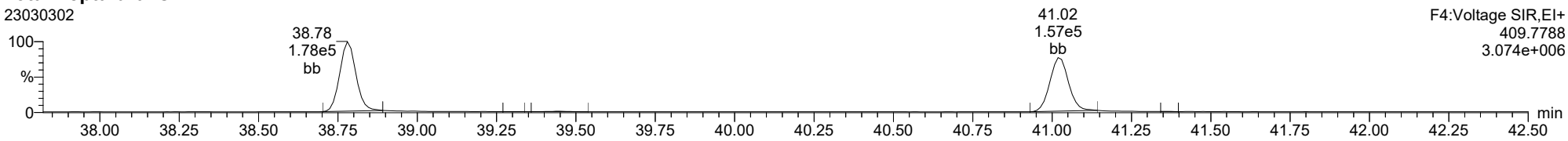
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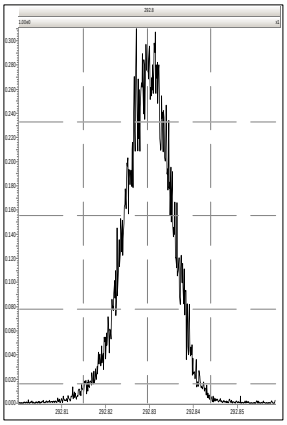


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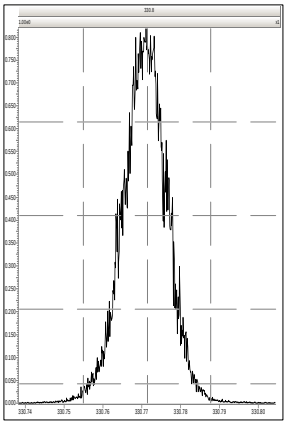


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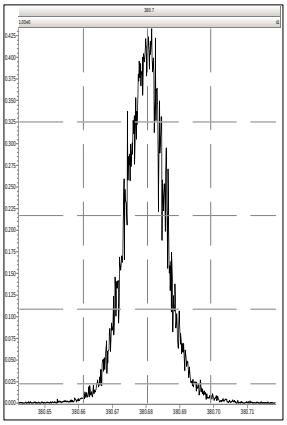
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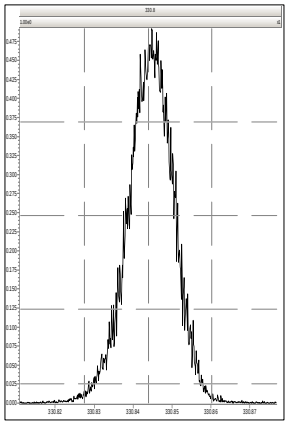
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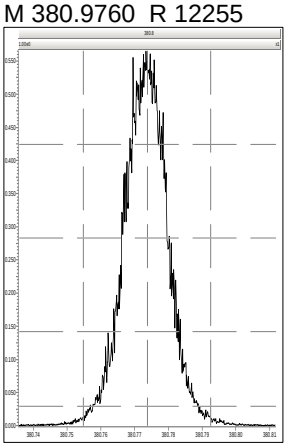
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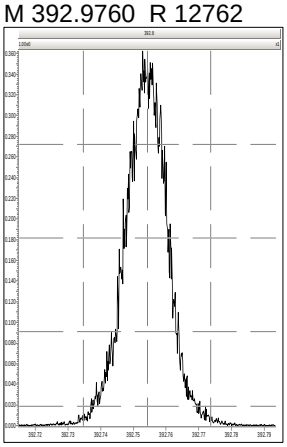
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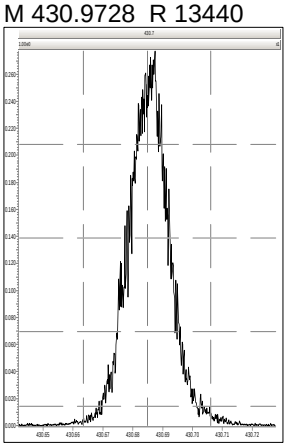
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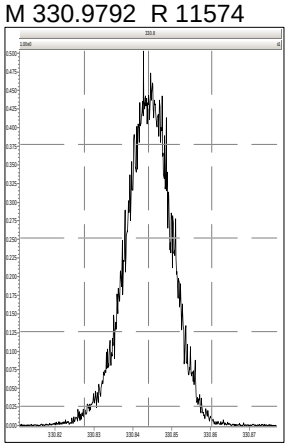
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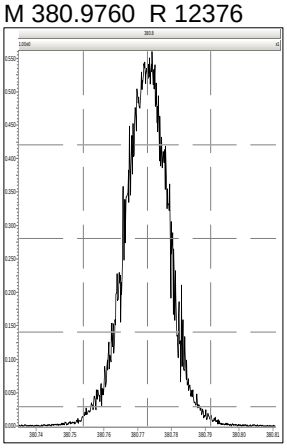
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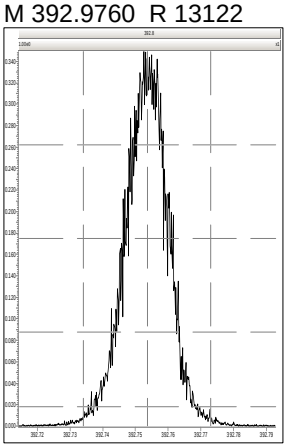
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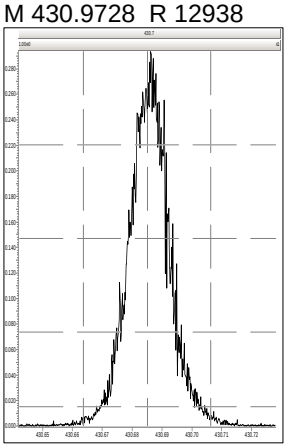
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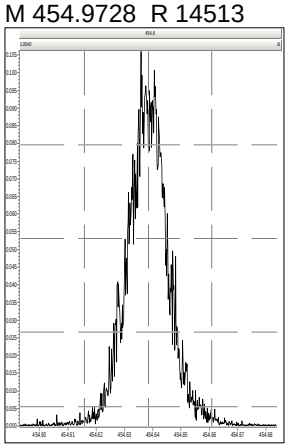
M 392.9760 R 13122



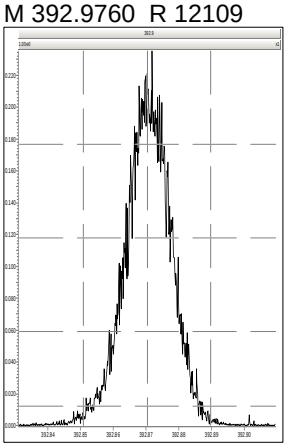
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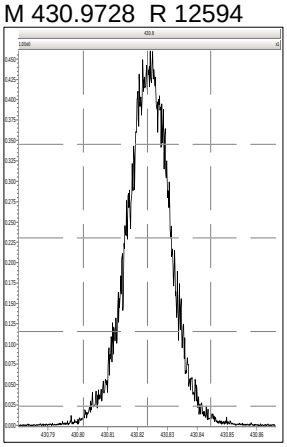
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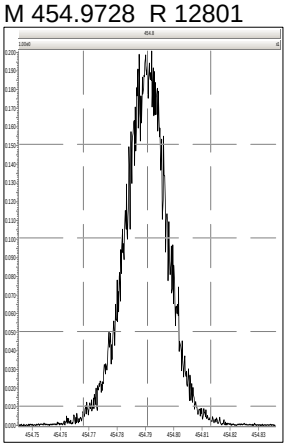
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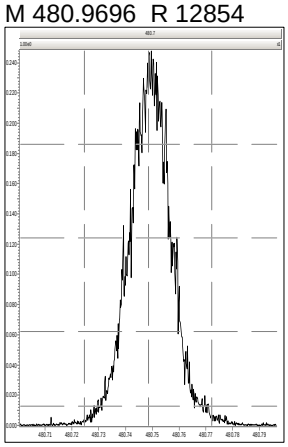
M 430.9728 R 12594



M 454.9728 R 12801

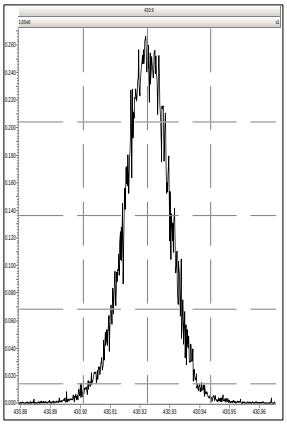


M 480.9696 R 12854

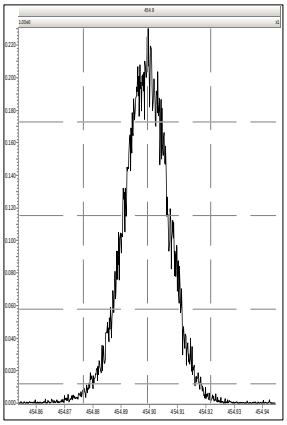


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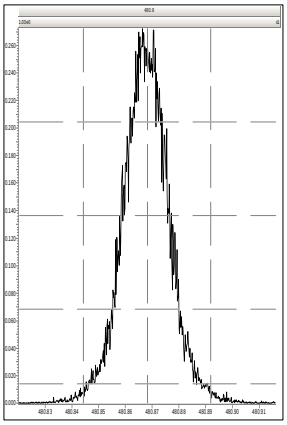
M 430.9728 R 12109



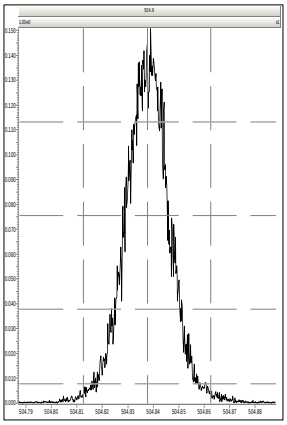
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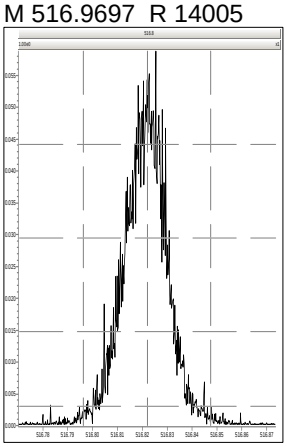
M 480.9696 R 11443

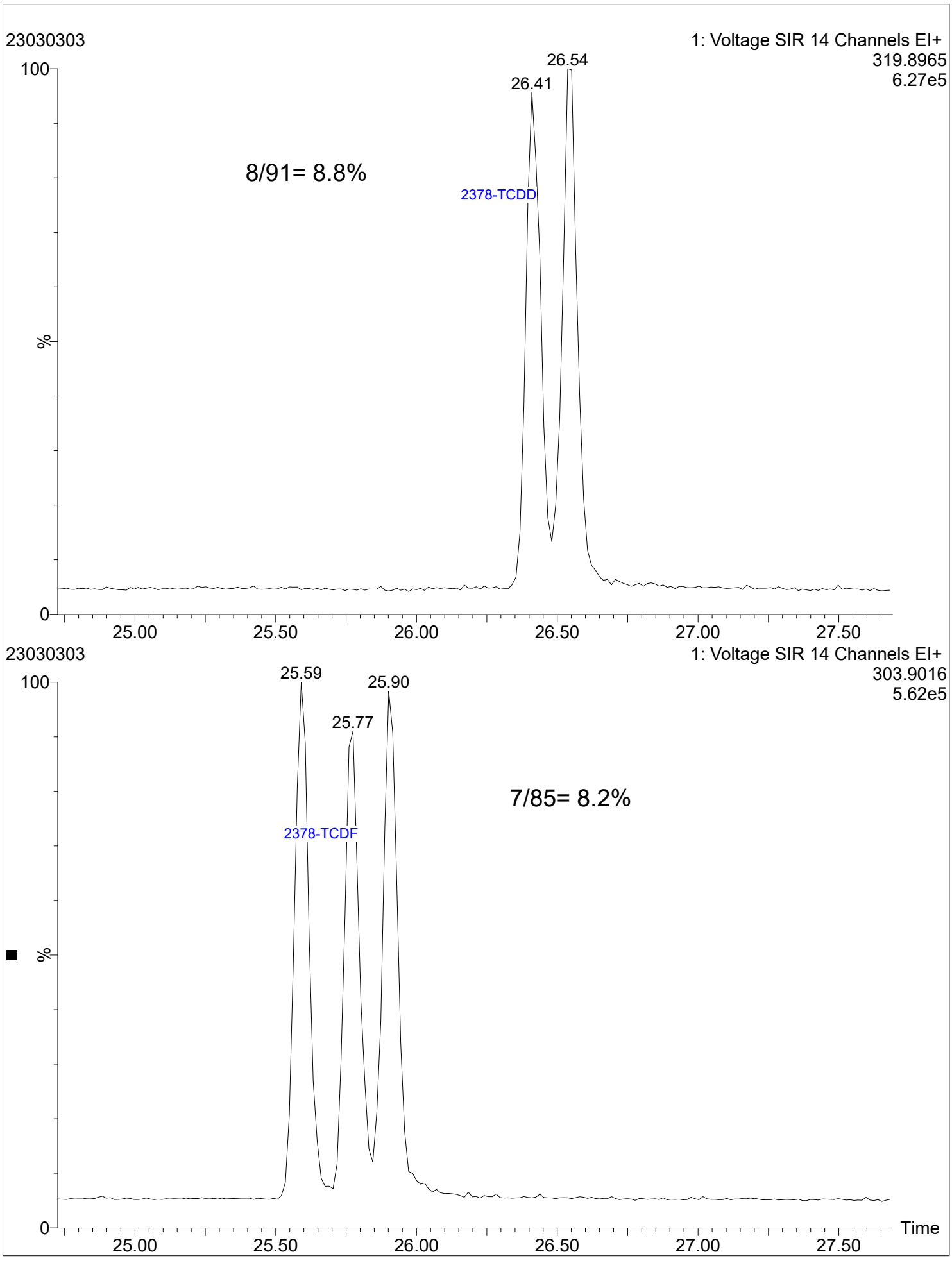


M 504.9696 R 12722



M 516.9697 R 14005




23030303
1: Voltage SIR 14 Channels EI+
319.8965
6.27e5
100
26.54
26.41
8/91= 8.8%
2378-TCDD
%
0
25.00
25.50
26.00
26.50
27.00
27.50
23030303
1: Voltage SIR 14 Channels EI+
303.9016
5.62e5
100
25.59
25.90
25.77
7/85= 8.2%
2378-TCDF
%
0
Time
25.00
25.50
26.00
26.50
27.00
27.50

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:33:58 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF					0.702		0.770	1141	1568								
12378-PeCDF	29.922	1.000	2.331e3	1.631e3	0.679	1.429	1.550	717	1165	3.89e4	2.49e4	54.3	21.4	NO	bb	bd	0.520
23478-PeCDF	31.270	1.001	2.446e3	1.527e3	0.786	1.602	1.550	717	1165	3.60e4	2.25e4	50.1	19.4	NO	bb	bb	0.508
123478-HxCDF	34.891	1.001	2.740e3	2.578e3	1.166	1.063	1.240	675	706	4.36e4	3.63e4	64.6	51.5	NO	bd	bd	0.522
234678-HxCDF	35.894	1.001	2.363e3	1.967e3	1.140	1.201	1.240	675	706	3.52e4	3.17e4	52.2	44.9	NO	bb	bb	0.459
123678-HxCDF	35.025	1.000	2.955e3	2.593e3	1.091	1.140	1.240	675	706	3.97e4	3.71e4	58.8	52.6	NO	db	dd	0.495
123789-HxCDF	36.919	1.000	2.292e3	1.751e3	1.137	1.309	1.240	675	706	3.51e4	2.45e4	52.0	34.7	NO	bd	bb	0.523
1234678-HpCDF	38.769	1.001	1.264e3	1.356e3	1.003	0.932	1.050	1176	1150	2.17e4	2.11e4	18.4	18.3	NO	bd	bb	0.466
1234789-HpCDF	40.997	1.000	1.144e3	1.036e3	0.953	1.105	1.050	1176	1150	1.78e4	1.51e4	15.1	13.1	NO	bb	bd	0.465
OCDF	45.228	1.006	2.105e3	2.214e3	0.778	0.951	0.890	762	984	2.31e4	2.16e4	30.2	22.0	NO	bb	bb	1.044
2378-TCDD					1.149		0.770	1186	741								
12378-PeCDD	31.527	1.001	2.628e3	1.506e3	1.022	1.745	1.550	935	615	3.66e4	1.58e4	39.1	25.7	NO	bb	bb	0.540
123478-HxCDD	36.016	1.001	2.113e3	1.865e3	0.996	1.133	1.240	725	812	3.30e4	2.93e4	45.6	36.1	NO	dd	bd	0.542
123678-HxCDD	36.128	1.001	2.428e3	1.876e3	1.001	1.294	1.240	725	812	3.70e4	2.39e4	51.1	29.5	NO	db	db	0.479
123789-HxCDD	36.507	1.011	2.154e3	1.651e3	0.907	1.304	1.240	725	812	3.30e4	2.34e4	45.5	28.9	NO	bd	bb	0.513
1234678-HpCDD	40.261	1.000	1.634e3	1.397e3	1.039	1.170	1.050	985	1205	2.31e4	2.24e4	23.5	18.6	NO	MM	bb	0.531
OCDD					0.920		0.890	1090	941								
13C-2378-TCDF	25.746	1.007	5.730e5	7.592e5	1.620	0.755	0.770	2498	2006	8.42e6	1.11e7	3371.3	5556.4	NO	bb	bb	100.702
13C-12378-PeCDF	29.911	1.169	6.805e5	4.409e5	1.240	1.543	1.550	2678	2220	9.20e6	6.10e6	3433.8	2749.3	NO	bb	bd	110.727
13C-23478-PeCDF	31.248	1.222	6.001e5	3.956e5	1.118	1.517	1.550	2678	2220	8.66e6	5.74e6	3235.2	2585.6	NO	bb	bb	109.107
13C-123478-HxCDF	34.869	0.955	2.965e5	5.770e5	1.168	0.514	0.510	1558	3112	4.38e6	8.54e6	2813.2	2745.5	NO	bd	bd	98.607
13C-123678-HxCDF	35.014	0.959	3.446e5	6.820e5	1.386	0.505	0.510	1558	3112	4.56e6	9.02e6	2927.1	2898.6	NO	db	dd	97.648
13C-234678-HxCDF	35.872	0.983	2.821e5	5.460e5	1.129	0.517	0.510	1558	3112	4.13e6	8.00e6	2652.6	2572.0	NO	bb	bb	96.703
13C-123789-HxCDF	36.908	1.011	2.282e5	4.511e5	0.932	0.506	0.510	1558	3112	3.31e6	6.47e6	2122.2	2079.8	NO	bb	bb	96.146
13C-1234678-HpCDF	38.746	1.062	1.794e5	3.814e5	0.895	0.470	0.440	2435	3572	2.60e6	5.93e6	1069.0	1659.1	NO	bd	bb	82.620
13C-1234789-HpCDF	40.986	1.123	1.404e5	3.516e5	0.770	0.399	0.440	2435	3572	1.98e6	4.51e6	813.8	1262.1	NO	bb	bb	84.288
13C-1234-TCDD	25.576	0.000	3.640e5	4.524e5	1.000	0.805	0.770	1931	1352	5.55e6	6.91e6	2875.2	5114.0	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.032	4.012e5	4.998e5	1.152	0.803	0.770	1931	1352	5.75e6	7.10e6	2979.4	5249.9	NO	bb	bb	95.760
13C-12378-PeCDD	31.504	1.232	4.613e5	2.880e5	0.829	1.602	1.550	1401	1533	6.70e6	4.14e6	4781.1	2700.1	NO	bb	bb	110.725
13C-123478-HxCDD	35.994	0.986	4.133e5	3.236e5	0.995	1.277	1.240	1744	1461	6.55e6	5.10e6	3756.0	3493.2	NO	bd	bd	97.670
13C-123678-HxCDD	36.106	0.989	5.195e5	3.785e5	1.157	1.372	1.240	1744	1461	6.84e6	5.29e6	3920.0	3622.3	NO	db	db	102.381
13C-1234678-HpCDD	40.250	1.103	2.785e5	2.707e5	0.840	1.029	1.050	1497	2275	3.82e6	3.65e6	2553.8	1605.5	NO	bb	bd	86.201
13C-OCDD	44.972	1.232	5.210e5	5.429e5	0.767	0.960	0.890	2989	1436	5.87e6	6.48e6	1964.2	4513.5	NO	bd	bb	182.810
13C-123789-HxCDD	36.496	0.000	4.181e5	3.402e5	1.000	1.229	1.240	1744	1461	6.11e6	4.85e6	3503.9	3317.8	NO	bb	bb	100.000
37CL-2378-TCDD	26.410	1.033	1.287e3		1.288			1959		1.53e4		7.8			db		0.122

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:33:58 Pacific Standard Time

ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1141	1568								
1289-TCDF					0.678		0.770	1141	1568								
13468-PECDF					1.246		1.550	669	893								
12389-PECDF					0.496		1.550	717	1165								
123468-HXCDF					1.169		1.240	675	706								
1368-TCDD					1.015		0.770	1186	741								
1289-TCDD					0.909		0.770	1186	741								
12479-PECDD					2.301		1.550	935	615								
12389-PECDD					1.184		1.550	935	615								
124679-HXCDD					1.115		1.240	725	812								
1234679-HPCDD					1.137		1.050	985	1205								
Total-tetrafurans			0.000e0		0.727			1141		0.00e0							
Total-penta1			0.000e0					669		0.00e0							
Total-pentafurans			4.777e3		0.654			717		7.49e4							1.028
Total-hexafurans			1.035e4		1.141			675		1.54e5							2.000
Total-heptafurans			2.408e3		0.978			1176		3.94e4							0.931
Total-Furans			1.971e4		0.922			1141		2.93e5							5.016
Total-tetradioxins			0.000e0		1.024			1186		0.00e0							
Total-pentadioxins			2.628e3		1.502			935		3.66e4							0.540
Total-hexadioxins			6.694e3		1.005			725		1.03e5							1.534
Total-heptadioxins			1.634e3		1.088			985		2.31e4							0.531
Total-Dioxins			1.096e4		1.130			1186		1.63e5							2.605
Total-TEQ			3.067e4					1186		4.55e5							7.621
FUNCTION1 PFK			3.116e6					620464		1.62e6							
FUNCTION2 PFK			1.698e6					301200		2.24e6							0.000
FUNCTION3 PFK			5.380e7					450736		2.93e7							0.000
FUNCTION4 PFK			1.391e7					291095		1.60e7							
FUNCTION5 PFK			7.208e4					238350		2.59e6							
FUNCTION1 HXCD...			4.809e2					559		5.84e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.084e2					933		1.50e4							0.000
FUNCTION3 OCDPE			0.000e0					494		0.00e0							
FUNCTION4 NCDPE			6.931e2					845		1.26e4							0.000
FUNCTION5 DCDPE			7.511e2					821		1.86e4							0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

TF

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

PP

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

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	2.446e3	1.527e3	0.786	1.60	1.55	50.1	YES	NO	bb	bb	0.508
2	12378-PeCDF	29.92	2.331e3	1.631e3	0.679	1.43	1.55	54.3	YES	NO	bb	bd	0.520

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.92	2.292e3	1.751e3	1.137	1.31	1.24	52.0	YES	NO	bd	bb	0.523
2	234678-HxCDF	35.89	2.363e3	1.967e3	1.140	1.20	1.24	52.2	YES	NO	bb	bb	0.459
3	123678-HxCDF	35.03	2.955e3	2.593e3	1.091	1.14	1.24	58.8	YES	NO	db	dd	0.495
4	123478-HxCDF	34.89	2.740e3	2.578e3	1.166	1.06	1.24	64.6	YES	NO	bd	bd	0.522

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.77	1.264e3	1.356e3	1.003	0.93	1.05	18.4	YES	NO	bd	bb	0.466
2	1234789-HpCDF	41.00	1.144e3	1.036e3	0.953	1.10	1.05	15.1	YES	NO	bb	bd	0.465

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-Furans	21.68	7.033e1	1.021e2	0.922	0.69	0.77	1.5	NO	NO	bb	bb	0.014
2	123789-HxCDF	36.92	2.292e3	1.751e3	1.137	1.31	1.24	52.0	YES	NO	bd	bb	0.523
3	234678-HxCDF	35.89	2.363e3	1.967e3	1.140	1.20	1.24	52.2	YES	NO	bb	bb	0.459
4	123678-HxCDF	35.03	2.955e3	2.593e3	1.091	1.14	1.24	58.8	YES	NO	db	dd	0.495
5	123478-HxCDF	34.89	2.740e3	2.578e3	1.166	1.06	1.24	64.6	YES	NO	bd	bd	0.522
6	23478-PeCDF	31.27	2.446e3	1.527e3	0.786	1.60	1.55	50.1	YES	NO	bb	bb	0.508
7	12378-PeCDF	29.92	2.331e3	1.631e3	0.679	1.43	1.55	54.3	YES	NO	bb	bd	0.520
8	1234678-HpCDF	38.77	1.264e3	1.356e3	1.003	0.93	1.05	18.4	YES	NO	bd	bb	0.466
9	1234789-HpCDF	41.00	1.144e3	1.036e3	0.953	1.10	1.05	15.1	YES	NO	bb	bd	0.465
10	OCDF	45.23	2.105e3	2.214e3	0.778	0.95	0.89	30.2	YES	NO	bb	bb	1.044

TD

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

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.53	2.628e3	1.506e3	1.022	1.75	1.55	39.1	YES	NO	bb	bb	0.540

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.51	2.154e3	1.651e3	0.907	1.30	1.24	45.5	YES	NO	bd	bb	0.513
2	123678-HxCDD	36.13	2.428e3	1.876e3	1.001	1.29	1.24	51.1	YES	NO	db	db	0.479
3	123478-HxCDD	36.02	2.113e3	1.865e3	0.996	1.13	1.24	45.6	YES	NO	dd	bd	0.542

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.26	1.634e3	1.397e3	1.039	1.17	1.05	23.5	YES	NO	MM	bb	0.531

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.53	2.628e3	1.506e3	1.022	1.75	1.55	39.1	YES	NO	bb	bb	0.540
2	123789-HxCDD	36.51	2.154e3	1.651e3	0.907	1.30	1.24	45.5	YES	NO	bd	bb	0.513
3	123678-HxCDD	36.13	2.428e3	1.876e3	1.001	1.29	1.24	51.1	YES	NO	db	db	0.479
4	123478-HxCDD	36.02	2.113e3	1.865e3	0.996	1.13	1.24	45.6	YES	NO	dd	bd	0.542
5	1234678-HpCDD	40.26	1.634e3	1.397e3	1.039	1.17	1.05	23.5	YES	NO	MM	bb	0.531

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-Furans	21.68	7.033e1	1.021e2	0.922	0.69	0.77	1.5	NO	NO	bb	bb	0.014
2	123789-HxCDF	36.92	2.292e3	1.751e3	1.137	1.31	1.24	52.0	YES	NO	bd	bb	0.523
3	234678-HxCDF	35.89	2.363e3	1.967e3	1.140	1.20	1.24	52.2	YES	NO	bb	bb	0.459
4	123678-HxCDF	35.03	2.955e3	2.593e3	1.091	1.14	1.24	58.8	YES	NO	db	dd	0.495
5	123478-HxCDF	34.89	2.740e3	2.578e3	1.166	1.06	1.24	64.6	YES	NO	bd	bd	0.522
6	23478-PeCDF	31.27	2.446e3	1.527e3	0.786	1.60	1.55	50.1	YES	NO	bb	bb	0.508
7	12378-PeCDF	29.92	2.331e3	1.631e3	0.679	1.43	1.55	54.3	YES	NO	bb	bd	0.520
8	1234678-HpCDF	38.77	1.264e3	1.356e3	1.003	0.93	1.05	18.4	YES	NO	bd	bb	0.466
9	1234789-HpCDF	41.00	1.144e3	1.036e3	0.953	1.10	1.05	15.1	YES	NO	bb	bd	0.465
10	OCDF	45.23	2.105e3	2.214e3	0.778	0.95	0.89	30.2	YES	NO	bb	bb	1.044
11	12378-PeCDD	31.53	2.628e3	1.506e3	1.022	1.75	1.55	39.1	YES	NO	bb	bb	0.540
12	123789-HxCDD	36.51	2.154e3	1.651e3	0.907	1.30	1.24	45.5	YES	NO	bd	bb	0.513
13	123678-HxCDD	36.13	2.428e3	1.876e3	1.001	1.29	1.24	51.1	YES	NO	db	db	0.479
14	123478-HxCDD	36.02	2.113e3	1.865e3	0.996	1.13	1.24	45.6	YES	NO	dd	bd	0.542
15	1234678-HpCDD	40.26	1.634e3	1.397e3	1.039	1.17	1.05	23.5	YES	NO	MM	bb	0.531

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	24.18	3.116e6					2.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.19	1.560e6					3.1	YES		bb		0.000
2	FUNCTION2 PFK	28.13	1.376e5					4.3	YES		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.12	2.560e6					15.7	YES		db		0.000
2	FUNCTION3 PFK	36.37	7.058e6					24.4	YES		dd		0.000
3	FUNCTION3 PFK	36.11	4.418e7					24.8	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	42.43	1.404e5					1.6	NO		bb		
2	FUNCTION4 PFK	37.89	1.377e7					53.2	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.15	7.152e3					1.1	NO		bb		
2	FUNCTION5 PFK	45.07	1.178e3					0.5	NO		bb		
3	FUNCTION5 PFK	44.98	1.177e3					0.5	NO		bb		
4	FUNCTION5 PFK	44.19	7.772e3					0.8	NO		bb		
5	FUNCTION5 PFK	43.72	7.921e3					1.3	NO		bb		
6	FUNCTION5 PFK	43.60	4.474e3					0.7	NO		bb		
7	FUNCTION5 PFK	43.17	6.636e3					1.2	NO		bb		
8	FUNCTION5 PFK	43.01	5.001e3					0.7	NO		bb		
9	FUNCTION5 PFK	42.76	1.253e4					1.4	NO		bb		
10	FUNCTION5 PFK	45.91	8.220e3					0.4	NO		bb		
11	FUNCTION5 PFK	45.75	6.523e3					1.4	NO		bb		
12	FUNCTION5 PFK	45.25	3.501e3					0.7	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.60	9.542e1					2.4	NO		bb		0.000
2	FUNCTION1 HXCD...	26.42	7.837e1					1.9	NO		bb		0.000
3	FUNCTION1 HXCD...	25.58	1.709e2					3.5	YES		bb		0.000
4	FUNCTION1 HXCD...	23.40	1.362e2					2.7	NO		bb		0.000

ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.36	1.308e2					1.8	NO		bb		0.000
2	FUNCTION2 HPCD...	31.75	8.377e1					1.7	NO		bb		0.000
3	FUNCTION2 HPCD...	31.30	1.170e2					2.2	NO		db		0.000
4	FUNCTION2 HPCD...	31.24	1.138e2					2.6	NO		bd		0.000
5	FUNCTION2 HPCD...	30.92	1.786e2					3.2	YES		bb		0.000
6	FUNCTION2 HPCD...	30.04	8.034e1					1.7	NO		bb		0.000
7	FUNCTION2 HPCD...	29.47	1.041e2					2.9	NO		bb		0.000

ETHERS4

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

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.04	9.826e1					2.2	NO		bb		0.000
2	FUNCTION4 NCDPE	41.83	1.085e2					2.1	NO		bb		0.000
3	FUNCTION4 NCDPE	41.67	8.318e1					2.8	NO		db		0.000
4	FUNCTION4 NCDPE	41.58	1.047e2					2.5	NO		bd		0.000
5	FUNCTION4 NCDPE	41.32	1.741e2					2.4	NO		bb		0.000
6	FUNCTION4 NCDPE	41.15	1.244e2					2.8	NO		bb		0.000

ETHERS6

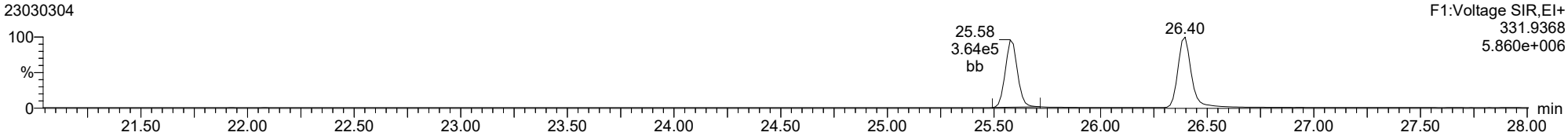
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1	FUNCTION5 DCDPE	43.53	7.557e1					1.5	NO		bb		0.000
2	FUNCTION5 DCDPE	43.39	1.767e2					2.9	NO		bb		0.000
3	FUNCTION5 DCDPE	43.31	8.303e1					2.9	NO		db		0.000
4	FUNCTION5 DCDPE	43.27	1.217e2					4.5	YES		bd		0.000
5	FUNCTION5 DCDPE	43.04	1.550e2					3.9	YES		bb		0.000
6	FUNCTION5 DCDPE	42.73	1.390e2					7.0	YES		bb		0.000

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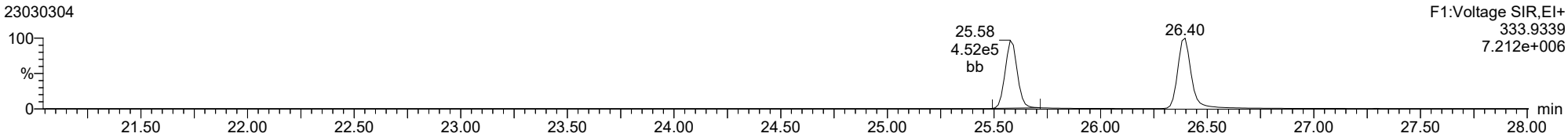
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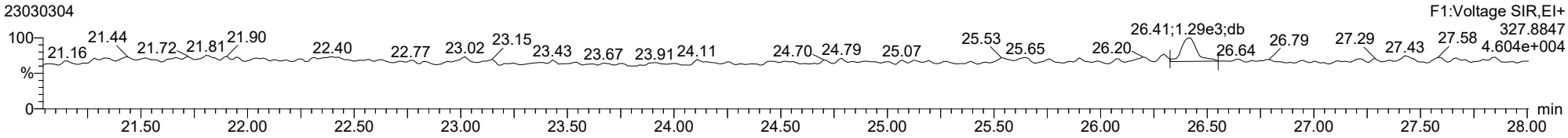
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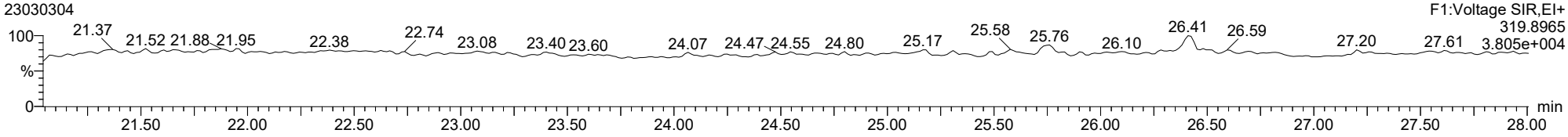


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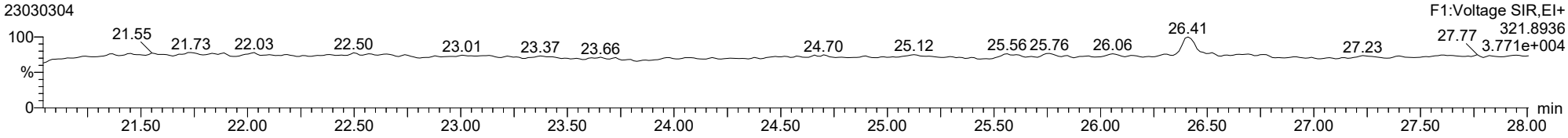


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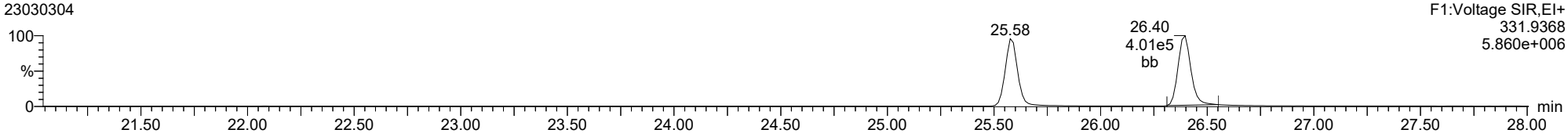
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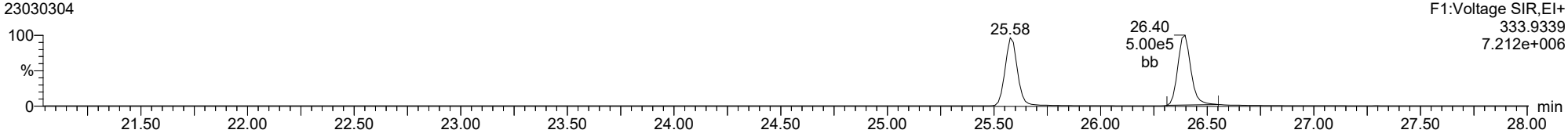
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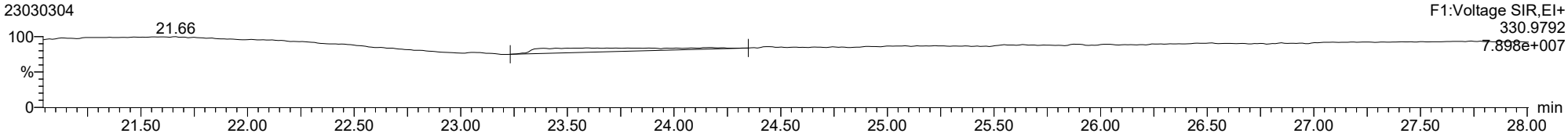
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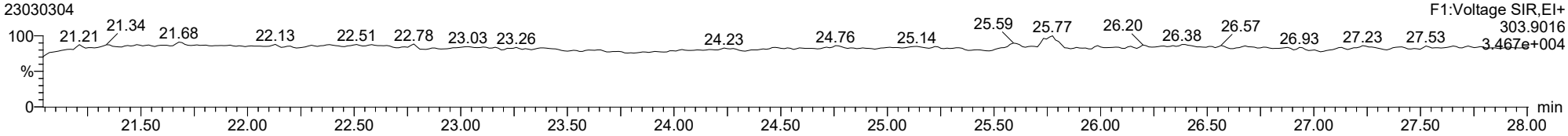


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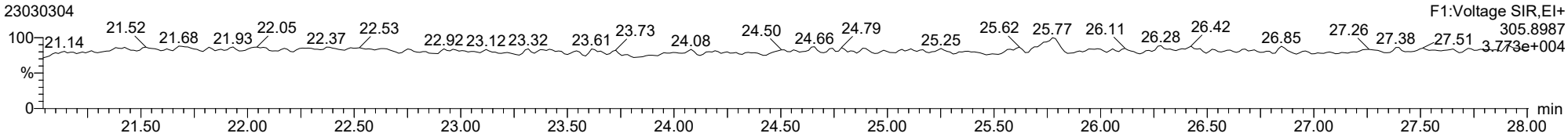


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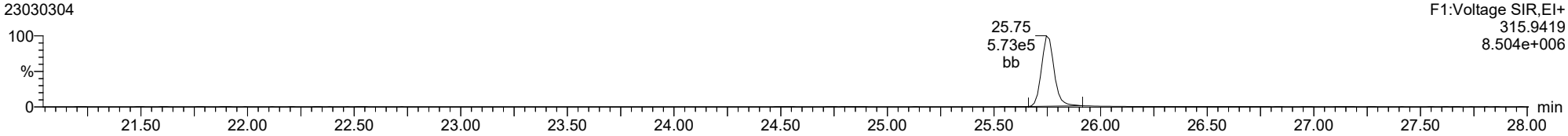
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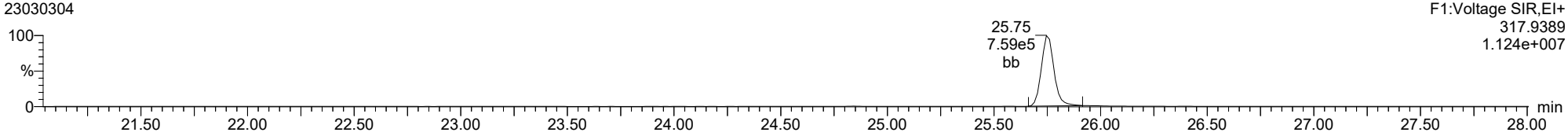
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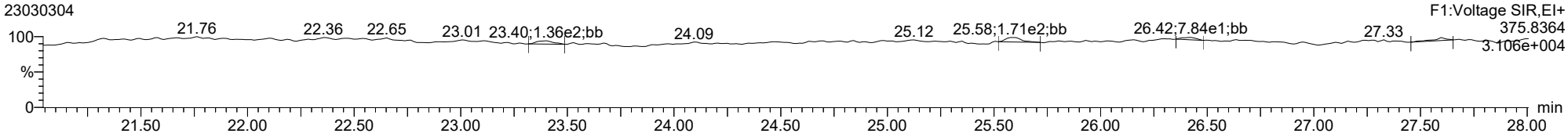
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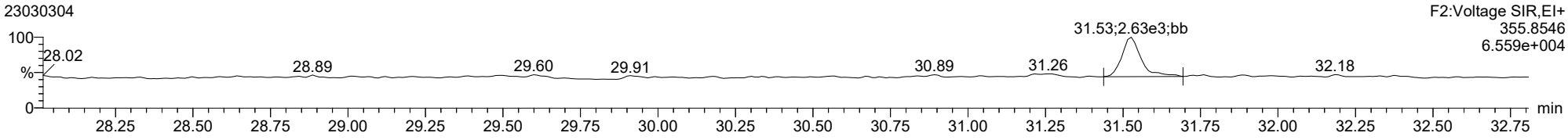


FUNCTION1 HXCDPE

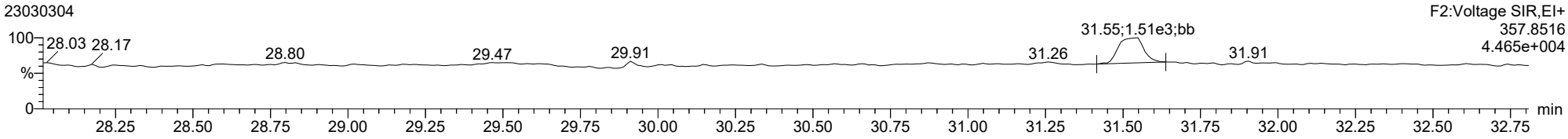


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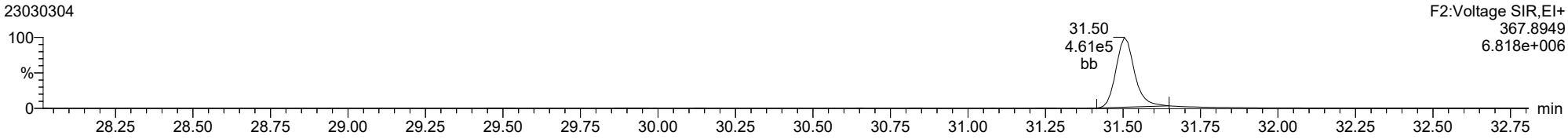
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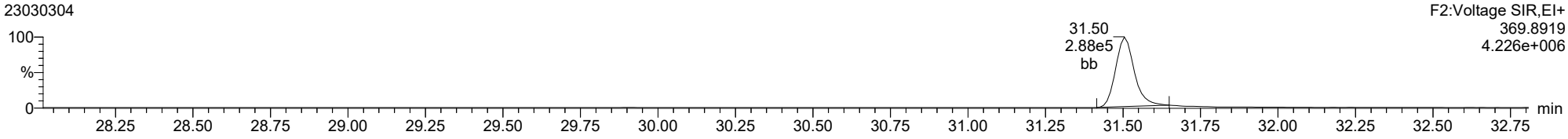
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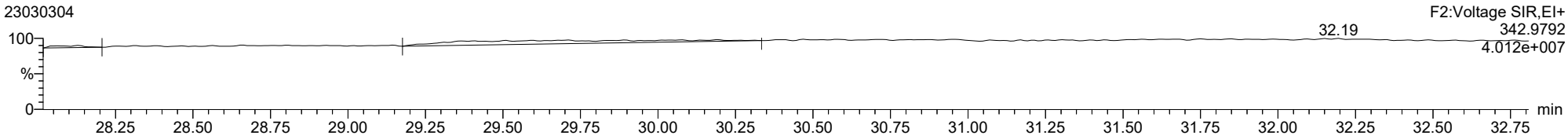
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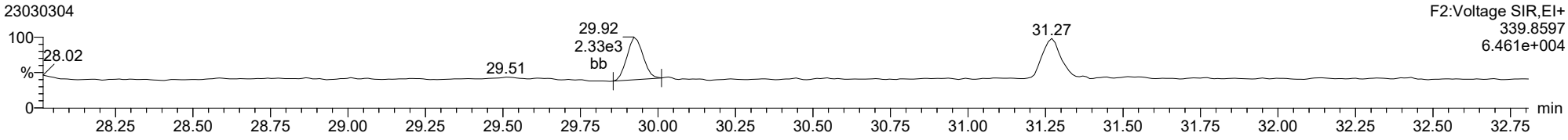


FUNCTION2 PFK

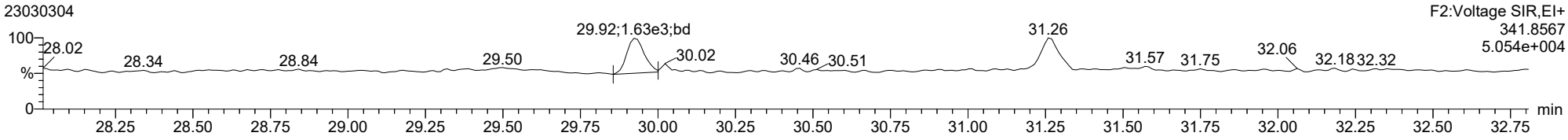


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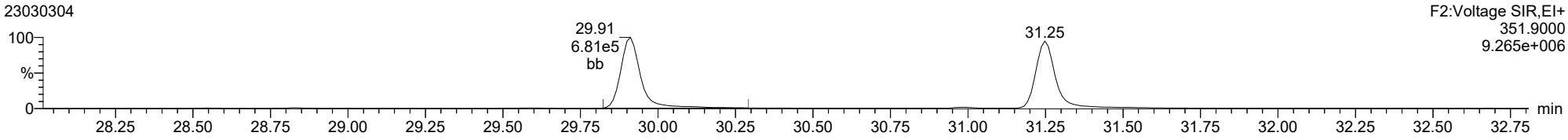
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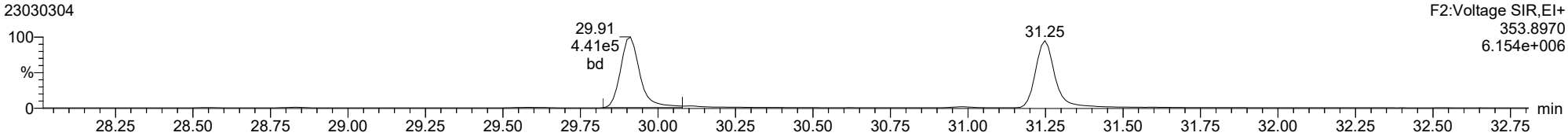
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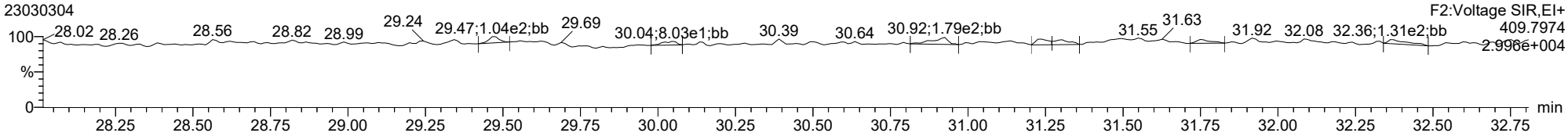
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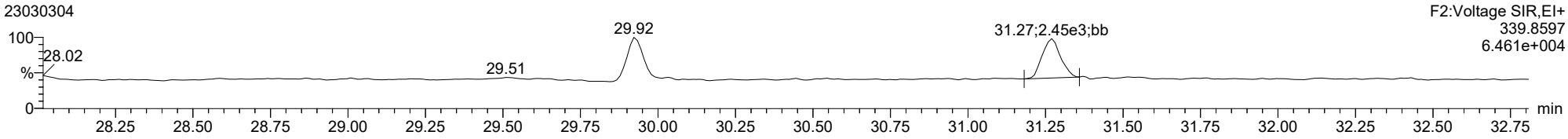


FUNCTION2 HPCDPE

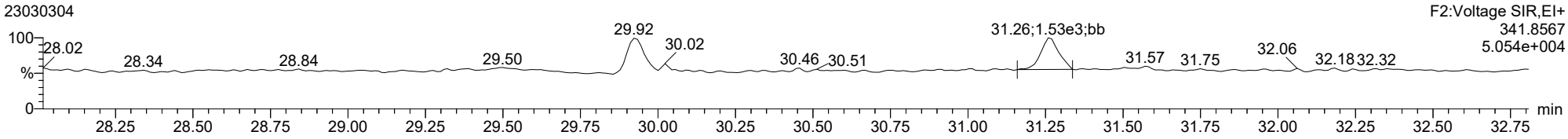


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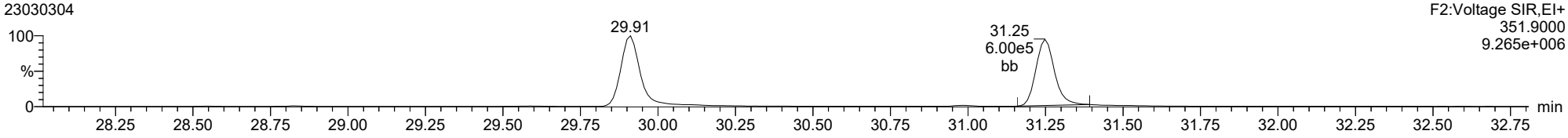
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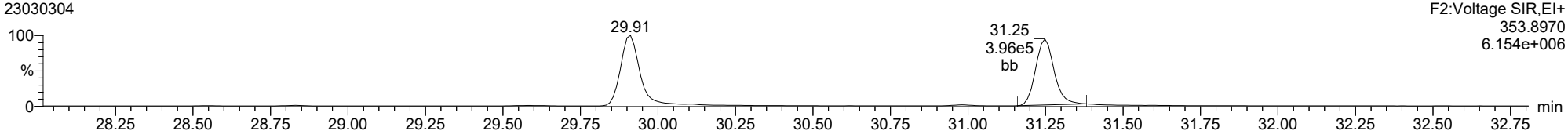
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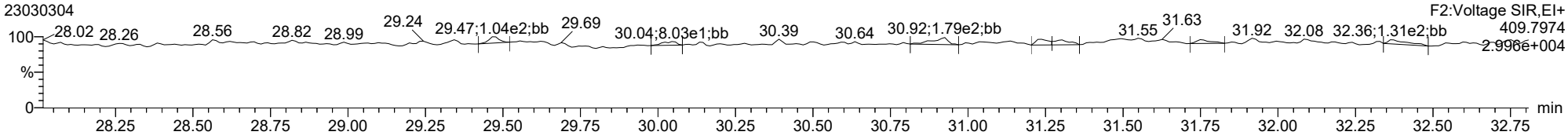
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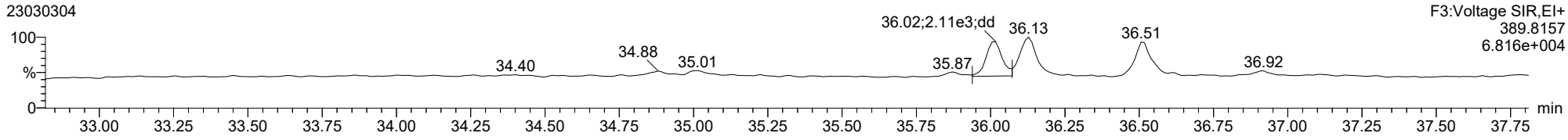


FUNCTION2 HPCDPE

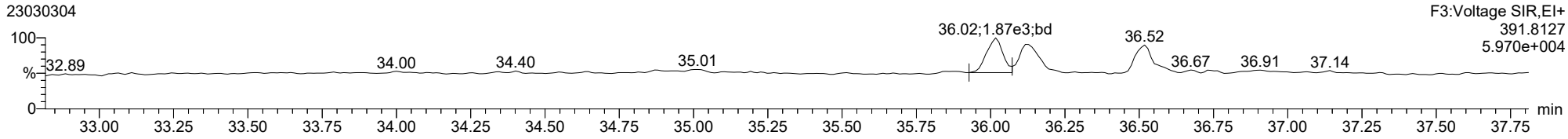


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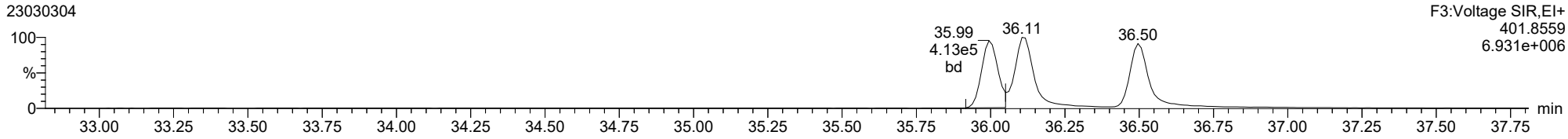
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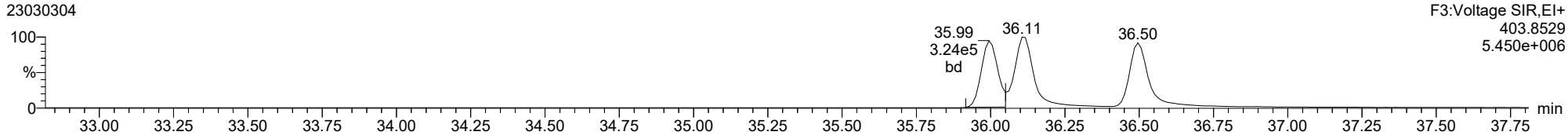
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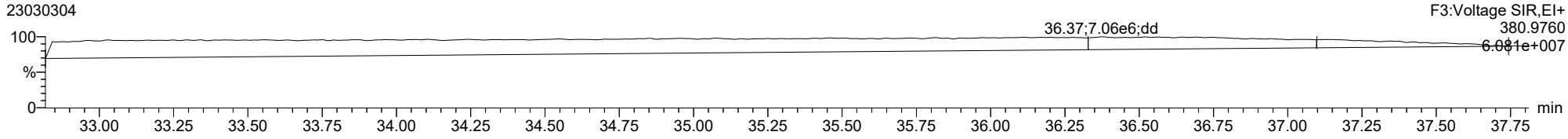
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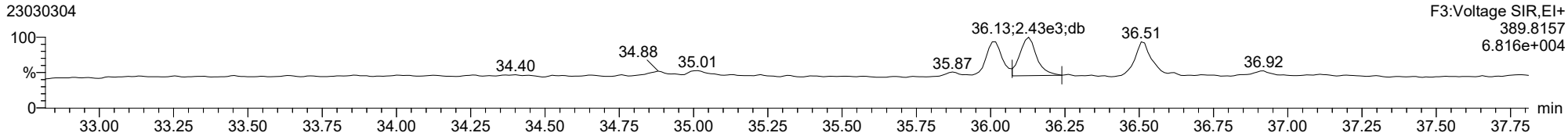
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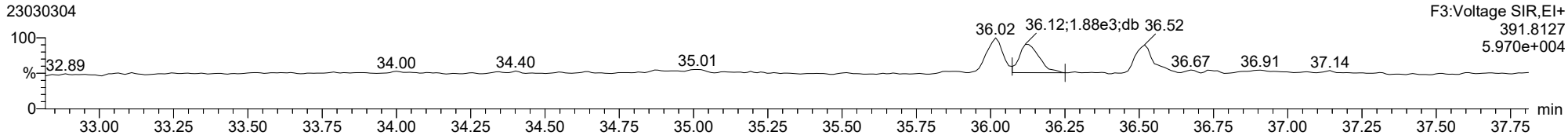
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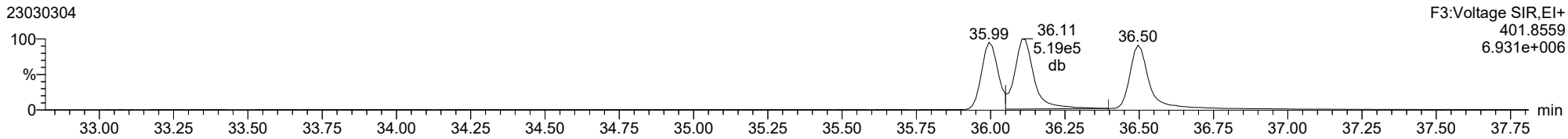
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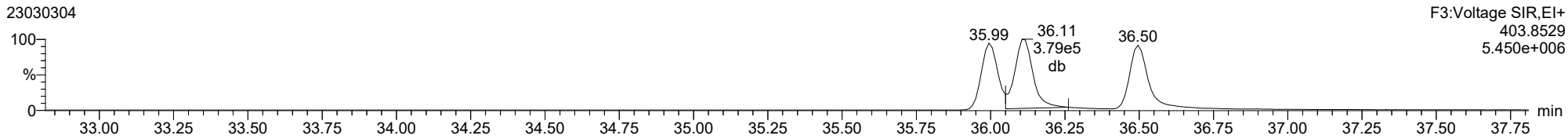
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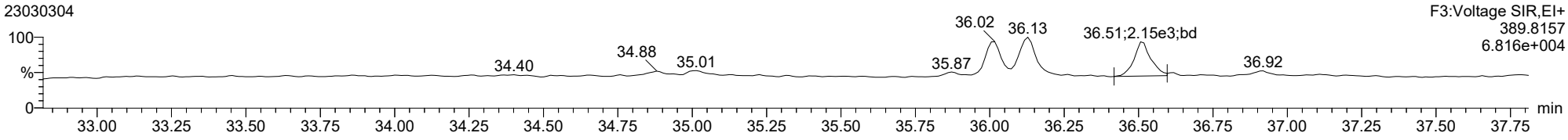


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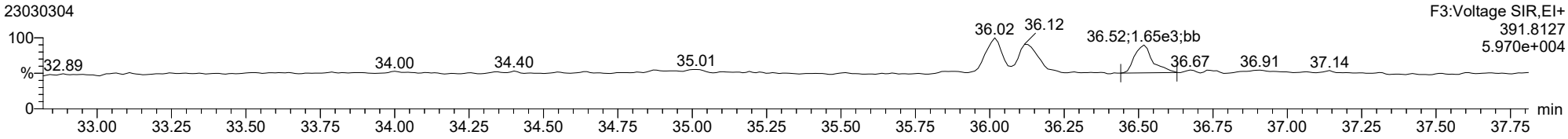


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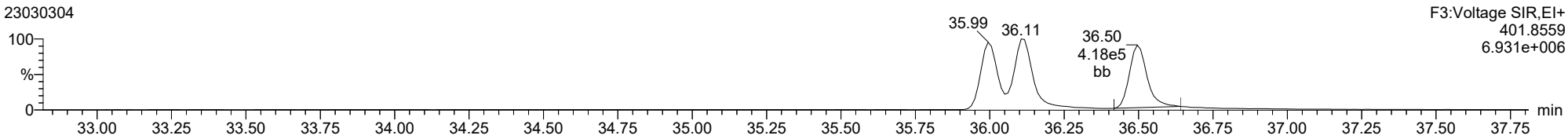
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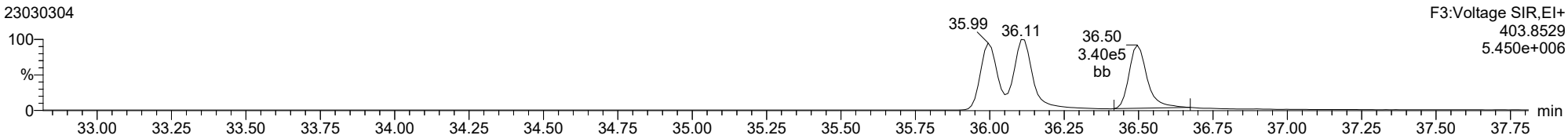
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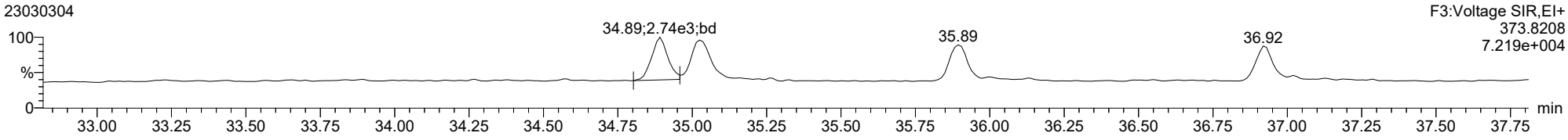


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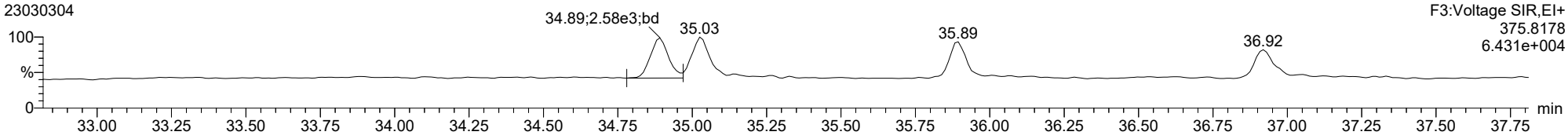


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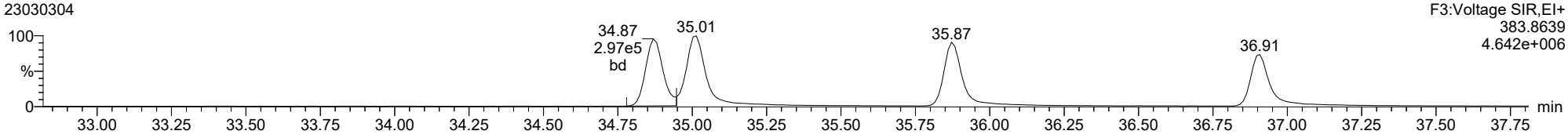
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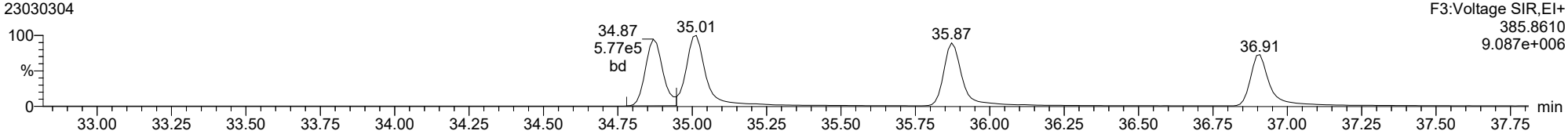
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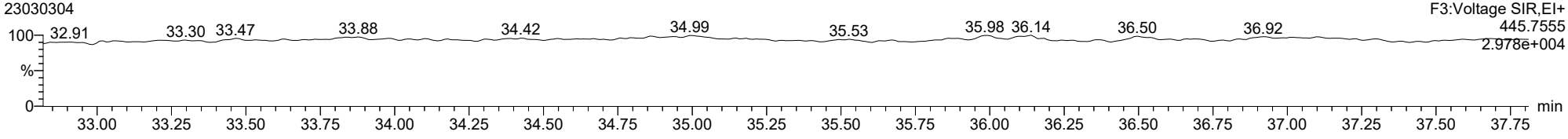
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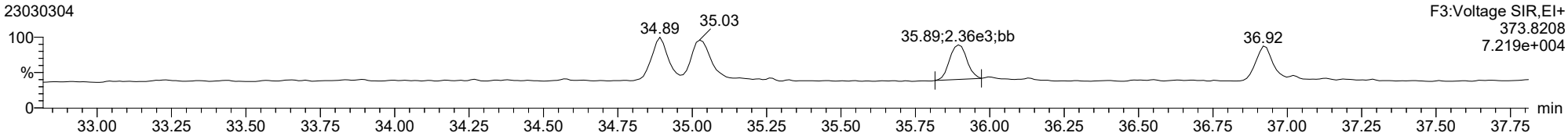


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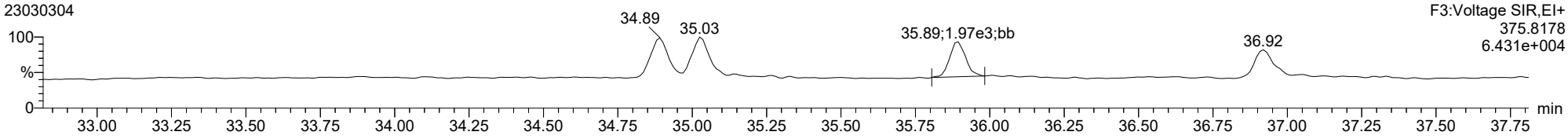


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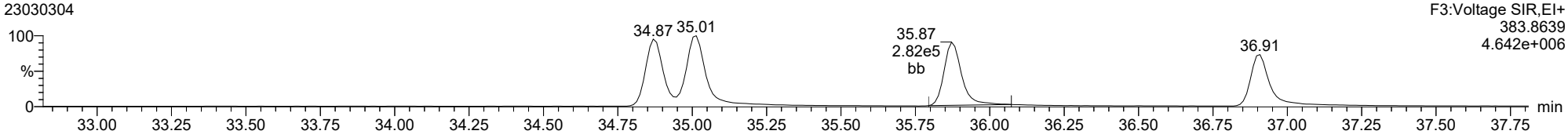
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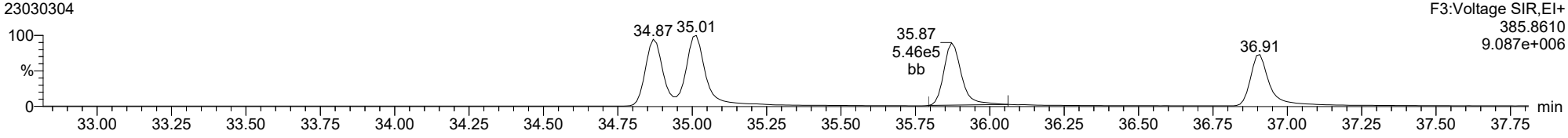
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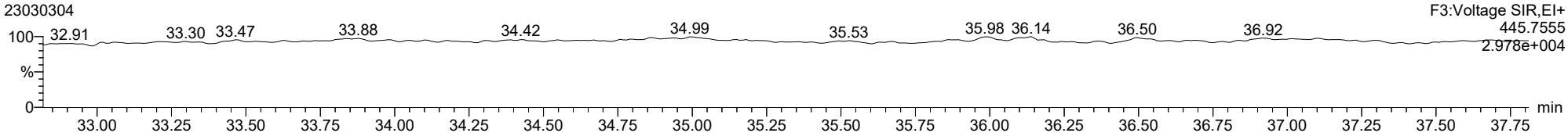
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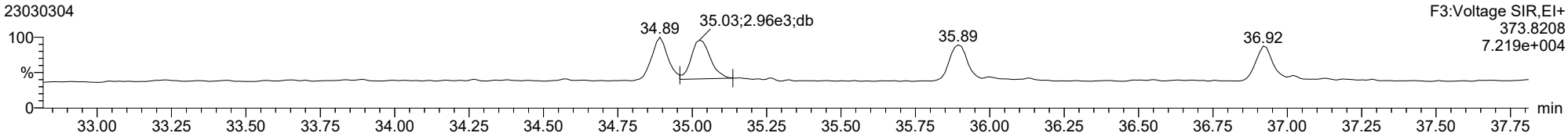


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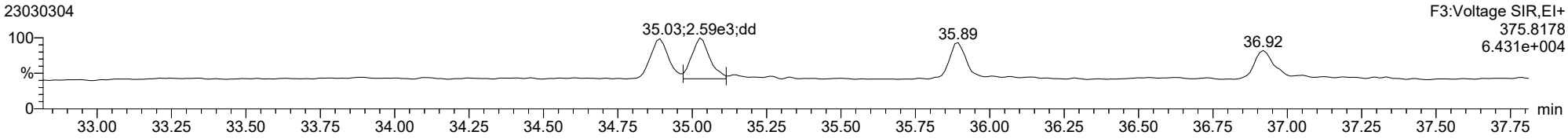


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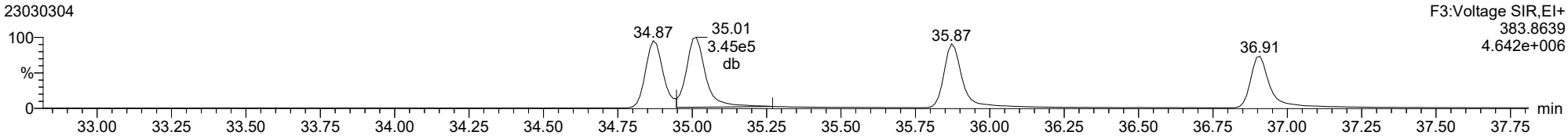
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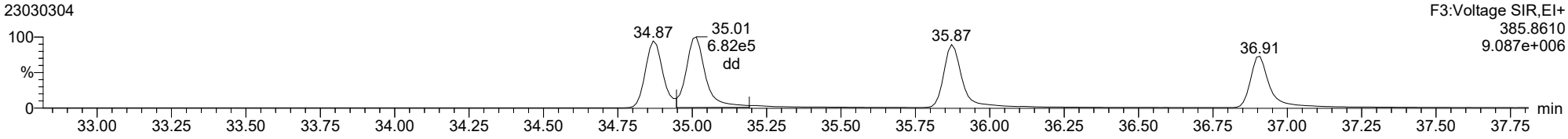
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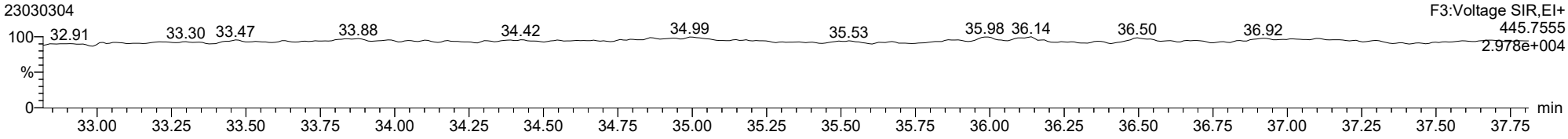
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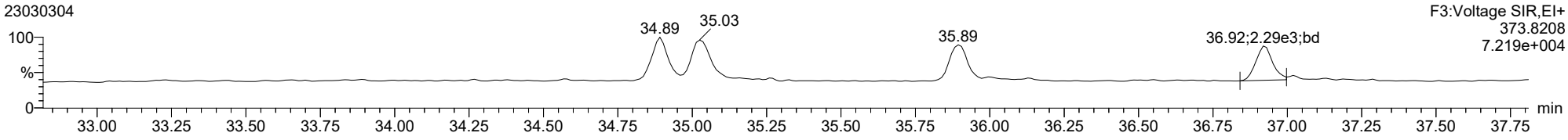


FUNCTION3 OCDPE

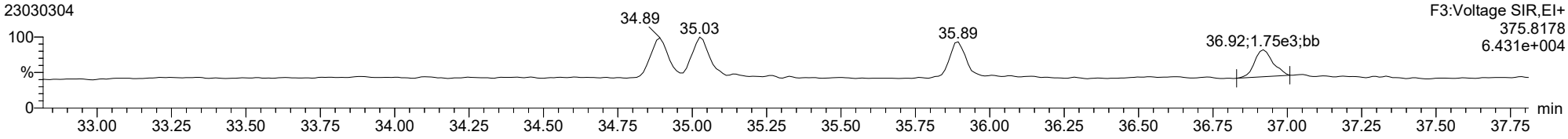


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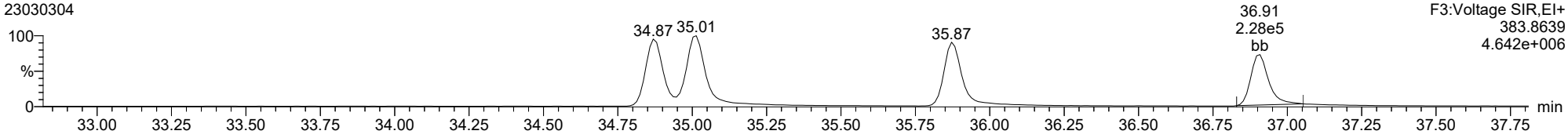
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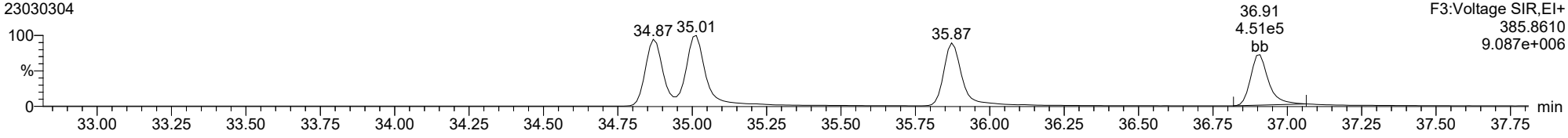
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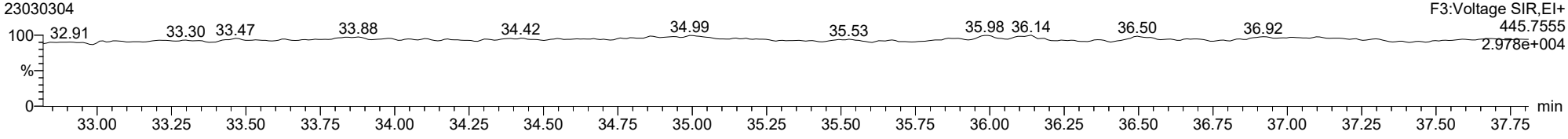
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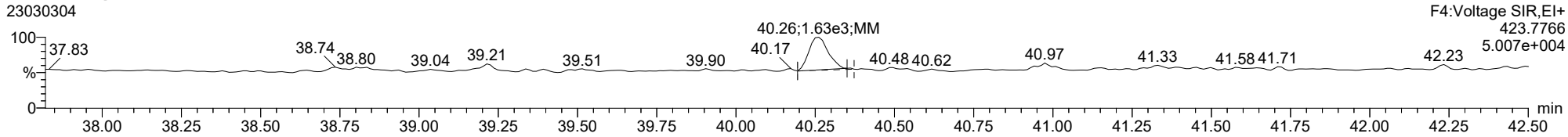


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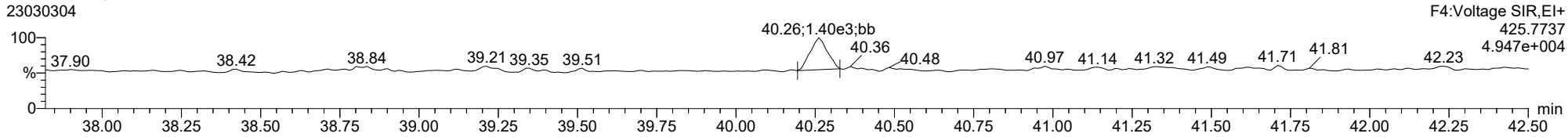


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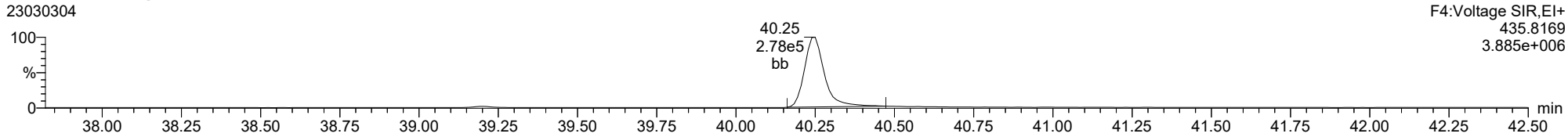
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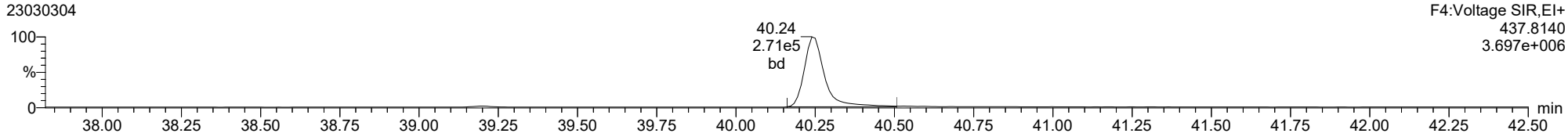
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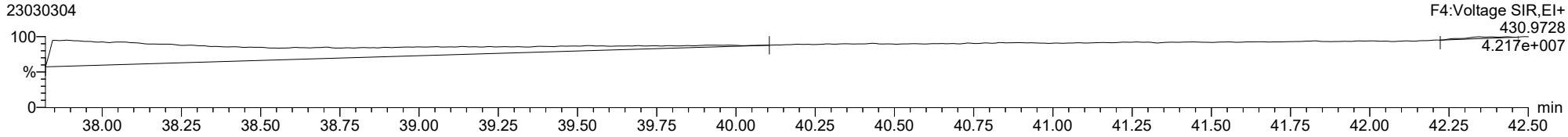
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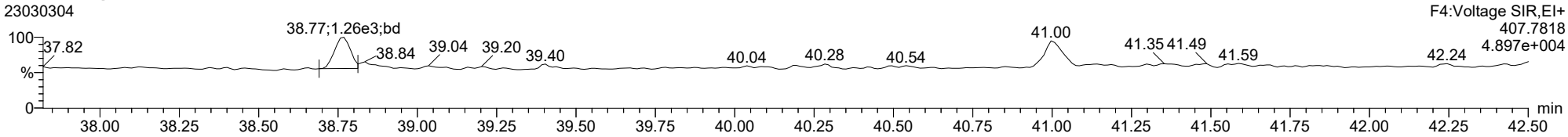


FUNCTION4 PFK

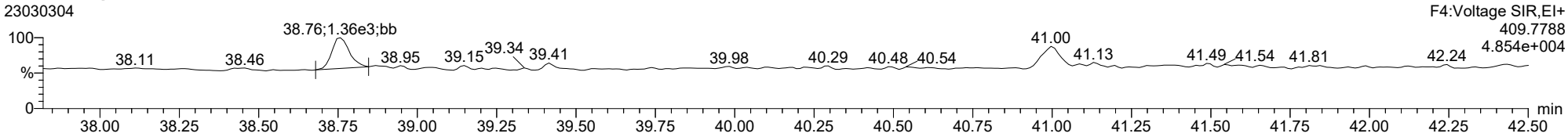


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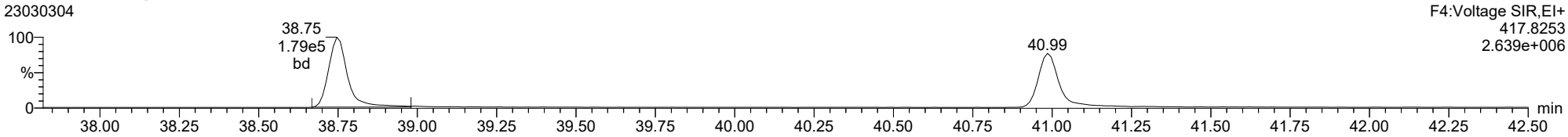
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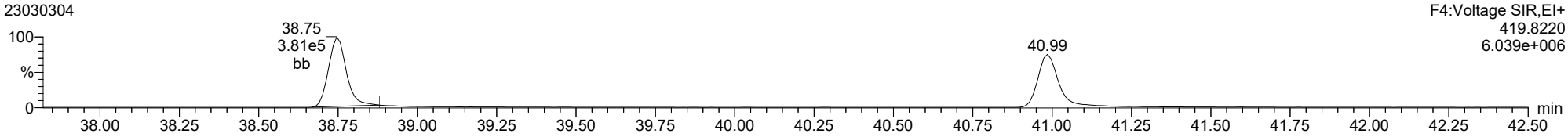
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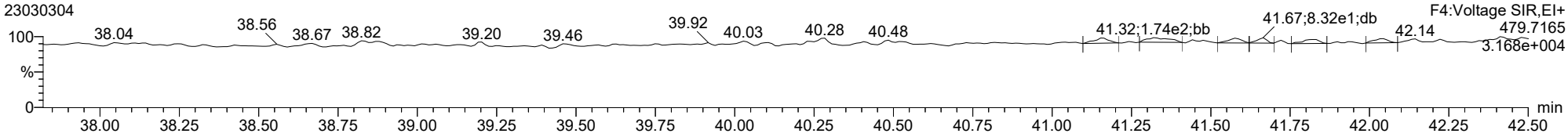
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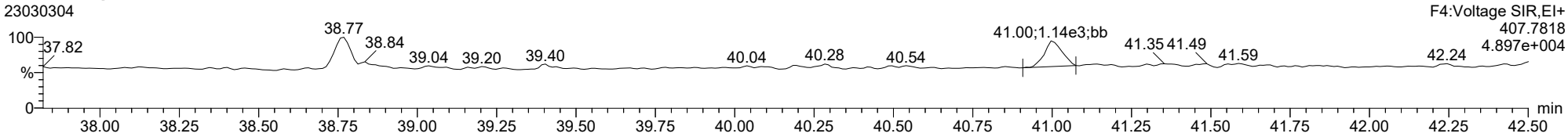


FUNCTION4 NCDPE

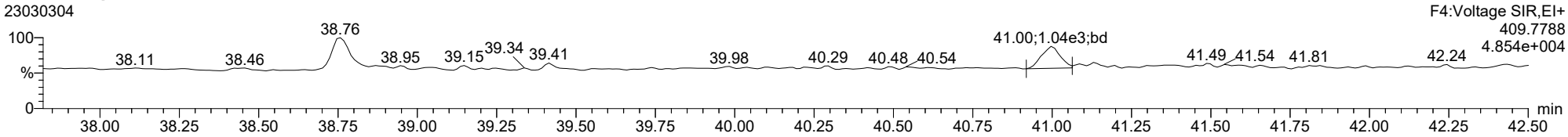


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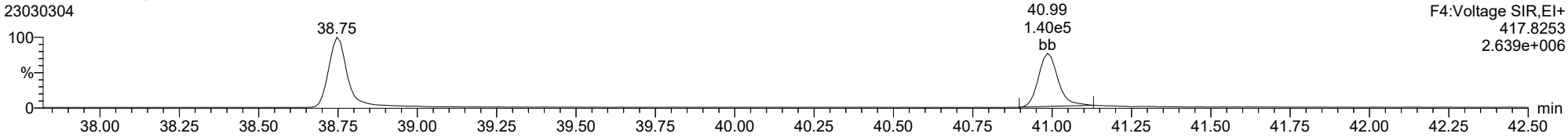
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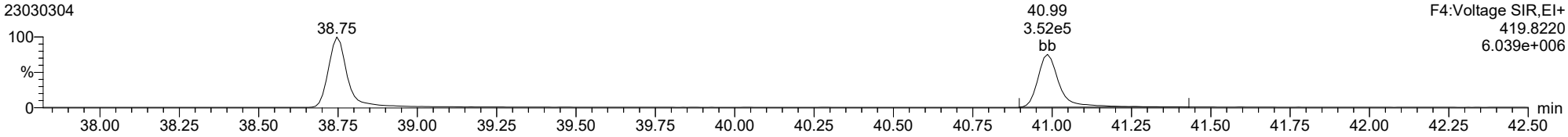
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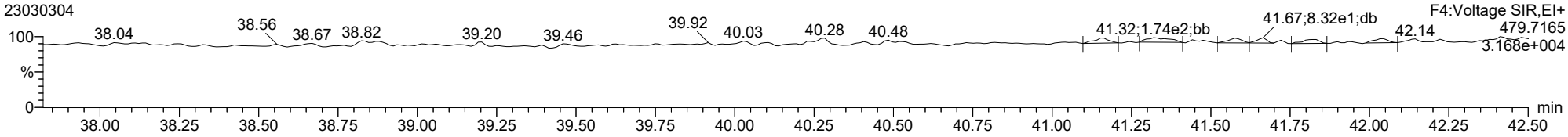
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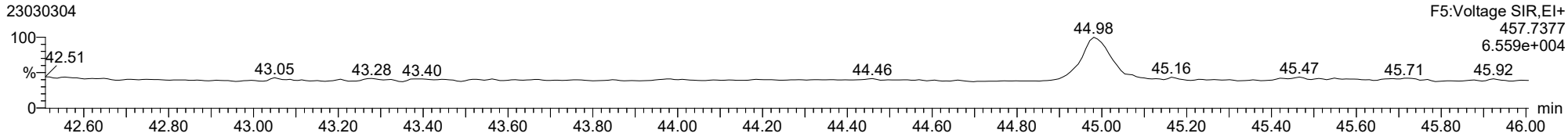


FUNCTION4 NCDPE

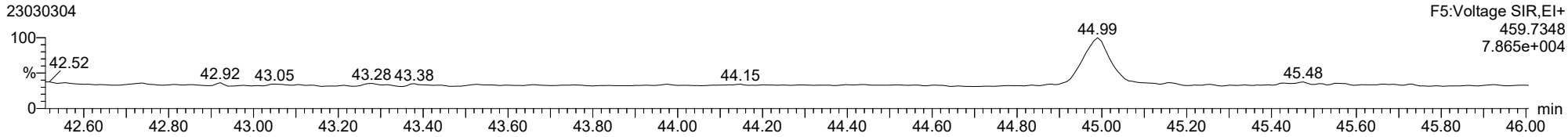


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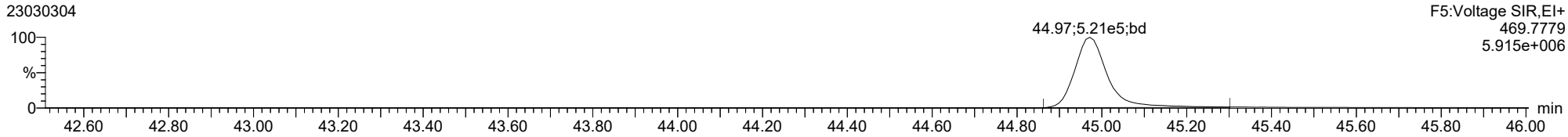
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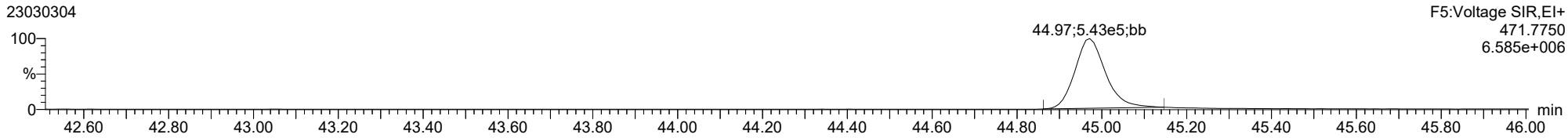
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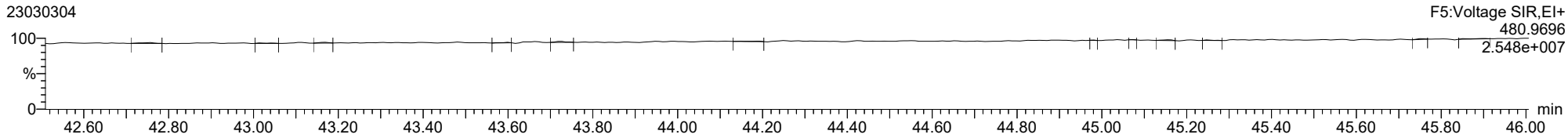
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13C-OCDD



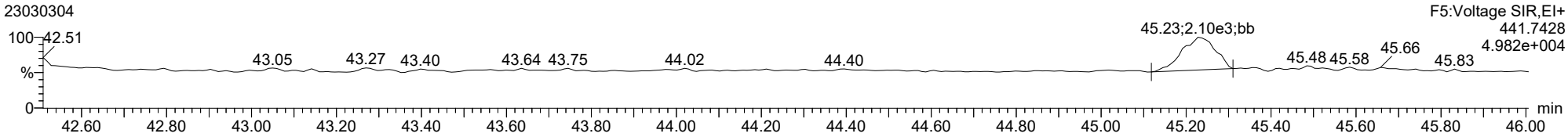
FUNCTION5 PFK



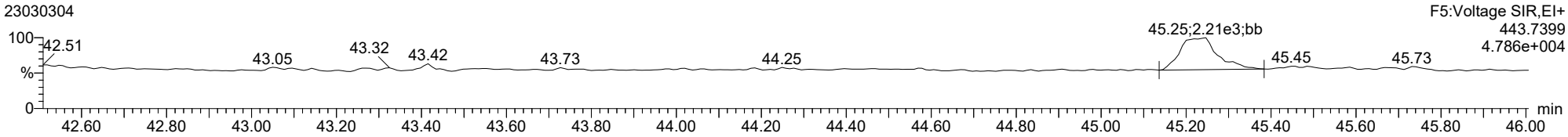
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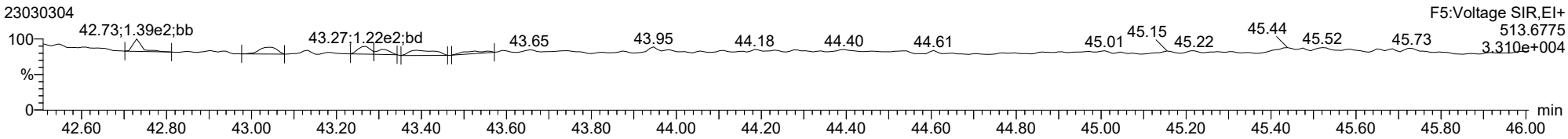
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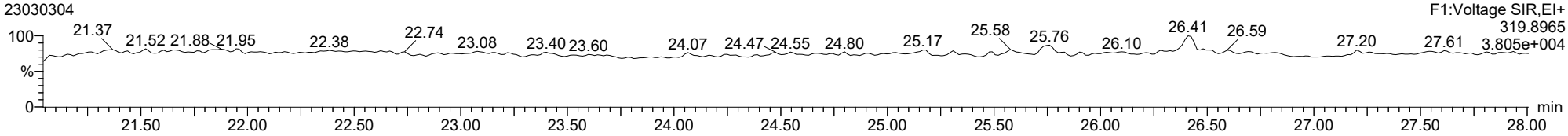


FUNCTION5 DCDPE

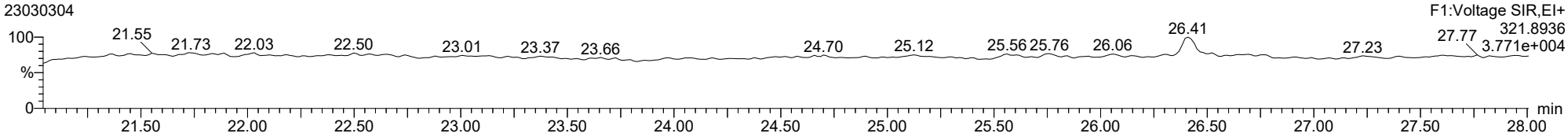


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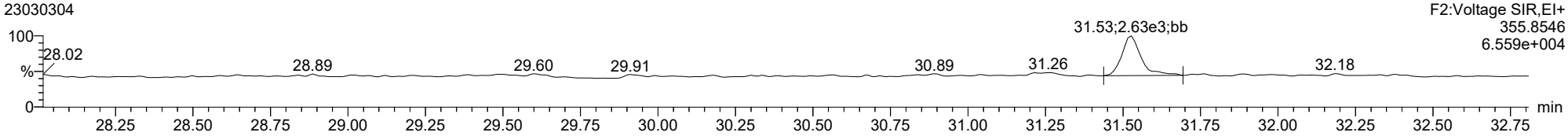
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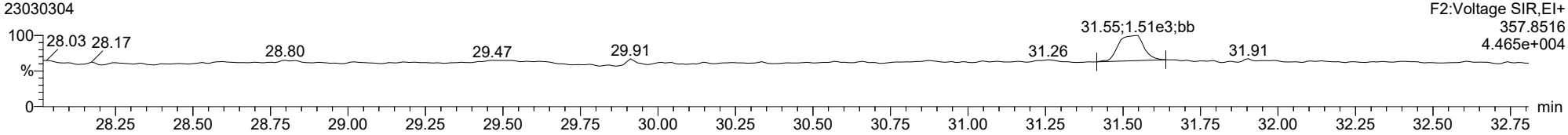
Total-tetradioxins



Total-pentadioxins

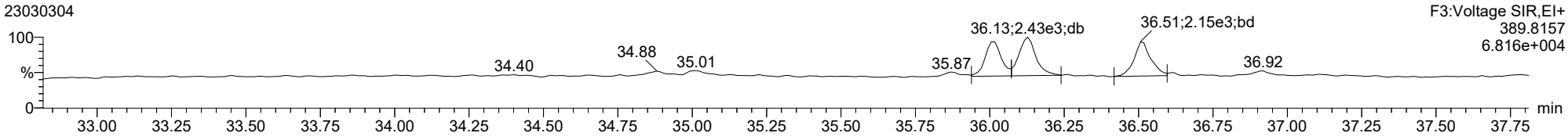


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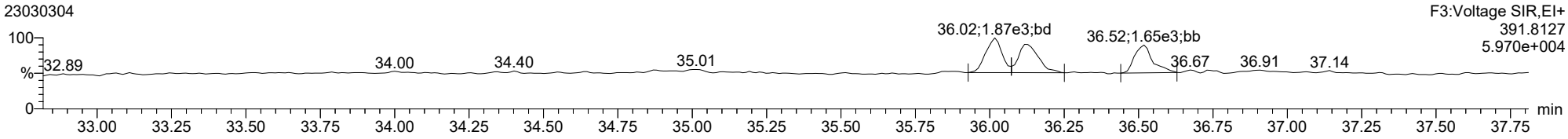


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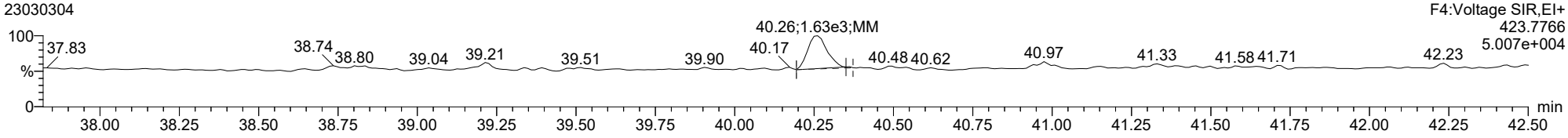
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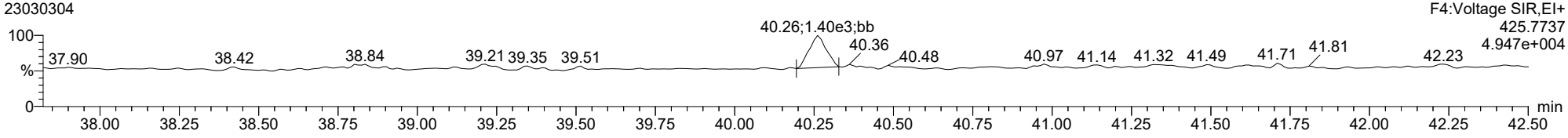
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Total-heptadioxins

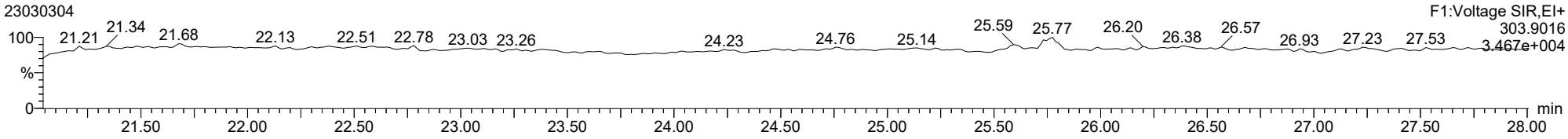


Total-heptadioxins

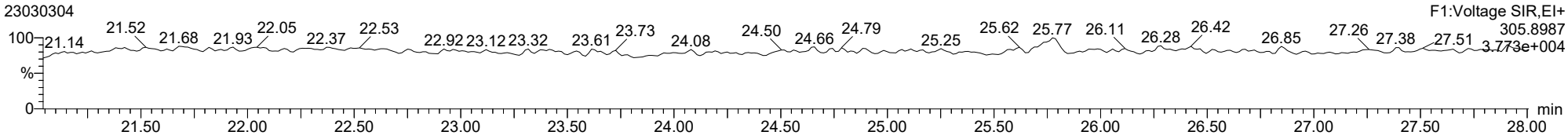


ID: CSLCW, Name: 23030304, Date: 03-Mar-2023, Time: 11:28:13, Conditions: AUTOSPEC01, User: pk

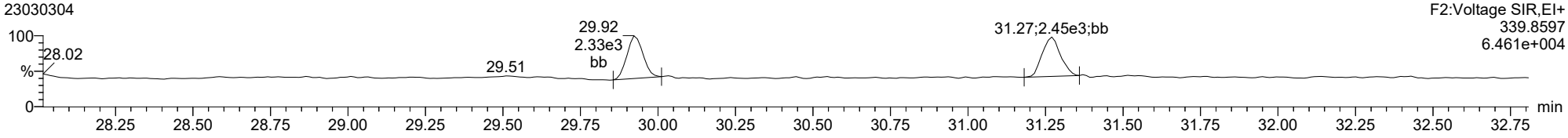
Total-tetrafurans



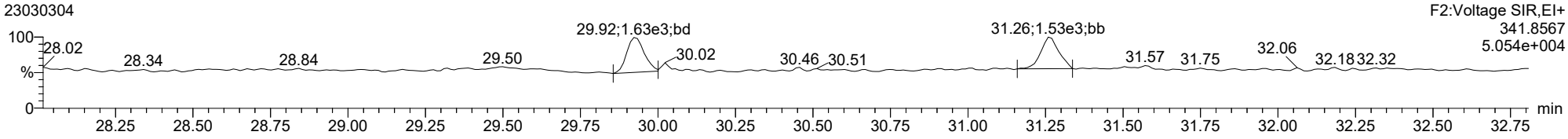
Total-tetrafurans



Total-pentafurans

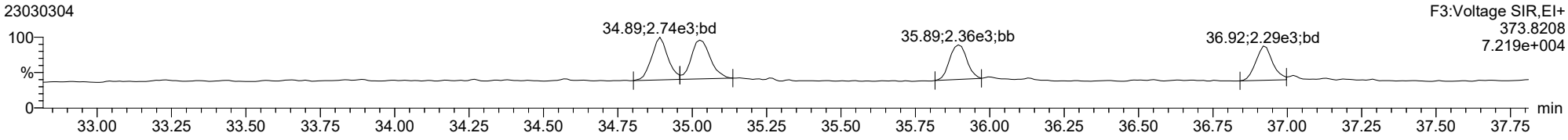


Total-pentafurans

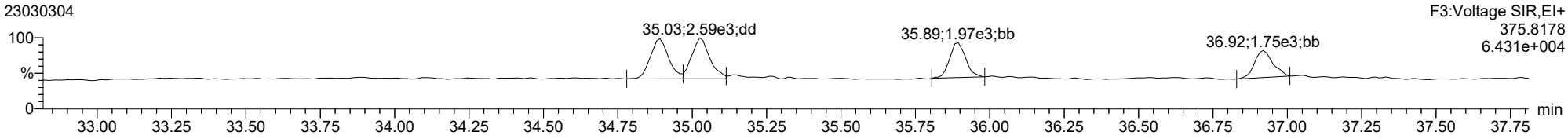


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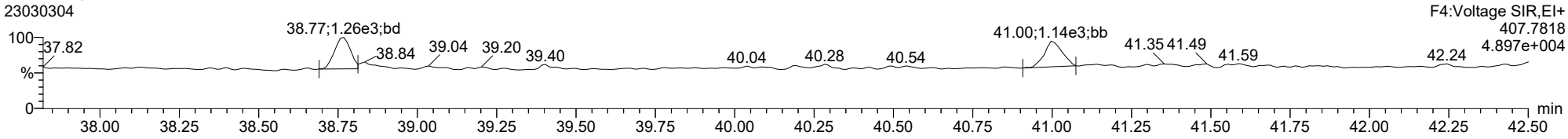
Total-hexafurans



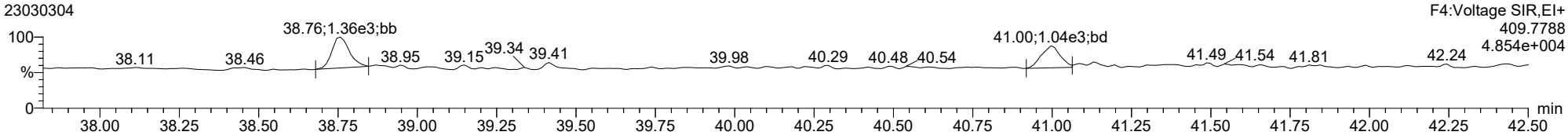
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:10 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	1.705e3	2.516e3	0.702	0.678	0.770	886	1799	2.34e4	3.87e4	26.4	21.5	NO	bb	MM	0.494
12378-PeCDF	29.933	1.000	5.914e3	4.099e3	0.679	1.442	1.550	1151	1276	9.10e4	6.48e4	79.1	50.8	NO	bb	bb	2.168
23478-PeCDF	31.270	1.000	7.974e3	4.958e3	0.786	1.608	1.550	1151	1276	1.22e5	6.97e4	106.1	54.6	NO	bb	bb	2.386
123478-HxCDF	34.891	1.000	1.063e4	7.851e3	1.166	1.354	1.240	1046	1170	1.58e5	1.17e5	151.4	100.1	NO	bd	bd	2.532
234678-HxCDF	35.894	1.000	1.057e4	7.802e3	1.140	1.354	1.240	1046	1170	1.51e5	1.18e5	143.9	100.6	NO	bb	bb	2.503
123678-HxCDF	35.036	1.001	1.161e4	8.676e3	1.091	1.339	1.240	1046	1170	1.53e5	1.27e5	146.1	108.8	NO	dd	dd	2.416
123789-HxCDF	36.930	1.001	8.482e3	6.693e3	1.137	1.267	1.240	1046	1170	1.18e5	8.92e4	112.7	76.2	NO	bd	bb	2.462
1234678-HpCDF	38.768	1.000	7.253e3	6.596e3	1.003	1.100	1.050	811	627	1.05e5	9.73e4	128.9	155.1	NO	bb	bb	2.680
1234789-HpCDF	41.008	1.000	5.116e3	5.234e3	0.953	0.978	1.050	811	627	7.22e4	7.17e4	89.0	114.3	NO	bb	bb	2.342
OCDF	45.237	1.006	5.981e3	6.798e3	0.778	0.880	0.890	709	890	6.92e4	8.13e4	97.6	91.3	NO	MM	bd	4.559
2378-TCDD	26.424	1.001	2.272e3	2.723e3	1.149	0.834	0.770	1286	820	3.35e4	3.73e4	26.0	45.5	NO	bb	bb	0.486
12378-PeCDD	31.538	1.001	7.831e3	5.061e3	1.022	1.548	1.550	902	618	1.00e5	7.05e4	111.4	114.0	NO	bb	bd	2.348
123478-HxCDD	36.016	1.000	7.381e3	5.875e3	0.996	1.256	1.240	655	843	1.17e5	9.68e4	178.2	114.9	NO	bd	bd	2.415
123678-HxCDD	36.139	1.001	9.152e3	7.340e3	1.001	1.247	1.240	655	843	1.26e5	9.90e4	192.8	117.4	NO	db	dd	2.494
123789-HxCDD	36.518	1.011	7.480e3	5.936e3	0.907	1.260	1.240	655	843	1.06e5	8.62e4	162.4	102.3	NO	bd	bd	2.440
1234678-HpCDD	40.272	1.001	6.283e3	5.832e3	1.039	1.077	1.050	694	917	8.98e4	8.16e4	129.4	89.0	NO	bb	bd	2.337
OCDD	44.999	1.000	8.578e3	9.676e3	0.920	0.887	0.890	635	634	9.84e4	1.12e5	154.9	175.9	NO	bd	bb	5.505
13C-2378-TCDF	25.760	1.007	5.230e5	6.960e5	1.620	0.752	0.770	2566	1723	7.68e6	1.02e7	2994.2	5911.4	NO	bb	bb	98.043
13C-12378-PeCDF	29.922	1.169	4.082e5	2.718e5	1.240	1.502	1.550	3092	2294	5.44e6	3.64e6	1758.1	1584.9	NO	bd	bb	71.437
13C-23478-PeCDF	31.259	1.222	4.106e5	2.788e5	1.118	1.473	1.550	3092	2294	5.91e6	4.02e6	1912.5	1751.3	NO	bb	bb	80.373
13C-123478-HxCDF	34.880	0.955	2.117e5	4.140e5	1.168	0.511	0.510	1778	2186	3.18e6	6.21e6	1786.5	2841.3	NO	bd	bd	93.801
13C-123678-HxCDF	35.014	0.959	2.754e5	4.947e5	1.386	0.557	0.510	1778	2186	3.40e6	6.43e6	1911.3	2941.0	NO	db	db	97.276
13C-234678-HxCDF	35.882	0.983	2.122e5	4.318e5	1.129	0.491	0.510	1778	2186	3.04e6	5.98e6	1709.4	2734.1	NO	bb	bd	99.880
13C-123789-HxCDF	36.908	1.011	1.853e5	3.568e5	0.932	0.519	0.510	1778	2186	2.62e6	5.01e6	1471.0	2293.6	NO	bb	bb	101.893
13C-1234678-HpCDF	38.757	1.062	1.579e5	3.573e5	0.895	0.442	0.440	2049	3174	2.36e6	5.45e6	1151.3	1718.3	NO	bb	bb	100.794
13C-1234789-HpCDF	40.997	1.123	1.372e5	3.264e5	0.770	0.420	0.440	2049	3174	1.74e6	3.92e6	851.0	1236.7	NO	bd	bd	105.482
13C-1234-TCDD	25.591	0.000	3.429e5	4.245e5	1.000	0.808	0.770	2519	1748	5.22e6	6.49e6	2072.6	3712.2	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	3.982e5	4.964e5	1.152	0.802	0.770	2519	1748	5.51e6	6.93e6	2188.2	3962.8	NO	bb	bb	101.152
13C-12378-PeCDD	31.515	1.232	3.242e5	2.131e5	0.829	1.521	1.550	1586	877	4.46e6	2.78e6	2809.5	3168.1	NO	bb	bd	84.489
13C-123478-HxCDD	36.005	0.986	3.100e5	2.413e5	0.995	1.285	1.240	2517	1649	4.83e6	3.77e6	1920.9	2283.3	NO	bd	bd	97.050
13C-123678-HxCDD	36.117	0.989	3.700e5	2.908e5	1.157	1.273	1.240	2517	1649	5.06e6	4.03e6	2012.2	2442.3	NO	db	db	100.049
13C-1234678-HpCDD	40.250	1.102	2.556e5	2.433e5	0.840	1.051	1.050	2183	1602	3.48e6	3.29e6	1594.9	2052.3	NO	bb	bb	103.999
13C-OCDD	44.980	1.232	3.386e5	3.823e5	0.767	0.886	0.890	3187	1733	3.80e6	4.27e6	1193.7	2462.5	NO	bb	bb	164.498
13C-123789-HxCDD	36.507	0.000	3.194e5	2.515e5	1.000	1.270	1.240	2517	1649	4.46e6	3.59e6	1770.5	2177.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	5.065e3		1.288			2040		7.28e4		35.7			bb		0.513

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:10 Pacific Standard Time

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	886	1799								
1289-TCDF					0.678		0.770	886	1799								
13468-PECDF					1.246		1.550	811	1221								
12389-PECDF					0.496		1.550	1151	1276								
123468-HXCDF					1.169		1.240	1046	1170								
1368-TCDD					1.015		0.770	1286	820								
1289-TCDD					0.909		0.770	1286	820								
12479-PECDD					2.301		1.550	902	618								
12389-PECDD					1.184		1.550	902	618								
124679-HXCDD					1.115		1.240	655	843								
1234679-HPCDD					1.137		1.050	694	917								
Total-tetrafurans			1.705e3		0.727			886		2.34e4							0.494
Total-penta1			0.000e0					811		0.00e0							
Total-pentafurans			1.389e4		0.654			1151		2.13e5							4.554
Total-hexafurans			4.139e4		1.141			1046		5.82e5							9.938
Total-heptafurans			1.237e4		0.978			811		1.77e5							5.023
Total-Furans			7.533e4		0.922			886		1.06e6							24.566
Total-tetradioxins			2.272e3		1.024			1286		3.35e4							0.486
Total-pentadioxins			7.831e3		1.502			902		1.00e5							2.348
Total-hexadioxins			2.401e4		1.005			655		3.49e5							7.349
Total-heptadioxins			6.283e3		1.088			694		8.98e4							2.337
Total-Dioxins			4.898e4		1.130			1286		6.72e5							18.025
Total-TEQ			1.243e5					1286		1.74e6							42.592
FUNCTION1 PFK			0.000e0					501375		0.00e0							
FUNCTION2 PFK			7.687e6					300953		7.99e6							0.000
FUNCTION3 PFK			1.081e7					473463		1.95e7							0.000
FUNCTION4 PFK			1.035e7					332160		2.87e6							
FUNCTION5 PFK			6.101e5					195111		8.38e5							
FUNCTION1 HXCD...			6.739e2					611		6.36e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			7.361e2					923		1.83e4							0.000
FUNCTION3 OCDPE			2.008e2					596		2.61e3							0.000
FUNCTION4 NCDPE			9.397e1					539		1.40e3							0.000
FUNCTION5 DCDPE			1.677e2					561		3.39e3							0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	1.705e3	2.516e3	0.702	0.68	0.77	26.4	YES	NO	bb	MM	0.494

PP

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

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	7.974e3	4.958e3	0.786	1.61	1.55	106.1	YES	NO	bb	bb	2.386
2	12378-PeCDF	29.93	5.914e3	4.099e3	0.679	1.44	1.55	79.1	YES	NO	bb	bb	2.168

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.93	8.482e3	6.693e3	1.137	1.27	1.24	112.7	YES	NO	bd	bb	2.462
2	234678-HxCDF	35.89	1.057e4	7.802e3	1.140	1.35	1.24	143.9	YES	NO	bb	bb	2.503
3	Total-hexafurans	35.23	1.011e2	8.523e1	1.141	1.19	1.24	2.2	NO	NO	db	db	0.025
4	123678-HxCDF	35.04	1.161e4	8.676e3	1.091	1.34	1.24	146.1	YES	NO	dd	dd	2.416
5	123478-HxCDF	34.89	1.063e4	7.851e3	1.166	1.35	1.24	151.4	YES	NO	bd	bd	2.532

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.77	7.253e3	6.596e3	1.003	1.10	1.05	128.9	YES	NO	bb	bb	2.680
2	1234789-HpCDF	41.01	5.116e3	5.234e3	0.953	0.98	1.05	89.0	YES	NO	bb	bb	2.342

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	7.974e3	4.958e3	0.786	1.61	1.55	106.1	YES	NO	bb	bb	2.386
2	12378-PeCDF	29.93	5.914e3	4.099e3	0.679	1.44	1.55	79.1	YES	NO	bb	bb	2.168
3	2378-TCDF	25.79	1.705e3	2.516e3	0.702	0.68	0.77	26.4	YES	NO	bb	MM	0.494
4	123789-HxCDF	36.93	8.482e3	6.693e3	1.137	1.27	1.24	112.7	YES	NO	bd	bb	2.462
5	234678-HxCDF	35.89	1.057e4	7.802e3	1.140	1.35	1.24	143.9	YES	NO	bb	bb	2.503
6	Total-hexafurans	35.23	1.011e2	8.523e1	1.141	1.19	1.24	2.2	NO	NO	db	db	0.025
7	123678-HxCDF	35.04	1.161e4	8.676e3	1.091	1.34	1.24	146.1	YES	NO	dd	dd	2.416
8	123478-HxCDF	34.89	1.063e4	7.851e3	1.166	1.35	1.24	151.4	YES	NO	bd	bd	2.532
9	1234678-HpCDF	38.77	7.253e3	6.596e3	1.003	1.10	1.05	128.9	YES	NO	bb	bb	2.680
10	OCDF	45.24	5.981e3	6.798e3	0.778	0.88	0.89	97.6	YES	NO	MM	bd	4.559
11	1234789-HpCDF	41.01	5.116e3	5.234e3	0.953	0.98	1.05	89.0	YES	NO	bb	bb	2.342

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	2.272e3	2.723e3	1.149	0.83	0.77	26.0	YES	NO	bb	bb	0.486

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.54	7.831e3	5.061e3	1.022	1.55	1.55	111.4	YES	NO	bb	bd	2.348

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.52	7.480e3	5.936e3	0.907	1.26	1.24	162.4	YES	NO	bd	bd	2.440
2	123678-HxCDD	36.14	9.152e3	7.340e3	1.001	1.25	1.24	192.8	YES	NO	db	dd	2.494
3	123478-HxCDD	36.02	7.381e3	5.875e3	0.996	1.26	1.24	178.2	YES	NO	bd	bd	2.415

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	6.283e3	5.832e3	1.039	1.08	1.05	129.4	YES	NO	bb	bd	2.337

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	2.272e3	2.723e3	1.149	0.83	0.77	26.0	YES	NO	bb	bb	0.486
2	123789-HxCDD	36.52	7.480e3	5.936e3	0.907	1.26	1.24	162.4	YES	NO	bd	bd	2.440
3	123678-HxCDD	36.14	9.152e3	7.340e3	1.001	1.25	1.24	192.8	YES	NO	db	dd	2.494
4	123478-HxCDD	36.02	7.381e3	5.875e3	0.996	1.26	1.24	178.2	YES	NO	bd	bd	2.415
5	12378-PeCDD	31.54	7.831e3	5.061e3	1.022	1.55	1.55	111.4	YES	NO	bb	bd	2.348
6	1234678-HpCDD	40.27	6.283e3	5.832e3	1.039	1.08	1.05	129.4	YES	NO	bb	bd	2.337
7	OCDD	45.00	8.578e3	9.676e3	0.920	0.89	0.89	154.9	YES	NO	bd	bb	5.505

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	7.974e3	4.958e3	0.786	1.61	1.55	106.1	YES	NO	bb	bb	2.386
2	12378-PeCDF	29.93	5.914e3	4.099e3	0.679	1.44	1.55	79.1	YES	NO	bb	bb	2.168
3	2378-TCDF	25.79	1.705e3	2.516e3	0.702	0.68	0.77	26.4	YES	NO	bb	MM	0.494
4	123789-HxCDF	36.93	8.482e3	6.693e3	1.137	1.27	1.24	112.7	YES	NO	bd	bb	2.462
5	234678-HxCDF	35.89	1.057e4	7.802e3	1.140	1.35	1.24	143.9	YES	NO	bb	bb	2.503
6	Total-hexafurans	35.23	1.011e2	8.523e1	1.141	1.19	1.24	2.2	NO	NO	db	db	0.025
7	123678-HxCDF	35.04	1.161e4	8.676e3	1.091	1.34	1.24	146.1	YES	NO	dd	dd	2.416
8	123478-HxCDF	34.89	1.063e4	7.851e3	1.166	1.35	1.24	151.4	YES	NO	bd	bd	2.532
9	1234678-HpCDF	38.77	7.253e3	6.596e3	1.003	1.10	1.05	128.9	YES	NO	bb	bb	2.680
10	OCDF	45.24	5.981e3	6.798e3	0.778	0.88	0.89	97.6	YES	NO	MM	bd	4.559
11	1234789-HpCDF	41.01	5.116e3	5.234e3	0.953	0.98	1.05	89.0	YES	NO	bb	bb	2.342
12	2378-TCDD	26.42	2.272e3	2.723e3	1.149	0.83	0.77	26.0	YES	NO	bb	bb	0.486
13	123789-HxCDD	36.52	7.480e3	5.936e3	0.907	1.26	1.24	162.4	YES	NO	bd	bd	2.440
14	123678-HxCDD	36.14	9.152e3	7.340e3	1.001	1.25	1.24	192.8	YES	NO	db	dd	2.494
15	123478-HxCDD	36.02	7.381e3	5.875e3	0.996	1.26	1.24	178.2	YES	NO	bd	bd	2.415
16	12378-PeCDD	31.54	7.831e3	5.061e3	1.022	1.55	1.55	111.4	YES	NO	bb	bd	2.348
17	1234678-HpCDD	40.27	6.283e3	5.832e3	1.039	1.08	1.05	129.4	YES	NO	bb	bd	2.337
18	OCDD	45.00	8.578e3	9.676e3	0.920	0.89	0.89	154.9	YES	NO	bd	bb	5.505

PFK1

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

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.41	6.929e5					4.3	YES		bb		0.000
2	FUNCTION2 PFK	28.05	6.994e6					22.3	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.60	1.788e4					1.3	NO		bb		0.000
2	FUNCTION3 PFK	36.61	1.585e4					1.4	NO		bb		0.000
3	FUNCTION3 PFK	36.53	6.942e3					0.8	NO		bb		0.000
4	FUNCTION3 PFK	33.99	9.502e3					0.9	NO		bb		0.000
5	FUNCTION3 PFK	33.78	4.298e6					7.0	YES		db		0.000
6	FUNCTION3 PFK	33.15	6.467e6					29.8	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.85	1.035e7					8.6	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.97	6.101e5					4.3	YES		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.27	8.033e1					1.9	NO		bb		0.000
2	FUNCTION1 HXCD...	24.98	2.706e2					3.4	YES		bb		0.000
3	FUNCTION1 HXCD...	22.17	1.286e2					2.0	NO		bb		0.000
4	FUNCTION1 HXCD...	21.47	8.089e1					1.9	NO		bb		0.000
5	FUNCTION1 HXCD...	21.17	1.135e2					1.3	NO		bb		0.000

ETHERS2

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

ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.66	1.045e2					4.3	YES		db		0.000
2	FUNCTION2 HPCD...	32.58	1.134e2					3.0	NO		bd		0.000
3	FUNCTION2 HPCD...	31.88	7.272e1					1.9	NO		bb		0.000
4	FUNCTION2 HPCD...	30.71	7.070e1					1.8	NO		bb		0.000
5	FUNCTION2 HPCD...	30.13	1.134e2					2.5	NO		bb		0.000
6	FUNCTION2 HPCD...	28.92	7.142e1					2.0	NO		bb		0.000
7	FUNCTION2 HPCD...	28.66	9.983e1					2.2	NO		bb		0.000
8	FUNCTION2 HPCD...	28.24	9.016e1					2.1	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.50	2.008e2					4.4	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.59	9.397e1					2.6	NO		bb		0.000

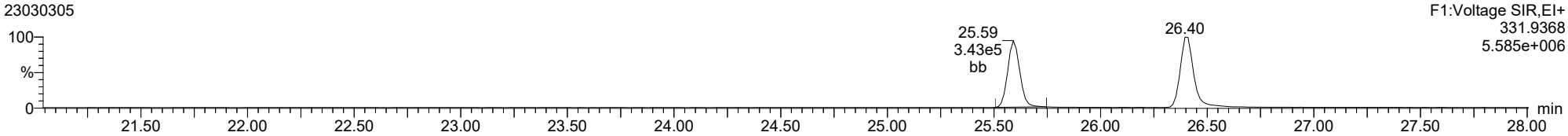
ETHERS6

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1	FUNCTION5 DCDPE	44.72	7.355e1					2.5	NO		bb		0.000
2	FUNCTION5 DCDPE	44.30	9.416e1					3.6	YES		bb		0.000

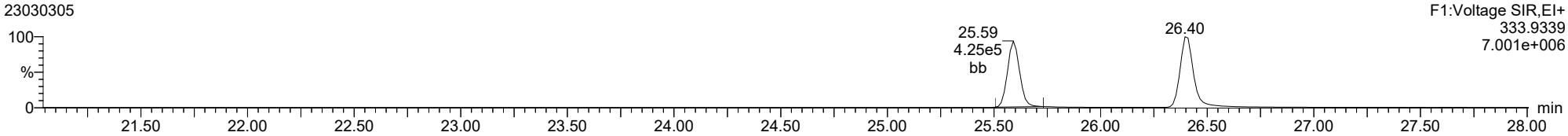
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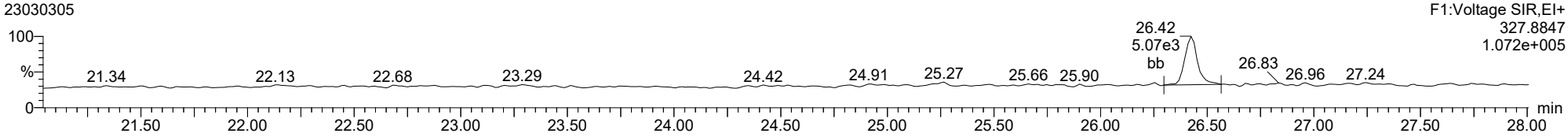
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13C-1234-TCDD

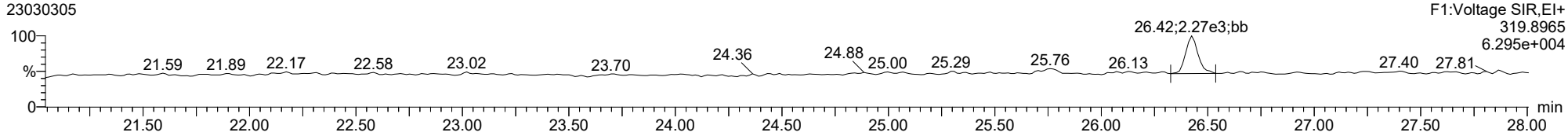


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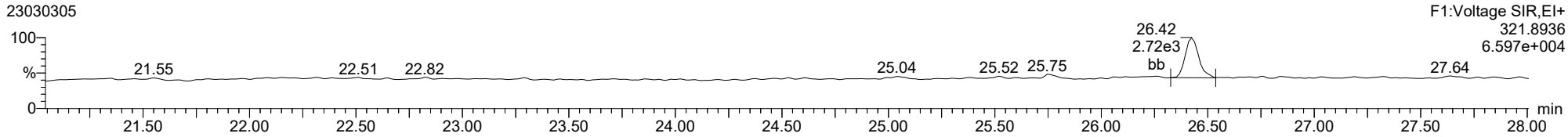


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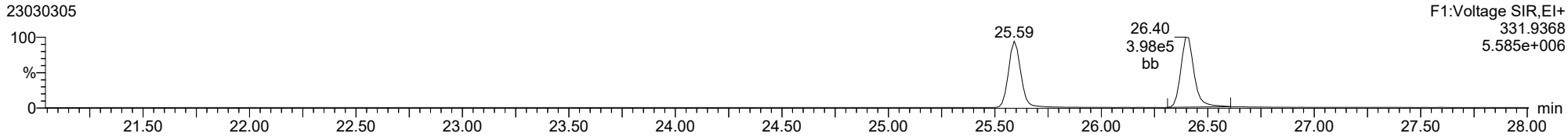
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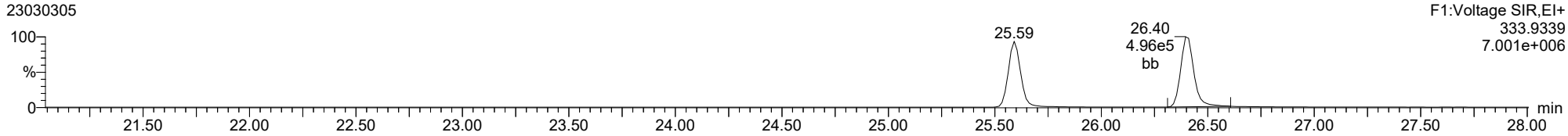
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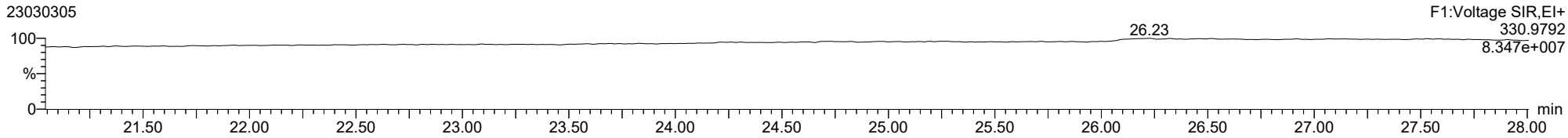
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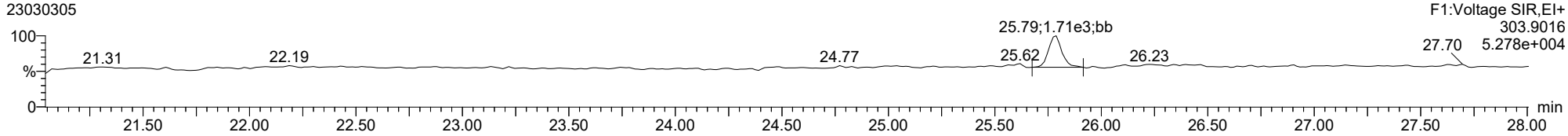


FUNCTION1 PFK

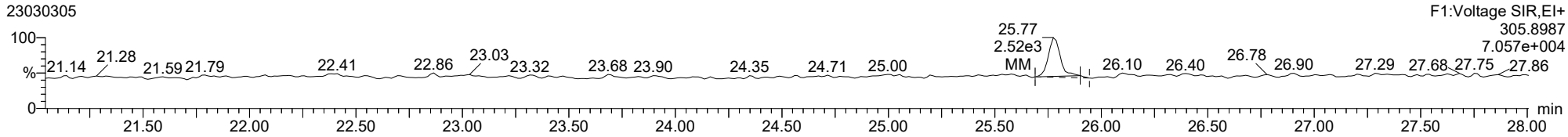


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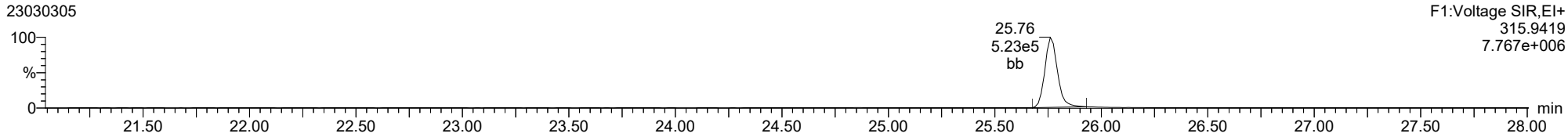
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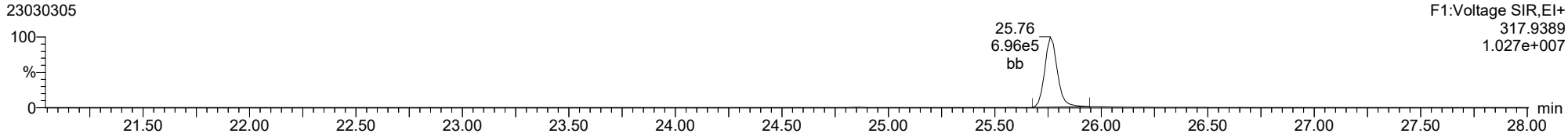
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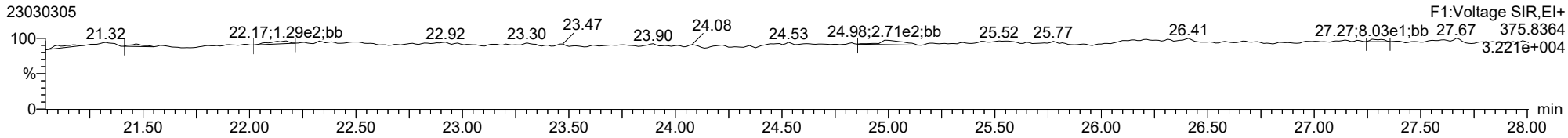
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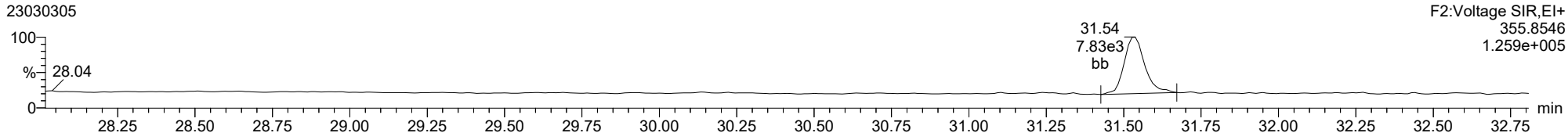


FUNCTION1 HXCDPE

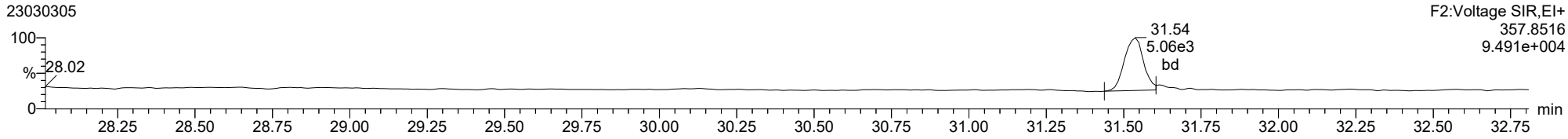


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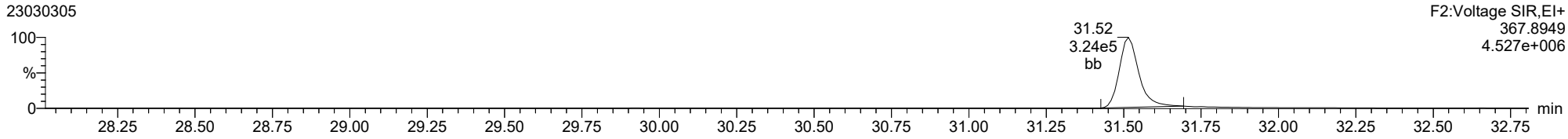
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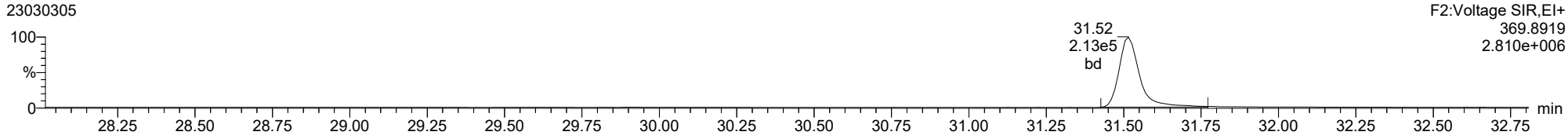
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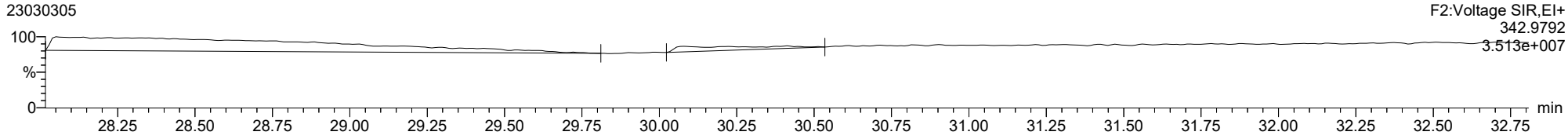
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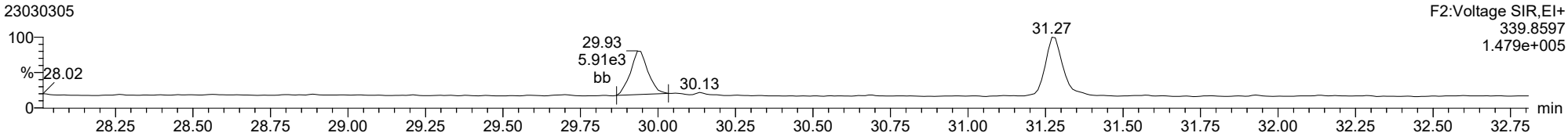


FUNCTION2 PFK

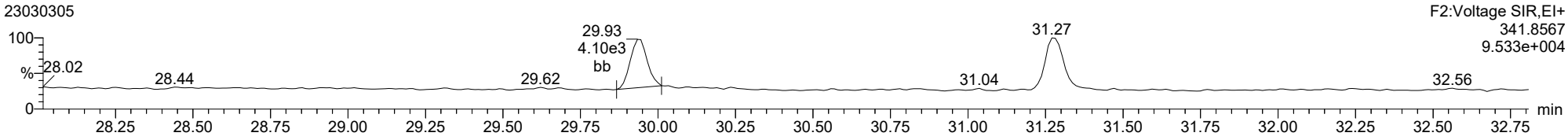


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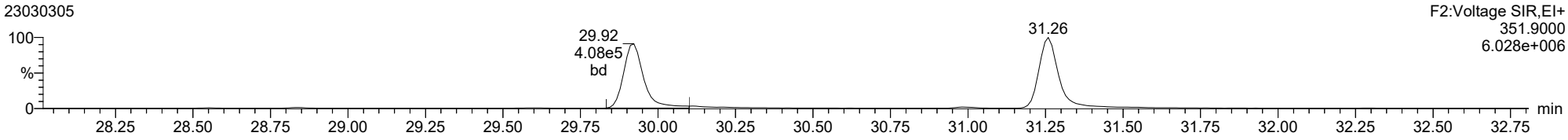
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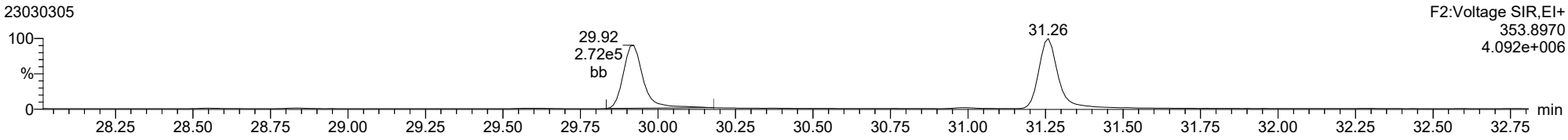
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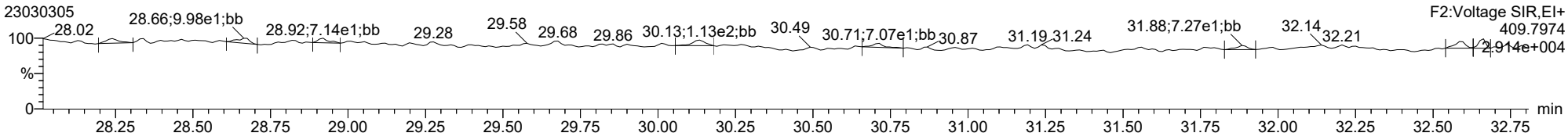
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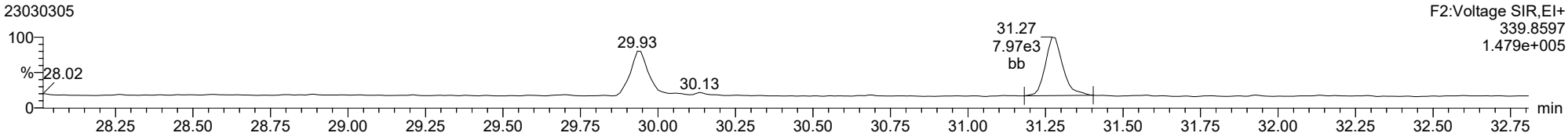


FUNCTION2 HPCDPE

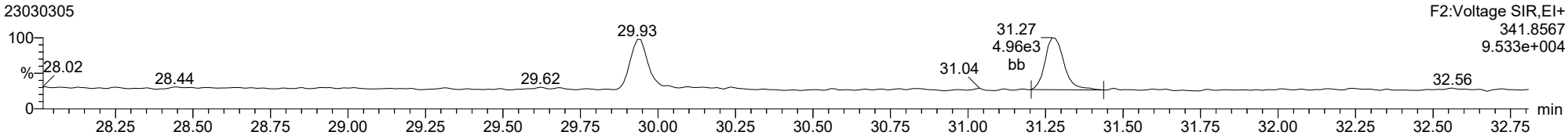


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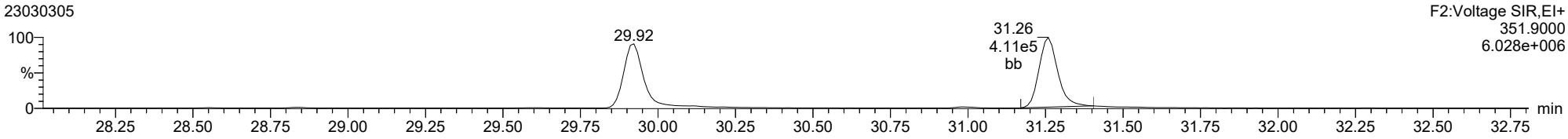
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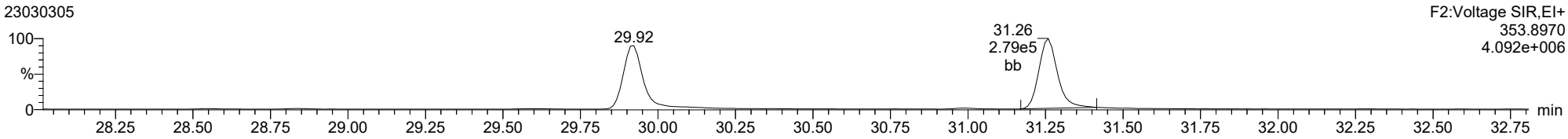
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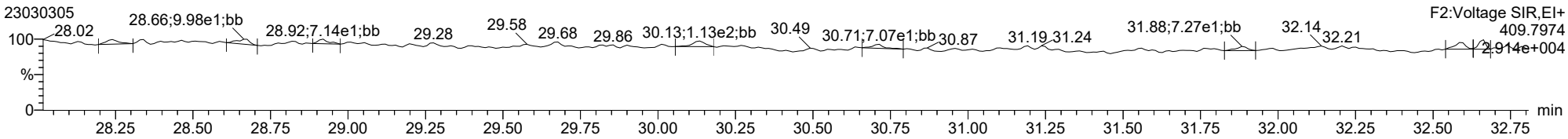
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13C-23478-PeCDF



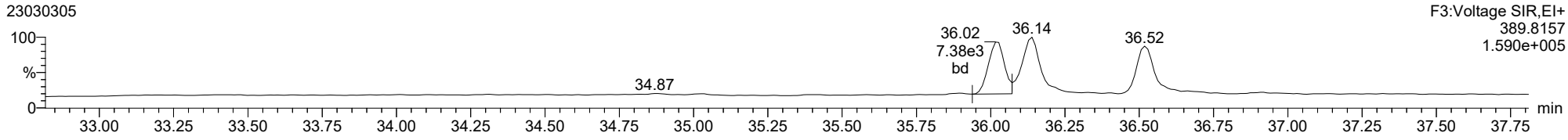
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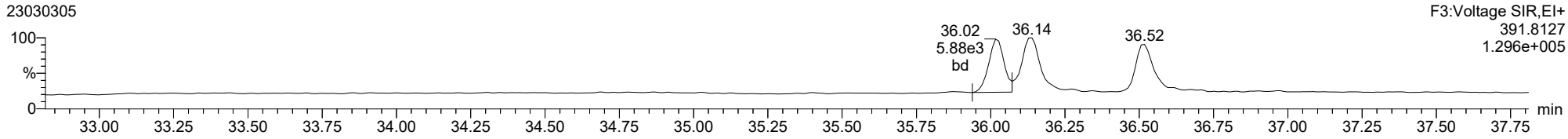
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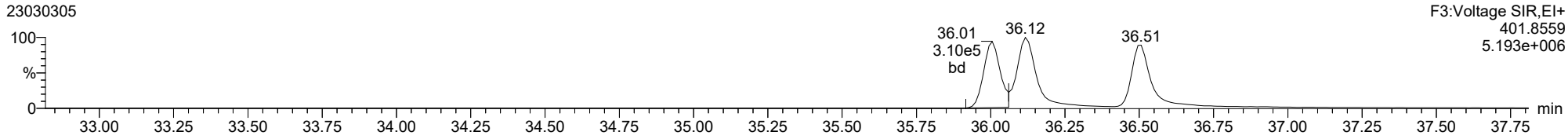
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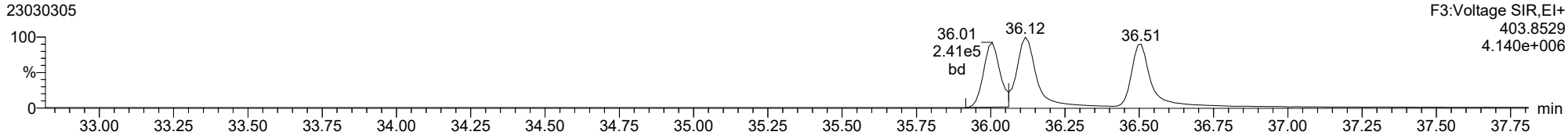
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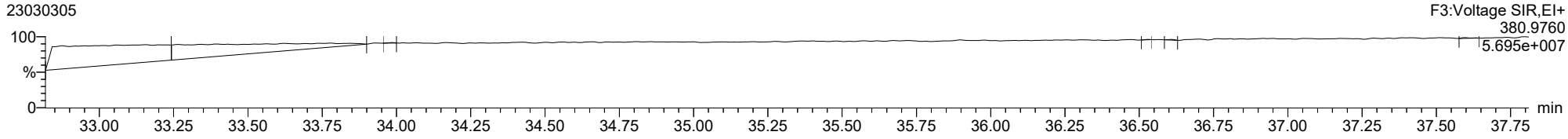
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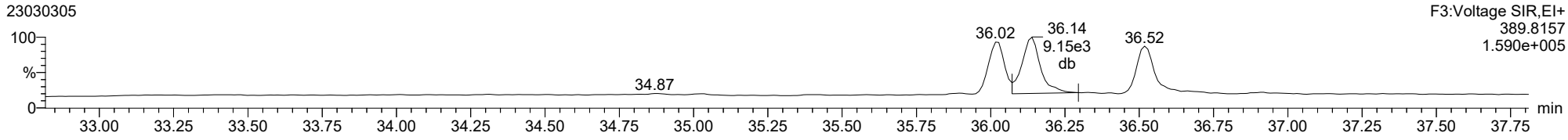


FUNCTION3 PFK

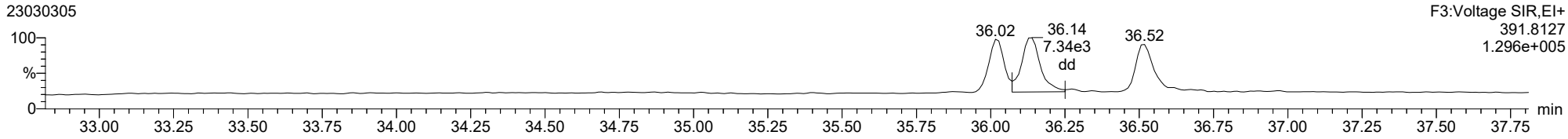


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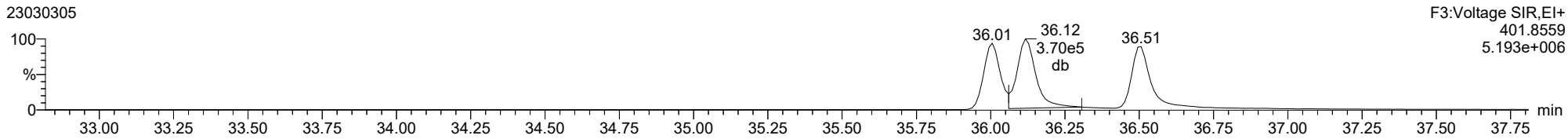
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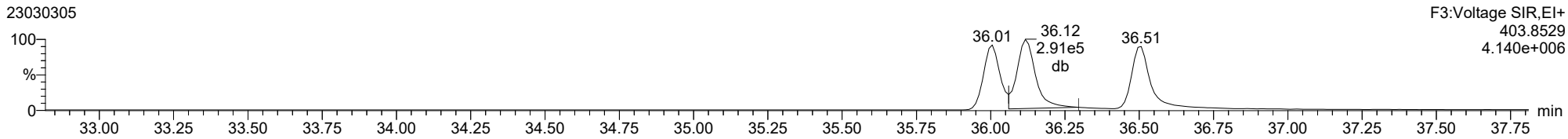
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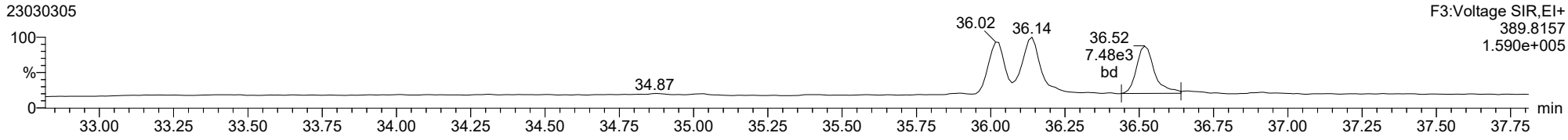
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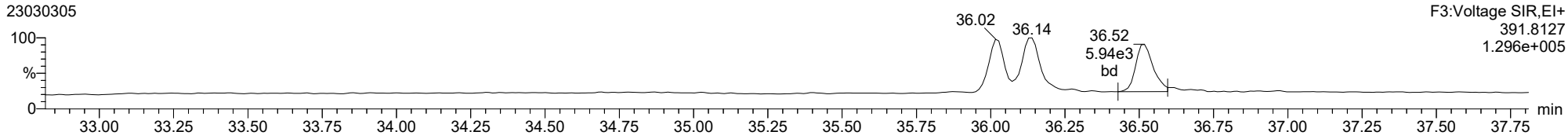
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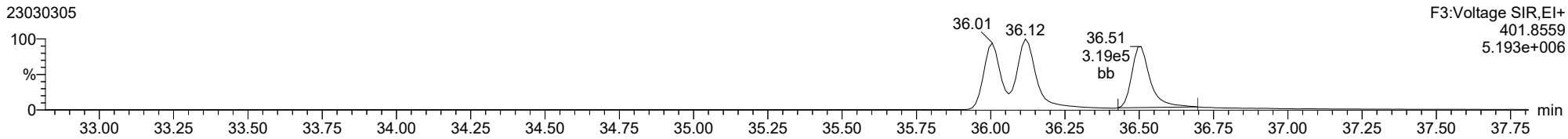
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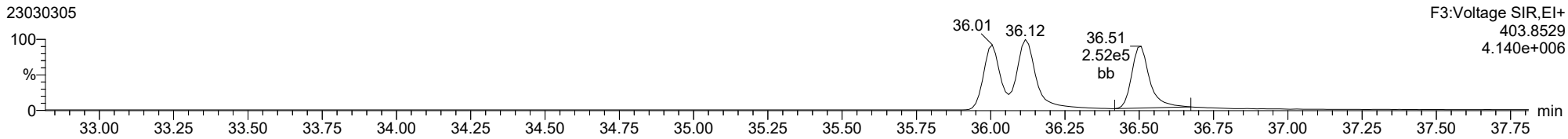
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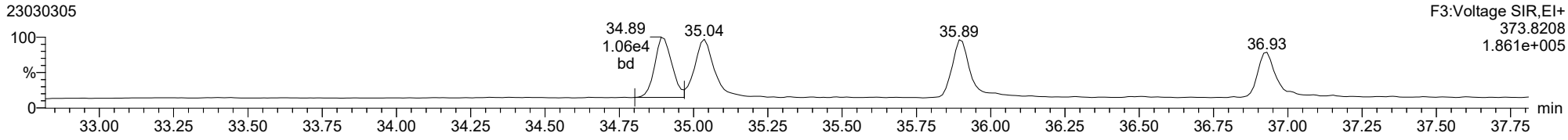


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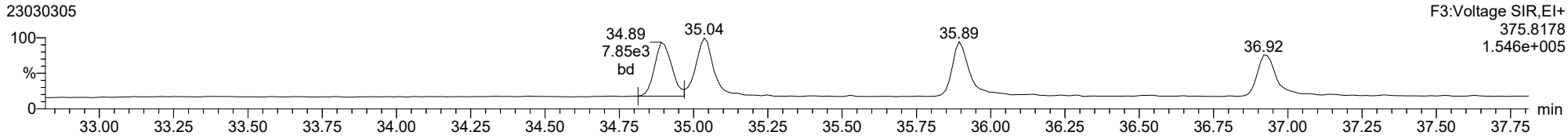


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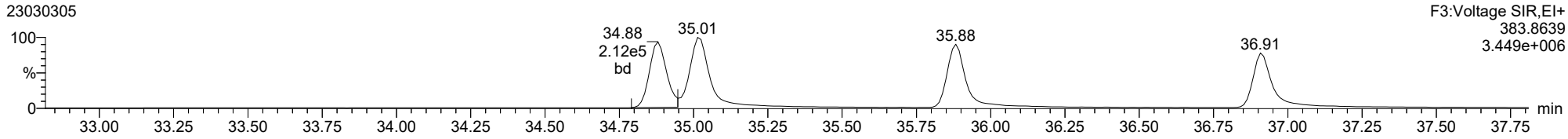
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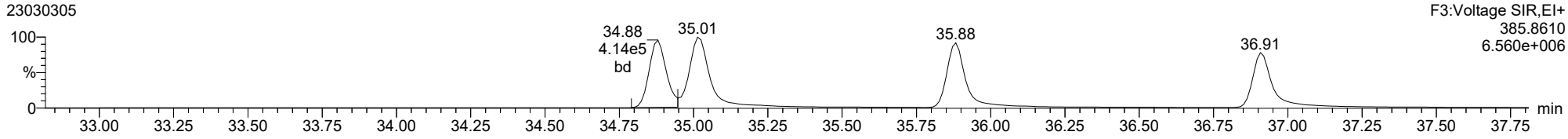
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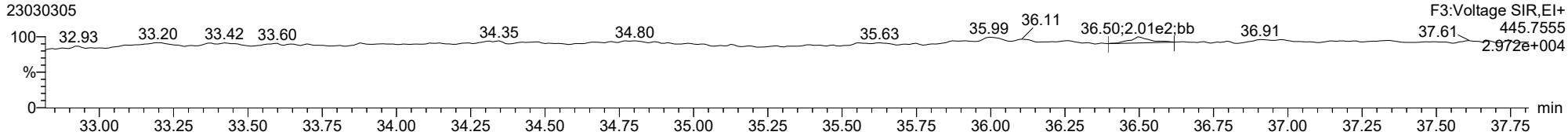
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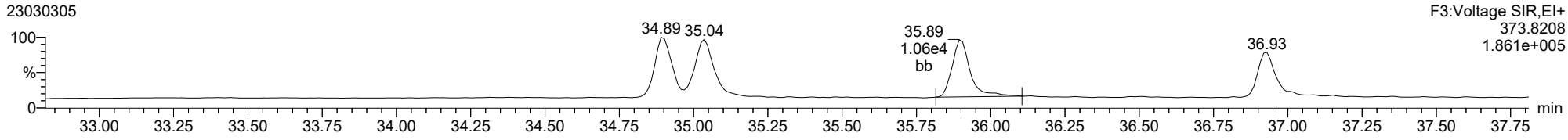


FUNCTION3 OCDPE

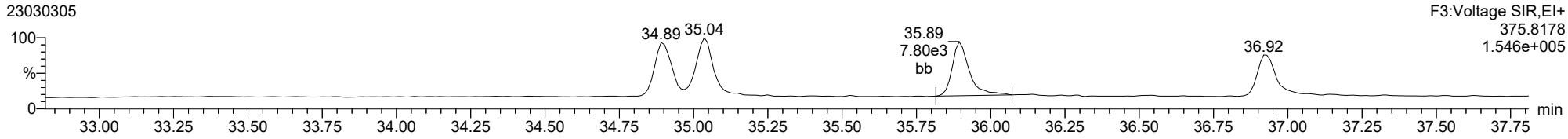


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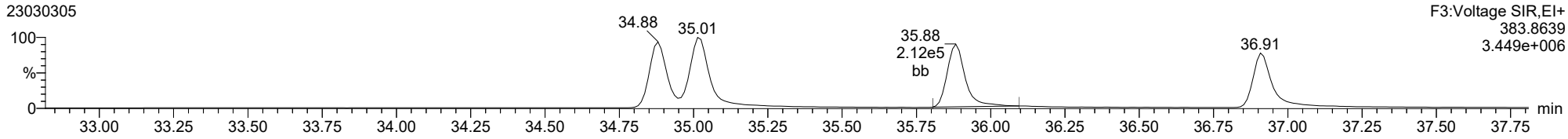
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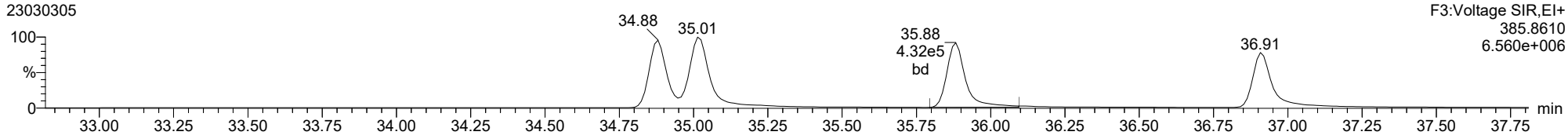
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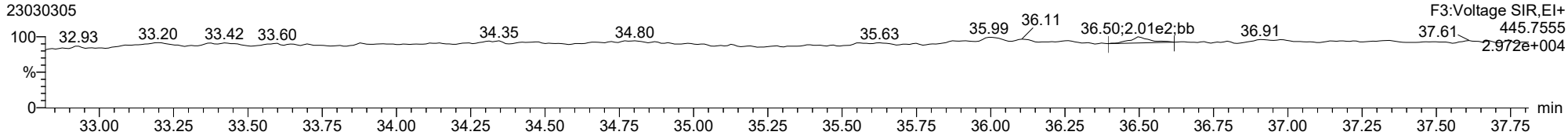
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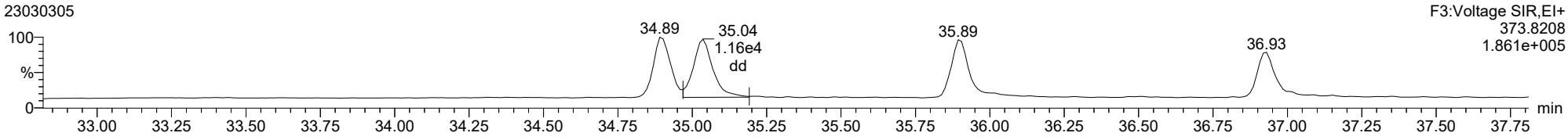


FUNCTION3 OCDPE

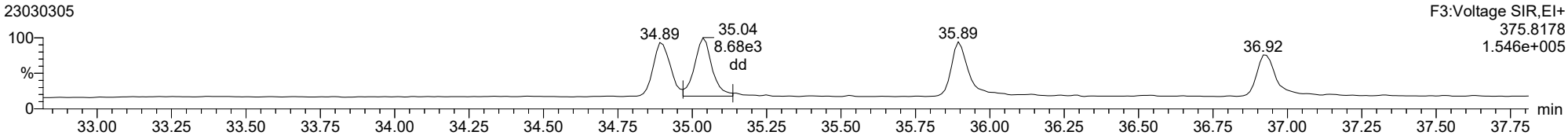


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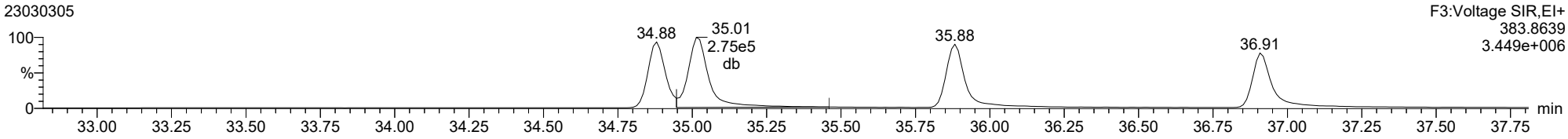
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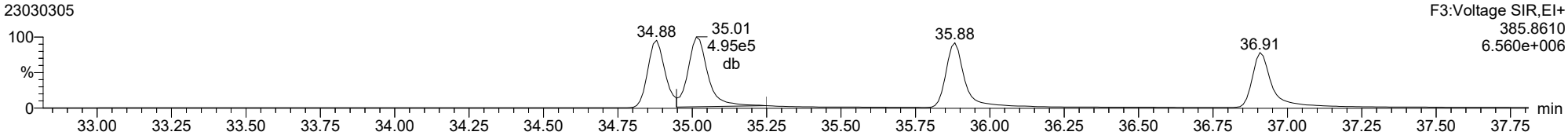
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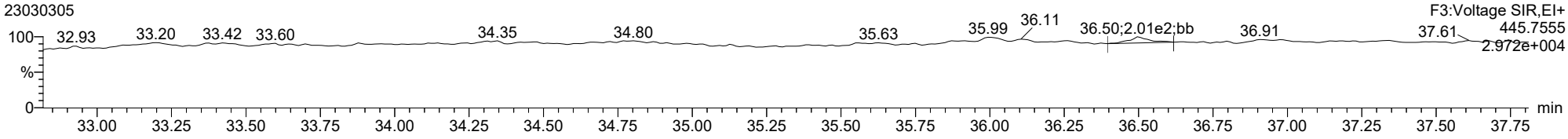
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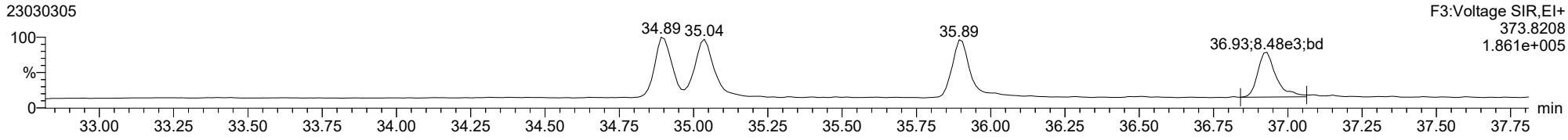


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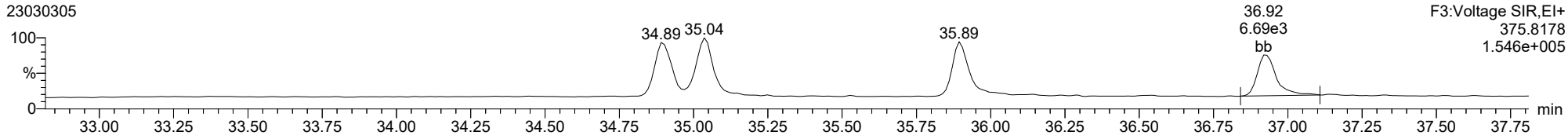


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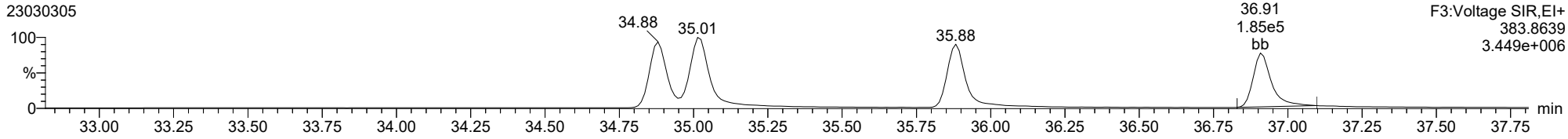
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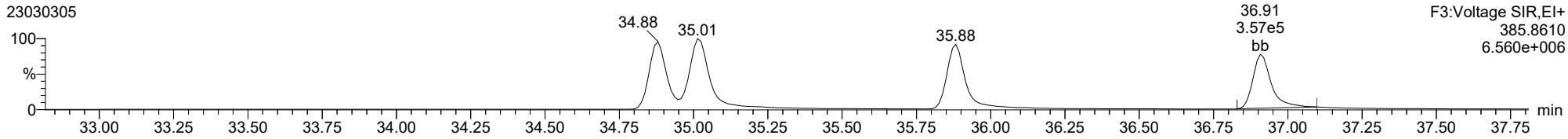
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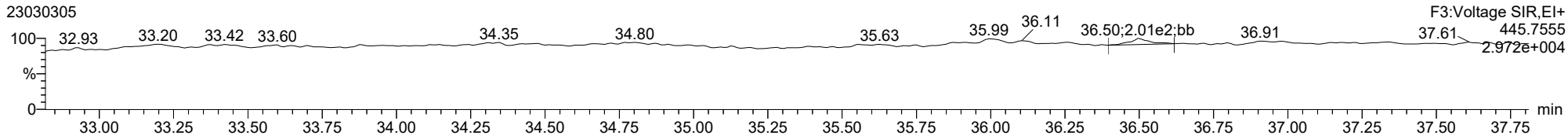
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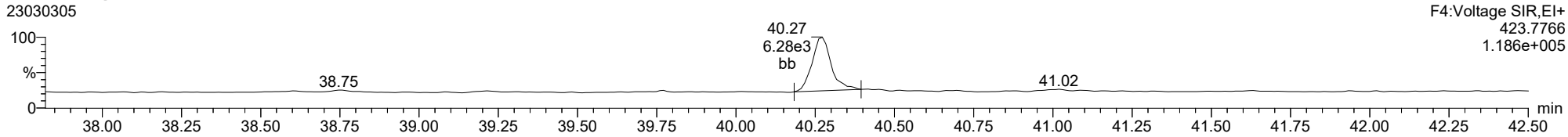


FUNCTION3 OCDPE

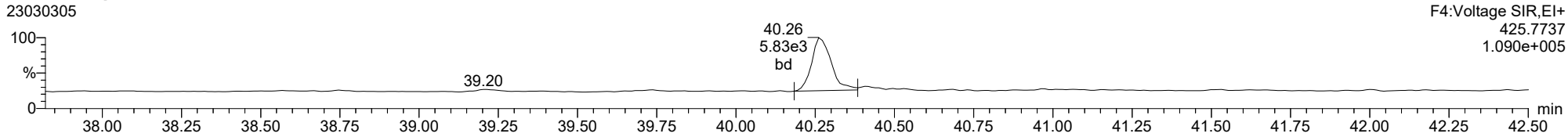


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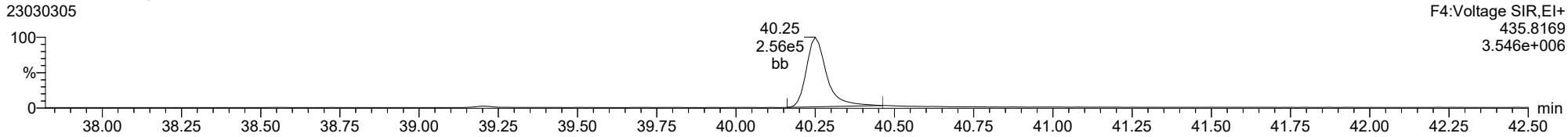
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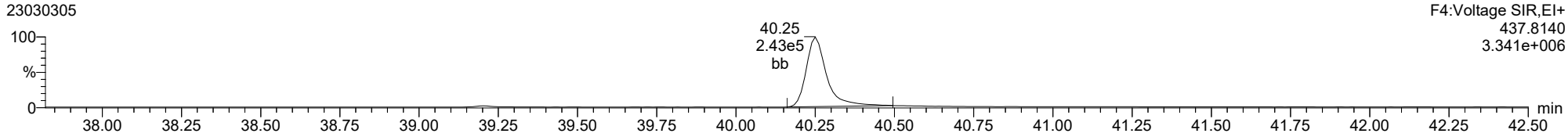
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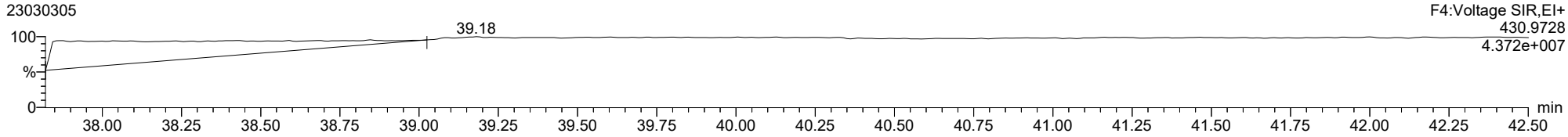
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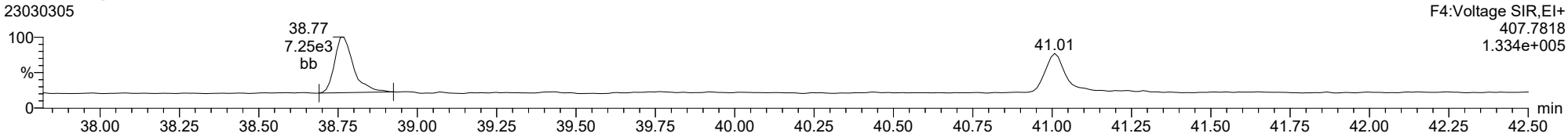


FUNCTION4 PFK

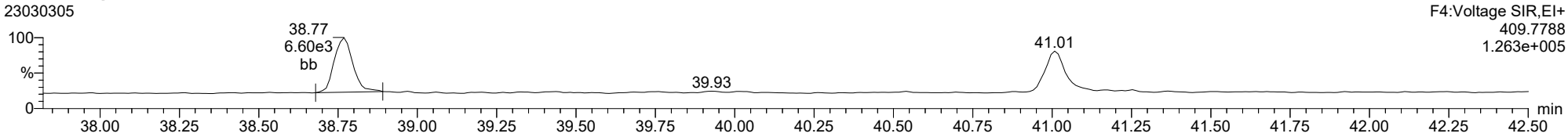


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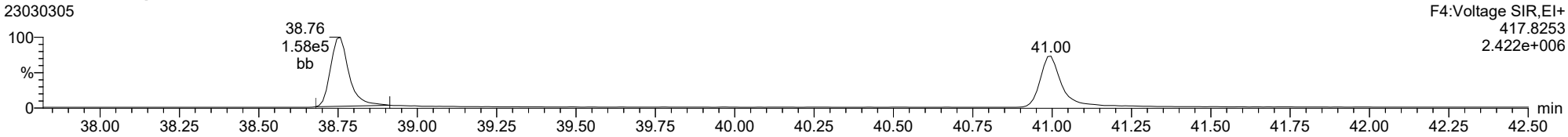
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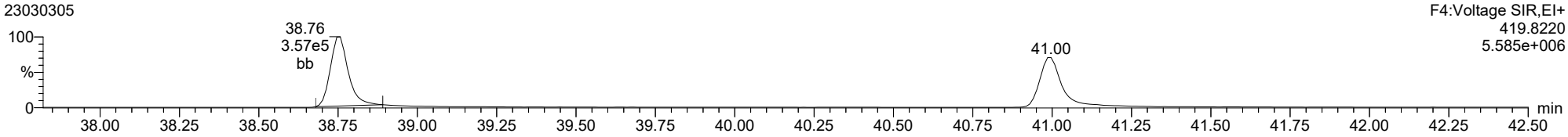
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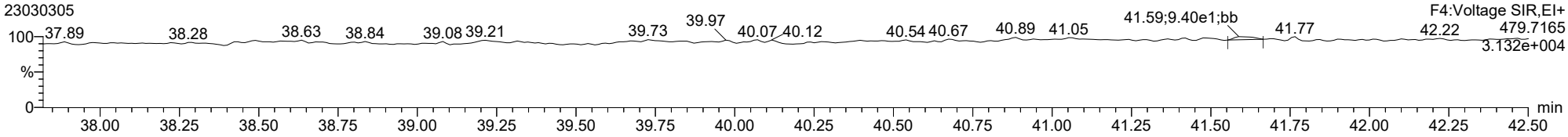
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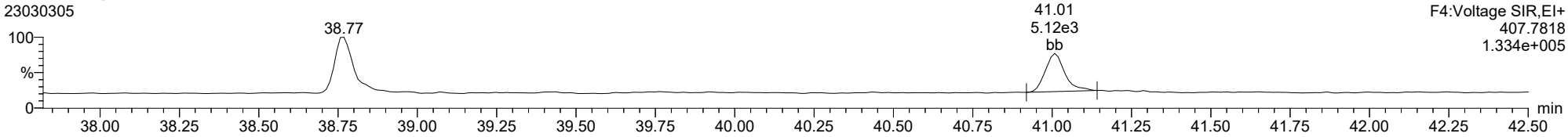


FUNCTION4 NCDPE

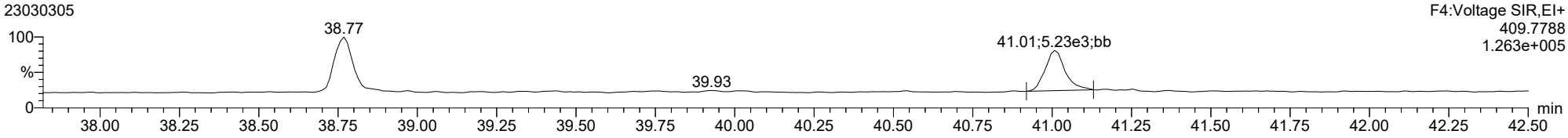


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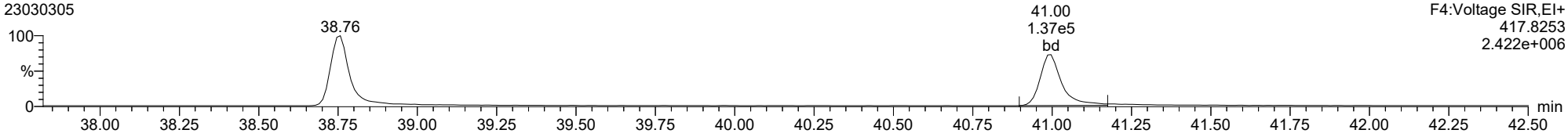
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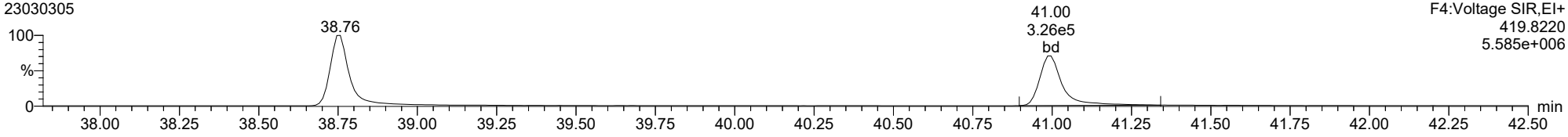
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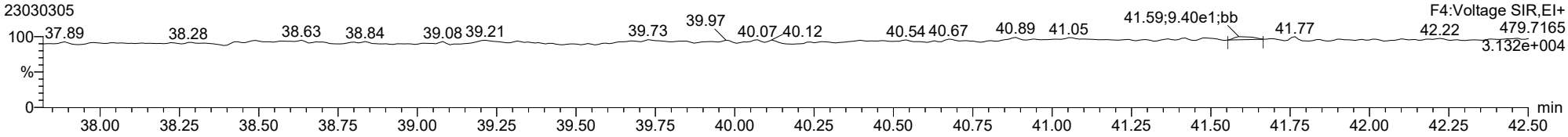
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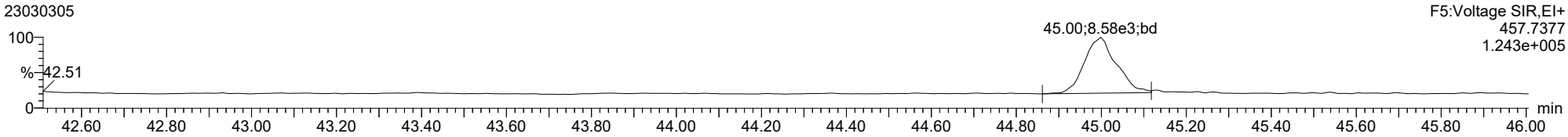


FUNCTION4 NCDPE

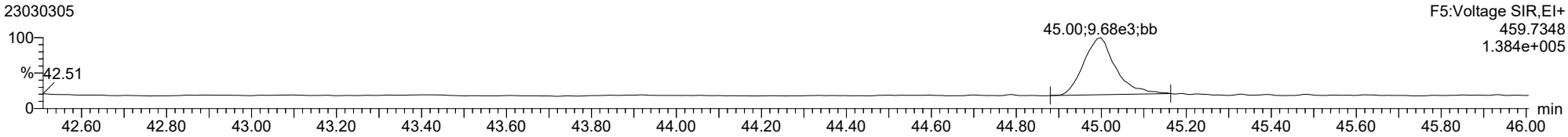


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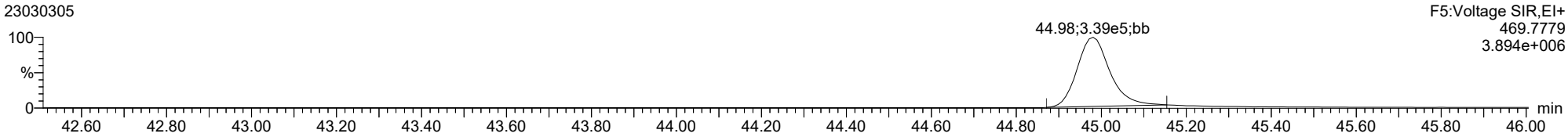
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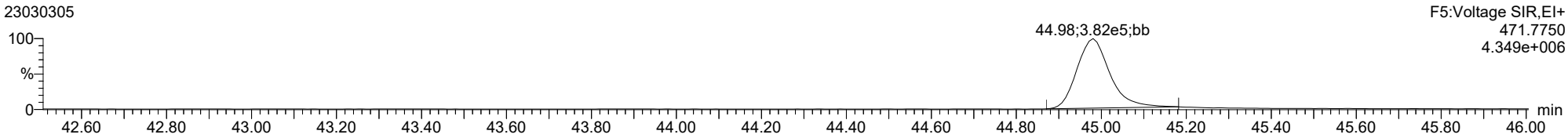
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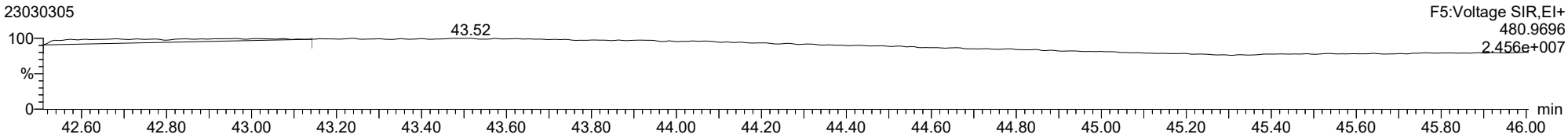
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13C-OCDD



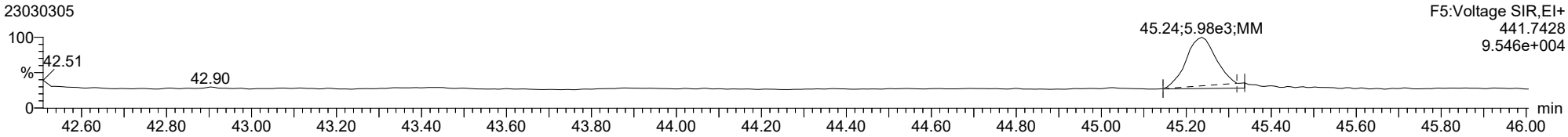
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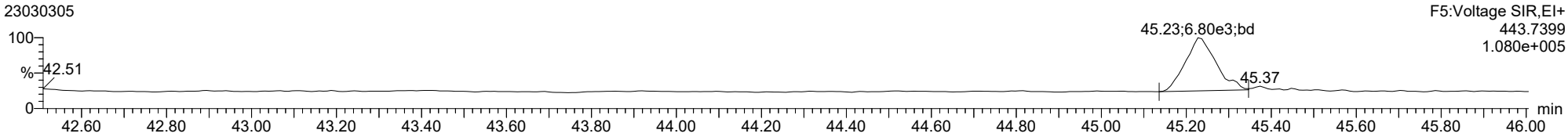
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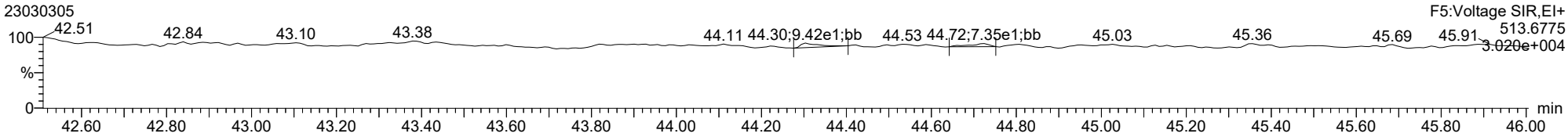
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OCDF

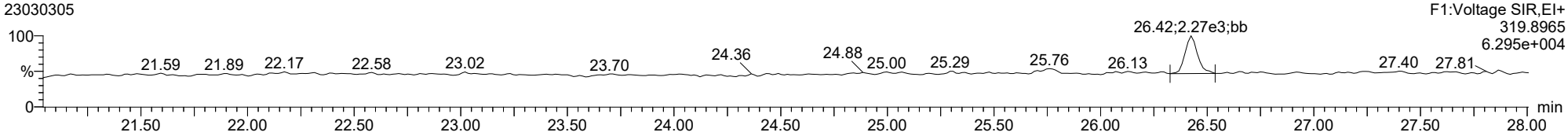


FUNCTION5 DCDPE

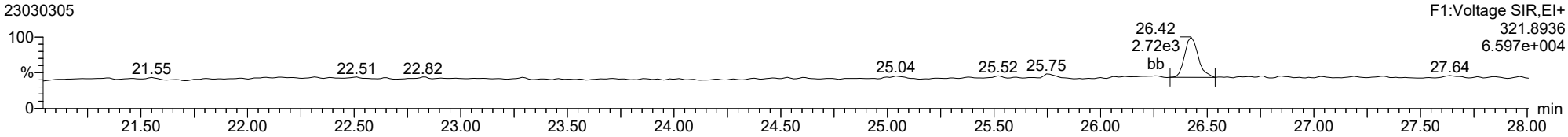


ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

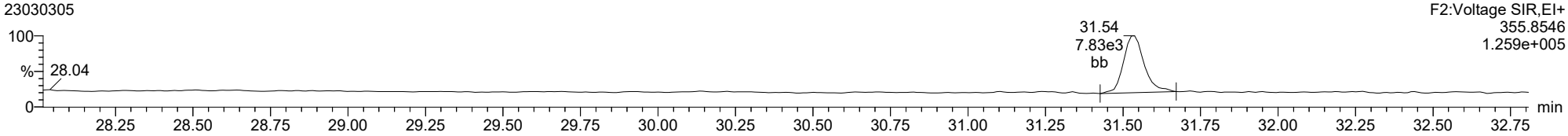
Total-tetradioxins



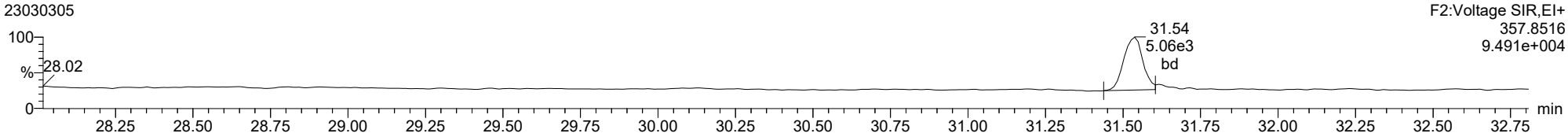
Total-tetradioxins



Total-pentadioxins

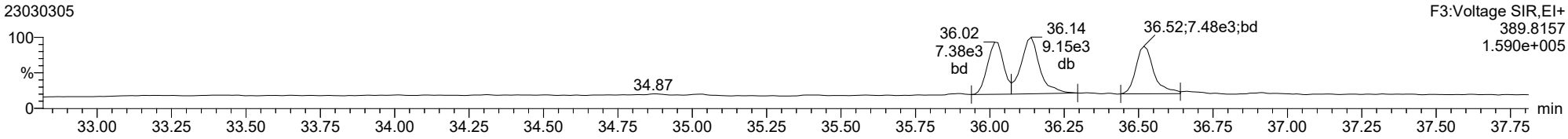


Total-pentadioxins

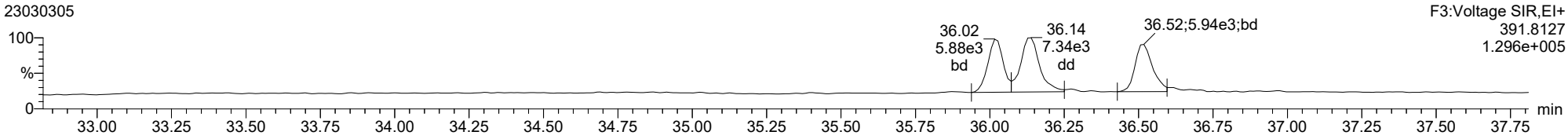


ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

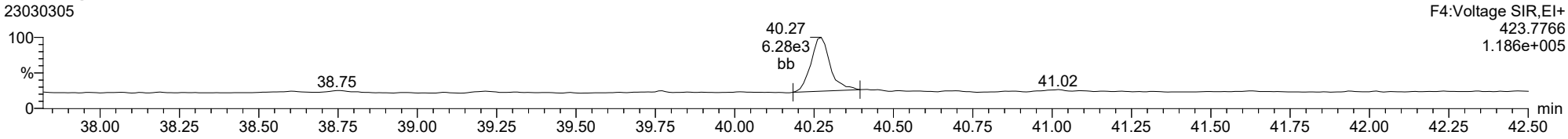
Total-hexadioxins



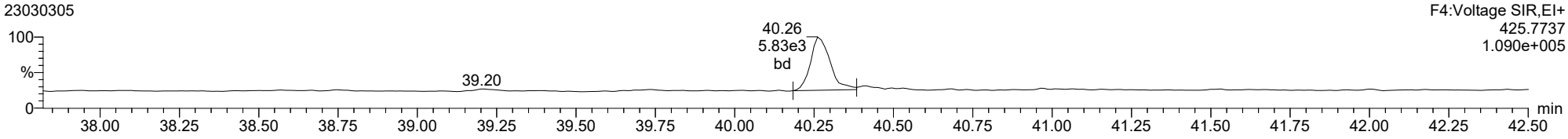
Total-hexadioxins



Total-heptadioxins

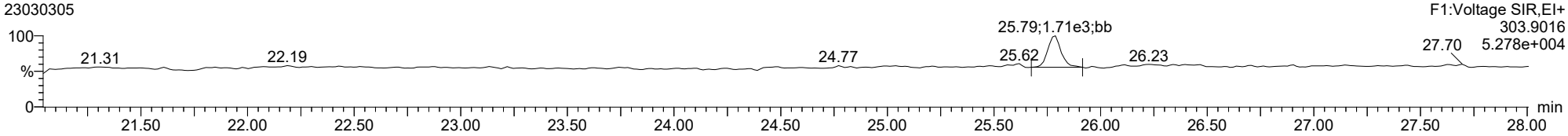


Total-heptadioxins

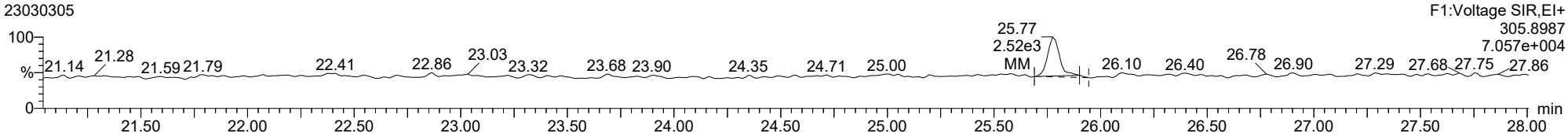


ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

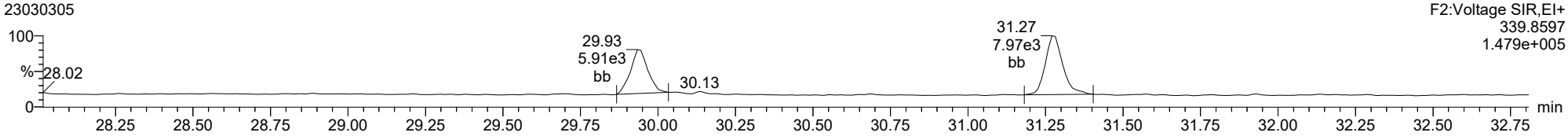
Total-tetrafurans



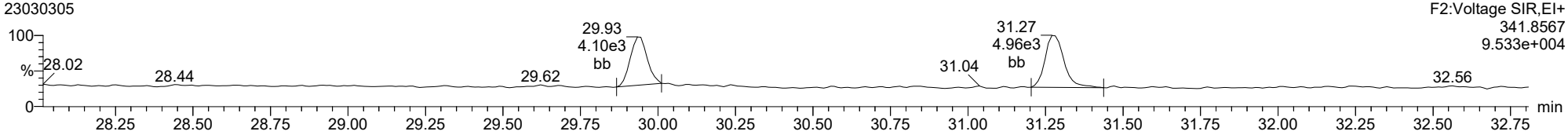
Total-tetrafurans



Total-pentafurans

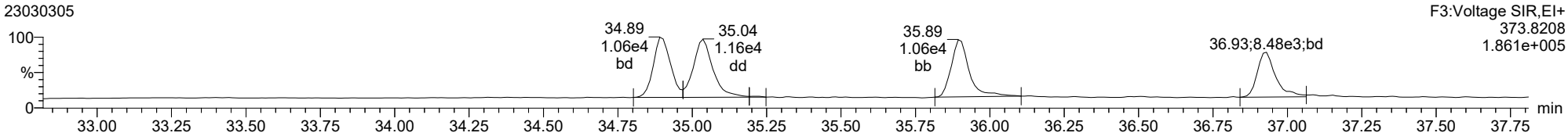


Total-pentafurans

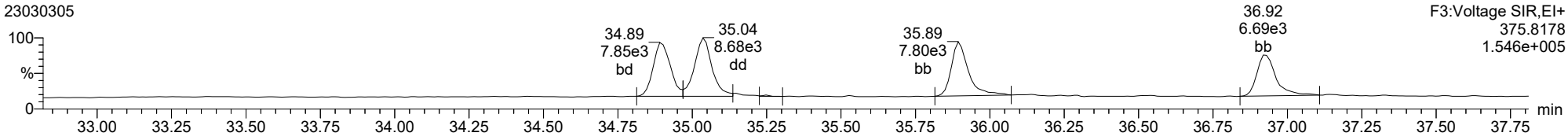


ID: CS1CW, Name: 23030305, Date: 03-Mar-2023, Time: 12:23:58, Conditions: AUTOSPEC01, User: pk

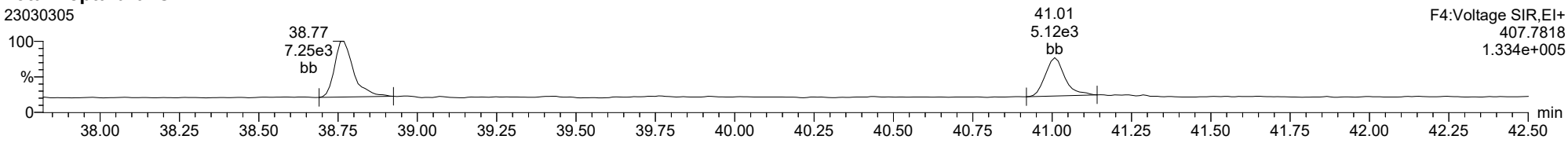
Total-hexafurans



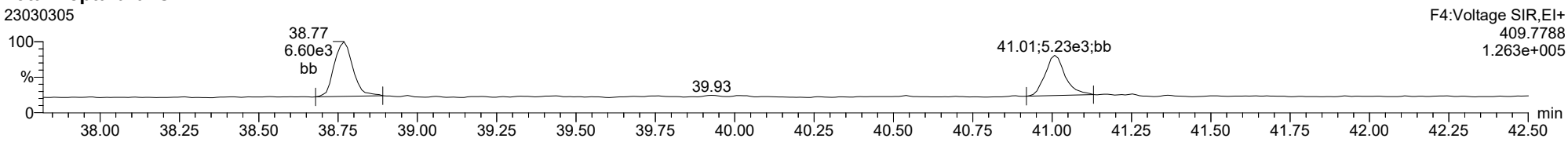
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:24 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.789	1.001	8.311e3	1.080e4	0.702	0.769	0.770	1017	2375	1.17e5	1.59e5	114.9	67.2	NO	bd	bb	1.942
12378-PeCDF	29.945	1.001	4.669e4	2.820e4	0.679	1.656	1.550	1114	1452	6.51e5	4.26e5	583.9	293.2	NO	bd	bb	10.465
23478-PeCDF	31.282	1.000	4.676e4	2.892e4	0.786	1.617	1.550	1114	1452	6.63e5	4.21e5	595.0	289.8	NO	bb	bb	10.293
123478-HxCDF	34.903	1.000	5.097e4	3.855e4	1.166	1.322	1.240	1081	974	7.67e5	5.88e5	709.2	604.2	NO	bd	bd	9.861
234678-HxCDF	35.906	1.000	4.287e4	3.364e4	1.140	1.274	1.240	1081	974	6.16e5	4.95e5	570.0	508.0	NO	bd	bb	10.523
123678-HxCDF	35.048	1.001	5.830e4	4.380e4	1.091	1.331	1.240	1081	974	7.78e5	6.16e5	719.4	632.0	NO	dd	db	10.775
123789-HxCDF	36.942	1.001	3.050e4	2.273e4	1.137	1.342	1.240	1081	974	4.14e5	3.24e5	383.3	332.2	NO	bb	bb	9.945
1234678-HpCDF	38.780	1.001	2.871e4	2.660e4	1.003	1.079	1.050	1234	1299	4.33e5	4.29e5	350.5	330.3	NO	bd	bb	10.087
1234789-HpCDF	41.020	1.000	2.198e4	2.032e4	0.953	1.082	1.050	1234	1299	3.09e5	2.76e5	250.5	212.3	NO	bb	bb	10.556
OCDF	45.247	1.006	3.160e4	3.327e4	0.778	0.950	0.890	832	1108	3.53e5	3.88e5	424.8	350.5	NO	bd	bb	19.690
2378-TCDD	26.438	1.001	9.033e3	1.299e4	1.149	0.696	0.770	1078	937	1.34e5	1.84e5	124.1	196.6	NO	bb	bb	2.068
12378-PeCDD	31.538	1.000	4.287e4	2.877e4	1.022	1.490	1.550	1012	882	6.26e5	3.88e5	618.4	440.6	NO	bb	bb	9.981
123478-HxCDD	36.028	1.001	3.011e4	2.566e4	0.996	1.173	1.240	1087	1355	4.81e5	4.17e5	442.1	307.5	NO	bd	bd	9.781
123678-HxCDD	36.140	1.000	3.660e4	2.810e4	1.001	1.303	1.240	1087	1355	5.13e5	3.98e5	471.9	293.4	NO	dd	db	9.830
123789-HxCDD	36.530	1.011	2.694e4	2.285e4	0.907	1.179	1.240	1087	1355	3.87e5	3.22e5	355.7	237.4	NO	bb	bb	8.921
1234678-HpCDD	40.273	1.000	2.448e4	2.664e4	1.039	0.919	1.050	853	881	3.43e5	3.58e5	402.1	405.9	NO	bb	bd	10.011
OCDD	45.009	1.000	3.531e4	4.015e4	0.920	0.879	0.890	1050	1012	4.08e5	4.99e5	388.3	492.6	NO	bb	bb	19.363
13C-2378-TCDF	25.774	1.007	6.035e5	7.993e5	1.620	0.755	0.770	2457	1835	8.64e6	1.14e7	3516.1	6186.3	NO	bb	bb	103.115
13C-12378-PeCDF	29.923	1.169	6.526e5	4.010e5	1.240	1.628	1.550	3002	2090	8.73e6	5.82e6	2907.1	2783.7	NO	bb	bb	101.148
13C-23478-PeCDF	31.271	1.221	5.554e5	3.799e5	1.118	1.462	1.550	3002	2090	8.01e6	5.41e6	2667.8	2586.4	NO	bb	bb	99.644
13C-123478-HxCDF	34.892	0.956	2.641e5	5.144e5	1.168	0.513	0.510	1857	2488	3.90e6	7.62e6	2100.8	3063.0	NO	bd	bd	129.584
13C-123678-HxCDF	35.026	0.959	2.932e5	5.755e5	1.386	0.510	0.510	1857	2488	4.18e6	8.13e6	2249.4	3269.5	NO	db	db	121.832
13C-234678-HxCDF	35.895	0.983	2.180e5	4.199e5	1.129	0.519	0.510	1857	2488	3.14e6	6.08e6	1689.2	2442.9	NO	bb	bb	109.838
13C-123789-HxCDF	36.920	1.011	1.570e5	3.137e5	0.932	0.501	0.510	1857	2488	2.29e6	4.45e6	1232.1	1790.1	NO	bb	bb	98.225
13C-1234678-HpCDF	38.758	1.062	1.644e5	3.823e5	0.895	0.430	0.440	2012	3375	2.57e6	5.95e6	1277.0	1763.6	NO	bb	bb	118.766
13C-1234789-HpCDF	40.998	1.123	1.271e5	2.934e5	0.770	0.433	0.440	2012	3375	1.71e6	4.02e6	850.7	1191.4	NO	bb	bb	106.228
13C-1234-TCDD	25.605	0.000	3.763e5	4.634e5	1.000	0.812	0.770	2552	2183	5.75e6	7.05e6	2254.8	3231.1	NO	bb	bb	100.000
13C-2378-TCDD	26.410	1.031	4.085e5	5.183e5	1.152	0.788	0.770	2552	2183	5.98e6	7.56e6	2342.4	3461.2	NO	bb	bb	95.779
13C-12378-PeCDD	31.527	1.231	4.337e5	2.688e5	0.829	1.614	1.550	1077	1542	6.15e6	3.74e6	5715.6	2425.2	NO	bb	bb	100.933
13C-123478-HxCDD	36.006	0.986	3.223e5	2.505e5	0.995	1.287	1.240	2237	1883	4.87e6	3.76e6	2175.2	1999.6	NO	bd	bd	111.924
13C-123678-HxCDD	36.129	0.990	3.608e5	2.967e5	1.157	1.216	1.240	2237	1883	5.10e6	4.02e6	2277.5	2137.4	NO	db	db	110.547
13C-1234678-HpCDD	40.262	1.103	2.573e5	2.341e5	0.840	1.099	1.050	2349	1481	3.41e6	3.22e6	1450.8	2172.3	NO	bd	bb	113.737
13C-OCDD	44.991	1.232	4.017e5	4.455e5	0.767	0.902	0.890	2278	1800	4.53e6	5.05e6	1990.6	2807.7	NO	bb	bb	214.651
13C-123789-HxCDD	36.507	0.000	2.902e5	2.240e5	1.000	1.296	1.240	2237	1883	4.20e6	3.27e6	1878.6	1737.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.032	1.977e4		1.288			2484		2.93e5		117.9			bb		1.828

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:24 Pacific Standard Time

ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1017	2375								
1289-TCDF					0.678		0.770	1017	2375								
13468-PECDF					1.246		1.550	633	1159								
12389-PECDF					0.496		1.550	1114	1452								
123468-HXCDF					1.169		1.240	1081	974								
1368-TCDD					1.015		0.770	1078	937								
1289-TCDD					0.909		0.770	1078	937								
12479-PECDD					2.301		1.550	1012	882								
12389-PECDD					1.184		1.550	1012	882								
124679-HXCDD					1.115		1.240	1087	1355								
1234679-HPCDD					1.137		1.050	853	881								
Total-tetrafurans			8.311e3		0.727			1017		1.17e5							1.942
Total-penta1			0.000e0					633		0.00e0							
Total-pentafurans			9.345e4		0.654			1114		1.31e6							20.758
Total-hexafurans			1.826e5		1.141			1081		2.58e6							41.105
Total-heptafurans			5.070e4		0.978			1234		7.42e5							20.643
Total-Furans			3.667e5		0.922			1017		5.10e6							104.140
Total-tetradioxins			9.033e3		1.024			1078		1.34e5							2.068
Total-pentadioxins			4.287e4		1.502			1012		6.26e5							9.981
Total-hexadioxins			9.364e4		1.005			1087		1.38e6							28.532
Total-heptadioxins			2.448e4		1.088			853		3.43e5							10.011
Total-Dioxins			2.053e5		1.130			1078		2.89e6							69.955
Total-TEQ			5.720e5					1078		7.99e6							174.095
FUNCTION1 PFK			1.995e6					567717		7.69e6							
FUNCTION2 PFK			1.258e5					282093		4.74e6							0.000
FUNCTION3 PFK			4.711e7					382868		3.34e7							0.000
FUNCTION4 PFK			2.092e7					278389		1.32e7							
FUNCTION5 PFK			6.777e4					239180		2.68e6							
FUNCTION1 HXCD...			0.000e0					613		0.00e0							
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.408e2					965		2.85e3							0.000
FUNCTION3 OCDPE			0.000e0					571		0.00e0							
FUNCTION4 NCDPE			3.810e2					638		4.39e3							0.000
FUNCTION5 DCDPE			0.000e0					603		0.00e0							

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	8.311e3	1.080e4	0.702	0.77	0.77	114.9	YES	NO	bd	bb	1.942

PP

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

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	4.676e4	2.892e4	0.786	1.62	1.55	595.0	YES	NO	bb	bb	10.293
2	12378-PeCDF	29.94	4.669e4	2.820e4	0.679	1.66	1.55	583.9	YES	NO	bd	bb	10.465

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	3.050e4	2.273e4	1.137	1.34	1.24	383.3	YES	NO	bb	bb	9.945
2	234678-HxCDF	35.91	4.287e4	3.364e4	1.140	1.27	1.24	570.0	YES	NO	bd	bb	10.523
3	123678-HxCDF	35.05	5.830e4	4.380e4	1.091	1.33	1.24	719.4	YES	NO	dd	db	10.775
4	123478-HxCDF	34.90	5.097e4	3.855e4	1.166	1.32	1.24	709.2	YES	NO	bd	bd	9.861

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.02	2.198e4	2.032e4	0.953	1.08	1.05	250.5	YES	NO	bb	bb	10.556
2	1234678-HpCDF	38.78	2.871e4	2.660e4	1.003	1.08	1.05	350.5	YES	NO	bd	bb	10.087

ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	4.676e4	2.892e4	0.786	1.62	1.55	595.0	YES	NO	bb	bb	10.293
2	12378-PeCDF	29.94	4.669e4	2.820e4	0.679	1.66	1.55	583.9	YES	NO	bd	bb	10.465
3	2378-TCDF	25.79	8.311e3	1.080e4	0.702	0.77	0.77	114.9	YES	NO	bd	bb	1.942
4	123789-HxCDF	36.94	3.050e4	2.273e4	1.137	1.34	1.24	383.3	YES	NO	bb	bb	9.945
5	234678-HxCDF	35.91	4.287e4	3.364e4	1.140	1.27	1.24	570.0	YES	NO	bd	bb	10.523
6	123678-HxCDF	35.05	5.830e4	4.380e4	1.091	1.33	1.24	719.4	YES	NO	dd	db	10.775
7	123478-HxCDF	34.90	5.097e4	3.855e4	1.166	1.32	1.24	709.2	YES	NO	bd	bd	9.861
8	1234789-HpCDF	41.02	2.198e4	2.032e4	0.953	1.08	1.05	250.5	YES	NO	bb	bb	10.556
9	1234678-HpCDF	38.78	2.871e4	2.660e4	1.003	1.08	1.05	350.5	YES	NO	bd	bb	10.087
10	OCDF	45.25	3.160e4	3.327e4	0.778	0.95	0.89	424.8	YES	NO	bd	bb	19.690

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.44	9.033e3	1.299e4	1.149	0.70	0.77	124.1	YES	NO	bb	bb	2.068

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.54	4.287e4	2.877e4	1.022	1.49	1.55	618.4	YES	NO	bb	bb	9.981

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	2.694e4	2.285e4	0.907	1.18	1.24	355.7	YES	NO	bb	bb	8.921
2	123678-HxCDD	36.14	3.660e4	2.810e4	1.001	1.30	1.24	471.9	YES	NO	dd	db	9.830
3	123478-HxCDD	36.03	3.011e4	2.566e4	0.996	1.17	1.24	442.1	YES	NO	bd	bd	9.781

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	2.448e4	2.664e4	1.039	0.92	1.05	402.1	YES	NO	bb	bd	10.011

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.54	4.287e4	2.877e4	1.022	1.49	1.55	618.4	YES	NO	bb	bb	9.981
2	2378-TCDD	26.44	9.033e3	1.299e4	1.149	0.70	0.77	124.1	YES	NO	bb	bb	2.068
3	123789-HxCDD	36.53	2.694e4	2.285e4	0.907	1.18	1.24	355.7	YES	NO	bb	bb	8.921
4	123678-HxCDD	36.14	3.660e4	2.810e4	1.001	1.30	1.24	471.9	YES	NO	dd	db	9.830
5	123478-HxCDD	36.03	3.011e4	2.566e4	0.996	1.17	1.24	442.1	YES	NO	bd	bd	9.781
6	1234678-HpCDD	40.27	2.448e4	2.664e4	1.039	0.92	1.05	402.1	YES	NO	bb	bd	10.011
7	OCDD	45.01	3.531e4	4.015e4	0.920	0.88	0.89	388.3	YES	NO	bb	bb	19.363

TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.28	4.676e4	2.892e4	0.786	1.62	1.55	595.0	YES	NO	bb	bb	10.293
2	12378-PeCDF	29.94	4.669e4	2.820e4	0.679	1.66	1.55	583.9	YES	NO	bd	bb	10.465
3	2378-TCDF	25.79	8.311e3	1.080e4	0.702	0.77	0.77	114.9	YES	NO	bd	bb	1.942
4	123789-HxCDF	36.94	3.050e4	2.273e4	1.137	1.34	1.24	383.3	YES	NO	bb	bb	9.945
5	234678-HxCDF	35.91	4.287e4	3.364e4	1.140	1.27	1.24	570.0	YES	NO	bd	bb	10.523
6	123678-HxCDF	35.05	5.830e4	4.380e4	1.091	1.33	1.24	719.4	YES	NO	dd	db	10.775
7	123478-HxCDF	34.90	5.097e4	3.855e4	1.166	1.32	1.24	709.2	YES	NO	bd	bd	9.861
8	1234789-HpCDF	41.02	2.198e4	2.032e4	0.953	1.08	1.05	250.5	YES	NO	bb	bb	10.556
9	1234678-HpCDF	38.78	2.871e4	2.660e4	1.003	1.08	1.05	350.5	YES	NO	bd	bb	10.087
10	OCDF	45.25	3.160e4	3.327e4	0.778	0.95	0.89	424.8	YES	NO	bd	bb	19.690
11	12378-PeCDD	31.54	4.287e4	2.877e4	1.022	1.49	1.55	618.4	YES	NO	bb	bb	9.981
12	2378-TCDD	26.44	9.033e3	1.299e4	1.149	0.70	0.77	124.1	YES	NO	bb	bb	2.068
13	123789-HxCDD	36.53	2.694e4	2.285e4	0.907	1.18	1.24	355.7	YES	NO	bb	bb	8.921
14	123678-HxCDD	36.14	3.660e4	2.810e4	1.001	1.30	1.24	471.9	YES	NO	dd	db	9.830
15	123478-HxCDD	36.03	3.011e4	2.566e4	0.996	1.17	1.24	442.1	YES	NO	bd	bd	9.781
16	1234678-HpCDD	40.27	2.448e4	2.664e4	1.039	0.92	1.05	402.1	YES	NO	bb	bd	10.011
17	OCDD	45.01	3.531e4	4.015e4	0.920	0.88	0.89	388.3	YES	NO	bb	bb	19.363

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	25.73	8.333e5					6.7	YES		bb		
2	FUNCTION1 PFK	21.10	1.162e6					6.9	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.61	1.110e4					1.3	NO		bb		0.000
2	FUNCTION2 PFK	28.31	1.183e4					1.5	NO		bb		0.000
3	FUNCTION2 PFK	31.85	7.066e3					1.3	NO		bb		0.000
4	FUNCTION2 PFK	31.75	1.168e4					1.4	NO		bb		0.000
5	FUNCTION2 PFK	30.95	1.613e4					2.1	NO		bb		0.000
6	FUNCTION2 PFK	30.06	7.806e3					1.3	NO		bb		0.000
7	FUNCTION2 PFK	29.77	1.198e4					1.4	NO		bb		0.000
8	FUNCTION2 PFK	29.47	1.476e4					2.1	NO		bb		0.000
9	FUNCTION2 PFK	29.28	1.360e4					2.0	NO		db		0.000
10	FUNCTION2 PFK	29.22	1.980e4					2.4	NO		bd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.30	3.856e7					44.6	YES		db		0.000
2	FUNCTION3 PFK	33.18	8.558e6					42.7	YES		bd		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.24	1.285e7					8.2	YES		db		
2	FUNCTION4 PFK	38.41	8.070e6					39.3	YES		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.68	1.647e4					1.8	NO		bb		
2	FUNCTION5 PFK	45.75	3.282e3					1.0	NO		bb		
3	FUNCTION5 PFK	45.28	6.957e3					1.1	NO		bb		
4	FUNCTION5 PFK	44.90	6.364e3					1.0	NO		bb		
5	FUNCTION5 PFK	44.84	1.531e3					0.5	NO		bb		
6	FUNCTION5 PFK	44.40	6.282e3					1.0	NO		bb		
7	FUNCTION5 PFK	44.21	4.626e3					1.1	NO		bb		
8	FUNCTION5 PFK	44.03	7.842e3					1.2	NO		bb		
9	FUNCTION5 PFK	43.96	6.415e3					1.4	NO		bb		
10	FUNCTION5 PFK	43.84	7.992e3					1.2	NO		bb		

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ETHERS1

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

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.54	1.408e2					3.0	NO		bb		0.000

ETHERS4

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

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.65	1.069e2					1.9	NO		bb		0.000
2	FUNCTION4 NCDPE	40.25	1.358e2					2.2	NO		bb		0.000
3	FUNCTION4 NCDPE	41.02	1.383e2					2.8	NO		bb		0.000

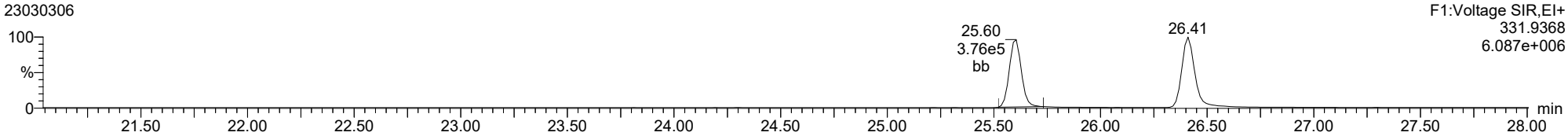
ETHERS6

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1													

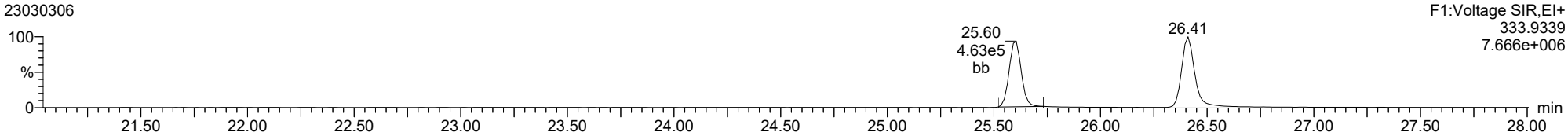
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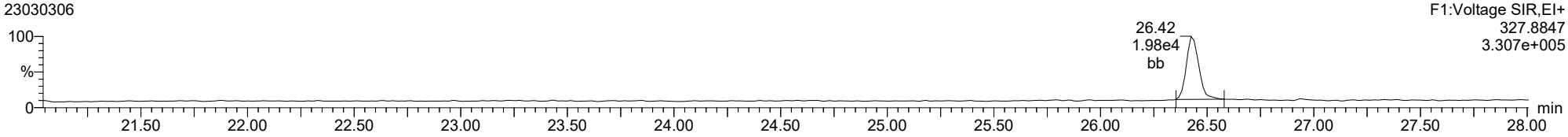
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13C-1234-TCDD

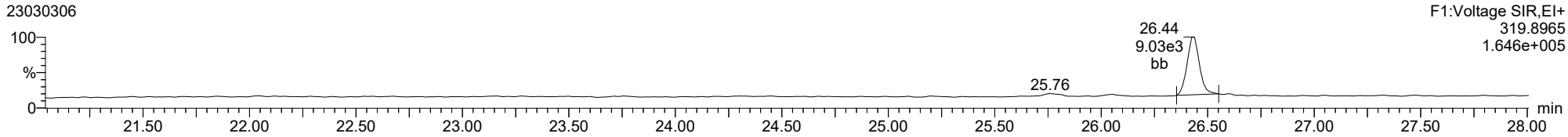


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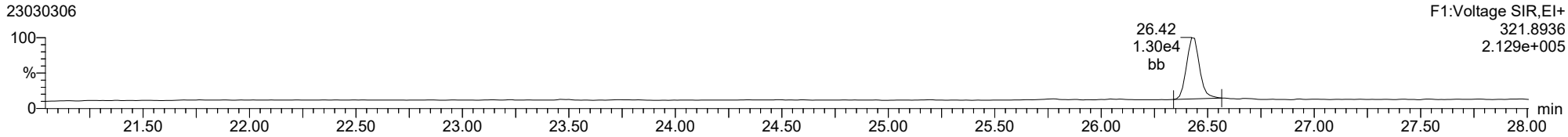


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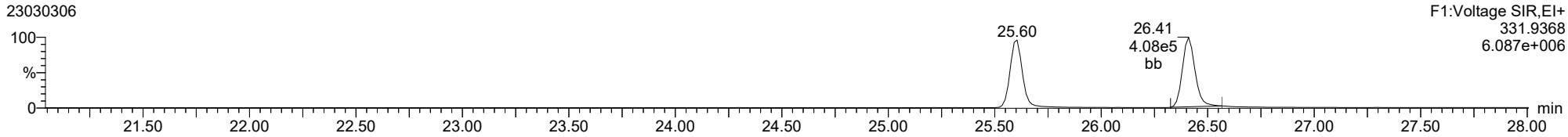
2378-TCDD



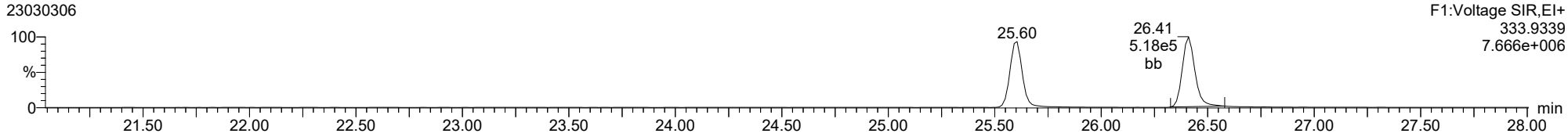
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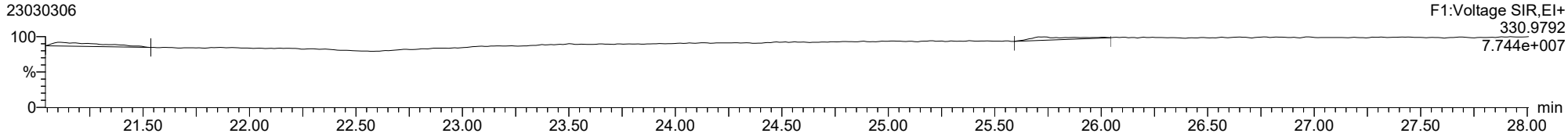
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13C-2378-TCDD

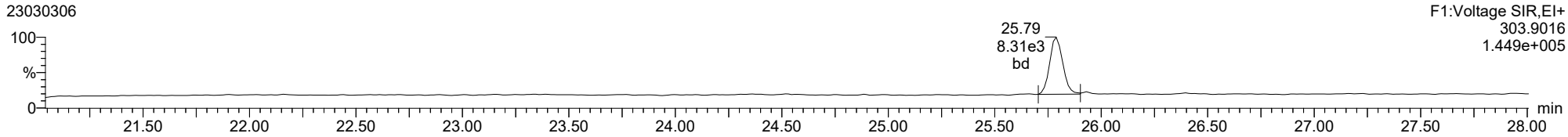


FUNCTION1 PFK

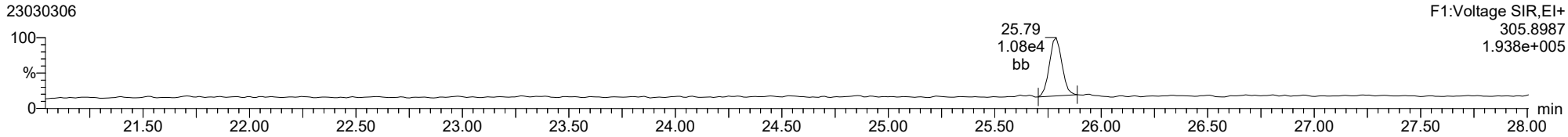


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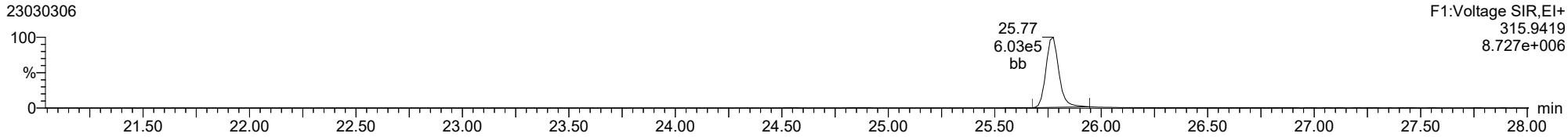
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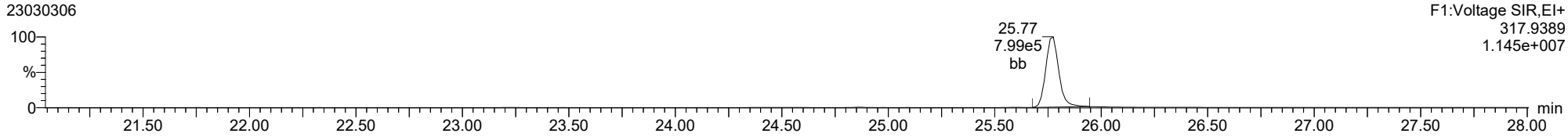
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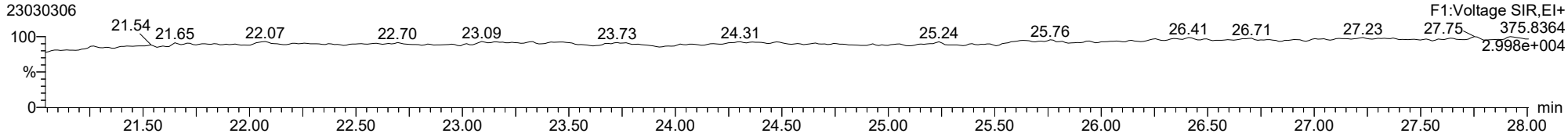
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13C-2378-TCDF

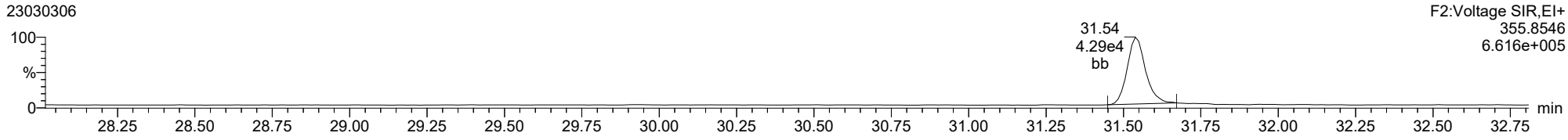


FUNCTION1 HXCDPE

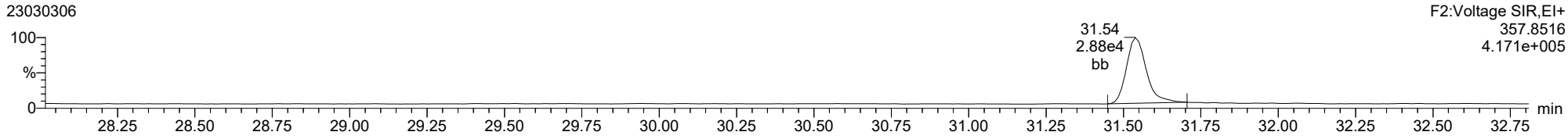


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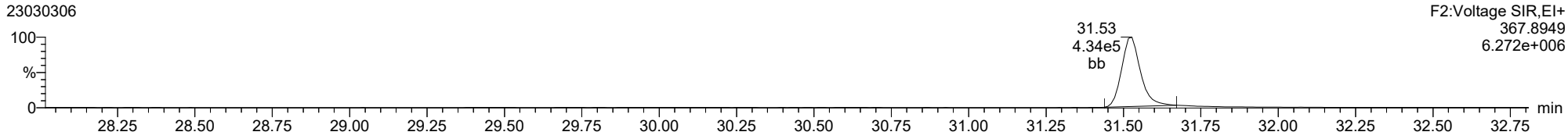
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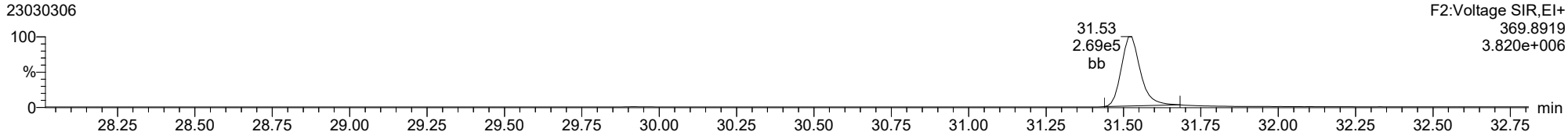
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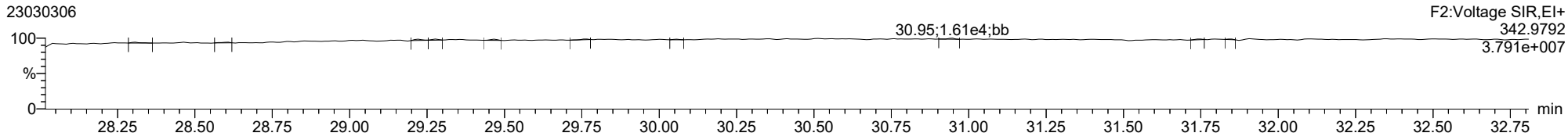
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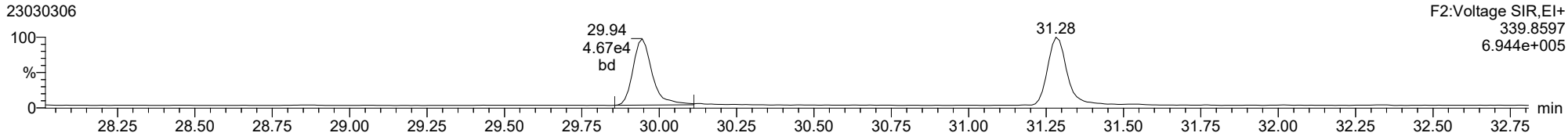


FUNCTION2 PFK

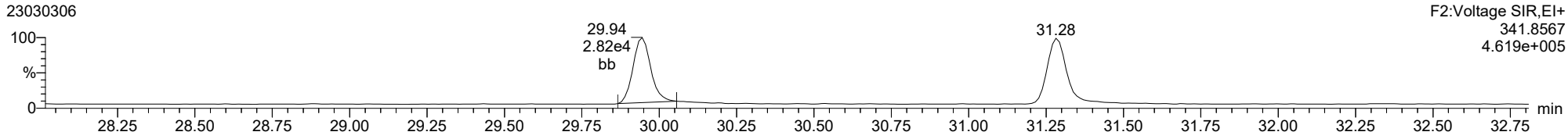


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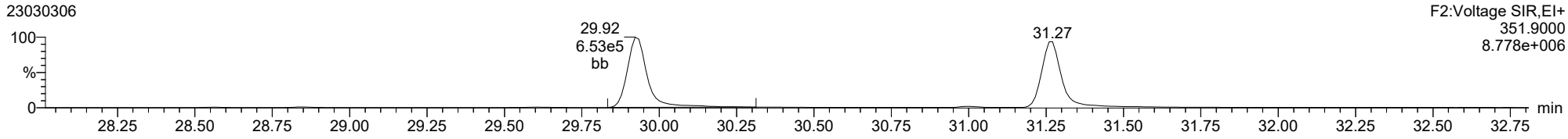
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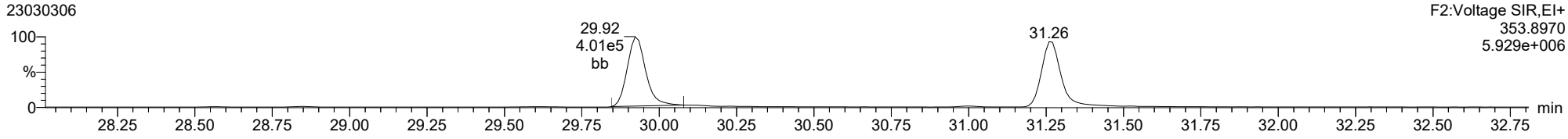
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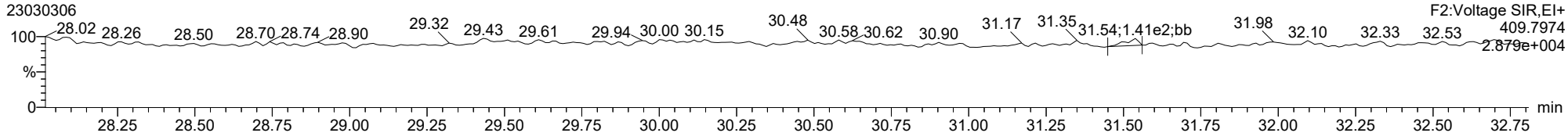
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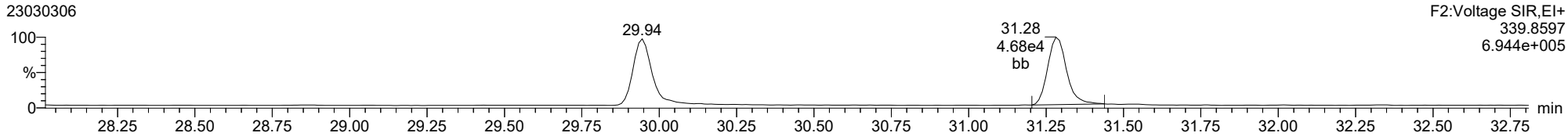


FUNCTION2 HPCDPE

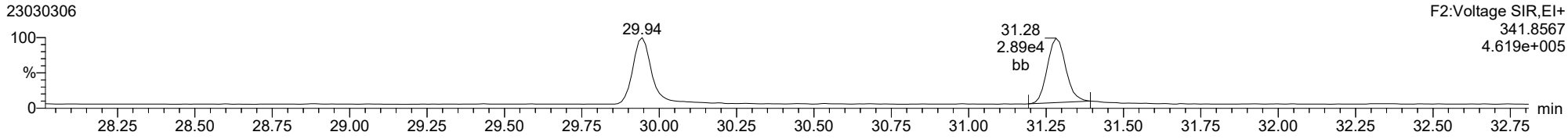


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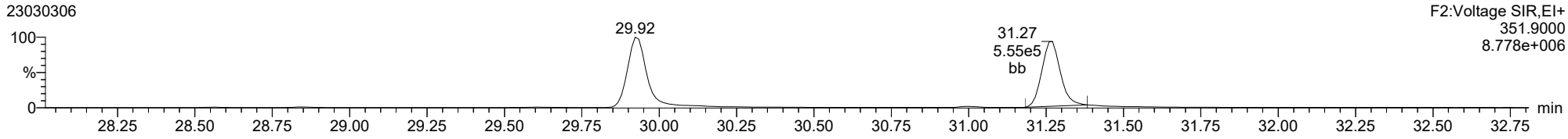
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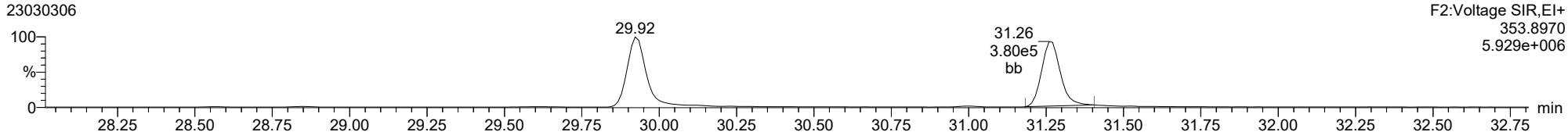
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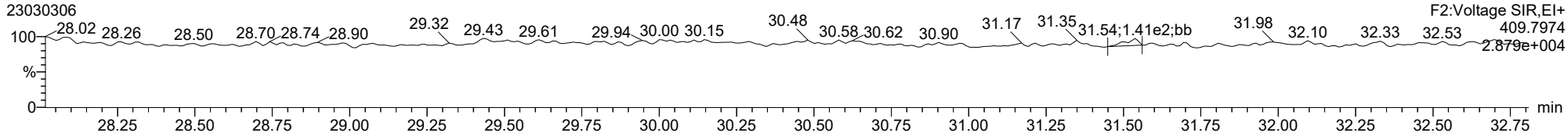
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13C-23478-PeCDF

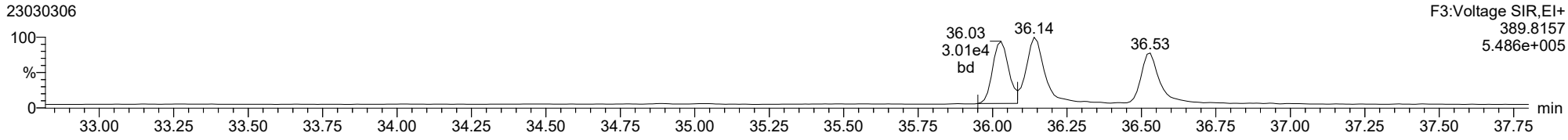


FUNCTION2 HPCDPE

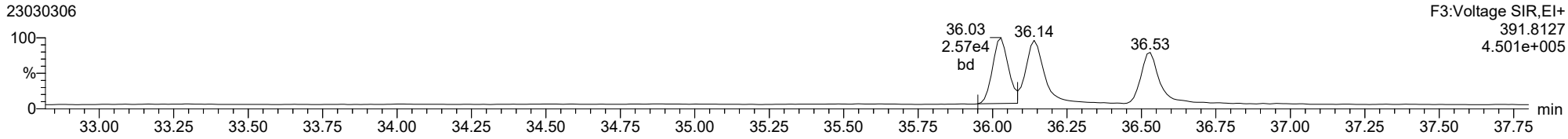


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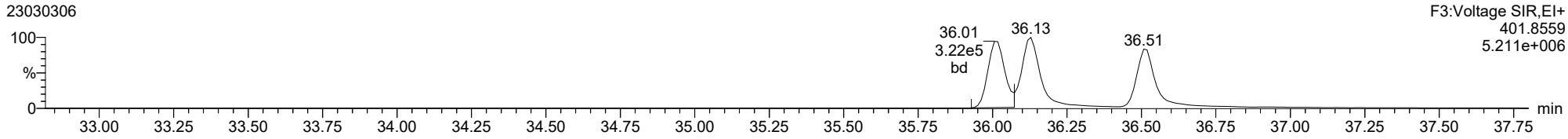
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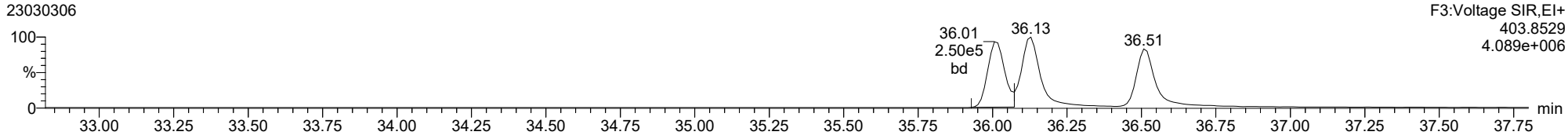
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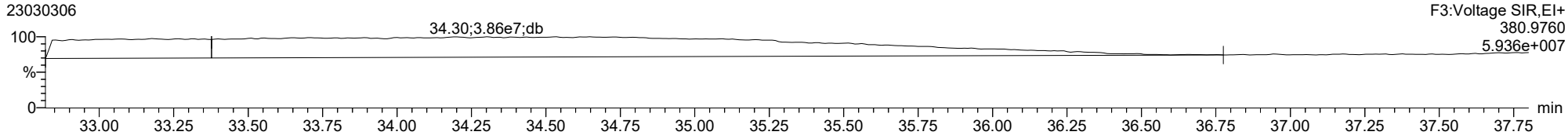
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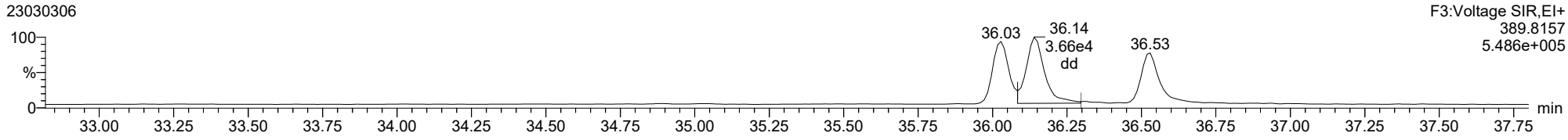


FUNCTION3 PFK

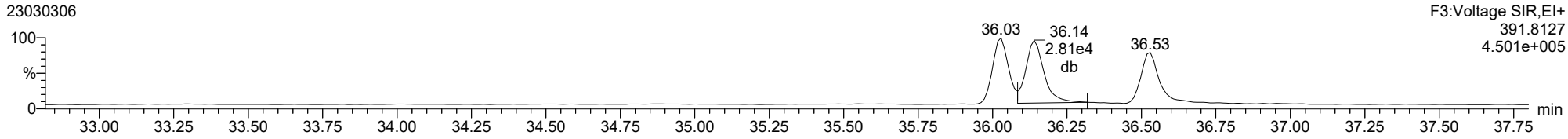


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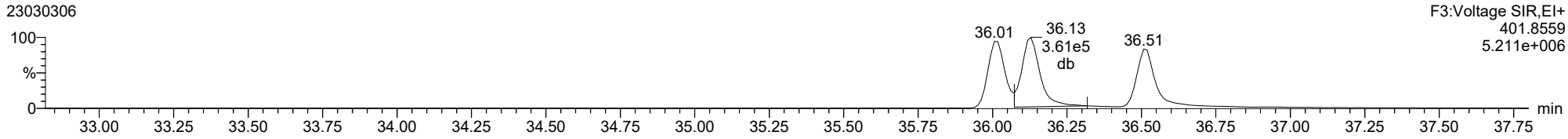
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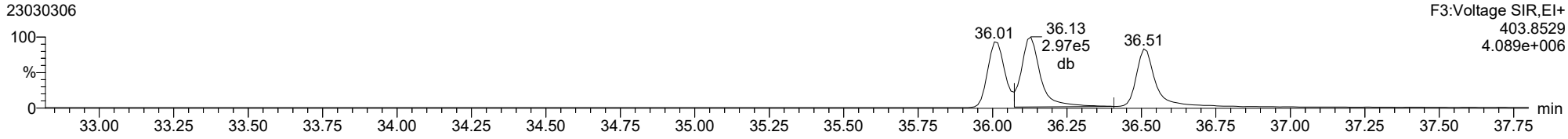
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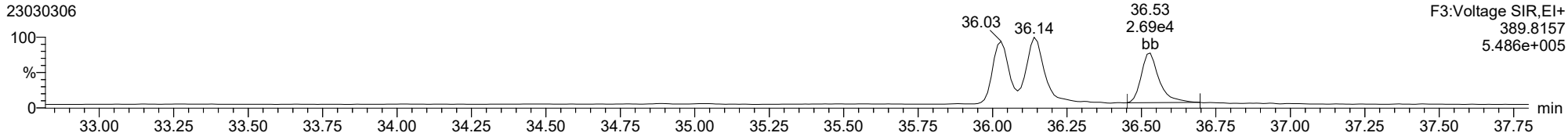


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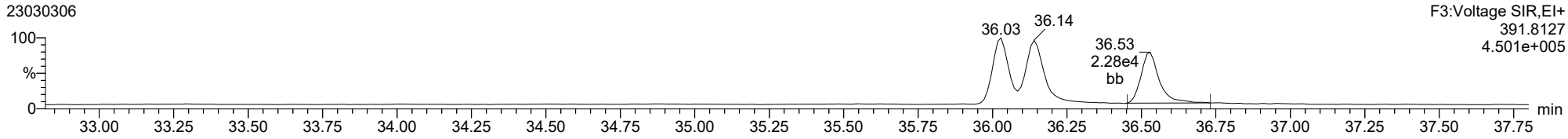


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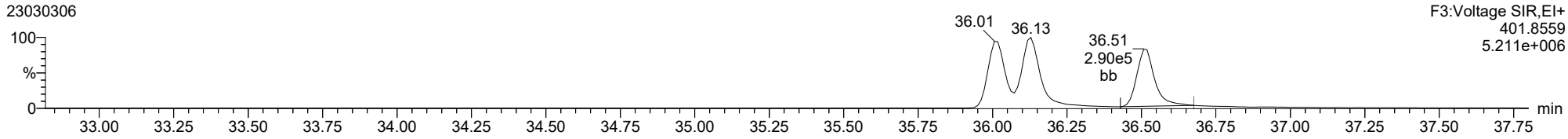
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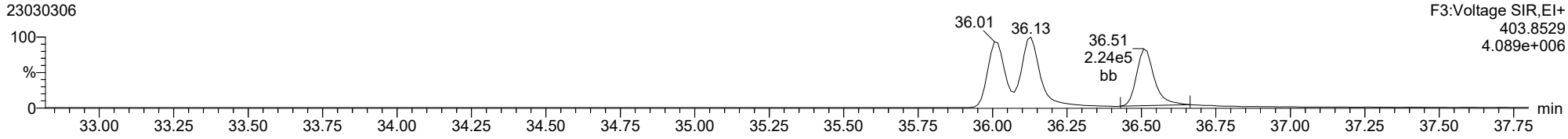
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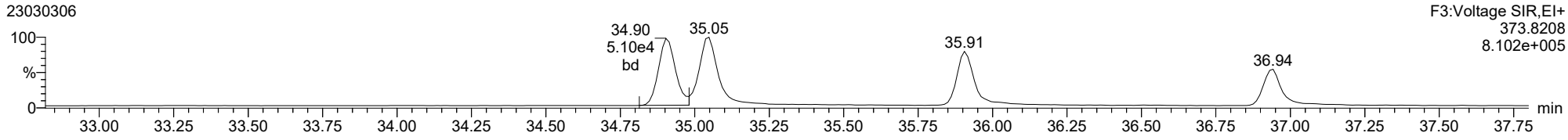


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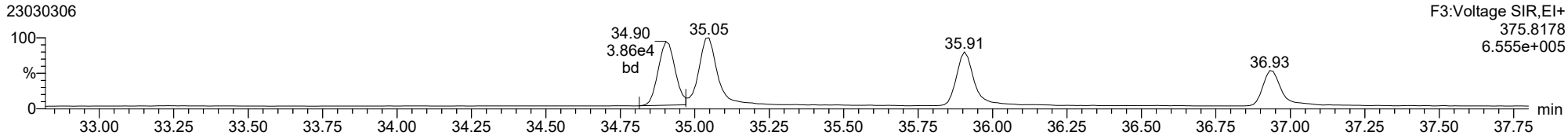


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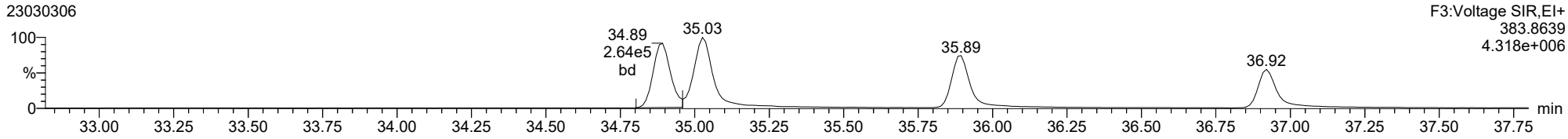
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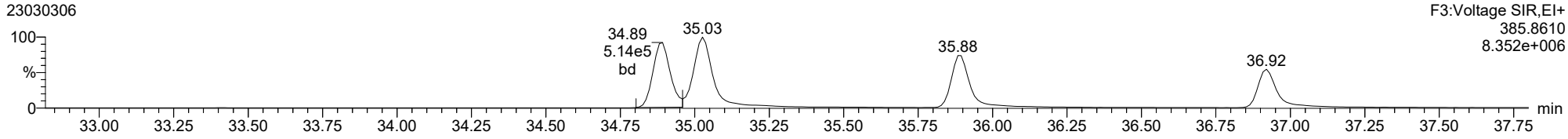
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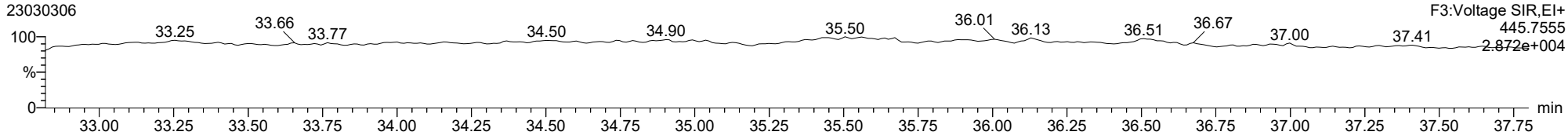
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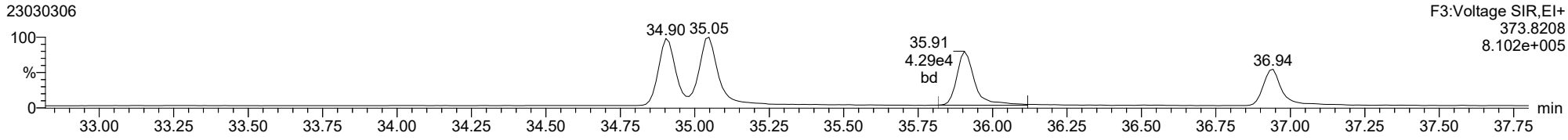


FUNCTION3 OCDPE

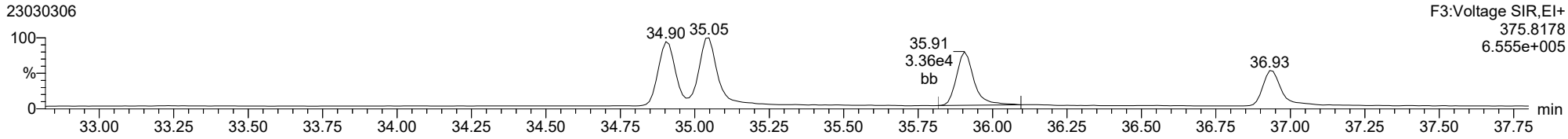


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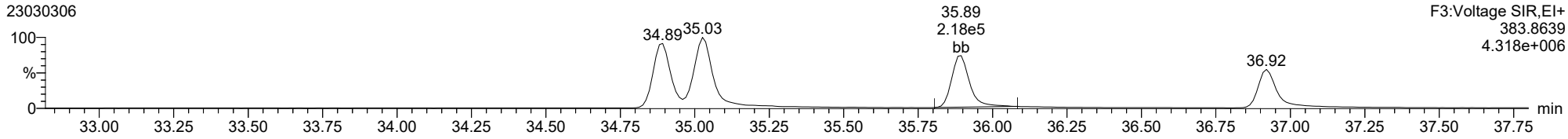
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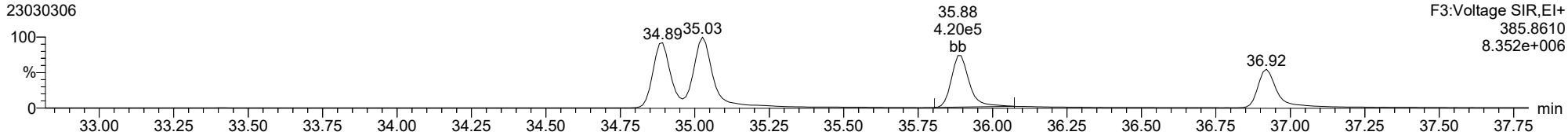
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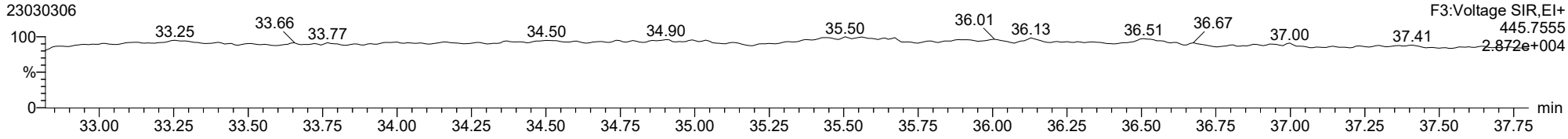
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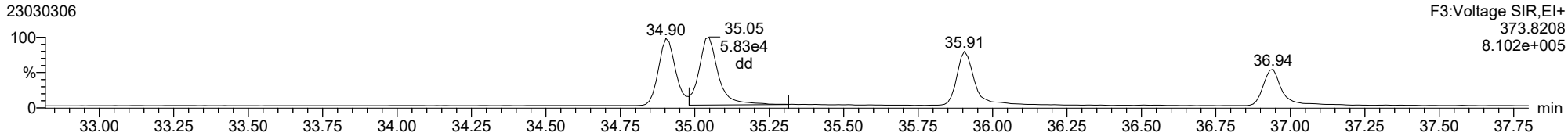


FUNCTION3 OCDPE

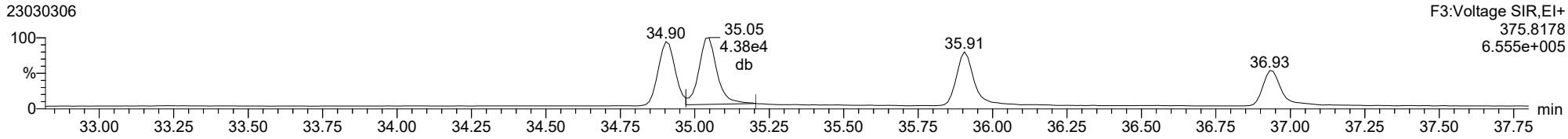


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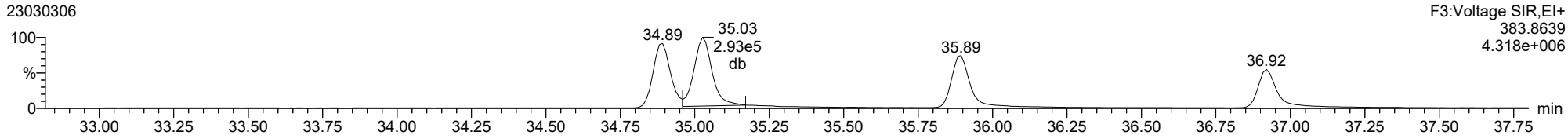
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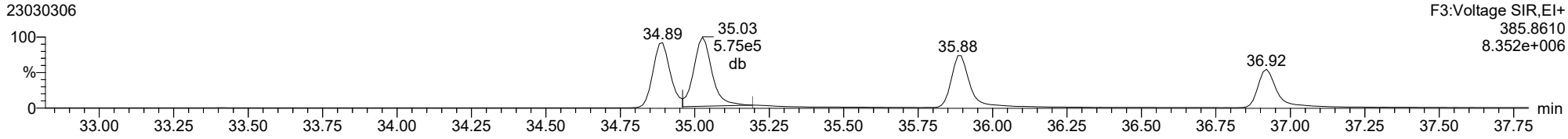
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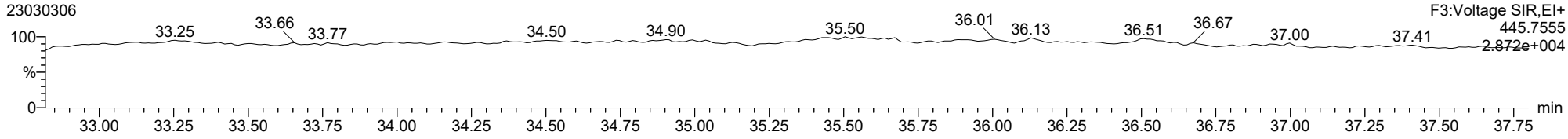
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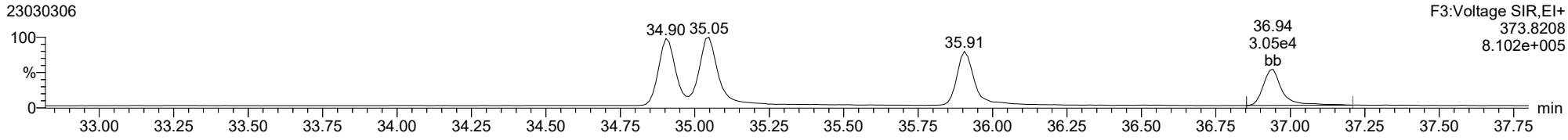


FUNCTION3 OCDPE

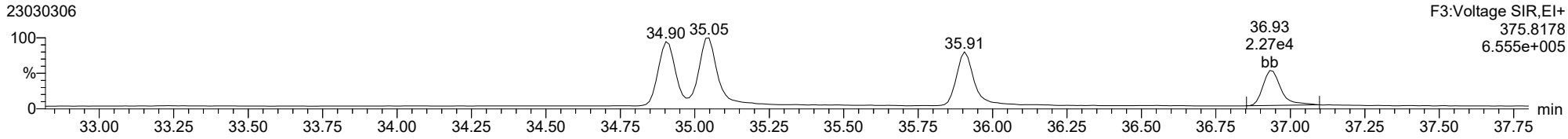


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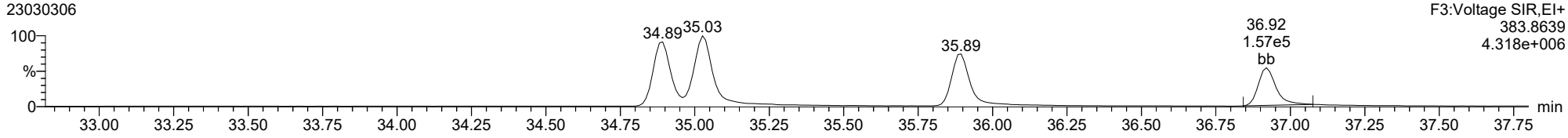
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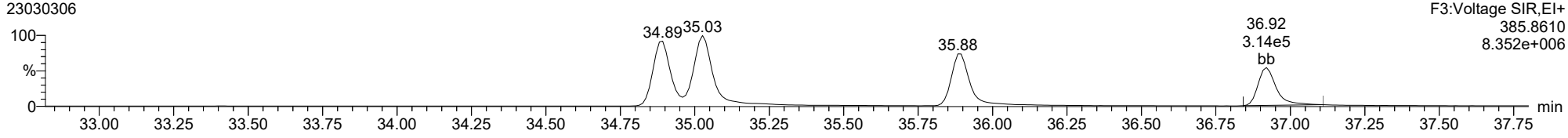
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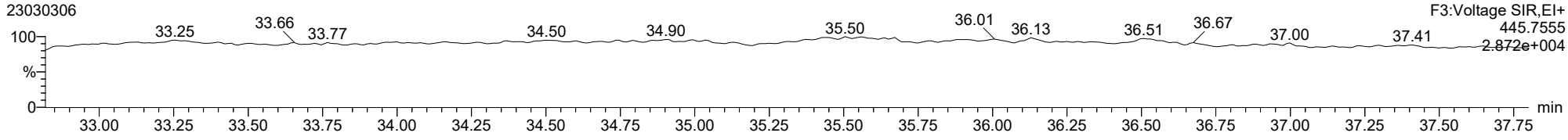
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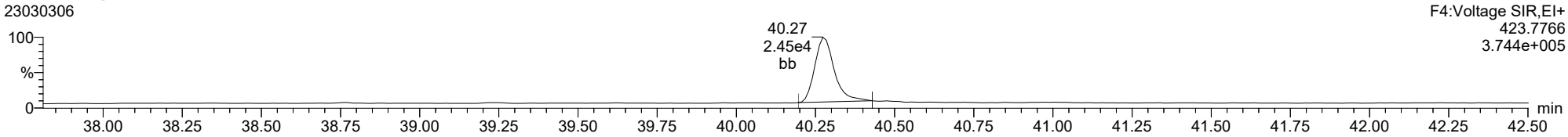


FUNCTION3 OCDPE

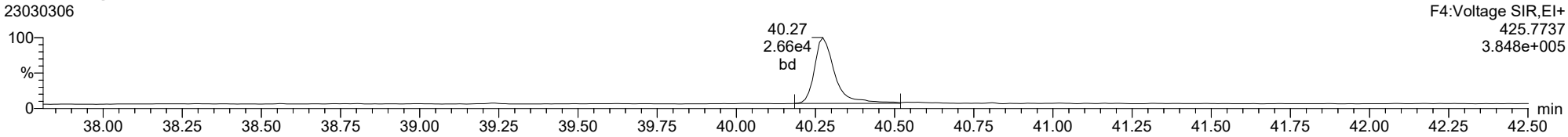


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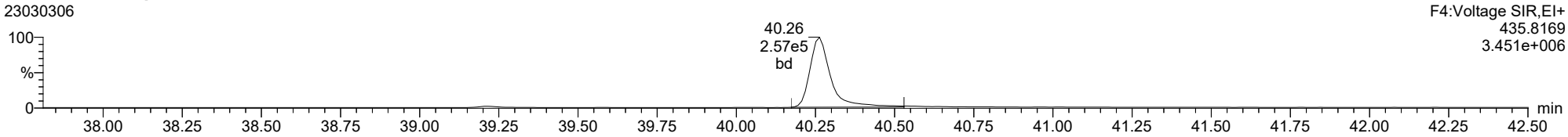
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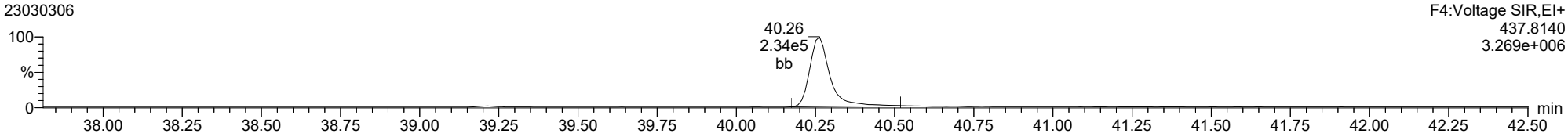
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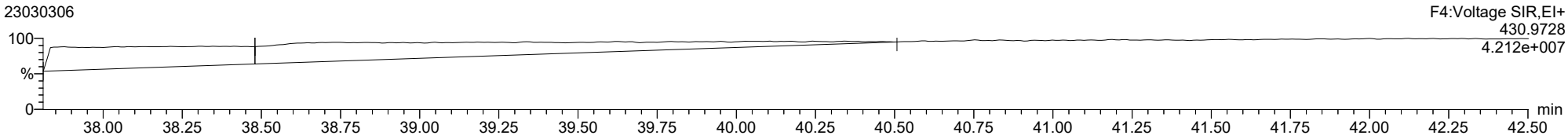
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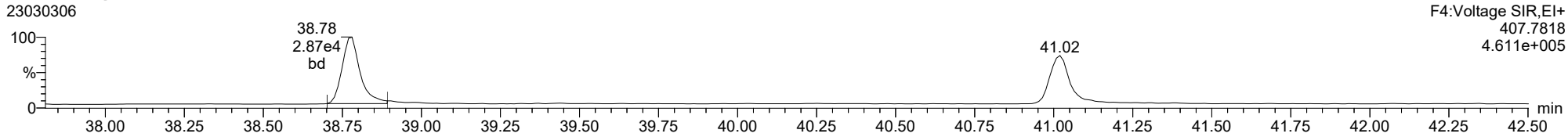


FUNCTION4 PFK

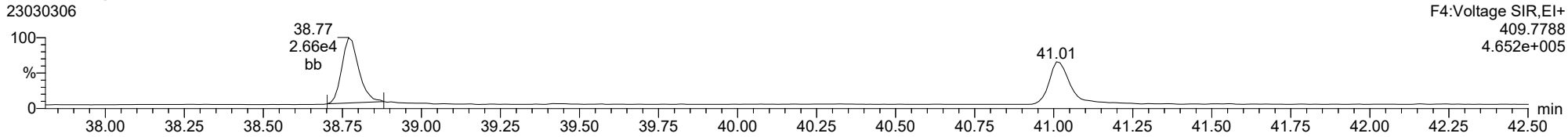


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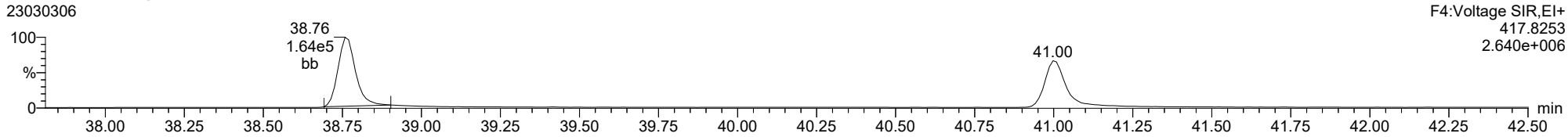
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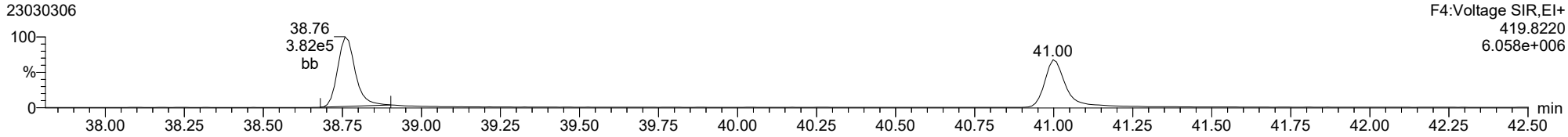
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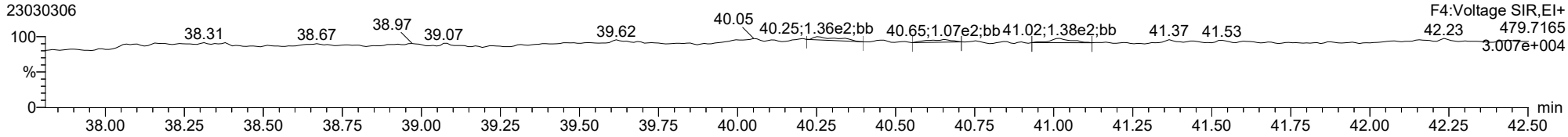
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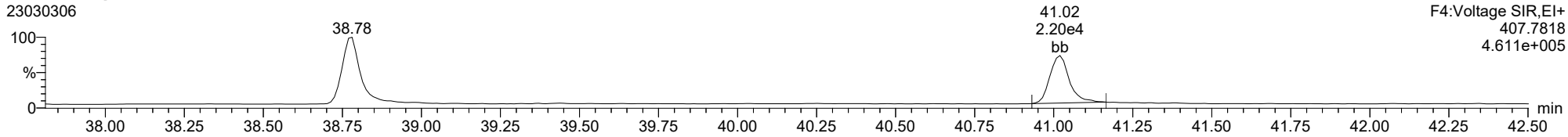


FUNCTION4 NCDPE

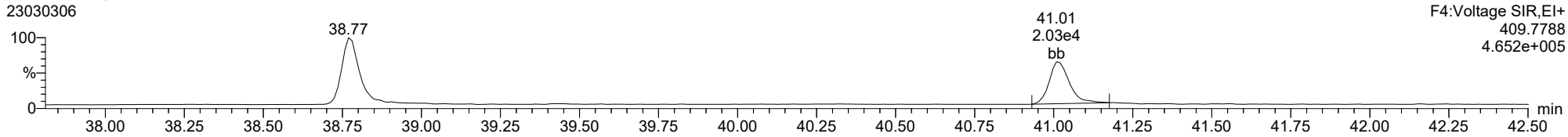


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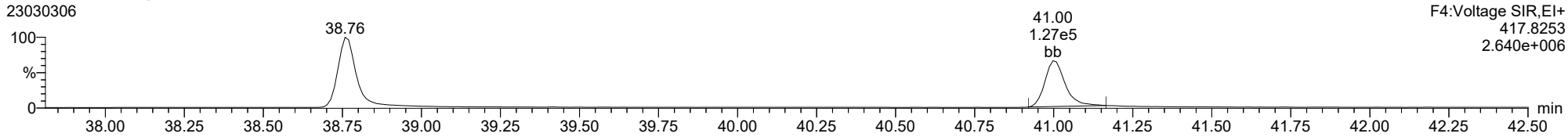
1234789-HpCDF



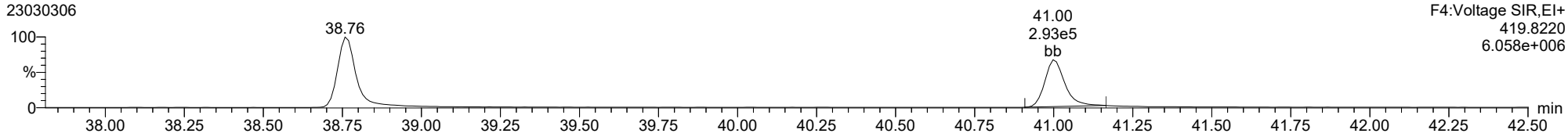
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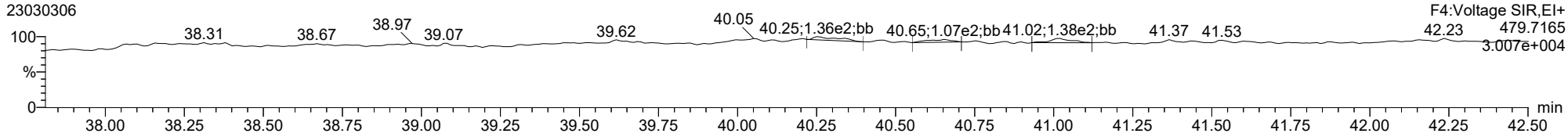
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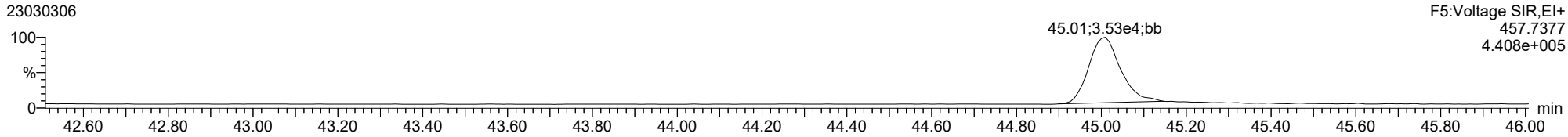


FUNCTION4 NCDPE

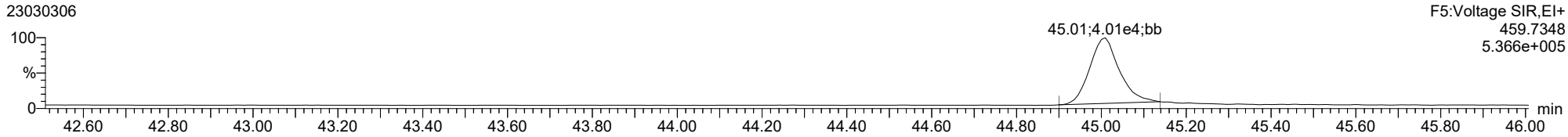


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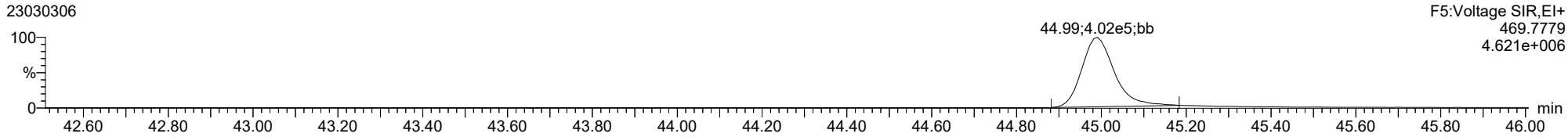
OCDD



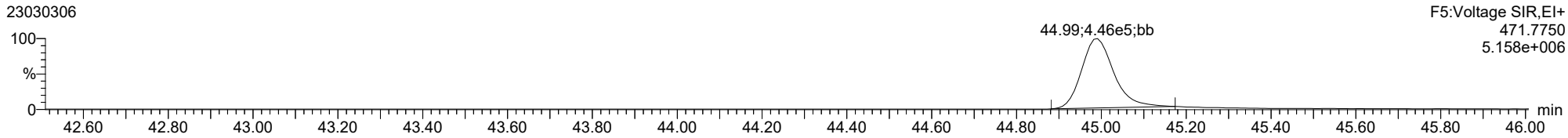
OCDD



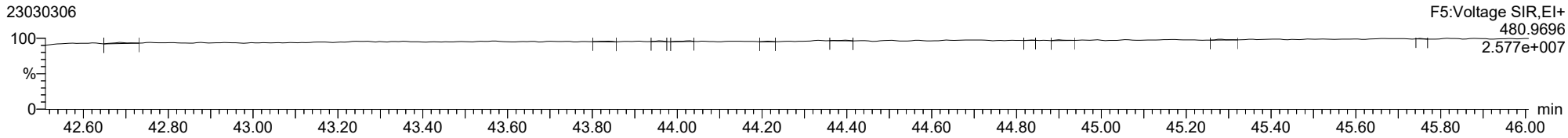
13C-OCDD



13C-OCDD

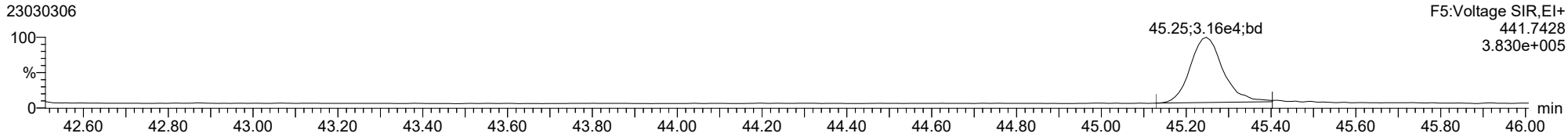


FUNCTION5 PFK

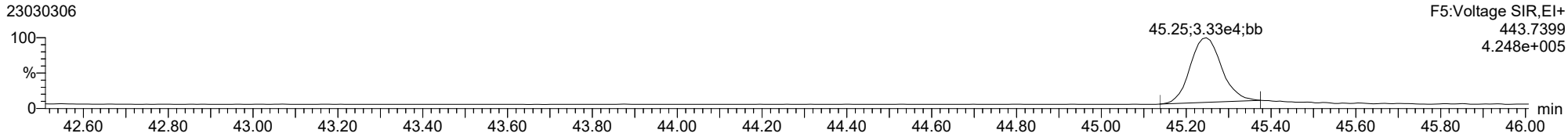


ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

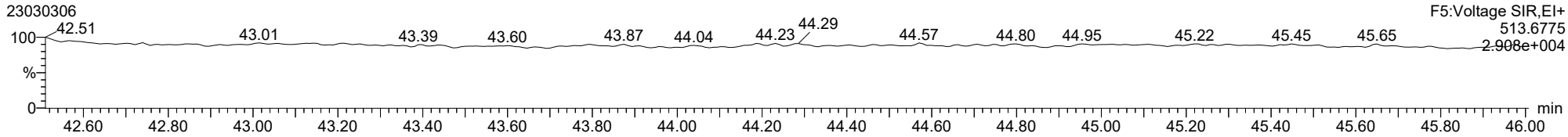
OCDF



OCDF

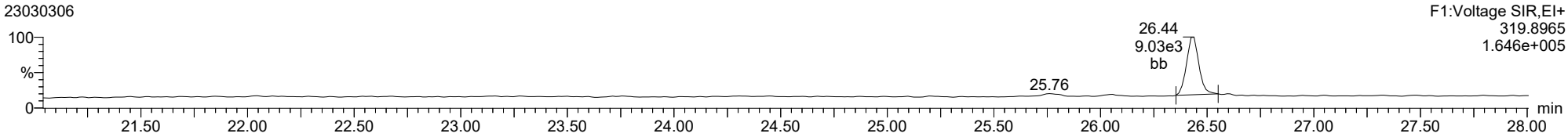


FUNCTION5 DCDPE

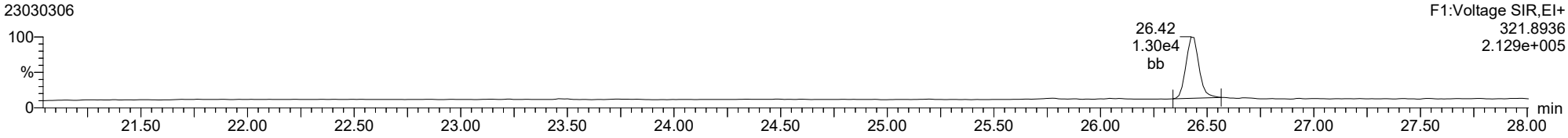


ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

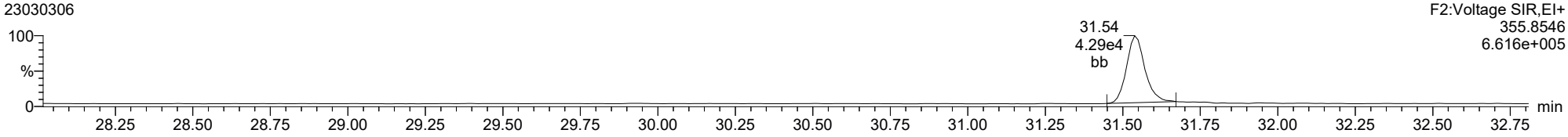
Total-tetradioxins



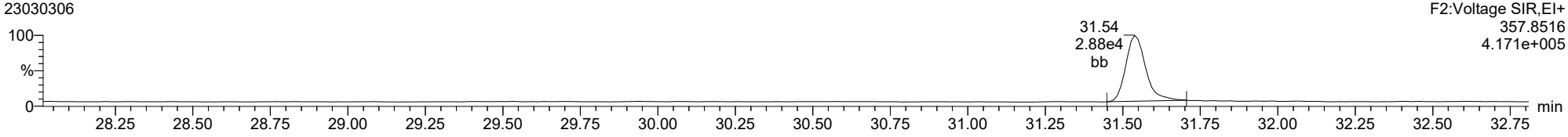
Total-tetradioxins



Total-pentadioxins

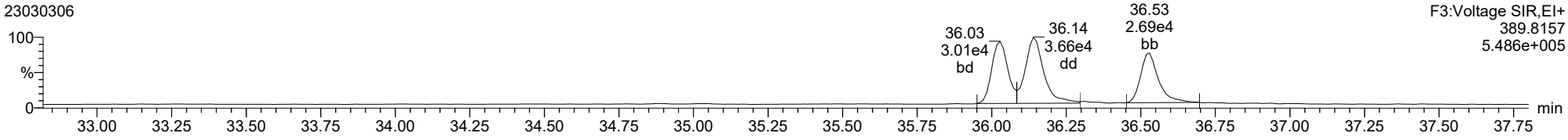


Total-pentadioxins

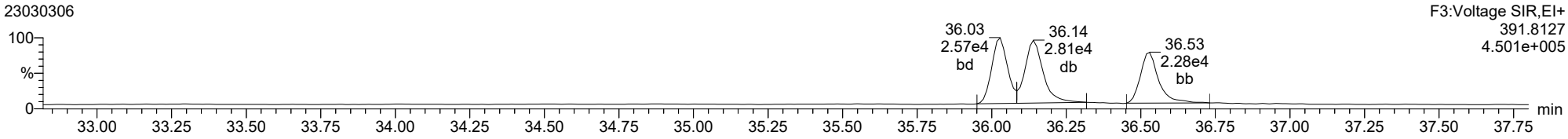


ID: CS2CW, Name: 23030306, Date: 03-Mar-2023, Time: 13:16:24, Conditions: AUTOSPEC01, User: pk

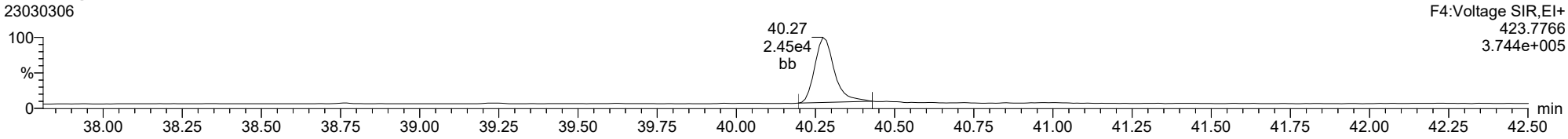
Total-hexadioxins



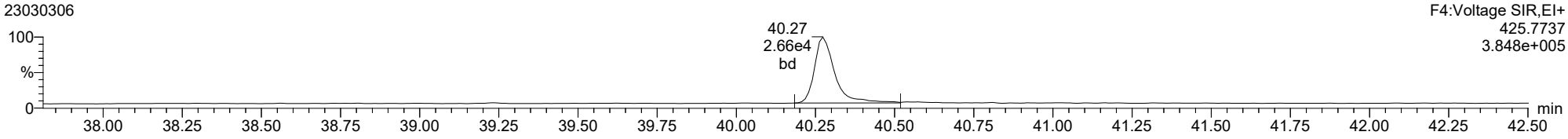
Total-hexadioxins



Total-heptadioxins

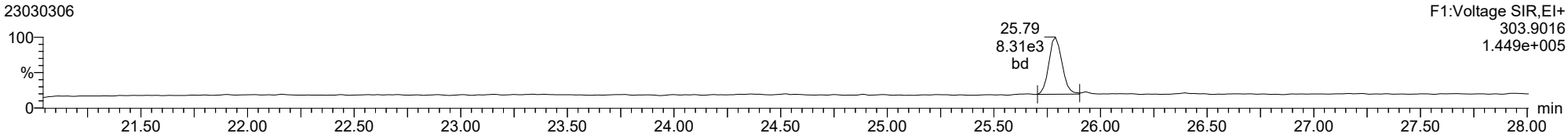


Total-heptadioxins

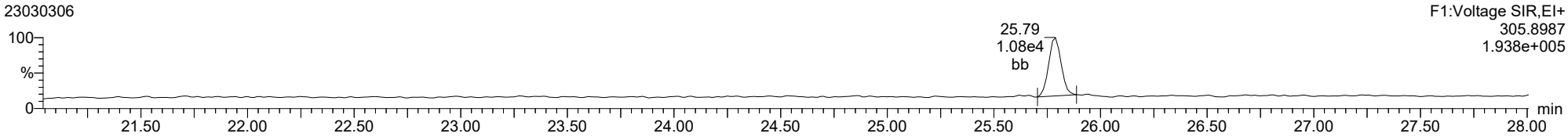


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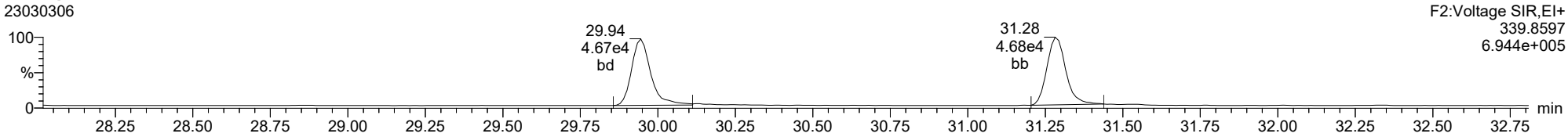
Total-tetrafurans



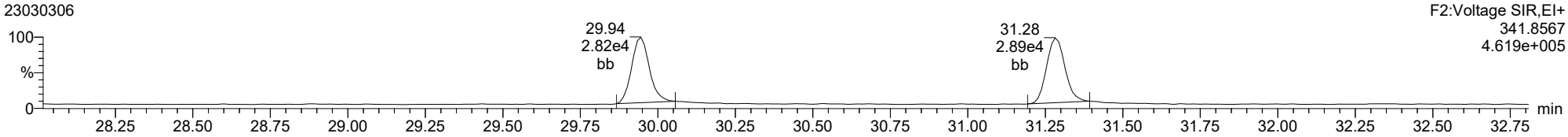
Total-tetrafurans



Total-pentafurans

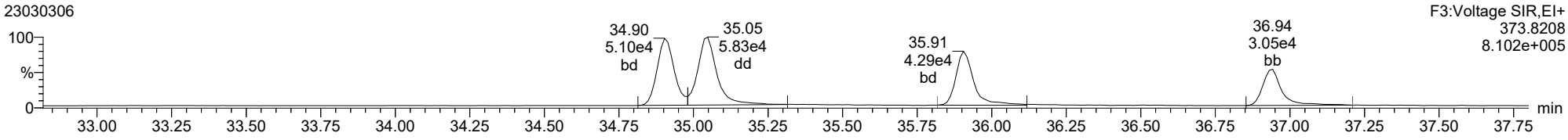


Total-pentafurans

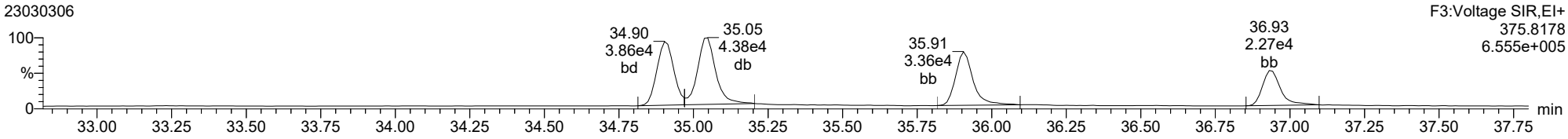


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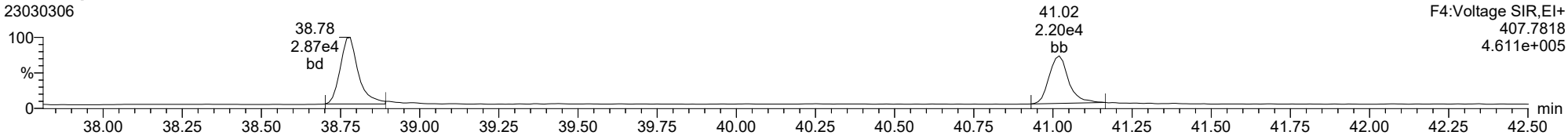
Total-hexafurans



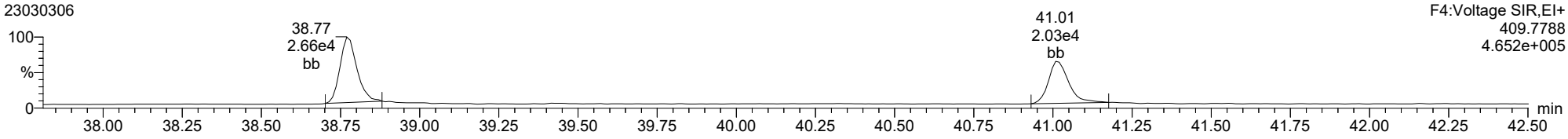
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:37 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS3CW, Name: 23030307, Date: 03-Mar-2023, Time: 14:06:39, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	4.563e4	6.298e4	0.702	0.724	0.770	1455	2151	7.03e5	9.46e5	483.4	440.0	NO	bb	bb	10.132
12378-PeCDF	29.945	1.001	2.374e5	1.577e5	0.679	1.505	1.550	2714	2519	3.51e6	2.28e6	1294.3	903.8	NO	bb	bb	49.089
23478-PeCDF	31.282	1.001	2.063e5	1.364e5	0.786	1.512	1.550	2714	2519	3.03e6	1.99e6	1118.0	788.5	NO	bb	bb	49.466
123478-HxCDF	34.903	1.000	2.473e5	1.941e5	1.166	1.275	1.240	3008	2708	3.76e6	2.98e6	1248.4	1099.9	NO	bd	bd	48.979
234678-HxCDF	35.905	1.000	2.404e5	1.930e5	1.140	1.246	1.240	3008	2708	3.53e6	2.85e6	1172.2	1053.8	NO	bb	bb	49.000
123678-HxCDF	35.048	1.001	2.970e5	2.223e5	1.091	1.336	1.240	3008	2708	3.95e6	3.09e6	1312.5	1142.3	NO	db	db	50.520
123789-HxCDF	36.942	1.001	2.103e5	1.706e5	1.137	1.233	1.240	3008	2708	2.89e6	2.30e6	959.2	849.3	NO	bd	bd	50.468
1234678-HpCDF	38.780	1.000	1.592e5	1.601e5	1.003	0.994	1.050	2672	2189	2.51e6	2.53e6	939.2	1157.5	NO	bb	bb	48.161
1234789-HpCDF	41.019	1.000	1.361e5	1.443e5	0.953	0.943	1.050	2672	2189	1.84e6	1.86e6	689.1	851.7	NO	bb	bd	49.244
OCDF	45.247	1.006	2.019e5	2.478e5	0.778	0.815	0.890	1393	1380	2.32e6	2.62e6	1663.0	1900.3	NO	bb	bd	93.418
2378-TCDD	26.424	1.000	5.877e4	7.446e4	1.149	0.789	0.770	1483	1021	8.00e5	1.03e6	539.5	1013.7	NO	bd	bb	9.873
12378-PeCDD	31.538	1.000	1.890e5	1.221e5	1.022	1.548	1.550	1651	2172	2.74e6	1.77e6	1662.3	815.6	NO	bb	bb	49.884
123478-HxCDD	36.028	1.000	1.812e5	1.479e5	0.996	1.225	1.240	1690	2600	2.90e6	2.38e6	1717.5	913.7	NO	bd	bd	48.605
123678-HxCDD	36.139	1.000	2.270e5	1.862e5	1.001	1.219	1.240	1690	2600	3.05e6	2.54e6	1803.3	977.3	NO	db	db	51.480
123789-HxCDD	36.529	1.011	1.887e5	1.546e5	0.907	1.221	1.240	1690	2600	2.71e6	2.20e6	1606.4	846.3	NO	bb	bb	51.083
1234678-HpCDD	40.273	1.000	1.573e5	1.681e5	1.039	0.936	1.050	2523	2313	2.21e6	2.22e6	874.4	957.9	NO	bb	bd	49.956
OCDD	45.009	1.000	2.508e5	2.930e5	0.920	0.856	0.890	1279	1652	2.91e6	3.41e6	2272.5	2065.6	NO	bb	bb	95.487
13C-2378-TCDF	25.774	1.007	6.575e5	8.705e5	1.620	0.755	0.770	2127	1667	9.70e6	1.27e7	4562.2	7600.8	NO	bb	bb	92.139
13C-12378-PeCDF	29.922	1.169	7.106e5	4.742e5	1.240	1.498	1.550	3150	3257	9.76e6	6.54e6	3098.5	2009.5	NO	bd	bd	93.316
13C-23478-PeCDF	31.259	1.221	5.241e5	3.573e5	1.118	1.467	1.550	3150	3257	7.68e6	5.27e6	2437.6	1617.5	NO	bb	bb	77.038
13C-123478-HxCDF	34.891	0.956	2.605e5	5.124e5	1.168	0.508	0.510	2130	2302	3.94e6	7.71e6	1851.1	3349.5	NO	bd	bd	95.975
13C-123678-HxCDF	35.025	0.959	3.029e5	6.396e5	1.386	0.474	0.510	2130	2302	4.25e6	8.39e6	1994.1	3646.7	NO	db	db	98.624
13C-234678-HxCDF	35.894	0.983	2.705e5	5.057e5	1.129	0.535	0.510	2130	2302	3.77e6	7.17e6	1772.4	3115.7	NO	bd	bb	99.718
13C-123789-HxCDF	36.919	1.011	2.253e5	4.385e5	0.932	0.514	0.510	2130	2302	3.30e6	6.48e6	1548.0	2814.2	NO	bb	bb	103.358
13C-1234678-HpCDF	38.769	1.062	2.032e5	4.578e5	0.895	0.444	0.440	2209	3025	3.15e6	7.13e6	1428.1	2357.0	NO	bb	bb	107.118
13C-1234789-HpCDF	41.008	1.123	1.757e5	4.217e5	0.770	0.417	0.440	2209	3025	2.29e6	5.20e6	1036.4	1717.4	NO	bb	bb	112.595
13C-1234-TCDD	25.605	0.000	4.555e5	5.681e5	1.000	0.802	0.770	2485	1606	6.85e6	8.57e6	2757.9	5335.2	NO	bb	bb	100.000
13C-2378-TCDD	26.410	1.031	5.228e5	6.520e5	1.152	0.802	0.770	2485	1606	7.70e6	9.63e6	3097.5	5999.3	NO	bb	bb	99.597
13C-12378-PeCDD	31.527	1.231	3.747e5	2.356e5	0.829	1.590	1.550	1413	1348	5.28e6	3.29e6	3736.6	2437.5	NO	bb	bb	71.936
13C-123478-HxCDD	36.017	0.986	3.837e5	2.963e5	0.995	1.295	1.240	1796	1719	5.91e6	4.54e6	3293.9	2638.3	NO	bd	bd	99.140
13C-123678-HxCDD	36.128	0.989	4.675e5	3.344e5	1.157	1.398	1.240	1796	1719	6.38e6	4.87e6	3554.2	2831.4	NO	db	db	100.573
13C-1234678-HpCDD	40.262	1.102	3.210e5	3.059e5	0.840	1.049	1.050	2165	1959	4.38e6	4.15e6	2024.2	2117.7	NO	bb	bb	108.247
13C-OCDD	44.990	1.232	6.075e5	6.305e5	0.767	0.963	0.890	2629	1930	6.50e6	7.26e6	2473.3	3761.0	NO	bd	bb	234.029
13C-123789-HxCDD	36.518	0.000	3.849e5	3.043e5	1.000	1.265	1.240	1796	1719	5.52e6	4.36e6	3076.5	2537.0	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.032	1.159e5		1.288			2383		1.68e6		703.2			bb		8.796

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:37 Pacific Standard Time

ID: CS3CW, Name: 23030307, Date: 03-Mar-2023, Time: 14:06:39, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.285	0.865	5.143e4	7.104e4	0.802	0.724	0.770	1455	2151	8.64e5	1.17e6	593.7	544.2	NO	bb	bb	10.000
1289-TCDF	27.286	1.059	4.449e4	5.910e4	0.678	0.753	0.770	1455	2151	6.41e5	8.65e5	440.8	402.3	NO	bb	db	10.000
13468-PECDF	27.144	0.907	4.471e5	2.913e5	1.246	1.535	1.550	765	1431	6.85e6	4.42e6	8952.4	3092.4	NO	bb	bb	50.000
12389-PECDF	32.318	1.080	1.756e5	1.185e5	0.496	1.482	1.550	2714	2519	2.46e6	1.67e6	905.1	663.5	NO	bb	bb	50.000
123468-HXCDF	33.243	0.953	2.474e5	2.044e5	1.169	1.210	1.240	3008	2708	3.57e6	2.89e6	1187.3	1066.9	NO	bb	bd	50.000
1368-TCDD	23.557	0.892	5.333e4	6.596e4	1.015	0.808	0.770	1483	1021	8.25e5	1.09e6	556.5	1064.4	NO	bb	bb	10.000
1289-TCDD	27.031	1.023	4.649e4	6.027e4	0.909	0.771	0.770	1483	1021	6.71e5	8.87e5	452.4	868.9	NO	bb	bb	10.000
12479-PECDD	28.830	0.914	4.152e5	2.870e5	2.301	1.447	1.550	1651	2172	3.89e6	2.64e6	2354.1	1214.5	NO	bb	bd	50.000
12389-PECDD	31.939	1.013	2.202e5	1.409e5	1.184	1.563	1.550	1651	2172	2.97e6	1.93e6	1798.8	887.7	NO	bd	bd	50.000
124679-HXCDD	34.011	0.944	2.133e5	1.659e5	1.115	1.286	1.240	1690	2600	2.98e6	2.42e6	1762.3	930.8	NO	bd	bb	50.000
1234679-HPCDD	39.225	0.974	1.868e5	1.696e5	1.137	1.101	1.050	2523	2313	2.68e6	2.60e6	1062.7	1125.2	NO	bd	bb	50.000
Total-tetrafurans			1.415e5		0.727			1455		2.21e6							30.132
Total-penta1			4.471e5					765		6.85e6							50.000
Total-pentafurans			6.595e5		0.654			2714		9.58e6							158.378
Total-hexafurans			1.243e6		1.141			3008		1.77e7							249.074
Total-heptafurans			2.965e5		0.978			2672		4.37e6							97.824
Total-Furans			2.990e6		0.922			1455		4.30e7							678.826
Total-tetradioxins			2.666e5		1.024			1483		3.52e6							50.252
Total-pentadioxins			8.253e5		1.502			1651		9.61e6							150.025
Total-hexadioxins			8.102e5		1.005			1690		1.16e7							201.167
Total-heptadioxins			3.440e5		1.088			2523		4.89e6							99.956
Total-Dioxins			2.497e6		1.130			1483		3.26e7							596.887
Total-TEQ			5.487e6					1483		7.56e7							1275.713
FUNCTION1 PFK			2.078e5					640846		4.44e6							
FUNCTION2 PFK			1.544e7					302960		1.17e7							0.000
FUNCTION3 PFK			6.335e6					441696		3.43e7							0.000
FUNCTION4 PFK			1.606e7					302692		2.36e6							
FUNCTION5 PFK			3.357e4					240421		1.60e6							
FUNCTION1 HXCD...			1.444e3					587		1.68e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			9.034e2					1003		1.66e4							0.000
FUNCTION3 OCDPE			5.560e2					494		8.57e3							0.000
FUNCTION4 NCDPE			9.205e2					776		1.78e4							0.000
FUNCTION5 DCDPE			9.291e1					548		1.29e3							0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.449e4	5.910e4	0.678	0.75	0.77	440.8	YES	NO	bb	db	10.000
2	2378-TCDF	25.79	4.563e4	6.298e4	0.702	0.72	0.77	483.4	YES	NO	bb	bb	10.132
3	1368-TCDF	22.29	5.143e4	7.104e4	0.802	0.72	0.77	593.7	YES	NO	bb	bb	10.000

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.14	4.471e5	2.913e5	1.246	1.53	1.55	8952.4	YES	NO	bb	bb	50.000

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.32	1.756e5	1.185e5	0.496	1.48	1.55	905.1	YES	NO	bb	bb	50.000
2	23478-PeCDF	31.28	2.063e5	1.364e5	0.786	1.51	1.55	1118.0	YES	NO	bb	bb	49.466
3	Total-pentafurans	30.13	4.319e2	3.264e2	0.654	1.32	1.55	1.8	NO	NO	bb	bb	0.112
4	12378-PeCDF	29.94	2.374e5	1.577e5	0.679	1.51	1.55	1294.3	YES	NO	bb	bb	49.089
5	Total-pentafurans	28.80	3.978e4	2.583e4	0.654	1.54	1.55	212.5	YES	NO	bb	bb	9.712

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexafurans	37.33	5.073e2	4.522e2	1.141	1.12	1.24	4.2	YES	NO	db	dd	0.107
2	123789-HxCDF	36.94	2.103e5	1.706e5	1.137	1.23	1.24	959.2	YES	NO	bd	bd	50.468
3	234678-HxCDF	35.91	2.404e5	1.930e5	1.140	1.25	1.24	1172.2	YES	NO	bb	bb	49.000
4	123678-HxCDF	35.05	2.970e5	2.223e5	1.091	1.34	1.24	1312.5	YES	NO	db	db	50.520
5	123478-HxCDF	34.90	2.473e5	1.941e5	1.166	1.27	1.24	1248.4	YES	NO	bd	bd	48.979
6	123468-HXCDF	33.24	2.474e5	2.044e5	1.169	1.21	1.24	1187.3	YES	NO	bb	bd	50.000

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.02	1.361e5	1.443e5	0.953	0.94	1.05	689.1	YES	NO	bb	bd	49.244
2	Total-heptafurans	39.44	1.302e3	1.273e3	0.978	1.02	1.05	8.5	YES	NO	bb	bb	0.418
3	1234678-HpCDF	38.78	1.592e5	1.601e5	1.003	0.99	1.05	939.2	YES	NO	bb	bb	48.161

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.449e4	5.910e4	0.678	0.75	0.77	440.8	YES	NO	bb	db	10.000
2	2378-TCDF	25.79	4.563e4	6.298e4	0.702	0.72	0.77	483.4	YES	NO	bb	bb	10.132
3	1368-TCDF	22.29	5.143e4	7.104e4	0.802	0.72	0.77	593.7	YES	NO	bb	bb	10.000
4	12389-PECDF	32.32	1.756e5	1.185e5	0.496	1.48	1.55	905.1	YES	NO	bb	bb	50.000
5	23478-PeCDF	31.28	2.063e5	1.364e5	0.786	1.51	1.55	1118.0	YES	NO	bb	bb	49.466
6	Total-pentafurans	30.13	4.319e2	3.264e2	0.654	1.32	1.55	1.8	NO	NO	bb	bb	0.112
7	12378-PeCDF	29.94	2.374e5	1.577e5	0.679	1.51	1.55	1294.3	YES	NO	bb	bb	49.089
8	Total-pentafurans	28.80	3.978e4	2.583e4	0.654	1.54	1.55	212.5	YES	NO	bb	bb	9.712
9	Total-hexafurans	37.33	5.073e2	4.522e2	1.141	1.12	1.24	4.2	YES	NO	db	dd	0.107
10	123789-HxCDF	36.94	2.103e5	1.706e5	1.137	1.23	1.24	959.2	YES	NO	bd	bd	50.468
11	234678-HxCDF	35.91	2.404e5	1.930e5	1.140	1.25	1.24	1172.2	YES	NO	bb	bb	49.000
12	123678-HxCDF	35.05	2.970e5	2.223e5	1.091	1.34	1.24	1312.5	YES	NO	db	db	50.520
13	123478-HxCDF	34.90	2.473e5	1.941e5	1.166	1.27	1.24	1248.4	YES	NO	bd	bd	48.979
14	123468-HXCDF	33.24	2.474e5	2.044e5	1.169	1.21	1.24	1187.3	YES	NO	bb	bd	50.000
15	1234789-HpCDF	41.02	1.361e5	1.443e5	0.953	0.94	1.05	689.1	YES	NO	bb	bd	49.244
16	Total-heptafurans	39.44	1.302e3	1.273e3	0.978	1.02	1.05	8.5	YES	NO	bb	bb	0.418
17	1234678-HpCDF	38.78	1.592e5	1.601e5	1.003	0.99	1.05	939.2	YES	NO	bb	bb	48.161
18	OCDF	45.25	2.019e5	2.478e5	0.778	0.81	0.89	1663.0	YES	NO	bb	bd	93.418
19	13468-PECDF	27.14	4.471e5	2.913e5	1.246	1.53	1.55	8952.4	YES	NO	bb	bb	50.000

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.333e4	6.596e4	1.015	0.81	0.77	556.5	YES	NO	bb	bb	10.000
2	1289-TCDD	27.03	4.649e4	6.027e4	0.909	0.77	0.77	452.4	YES	NO	bb	bb	10.000
3	2378-TCDD	26.42	5.877e4	7.446e4	1.149	0.79	0.77	539.5	YES	NO	bd	bb	9.873
4	Total-tetradioxins	26.10	8.105e4	1.035e5	1.024	0.78	0.77	553.1	YES	NO	bb	bb	15.333
5	Total-tetradioxins	25.62	2.642e4	3.299e4	1.024	0.80	0.77	267.0	YES	NO	bd	bb	4.937
6	Total-tetradioxins	25.04	5.856e2	7.161e2	1.024	0.82	0.77	7.0	YES	NO	bb	bb	0.108

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.94	2.202e5	1.409e5	1.184	1.56	1.55	1798.8	YES	NO	bd	bd	50.000
2	12378-PeCDD	31.54	1.890e5	1.221e5	1.022	1.55	1.55	1662.3	YES	NO	bb	bb	49.884
3	Total-pentadioxins	30.88	8.263e2	4.657e2	1.502	1.77	1.55	8.6	YES	NO	bb	bb	0.141
4	12479-PECDD	28.83	4.152e5	2.870e5	2.301	1.45	1.55	2354.1	YES	NO	bb	bd	50.000

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	1.887e5	1.546e5	0.907	1.22	1.24	1606.4	YES	NO	bb	bb	51.083
2	123678-HxCDD	36.14	2.270e5	1.862e5	1.001	1.22	1.24	1803.3	YES	NO	db	db	51.480
3	123478-HxCDD	36.03	1.812e5	1.479e5	0.996	1.23	1.24	1717.5	YES	NO	bd	bd	48.605
4	124679-HXCDD	34.01	2.133e5	1.659e5	1.115	1.29	1.24	1762.3	YES	NO	bd	bb	50.000

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	1.573e5	1.681e5	1.039	0.94	1.05	874.4	YES	NO	bb	bd	49.956
2	1234679-HPCDD	39.23	1.868e5	1.696e5	1.137	1.10	1.05	1062.7	YES	NO	bd	bb	50.000

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.333e4	6.596e4	1.015	0.81	0.77	556.5	YES	NO	bb	bb	10.000
2	1289-TCDD	27.03	4.649e4	6.027e4	0.909	0.77	0.77	452.4	YES	NO	bb	bb	10.000
3	2378-TCDD	26.42	5.877e4	7.446e4	1.149	0.79	0.77	539.5	YES	NO	bd	bb	9.873
4	Total-tetradioxins	26.10	8.105e4	1.035e5	1.024	0.78	0.77	553.1	YES	NO	bb	bb	15.333
5	Total-tetradioxins	25.62	2.642e4	3.299e4	1.024	0.80	0.77	267.0	YES	NO	bd	bb	4.937
6	Total-tetradioxins	25.04	5.856e2	7.161e2	1.024	0.82	0.77	7.0	YES	NO	bb	bb	0.108
7	12389-PECDD	31.94	2.202e5	1.409e5	1.184	1.56	1.55	1798.8	YES	NO	bd	bd	50.000
8	12378-PeCDD	31.54	1.890e5	1.221e5	1.022	1.55	1.55	1662.3	YES	NO	bb	bb	49.884
9	Total-pentadioxins	30.88	8.263e2	4.657e2	1.502	1.77	1.55	8.6	YES	NO	bb	bb	0.141
10	12479-PECDD	28.83	4.152e5	2.870e5	2.301	1.45	1.55	2354.1	YES	NO	bb	bd	50.000
11	123789-HxCDD	36.53	1.887e5	1.546e5	0.907	1.22	1.24	1606.4	YES	NO	bb	bb	51.083
12	123678-HxCDD	36.14	2.270e5	1.862e5	1.001	1.22	1.24	1803.3	YES	NO	db	db	51.480
13	123478-HxCDD	36.03	1.812e5	1.479e5	0.996	1.23	1.24	1717.5	YES	NO	bd	bd	48.605
14	124679-HXCDD	34.01	2.133e5	1.659e5	1.115	1.29	1.24	1762.3	YES	NO	bd	bb	50.000
15	1234678-HpCDD	40.27	1.573e5	1.681e5	1.039	0.94	1.05	874.4	YES	NO	bb	bd	49.956
16	1234679-HPCDD	39.23	1.868e5	1.696e5	1.137	1.10	1.05	1062.7	YES	NO	bd	bb	50.000
17	OCDD	45.01	2.508e5	2.930e5	0.920	0.86	0.89	2272.5	YES	NO	bb	bb	95.487

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.29	4.449e4	5.910e4	0.678	0.75	0.77	440.8	YES	NO	bb	db	10.000
2	2378-TCDF	25.79	4.563e4	6.298e4	0.702	0.72	0.77	483.4	YES	NO	bb	bb	10.132
3	1368-TCDF	22.29	5.143e4	7.104e4	0.802	0.72	0.77	593.7	YES	NO	bb	bb	10.000
4	12389-PECDF	32.32	1.756e5	1.185e5	0.496	1.48	1.55	905.1	YES	NO	bb	bb	50.000
5	23478-PeCDF	31.28	2.063e5	1.364e5	0.786	1.51	1.55	1118.0	YES	NO	bb	bb	49.466
6	Total-pentafurans	30.13	4.319e2	3.264e2	0.654	1.32	1.55	1.8	NO	NO	bb	bb	0.112
7	12378-PeCDF	29.94	2.374e5	1.577e5	0.679	1.51	1.55	1294.3	YES	NO	bb	bb	49.089
8	Total-pentafurans	28.80	3.978e4	2.583e4	0.654	1.54	1.55	212.5	YES	NO	bb	bb	9.712
9	Total-hexafurans	37.33	5.073e2	4.522e2	1.141	1.12	1.24	4.2	YES	NO	db	dd	0.107
10	123789-HxCDF	36.94	2.103e5	1.706e5	1.137	1.23	1.24	959.2	YES	NO	bd	bd	50.468
11	234678-HxCDF	35.91	2.404e5	1.930e5	1.140	1.25	1.24	1172.2	YES	NO	bb	bb	49.000
12	123678-HxCDF	35.05	2.970e5	2.223e5	1.091	1.34	1.24	1312.5	YES	NO	db	db	50.520
13	123478-HxCDF	34.90	2.473e5	1.941e5	1.166	1.27	1.24	1248.4	YES	NO	bd	bd	48.979
14	123468-HXCDF	33.24	2.474e5	2.044e5	1.169	1.21	1.24	1187.3	YES	NO	bb	bd	50.000
15	1234789-HpCDF	41.02	1.361e5	1.443e5	0.953	0.94	1.05	689.1	YES	NO	bb	bd	49.244
16	Total-heptafurans	39.44	1.302e3	1.273e3	0.978	1.02	1.05	8.5	YES	NO	bb	bb	0.418
17	1234678-HpCDF	38.78	1.592e5	1.601e5	1.003	0.99	1.05	939.2	YES	NO	bb	bb	48.161
18	OCDF	45.25	2.019e5	2.478e5	0.778	0.81	0.89	1663.0	YES	NO	bb	bd	93.418
19	13468-PECDF	27.14	4.471e5	2.913e5	1.246	1.53	1.55	8952.4	YES	NO	bb	bb	50.000
20	1368-TCDD	23.56	5.333e4	6.596e4	1.015	0.81	0.77	556.5	YES	NO	bb	bb	10.000
21	1289-TCDD	27.03	4.649e4	6.027e4	0.909	0.77	0.77	452.4	YES	NO	bb	bb	10.000
22	2378-TCDD	26.42	5.877e4	7.446e4	1.149	0.79	0.77	539.5	YES	NO	bd	bb	9.873
23	Total-tetradioxins	26.10	8.105e4	1.035e5	1.024	0.78	0.77	553.1	YES	NO	bb	bb	15.333
24	Total-tetradioxins	25.62	2.642e4	3.299e4	1.024	0.80	0.77	267.0	YES	NO	bd	bb	4.937
25	Total-tetradioxins	25.04	5.856e2	7.161e2	1.024	0.82	0.77	7.0	YES	NO	bb	bb	0.108
26	12389-PECDD	31.94	2.202e5	1.409e5	1.184	1.56	1.55	1798.8	YES	NO	bd	bd	50.000
27	12378-PeCDD	31.54	1.890e5	1.221e5	1.022	1.55	1.55	1662.3	YES	NO	bb	bb	49.884
28	Total-pentadioxins	30.88	8.263e2	4.657e2	1.502	1.77	1.55	8.6	YES	NO	bb	bb	0.141
29	12479-PECDD	28.83	4.152e5	2.870e5	2.301	1.45	1.55	2354.1	YES	NO	bb	bd	50.000
30	123789-HxCDD	36.53	1.887e5	1.546e5	0.907	1.22	1.24	1606.4	YES	NO	bb	bb	51.083
31	123678-HxCDD	36.14	2.270e5	1.862e5	1.001	1.22	1.24	1803.3	YES	NO	db	db	51.480
32	123478-HxCDD	36.03	1.812e5	1.479e5	0.996	1.23	1.24	1717.5	YES	NO	bd	bd	48.605
33	124679-HXCDD	34.01	2.133e5	1.659e5	1.115	1.29	1.24	1762.3	YES	NO	bd	bb	50.000
34	1234678-HpCDD	40.27	1.573e5	1.681e5	1.039	0.94	1.05	874.4	YES	NO	bb	bd	49.956
35	1234679-HPCDD	39.23	1.868e5	1.696e5	1.137	1.10	1.05	1062.7	YES	NO	bd	bb	50.000
36	OCDD	45.01	2.508e5	2.930e5	0.920	0.86	0.89	2272.5	YES	NO	bb	bb	95.487

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	27.24	1.621e5					3.0	YES		bb		
2	FUNCTION1 PFK	26.04	7.004e3					0.8	NO		bb		
3	FUNCTION1 PFK	25.20	1.505e4					1.0	NO		bb		
4	FUNCTION1 PFK	24.33	1.235e4					0.8	NO		bb		
5	FUNCTION1 PFK	23.94	5.589e3					0.6	NO		bb		
6	FUNCTION1 PFK	23.61	5.711e3					0.6	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	32.40	1.216e5					2.2	NO		bb		0.000
2	FUNCTION2 PFK	29.43	1.324e7					19.8	YES		db		0.000
3	FUNCTION2 PFK	28.41	2.080e6					16.6	YES		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	33.64	4.177e4					1.9	NO		bb		0.000
2	FUNCTION3 PFK	33.49	1.199e5					5.0	YES		db		0.000
3	FUNCTION3 PFK	33.44	2.654e6					7.0	YES		dd		0.000
4	FUNCTION3 PFK	33.06	2.958e6					23.7	YES		bd		0.000
5	FUNCTION3 PFK	35.38	2.169e4					1.0	NO		bb		0.000
6	FUNCTION3 PFK	35.25	5.928e3					0.6	NO		bb		0.000
7	FUNCTION3 PFK	35.11	7.037e3					0.7	NO		bb		0.000
8	FUNCTION3 PFK	34.99	1.627e4					1.0	NO		bb		0.000
9	FUNCTION3 PFK	34.92	1.103e4					1.1	NO		db		0.000
10	FUNCTION3 PFK	34.86	1.305e4					1.0	NO		bd		0.000
11	FUNCTION3 PFK	34.80	9.642e3					0.9	NO		bb		0.000
12	FUNCTION3 PFK	34.66	1.233e4					0.9	NO		db		0.000
13	FUNCTION3 PFK	34.64	7.688e3					0.8	NO		bd		0.000
14	FUNCTION3 PFK	34.57	9.132e3					0.8	NO		bb		0.000
15	FUNCTION3 PFK	34.47	7.208e3					0.8	NO		bb		0.000
16	FUNCTION3 PFK	34.31	1.503e4					1.0	NO		bb		0.000
17	FUNCTION3 PFK	34.22	2.675e4					1.4	NO		bb		0.000
18	FUNCTION3 PFK	34.01	3.007e4					2.1	NO		db		0.000
19	FUNCTION3 PFK	33.97	1.328e4					1.1	NO		bd		0.000
20	FUNCTION3 PFK	33.91	6.249e3					0.6	NO		bb		0.000
21	FUNCTION3 PFK	36.99	2.219e4					1.1	NO		bd		0.000
22	FUNCTION3 PFK	36.87	2.133e3					0.4	NO		bb		0.000
23	FUNCTION3 PFK	36.83	5.225e3					0.6	NO		bb		0.000
24	FUNCTION3 PFK	36.70	4.929e4					1.7	NO		bb		0.000
25	FUNCTION3 PFK	36.43	1.980e4					1.2	NO		bb		0.000
26	FUNCTION3 PFK	36.38	7.184e3					0.9	NO		bb		0.000
27	FUNCTION3 PFK	36.27	4.220e3					0.5	NO		bb		0.000
28	FUNCTION3 PFK	36.24	2.102e3					0.4	NO		bb		0.000
29	FUNCTION3 PFK	36.19	3.748e3					0.5	NO		bb		0.000
30	FUNCTION3 PFK	35.87	3.133e4					1.6	NO		db		0.000
31	FUNCTION3 PFK	35.83	1.912e4					1.5	NO		bd		0.000
32	FUNCTION3 PFK	35.78	2.675e3					0.4	NO		db		0.000
33	FUNCTION3 PFK	35.74	3.023e4					1.5	NO		dd		0.000
34	FUNCTION3 PFK	35.67	1.673e4					1.4	NO		bd		0.000
35	FUNCTION3 PFK	35.58	2.145e4					1.4	NO		db		0.000
36	FUNCTION3 PFK	35.53	1.268e4					1.1	NO		bd		0.000
37	FUNCTION3 PFK	37.67	2.243e4					1.6	NO		bb		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION3 PFK	37.45	8.583e3					0.7	NO		db		0.000
39	FUNCTION3 PFK	37.43	4.891e3					0.7	NO		bd		0.000
40	FUNCTION3 PFK	37.30	6.956e3					0.6	NO		bb		0.000
41	FUNCTION3 PFK	37.23	5.682e3					0.7	NO		db		0.000
42	FUNCTION3 PFK	37.20	9.815e3					0.9	NO		dd		0.000
43	FUNCTION3 PFK	37.15	5.475e3					0.6	NO		dd		0.000
44	FUNCTION3 PFK	37.11	7.631e3					0.8	NO		bd		0.000
45	FUNCTION3 PFK	37.06	2.709e4					1.4	NO		db		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.40	1.889e5					2.4	NO		bb		
2	FUNCTION4 PFK	39.68	1.587e7					5.4	YES		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.63	9.422e3					1.5	NO		bb		
2	FUNCTION5 PFK	43.24	1.576e3					0.7	NO		bb		
3	FUNCTION5 PFK	43.00	1.263e4					1.7	NO		bb		
4	FUNCTION5 PFK	45.90	6.371e3					1.4	NO		bb		
5	FUNCTION5 PFK	45.34	1.310e3					0.6	NO		bb		
6	FUNCTION5 PFK	43.79	2.270e3					0.7	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.16	2.360e2					3.4	YES		bb		0.000
2	FUNCTION1 HXCD...	26.52	1.410e2					3.2	YES		db		0.000
3	FUNCTION1 HXCD...	26.41	1.480e2					3.3	YES		bd		0.000
4	FUNCTION1 HXCD...	26.16	8.707e1					1.9	NO		db		0.000
5	FUNCTION1 HXCD...	26.10	7.515e1					2.1	NO		bd		0.000
6	FUNCTION1 HXCD...	25.79	8.971e1					2.2	NO		bb		0.000
7	FUNCTION1 HXCD...	25.63	1.156e2					2.5	NO		bb		0.000
8	FUNCTION1 HXCD...	24.52	1.119e2					2.7	NO		db		0.000
9	FUNCTION1 HXCD...	24.43	1.844e2					3.5	YES		bd		0.000
10	FUNCTION1 HXCD...	23.75	1.728e2					2.1	NO		bb		0.000
11	FUNCTION1 HXCD...	21.31	8.251e1					1.7	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.95	1.010e2					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.18	4.333e2					5.6	YES		bb		0.000
3	FUNCTION2 HPCD...	30.70	7.244e1					2.1	NO		bb		0.000
4	FUNCTION2 HPCD...	30.31	7.131e1					1.6	NO		bb		0.000
5	FUNCTION2 HPCD...	29.76	7.422e1					1.6	NO		bb		0.000
6	FUNCTION2 HPCD...	29.04	7.307e1					1.9	NO		bb		0.000
7	FUNCTION2 HPCD...	28.55	7.813e1					2.1	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.51	1.400e2					5.4	YES		bb		0.000
2	FUNCTION3 OCDPE	35.04	1.909e2					5.6	YES		db		0.000
3	FUNCTION3 OCDPE	34.94	2.251e2					6.4	YES		bd		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	40.60	9.374e1					3.5	YES		bb		0.000
2	FUNCTION4 NCDPE	40.25	1.903e2					3.2	YES		bb		0.000
3	FUNCTION4 NCDPE	39.09	7.390e1					1.9	NO		bb		0.000
4	FUNCTION4 NCDPE	38.97	7.768e1					2.4	NO		bb		0.000
5	FUNCTION4 NCDPE	41.21	8.604e1					3.3	YES		bb		0.000
6	FUNCTION4 NCDPE	41.01	1.089e2					3.1	YES		bb		0.000
7	FUNCTION4 NCDPE	40.86	1.930e2					2.9	NO		db		0.000
8	FUNCTION4 NCDPE	40.74	9.692e1					2.6	NO		bd		0.000

ETHERS6

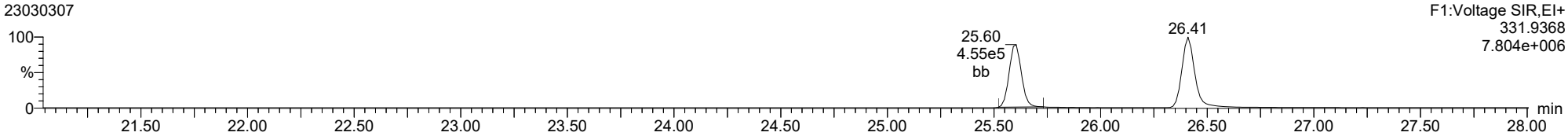
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1	FUNCTION5 DCDPE	44.90	9.291e1					2.4	NO		bb		0.000

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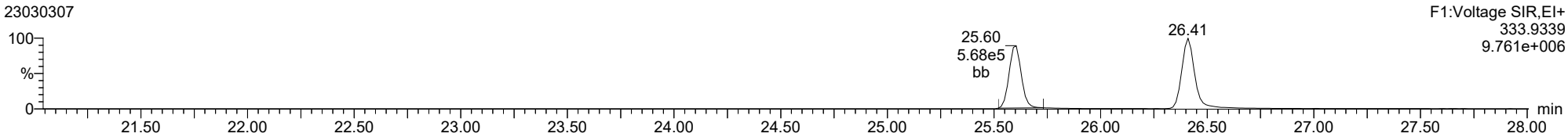
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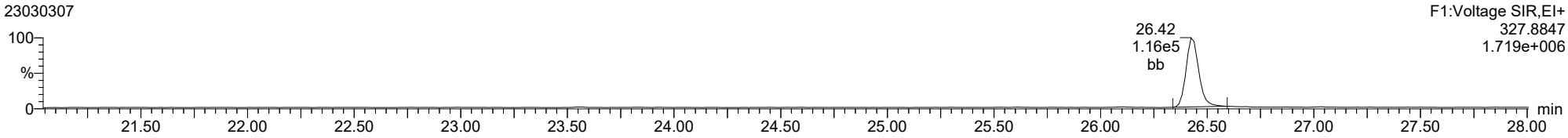
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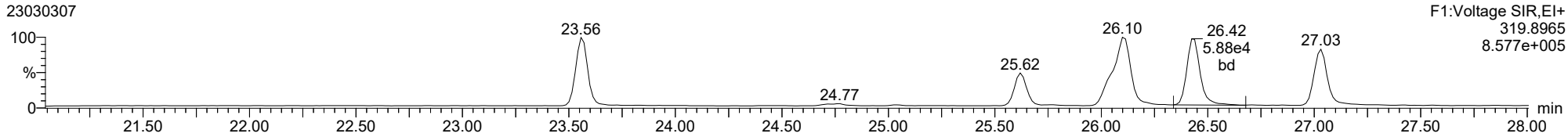


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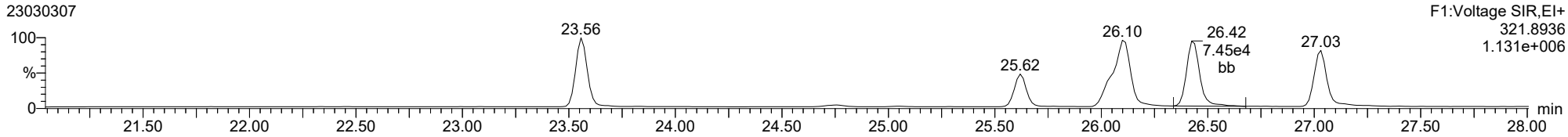


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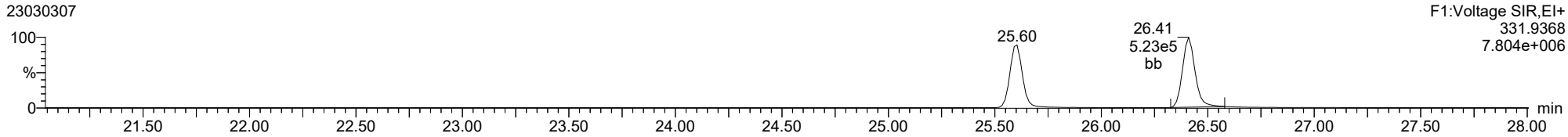
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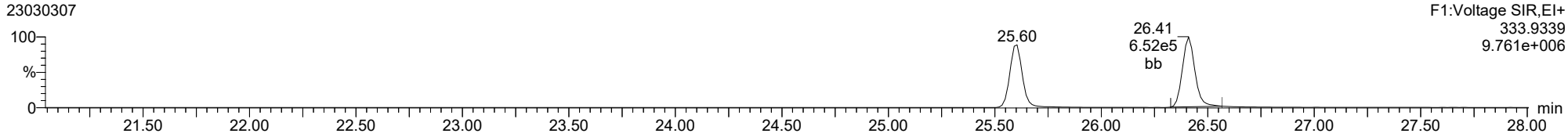
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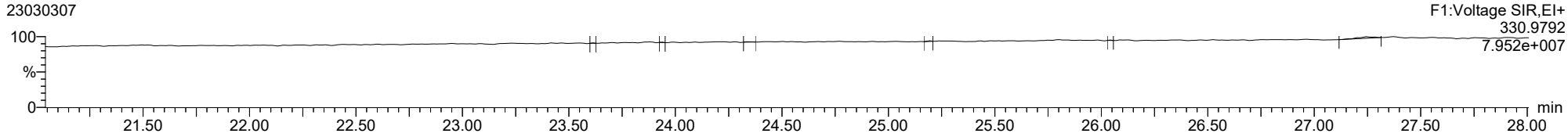
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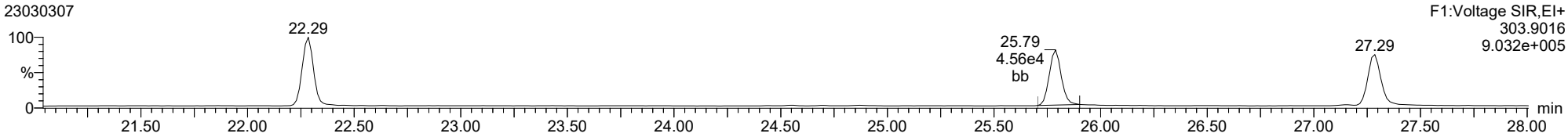


FUNCTION1 PFK

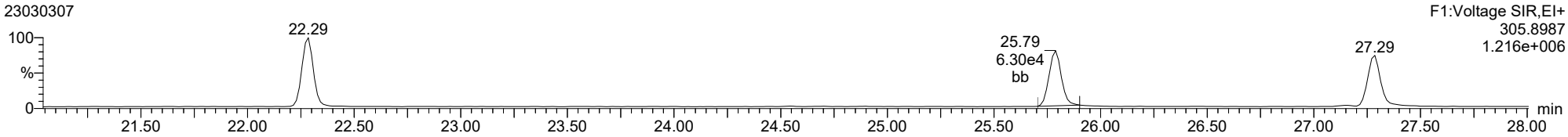


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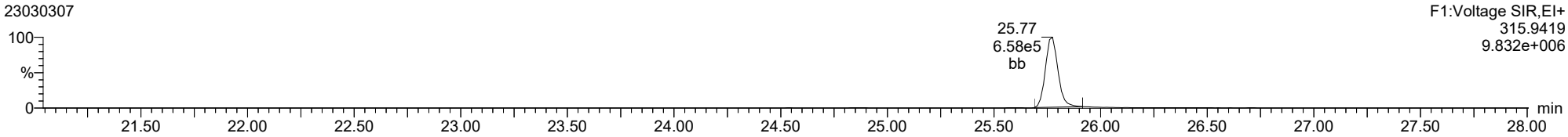
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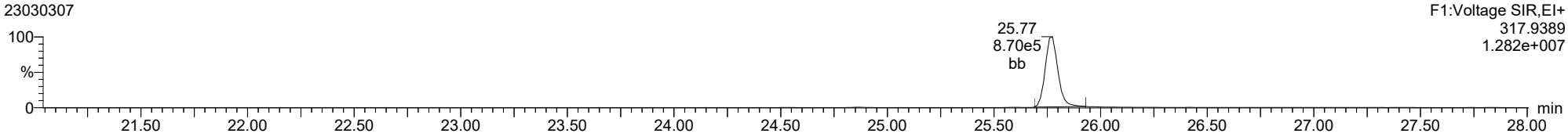
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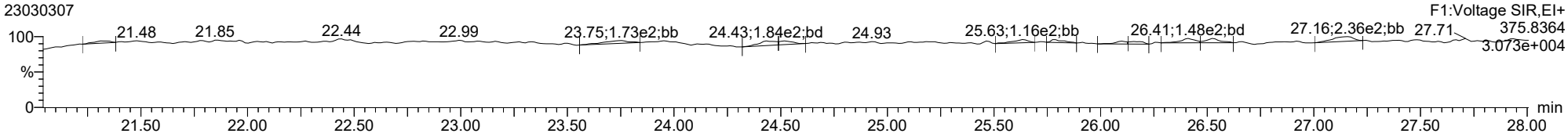
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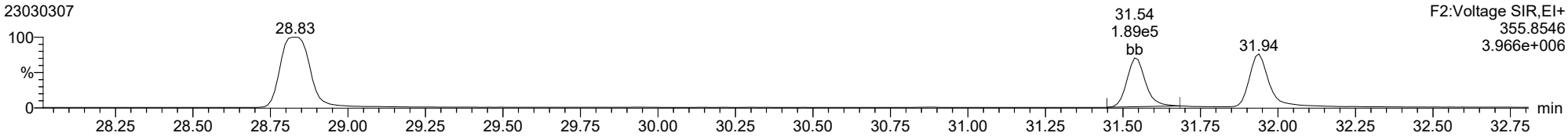


FUNCTION1 HXCDPE

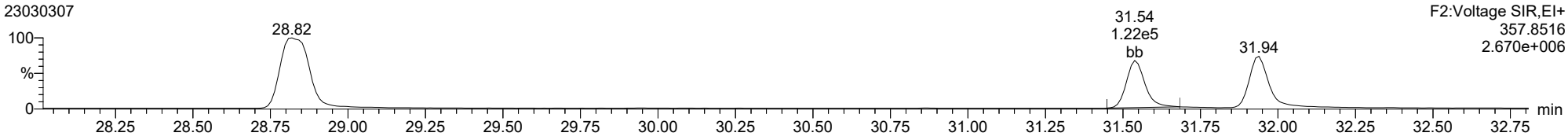


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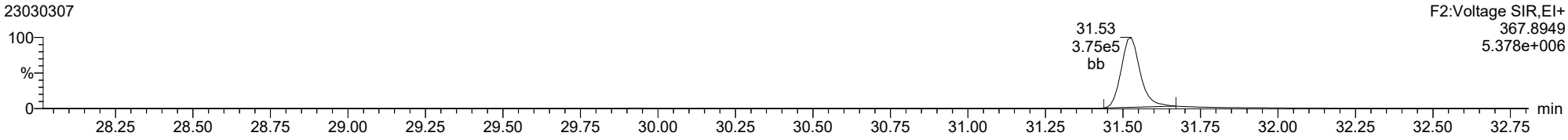
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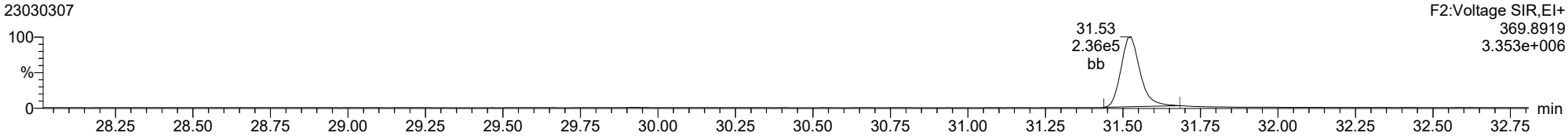
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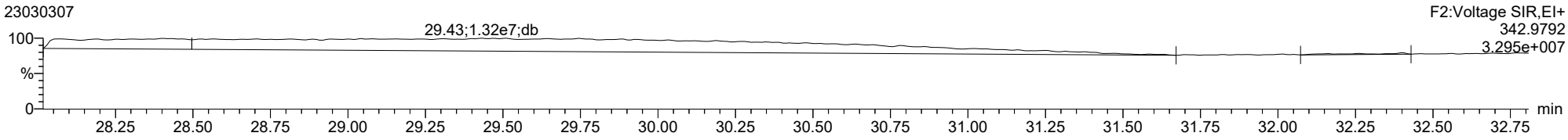
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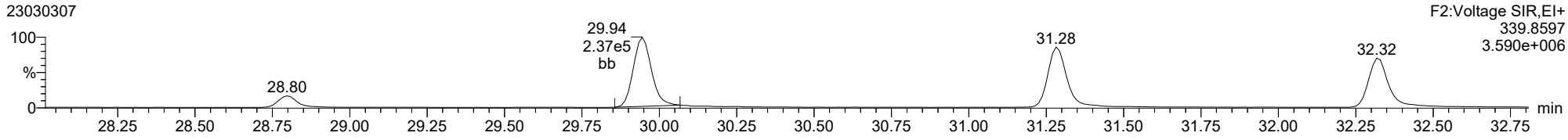


FUNCTION2 PFK

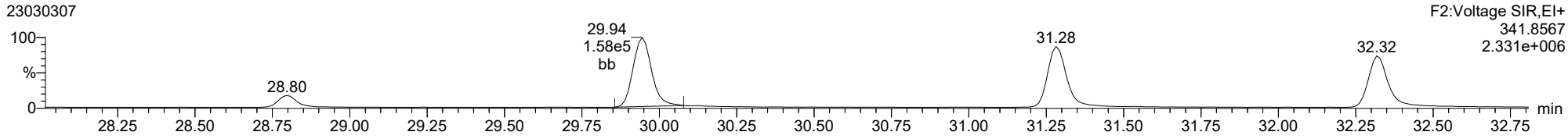


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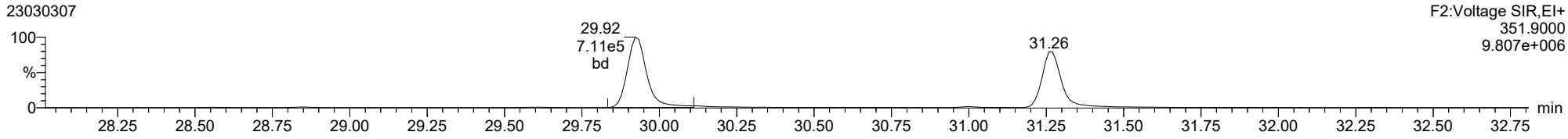
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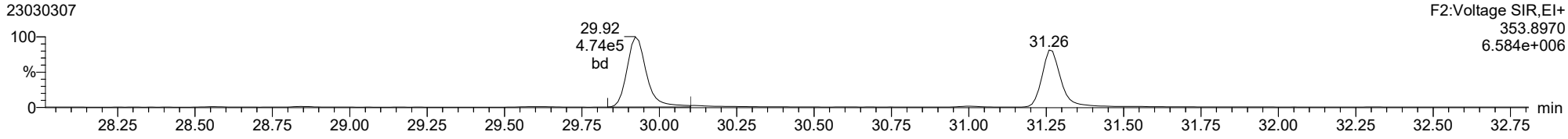
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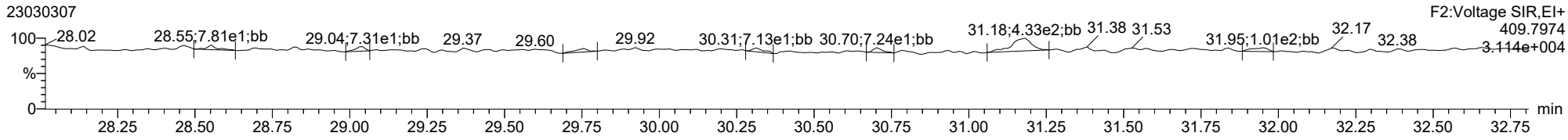
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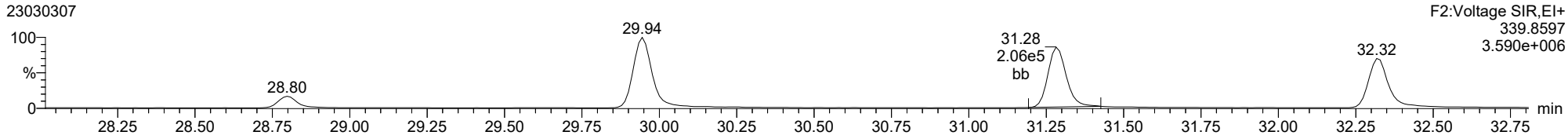


FUNCTION2 HPCDPE

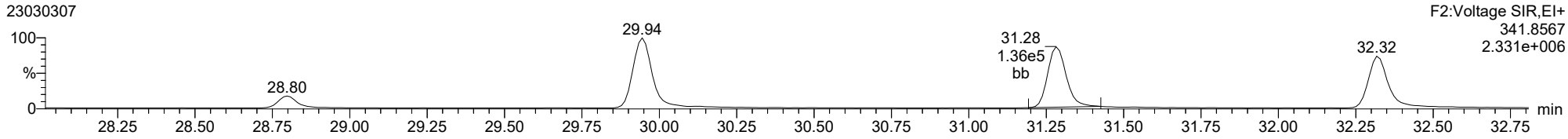


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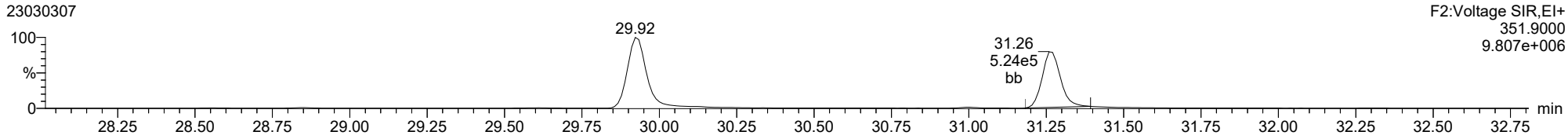
23478-PeCDF



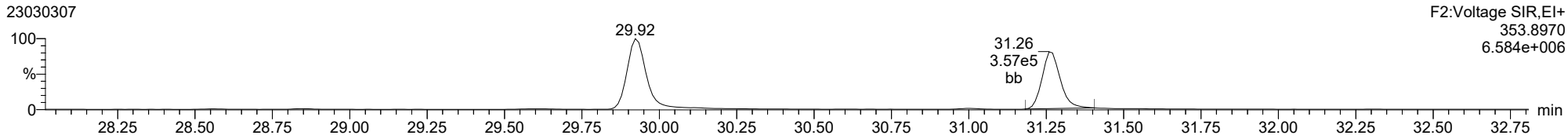
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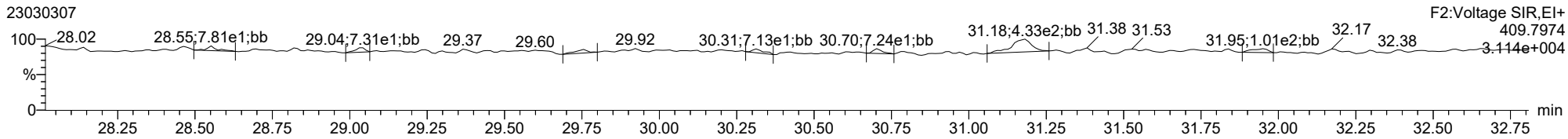
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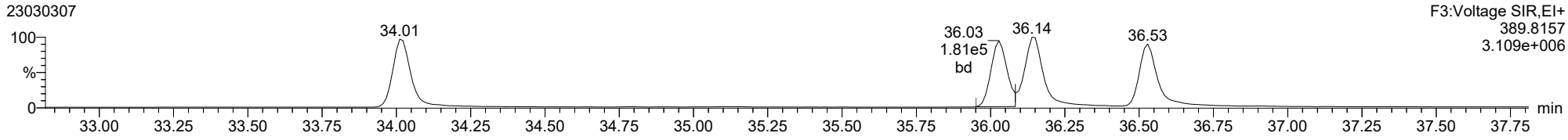


FUNCTION2 HPCDPE

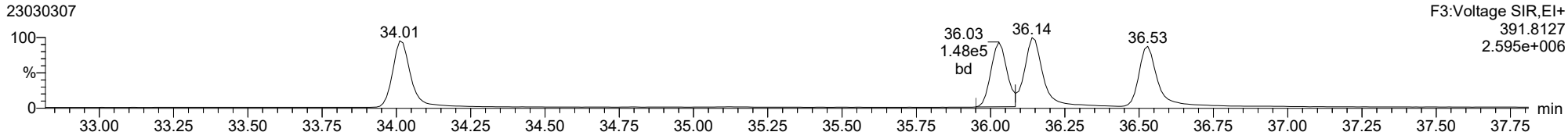


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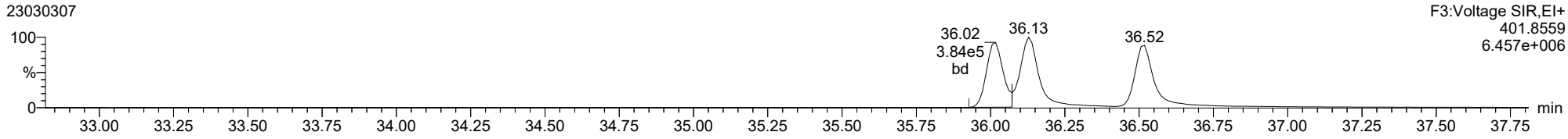
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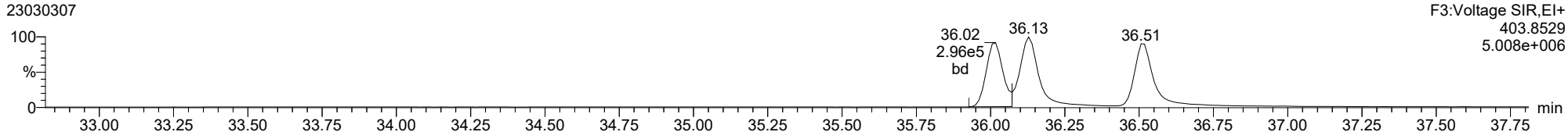
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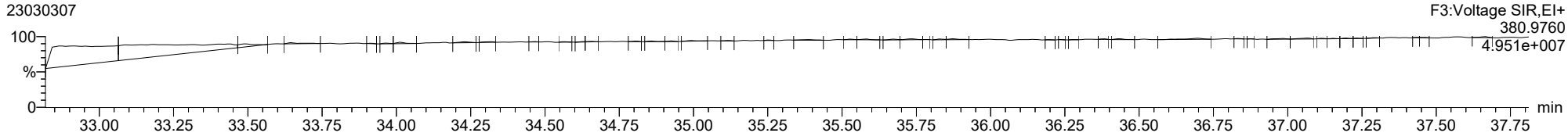
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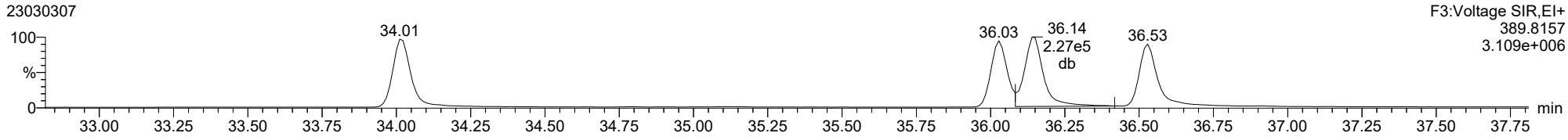


FUNCTION3 PFK

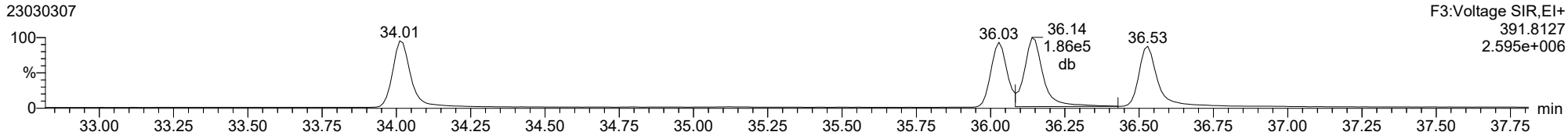


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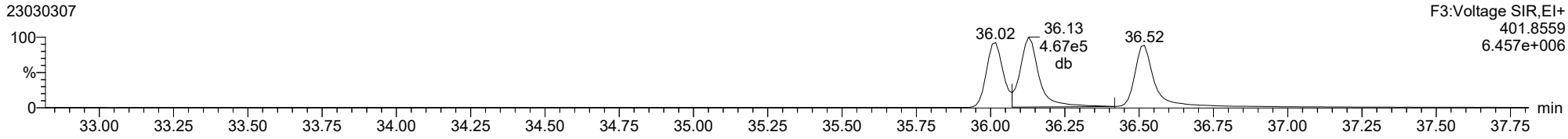
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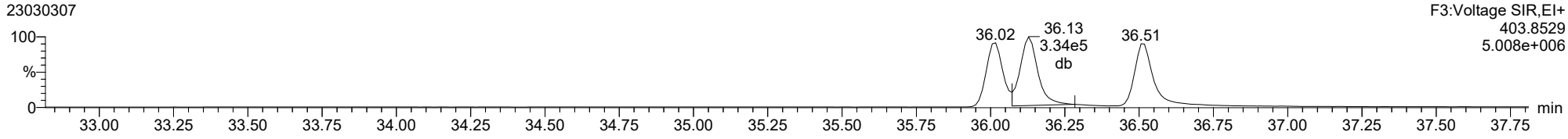
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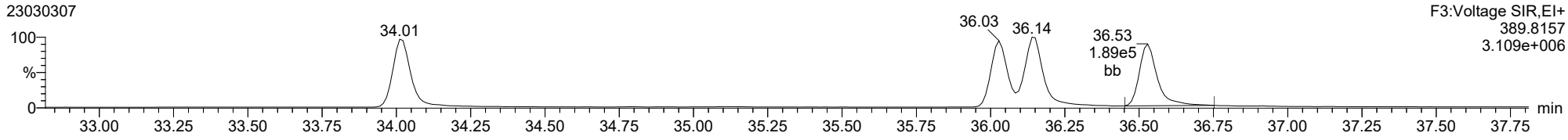


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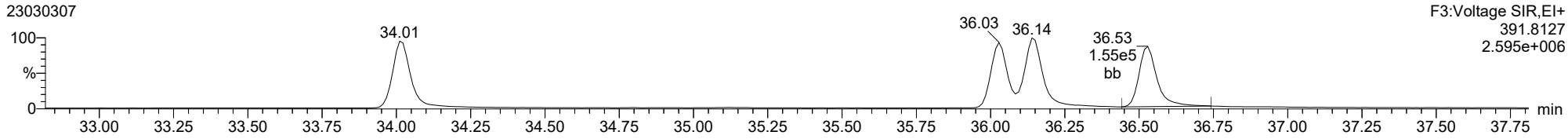


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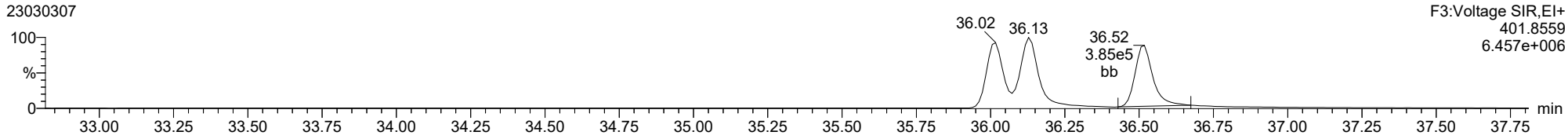
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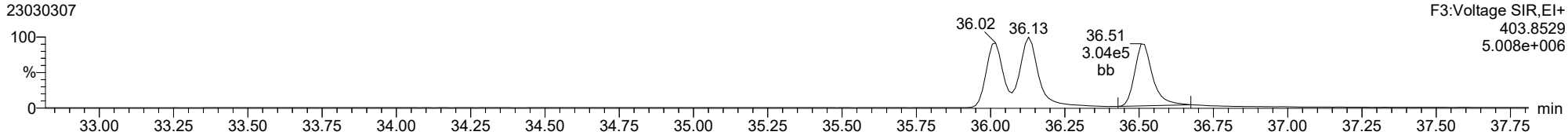
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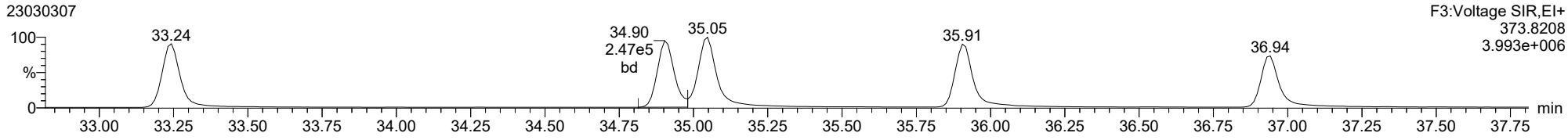


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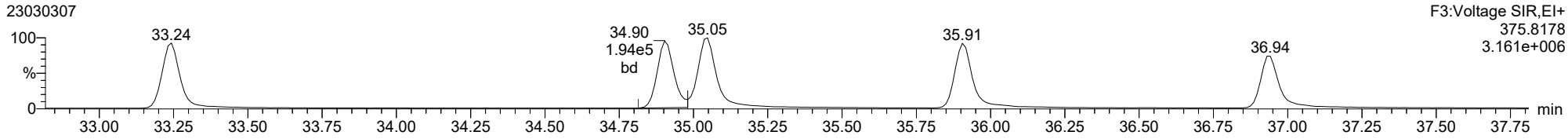


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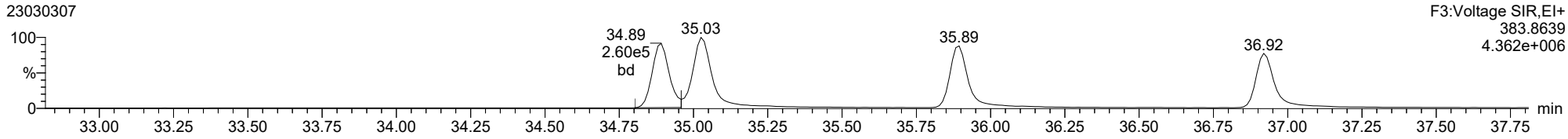
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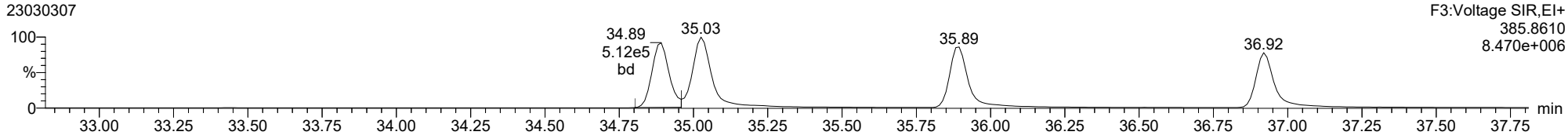
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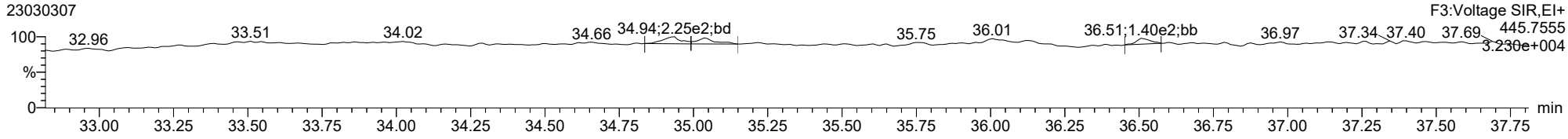
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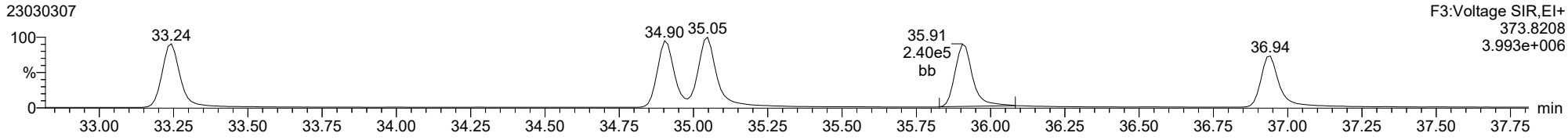


FUNCTION3 OCDPE

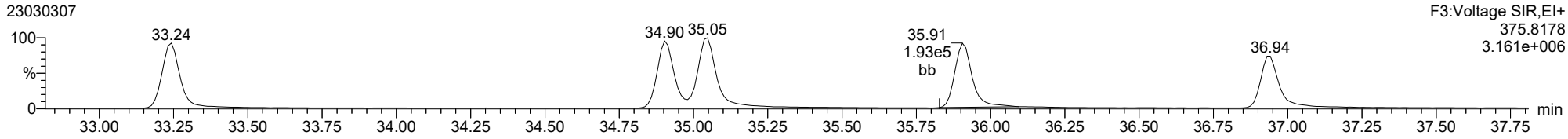


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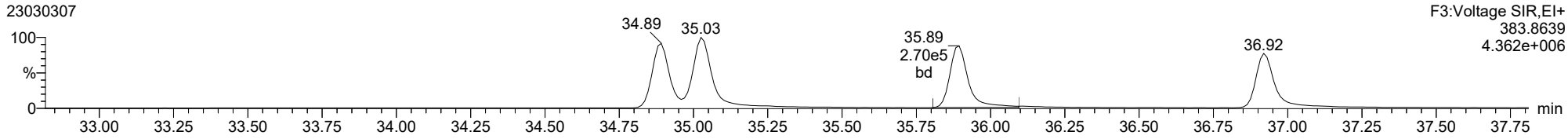
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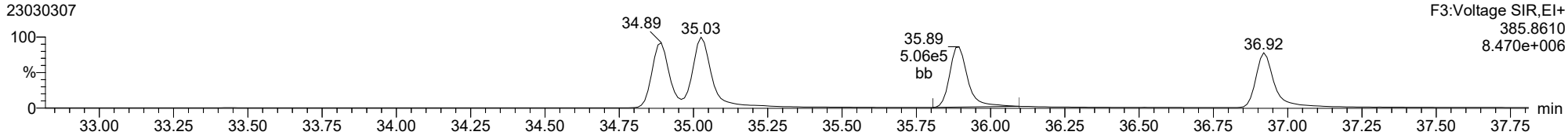
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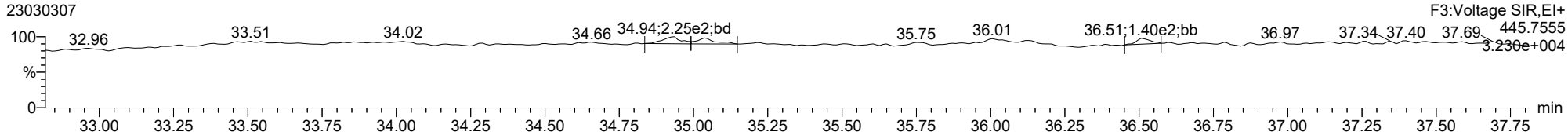
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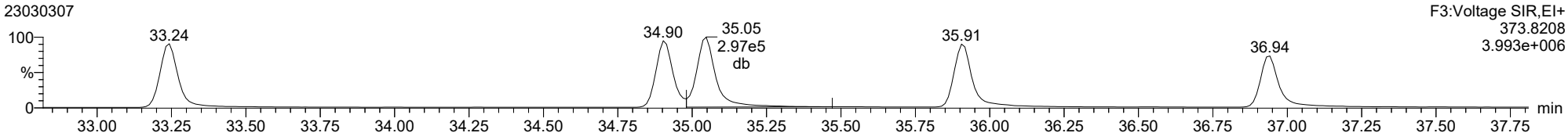


FUNCTION3 OCDPE

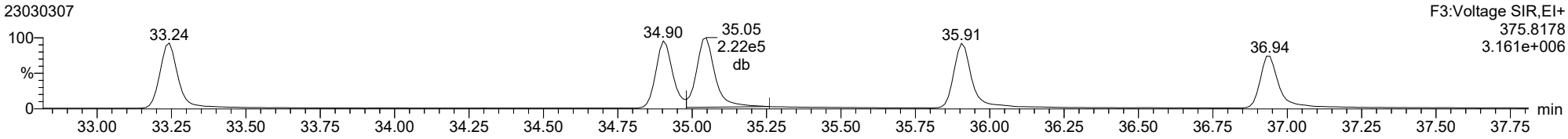


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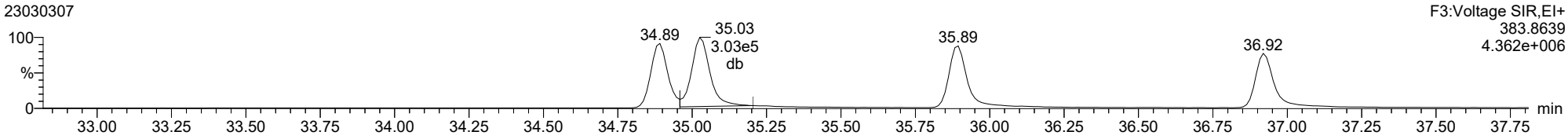
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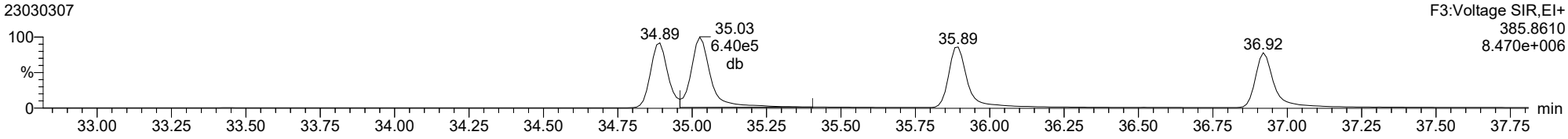
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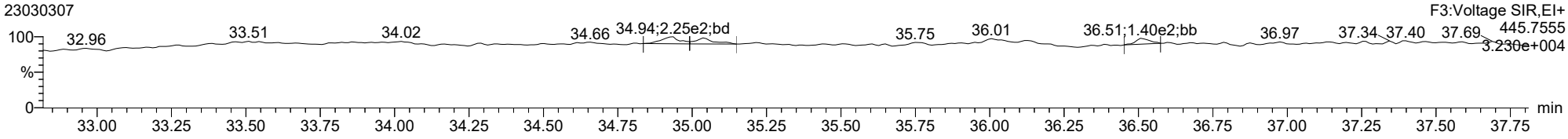
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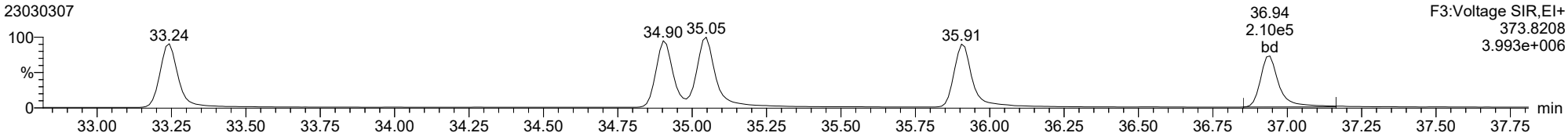


FUNCTION3 OCDPE

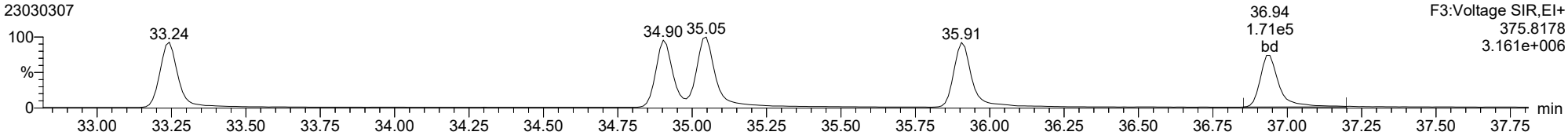


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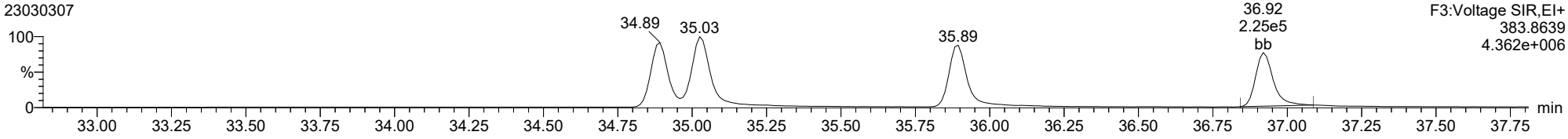
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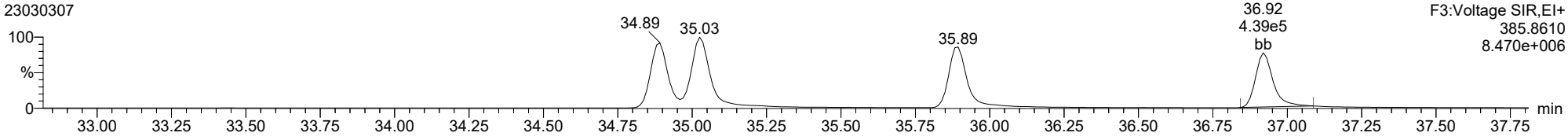
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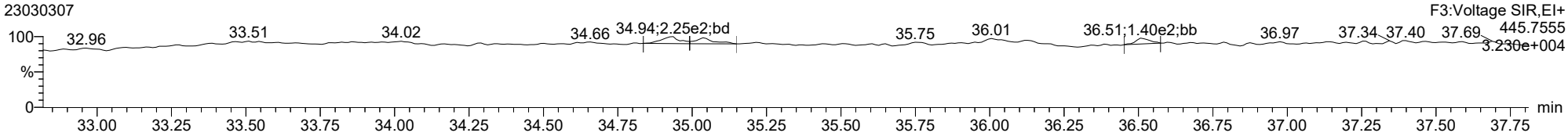
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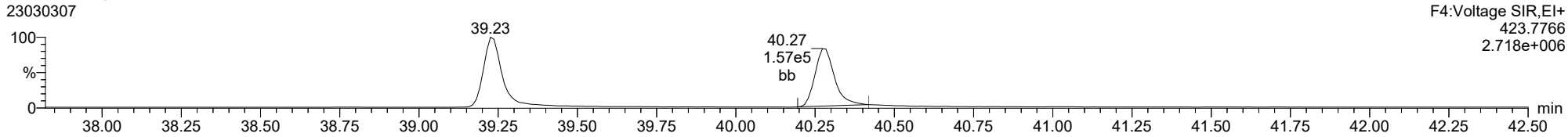


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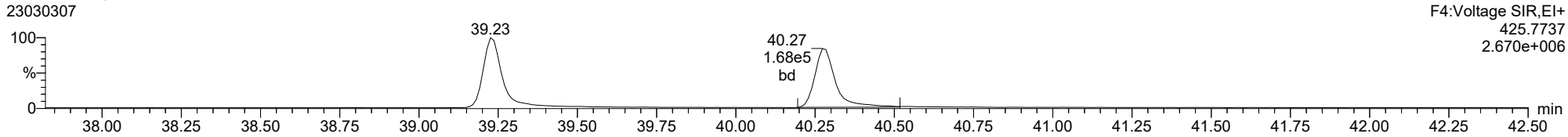


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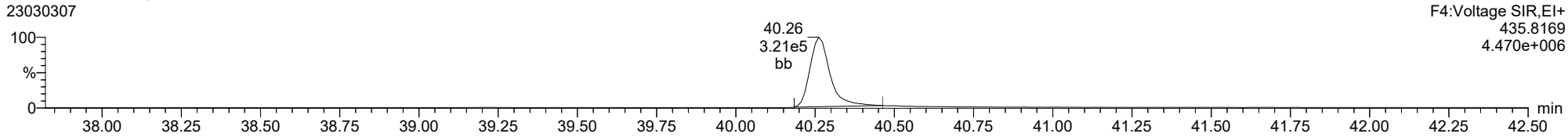
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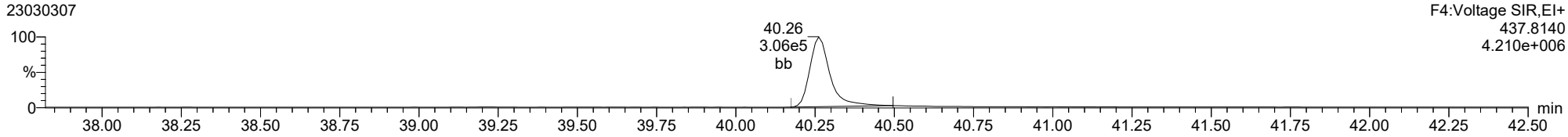
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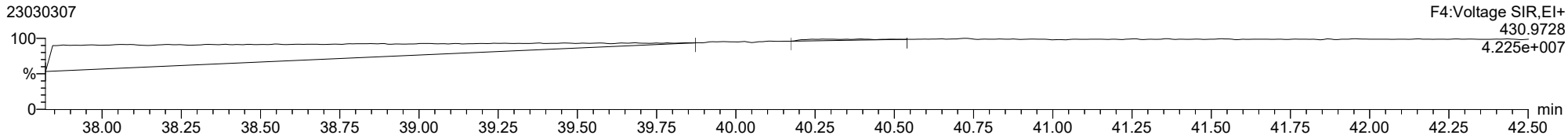
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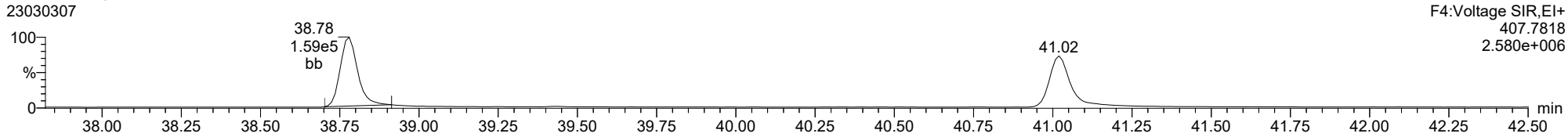


FUNCTION4 PFK

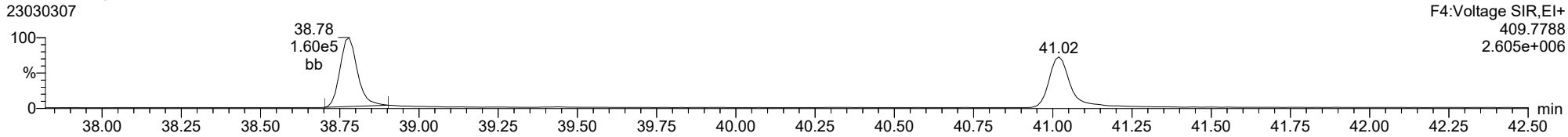


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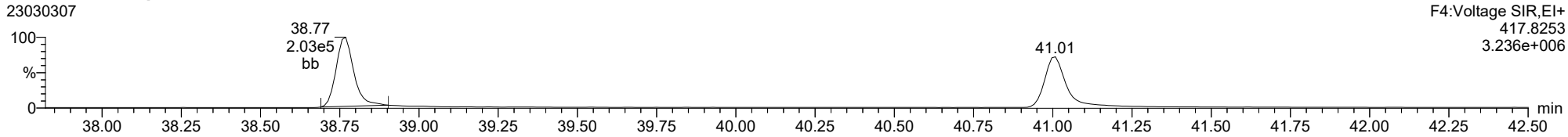
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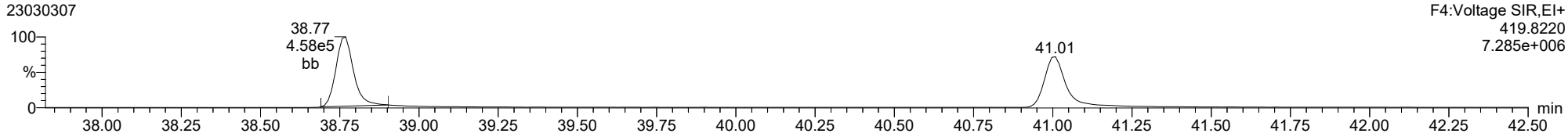
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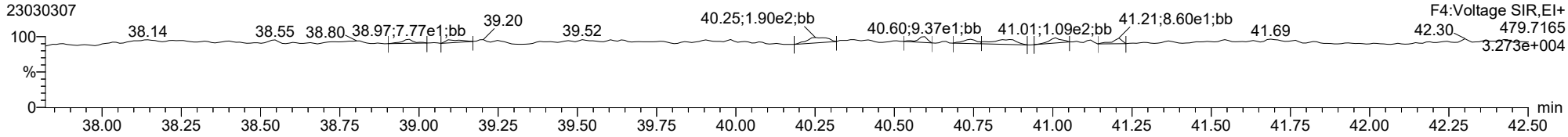
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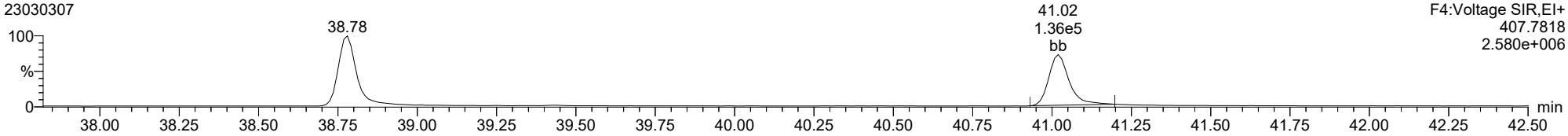


FUNCTION4 NCDPE

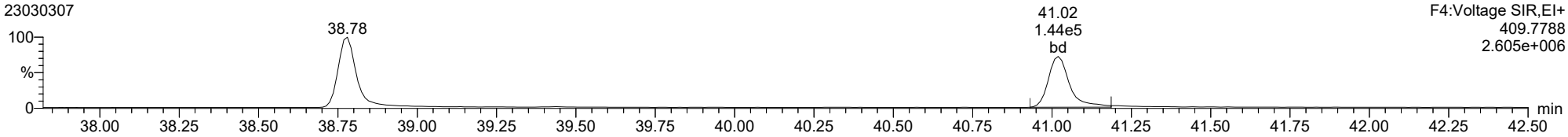


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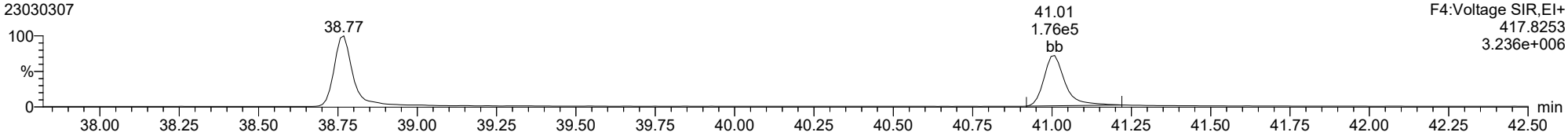
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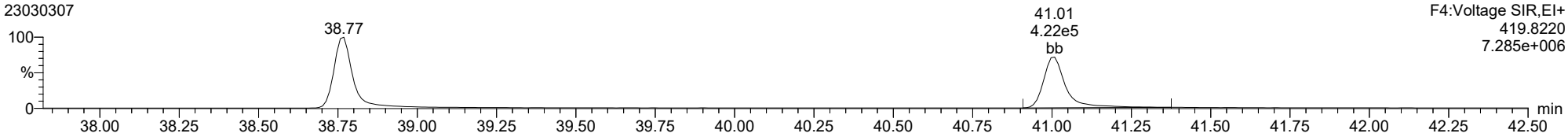
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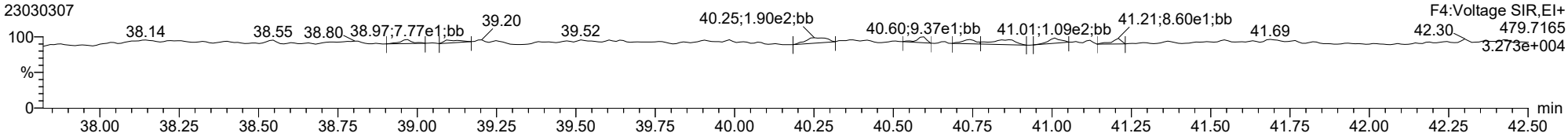
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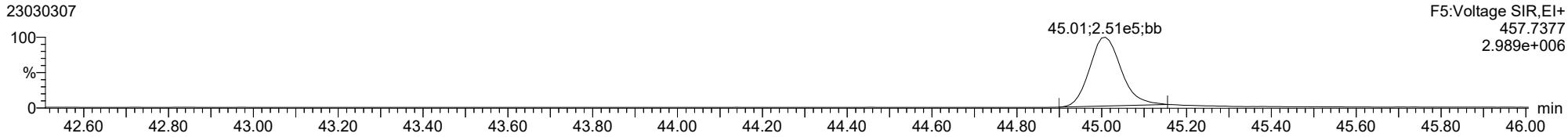


FUNCTION4 NCDPE

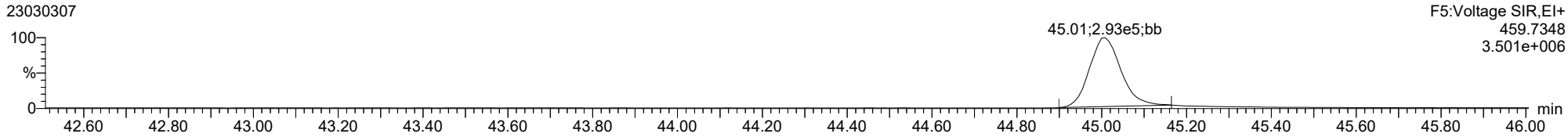


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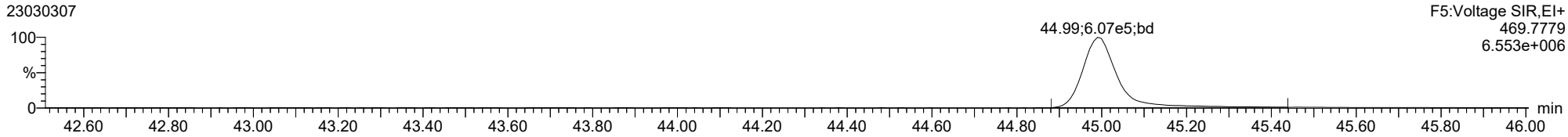
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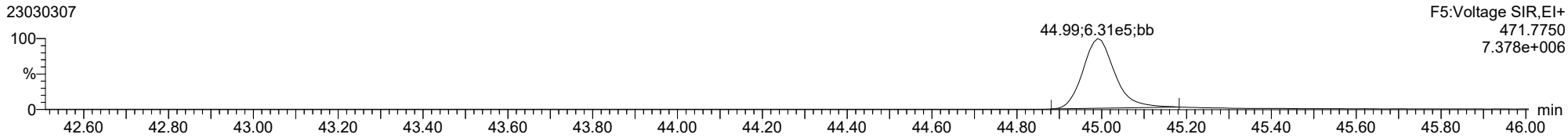
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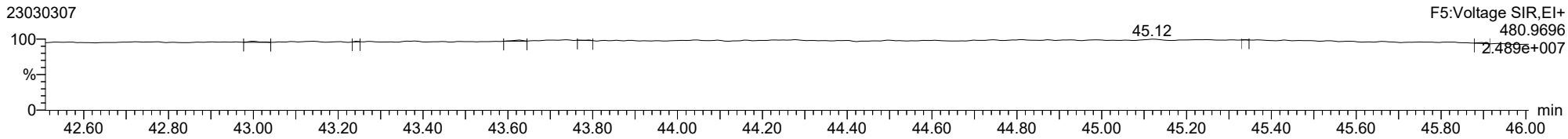
13C-OCDD



13C-OCDD

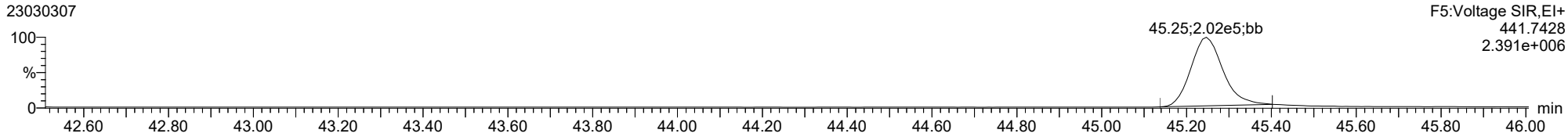


FUNCTION5 PFK

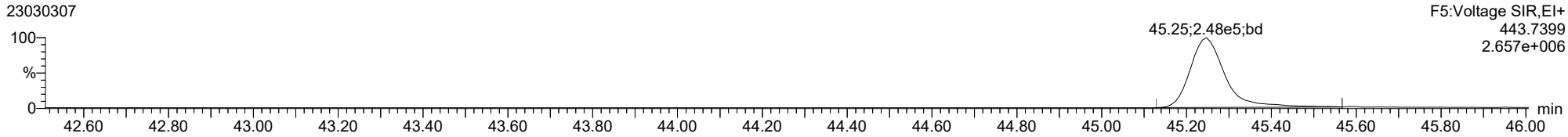


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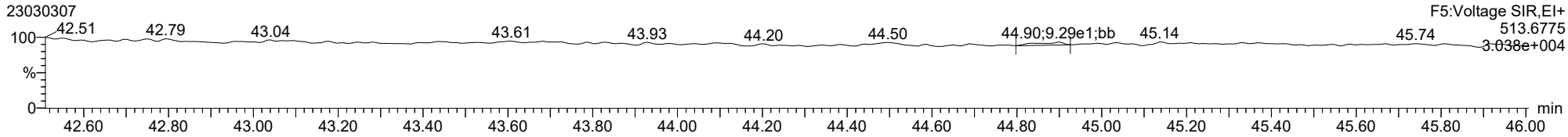
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OCDF

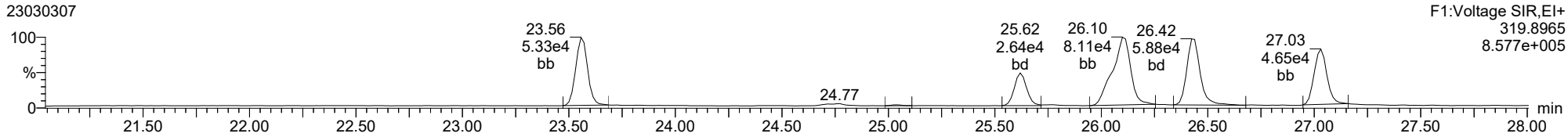


FUNCTION5 DCDPE

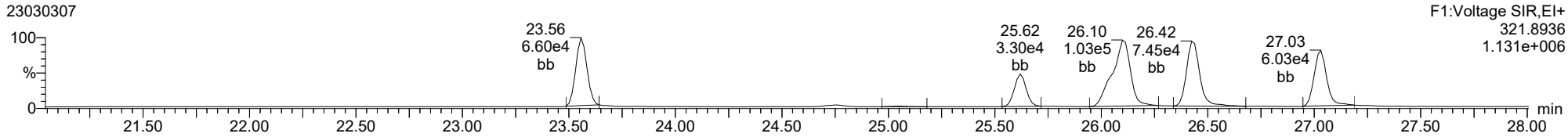


ID: CS3CW, Name: 23030307, Date: 03-Mar-2023, Time: 14:06:39, Conditions: AUTOSPEC01, User: pk

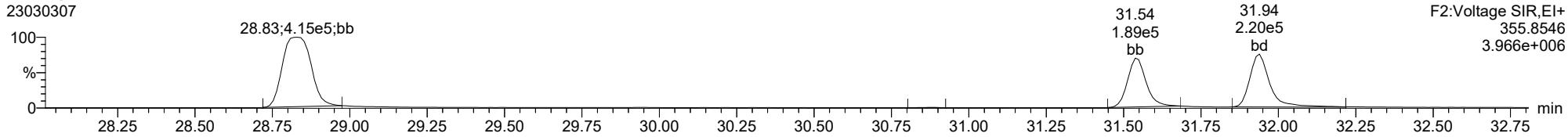
Total-tetradioxins



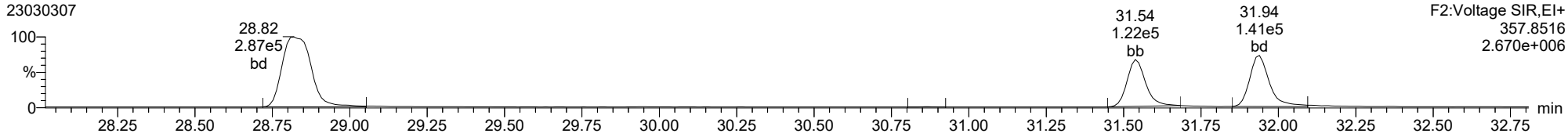
Total-tetradioxins



Total-pentadioxins

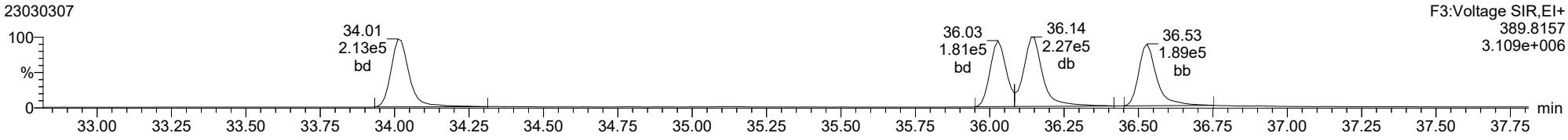


Total-pentadioxins

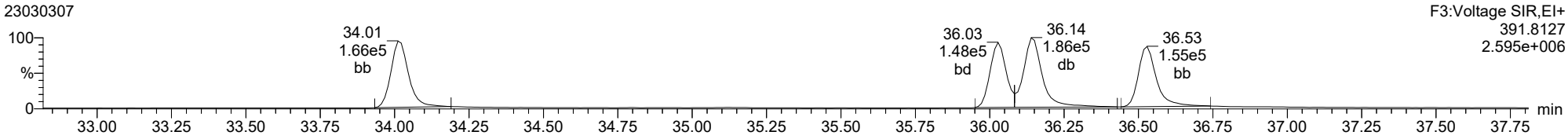


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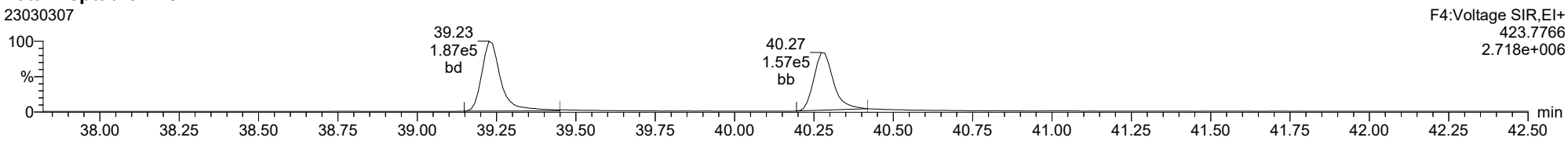
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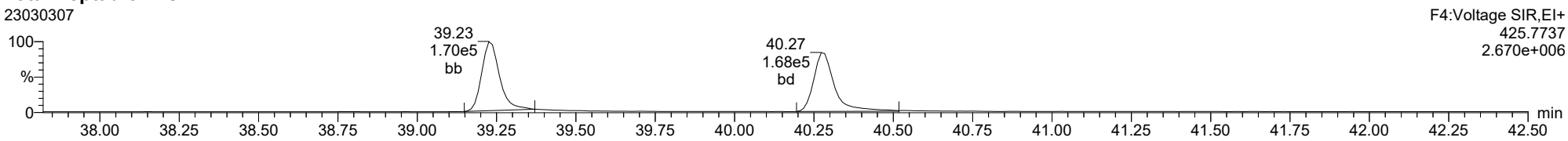
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Total-heptadioxins

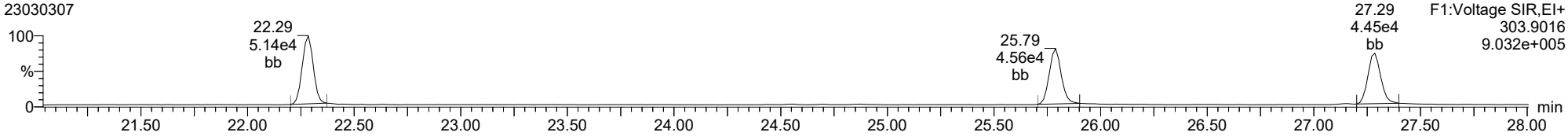


Total-heptadioxins

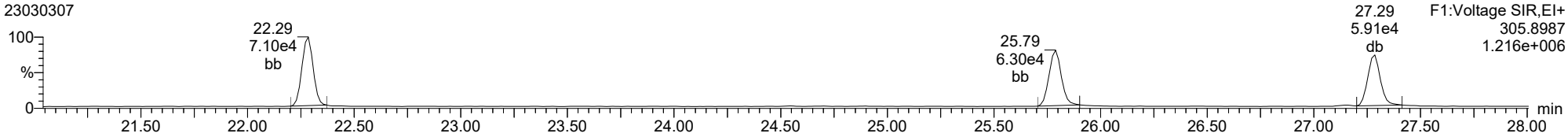


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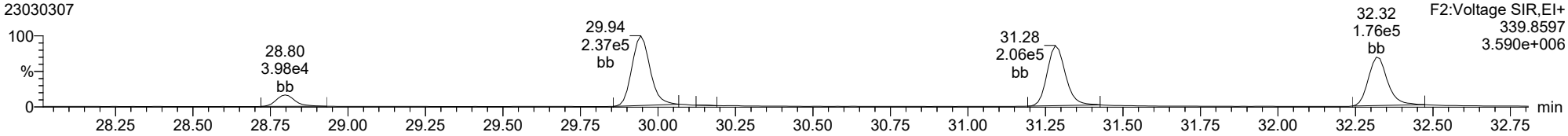
Total-tetrafurans



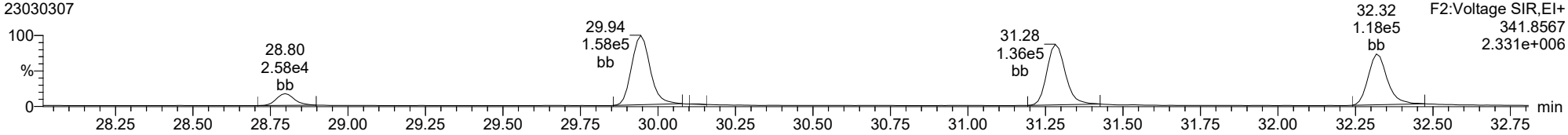
Total-tetrafurans



Total-pentafurans

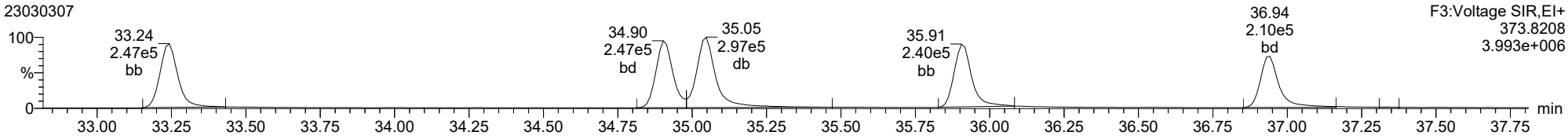


Total-pentafurans

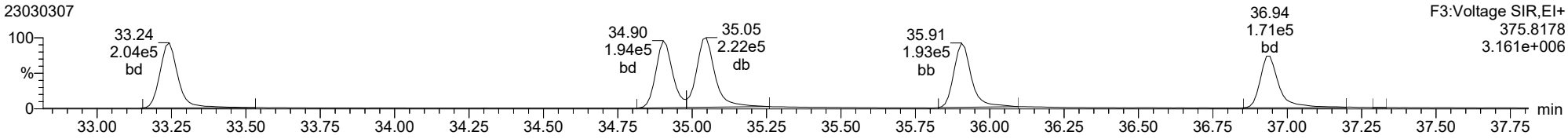


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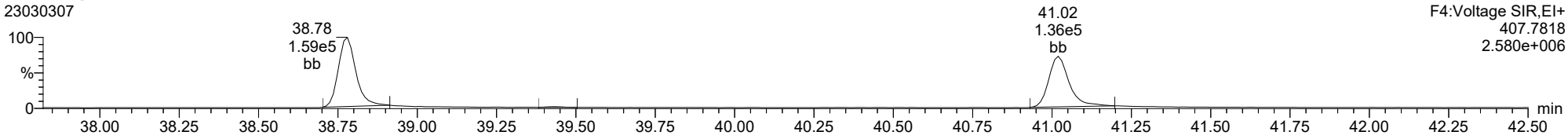
Total-hexafurans



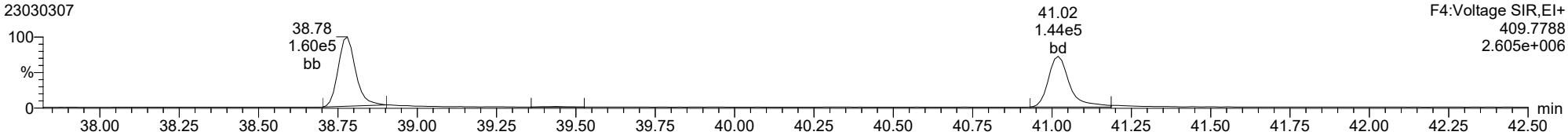
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:51 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.788	1.001	2.145e5	2.910e5	0.702	0.737	0.770	1085	2356	3.19e6	4.36e6	2939.3	1849.8	NO	bb	bb	41.038
12378-PeCDF	29.944	1.000	1.256e6	8.416e5	0.679	1.492	1.550	4273	3650	1.86e7	1.25e7	4360.5	3425.9	NO	bb	bb	202.935
23478-PeCDF	31.292	1.001	1.346e6	8.943e5	0.786	1.505	1.550	4273	3650	2.02e7	1.34e7	4738.5	3680.0	NO	bb	bb	201.175
123478-HxCDF	34.913	1.001	1.546e6	1.218e6	1.166	1.269	1.240	1919	2508	2.36e7	1.86e7	12323.4	7421.9	NO	bd	bd	197.711
234678-HxCDF	35.916	1.001	1.547e6	1.307e6	1.140	1.184	1.240	1919	2508	2.33e7	1.85e7	12125.4	7387.3	NO	bb	bd	210.207
123678-HxCDF	35.047	1.000	1.740e6	1.369e6	1.091	1.271	1.240	1919	2508	2.57e7	2.04e7	13394.0	8153.6	NO	db	db	189.797
123789-HxCDF	36.941	1.000	1.209e6	1.036e6	1.137	1.167	1.240	1919	2508	1.81e7	1.44e7	9441.6	5749.5	NO	bb	bd	200.361
1234678-HpCDF	38.779	1.000	8.720e5	8.418e5	1.003	1.036	1.050	3326	3780	1.44e7	1.42e7	4339.3	3745.4	NO	bb	bb	204.650
1234789-HpCDF	41.019	1.000	7.221e5	7.262e5	0.953	0.994	1.050	3326	3780	1.01e7	1.02e7	3041.3	2689.4	NO	bb	bb	208.465
OCDF	45.255	1.006	1.195e6	1.333e6	0.778	0.897	0.890	1809	2070	1.43e7	1.59e7	7923.8	7701.9	NO	bb	bb	419.788
2378-TCDD	26.438	1.001	2.573e5	3.218e5	1.149	0.799	0.770	1559	1107	3.81e6	4.84e6	2446.0	4371.1	NO	bb	bb	39.968
12378-PeCDD	31.549	1.001	1.294e6	8.446e5	1.022	1.532	1.550	1566	1736	1.89e7	1.24e7	12077.0	7164.9	NO	bb	bb	199.637
123478-HxCDD	36.027	1.000	1.162e6	9.482e5	0.996	1.225	1.240	1816	1276	1.93e7	1.57e7	10622.2	12327.7	NO	bd	bd	198.133
123678-HxCDD	36.150	1.001	1.363e6	1.125e6	1.001	1.212	1.240	1816	1276	1.97e7	1.61e7	10823.8	12618.8	NO	db	db	204.224
123789-HxCDD	36.528	1.011	1.168e6	9.477e5	0.907	1.232	1.240	1816	1276	1.77e7	1.44e7	9764.9	11291.0	NO	bb	bb	203.974
1234678-HpCDD	40.283	1.001	8.284e5	8.038e5	1.039	1.031	1.050	3177	2938	1.22e7	1.19e7	3841.2	4046.8	NO	bb	bb	198.376
OCDD	45.008	1.000	1.293e6	1.512e6	0.920	0.855	0.890	1475	2373	1.59e7	1.85e7	10744.0	7810.6	NO	bb	bb	394.016
13C-2378-TCDF	25.774	1.007	7.645e5	9.914e5	1.620	0.771	0.770	1843	2282	1.15e7	1.49e7	6238.3	6526.6	NO	bb	bb	101.535
13C-12378-PeCDF	29.933	1.169	9.119e5	6.098e5	1.240	1.495	1.550	3738	4574	1.28e7	8.50e6	3418.3	1857.5	NO	bd	bd	114.934
13C-23478-PeCDF	31.270	1.221	8.522e5	5.645e5	1.118	1.510	1.550	3738	4574	1.28e7	8.47e6	3423.2	1851.3	NO	bb	bb	118.746
13C-123478-HxCDF	34.891	0.956	4.043e5	7.946e5	1.168	0.509	0.510	3379	2646	6.26e6	1.23e7	1851.5	4643.3	NO	bd	bd	93.689
13C-123678-HxCDF	35.036	0.959	5.122e5	9.895e5	1.386	0.518	0.510	3379	2646	6.72e6	1.32e7	1988.7	4975.1	NO	db	dd	98.879
13C-234678-HxCDF	35.894	0.983	4.066e5	7.845e5	1.129	0.518	0.510	3379	2646	6.03e6	1.18e7	1785.1	4452.3	NO	bb	bb	96.294
13C-123789-HxCDF	36.930	1.011	3.312e5	6.542e5	0.932	0.506	0.510	3379	2646	4.85e6	9.52e6	1434.9	3598.2	NO	bb	bb	96.556
13C-1234678-HpCDF	38.768	1.062	2.524e5	5.825e5	0.895	0.433	0.440	1935	3511	4.16e6	9.49e6	2148.5	2703.4	NO	bb	bb	85.151
13C-1234789-HpCDF	41.007	1.123	2.205e5	5.084e5	0.770	0.434	0.440	1935	3511	3.02e6	6.92e6	1559.8	1971.4	NO	bb	bb	86.451
13C-1234-TCDD	25.605	0.000	4.743e5	5.931e5	1.000	0.800	0.770	2271	1813	7.33e6	9.12e6	3228.4	5028.5	NO	bb	bb	100.000
13C-2378-TCDD	26.410	1.031	5.640e5	6.974e5	1.152	0.809	0.770	2271	1813	8.09e6	1.01e7	3563.4	5571.0	NO	bb	bb	102.553
13C-12378-PeCDD	31.526	1.231	6.480e5	4.003e5	0.829	1.619	1.550	1212	1529	9.47e6	5.85e6	7814.9	3827.1	NO	bb	bb	118.505
13C-123478-HxCDD	36.016	0.986	6.052e5	4.646e5	0.995	1.303	1.240	1807	1475	9.78e6	7.54e6	5412.5	5108.2	NO	bd	bd	98.154
13C-123678-HxCDD	36.127	0.989	6.753e5	5.418e5	1.157	1.246	1.240	1807	1475	1.01e7	8.01e6	5594.1	5426.8	NO	db	db	96.059
13C-1234678-HpCDD	40.261	1.102	3.968e5	3.950e5	0.840	1.005	1.050	2357	2248	5.68e6	5.37e6	2408.3	2387.8	NO	bb	bb	86.051
13C-OCDD	44.999	1.232	7.332e5	8.149e5	0.767	0.900	0.890	1459	1173	8.67e6	9.61e6	5943.8	8191.6	NO	bb	bb	184.151
13C-123789-HxCDD	36.518	0.000	6.173e5	4.781e5	1.000	1.291	1.240	1807	1475	9.34e6	7.24e6	5171.1	4908.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.438	1.033	5.280e5		1.288			2576		7.74e6		3003.1			bb		38.410

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:34:51 Pacific Standard Time

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1085	2356								
1289-TCDF					0.678		0.770	1085	2356								
13468-PECDF					1.246		1.550	728	1112								
12389-PECDF					0.496		1.550	4273	3650								
123468-HXCDF					1.169		1.240	1919	2508								
1368-TCDD					1.015		0.770	1559	1107								
1289-TCDD					0.909		0.770	1559	1107								
12479-PECDD					2.301		1.550	1566	1736								
12389-PECDD					1.184		1.550	1566	1736								
124679-HXCDD					1.115		1.240	1816	1276								
1234679-HPCDD					1.137		1.050	3177	2938								
Total-tetrafurans			2.178e5		0.727			1085		3.24e6							41.692
Total-penta1			0.000e0					728		0.00e0							
Total-pentafurans			2.604e6		0.654			4273		3.89e7							404.382
Total-hexafurans			6.043e6		1.141			1919		9.07e7							798.266
Total-heptafurans			1.594e6		0.978			3326		2.45e7							413.115
Total-Furans			1.165e7		0.922			1085		1.72e8							2077.243
Total-tetradioxins			2.634e5		1.024			1559		3.88e6							41.026
Total-pentadioxins			1.295e6		1.502			1566		1.89e7							199.743
Total-hexadioxins			3.693e6		1.005			1816		5.67e7							606.331
Total-heptadioxins			8.286e5		1.088			3177		1.22e7							198.425
Total-Dioxins			7.373e6		1.130			1559		1.08e8							1439.540
Total-TEQ			1.903e7					1559		2.79e8							3516.783
FUNCTION1 PFK			2.654e6					566854		2.19e6							
FUNCTION2 PFK			2.398e5					242860		6.75e6							0.000
FUNCTION3 PFK			5.441e7					394639		2.11e7							0.000
FUNCTION4 PFK			0.000e0					306708		0.00e0							
FUNCTION5 PFK			3.395e4					230570		1.65e6							
FUNCTION1 HXCD...			4.934e2					625		6.74e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.574e3					915		2.35e4							0.000
FUNCTION3 OCDPE			8.696e2					844		1.47e4							0.000
FUNCTION4 NCDPE			3.767e2					925		5.85e3							0.000
FUNCTION5 DCDPE			0.000e0					629		0.00e0							

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	2.145e5	2.910e5	0.702	0.74	0.77	2939.3	YES	NO	bb	bb	41.038
2	Total-tetrafurans	24.88	1.531e3	2.327e3	0.727	0.66	0.77	20.3	YES	NO	bb	bb	0.302
3	Total-tetrafurans	24.56	1.778e3	2.714e3	0.727	0.66	0.77	29.5	YES	NO	bb	bb	0.352

PP

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

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentafurans	31.01	1.644e3	9.764e2	0.654	1.68	1.55	5.6	YES	NO	db	bd	0.273
2	12378-PeCDF	29.94	1.256e6	8.416e5	0.679	1.49	1.55	4360.5	YES	NO	bb	bb	202.935
3	23478-PeCDF	31.29	1.346e6	8.943e5	0.786	1.51	1.55	4738.5	YES	NO	bb	bb	201.175

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.94	1.209e6	1.036e6	1.137	1.17	1.24	9441.6	YES	NO	bb	bd	200.361
2	234678-HxCDF	35.92	1.547e6	1.307e6	1.140	1.18	1.24	12125.4	YES	NO	bb	bd	210.207
3	Total-hexafurans	35.77	1.562e2	1.389e2	1.141	1.12	1.24	3.4	NO	NO	bb	bb	0.021
4	123678-HxCDF	35.05	1.740e6	1.369e6	1.091	1.27	1.24	13394.0	YES	NO	db	db	189.797
5	123478-HxCDF	34.91	1.546e6	1.218e6	1.166	1.27	1.24	12323.4	YES	NO	bd	bd	197.711
6	Total-hexafurans	34.76	1.255e3	1.100e3	1.141	1.14	1.24	11.9	YES	NO	bb	bb	0.169

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.78	8.720e5	8.418e5	1.003	1.04	1.05	4339.3	YES	NO	bb	bb	204.650
2	1234789-HpCDF	41.02	7.221e5	7.262e5	0.953	0.99	1.05	3041.3	YES	NO	bb	bb	208.465

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	2.145e5	2.910e5	0.702	0.74	0.77	2939.3	YES	NO	bb	bb	41.038
2	Total-tetrafurans	24.88	1.531e3	2.327e3	0.727	0.66	0.77	20.3	YES	NO	bb	bb	0.302
3	Total-tetrafurans	24.56	1.778e3	2.714e3	0.727	0.66	0.77	29.5	YES	NO	bb	bb	0.352
4	Total-pentafurans	31.01	1.644e3	9.764e2	0.654	1.68	1.55	5.6	YES	NO	db	bd	0.273
5	12378-PeCDF	29.94	1.256e6	8.416e5	0.679	1.49	1.55	4360.5	YES	NO	bb	bb	202.935
6	23478-PeCDF	31.29	1.346e6	8.943e5	0.786	1.51	1.55	4738.5	YES	NO	bb	bb	201.175
7	123789-HxCDF	36.94	1.209e6	1.036e6	1.137	1.17	1.24	9441.6	YES	NO	bb	bd	200.361
8	234678-HxCDF	35.92	1.547e6	1.307e6	1.140	1.18	1.24	12125.4	YES	NO	bb	bd	210.207
9	Total-hexafurans	35.77	1.562e2	1.389e2	1.141	1.12	1.24	3.4	NO	NO	bb	bb	0.021
10	123678-HxCDF	35.05	1.740e6	1.369e6	1.091	1.27	1.24	13394.0	YES	NO	db	db	189.797
11	123478-HxCDF	34.91	1.546e6	1.218e6	1.166	1.27	1.24	12323.4	YES	NO	bd	bd	197.711
12	Total-hexafurans	34.76	1.255e3	1.100e3	1.141	1.14	1.24	11.9	YES	NO	bb	bb	0.169
13	1234678-HpCDF	38.78	8.720e5	8.418e5	1.003	1.04	1.05	4339.3	YES	NO	bb	bb	204.650
14	1234789-HpCDF	41.02	7.221e5	7.262e5	0.953	0.99	1.05	3041.3	YES	NO	bb	bb	208.465
15	OCDF	45.26	1.195e6	1.333e6	0.778	0.90	0.89	7923.8	YES	NO	bb	bb	419.788

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.44	2.573e5	3.218e5	1.149	0.80	0.77	2446.0	YES	NO	bb	bb	39.968
2	Total-tetradioxins	26.06	6.115e3	7.563e3	1.024	0.81	0.77	45.2	YES	NO	bb	bb	1.059

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.55	1.294e6	8.446e5	1.022	1.53	1.55	12077.0	YES	NO	bb	bb	199.637
2	Total-pentadioxins	29.94	9.896e2	6.778e2	1.502	1.46	1.55	7.8	YES	NO	bb	bb	0.106

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.53	1.168e6	9.477e5	0.907	1.23	1.24	9764.9	YES	NO	bb	bb	203.974
2	123678-HxCDD	36.15	1.363e6	1.125e6	1.001	1.21	1.24	10823.8	YES	NO	db	db	204.224
3	123478-HxCDD	36.03	1.162e6	9.482e5	0.996	1.23	1.24	10622.2	YES	NO	bd	bd	198.133

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HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptadioxins	40.57	2.148e2	2.026e2	1.088	1.06	1.05	2.3	NO	NO	bb	bb	0.048
2	1234678-HpCDD	40.28	8.284e5	8.038e5	1.039	1.03	1.05	3841.2	YES	NO	bb	bb	198.376

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.44	2.573e5	3.218e5	1.149	0.80	0.77	2446.0	YES	NO	bb	bb	39.968
2	Total-tetradioxins	26.06	6.115e3	7.563e3	1.024	0.81	0.77	45.2	YES	NO	bb	bb	1.059
3	12378-PeCDD	31.55	1.294e6	8.446e5	1.022	1.53	1.55	12077.0	YES	NO	bb	bb	199.637
4	Total-pentadioxins	29.94	9.896e2	6.778e2	1.502	1.46	1.55	7.8	YES	NO	bb	bb	0.106
5	123789-HxCDD	36.53	1.168e6	9.477e5	0.907	1.23	1.24	9764.9	YES	NO	bb	bb	203.974
6	123678-HxCDD	36.15	1.363e6	1.125e6	1.001	1.21	1.24	10823.8	YES	NO	db	db	204.224
7	123478-HxCDD	36.03	1.162e6	9.482e5	0.996	1.23	1.24	10622.2	YES	NO	bd	bd	198.133
8	Total-heptadioxins	40.57	2.148e2	2.026e2	1.088	1.06	1.05	2.3	NO	NO	bb	bb	0.048
9	1234678-HpCDD	40.28	8.284e5	8.038e5	1.039	1.03	1.05	3841.2	YES	NO	bb	bb	198.376
10	OCDD	45.01	1.293e6	1.512e6	0.920	0.86	0.89	10744.0	YES	NO	bb	bb	394.016

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.79	2.145e5	2.910e5	0.702	0.74	0.77	2939.3	YES	NO	bb	bb	41.038
2	Total-tetrafurans	24.88	1.531e3	2.327e3	0.727	0.66	0.77	20.3	YES	NO	bb	bb	0.302
3	Total-tetrafurans	24.56	1.778e3	2.714e3	0.727	0.66	0.77	29.5	YES	NO	bb	bb	0.352
4	Total-pentafurans	31.01	1.644e3	9.764e2	0.654	1.68	1.55	5.6	YES	NO	db	bd	0.273
5	12378-PeCDF	29.94	1.256e6	8.416e5	0.679	1.49	1.55	4360.5	YES	NO	bb	bb	202.935
6	23478-PeCDF	31.29	1.346e6	8.943e5	0.786	1.51	1.55	4738.5	YES	NO	bb	bb	201.175
7	123789-HxCDF	36.94	1.209e6	1.036e6	1.137	1.17	1.24	9441.6	YES	NO	bb	bd	200.361
8	234678-HxCDF	35.92	1.547e6	1.307e6	1.140	1.18	1.24	12125.4	YES	NO	bb	bd	210.207
9	Total-hexafurans	35.77	1.562e2	1.389e2	1.141	1.12	1.24	3.4	NO	NO	bb	bb	0.021
10	123678-HxCDF	35.05	1.740e6	1.369e6	1.091	1.27	1.24	13394.0	YES	NO	db	db	189.797
11	123478-HxCDF	34.91	1.546e6	1.218e6	1.166	1.27	1.24	12323.4	YES	NO	bd	bd	197.711
12	Total-hexafurans	34.76	1.255e3	1.100e3	1.141	1.14	1.24	11.9	YES	NO	bb	bb	0.169
13	1234678-HpCDF	38.78	8.720e5	8.418e5	1.003	1.04	1.05	4339.3	YES	NO	bb	bb	204.650
14	1234789-HpCDF	41.02	7.221e5	7.262e5	0.953	0.99	1.05	3041.3	YES	NO	bb	bb	208.465
15	OCDF	45.26	1.195e6	1.333e6	0.778	0.90	0.89	7923.8	YES	NO	bb	bb	419.788
16	2378-TCDD	26.44	2.573e5	3.218e5	1.149	0.80	0.77	2446.0	YES	NO	bb	bb	39.968
17	Total-tetradioxins	26.06	6.115e3	7.563e3	1.024	0.81	0.77	45.2	YES	NO	bb	bb	1.059
18	12378-PeCDD	31.55	1.294e6	8.446e5	1.022	1.53	1.55	12077.0	YES	NO	bb	bb	199.637
19	Total-pentadioxins	29.94	9.896e2	6.778e2	1.502	1.46	1.55	7.8	YES	NO	bb	bb	0.106
20	123789-HxCDD	36.53	1.168e6	9.477e5	0.907	1.23	1.24	9764.9	YES	NO	bb	bb	203.974
21	123678-HxCDD	36.15	1.363e6	1.125e6	1.001	1.21	1.24	10823.8	YES	NO	db	db	204.224
22	123478-HxCDD	36.03	1.162e6	9.482e5	0.996	1.23	1.24	10622.2	YES	NO	bd	bd	198.133
23	Total-heptadioxins	40.57	2.148e2	2.026e2	1.088	1.06	1.05	2.3	NO	NO	bb	bb	0.048
24	1234678-HpCDD	40.28	8.284e5	8.038e5	1.039	1.03	1.05	3841.2	YES	NO	bb	bb	198.376
25	OCDD	45.01	1.293e6	1.512e6	0.920	0.86	0.89	10744.0	YES	NO	bb	bb	394.016

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.75	1.219e6					0.4	NO		bb		
2	FUNCTION1 PFK	21.17	1.435e6					3.4	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.26	4.048e3					0.9	NO		bb		0.000
2	FUNCTION2 PFK	28.22	4.511e3					0.9	NO		bb		0.000
3	FUNCTION2 PFK	28.09	1.180e4					1.6	NO		bb		0.000
4	FUNCTION2 PFK	32.40	7.400e3					1.4	NO		bd		0.000
5	FUNCTION2 PFK	31.78	3.780e3					0.8	NO		db		0.000
6	FUNCTION2 PFK	31.75	1.880e3					0.6	NO		bd		0.000
7	FUNCTION2 PFK	31.70	9.648e3					1.7	NO		db		0.000
8	FUNCTION2 PFK	31.63	2.054e4					2.2	NO		bd		0.000
9	FUNCTION2 PFK	31.52	5.247e4					2.4	NO		db		0.000
10	FUNCTION2 PFK	31.37	1.454e4					1.4	NO		bd		0.000
11	FUNCTION2 PFK	31.10	7.031e3					1.1	NO		bb		0.000
12	FUNCTION2 PFK	30.32	1.036e4					1.3	NO		bb		0.000
13	FUNCTION2 PFK	30.01	2.058e3					0.8	NO		bb		0.000
14	FUNCTION2 PFK	29.82	6.711e3					1.2	NO		db		0.000
15	FUNCTION2 PFK	29.78	1.288e4					1.7	NO		bd		0.000
16	FUNCTION2 PFK	29.02	5.997e3					0.8	NO		bb		0.000
17	FUNCTION2 PFK	28.82	2.827e4					1.7	NO		bb		0.000
18	FUNCTION2 PFK	28.47	4.519e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	28.42	5.823e3					1.1	NO		bb		0.000
20	FUNCTION2 PFK	32.71	1.137e4					1.6	NO		bb		0.000
21	FUNCTION2 PFK	32.44	1.418e4					1.8	NO		db		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	36.64	7.406e6					25.3	YES		db		0.000
2	FUNCTION3 PFK	36.25	4.701e7					28.1	YES		bd		0.000

PFK4

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

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.68	7.516e3					1.5	NO		bb		
2	FUNCTION5 PFK	45.50	5.255e3					1.2	NO		bb		
3	FUNCTION5 PFK	43.66	5.108e3					1.2	NO		bb		
4	FUNCTION5 PFK	43.06	3.867e3					1.1	NO		bb		
5	FUNCTION5 PFK	42.63	1.220e4					2.1	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	21.64	8.072e1					1.8	NO		bb		0.000
2	FUNCTION1 HXCD...	21.44	1.165e2					2.1	NO		db		0.000
3	FUNCTION1 HXCD...	21.34	7.544e1					2.3	NO		bd		0.000
4	FUNCTION1 HXCD...	26.42	1.399e2					2.7	NO		bb		0.000
5	FUNCTION1 HXCD...	21.99	8.086e1					2.0	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.18	1.574e3					25.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.15	3.227e2					5.7	YES		db		0.000
2	FUNCTION3 OCDPE	36.03	2.331e2					4.4	YES		bd		0.000
3	FUNCTION3 OCDPE	35.36	1.234e2					4.0	YES		bb		0.000
4	FUNCTION3 OCDPE	35.06	1.904e2					3.3	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	39.00	2.677e2					3.2	YES		bb		0.000
2	FUNCTION4 NCDPE	38.18	1.090e2					3.1	YES		bb		0.000

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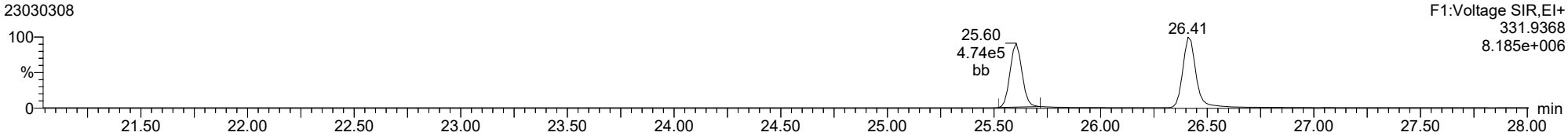
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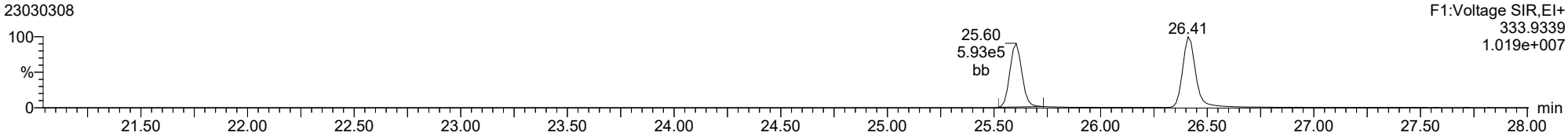
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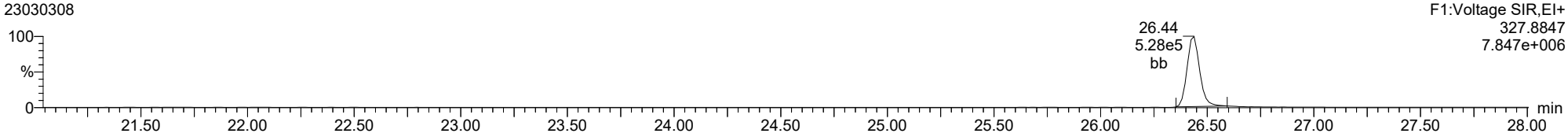
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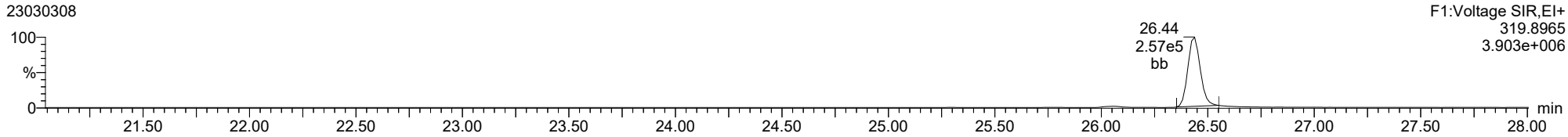


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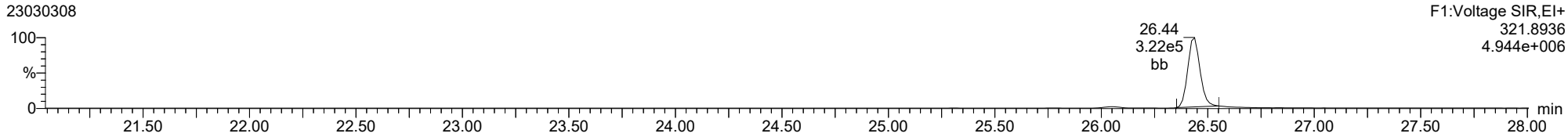


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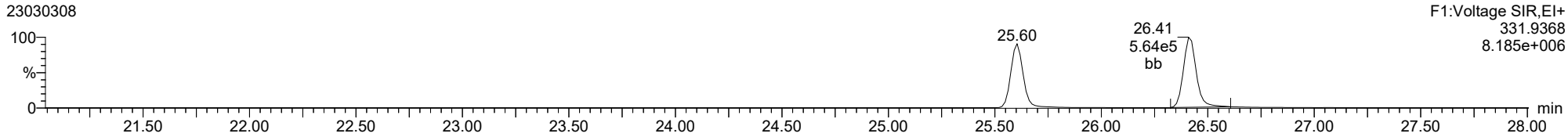
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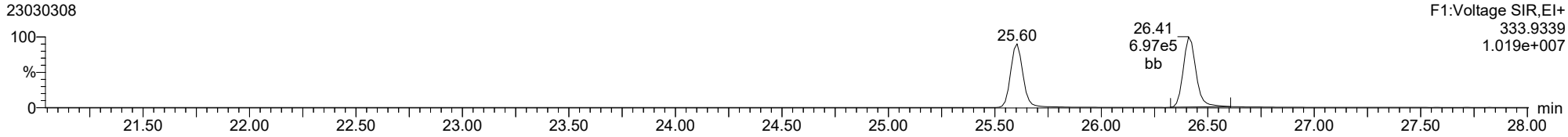
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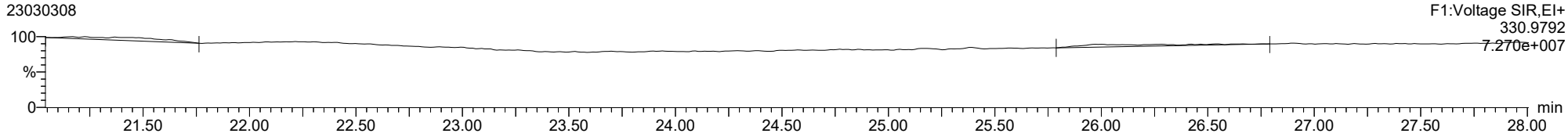
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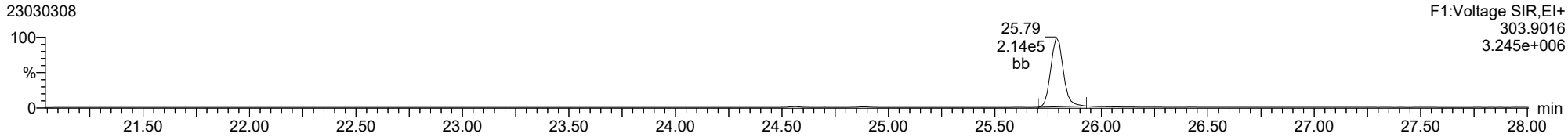


FUNCTION1 PFK

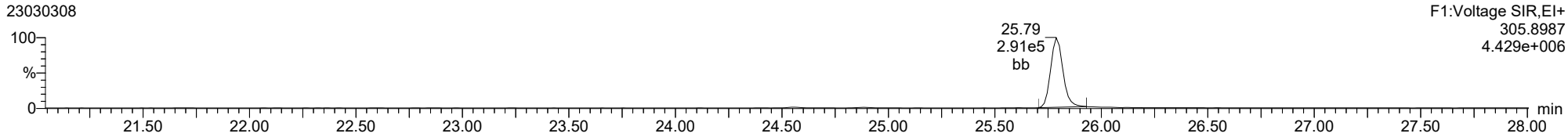


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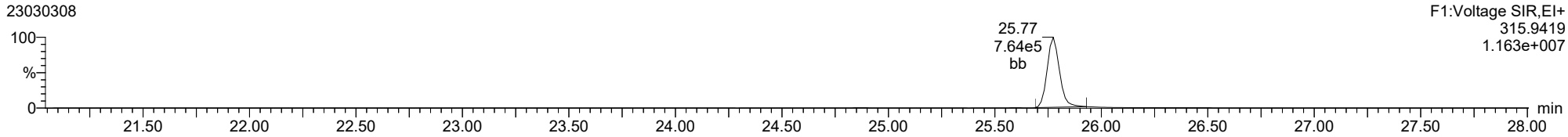
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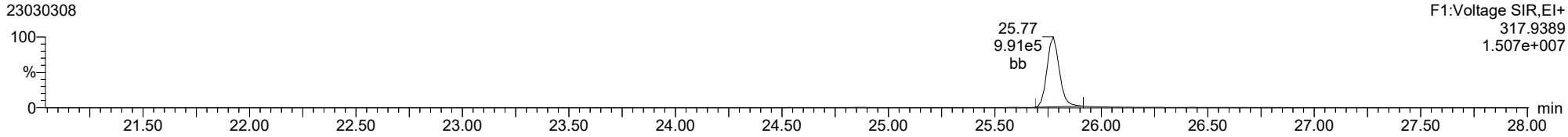
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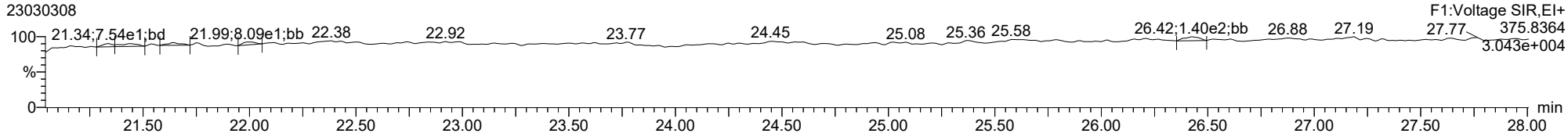
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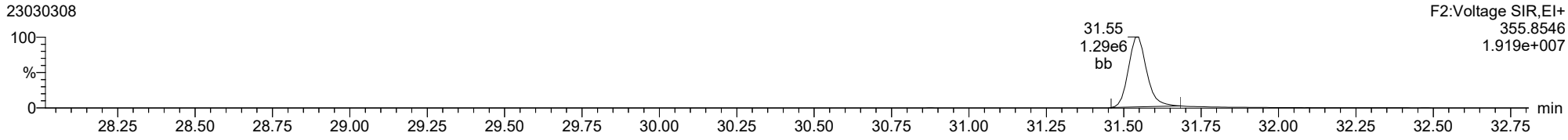


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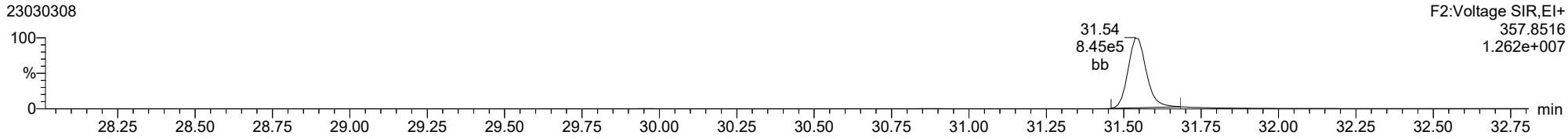


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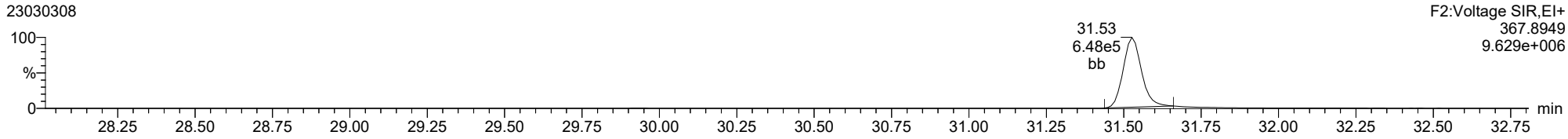
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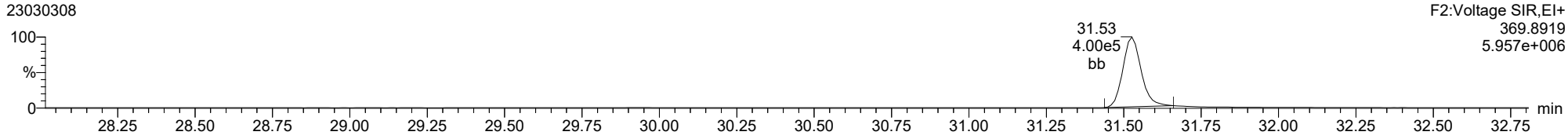
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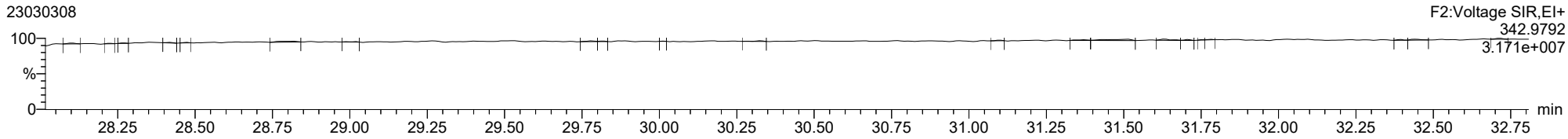
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13C-12378-PeCDD

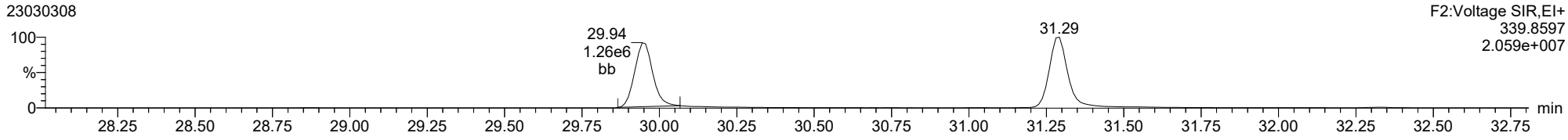


FUNCTION2 PFK

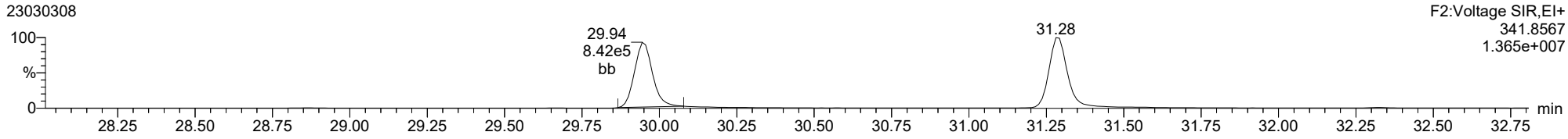


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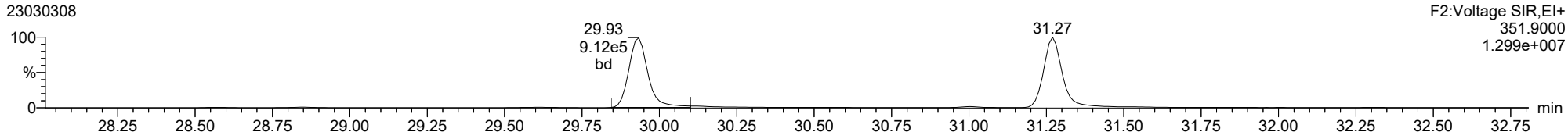
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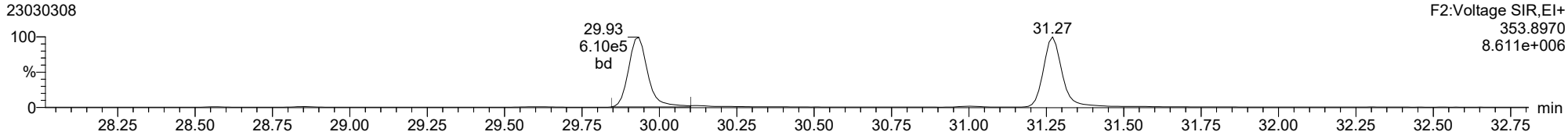
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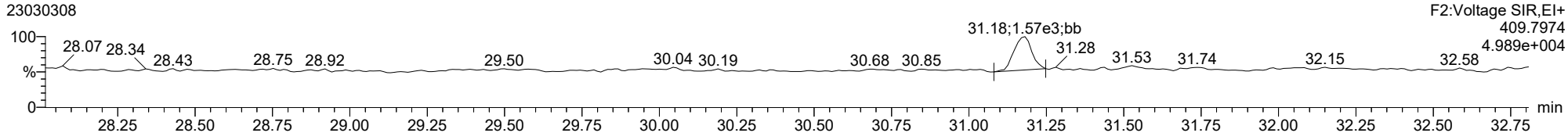
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13C-12378-PeCDF

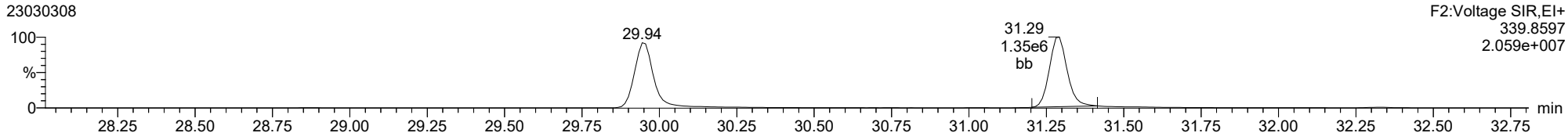


FUNCTION2 HPCDPE

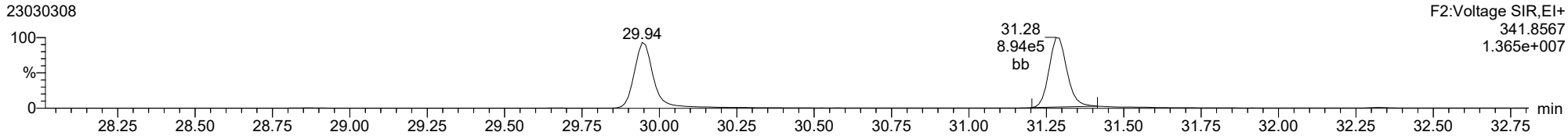


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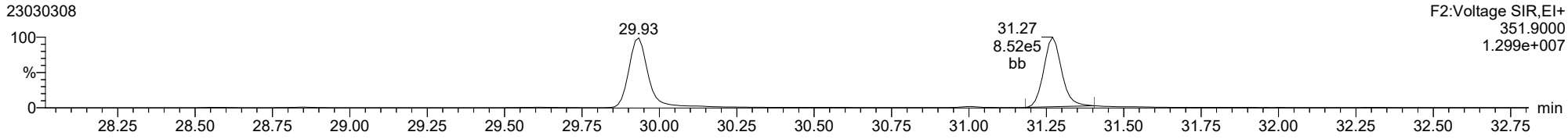
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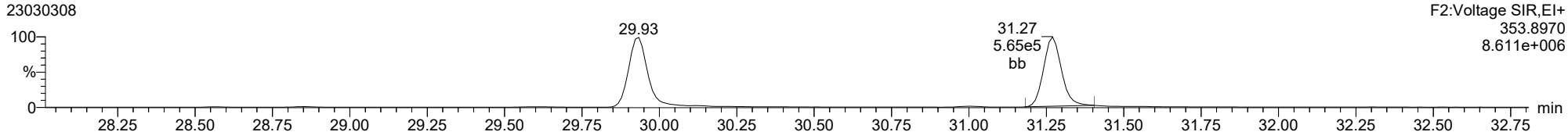
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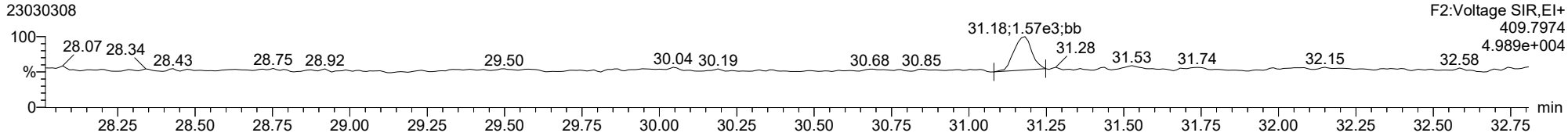
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13C-23478-PeCDF

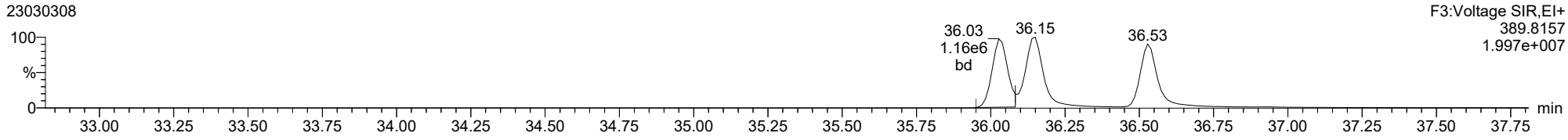


FUNCTION2 HPCDPE

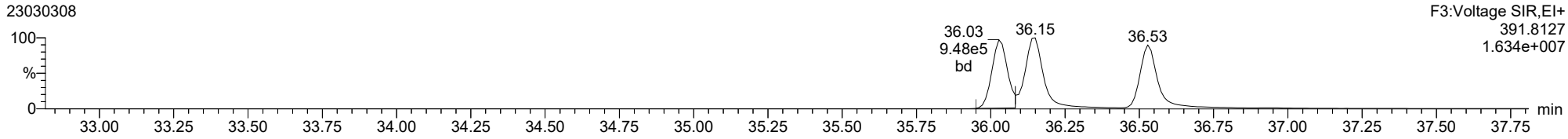


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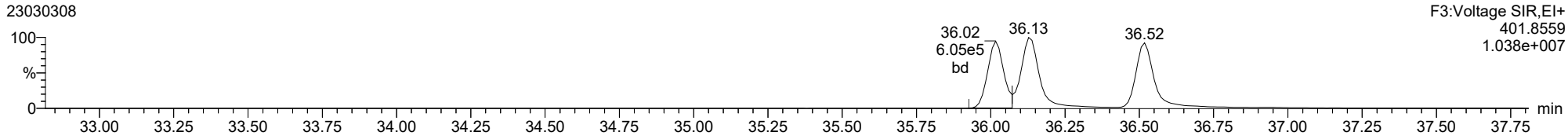
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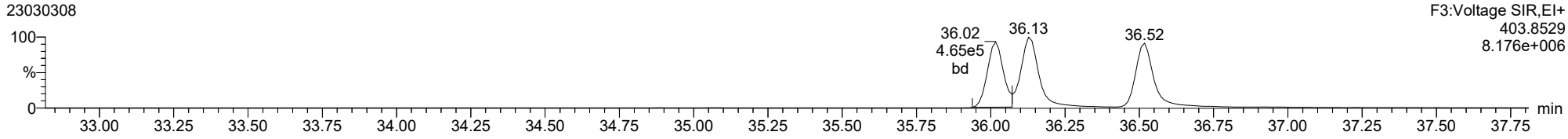
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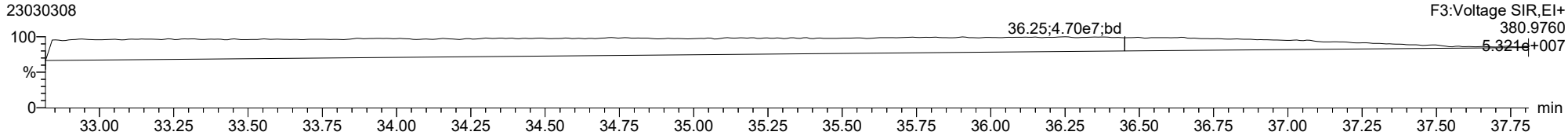
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13C-123478-HxCDD

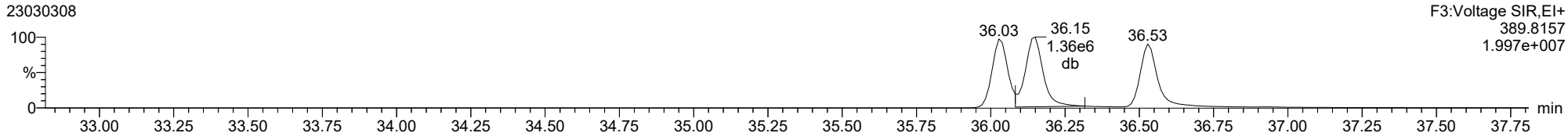


FUNCTION3 PFK

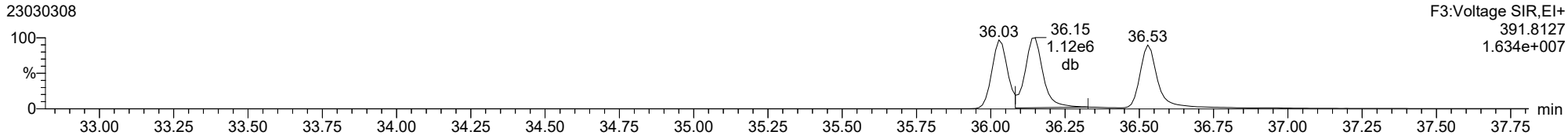


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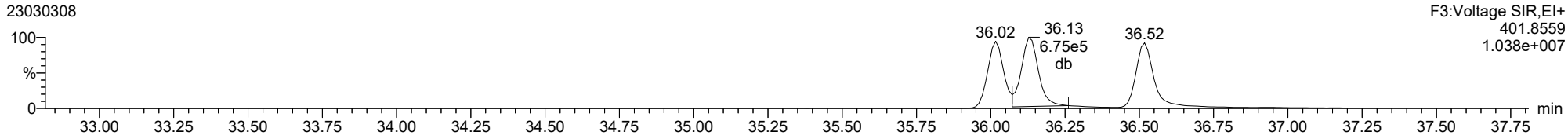
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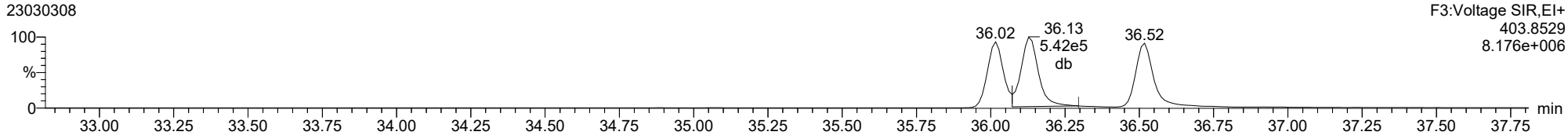
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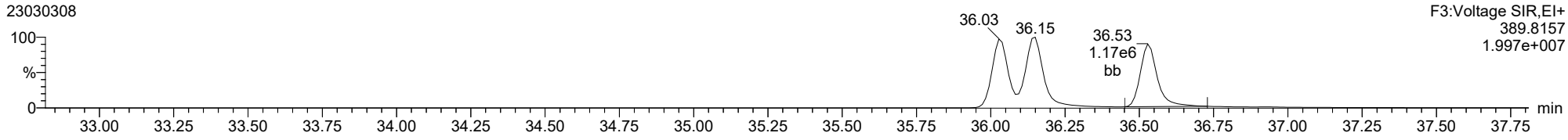


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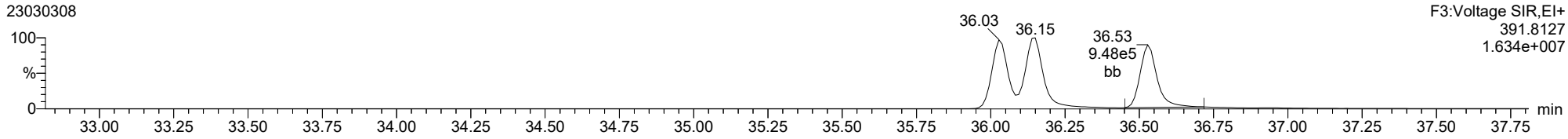


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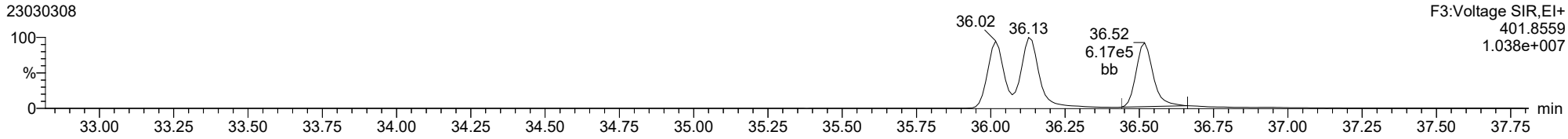
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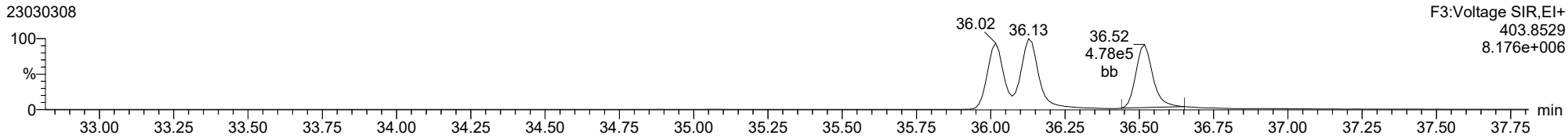
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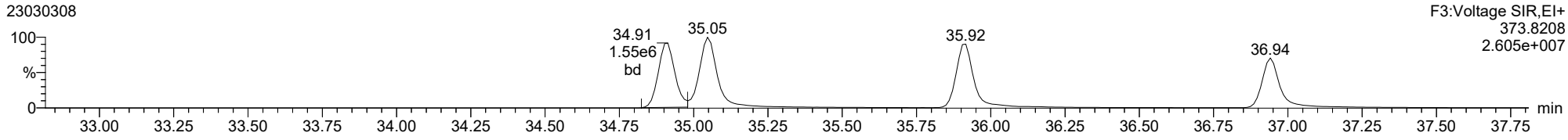


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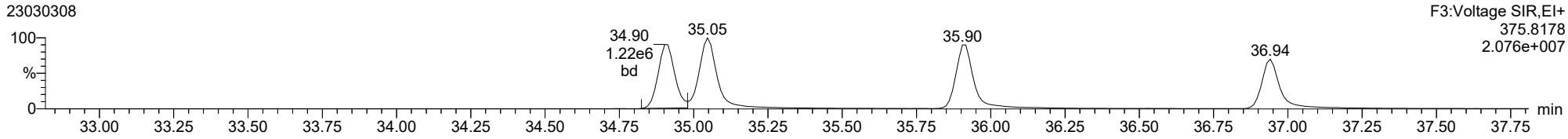


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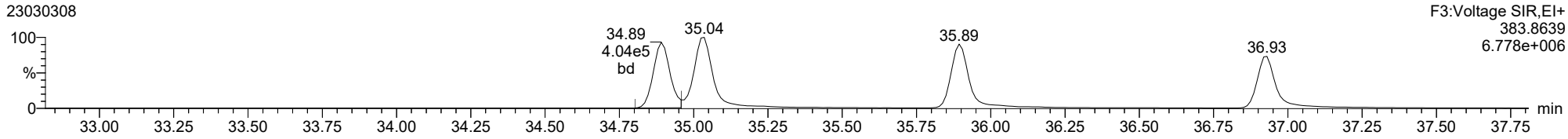
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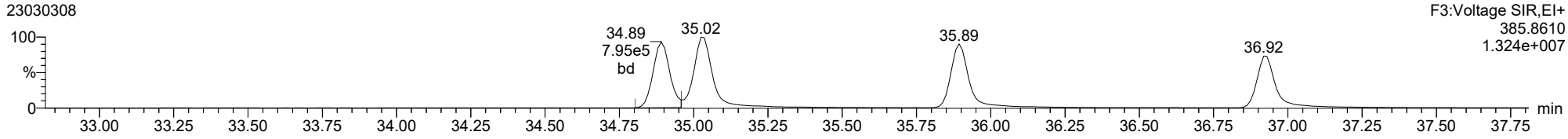
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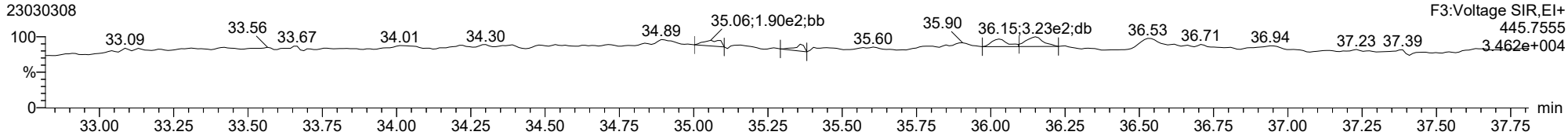
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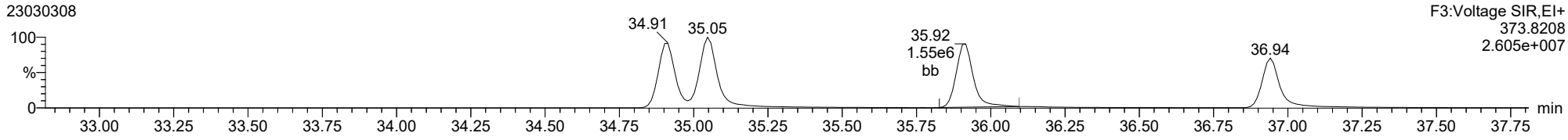


FUNCTION3 OCDPE

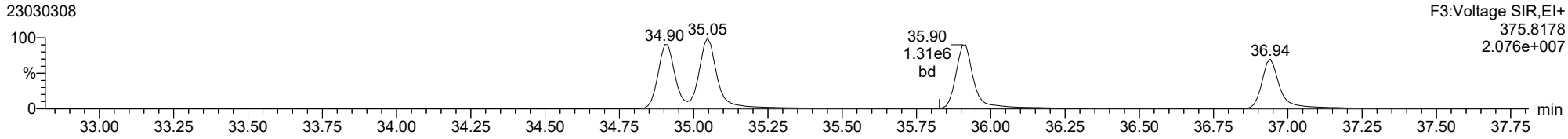


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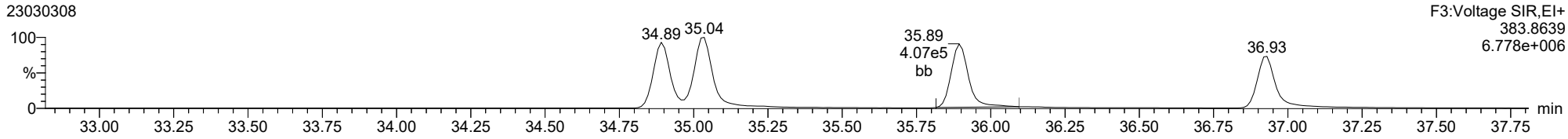
234678-HxCDF



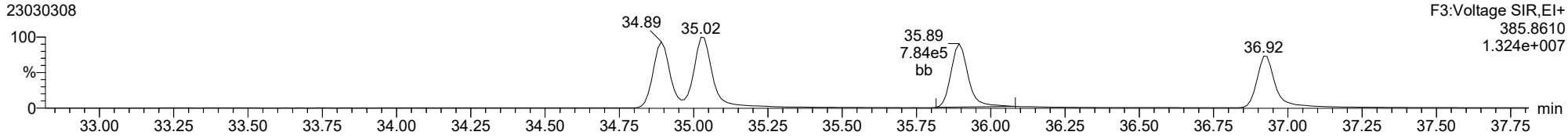
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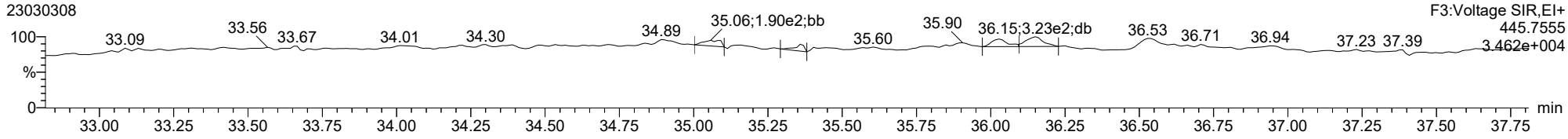
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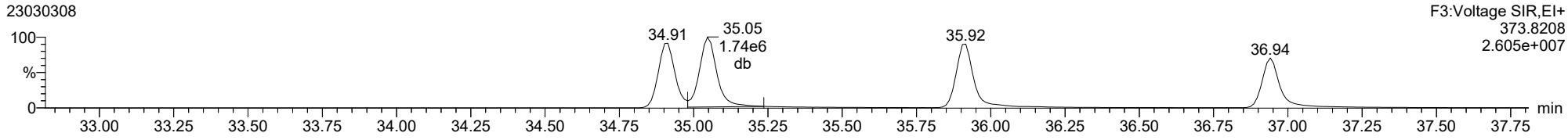


FUNCTION3 OCDPE

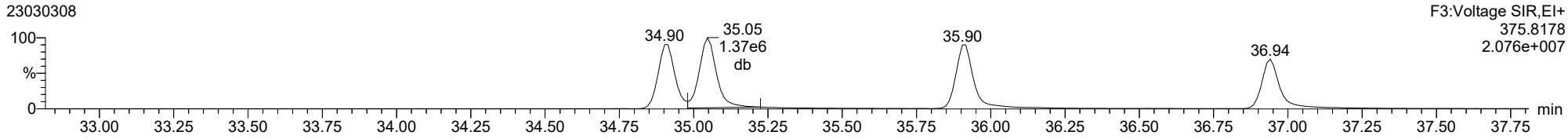


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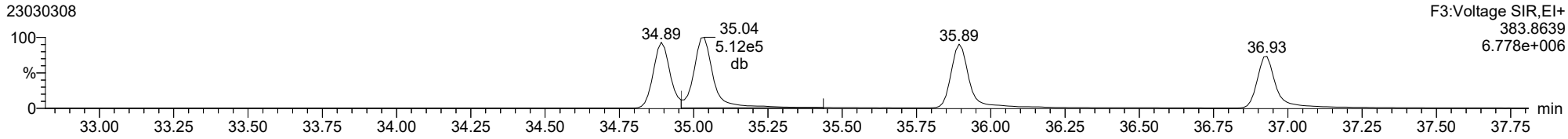
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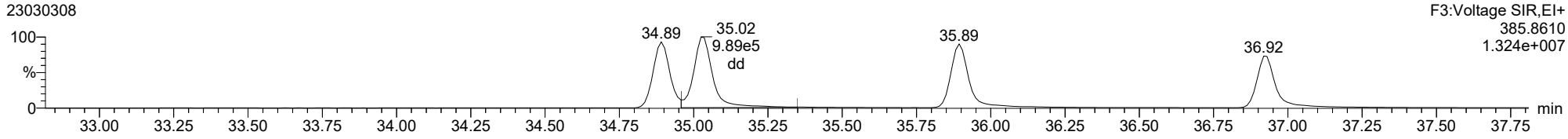
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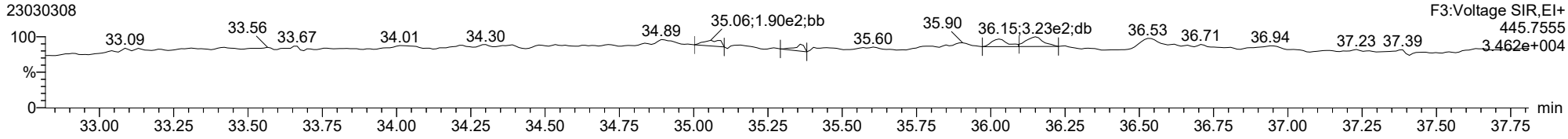
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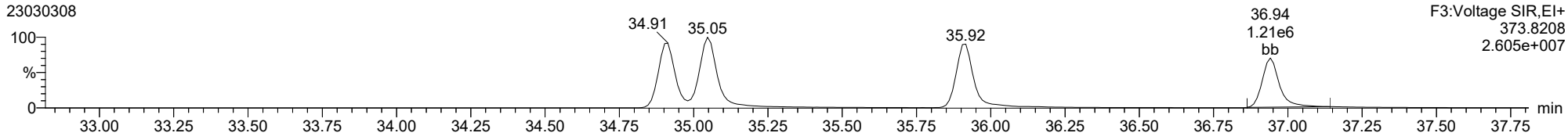


FUNCTION3 OCDPE

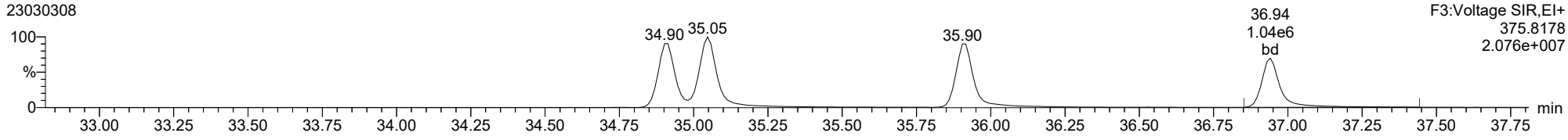


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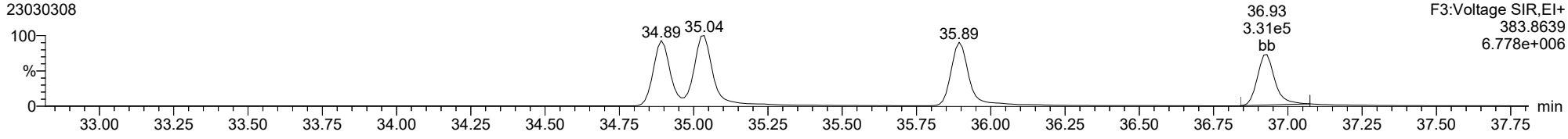
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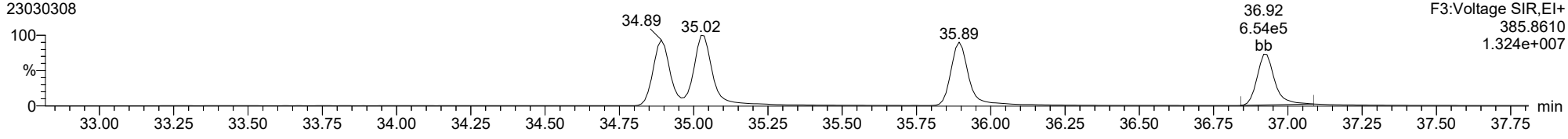
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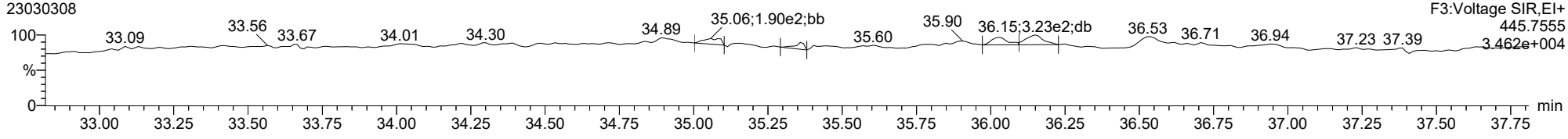
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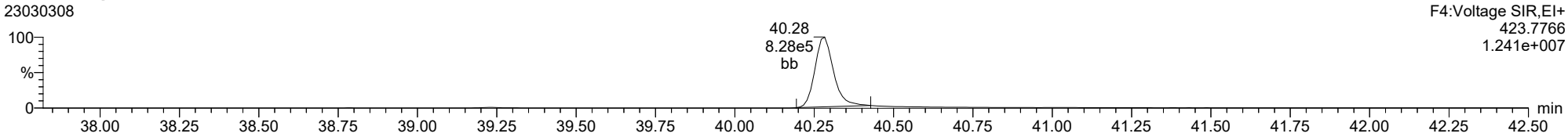


FUNCTION3 OCDPE

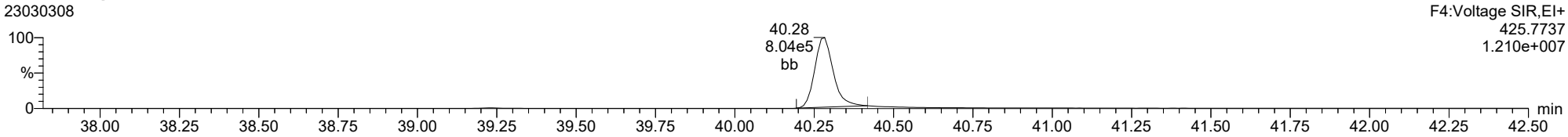


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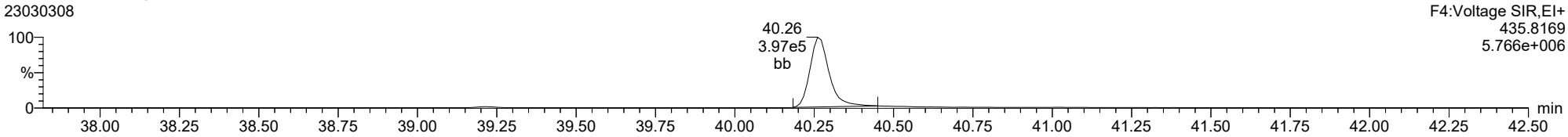
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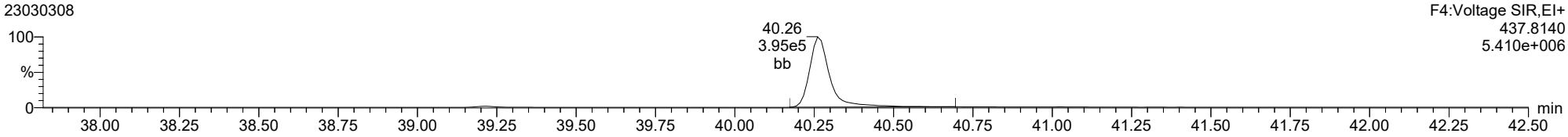
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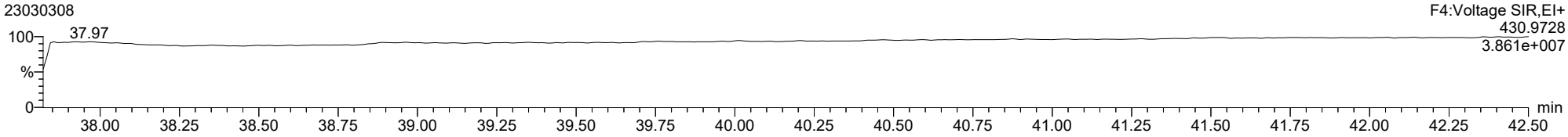
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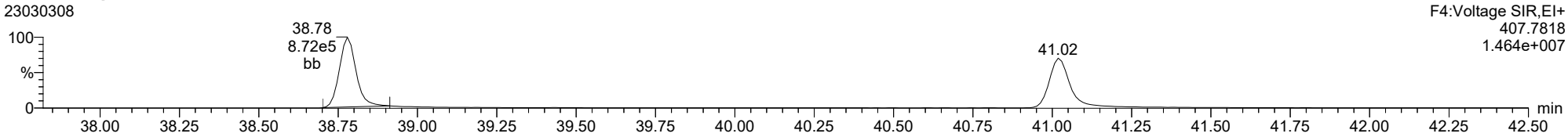


FUNCTION4 PFK

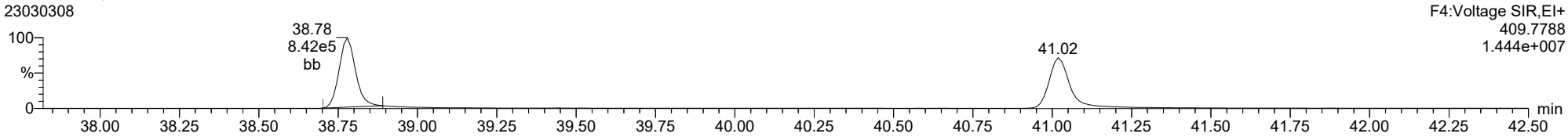


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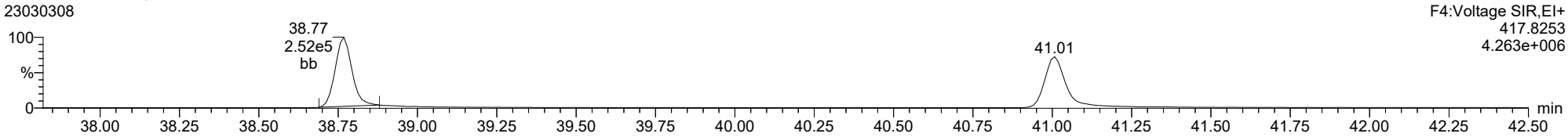
1234678-HpCDF



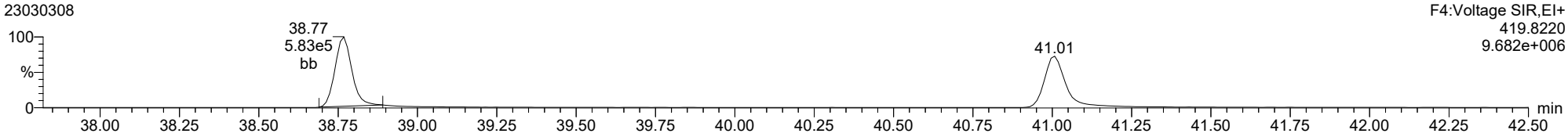
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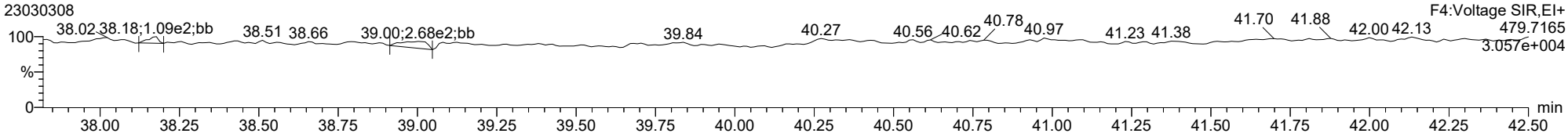
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13C-1234678-HpCDF

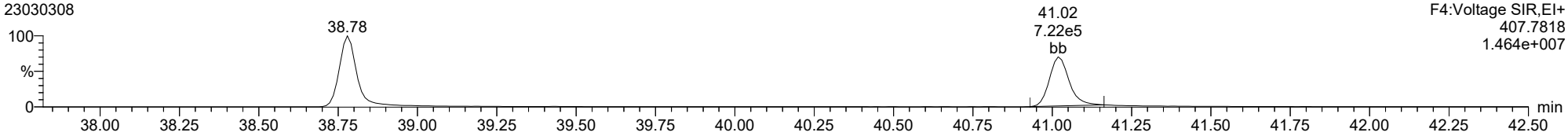


FUNCTION4 NCDPE

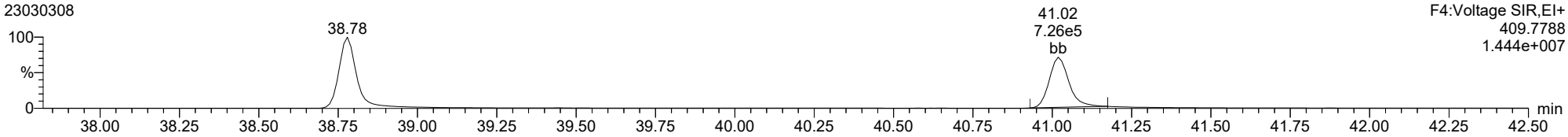


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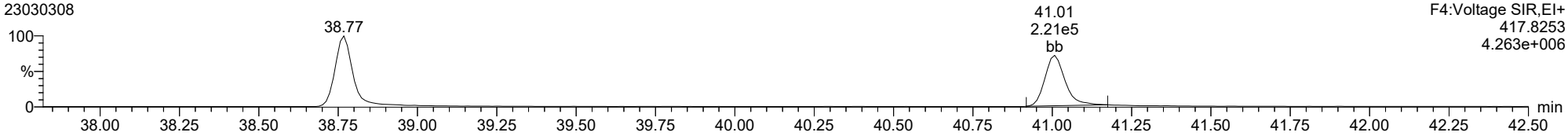
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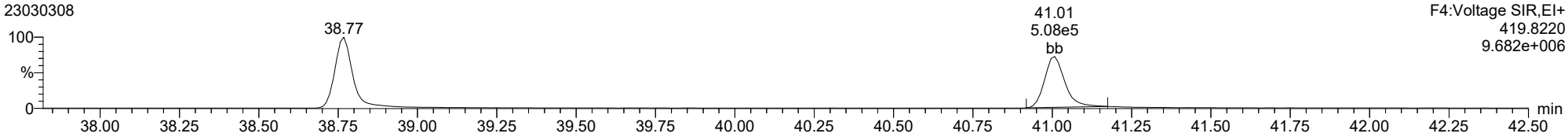
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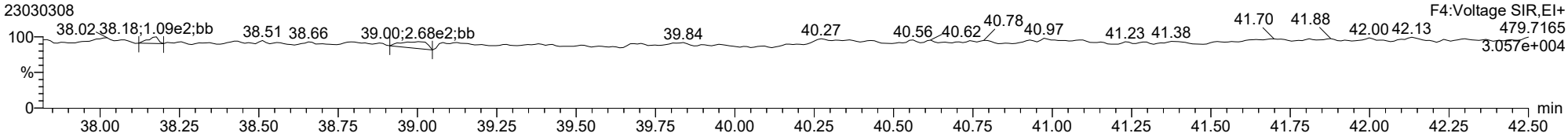
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13C-1234789-HpCDF

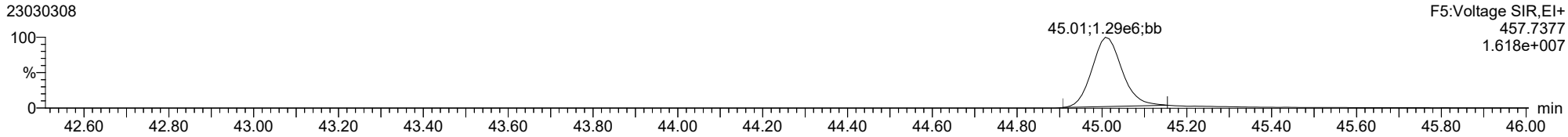


FUNCTION4 NCDPE

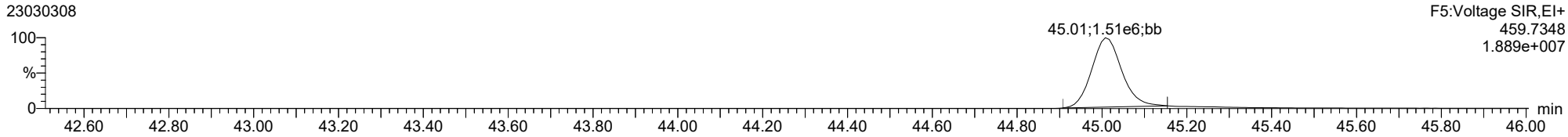


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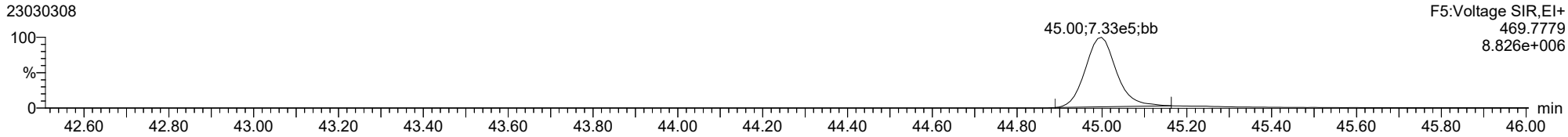
OCDD



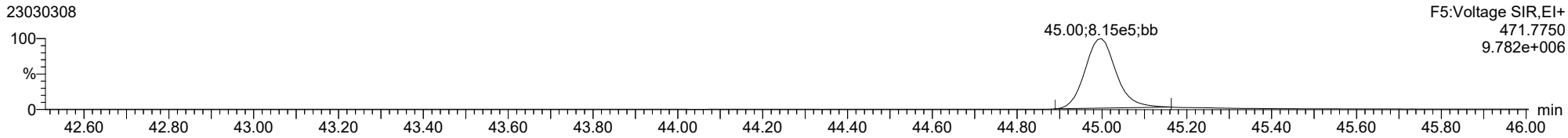
OCDD



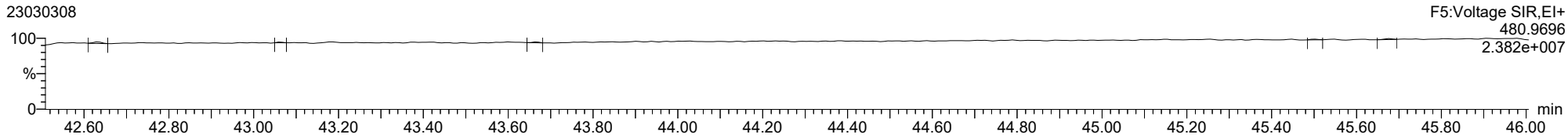
13C-OCDD



13C-OCDD



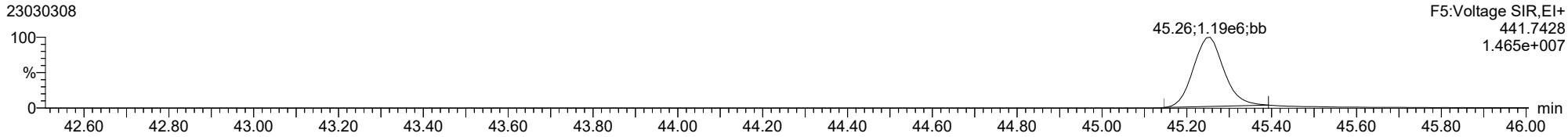
FUNCTION5 PFK



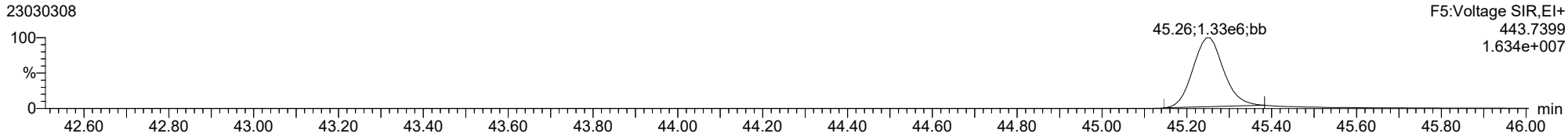
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Printed: Monday, March 06, 2023 11:34:51 Pacific Standard Time

ID: CS4CW, Name: 23030308, Date: 03-Mar-2023, Time: 14:59:53, Conditions: AUTOSPEC01, User: pk

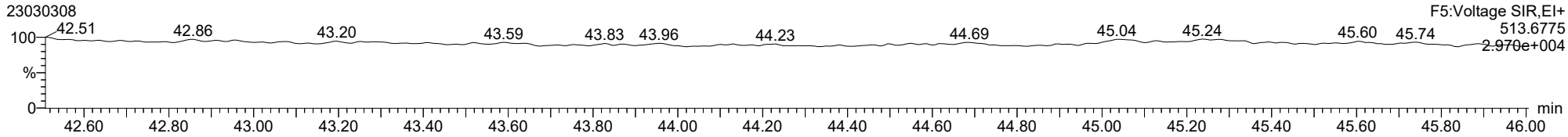
OCDF



OCDF

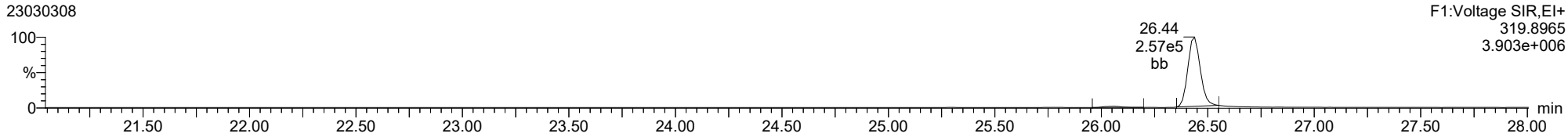


FUNCTION5 DCDPE

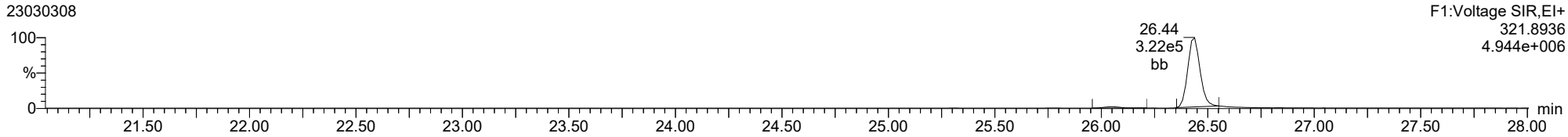


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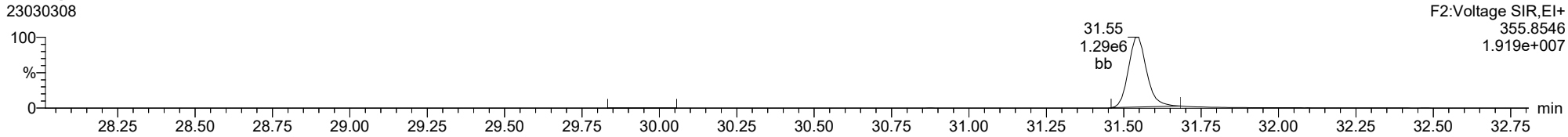
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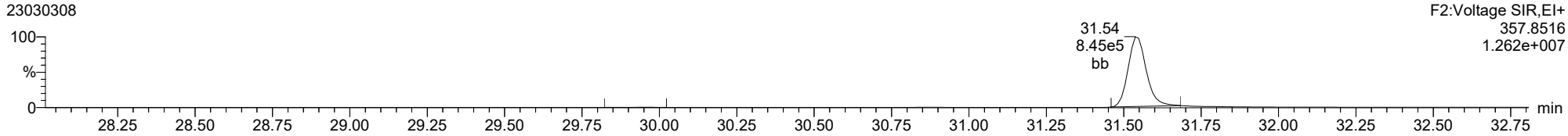
Total-tetradioxins



Total-pentadioxins

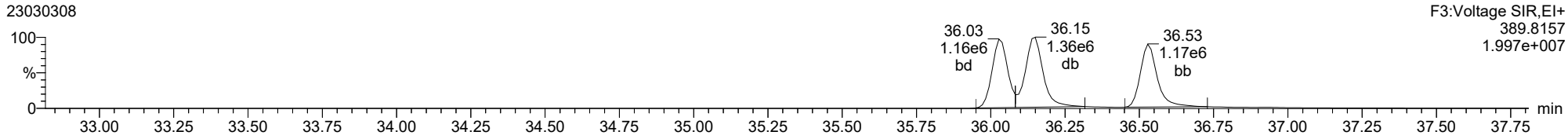


Total-pentadioxins

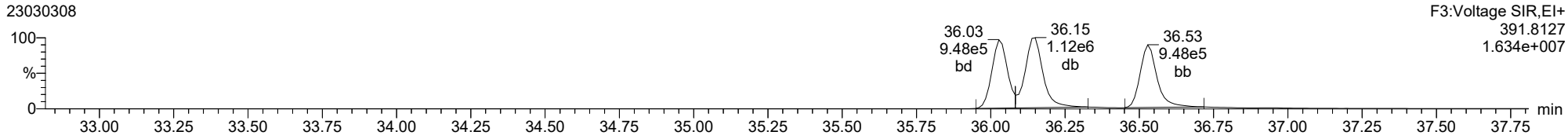


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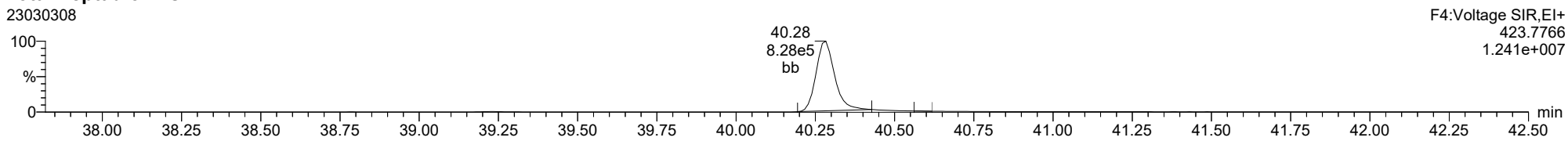
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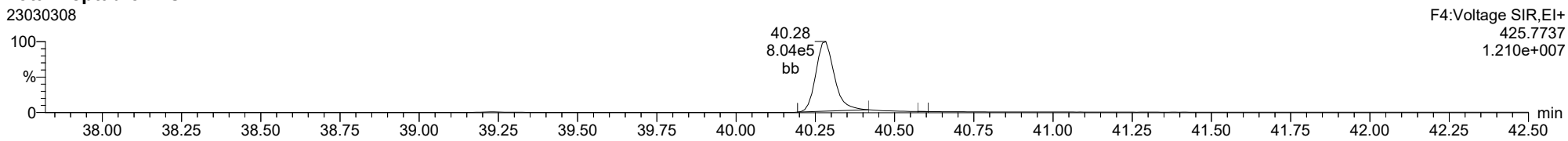
Total-hexadioxins



Total-heptadioxins

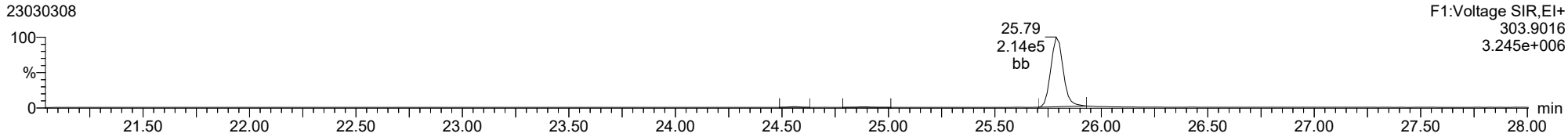


Total-heptadioxins

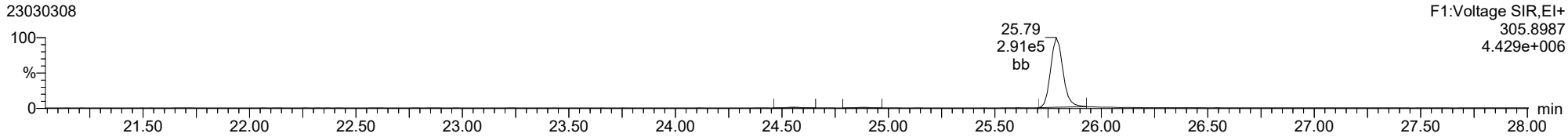


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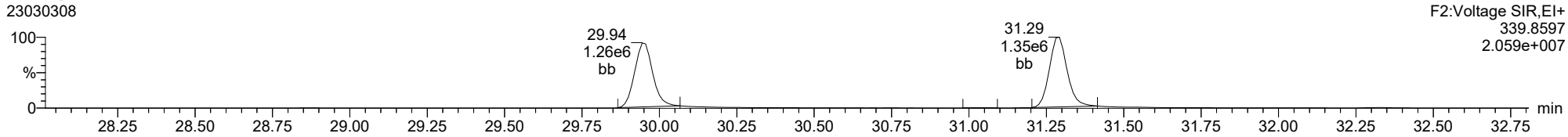
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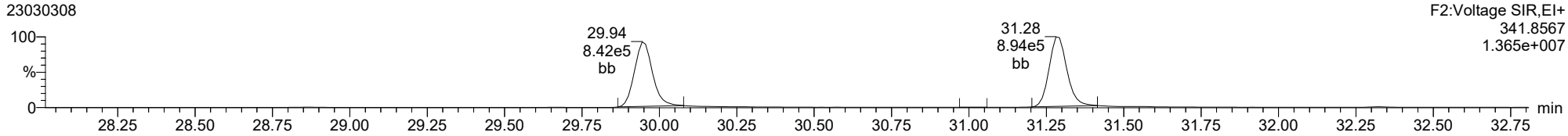
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Total-pentafurans

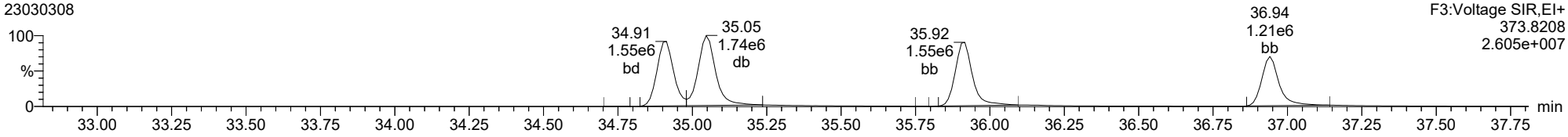


Total-pentafurans

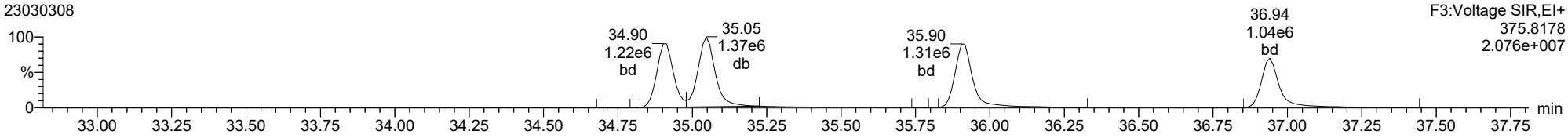


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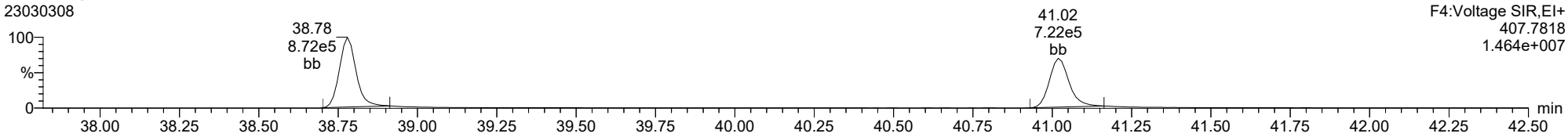
Total-hexafurans



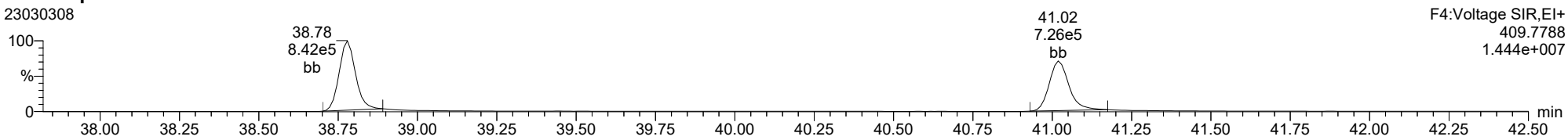
Total-hexafurans



Total-heptafurans



Total-heptafurans



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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.774	1.000	1.334e6	1.787e6	0.702	0.746	0.770	1816	2705	2.07e7	2.78e7	11389.3	10270.6	NO	bb	bb	200.466
12378-PeCDF	29.934	1.000	7.598e6	4.979e6	0.679	1.526	1.550	4787	5694	1.20e8	7.84e7	24983.0	13764.4	NO	bb	bb	1049.785
23478-PeCDF	31.271	1.000	8.034e6	5.310e6	0.786	1.513	1.550	4787	5694	1.23e8	8.18e7	25734.3	14361.4	NO	bb	bb	1006.165
123478-HxCDF	34.903	1.001	7.954e6	6.371e6	1.166	1.248	1.240	1657	3079	1.28e8	1.02e8	76946.6	33145.2	NO	bd	bd	988.542
234678-HxCDF	35.894	1.000	8.440e6	6.648e6	1.140	1.270	1.240	1657	3079	1.32e8	1.04e8	79492.3	33730.7	NO	bd	bd	997.904
123678-HxCDF	35.036	1.000	8.729e6	6.976e6	1.091	1.251	1.240	1657	3079	1.37e8	1.09e8	82564.4	35544.8	NO	db	db	1005.907
123789-HxCDF	36.930	1.000	7.107e6	5.643e6	1.137	1.259	1.240	1657	3079	1.15e8	9.05e7	69330.3	29396.1	NO	bb	bb	962.631
1234678-HpCDF	38.769	1.000	5.729e6	5.700e6	1.003	1.005	1.050	5984	6276	9.87e7	9.77e7	16498.3	15567.0	NO	bb	bb	1001.511
1234789-HpCDF	41.008	1.000	4.891e6	4.848e6	0.953	1.009	1.050	5984	6276	7.31e7	7.29e7	12213.8	11617.0	NO	bb	bb	1050.453
OCDF	45.246	1.006	8.007e6	9.001e6	0.778	0.890	0.890	617	1698	1.01e8	1.14e8	163878.0	67066.1	NO	bb	bb	2152.541
2378-TCDD	26.424	1.001	1.623e6	2.053e6	1.149	0.791	0.770	1583	1421	2.49e7	3.15e7	15719.4	22173.2	NO	bb	bb	201.416
12378-PeCDD	31.527	1.000	7.500e6	4.933e6	1.022	1.520	1.550	3207	3258	1.15e8	7.59e7	35906.6	23308.0	NO	bb	bb	987.154
123478-HxCDD	36.017	1.000	6.446e6	5.113e6	0.996	1.261	1.240	1269	1319	1.05e8	8.63e7	82869.7	65420.3	NO	bd	bd	1008.795
123678-HxCDD	36.139	1.001	6.944e6	5.798e6	1.001	1.198	1.240	1269	1319	1.11e8	8.98e7	87214.8	68064.1	NO	db	db	1011.135
123789-HxCDD	36.518	1.011	6.387e6	5.242e6	0.907	1.218	1.240	1269	1319	1.04e8	8.52e7	81996.1	64539.0	NO	bb	bb	1063.935
1234678-HpCDD	40.273	1.000	5.468e6	5.342e6	1.039	1.023	1.050	4639	3285	8.81e7	8.56e7	19002.3	26055.7	NO	bb	bb	1010.673
OCDD	45.008	1.000	8.523e6	9.997e6	0.920	0.853	0.890	1224	2738	1.09e8	1.28e8	89206.2	46574.8	NO	bb	bb	1981.710
13C-2378-TCDF	25.760	1.007	9.657e5	1.254e6	1.620	0.770	0.770	2759	1757	1.47e7	1.88e7	5325.4	10693.5	NO	bb	bb	104.465
13C-12378-PeCDF	29.923	1.169	1.058e6	7.059e5	1.240	1.499	1.550	2137	2181	1.59e7	1.06e7	7426.1	4845.6	NO	bb	bb	108.437
13C-23478-PeCDF	31.259	1.222	1.010e6	6.768e5	1.118	1.492	1.550	2137	2181	1.54e7	1.03e7	7192.1	4709.7	NO	bb	bb	115.091
13C-123478-HxCDF	34.880	0.955	4.197e5	8.230e5	1.168	0.510	0.510	2074	3087	6.86e6	1.33e7	3308.7	4323.9	NO	bd	bd	88.344
13C-123678-HxCDF	35.025	0.959	4.843e5	9.471e5	1.386	0.511	0.510	2074	3087	7.37e6	1.42e7	3551.0	4614.4	NO	db	db	85.742
13C-234678-HxCDF	35.883	0.983	4.483e5	8.783e5	1.129	0.510	0.510	2074	3087	6.95e6	1.37e7	3352.7	4438.0	NO	bd	bd	97.566
13C-123789-HxCDF	36.919	1.011	3.958e5	7.690e5	0.932	0.515	0.510	2074	3087	6.35e6	1.23e7	3061.9	3979.7	NO	bb	bb	103.822
13C-1234678-HpCDF	38.757	1.062	3.445e5	7.933e5	0.895	0.434	0.440	2404	3556	5.77e6	1.33e7	2401.1	3732.0	NO	bb	bb	105.552
13C-1234789-HpCDF	40.997	1.123	2.963e5	6.765e5	0.770	0.438	0.440	2404	3556	4.35e6	9.96e6	1811.4	2800.3	NO	bb	bb	104.955
13C-1234-TCDD	25.591	0.000	5.845e5	7.267e5	1.000	0.804	0.770	2994	1335	8.98e6	1.11e7	2999.9	8316.3	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	7.030e5	8.860e5	1.152	0.794	0.770	2994	1335	1.05e7	1.32e7	3492.1	9847.6	NO	bb	bb	105.160
13C-12378-PeCDD	31.515	1.232	7.626e5	4.699e5	0.829	1.623	1.550	1207	1205	1.17e7	7.16e6	9657.3	5939.7	NO	bb	bb	113.413
13C-123478-HxCDD	36.006	0.986	6.492e5	5.017e5	0.995	1.294	1.240	1422	1281	1.08e7	8.26e6	7562.7	6444.6	NO	bd	bd	96.063
13C-123678-HxCDD	36.117	0.989	7.072e5	5.517e5	1.157	1.282	1.240	1422	1281	1.11e7	8.74e6	7828.3	6824.3	NO	db	db	90.391
13C-1234678-HpCDD	40.262	1.103	5.341e5	4.953e5	0.840	1.078	1.050	2026	1583	8.10e6	7.45e6	3998.5	4702.7	NO	bb	bb	101.765
13C-OCDD	44.990	1.232	9.650e5	1.067e6	0.767	0.905	0.890	1467	1005	1.21e7	1.35e7	8264.7	13401.8	NO	bb	bb	219.862
13C-123789-HxCDD	36.507	0.000	6.722e5	5.319e5	1.000	1.264	1.240	1422	1281	1.10e7	8.62e6	7719.2	6727.3	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	3.368e6		1.288			2667		5.07e7		19022.1			bb		199.444

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 11:35:04 Pacific Standard Time

ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF					0.802		0.770	1816	2705								
1289-TCDF					0.678		0.770	1816	2705								
13468-PECDF					1.246		1.550	665	1133								
12389-PECDF					0.496		1.550	4787	5694								
123468-HXCDF					1.169		1.240	1657	3079								
1368-TCDD					1.015		0.770	1583	1421								
1289-TCDD					0.909		0.770	1583	1421								
12479-PECDD					2.301		1.550	3207	3258								
12389-PECDD					1.184		1.550	3207	3258								
124679-HXCDD					1.115		1.240	1269	1319								
1234679-HPCDD					1.137		1.050	4639	3285								
Total-tetrafurans			1.355e6		0.727			1816		2.10e7							203.619
Total-penta1			0.000e0					665		0.00e0							
Total-pentafurans			1.567e7		0.654			4787		2.43e8							2061.969
Total-hexafurans			3.237e7		1.141			1657		5.13e8							3971.633
Total-heptafurans			1.063e7		0.978			5984		1.72e8							2053.620
Total-Furans			6.803e7		0.922			1816		1.05e9							10443.382
Total-tetradioxins			1.660e6		1.024			1583		2.53e7							206.551
Total-pentadioxins			7.518e6		1.502			3207		1.15e8							988.757
Total-hexadioxins			1.981e7		1.005			1269		3.20e8							3089.249
Total-heptadioxins			5.468e6		1.088			4639		8.81e7							1010.701
Total-Dioxins			4.298e7		1.130			1583		6.58e8							7276.969
Total-TEQ			1.110e8					1583		1.71e9							17720.350
FUNCTION1 PFK			8.364e4					590794		3.29e6							
FUNCTION2 PFK			1.452e7					287139		1.24e7							0.000
FUNCTION3 PFK			2.904e5					447834		7.86e6							0.000
FUNCTION4 PFK			1.983e5					258971		5.49e6							
FUNCTION5 PFK			1.360e5					213310		3.56e6							
FUNCTION1 HXCD...			9.848e2					660		1.37e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			9.974e3					875		1.52e5							0.000
FUNCTION3 OCDPE			5.118e3					487		5.72e4							0.000
FUNCTION4 NCDPE			1.842e3					616		1.81e4							0.000
FUNCTION5 DCDPE			3.423e3					534		2.47e4							0.000

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.77	1.334e6	1.787e6	0.702	0.75	0.77	11389.3	YES	NO	bb	bb	200.466
2	Total-tetrafurans	24.87	8.544e3	1.186e4	0.727	0.72	0.77	70.8	YES	NO	bb	bb	1.264
3	Total-tetrafurans	24.67	1.054e3	1.493e3	0.727	0.71	0.77	9.1	YES	NO	db	db	0.158
4	Total-tetrafurans	24.55	1.152e4	1.641e4	0.727	0.70	0.77	91.4	YES	NO	bd	bd	1.731

PP

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

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.27	8.034e6	5.310e6	0.786	1.51	1.55	25734.3	YES	NO	bb	bb	1006.1...
2	Total-pentafurans	31.00	7.155e3	5.348e3	0.654	1.34	1.55	24.5	YES	NO	bb	bb	1.108
3	Total-pentafurans	30.22	6.707e3	3.991e3	0.654	1.68	1.55	18.6	YES	NO	bb	bb	0.948
4	12378-PeCDF	29.93	7.598e6	4.979e6	0.679	1.53	1.55	24983.0	YES	NO	bb	bb	1049.7...
5	Total-pentafurans	29.57	3.743e3	2.429e3	0.654	1.54	1.55	12.5	YES	NO	bd	bd	0.547
6	Total-pentafurans	28.85	2.348e4	1.505e4	0.654	1.56	1.55	59.4	YES	NO	bb	bb	3.415

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.04	8.729e6	6.976e6	1.091	1.25	1.24	82564.4	YES	NO	db	db	1005.9...
2	123478-HxCDF	34.90	7.954e6	6.371e6	1.166	1.25	1.24	76946.6	YES	NO	bd	bd	988.542
3	Total-hexafurans	34.75	7.748e3	5.706e3	1.141	1.36	1.24	87.3	YES	NO	bb	bb	0.913
4	Total-hexafurans	33.44	5.026e3	3.534e3	1.141	1.42	1.24	38.8	YES	NO	db	bb	0.581
5	123789-HxCDF	36.93	7.107e6	5.643e6	1.137	1.26	1.24	69330.3	YES	NO	bb	bb	962.631
6	Total-hexafurans	36.53	1.628e4	1.267e4	1.141	1.29	1.24	124.4	YES	NO	dd	bd	1.966
7	Total-hexafurans	36.13	1.100e5	8.424e4	1.141	1.31	1.24	706.6	YES	NO	dd	dd	13.189
8	234678-HxCDF	35.89	8.440e6	6.648e6	1.140	1.27	1.24	79492.3	YES	NO	bd	bd	997.904

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HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.01	4.891e6	4.848e6	0.953	1.01	1.05	12213.8	YES	NO	bb	bb	1050.4...
2	Total-heptafurans	39.43	9.256e3	7.833e3	0.978	1.18	1.05	24.5	YES	NO	bb	bb	1.656
3	1234678-HpCDF	38.77	5.729e6	5.700e6	1.003	1.01	1.05	16498.3	YES	NO	bb	bb	1001.5...

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.77	1.334e6	1.787e6	0.702	0.75	0.77	11389.3	YES	NO	bb	bb	200.466
2	Total-tetrafurans	24.87	8.544e3	1.186e4	0.727	0.72	0.77	70.8	YES	NO	bb	bb	1.264
3	Total-tetrafurans	24.67	1.054e3	1.493e3	0.727	0.71	0.77	9.1	YES	NO	db	db	0.158
4	Total-tetrafurans	24.55	1.152e4	1.641e4	0.727	0.70	0.77	91.4	YES	NO	bd	bd	1.731
5	23478-PeCDF	31.27	8.034e6	5.310e6	0.786	1.51	1.55	25734.3	YES	NO	bb	bb	1006.1...
6	Total-pentafurans	31.00	7.155e3	5.348e3	0.654	1.34	1.55	24.5	YES	NO	bb	bb	1.108
7	Total-pentafurans	30.22	6.707e3	3.991e3	0.654	1.68	1.55	18.6	YES	NO	bb	bb	0.948
8	12378-PeCDF	29.93	7.598e6	4.979e6	0.679	1.53	1.55	24983.0	YES	NO	bb	bb	1049.7...
9	Total-pentafurans	29.57	3.743e3	2.429e3	0.654	1.54	1.55	12.5	YES	NO	bd	bd	0.547
10	Total-pentafurans	28.85	2.348e4	1.505e4	0.654	1.56	1.55	59.4	YES	NO	bb	bb	3.415
11	123678-HxCDF	35.04	8.729e6	6.976e6	1.091	1.25	1.24	82564.4	YES	NO	db	db	1005.9...
12	123478-HxCDF	34.90	7.954e6	6.371e6	1.166	1.25	1.24	76946.6	YES	NO	bd	bd	988.542
13	Total-hexafurans	34.75	7.748e3	5.706e3	1.141	1.36	1.24	87.3	YES	NO	bb	bb	0.913
14	Total-hexafurans	33.44	5.026e3	3.534e3	1.141	1.42	1.24	38.8	YES	NO	db	bb	0.581
15	123789-HxCDF	36.93	7.107e6	5.643e6	1.137	1.26	1.24	69330.3	YES	NO	bb	bb	962.631
16	Total-hexafurans	36.53	1.628e4	1.267e4	1.141	1.29	1.24	124.4	YES	NO	dd	bd	1.966
17	Total-hexafurans	36.13	1.100e5	8.424e4	1.141	1.31	1.24	706.6	YES	NO	dd	dd	13.189
18	234678-HxCDF	35.89	8.440e6	6.648e6	1.140	1.27	1.24	79492.3	YES	NO	bd	bd	997.904
19	1234789-HpCDF	41.01	4.891e6	4.848e6	0.953	1.01	1.05	12213.8	YES	NO	bb	bb	1050.4...
20	Total-heptafurans	39.43	9.256e3	7.833e3	0.978	1.18	1.05	24.5	YES	NO	bb	bb	1.656
21	1234678-HpCDF	38.77	5.729e6	5.700e6	1.003	1.01	1.05	16498.3	YES	NO	bb	bb	1001.5...
22	OCDF	45.25	8.007e6	9.001e6	0.778	0.89	0.89	16387...	YES	NO	bb	bb	2152.5...

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	1.623e6	2.053e6	1.149	0.79	0.77	15719.4	YES	NO	bb	bb	201.416
2	Total-tetradioxins	26.03	3.492e4	4.469e4	1.024	0.78	0.77	261.5	YES	NO	bb	bb	4.891
3	Total-tetradioxins	25.59	3.088e2	4.283e2	1.024	0.72	0.77	3.2	YES	NO	bb	bb	0.045
4	Total-tetradioxins	25.29	1.293e3	1.946e3	1.024	0.66	0.77	15.2	YES	NO	bb	bb	0.199

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-pentadioxins	30.29	1.049e3	6.224e2	1.502	1.68	1.55	4.4	YES	NO	dd	db	0.090
2	Total-pentadioxins	30.15	1.847e3	1.302e3	1.502	1.42	1.55	8.1	YES	NO	dd	dd	0.170
3	Total-pentadioxins	29.93	6.137e3	4.352e3	1.502	1.41	1.55	24.1	YES	NO	bd	bd	0.567
4	12378-PeCDD	31.53	7.500e6	4.933e6	1.022	1.52	1.55	35906.6	YES	NO	bb	bb	987.154
5	Total-pentadioxins	30.86	8.777e3	5.596e3	1.502	1.57	1.55	39.8	YES	NO	bd	bb	0.776

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-hexadioxins	36.92	3.612e4	2.906e4	1.005	1.24	1.24	377.1	YES	NO	bb	bb	5.383
2	123789-HxCDD	36.52	6.387e6	5.242e6	0.907	1.22	1.24	81996.1	YES	NO	bb	bb	1063.9...
3	123678-HxCDD	36.14	6.944e6	5.798e6	1.001	1.20	1.24	87214.8	YES	NO	db	db	1011.1...
4	123478-HxCDD	36.02	6.446e6	5.113e6	0.996	1.26	1.24	82869.7	YES	NO	bd	bd	1008.7...

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptadioxins	40.66	1.670e2	1.486e2	1.088	1.12	1.05	0.0	NO	NO	bb	bb	0.028
2	1234678-HpCDD	40.27	5.468e6	5.342e6	1.039	1.02	1.05	19002.3	YES	NO	bb	bb	1010.6...

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.42	1.623e6	2.053e6	1.149	0.79	0.77	15719.4	YES	NO	bb	bb	201.416
2	Total-tetradioxins	26.03	3.492e4	4.469e4	1.024	0.78	0.77	261.5	YES	NO	bb	bb	4.891
3	Total-tetradioxins	25.59	3.088e2	4.283e2	1.024	0.72	0.77	3.2	YES	NO	bb	bb	0.045
4	Total-tetradioxins	25.29	1.293e3	1.946e3	1.024	0.66	0.77	15.2	YES	NO	bb	bb	0.199
5	Total-pentadioxins	30.29	1.049e3	6.224e2	1.502	1.68	1.55	4.4	YES	NO	dd	db	0.090
6	Total-pentadioxins	30.15	1.847e3	1.302e3	1.502	1.42	1.55	8.1	YES	NO	dd	dd	0.170
7	Total-pentadioxins	29.93	6.137e3	4.352e3	1.502	1.41	1.55	24.1	YES	NO	bd	bd	0.567
8	12378-PeCDD	31.53	7.500e6	4.933e6	1.022	1.52	1.55	35906.6	YES	NO	bb	bb	987.154
9	Total-pentadioxins	30.86	8.777e3	5.596e3	1.502	1.57	1.55	39.8	YES	NO	bd	bb	0.776
10	Total-hexadioxins	36.92	3.612e4	2.906e4	1.005	1.24	1.24	377.1	YES	NO	bb	bb	5.383
11	123789-HxCDD	36.52	6.387e6	5.242e6	0.907	1.22	1.24	81996.1	YES	NO	bb	bb	1063.9...
12	123678-HxCDD	36.14	6.944e6	5.798e6	1.001	1.20	1.24	87214.8	YES	NO	db	db	1011.1...
13	123478-HxCDD	36.02	6.446e6	5.113e6	0.996	1.26	1.24	82869.7	YES	NO	bd	bd	1008.7...
14	Total-heptadioxins	40.66	1.670e2	1.486e2	1.088	1.12	1.05	0.0	NO	NO	bb	bb	0.028
15	1234678-HpCDD	40.27	5.468e6	5.342e6	1.039	1.02	1.05	19002.3	YES	NO	bb	bb	1010.6...
16	OCDD	45.01	8.523e6	9.997e6	0.920	0.85	0.89	89206.2	YES	NO	bb	bb	1981.7...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDF	25.77	1.334e6	1.787e6	0.702	0.75	0.77	11389.3	YES	NO	bb	bb	200.466
2	Total-tetrafurans	24.87	8.544e3	1.186e4	0.727	0.72	0.77	70.8	YES	NO	bb	bb	1.264
3	Total-tetrafurans	24.67	1.054e3	1.493e3	0.727	0.71	0.77	9.1	YES	NO	db	db	0.158
4	Total-tetrafurans	24.55	1.152e4	1.641e4	0.727	0.70	0.77	91.4	YES	NO	bd	bd	1.731
5	23478-PeCDF	31.27	8.034e6	5.310e6	0.786	1.51	1.55	25734.3	YES	NO	bb	bb	1006.1...
6	Total-pentafurans	31.00	7.155e3	5.348e3	0.654	1.34	1.55	24.5	YES	NO	bb	bb	1.108
7	Total-pentafurans	30.22	6.707e3	3.991e3	0.654	1.68	1.55	18.6	YES	NO	bb	bb	0.948
8	12378-PeCDF	29.93	7.598e6	4.979e6	0.679	1.53	1.55	24983.0	YES	NO	bb	bb	1049.7...
9	Total-pentafurans	29.57	3.743e3	2.429e3	0.654	1.54	1.55	12.5	YES	NO	bd	bd	0.547
10	Total-pentafurans	28.85	2.348e4	1.505e4	0.654	1.56	1.55	59.4	YES	NO	bb	bb	3.415
11	123678-HxCDF	35.04	8.729e6	6.976e6	1.091	1.25	1.24	82564.4	YES	NO	db	db	1005.9...
12	123478-HxCDF	34.90	7.954e6	6.371e6	1.166	1.25	1.24	76946.6	YES	NO	bd	bd	988.542
13	Total-hexafurans	34.75	7.748e3	5.706e3	1.141	1.36	1.24	87.3	YES	NO	bb	bb	0.913
14	Total-hexafurans	33.44	5.026e3	3.534e3	1.141	1.42	1.24	38.8	YES	NO	db	bb	0.581
15	123789-HxCDF	36.93	7.107e6	5.643e6	1.137	1.26	1.24	69330.3	YES	NO	bb	bb	962.631
16	Total-hexafurans	36.53	1.628e4	1.267e4	1.141	1.29	1.24	124.4	YES	NO	dd	bd	1.966
17	Total-hexafurans	36.13	1.100e5	8.424e4	1.141	1.31	1.24	706.6	YES	NO	dd	dd	13.189
18	234678-HxCDF	35.89	8.440e6	6.648e6	1.140	1.27	1.24	79492.3	YES	NO	bd	bd	997.904
19	1234789-HpCDF	41.01	4.891e6	4.848e6	0.953	1.01	1.05	12213.8	YES	NO	bb	bb	1050.4...
20	Total-heptafurans	39.43	9.256e3	7.833e3	0.978	1.18	1.05	24.5	YES	NO	bb	bb	1.656
21	1234678-HpCDF	38.77	5.729e6	5.700e6	1.003	1.01	1.05	16498.3	YES	NO	bb	bb	1001.5...
22	OCDF	45.25	8.007e6	9.001e6	0.778	0.89	0.89	16387...	YES	NO	bb	bb	2152.5...
23	2378-TCDD	26.42	1.623e6	2.053e6	1.149	0.79	0.77	15719.4	YES	NO	bb	bb	201.416
24	Total-tetradioxins	26.03	3.492e4	4.469e4	1.024	0.78	0.77	261.5	YES	NO	bb	bb	4.891
25	Total-tetradioxins	25.59	3.088e2	4.283e2	1.024	0.72	0.77	3.2	YES	NO	bb	bb	0.045
26	Total-tetradioxins	25.29	1.293e3	1.946e3	1.024	0.66	0.77	15.2	YES	NO	bb	bb	0.199
27	Total-pentadioxins	30.29	1.049e3	6.224e2	1.502	1.68	1.55	4.4	YES	NO	dd	db	0.090
28	Total-pentadioxins	30.15	1.847e3	1.302e3	1.502	1.42	1.55	8.1	YES	NO	dd	dd	0.170
29	Total-pentadioxins	29.93	6.137e3	4.352e3	1.502	1.41	1.55	24.1	YES	NO	bd	bd	0.567
30	12378-PeCDD	31.53	7.500e6	4.933e6	1.022	1.52	1.55	35906.6	YES	NO	bb	bb	987.154
31	Total-pentadioxins	30.86	8.777e3	5.596e3	1.502	1.57	1.55	39.8	YES	NO	bd	bb	0.776
32	Total-hexadioxins	36.92	3.612e4	2.906e4	1.005	1.24	1.24	377.1	YES	NO	bb	bb	5.383
33	123789-HxCDD	36.52	6.387e6	5.242e6	0.907	1.22	1.24	81996.1	YES	NO	bb	bb	1063.9...
34	123678-HxCDD	36.14	6.944e6	5.798e6	1.001	1.20	1.24	87214.8	YES	NO	db	db	1011.1...
35	123478-HxCDD	36.02	6.446e6	5.113e6	0.996	1.26	1.24	82869.7	YES	NO	bd	bd	1008.7...
36	Total-heptadioxins	40.66	1.670e2	1.486e2	1.088	1.12	1.05	0.0	NO	NO	bb	bb	0.028
37	1234678-HpCDD	40.27	5.468e6	5.342e6	1.039	1.02	1.05	19002.3	YES	NO	bb	bb	1010.6...

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	OCDD	45.01	8.523e6	9.997e6	0.920	0.85	0.89	89206.2	YES	NO	bb	bb	1981.7...

PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.64	6.068e3					0.7	NO		bb		
2	FUNCTION1 PFK	21.78	2.376e4					1.4	NO		bb		
3	FUNCTION1 PFK	26.65	6.322e3					0.8	NO		bb		
4	FUNCTION1 PFK	26.20	6.018e3					0.7	NO		bb		
5	FUNCTION1 PFK	24.62	4.147e4					1.9	NO		bb		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.96	1.329e6					11.3	YES		db		0.000
2	FUNCTION2 PFK	29.68	9.729e6					13.1	YES		dd		0.000
3	FUNCTION2 PFK	29.12	3.197e6					12.0	YES		dd		0.000
4	FUNCTION2 PFK	28.11	2.639e5					6.8	YES		bd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	35.58	5.268e3					0.6	NO		bb		0.000
2	FUNCTION3 PFK	35.20	2.459e4					1.4	NO		bb		0.000
3	FUNCTION3 PFK	34.94	1.904e4					1.3	NO		bb		0.000
4	FUNCTION3 PFK	34.64	1.893e4					1.6	NO		bb		0.000
5	FUNCTION3 PFK	34.45	3.091e4					1.7	NO		bb		0.000
6	FUNCTION3 PFK	34.20	2.876e3					0.6	NO		bb		0.000
7	FUNCTION3 PFK	34.01	8.291e4					2.8	NO		bb		0.000
8	FUNCTION3 PFK	37.45	2.878e4					1.5	NO		bb		0.000
9	FUNCTION3 PFK	37.14	1.025e4					1.2	NO		bb		0.000
10	FUNCTION3 PFK	36.92	2.201e4					1.4	NO		bb		0.000
11	FUNCTION3 PFK	36.82	6.882e3					0.7	NO		bb		0.000
12	FUNCTION3 PFK	36.27	2.697e4					1.6	NO		bb		0.000
13	FUNCTION3 PFK	35.83	1.096e4					1.2	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.36	1.487e4					2.2	NO		db		
2	FUNCTION4 PFK	40.28	5.399e4					2.8	NO		bd		
3	FUNCTION4 PFK	39.84	7.632e3					1.3	NO		bb		
4	FUNCTION4 PFK	39.63	5.817e3					1.3	NO		bb		
5	FUNCTION4 PFK	39.58	2.233e4					2.4	NO		bb		
6	FUNCTION4 PFK	39.26	1.840e3					0.6	NO		bb		
7	FUNCTION4 PFK	39.15	1.821e4					2.0	NO		bb		
8	FUNCTION4 PFK	38.75	4.539e3					0.9	NO		bb		
9	FUNCTION4 PFK	38.40	3.735e3					0.9	NO		bb		
10	FUNCTION4 PFK	42.22	2.101e4					1.9	NO		bb		
11	FUNCTION4 PFK	41.91	9.871e3					1.2	NO		bb		
12	FUNCTION4 PFK	41.56	2.609e4					2.3	NO		bb		
13	FUNCTION4 PFK	40.96	8.343e3					1.4	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.55	1.986e4					1.8	NO		bb		
2	FUNCTION5 PFK	44.84	1.038e4					2.0	NO		bb		
3	FUNCTION5 PFK	44.32	5.641e3					1.1	NO		bb		
4	FUNCTION5 PFK	44.16	5.508e3					1.3	NO		bb		
5	FUNCTION5 PFK	43.92	3.533e3					1.2	NO		bb		
6	FUNCTION5 PFK	43.74	1.099e4					1.6	NO		bb		
7	FUNCTION5 PFK	43.65	5.197e4					3.3	YES		db		
8	FUNCTION5 PFK	43.53	1.828e4					2.1	NO		bd		
9	FUNCTION5 PFK	42.94	8.618e3					1.5	NO		bb		
10	FUNCTION5 PFK	42.73	1.271e3					0.6	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.02	8.181e1					1.9	NO		bb		0.000
2	FUNCTION1 HXCD...	26.42	2.971e2					5.1	YES		bb		0.000
3	FUNCTION1 HXCD...	25.83	8.848e1					2.3	NO		db		0.000
4	FUNCTION1 HXCD...	25.77	1.170e2					2.5	NO		dd		0.000
5	FUNCTION1 HXCD...	25.59	1.285e2					2.6	NO		bd		0.000
6	FUNCTION1 HXCD...	24.84	1.183e2					1.2	NO		bb		0.000
7	FUNCTION1 HXCD...	24.11	7.501e1					1.5	NO		bb		0.000
8	FUNCTION1 HXCD...	22.26	7.865e1					3.6	YES		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.55	8.739e2					12.4	YES		bb		0.000
2	FUNCTION2 HPCD...	31.16	9.100e3					161.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.02	1.011e3					23.2	YES		dd		0.000
2	FUNCTION3 OCDPE	35.92	4.171e2					12.8	YES		bd		0.000
3	FUNCTION3 OCDPE	35.05	6.001e2					12.0	YES		db		0.000
4	FUNCTION3 OCDPE	34.90	4.386e2					11.4	YES		bd		0.000
5	FUNCTION3 OCDPE	36.94	5.713e2					12.4	YES		bb		0.000
6	FUNCTION3 OCDPE	36.52	9.647e2					21.7	YES		bb		0.000
7	FUNCTION3 OCDPE	36.14	1.116e3					24.0	YES		db		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.03	4.935e2					7.5	YES		bb		0.000
2	FUNCTION4 NCDPE	40.28	7.486e2					12.2	YES		bb		0.000
3	FUNCTION4 NCDPE	38.78	6.004e2					9.6	YES		bb		0.000

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ETHERS6

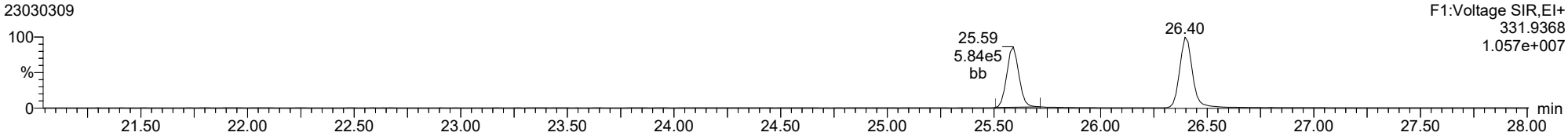
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1	FUNCTION5 DCDPE	45.26	1.761e3					22.2	YES		db		0.000
2	FUNCTION5 DCDPE	45.02	1.661e3					24.0	YES		bd		0.000

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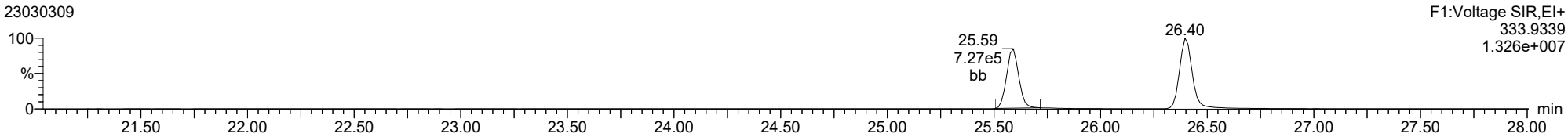
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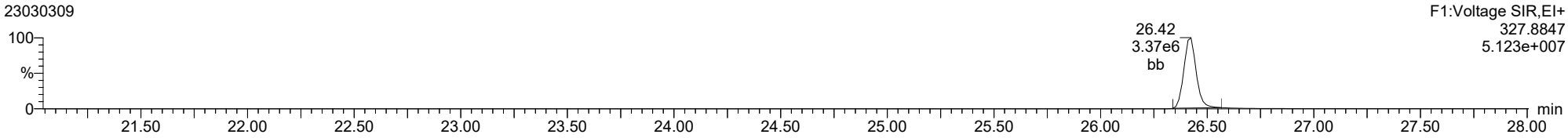
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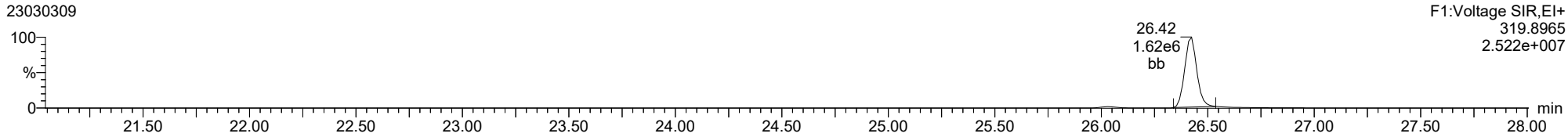


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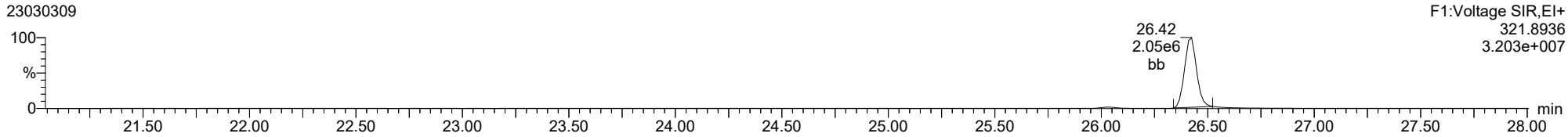


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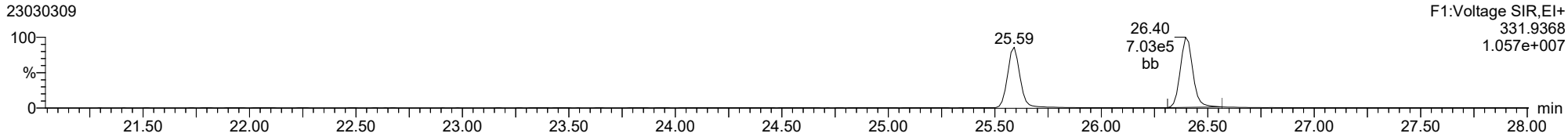
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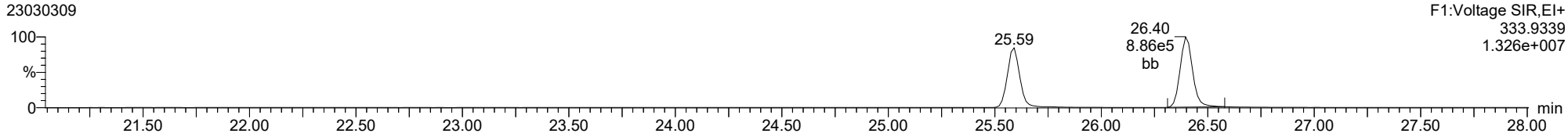
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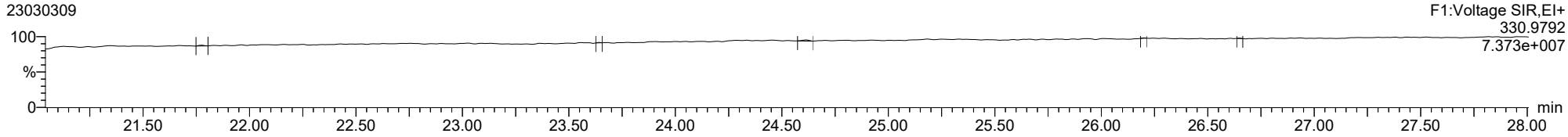
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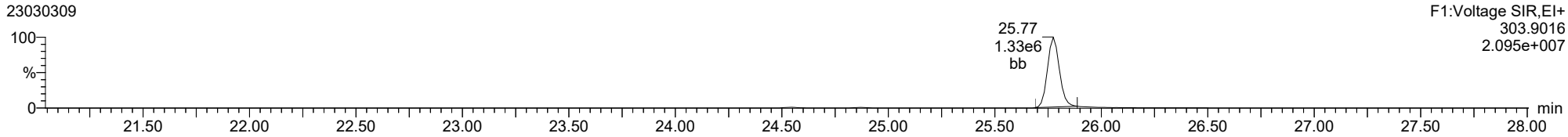


FUNCTION1 PFK

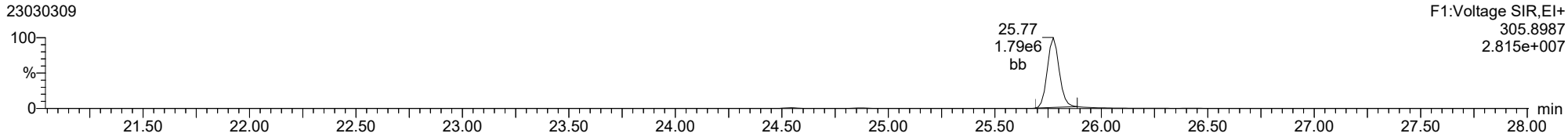


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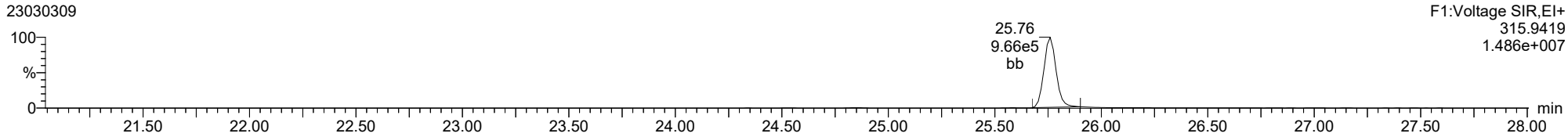
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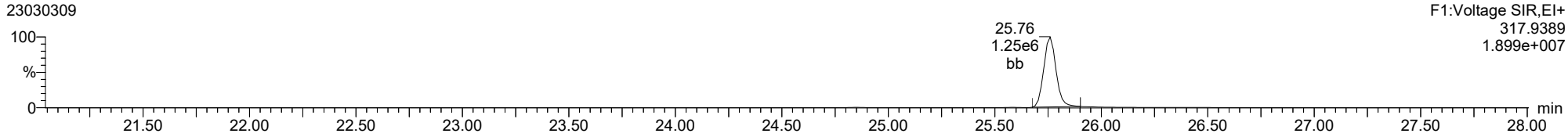
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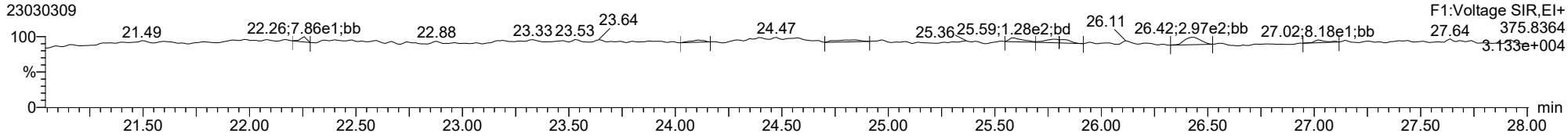
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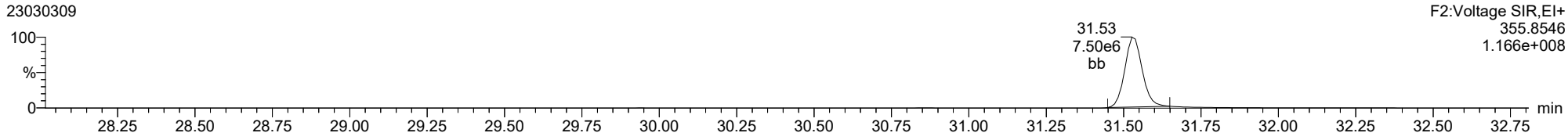


FUNCTION1 HXCDPE

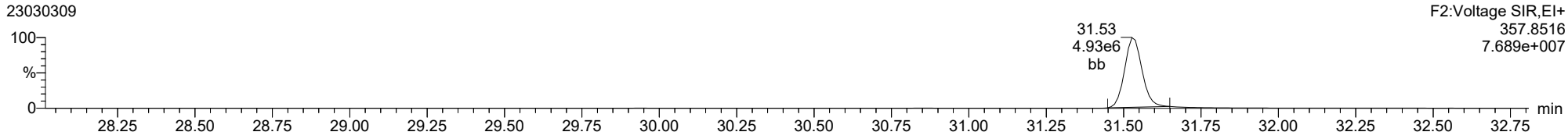


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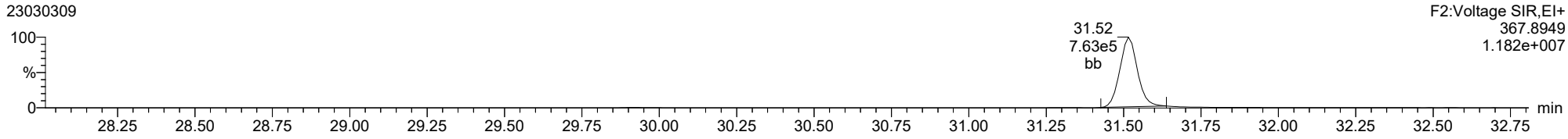
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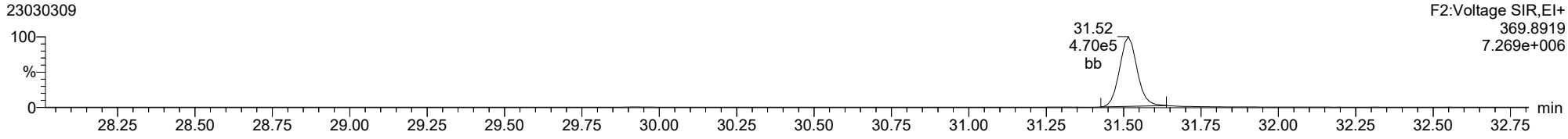
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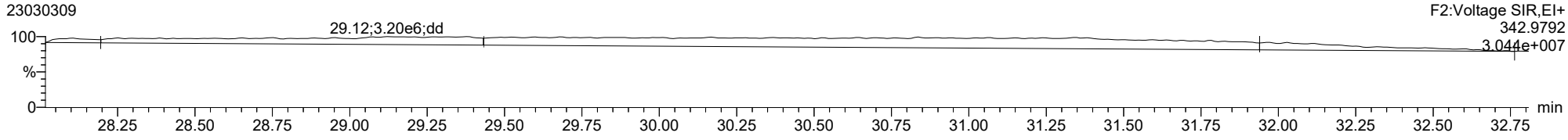
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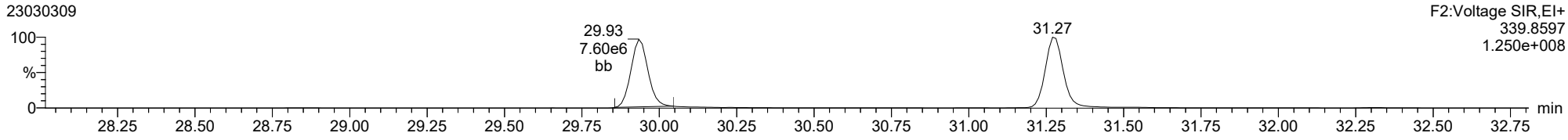


FUNCTION2 PFK

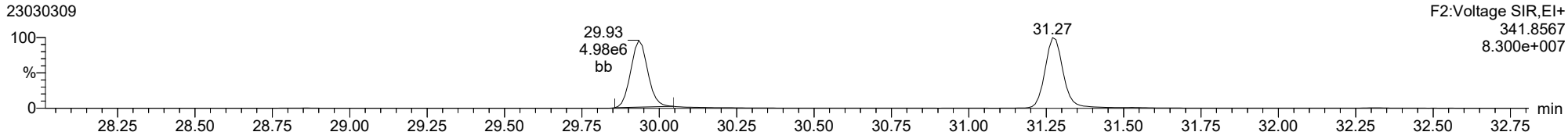


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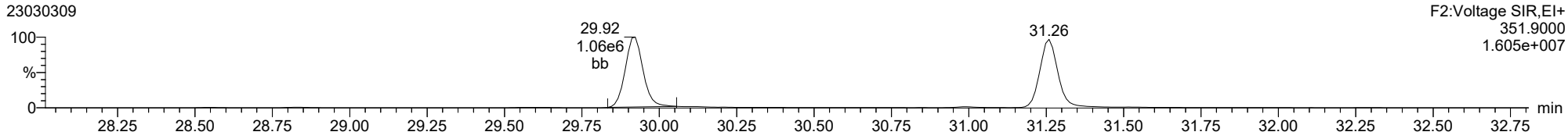
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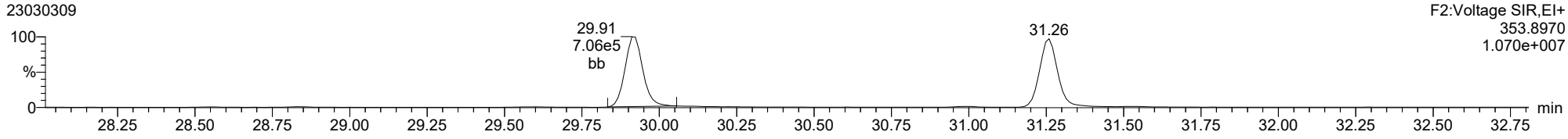
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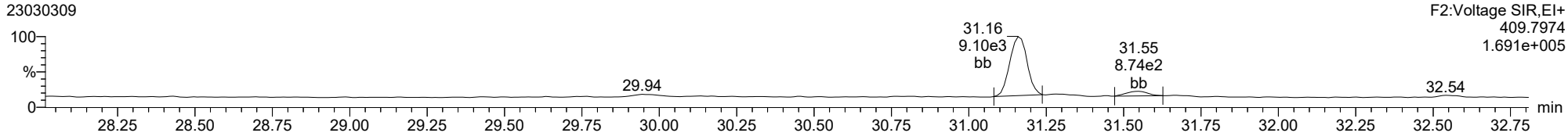
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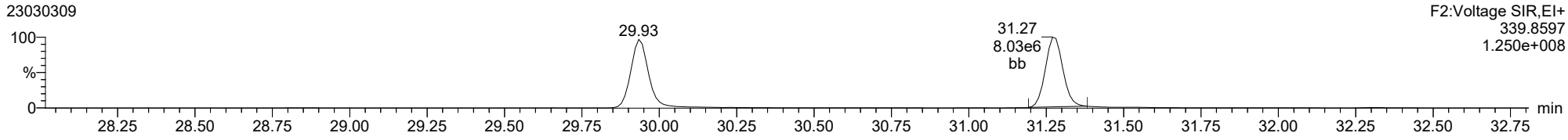


FUNCTION2 HPCDPE

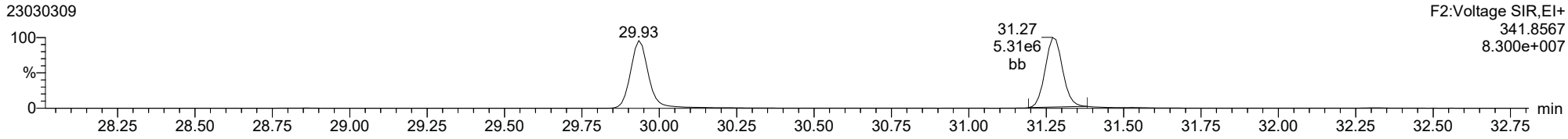


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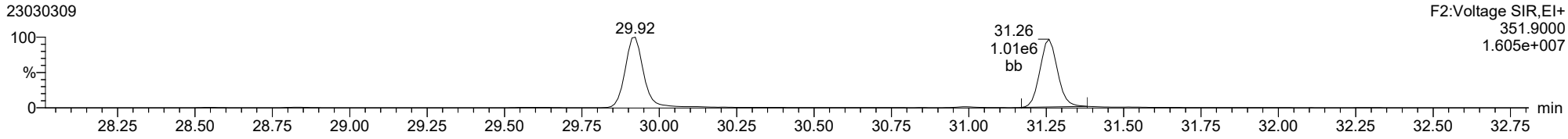
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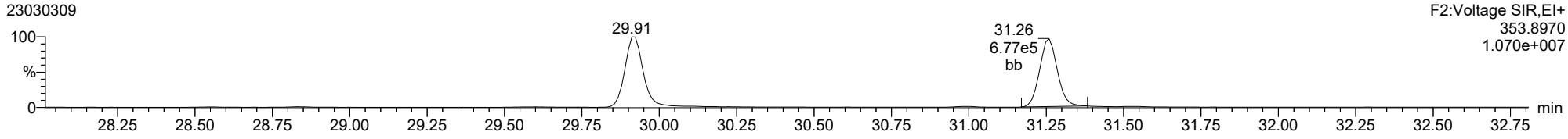
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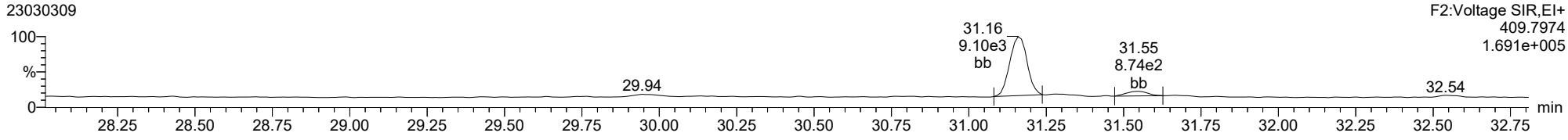
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13C-23478-PeCDF

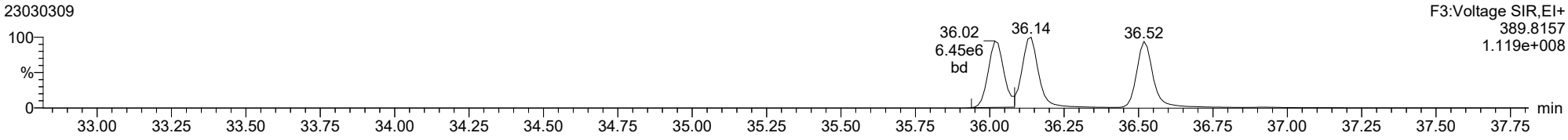


FUNCTION2 HPCDPE

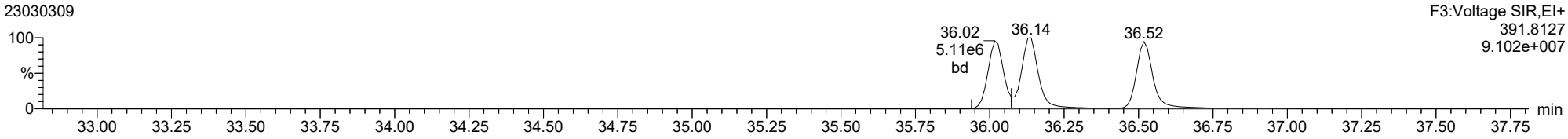


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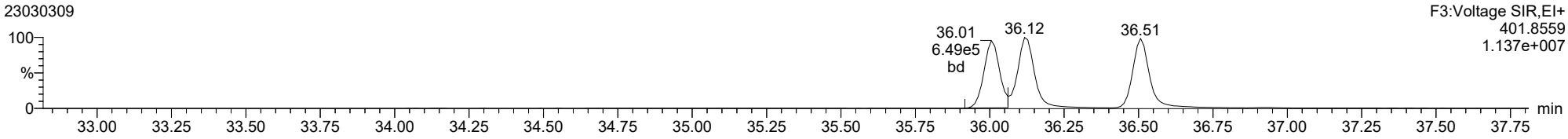
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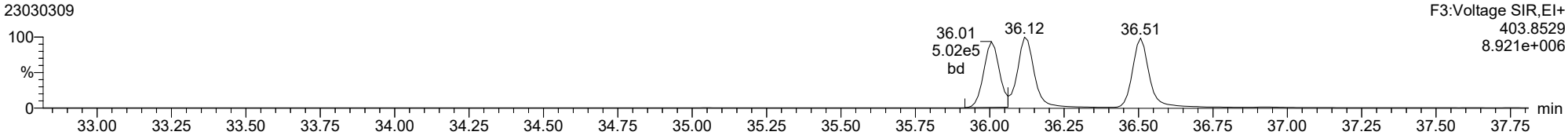
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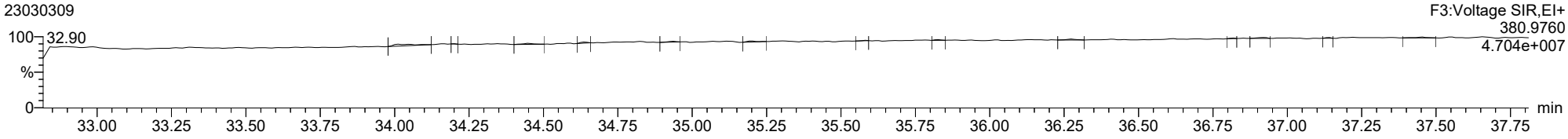
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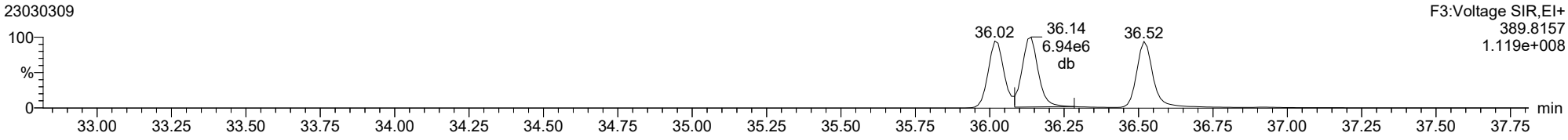


FUNCTION3 PFK

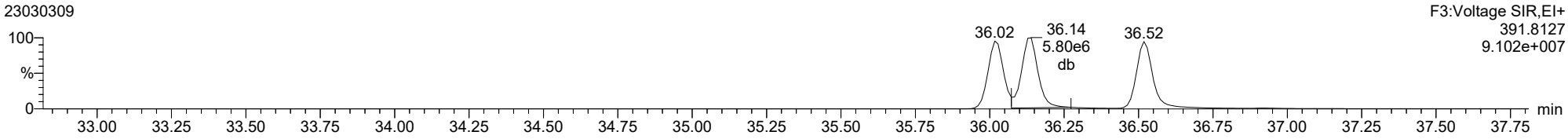


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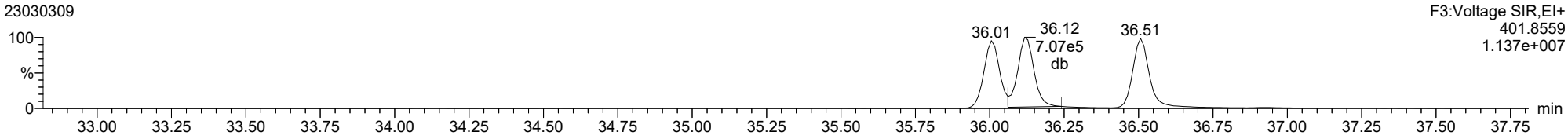
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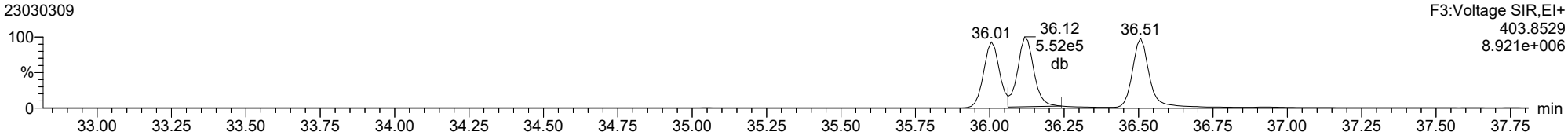
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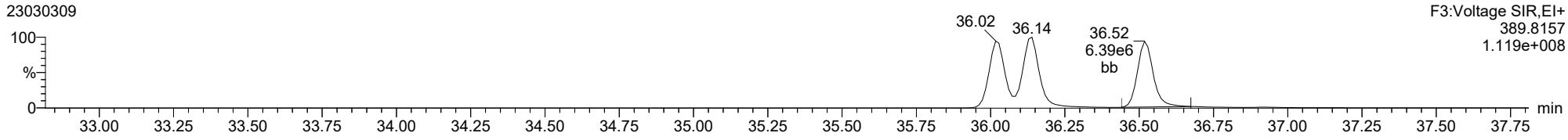


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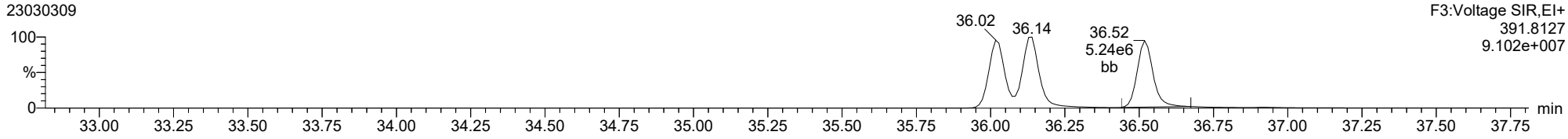


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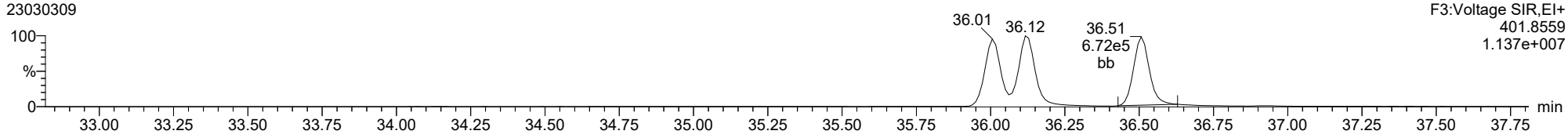
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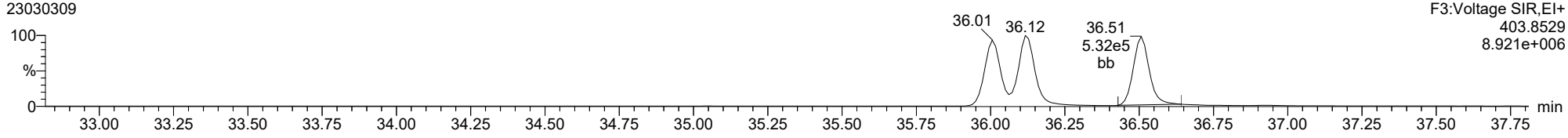
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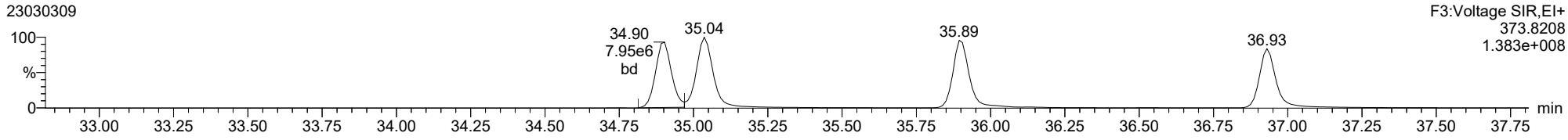


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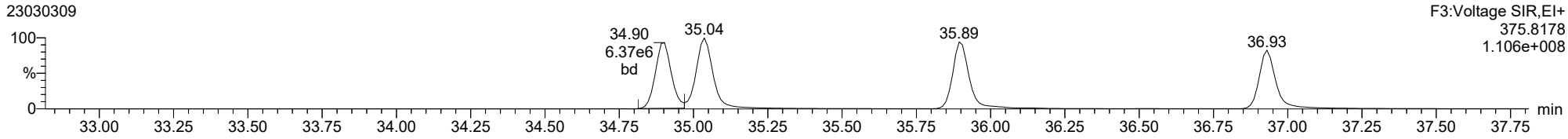


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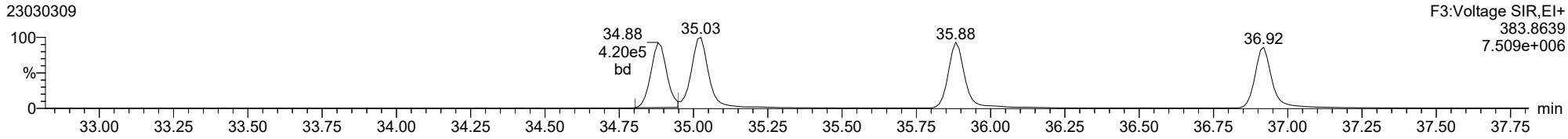
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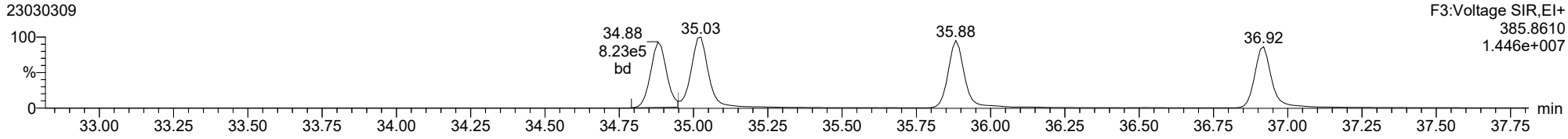
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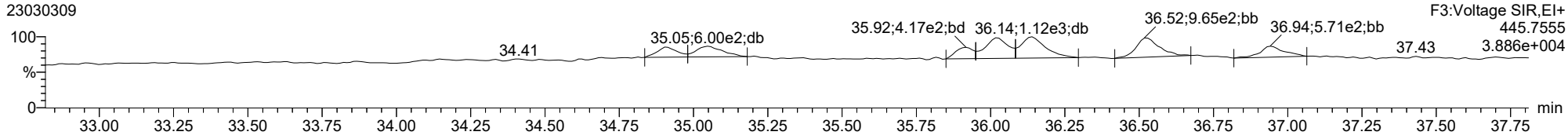
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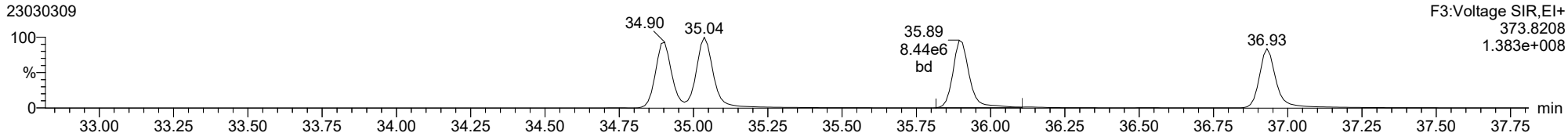


FUNCTION3 OCDPE

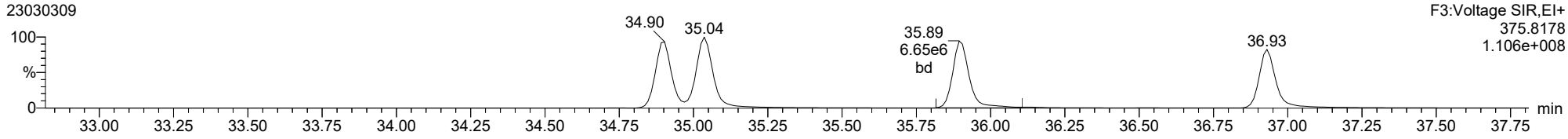


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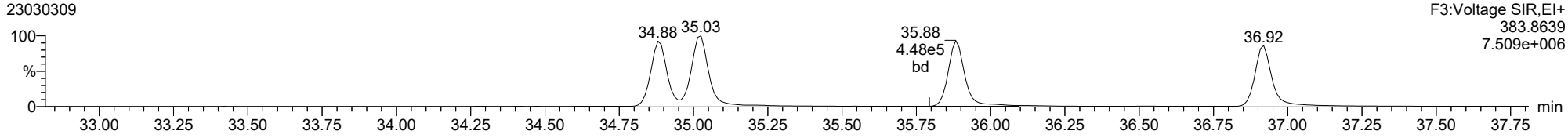
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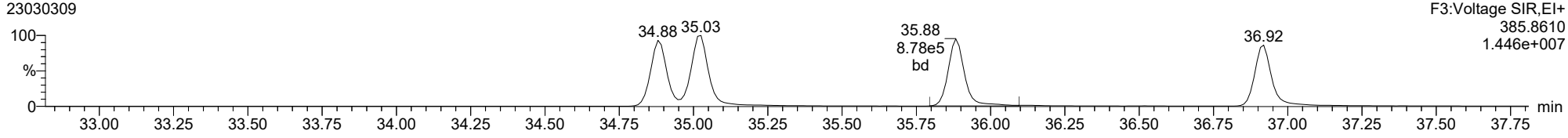
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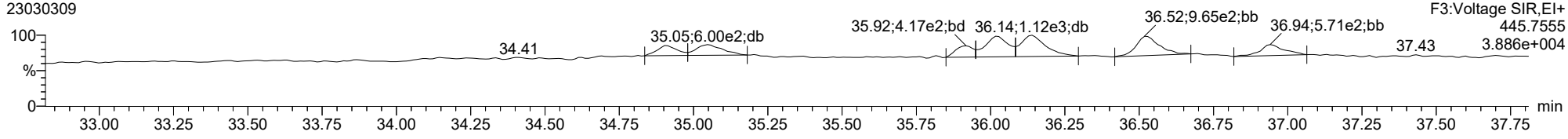
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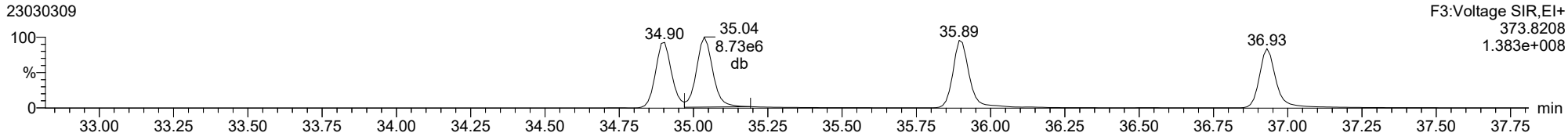


FUNCTION3 OCDPE

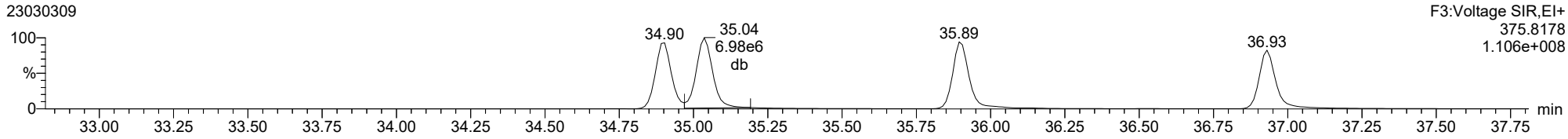


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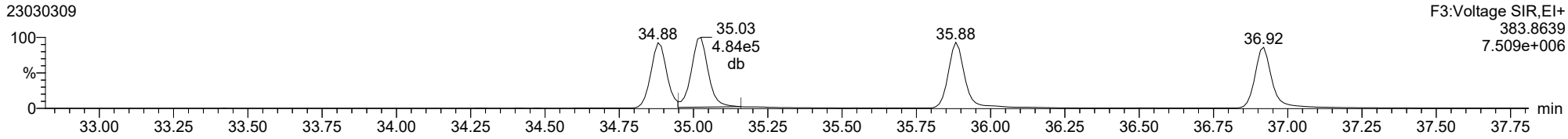
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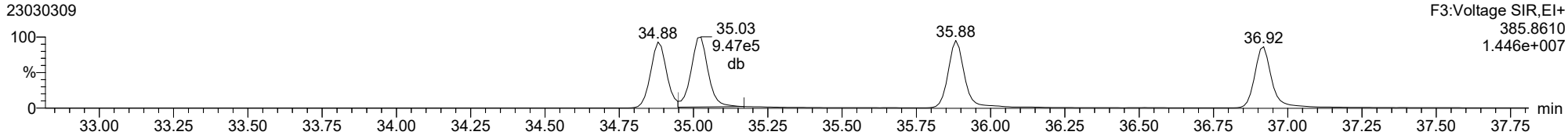
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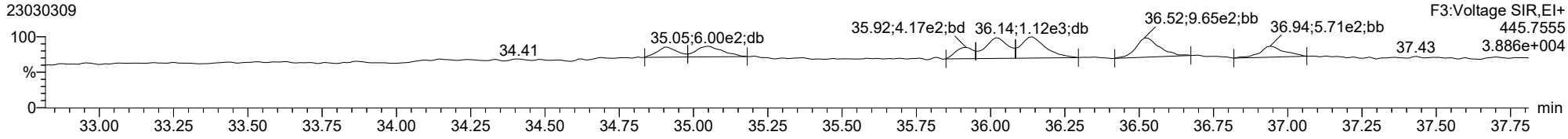
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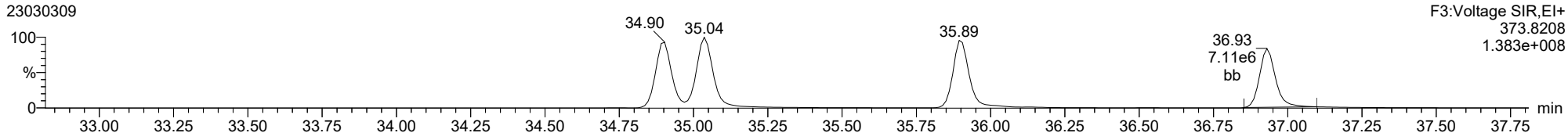


FUNCTION3 OCDPE

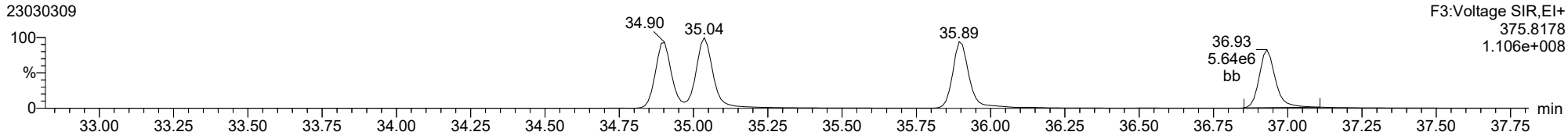


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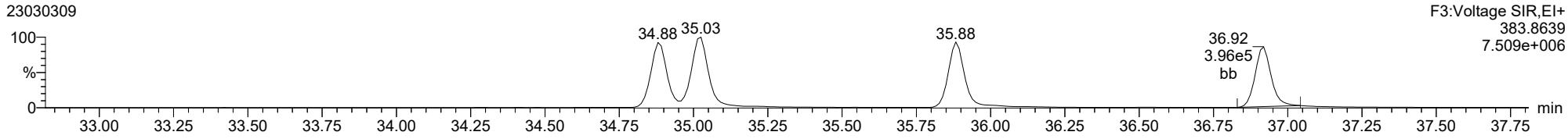
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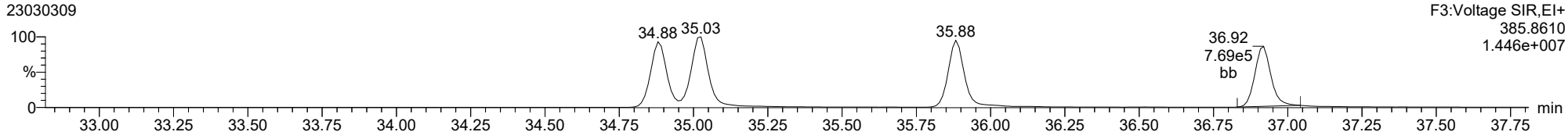
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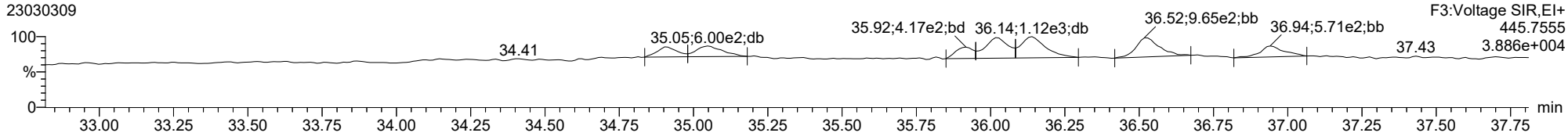
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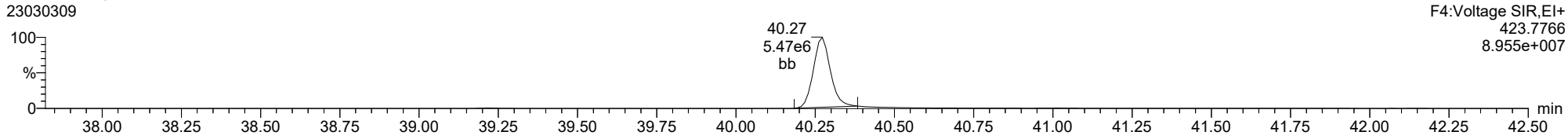


FUNCTION3 OCDPE

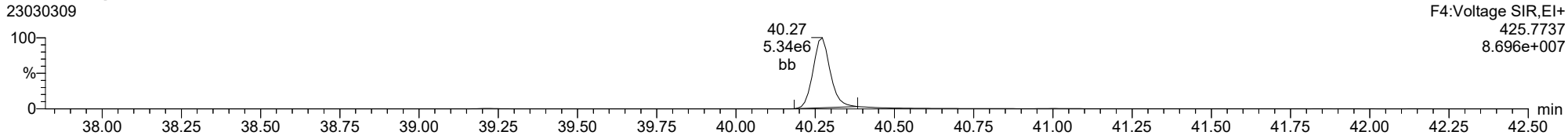


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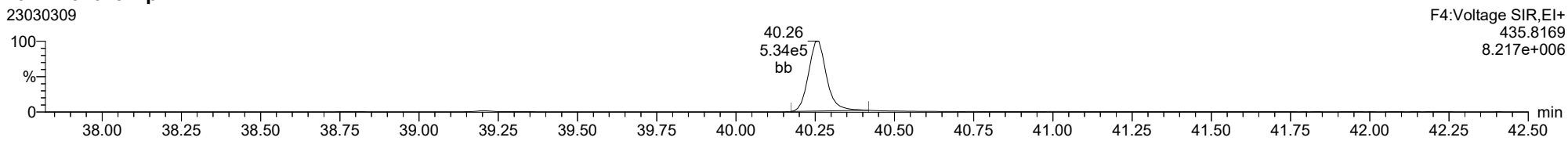
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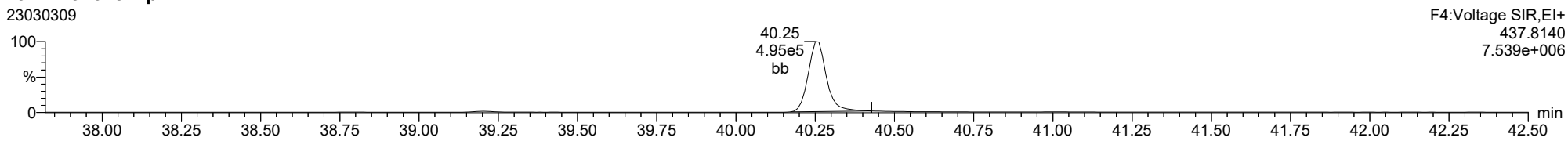
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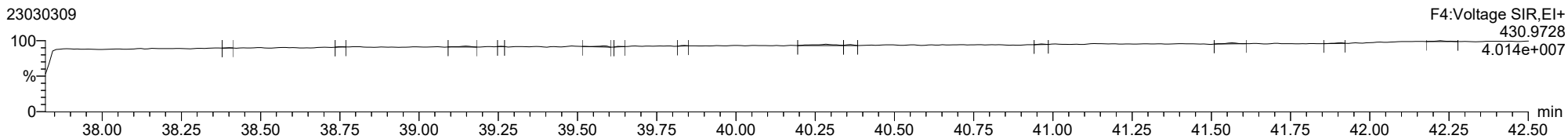
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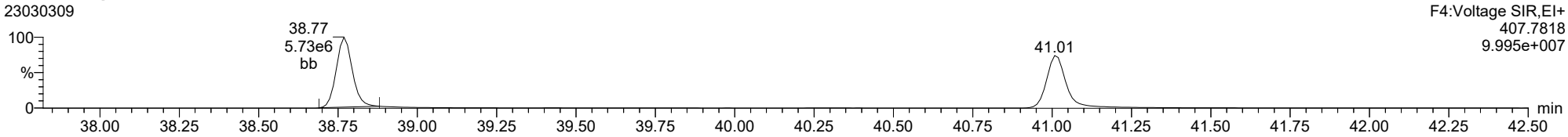


FUNCTION4 PFK

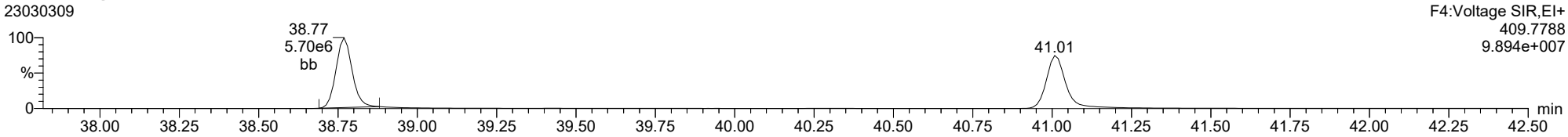


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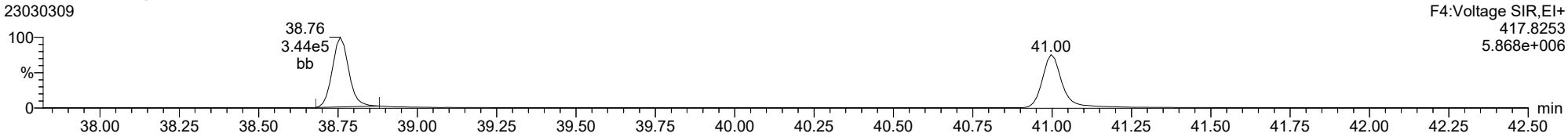
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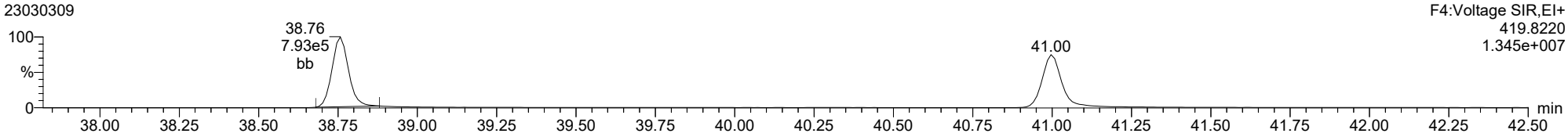
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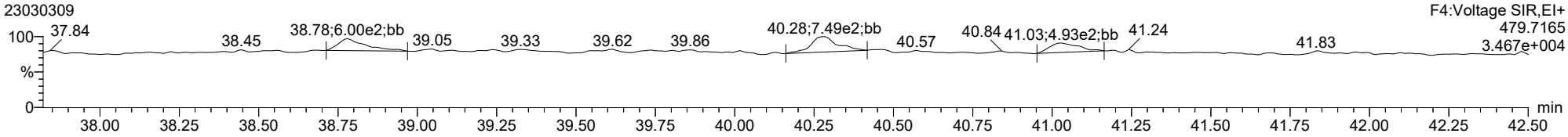
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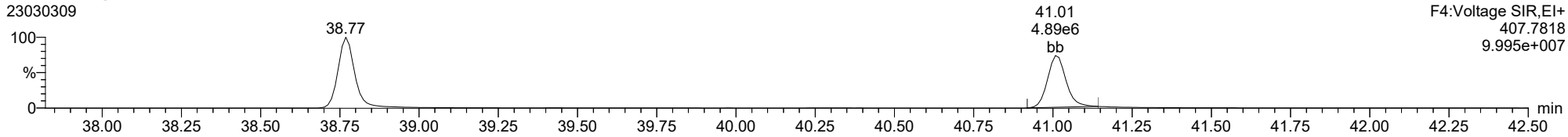


FUNCTION4 NCDPE

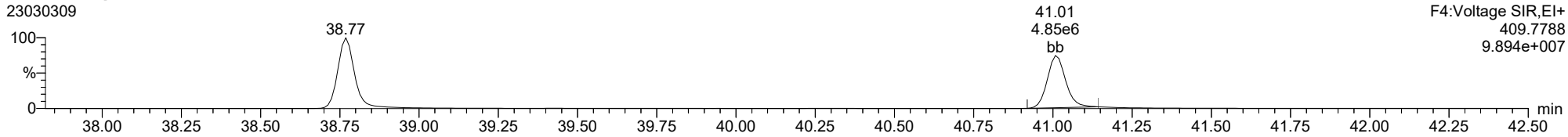


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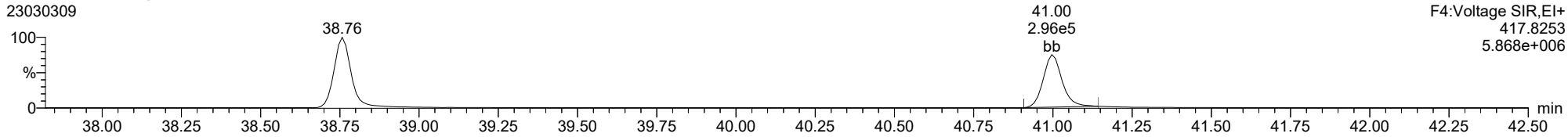
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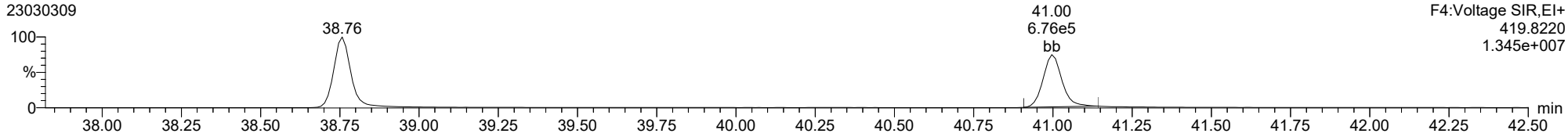
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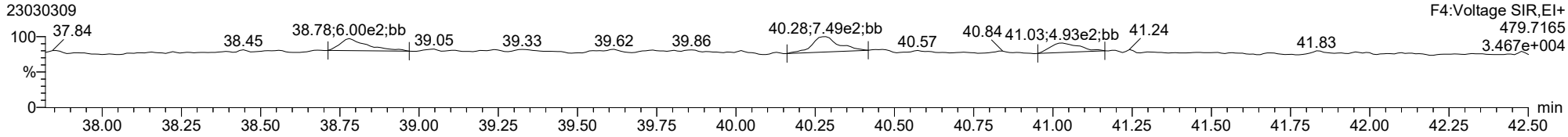
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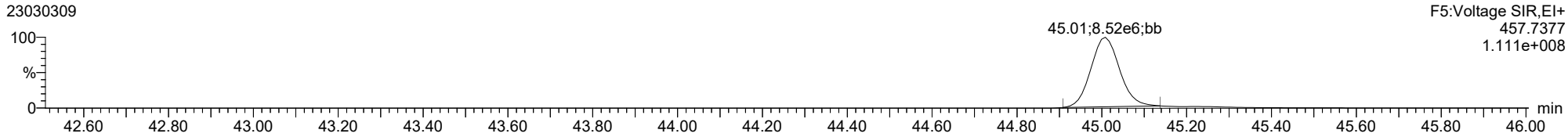


FUNCTION4 NCDPE

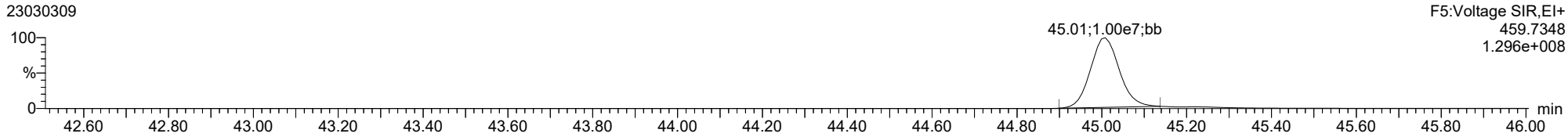


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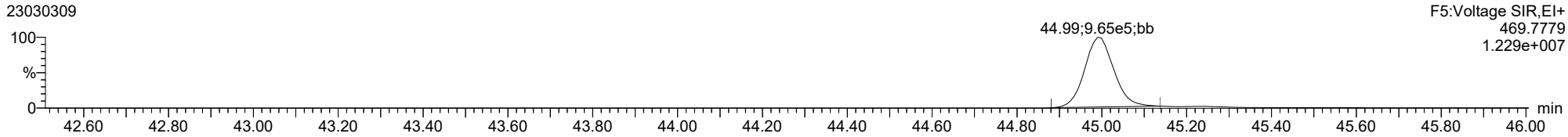
OCDD



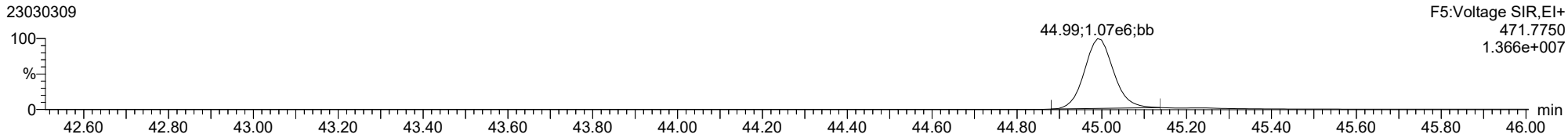
OCDD



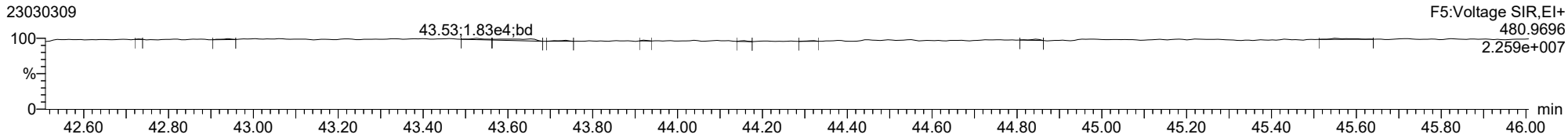
13C-OCDD



13C-OCDD

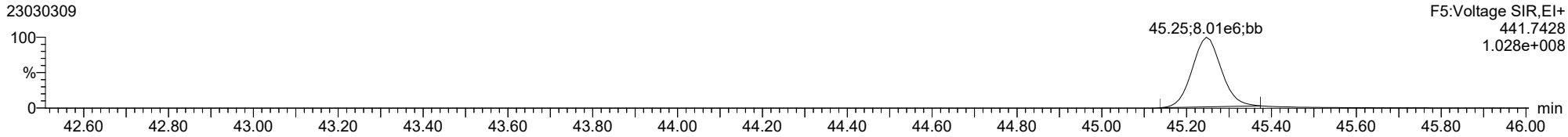


FUNCTION5 PFK

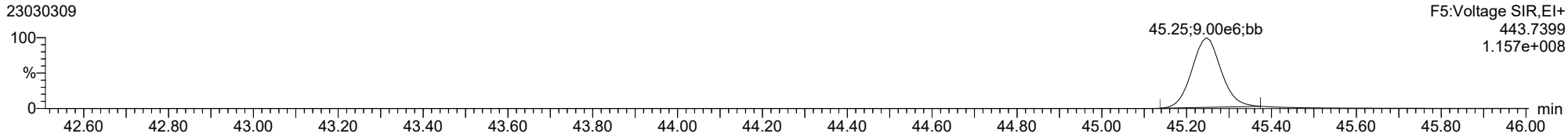


ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

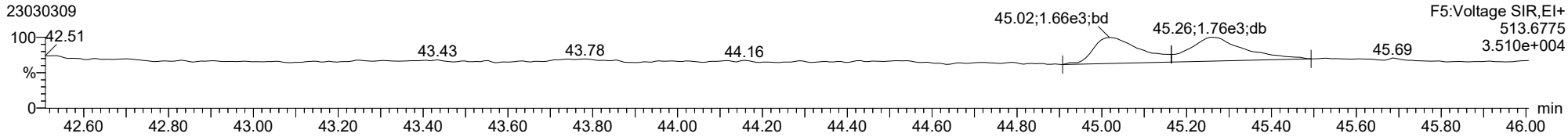
OCDF



OCDF

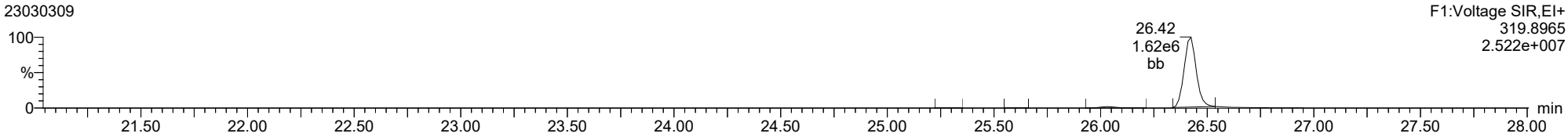


FUNCTION5 DCDPE

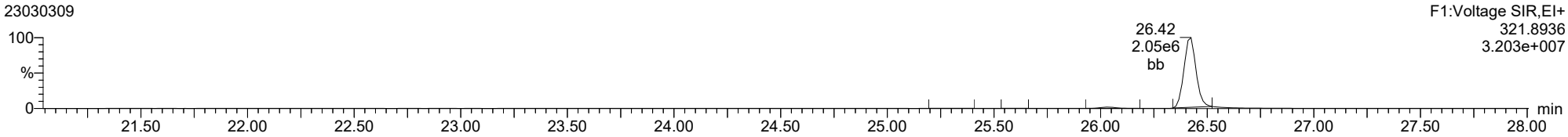


ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

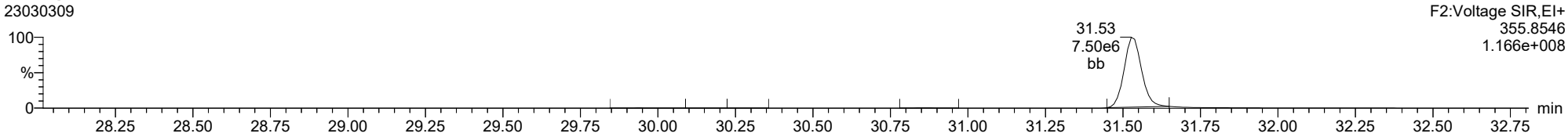
Total-tetradioxins



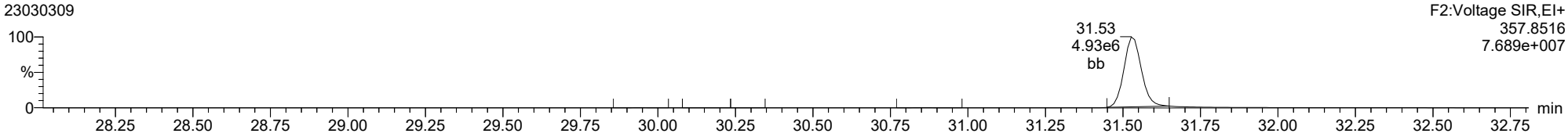
Total-tetradioxins



Total-pentadioxins

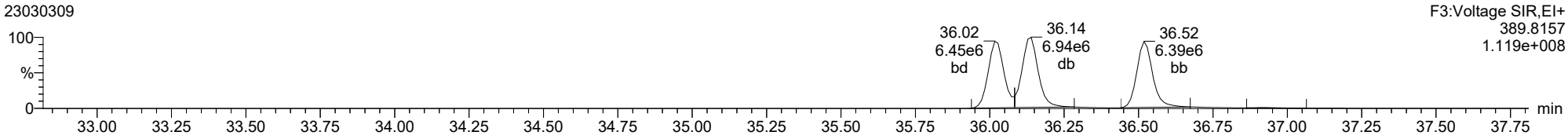


Total-pentadioxins

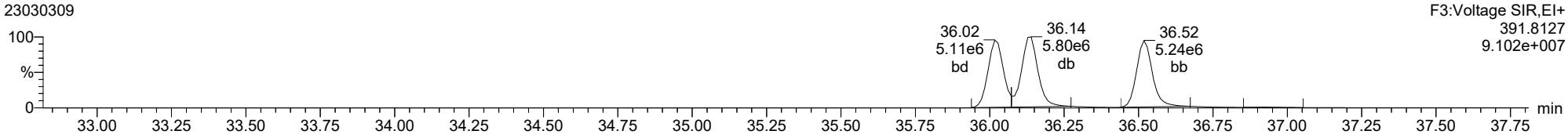


ID: CS5CW, Name: 23030309, Date: 03-Mar-2023, Time: 15:47:43, Conditions: AUTOSPEC01, User: pk

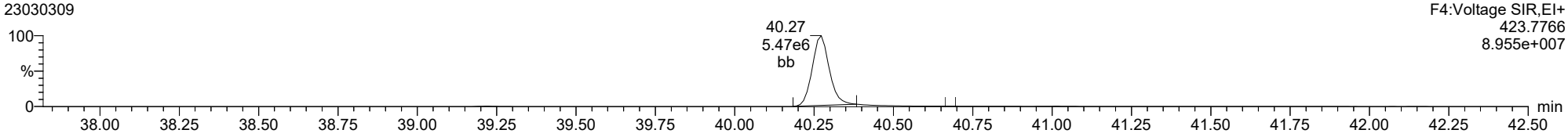
Total-hexadioxins



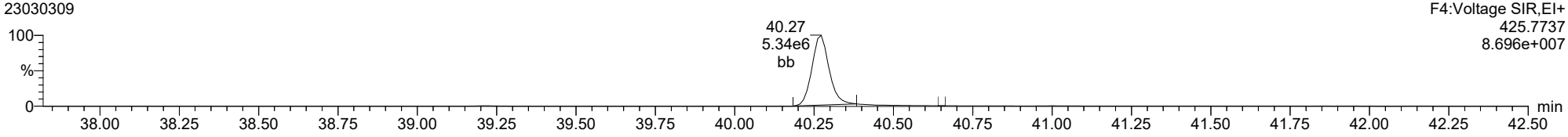
Total-hexadioxins



Total-heptadioxins

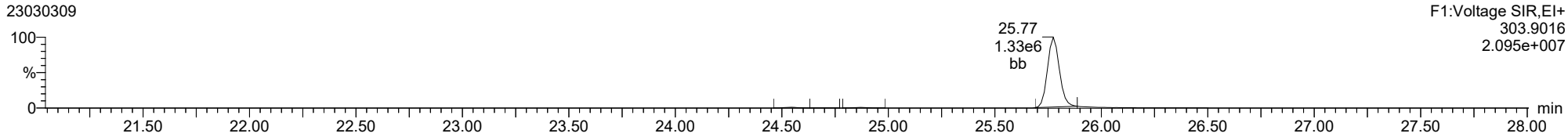


Total-heptadioxins

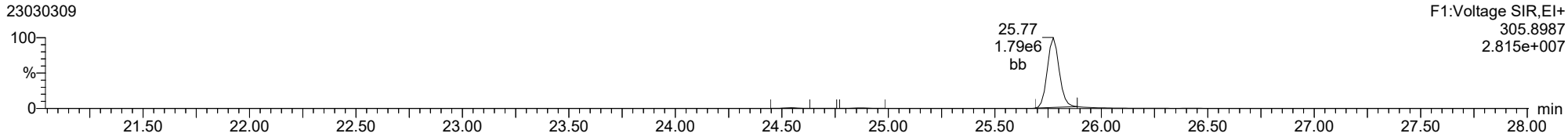


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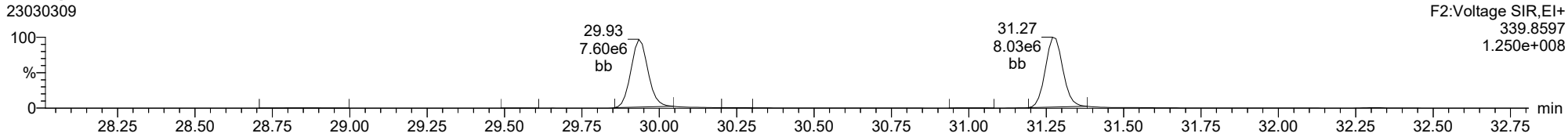
Total-tetrafurans



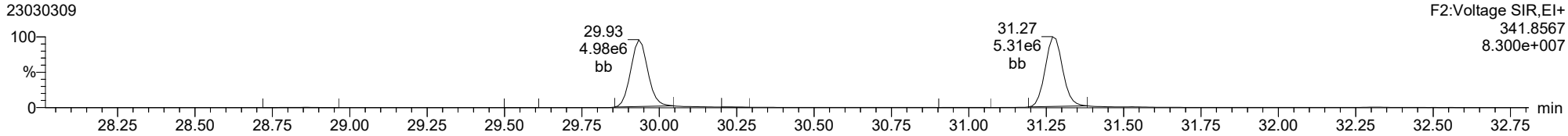
Total-tetrafurans



Total-pentafurans

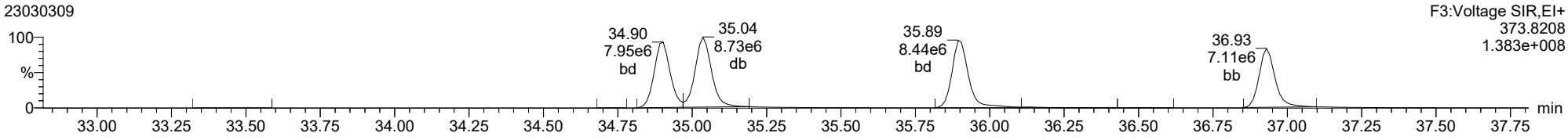


Total-pentafurans

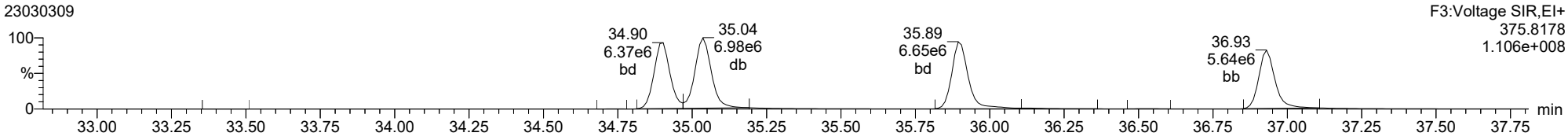


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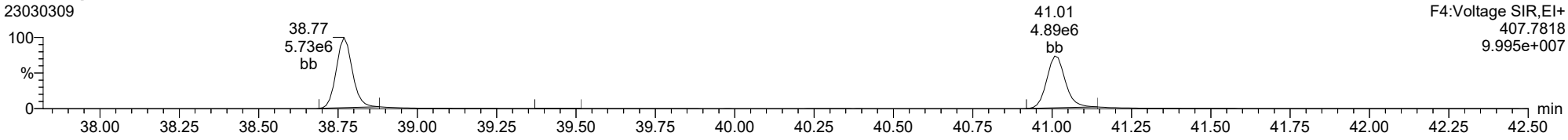
Total-hexafurans



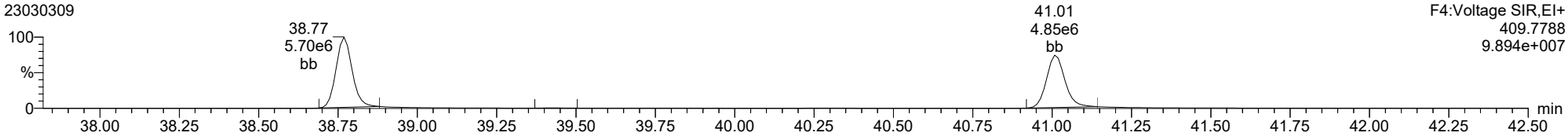
Total-hexafurans



Total-heptafurans



Total-heptafurans



Dataset: T:\Autospec\Processed Data Batch\230303IHICV.qld
Last Altered: Monday, March 06, 2023 11:49:27 Pacific Standard Time
Printed: Monday, March 06, 2023 14:47:19 Pacific Standard Time

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

ID: ICVCW, Name: 23030310, Date: 03-Mar-2023, Time: 16:36:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.774	1.000	5.338e4	7.452e4	0.702	0.716	0.770	1163	2029	8.36e5	1.13e6	718.7	556.3	NO	bb	bb	9.838
12378-PeCDF	29.934	1.000	2.214e5	1.526e5	0.679	1.451	1.550	3022	2812	3.24e6	2.15e6	1073.8	764.7	NO	bb	bd	51.391
23478-PeCDF	31.271	1.000	2.350e5	1.508e5	0.786	1.559	1.550	3022	2812	3.42e6	2.23e6	1131.6	792.3	NO	bb	bb	48.980
123478-HxCDF	34.903	1.001	2.903e5	2.325e5	1.166	1.248	1.240	3142	2543	4.30e6	3.42e6	1370.1	1344.7	NO	bd	bd	48.245
234678-HxCDF	35.905	1.001	2.873e5	2.291e5	1.140	1.254	1.240	3142	2543	4.27e6	3.38e6	1358.7	1330.7	NO	bb	bb	50.224
123678-HxCDF	35.036	1.001	3.271e5	2.812e5	1.091	1.163	1.240	3142	2543	4.70e6	3.76e6	1497.0	1479.3	NO	db	db	47.992
123789-HxCDF	36.930	1.001	2.403e5	1.952e5	1.137	1.231	1.240	3142	2543	3.49e6	2.77e6	1110.7	1088.1	NO	bb	bb	49.077
1234678-HpCDF	38.769	1.000	2.051e5	2.017e5	1.003	1.017	1.050	2774	2508	3.29e6	3.29e6	1185.4	1309.8	NO	bb	bb	51.838
1234789-HpCDF	41.008	1.000	1.584e5	1.578e5	0.953	1.004	1.050	2774	2508	2.19e6	2.22e6	790.9	884.0	NO	bb	bb	48.461
OCDF	45.237	1.006	2.094e5	2.177e5	0.778	0.962	0.890	1876	1660	2.24e6	2.46e6	1194.3	1483.7	NO	bd	bb	103.506
2378-TCDD	26.424	1.001	6.583e4	8.225e4	1.149	0.800	0.770	1514	1206	9.92e5	1.24e6	654.9	1028.2	NO	bb	bb	9.815
12378-PeCDD	31.538	1.001	2.257e5	1.459e5	1.022	1.547	1.550	2000	2144	3.28e6	2.13e6	1638.2	994.7	NO	bb	bb	48.547
123478-HxCDD	36.016	1.000	2.316e5	1.815e5	0.996	1.276	1.240	2983	1710	3.62e6	3.01e6	1214.5	1762.3	NO	bd	bd	50.799
123678-HxCDD	36.139	1.001	2.694e5	2.159e5	1.001	1.248	1.240	2983	1710	3.76e6	3.05e6	1260.5	1785.9	NO	db	db	50.174
123789-HxCDD	36.518	1.011	2.330e5	1.844e5	0.907	1.263	1.240	2983	1710	3.29e6	2.69e6	1104.0	1571.7	NO	bd	bb	51.608
1234678-HpCDD	40.272	1.001	1.962e5	1.803e5	1.039	1.088	1.050	2922	2339	2.72e6	2.60e6	932.5	1113.0	NO	bd	bb	49.199
OCDD	44.999	1.000	2.234e5	2.618e5	0.920	0.853	0.890	1774	1393	2.65e6	3.06e6	1496.5	2199.2	NO	bb	bb	99.422
13C-2378-TCDF	25.760	1.007	7.988e5	1.054e6	1.620	0.758	0.770	2799	1492	1.21e7	1.60e7	4320.8	10737.9	NO	bb	bb	96.925
13C-12378-PeCDF	29.923	1.169	6.425e5	4.290e5	1.240	1.498	1.550	3398	4585	8.78e6	5.86e6	2583.4	1278.4	NO	bd	bd	73.193
13C-23478-PeCDF	31.259	1.222	6.035e5	3.982e5	1.118	1.515	1.550	3398	4585	8.73e6	5.79e6	2568.3	1261.6	NO	bb	bb	75.943
13C-123478-HxCDF	34.880	0.955	3.186e5	6.107e5	1.168	0.522	0.510	2913	2215	4.74e6	9.25e6	1627.4	4175.4	NO	bd	bd	92.972
13C-123678-HxCDF	35.014	0.959	3.885e5	7.735e5	1.386	0.502	0.510	2913	2215	5.29e6	1.03e7	1816.0	4636.7	NO	dd	db	97.958
13C-234678-HxCDF	35.883	0.983	3.009e5	6.013e5	1.129	0.500	0.510	2913	2215	4.56e6	8.94e6	1567.0	4037.6	NO	bb	bb	93.371
13C-123789-HxCDF	36.908	1.011	2.634e5	5.171e5	0.932	0.509	0.510	2913	2215	3.83e6	7.41e6	1313.2	3346.2	NO	bb	bb	97.906
13C-1234678-HpCDF	38.757	1.062	2.395e5	5.428e5	0.895	0.441	0.440	2666	4327	3.79e6	8.70e6	1422.6	2009.5	NO	bb	bb	102.148
13C-1234789-HpCDF	40.997	1.123	1.971e5	4.875e5	0.770	0.404	0.440	2666	4327	2.64e6	6.15e6	990.0	1422.1	NO	bb	bb	103.953
13C-1234-TCDD	25.591	0.000	5.239e5	6.562e5	1.000	0.798	0.770	2541	1448	8.13e6	1.01e7	3200.8	6994.1	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	5.859e5	7.277e5	1.152	0.805	0.770	2541	1448	8.48e6	1.06e7	3338.5	7327.1	NO	bb	bb	96.583
13C-12378-PeCDD	31.515	1.232	4.640e5	2.850e5	0.829	1.628	1.550	1690	813	6.82e6	4.16e6	4037.7	5122.1	NO	bb	bb	76.570
13C-123478-HxCDD	36.005	0.986	4.566e5	3.601e5	0.995	1.268	1.240	2230	1571	7.33e6	5.72e6	3288.3	3642.7	NO	bd	bd	95.938
13C-123678-HxCDD	36.117	0.989	5.277e5	4.388e5	1.157	1.203	1.240	2230	1571	7.53e6	5.98e6	3378.3	3806.0	NO	db	db	97.660
13C-1234678-HpCDD	40.250	1.102	3.788e5	3.578e5	0.840	1.059	1.050	1327	2781	5.06e6	4.73e6	3813.0	1700.4	NO	bd	bb	102.476
13C-OCDD	44.981	1.232	5.015e5	5.594e5	0.767	0.896	0.890	2228	1562	5.65e6	6.37e6	2536.4	4080.5	NO	bb	bb	161.563
13C-123789-HxCDD	36.507	0.000	4.814e5	3.742e5	1.000	1.287	1.240	2230	1571	7.02e6	5.48e6	3149.1	3490.5	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	1.324e5		1.288			2249		1.92e6		853.0			bb		8.714

Dataset: T:\Autospec\Processed Data Batch\230303IHICV.qld
Last Altered: Monday, March 06, 2023 11:49:27 Pacific Standard Time
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ID: ICVCW, Name: 23030310, Date: 03-Mar-2023, Time: 16:36:24, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.271	0.865	6.666e4	8.755e4	0.802	0.761	0.770	1163	2029	1.09e6	1.45e6	933.7	713.4	NO	bb	bb	10.382
1289-TCDF	27.272	1.059	5.306e4	7.400e4	0.678	0.717	0.770	1163	2029	8.00e5	1.11e6	688.3	549.0	NO	bb	db	10.112
13468-PECDF	27.130	0.907	5.428e5	3.536e5	1.246	1.535	1.550	921	1306	8.56e6	5.56e6	9287.8	4254.6	NO	bb	bb	67.124
12389-PECDF	32.307	1.080	2.363e5	1.551e5	0.496	1.524	1.550	3022	2812	3.29e6	2.19e6	1088.1	777.6	NO	bb	bb	73.589
123468-HXCDF	33.231	0.953	3.102e5	2.472e5	1.169	1.255	1.240	3142	2543	4.60e6	3.67e6	1465.3	1443.2	NO	bb	bb	51.304
1368-TCDD	23.557	0.892	6.641e4	8.365e4	1.015	0.794	0.770	1514	1206	1.07e6	1.32e6	704.3	1092.4	NO	bb	bb	11.251
1289-TCDD	27.017	1.023	6.055e4	8.062e4	0.909	0.751	0.770	1514	1206	8.59e5	1.12e6	567.6	932.6	NO	bd	bd	11.826
12479-PECDD	28.819	0.914	4.776e5	3.067e5	2.301	1.557	1.550	2000	2144	4.46e6	2.89e6	2227.8	1348.6	NO	bb	bb	45.504
12389-PECDD	31.928	1.013	2.675e5	1.746e5	1.184	1.532	1.550	2000	2144	3.96e6	2.51e6	1980.6	1171.6	NO	bb	bb	49.870
124679-HXCDD	34.011	0.945	2.545e5	2.054e5	1.115	1.239	1.240	2983	1710	3.72e6	3.05e6	1245.7	1780.9	NO	bb	bb	50.484
1234679-HPCDD	39.225	0.975	2.082e5	2.022e5	1.137	1.029	1.050	2922	2339	3.21e6	3.09e6	1099.8	1322.5	NO	bb	bb	49.010
Total-tetrafurans			1.731e5		0.727			1163		2.72e6							30.332
Total-penta1			5.428e5					921		8.56e6							67.124
Total-pentafurans			7.375e5		0.654			3022		1.06e7							184.995
Total-hexafurans			1.455e6		1.141			3142		2.14e7							246.841
Total-heptafurans			3.635e5		0.978			2774		5.48e6							100.299
Total-Furans			3.482e6		0.922			1163		5.10e7							733.097
Total-tetradioxins			3.292e5		1.024			1514		4.53e6							56.345
Total-pentadioxins			9.708e5		1.502			2000		1.17e7							143.922
Total-hexadioxins			9.885e5		1.005			2983		1.44e7							203.065
Total-heptadioxins			4.044e5		1.088			2922		5.94e6							98.208
Total-Dioxins			2.916e6		1.130			1514		3.92e7							600.962
Total-TEQ			6.398e6					1514		9.02e7							1334.059
FUNCTION1 PFK			0.000e0					539943		0.00e0							
FUNCTION2 PFK			2.253e6					228820		1.84e6							0.000
FUNCTION3 PFK			3.977e4					386595		8.75e5							0.000
FUNCTION4 PFK			7.296e4					280107		2.70e6							
FUNCTION5 PFK			1.323e3					209307		1.46e5							
FUNCTION1 HXCD...			6.633e2					708		9.34e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			5.152e2					1165		9.44e3							0.000
FUNCTION3 OCDPE			5.246e2					459		6.83e3							0.000
FUNCTION4 NCDPE			4.889e2					641		6.04e3							0.000
FUNCTION5 DCDPE			0.000e0					644		0.00e0							

Method: T:\Autospec\Methods\Dioxin230303.mdb 03 Mar 2023 14:58:50
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.306e4	7.400e4	0.678	0.72	0.77	688.3	YES	NO	bb	db	10.112
2	2378-TCDF	25.77	5.338e4	7.452e4	0.702	0.72	0.77	718.7	YES	NO	bb	bb	9.838
3	1368-TCDF	22.27	6.666e4	8.755e4	0.802	0.76	0.77	933.7	YES	NO	bb	bb	10.382

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.13	5.428e5	3.536e5	1.246	1.54	1.55	9287.8	YES	NO	bb	bb	67.124

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.31	2.363e5	1.551e5	0.496	1.52	1.55	1088.1	YES	NO	bb	bb	73.589
2	23478-PeCDF	31.27	2.350e5	1.508e5	0.786	1.56	1.55	1131.6	YES	NO	bb	bb	48.980
3	12378-PeCDF	29.93	2.214e5	1.526e5	0.679	1.45	1.55	1073.8	YES	NO	bb	bd	51.391
4	Total-pentafurans	28.79	4.479e4	3.002e4	0.654	1.49	1.55	225.2	YES	NO	bb	bb	11.035

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.90	2.903e5	2.325e5	1.166	1.25	1.24	1370.1	YES	NO	bd	bd	48.245
2	123468-HXCDF	33.23	3.102e5	2.472e5	1.169	1.26	1.24	1465.3	YES	NO	bb	bb	51.304
3	123789-HxCDF	36.93	2.403e5	1.952e5	1.137	1.23	1.24	1110.7	YES	NO	bb	bb	49.077
4	234678-HxCDF	35.91	2.873e5	2.291e5	1.140	1.25	1.24	1358.7	YES	NO	bb	bb	50.224
5	123678-HxCDF	35.04	3.271e5	2.812e5	1.091	1.16	1.24	1497.0	YES	NO	db	db	47.992

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.77	2.051e5	2.017e5	1.003	1.02	1.05	1185.4	YES	NO	bb	bb	51.838
2	1234789-HpCDF	41.01	1.584e5	1.578e5	0.953	1.00	1.05	790.9	YES	NO	bb	bb	48.461

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.306e4	7.400e4	0.678	0.72	0.77	688.3	YES	NO	bb	db	10.112
2	2378-TCDF	25.77	5.338e4	7.452e4	0.702	0.72	0.77	718.7	YES	NO	bb	bb	9.838
3	1368-TCDF	22.27	6.666e4	8.755e4	0.802	0.76	0.77	933.7	YES	NO	bb	bb	10.382
4	12389-PECDF	32.31	2.363e5	1.551e5	0.496	1.52	1.55	1088.1	YES	NO	bb	bb	73.589
5	23478-PeCDF	31.27	2.350e5	1.508e5	0.786	1.56	1.55	1131.6	YES	NO	bb	bb	48.980
6	12378-PeCDF	29.93	2.214e5	1.526e5	0.679	1.45	1.55	1073.8	YES	NO	bb	bd	51.391
7	Total-pentafurans	28.79	4.479e4	3.002e4	0.654	1.49	1.55	225.2	YES	NO	bb	bb	11.035
8	123478-HxCDF	34.90	2.903e5	2.325e5	1.166	1.25	1.24	1370.1	YES	NO	bd	bd	48.245
9	123468-HXCDF	33.23	3.102e5	2.472e5	1.169	1.26	1.24	1465.3	YES	NO	bb	bb	51.304
10	123789-HxCDF	36.93	2.403e5	1.952e5	1.137	1.23	1.24	1110.7	YES	NO	bb	bb	49.077
11	234678-HxCDF	35.91	2.873e5	2.291e5	1.140	1.25	1.24	1358.7	YES	NO	bb	bb	50.224
12	123678-HxCDF	35.04	3.271e5	2.812e5	1.091	1.16	1.24	1497.0	YES	NO	db	db	47.992
13	1234678-HpCDF	38.77	2.051e5	2.017e5	1.003	1.02	1.05	1185.4	YES	NO	bb	bb	51.838
14	1234789-HpCDF	41.01	1.584e5	1.578e5	0.953	1.00	1.05	790.9	YES	NO	bb	bb	48.461
15	OCDF	45.24	2.094e5	2.177e5	0.778	0.96	0.89	1194.3	YES	NO	bd	bb	103.506
16	13468-PECDF	27.13	5.428e5	3.536e5	1.246	1.54	1.55	9287.8	YES	NO	bb	bb	67.124

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.60	3.327e4	3.983e4	1.024	0.84	0.77	333.8	YES	NO	bd	bb	5.433
2	Total-tetradioxins	25.04	8.004e2	1.202e3	1.024	0.67	0.77	7.4	YES	NO	bb	db	0.149
3	Total-tetradioxins	24.74	2.704e3	4.097e3	1.024	0.66	0.77	17.7	YES	NO	bb	bd	0.506
4	1368-TCDD	23.56	6.641e4	8.365e4	1.015	0.79	0.77	704.3	YES	NO	bb	bb	11.251
5	1289-TCDD	27.02	6.055e4	8.062e4	0.909	0.75	0.77	567.6	YES	NO	bd	bd	11.826
6	Total-tetradioxins	26.76	1.054e2	1.391e2	1.024	0.76	0.77	2.1	NO	NO	bb	bb	0.018
7	2378-TCDD	26.42	6.583e4	8.225e4	1.149	0.80	0.77	654.9	YES	NO	bb	bb	9.815
8	Total-tetradioxins	26.10	9.949e4	1.339e5	1.024	0.74	0.77	703.4	YES	NO	bb	bb	17.347

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.93	2.675e5	1.746e5	1.184	1.53	1.55	1980.6	YES	NO	bb	bb	49.870
2	12378-PeCDD	31.54	2.257e5	1.459e5	1.022	1.55	1.55	1638.2	YES	NO	bb	bb	48.547
3	12479-PECDD	28.82	4.776e5	3.067e5	2.301	1.56	1.55	2227.8	YES	NO	bb	bb	45.504

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.01	2.545e5	2.054e5	1.115	1.24	1.24	1245.7	YES	NO	bb	bb	50.484
2	123789-HxCDD	36.52	2.330e5	1.844e5	0.907	1.26	1.24	1104.0	YES	NO	bd	bb	51.608
3	123678-HxCDD	36.14	2.694e5	2.159e5	1.001	1.25	1.24	1260.5	YES	NO	db	db	50.174
4	123478-HxCDD	36.02	2.316e5	1.815e5	0.996	1.28	1.24	1214.5	YES	NO	bd	bd	50.799

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.23	2.082e5	2.022e5	1.137	1.03	1.05	1099.8	YES	NO	bb	bb	49.010
2	1234678-HpCDD	40.27	1.962e5	1.803e5	1.039	1.09	1.05	932.5	YES	NO	bd	bb	49.199

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.60	3.327e4	3.983e4	1.024	0.84	0.77	333.8	YES	NO	bd	bb	5.433
2	Total-tetradioxins	25.04	8.004e2	1.202e3	1.024	0.67	0.77	7.4	YES	NO	bb	db	0.149
3	Total-tetradioxins	24.74	2.704e3	4.097e3	1.024	0.66	0.77	17.7	YES	NO	bb	bd	0.506
4	1368-TCDD	23.56	6.641e4	8.365e4	1.015	0.79	0.77	704.3	YES	NO	bb	bb	11.251
5	1289-TCDD	27.02	6.055e4	8.062e4	0.909	0.75	0.77	567.6	YES	NO	bd	bd	11.826
6	Total-tetradioxins	26.76	1.054e2	1.391e2	1.024	0.76	0.77	2.1	NO	NO	bb	bb	0.018
7	2378-TCDD	26.42	6.583e4	8.225e4	1.149	0.80	0.77	654.9	YES	NO	bb	bb	9.815
8	Total-tetradioxins	26.10	9.949e4	1.339e5	1.024	0.74	0.77	703.4	YES	NO	bb	bb	17.347
9	12389-PECDD	31.93	2.675e5	1.746e5	1.184	1.53	1.55	1980.6	YES	NO	bb	bb	49.870
10	12378-PeCDD	31.54	2.257e5	1.459e5	1.022	1.55	1.55	1638.2	YES	NO	bb	bb	48.547
11	12479-PECDD	28.82	4.776e5	3.067e5	2.301	1.56	1.55	2227.8	YES	NO	bb	bb	45.504
12	124679-HXCDD	34.01	2.545e5	2.054e5	1.115	1.24	1.24	1245.7	YES	NO	bb	bb	50.484
13	123789-HxCDD	36.52	2.330e5	1.844e5	0.907	1.26	1.24	1104.0	YES	NO	bd	bb	51.608
14	123678-HxCDD	36.14	2.694e5	2.159e5	1.001	1.25	1.24	1260.5	YES	NO	db	db	50.174
15	123478-HxCDD	36.02	2.316e5	1.815e5	0.996	1.28	1.24	1214.5	YES	NO	bd	bd	50.799
16	1234679-HPCDD	39.23	2.082e5	2.022e5	1.137	1.03	1.05	1099.8	YES	NO	bb	bb	49.010
17	1234678-HpCDD	40.27	1.962e5	1.803e5	1.039	1.09	1.05	932.5	YES	NO	bd	bb	49.199
18	OCDD	45.00	2.234e5	2.618e5	0.920	0.85	0.89	1496.5	YES	NO	bb	bb	99.422

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	5.306e4	7.400e4	0.678	0.72	0.77	688.3	YES	NO	bb	db	10.112
2	2378-TCDF	25.77	5.338e4	7.452e4	0.702	0.72	0.77	718.7	YES	NO	bb	bb	9.838
3	1368-TCDF	22.27	6.666e4	8.755e4	0.802	0.76	0.77	933.7	YES	NO	bb	bb	10.382
4	12389-PECDF	32.31	2.363e5	1.551e5	0.496	1.52	1.55	1088.1	YES	NO	bb	bb	73.589
5	23478-PeCDF	31.27	2.350e5	1.508e5	0.786	1.56	1.55	1131.6	YES	NO	bb	bb	48.980
6	12378-PeCDF	29.93	2.214e5	1.526e5	0.679	1.45	1.55	1073.8	YES	NO	bb	bd	51.391
7	Total-pentafurans	28.79	4.479e4	3.002e4	0.654	1.49	1.55	225.2	YES	NO	bb	bb	11.035
8	123478-HxCDF	34.90	2.903e5	2.325e5	1.166	1.25	1.24	1370.1	YES	NO	bd	bd	48.245
9	123468-HXCDF	33.23	3.102e5	2.472e5	1.169	1.26	1.24	1465.3	YES	NO	bb	bb	51.304
10	123789-HxCDF	36.93	2.403e5	1.952e5	1.137	1.23	1.24	1110.7	YES	NO	bb	bb	49.077
11	234678-HxCDF	35.91	2.873e5	2.291e5	1.140	1.25	1.24	1358.7	YES	NO	bb	bb	50.224
12	123678-HxCDF	35.04	3.271e5	2.812e5	1.091	1.16	1.24	1497.0	YES	NO	db	db	47.992
13	1234678-HpCDF	38.77	2.051e5	2.017e5	1.003	1.02	1.05	1185.4	YES	NO	bb	bb	51.838
14	1234789-HpCDF	41.01	1.584e5	1.578e5	0.953	1.00	1.05	790.9	YES	NO	bb	bb	48.461
15	OCDF	45.24	2.094e5	2.177e5	0.778	0.96	0.89	1194.3	YES	NO	bd	bb	103.506
16	13468-PECDF	27.13	5.428e5	3.536e5	1.246	1.54	1.55	9287.8	YES	NO	bb	bb	67.124
17	Total-tetradioxins	25.60	3.327e4	3.983e4	1.024	0.84	0.77	333.8	YES	NO	bd	bb	5.433
18	Total-tetradioxins	25.04	8.004e2	1.202e3	1.024	0.67	0.77	7.4	YES	NO	bb	db	0.149
19	Total-tetradioxins	24.74	2.704e3	4.097e3	1.024	0.66	0.77	17.7	YES	NO	bb	bd	0.506
20	1368-TCDD	23.56	6.641e4	8.365e4	1.015	0.79	0.77	704.3	YES	NO	bb	bb	11.251
21	1289-TCDD	27.02	6.055e4	8.062e4	0.909	0.75	0.77	567.6	YES	NO	bd	bd	11.826
22	Total-tetradioxins	26.76	1.054e2	1.391e2	1.024	0.76	0.77	2.1	NO	NO	bb	bb	0.018
23	2378-TCDD	26.42	6.583e4	8.225e4	1.149	0.80	0.77	654.9	YES	NO	bb	bb	9.815
24	Total-tetradioxins	26.10	9.949e4	1.339e5	1.024	0.74	0.77	703.4	YES	NO	bb	bb	17.347
25	12389-PECDD	31.93	2.675e5	1.746e5	1.184	1.53	1.55	1980.6	YES	NO	bb	bb	49.870
26	12378-PeCDD	31.54	2.257e5	1.459e5	1.022	1.55	1.55	1638.2	YES	NO	bb	bb	48.547
27	12479-PECDD	28.82	4.776e5	3.067e5	2.301	1.56	1.55	2227.8	YES	NO	bb	bb	45.504
28	124679-HXCDD	34.01	2.545e5	2.054e5	1.115	1.24	1.24	1245.7	YES	NO	bb	bb	50.484
29	123789-HxCDD	36.52	2.330e5	1.844e5	0.907	1.26	1.24	1104.0	YES	NO	bd	bb	51.608
30	123678-HxCDD	36.14	2.694e5	2.159e5	1.001	1.25	1.24	1260.5	YES	NO	db	db	50.174
31	123478-HxCDD	36.02	2.316e5	1.815e5	0.996	1.28	1.24	1214.5	YES	NO	bd	bd	50.799
32	1234679-HPCDD	39.23	2.082e5	2.022e5	1.137	1.03	1.05	1099.8	YES	NO	bb	bb	49.010
33	1234678-HpCDD	40.27	1.962e5	1.803e5	1.039	1.09	1.05	932.5	YES	NO	bd	bb	49.199
34	OCDD	45.00	2.234e5	2.618e5	0.920	0.85	0.89	1496.5	YES	NO	bb	bb	99.422

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PFK1

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

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.14	2.253e6					8.0	YES		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.08	3.977e4					2.3	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.32	4.162e3					0.8	NO		bb		
2	FUNCTION4 PFK	40.68	1.340e4					1.2	NO		bb		
3	FUNCTION4 PFK	40.50	1.024e4					1.3	NO		bb		
4	FUNCTION4 PFK	40.07	1.056e4					1.2	NO		bb		
5	FUNCTION4 PFK	39.50	1.007e4					1.4	NO		bb		
6	FUNCTION4 PFK	42.14	1.085e4					1.0	NO		bb		
7	FUNCTION4 PFK	42.10	6.400e3					1.1	NO		bb		
8	FUNCTION4 PFK	41.87	1.885e3					0.6	NO		bb		
9	FUNCTION4 PFK	41.61	5.389e3					0.9	NO		bb		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	43.23	1.323e3					0.7	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	26.55	1.589e2					2.0	NO		db		0.000
2	FUNCTION1 HXCD...	26.42	1.755e2					3.2	YES		bd		0.000
3	FUNCTION1 HXCD...	25.59	9.854e1					1.9	NO		bb		0.000
4	FUNCTION1 HXCD...	23.87	7.096e1					1.9	NO		bb		0.000
5	FUNCTION1 HXCD...	23.56	8.003e1					2.4	NO		bb		0.000
6	FUNCTION1 HXCD...	22.40	7.940e1					1.8	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	30.33	1.101e2					1.7	NO		bb		0.000
2	FUNCTION2 HPCD...	28.89	7.875e1					1.7	NO		bb		0.000
3	FUNCTION2 HPCD...	31.17	3.263e2					4.7	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.51	1.586e2					5.0	YES		bb		0.000
2	FUNCTION3 OCDPE	36.13	1.909e2					4.9	YES		db		0.000
3	FUNCTION3 OCDPE	35.99	1.751e2					5.1	YES		bd		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.06	1.247e2					2.2	NO		db		0.000
2	FUNCTION4 NCDPE	40.94	7.187e1					1.7	NO		bd		0.000
3	FUNCTION4 NCDPE	40.37	7.003e1					1.7	NO		db		0.000
4	FUNCTION4 NCDPE	40.26	2.223e2					3.8	YES		bd		0.000

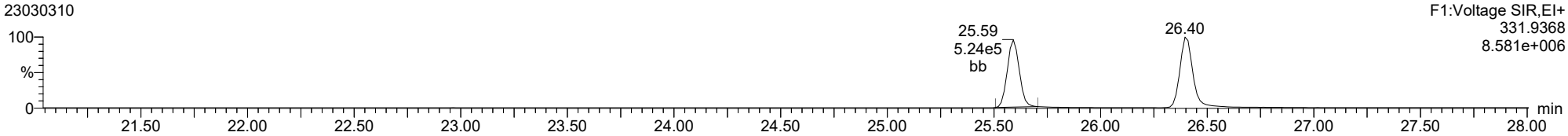
ETHERS6

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1													

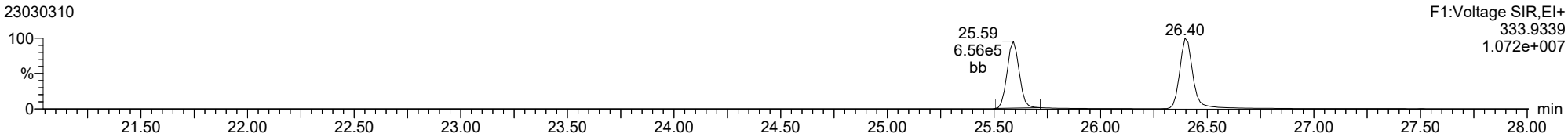
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ID: ICVCW, Name: 23030310, Date: 03-Mar-2023, Time: 16:36:24, Conditions: AUTOSPEC01, User: pk

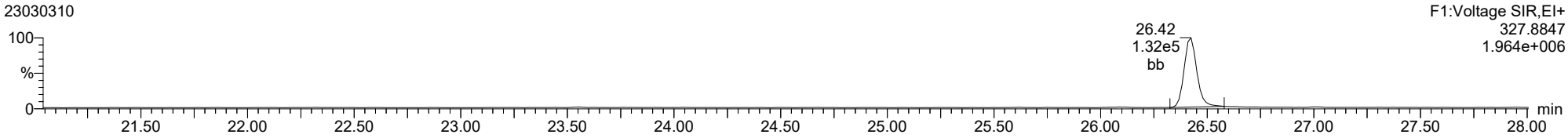
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13C-1234-TCDD

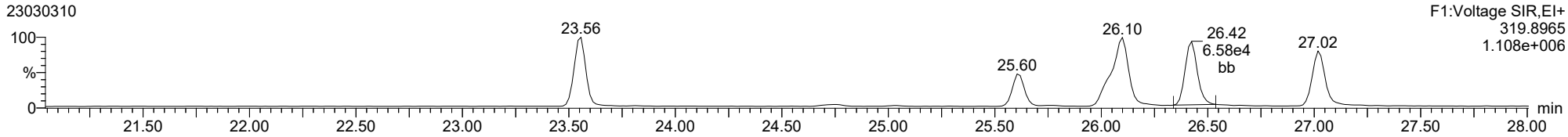


37CL-2378-TCDD

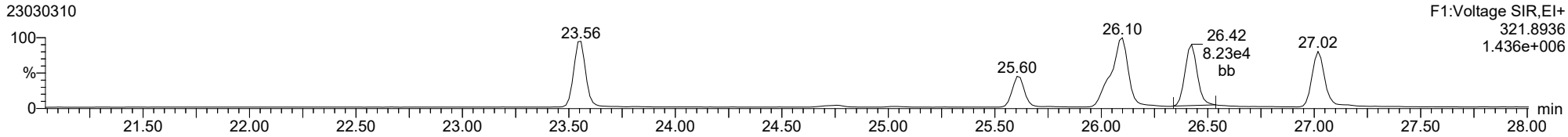


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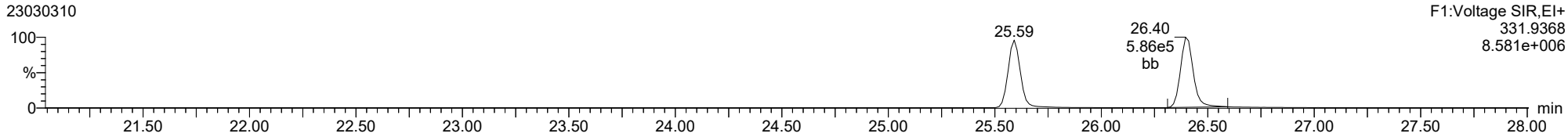
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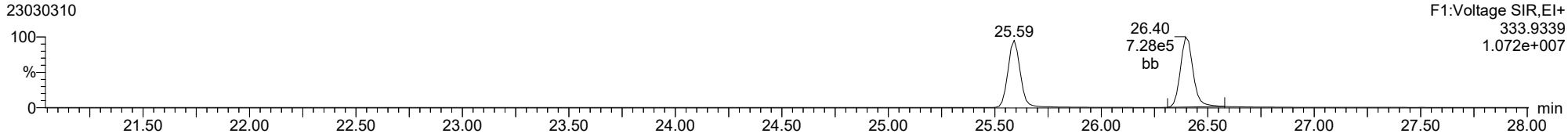
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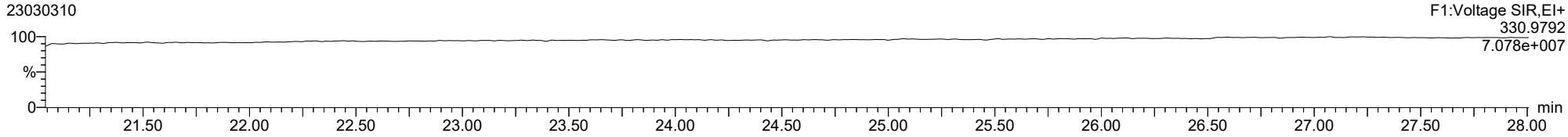
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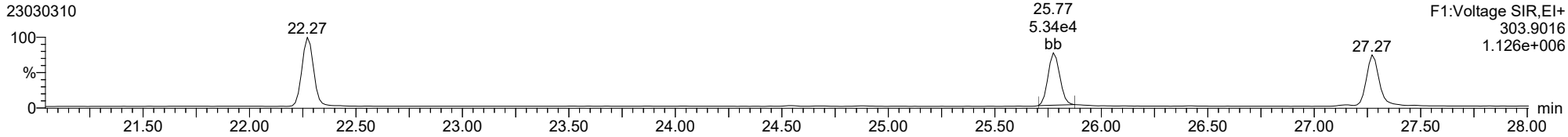


FUNCTION1 PFK

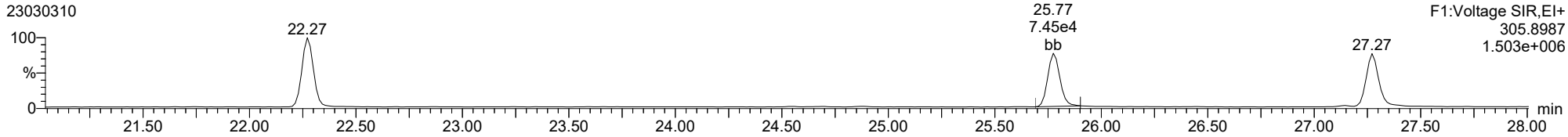


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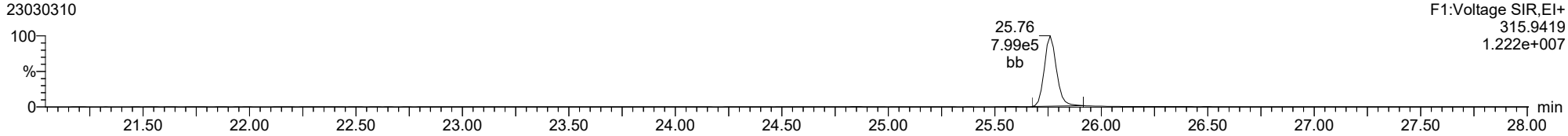
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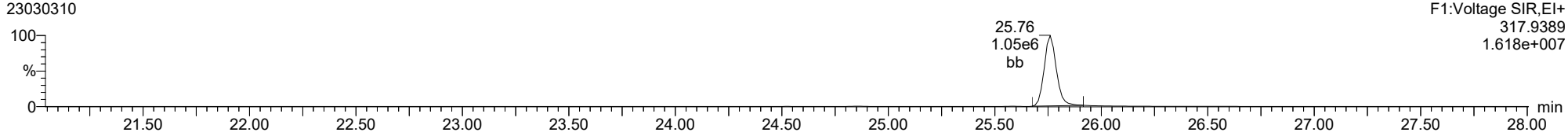
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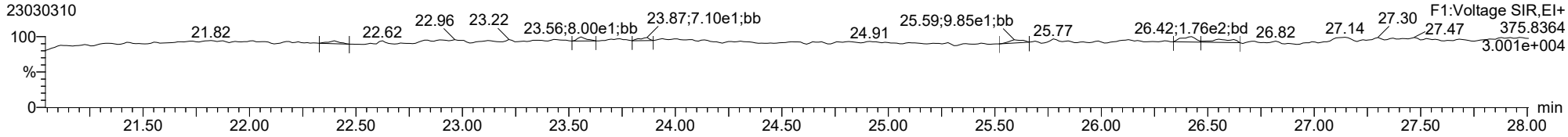
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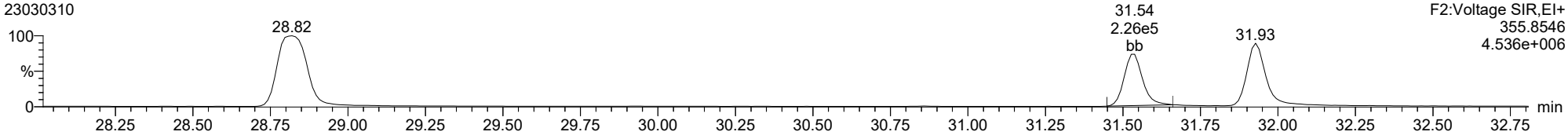


FUNCTION1 HXCDPE

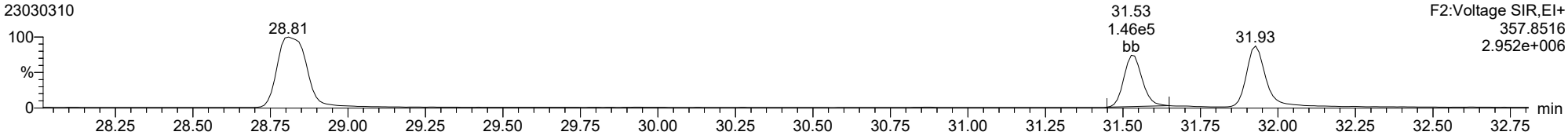


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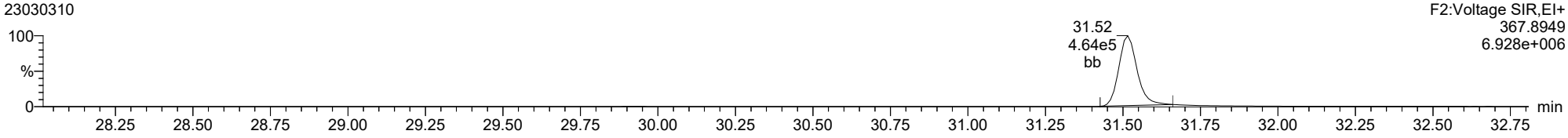
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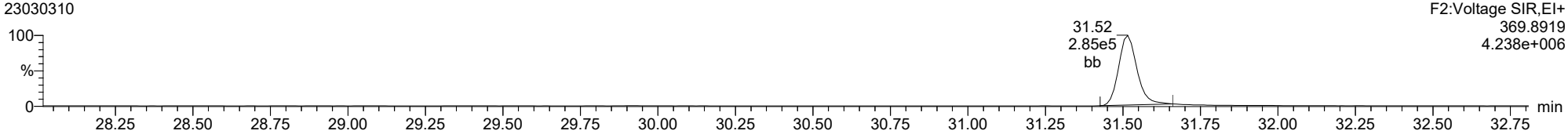
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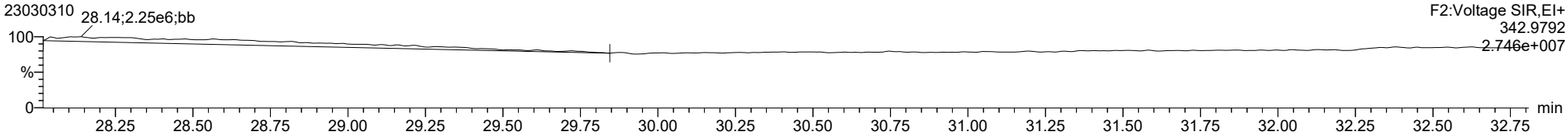
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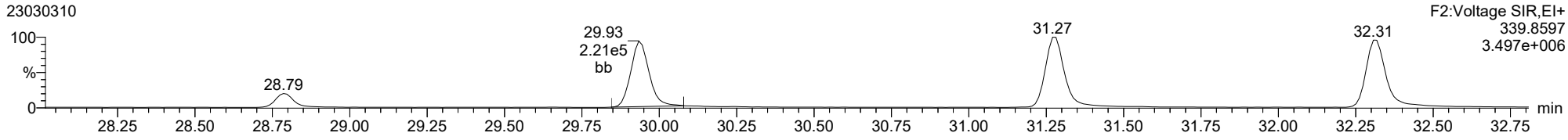


FUNCTION2 PFK

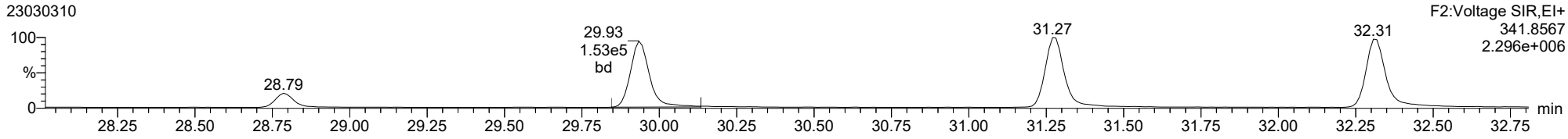


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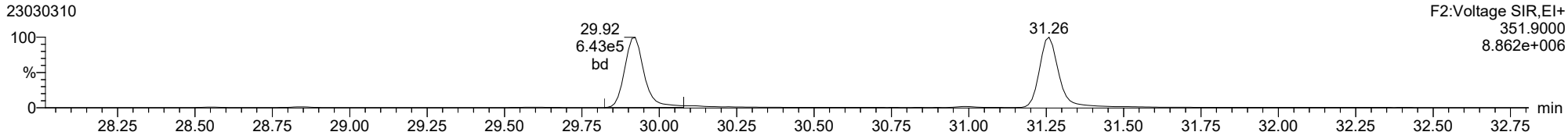
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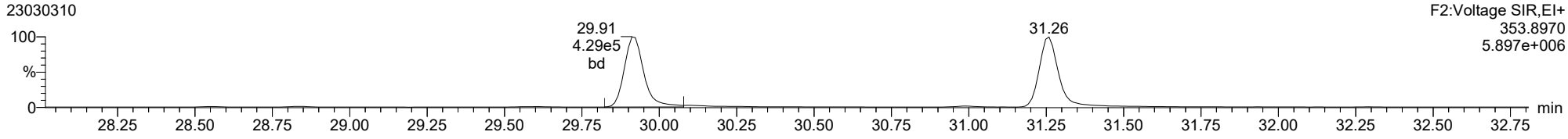
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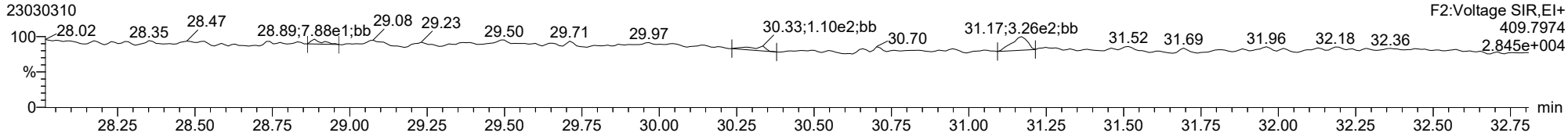
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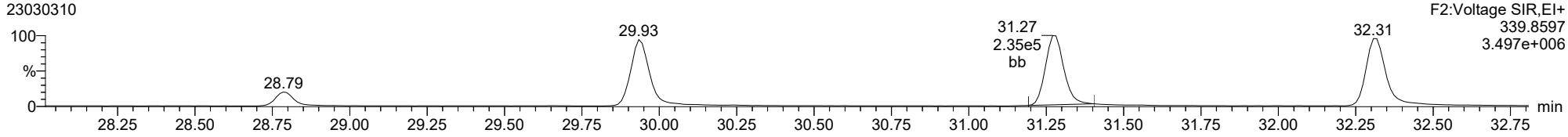


FUNCTION2 HPCDPE

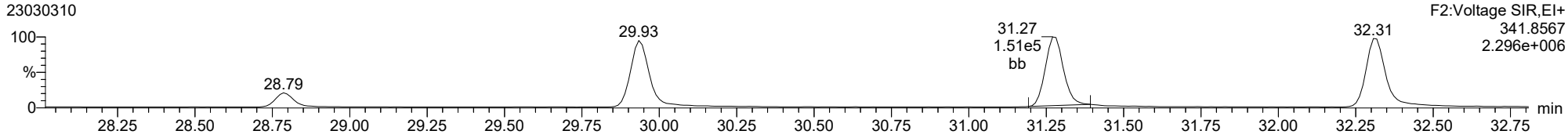


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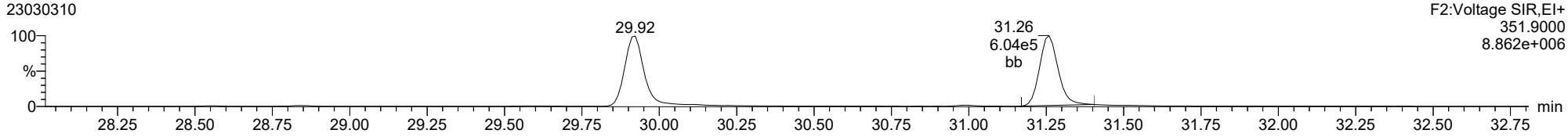
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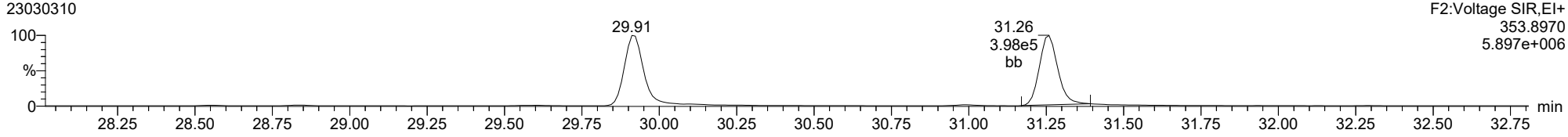
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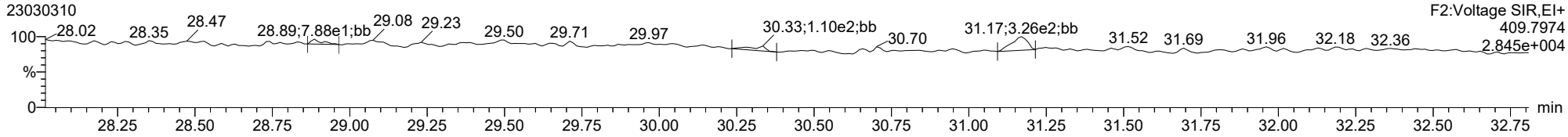
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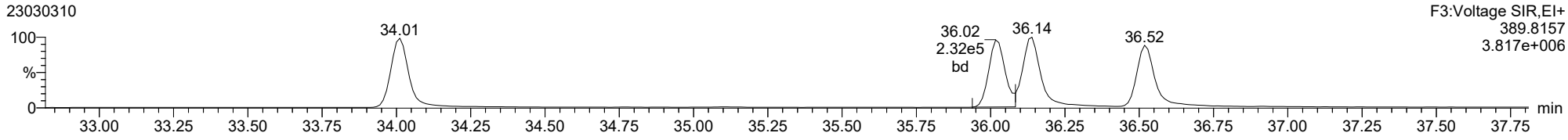


FUNCTION2 HPCDPE

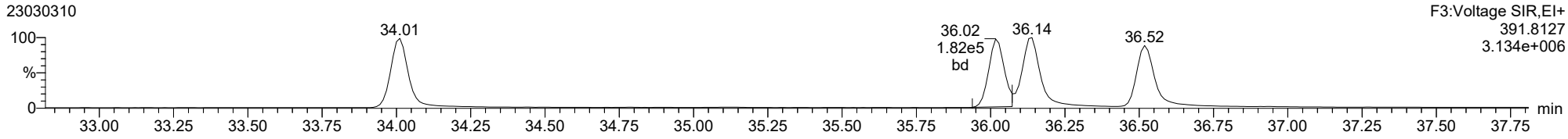


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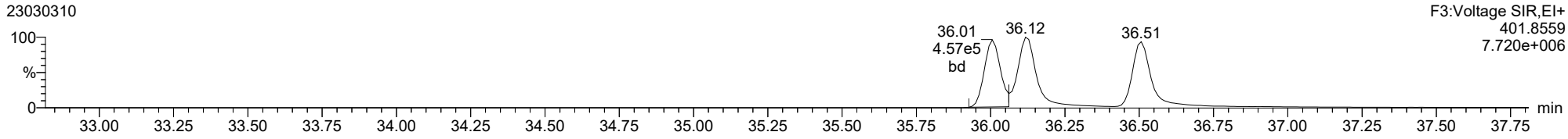
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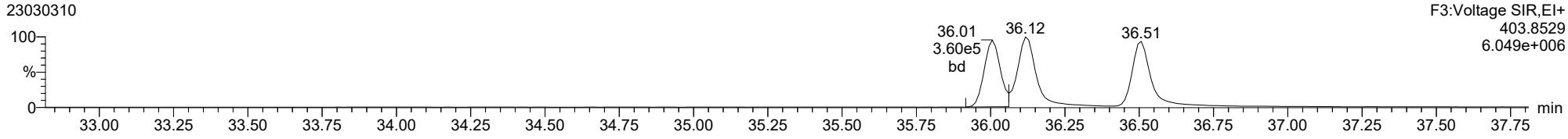
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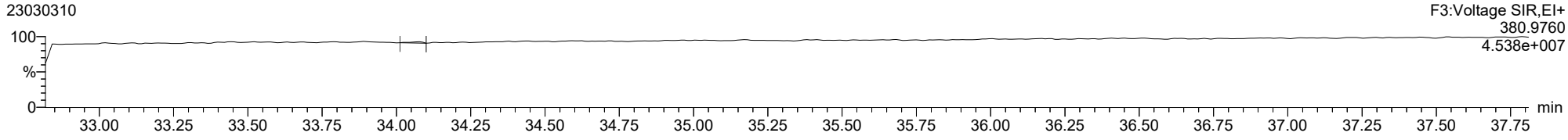
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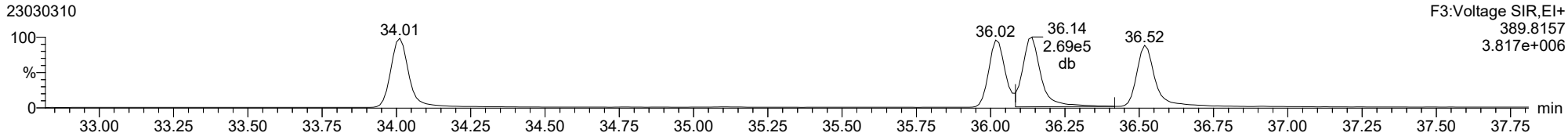


FUNCTION3 PFK

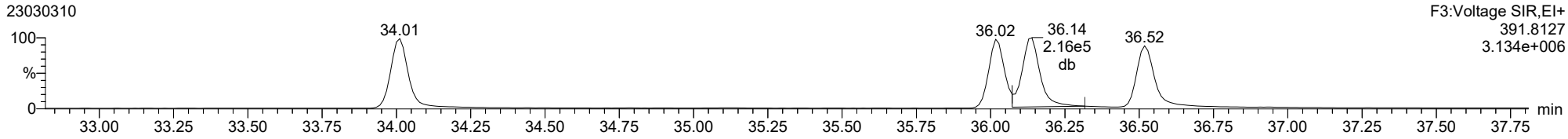


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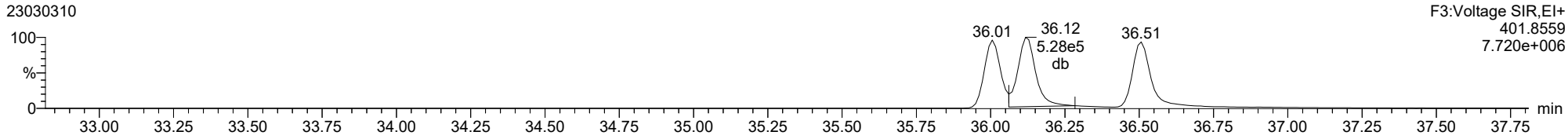
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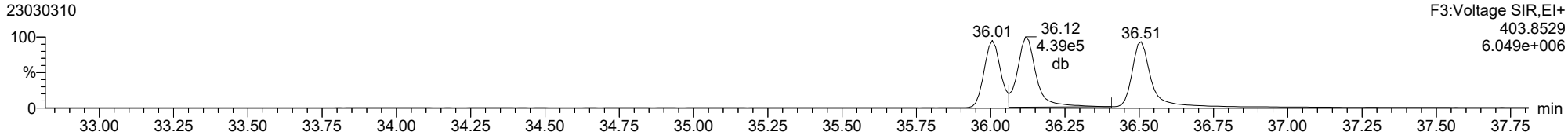
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13C-123678-HxCDD



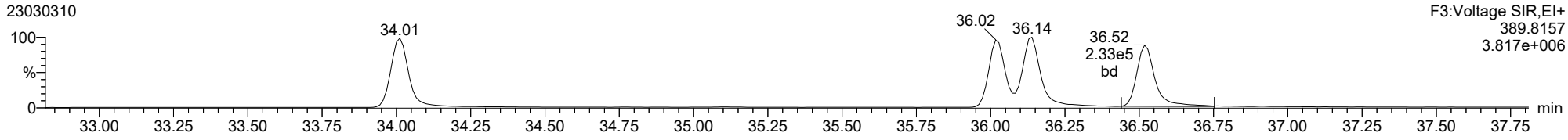
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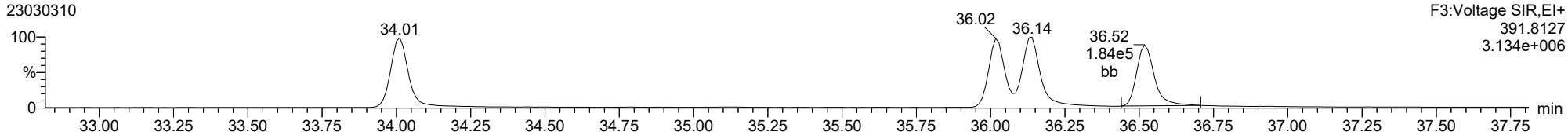
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ID: ICVCW, Name: 23030310, Date: 03-Mar-2023, Time: 16:36:24, Conditions: AUTOSPEC01, User: pk

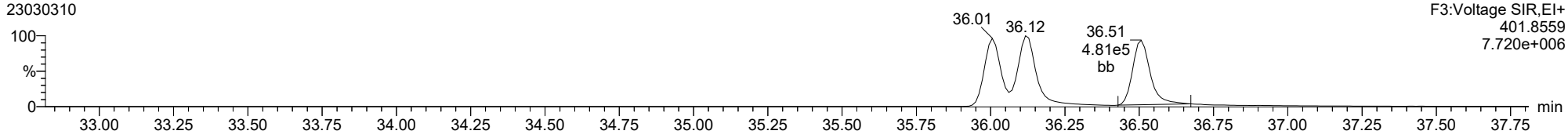
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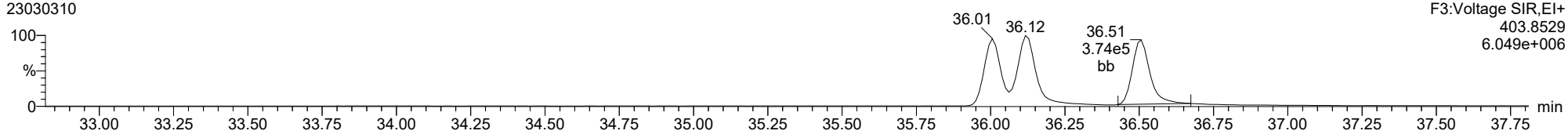
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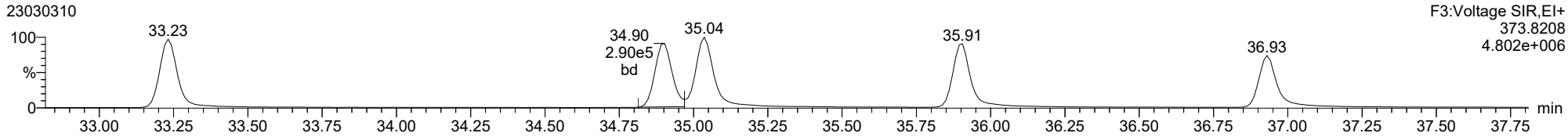


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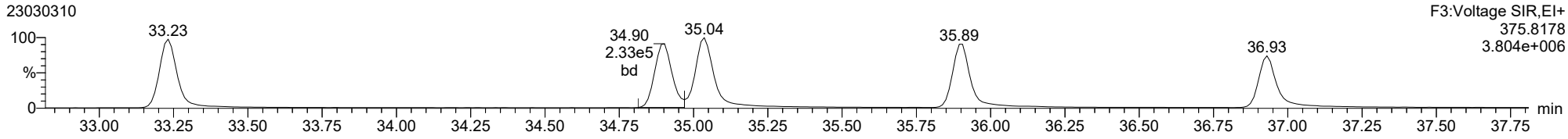


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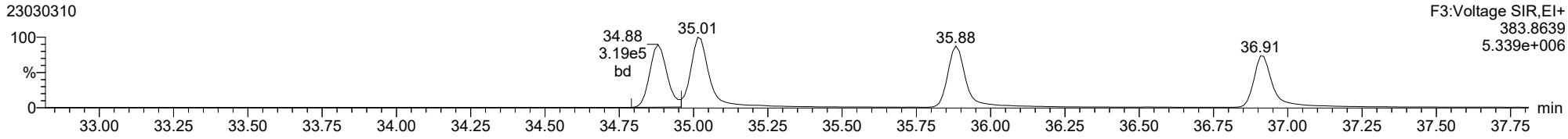
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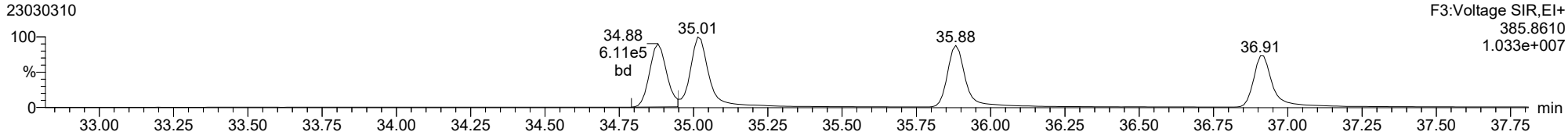
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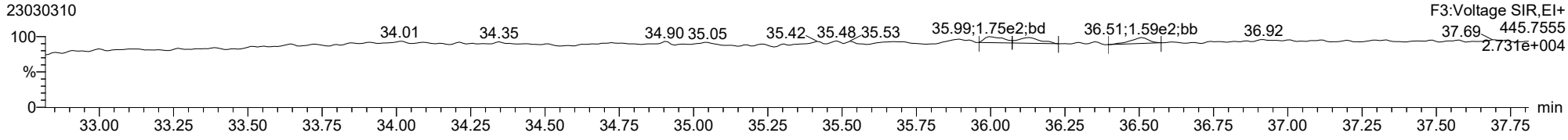
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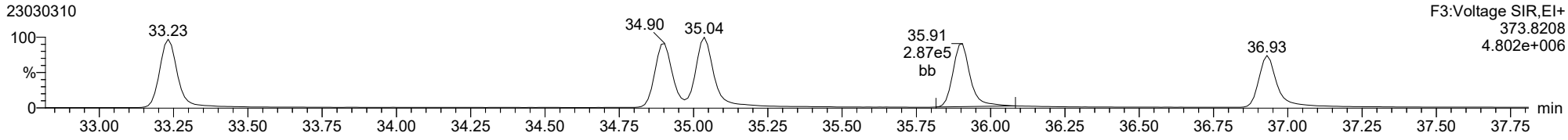


FUNCTION3 OCDPE

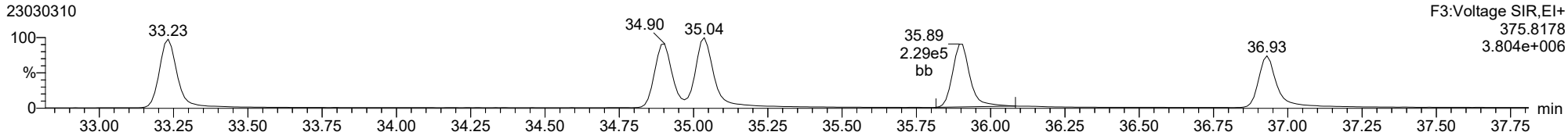


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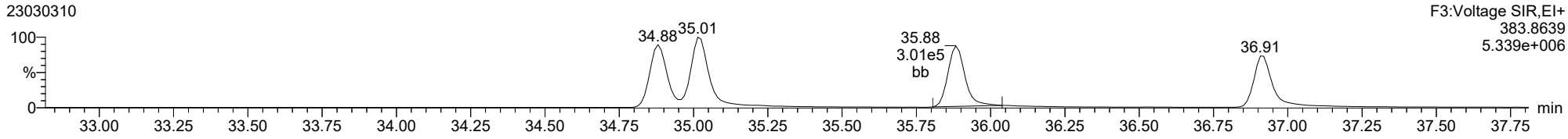
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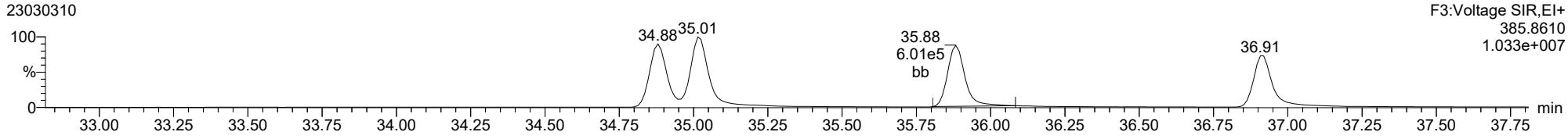
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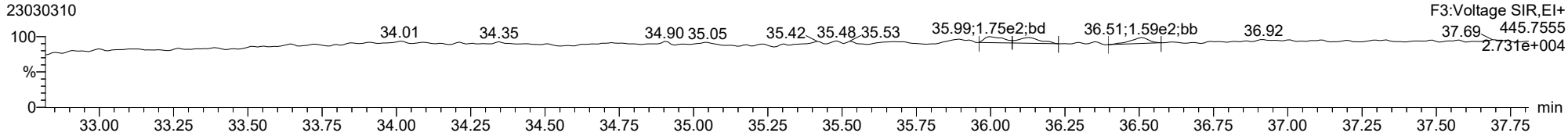
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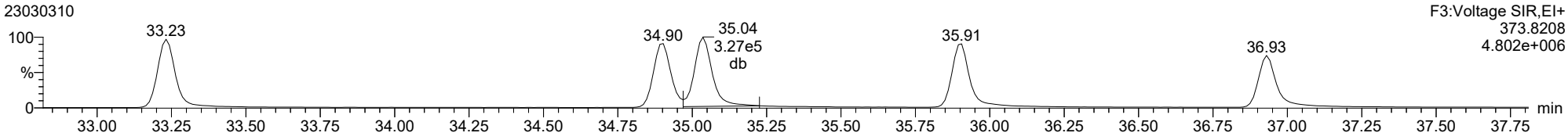


FUNCTION3 OCDPE

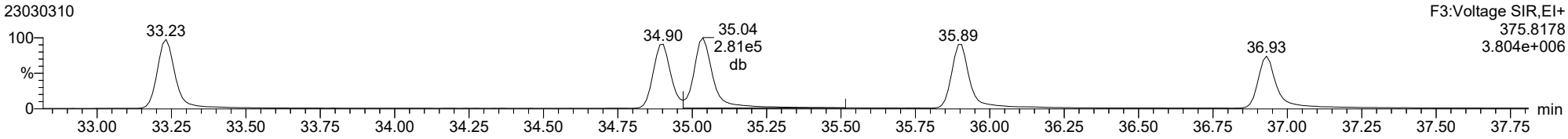


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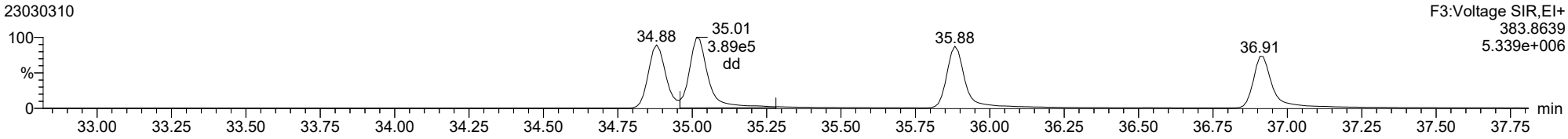
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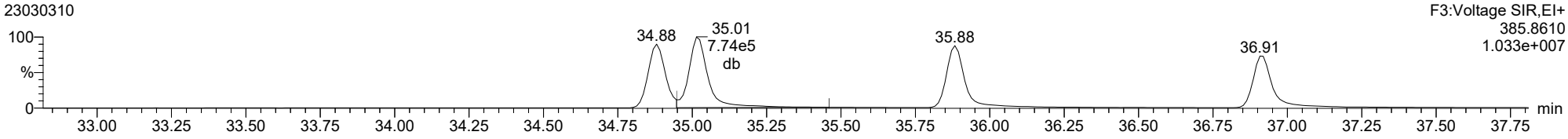
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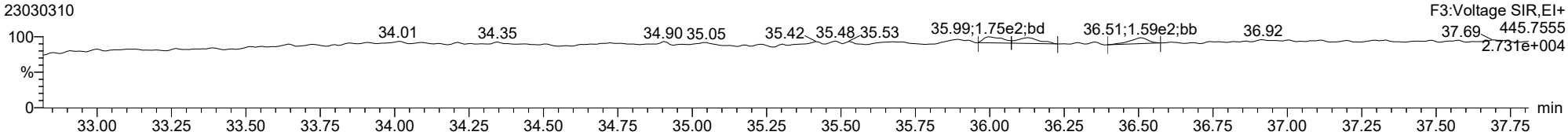
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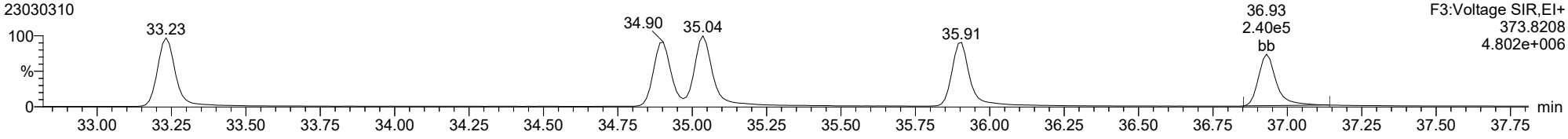


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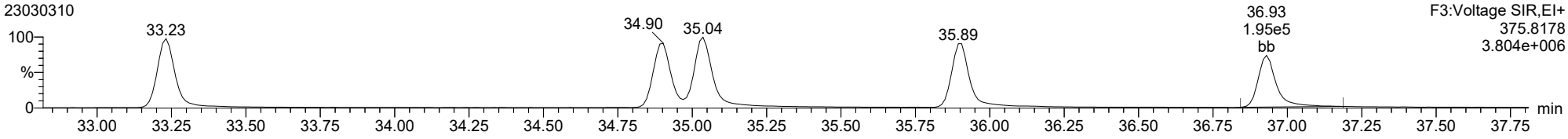


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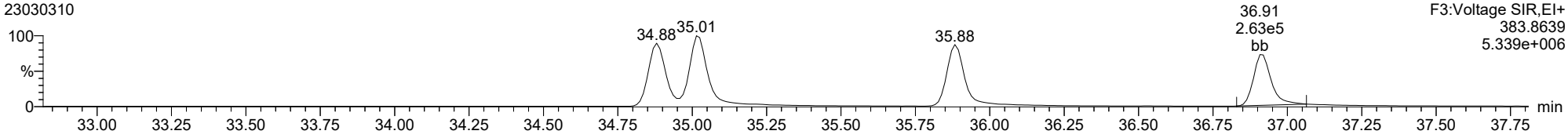
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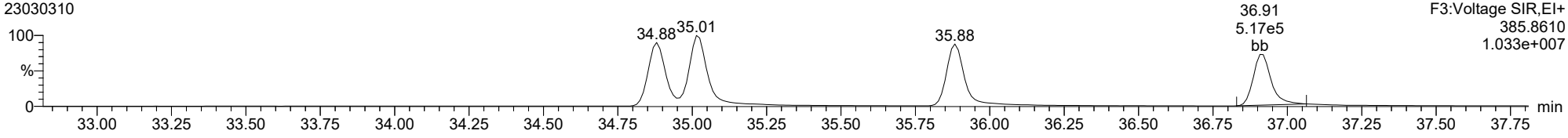
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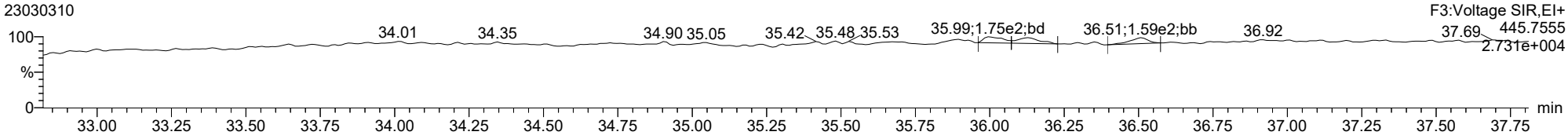
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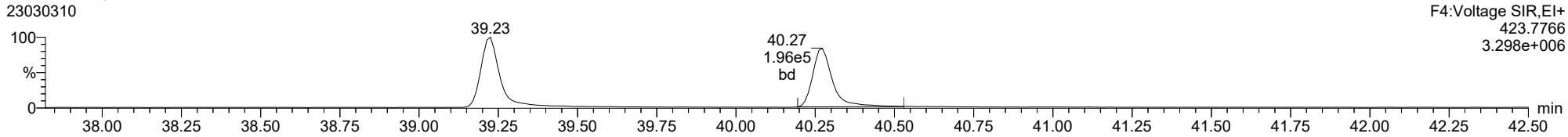


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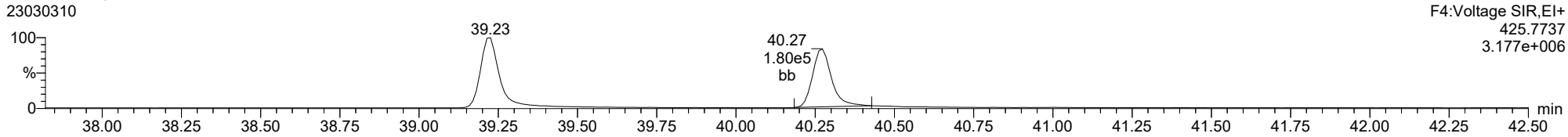


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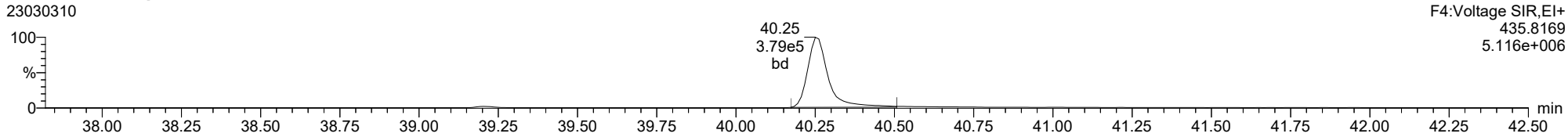
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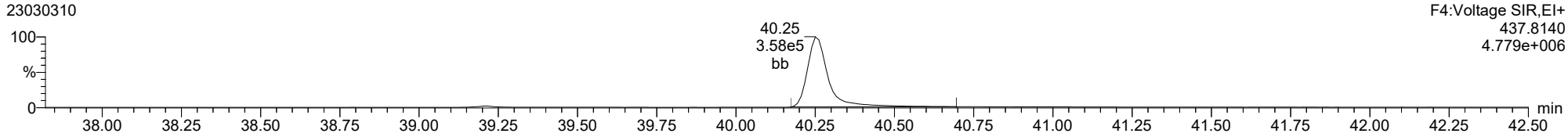
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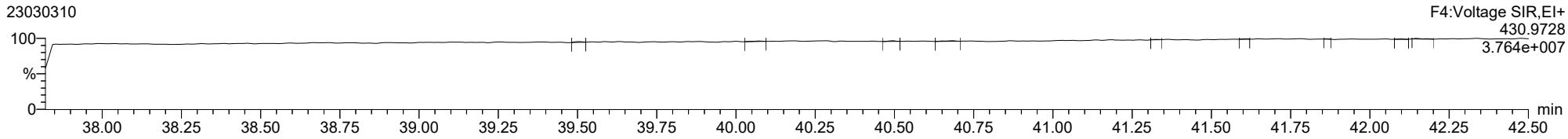
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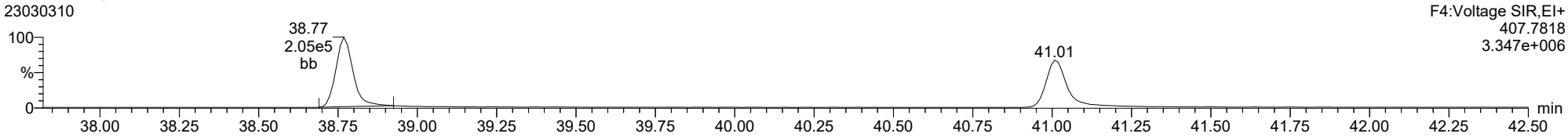


FUNCTION4 PFK

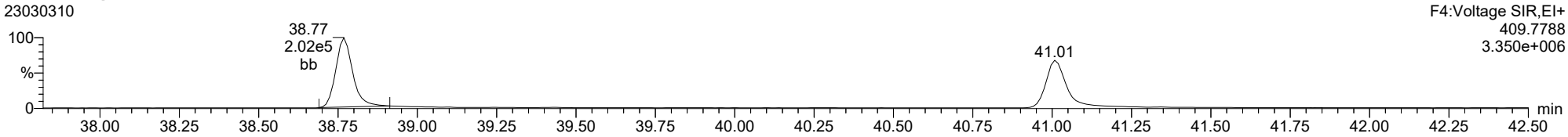


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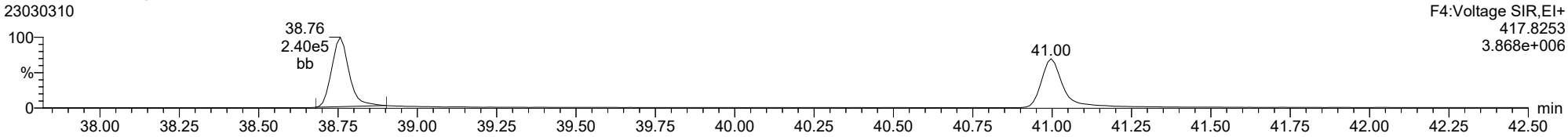
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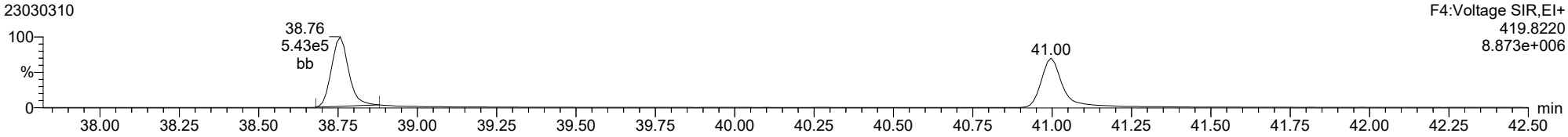
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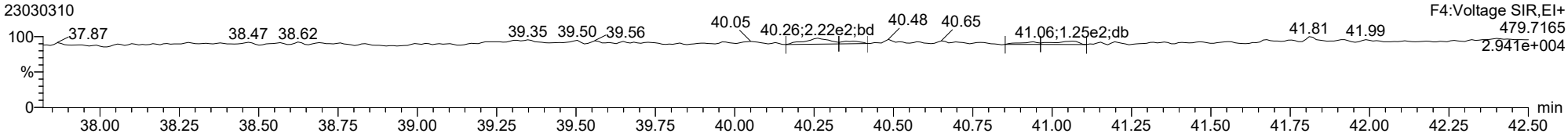
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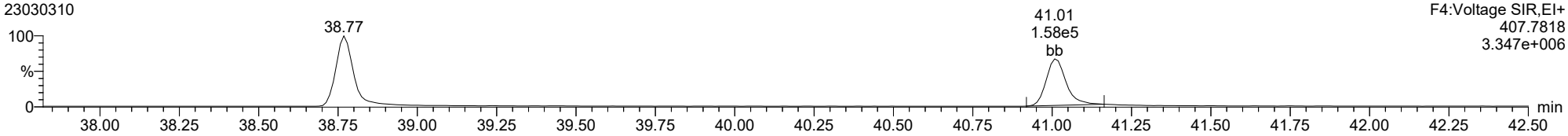


FUNCTION4 NCDPE

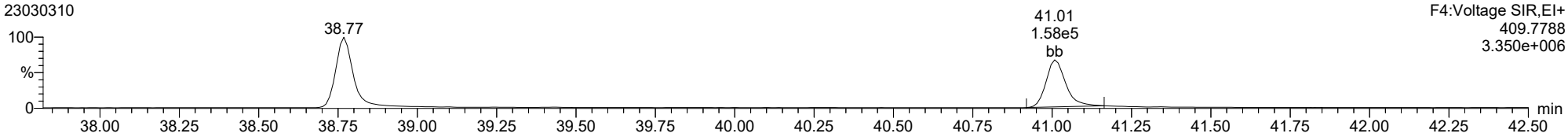


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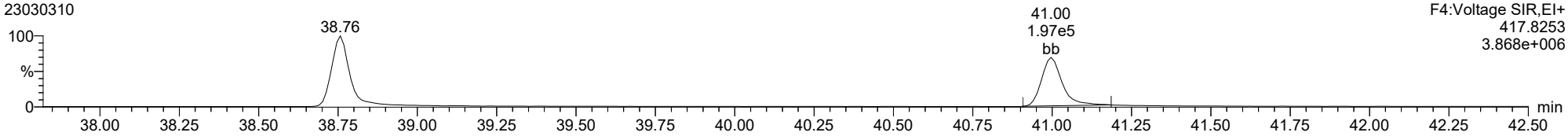
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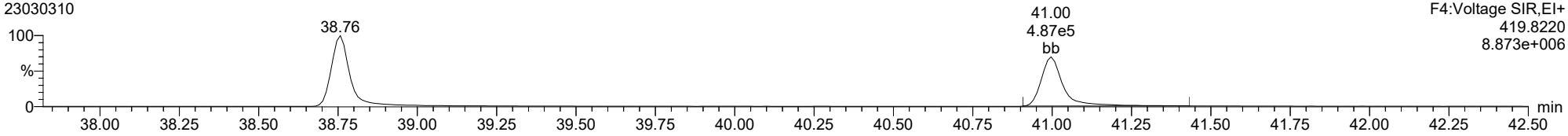
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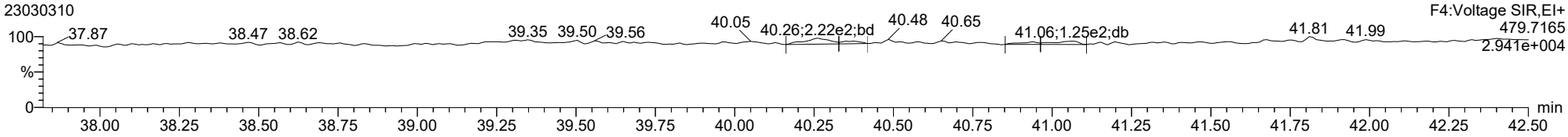
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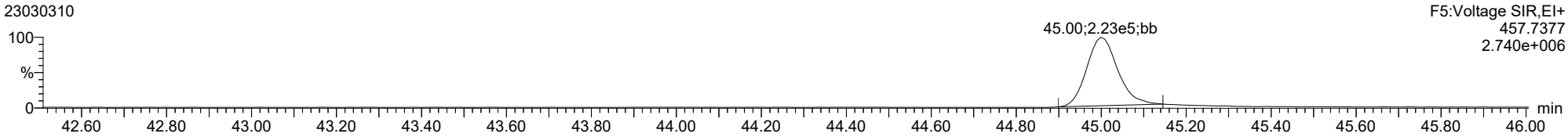


FUNCTION4 NCDPE

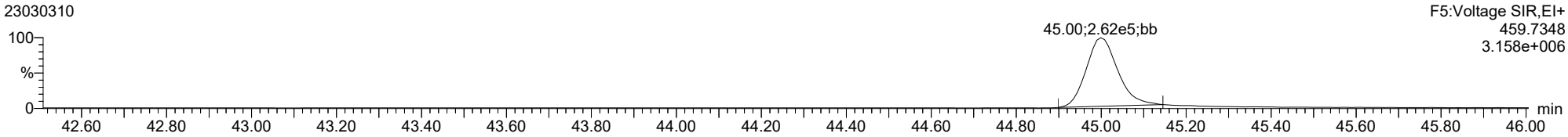


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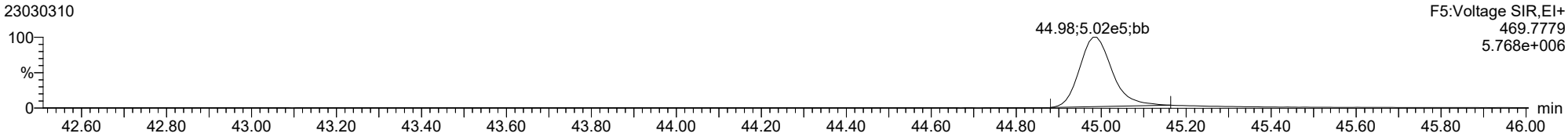
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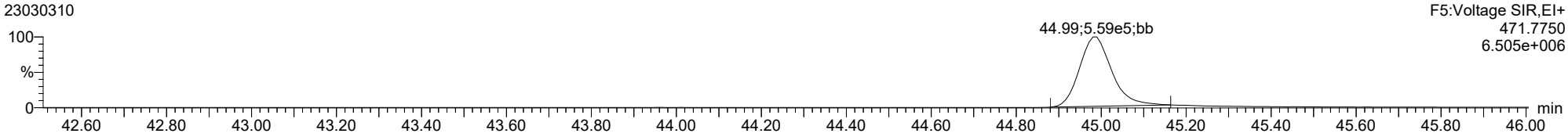
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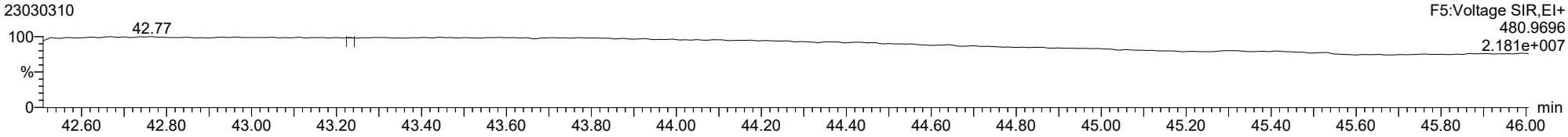
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13C-OCDD

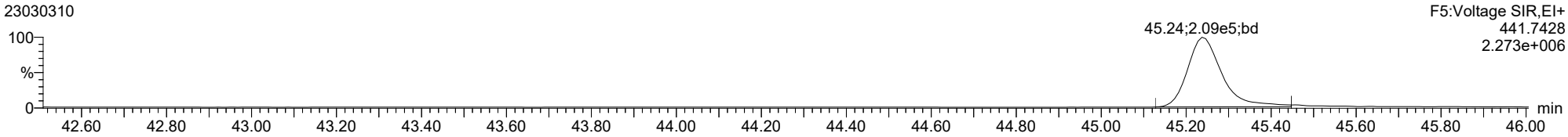


FUNCTION5 PFK

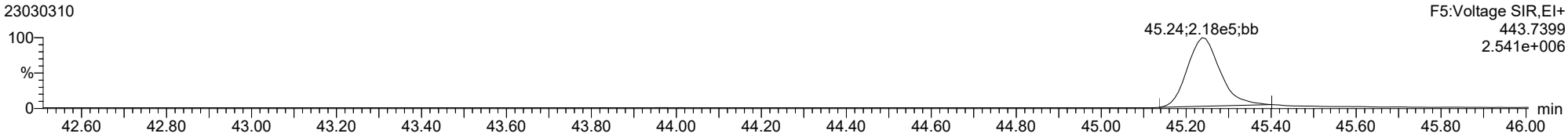


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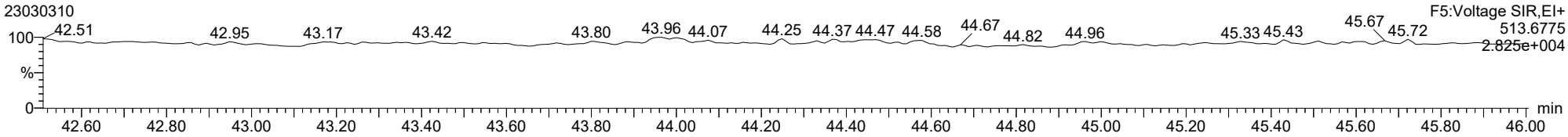
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OCDF

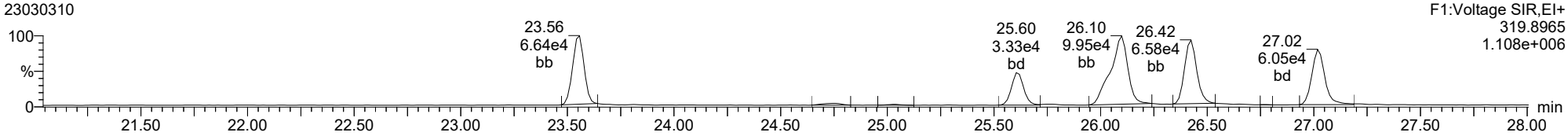


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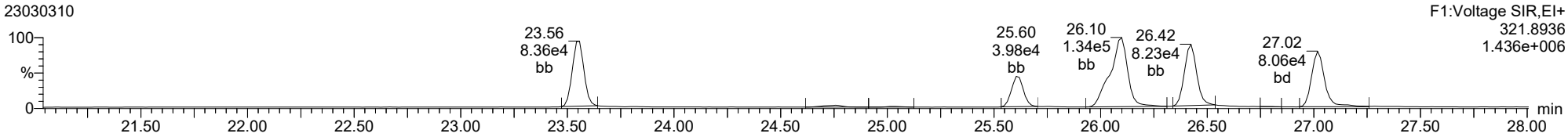


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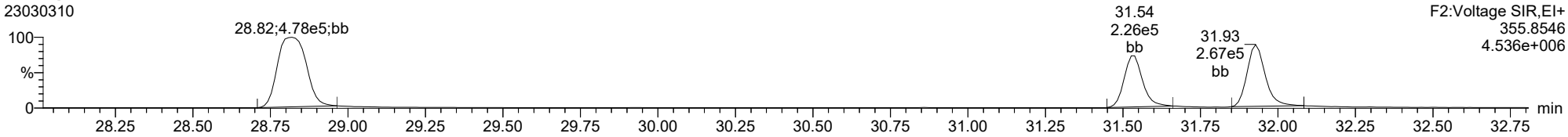
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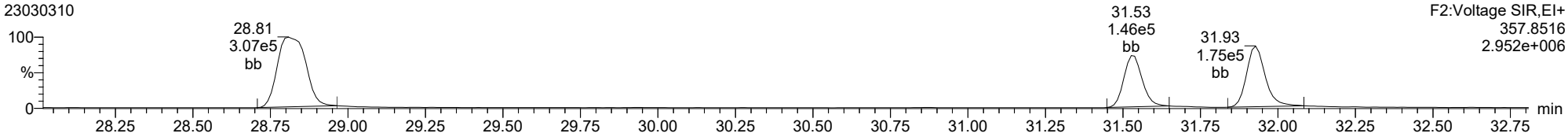
Total-tetradioxins



Total-pentadioxins

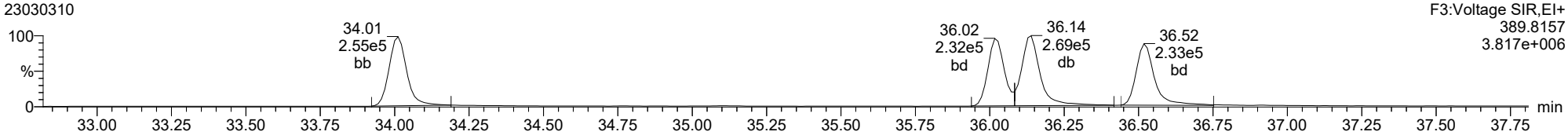


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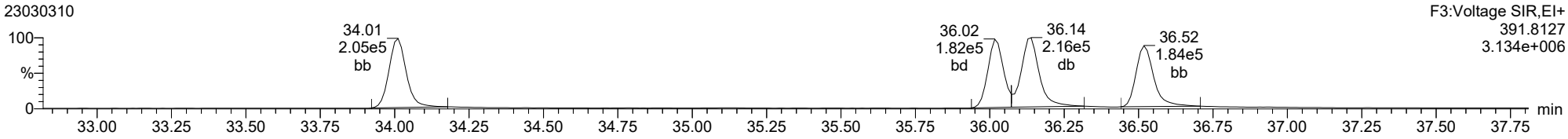


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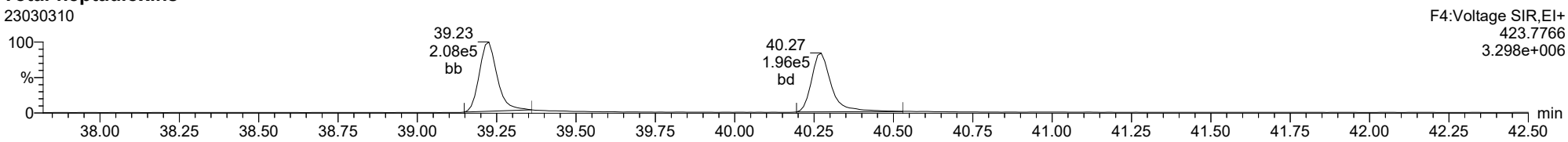
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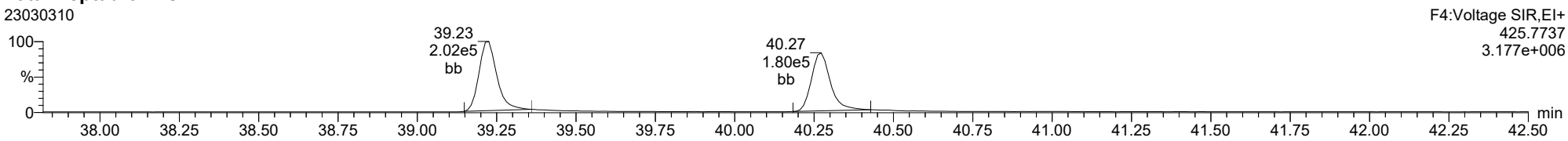
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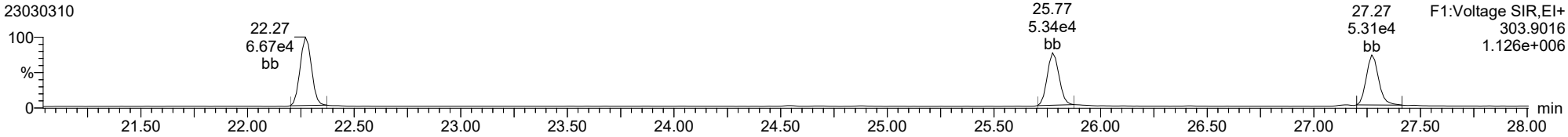


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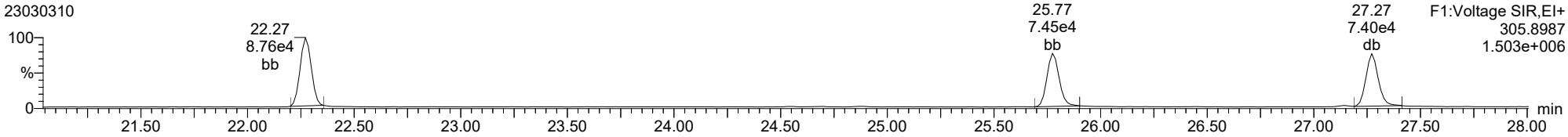


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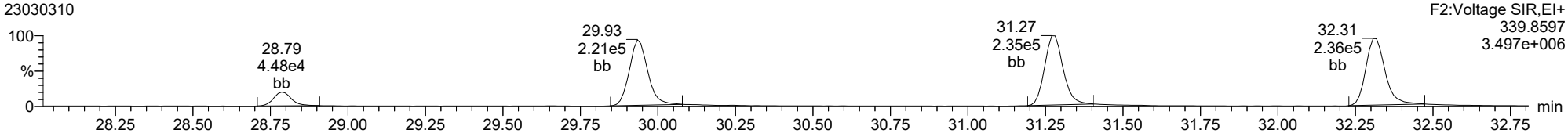
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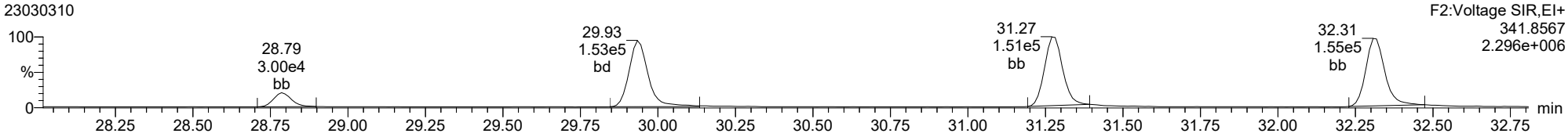
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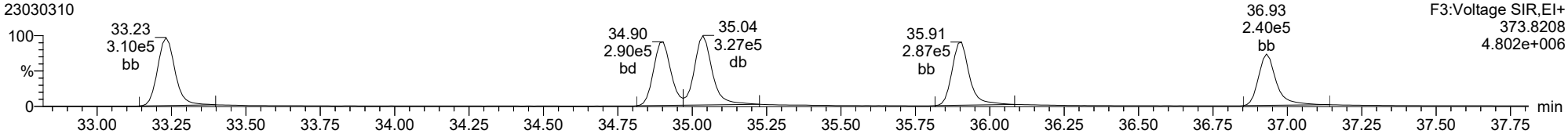


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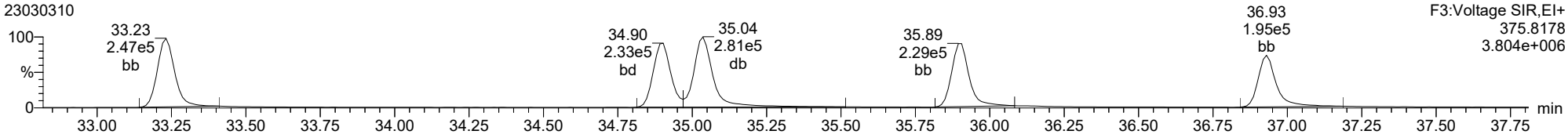


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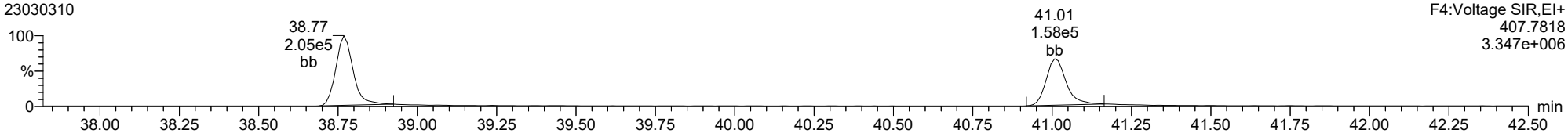
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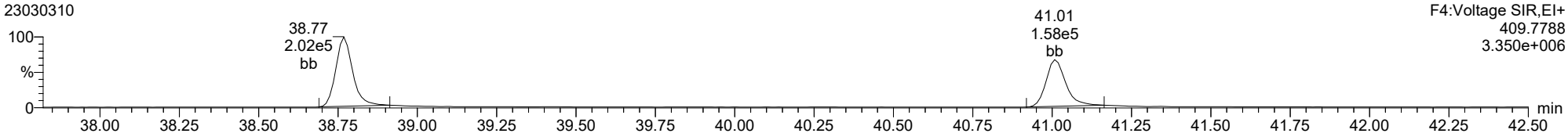
Total-hexafurans



Total-heptafurans



Total-heptafurans



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Last Altered: Monday, March 06, 2023 11:49:27 Pacific Standard Time
Printed: Monday, March 06, 2023 14:47:33 Pacific Standard Time

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ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.774	1.000	4.131e4	5.488e4	0.702	0.753	0.770	1493	2220	6.02e5	8.13e5	403.0	366.2	NO	bb	bb	10.126
12378-PeCDF	29.934	1.000	2.094e5	1.387e5	0.679	1.510	1.550	3237	2768	3.10e6	2.08e6	956.2	750.8	NO	bb	bb	47.721
23478-PeCDF	31.282	1.001	2.189e5	1.466e5	0.786	1.493	1.550	3237	2768	3.25e6	2.13e6	1004.6	769.0	NO	bb	bb	48.580
123478-HxCDF	34.903	1.001	2.702e5	2.168e5	1.166	1.247	1.240	2948	2161	4.14e6	3.34e6	1404.3	1544.7	NO	bd	bd	47.304
234678-HxCDF	35.905	1.001	2.808e5	2.345e5	1.140	1.198	1.240	2948	2161	4.05e6	3.23e6	1375.6	1495.3	NO	bb	bd	52.050
123678-HxCDF	35.036	1.000	3.125e5	2.496e5	1.091	1.252	1.240	2948	2161	4.44e6	3.55e6	1506.3	1641.4	NO	db	db	51.387
123789-HxCDF	36.931	1.000	2.304e5	1.857e5	1.137	1.240	1.240	2948	2161	3.37e6	2.68e6	1143.7	1240.6	NO	bb	bb	48.904
1234678-HpCDF	38.769	1.000	1.725e5	1.737e5	1.003	0.993	1.050	2044	2260	2.71e6	2.74e6	1326.3	1210.9	NO	bb	bb	47.690
1234789-HpCDF	41.008	1.000	1.395e5	1.236e5	0.953	1.128	1.050	2044	2260	1.71e6	1.64e6	836.3	725.6	NO	bd	bb	53.601
OCDF	45.237	1.005	1.863e5	1.970e5	0.778	0.946	0.890	1162	1746	2.03e6	2.27e6	1745.6	1302.8	NO	bd	bb	95.021
2378-TCDD	26.424	1.001	4.111e4	5.488e4	1.149	0.749	0.770	1210	797	6.31e5	8.06e5	521.2	1010.5	NO	bb	bb	9.017
12378-PeCDD	31.538	1.001	2.212e5	1.442e5	1.022	1.534	1.550	2794	1649	3.14e6	2.05e6	1124.1	1244.9	NO	bb	bb	50.849
123478-HxCDD	36.017	1.000	2.147e5	1.744e5	0.996	1.231	1.240	3133	1871	3.31e6	2.68e6	1055.8	1434.4	NO	bd	bd	50.696
123678-HxCDD	36.139	1.001	2.532e5	2.091e5	1.001	1.211	1.240	3133	1871	3.49e6	2.85e6	1112.6	1520.4	NO	db	db	51.126
123789-HxCDD	36.518	1.011	2.114e5	1.814e5	0.907	1.166	1.240	3133	1871	3.08e6	2.54e6	982.1	1355.5	NO	bb	bd	51.723
1234678-HpCDD	40.273	1.000	1.700e5	1.663e5	1.039	1.022	1.050	1948	2105	2.22e6	2.15e6	1138.4	1022.1	NO	bd	bd	52.721
OCDD	45.000	1.000	2.152e5	2.483e5	0.920	0.867	0.890	885	1554	2.46e6	2.84e6	2785.0	1828.9	NO	bb	bb	97.150
13C-2378-TCDF	25.760	1.007	5.853e5	7.688e5	1.620	0.761	0.770	1921	2018	8.54e6	1.13e7	4445.5	5599.2	NO	bb	bb	89.420
13C-12378-PeCDF	29.923	1.169	6.466e5	4.272e5	1.240	1.513	1.550	2442	3390	8.85e6	5.90e6	3622.7	1739.1	NO	bb	bd	92.612
13C-23478-PeCDF	31.259	1.222	5.702e5	3.869e5	1.118	1.474	1.550	2442	3390	8.42e6	5.62e6	3447.3	1659.1	NO	bb	bb	91.616
13C-123478-HxCDF	34.881	0.955	2.992e5	5.837e5	1.168	0.513	0.510	2430	2952	4.46e6	8.67e6	1835.4	2935.2	NO	bd	bd	95.179
13C-123678-HxCDF	35.025	0.959	3.347e5	6.682e5	1.386	0.501	0.510	2430	2952	4.76e6	9.19e6	1958.9	3111.9	NO	db	db	91.102
13C-234678-HxCDF	35.883	0.983	2.956e5	5.730e5	1.129	0.516	0.510	2430	2952	4.27e6	8.35e6	1756.5	2829.2	NO	bb	bb	96.885
13C-123789-HxCDF	36.919	1.011	2.519e5	4.965e5	0.932	0.507	0.510	2430	2952	3.69e6	7.15e6	1518.9	2421.6	NO	bb	bb	101.167
13C-1234678-HpCDF	38.758	1.062	2.307e5	4.931e5	0.895	0.468	0.440	2487	3339	3.35e6	7.56e6	1347.2	2263.7	NO	bd	bb	101.839
13C-1234789-HpCDF	40.997	1.123	1.602e5	3.548e5	0.770	0.452	0.440	2487	3339	2.05e6	4.72e6	823.7	1413.6	NO	bb	bb	84.268
13C-1234-TCDD	25.591	0.000	4.152e5	5.195e5	1.000	0.799	0.770	2224	1360	6.53e6	8.14e6	2938.6	5984.1	NO	bb	bb	100.000
13C-2378-TCDD	26.396	1.031	4.083e5	5.184e5	1.152	0.788	0.770	2224	1360	5.76e6	7.36e6	2588.5	5411.0	NO	bb	bb	86.032
13C-12378-PeCDD	31.516	1.232	4.323e5	2.709e5	0.829	1.595	1.550	1217	913	6.32e6	3.99e6	5187.9	4362.9	NO	bb	bb	90.774
13C-123478-HxCDD	36.006	0.986	4.338e5	3.372e5	0.995	1.286	1.240	3851	1371	6.85e6	5.33e6	1778.6	3884.7	NO	bd	bd	97.589
13C-123678-HxCDD	36.117	0.989	5.114e5	3.919e5	1.157	1.305	1.240	3851	1371	7.20e6	5.65e6	1870.4	4120.3	NO	db	db	98.370
13C-1234678-HpCDD	40.262	1.103	3.166e5	2.972e5	0.840	1.065	1.050	1699	1520	4.20e6	3.95e6	2473.2	2598.3	NO	bb	bb	92.030
13C-OCDD	44.990	1.232	5.160e5	5.214e5	0.767	0.990	0.890	2001	1870	5.29e6	5.84e6	2645.0	3123.1	NO	bd	bb	170.247
13C-123789-HxCDD	36.507	0.000	4.452e5	3.487e5	1.000	1.277	1.240	3851	1371	6.49e6	5.07e6	1686.5	3694.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.424	1.033	9.071e4		1.288			1721		1.34e6		776.4			bb		7.536

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Last Altered: Monday, March 06, 2023 11:49:27 Pacific Standard Time
Printed: Monday, March 06, 2023 14:47:33 Pacific Standard Time

ID: CS3W2, Name: 23030311, Date: 03-Mar-2023, Time: 17:25:01, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.271	0.865	5.764e4	7.805e4	0.802	0.738	0.770	1493	2220	9.22e5	1.25e6	617.6	564.2	NO	bb	bb	12.503
1289-TCDF	27.272	1.059	3.446e4	4.665e4	0.678	0.739	0.770	1493	2220	5.07e5	6.62e5	339.5	298.3	NO	bb	db	8.835
13468-PECDF	27.130	0.907	3.611e5	2.330e5	1.246	1.550	1.550	743	1090	5.44e6	3.55e6	7323.2	3255.0	NO	bb	bb	44.390
12389-PECDF	32.318	1.080	2.101e5	1.516e5	0.496	1.387	1.550	3237	2768	2.95e6	1.97e6	910.6	713.0	NO	bb	bd	67.866
123468-HXCDF	33.231	0.953	2.880e5	2.384e5	1.169	1.208	1.240	2948	2161	4.12e6	3.25e6	1397.4	1503.0	NO	bb	bb	51.002
1368-TCDD	23.557	0.892	5.668e4	7.180e4	1.015	0.789	0.770	1210	797	9.15e5	1.16e6	755.8	1460.4	NO	bb	bb	13.654
1289-TCDD	27.017	1.023	3.648e4	4.783e4	0.909	0.763	0.770	1210	797	5.40e5	6.90e5	445.8	865.4	NO	bb	bb	10.012
12479-PECDD	28.819	0.914	3.593e5	2.367e5	2.301	1.518	1.550	2794	1649	3.42e6	2.21e6	1224.5	1341.7	NO	bb	bb	36.832
12389-PECDD	31.928	1.013	2.423e5	1.700e5	1.184	1.426	1.550	2794	1649	3.48e6	2.31e6	1246.0	1399.4	NO	bb	bd	49.543
124679-HXCDD	34.011	0.945	2.330e5	1.909e5	1.115	1.220	1.240	3133	1871	3.38e6	2.76e6	1078.1	1473.6	NO	bb	bb	49.292
1234679-HPCDD	39.225	0.974	2.020e5	1.832e5	1.137	1.103	1.050	1948	2105	2.83e6	2.72e6	1451.0	1293.3	NO	bd	bb	55.196
Total-tetrafurans			1.346e5		0.727			1493		2.05e6							31.724
Total-penta1			3.611e5					743		5.44e6							44.390
Total-pentafurans			6.730e5		0.654			3237		9.80e6							172.856
Total-hexafurans			1.382e6		1.141			2948		2.01e7							250.647
Total-heptafurans			3.120e5		0.978			2044		4.42e6							101.291
Total-Furans			3.049e6		0.922			1493		4.39e7							695.930
Total-tetradioxins			2.249e5		1.024			1210		3.13e6							54.516
Total-pentadioxins			8.229e5		1.502			2794		1.00e7							137.223
Total-hexadioxins			9.123e5		1.005			3133		1.32e7							202.837
Total-heptadioxins			3.720e5		1.088			1948		5.04e6							107.918
Total-Dioxins			2.547e6		1.130			1210		3.39e7							599.643
Total-TEQ			5.596e6					1210		7.78e7							1295.573
FUNCTION1 PFK			7.521e6					557945		8.00e6							
FUNCTION2 PFK			4.110e5					226700		1.13e7							0.000
FUNCTION3 PFK			8.443e6					414812		2.82e6							0.000
FUNCTION4 PFK			2.598e7					304689		2.22e7							
FUNCTION5 PFK			7.163e4					189891		2.74e6							
FUNCTION1 HXCD...			3.794e2					593		5.61e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			8.042e2					818		1.73e4							0.000
FUNCTION3 OCDPE			9.563e1					429		1.87e3							0.000
FUNCTION4 NCDPE			0.000e0					545		0.00e0							
FUNCTION5 DCDPE			0.000e0					542		0.00e0							

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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 10:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.446e4	4.665e4	0.678	0.74	0.77	339.5	YES	NO	bb	db	8.835
2	2378-TCDF	25.77	4.131e4	5.488e4	0.702	0.75	0.77	403.0	YES	NO	bb	bb	10.126
3	Total-tetrafurans	24.86	6.389e2	7.978e2	0.727	0.80	0.77	6.2	YES	NO	bb	bb	0.146
4	Total-tetrafurans	24.55	5.238e2	5.981e2	0.727	0.88	0.77	6.0	YES	NO	bb	bb	0.114
5	1368-TCDF	22.27	5.764e4	7.805e4	0.802	0.74	0.77	617.6	YES	NO	bb	bb	12.503

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.13	3.611e5	2.330e5	1.246	1.55	1.55	7323.2	YES	NO	bb	bb	44.390

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.32	2.101e5	1.516e5	0.496	1.39	1.55	910.6	YES	NO	bb	bd	67.866
2	23478-PeCDF	31.28	2.189e5	1.466e5	0.786	1.49	1.55	1004.6	YES	NO	bb	bb	48.580
3	12378-PeCDF	29.93	2.094e5	1.387e5	0.679	1.51	1.55	956.2	YES	NO	bb	bb	47.721
4	Total-pentafurans	28.80	3.458e4	2.311e4	0.654	1.50	1.55	155.8	YES	NO	bb	bb	8.688

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.90	2.702e5	2.168e5	1.166	1.25	1.24	1404.3	YES	NO	bd	bd	47.304
2	123468-HXCDF	33.23	2.880e5	2.384e5	1.169	1.21	1.24	1397.4	YES	NO	bb	bb	51.002
3	123789-HxCDF	36.93	2.304e5	1.857e5	1.137	1.24	1.24	1143.7	YES	NO	bb	bb	48.904
4	234678-HxCDF	35.91	2.808e5	2.345e5	1.140	1.20	1.24	1375.6	YES	NO	bb	bd	52.050
5	123678-HxCDF	35.04	3.125e5	2.496e5	1.091	1.25	1.24	1506.3	YES	NO	db	db	51.387

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	41.01	1.395e5	1.236e5	0.953	1.13	1.05	836.3	YES	NO	bd	bb	53.601
2	1234678-HpCDF	38.77	1.725e5	1.737e5	1.003	0.99	1.05	1326.3	YES	NO	bb	bb	47.690

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.446e4	4.665e4	0.678	0.74	0.77	339.5	YES	NO	bb	db	8.835
2	2378-TCDF	25.77	4.131e4	5.488e4	0.702	0.75	0.77	403.0	YES	NO	bb	bb	10.126
3	Total-tetrafurans	24.86	6.389e2	7.978e2	0.727	0.80	0.77	6.2	YES	NO	bb	bb	0.146
4	Total-tetrafurans	24.55	5.238e2	5.981e2	0.727	0.88	0.77	6.0	YES	NO	bb	bb	0.114
5	1368-TCDF	22.27	5.764e4	7.805e4	0.802	0.74	0.77	617.6	YES	NO	bb	bb	12.503
6	12389-PECDF	32.32	2.101e5	1.516e5	0.496	1.39	1.55	910.6	YES	NO	bb	bd	67.866
7	23478-PeCDF	31.28	2.189e5	1.466e5	0.786	1.49	1.55	1004.6	YES	NO	bb	bb	48.580
8	12378-PeCDF	29.93	2.094e5	1.387e5	0.679	1.51	1.55	956.2	YES	NO	bb	bb	47.721
9	Total-pentafurans	28.80	3.458e4	2.311e4	0.654	1.50	1.55	155.8	YES	NO	bb	bb	8.688
10	123478-HxCDF	34.90	2.702e5	2.168e5	1.166	1.25	1.24	1404.3	YES	NO	bd	bd	47.304
11	123468-HXCDF	33.23	2.880e5	2.384e5	1.169	1.21	1.24	1397.4	YES	NO	bb	bb	51.002
12	123789-HxCDF	36.93	2.304e5	1.857e5	1.137	1.24	1.24	1143.7	YES	NO	bb	bb	48.904
13	234678-HxCDF	35.91	2.808e5	2.345e5	1.140	1.20	1.24	1375.6	YES	NO	bb	bd	52.050
14	123678-HxCDF	35.04	3.125e5	2.496e5	1.091	1.25	1.24	1506.3	YES	NO	db	db	51.387
15	1234789-HpCDF	41.01	1.395e5	1.236e5	0.953	1.13	1.05	836.3	YES	NO	bd	bb	53.601
16	1234678-HpCDF	38.77	1.725e5	1.737e5	1.003	0.99	1.05	1326.3	YES	NO	bb	bb	47.690
17	OCDF	45.24	1.863e5	1.970e5	0.778	0.95	0.89	1745.6	YES	NO	bd	bb	95.021
18	13468-PECDF	27.13	3.611e5	2.330e5	1.246	1.55	1.55	7323.2	YES	NO	bb	bb	44.390

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.668e4	7.180e4	1.015	0.79	0.77	755.8	YES	NO	bb	bb	13.654
2	1289-TCDD	27.02	3.648e4	4.783e4	0.909	0.76	0.77	445.8	YES	NO	bb	bb	10.012
3	2378-TCDD	26.42	4.111e4	5.488e4	1.149	0.75	0.77	521.2	YES	NO	bb	bb	9.017
4	Total-tetradioxins	26.10	6.719e4	8.697e4	1.024	0.77	0.77	561.8	YES	NO	bb	bb	16.242
5	Total-tetradioxins	25.60	2.343e4	2.963e4	1.024	0.79	0.77	301.6	YES	NO	bb	bb	5.591

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.93	2.423e5	1.700e5	1.184	1.43	1.55	1246.0	YES	NO	bb	bd	49.543
2	12378-PeCDD	31.54	2.212e5	1.442e5	1.022	1.53	1.55	1124.1	YES	NO	bb	bb	50.849
3	12479-PECDD	28.82	3.593e5	2.367e5	2.301	1.52	1.55	1224.5	YES	NO	bb	bb	36.832

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	34.01	2.330e5	1.909e5	1.115	1.22	1.24	1078.1	YES	NO	bb	bb	49.292
2	123789-HxCDD	36.52	2.114e5	1.814e5	0.907	1.17	1.24	982.1	YES	NO	bb	bd	51.723
3	123678-HxCDD	36.14	2.532e5	2.091e5	1.001	1.21	1.24	1112.6	YES	NO	db	db	51.126
4	123478-HxCDD	36.02	2.147e5	1.744e5	0.996	1.23	1.24	1055.8	YES	NO	bd	bd	50.696

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.27	1.700e5	1.663e5	1.039	1.02	1.05	1138.4	YES	NO	bd	bd	52.721
2	1234679-HPCDD	39.23	2.020e5	1.832e5	1.137	1.10	1.05	1451.0	YES	NO	bd	bb	55.196

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.56	5.668e4	7.180e4	1.015	0.79	0.77	755.8	YES	NO	bb	bb	13.654
2	1289-TCDD	27.02	3.648e4	4.783e4	0.909	0.76	0.77	445.8	YES	NO	bb	bb	10.012
3	2378-TCDD	26.42	4.111e4	5.488e4	1.149	0.75	0.77	521.2	YES	NO	bb	bb	9.017
4	Total-tetradioxins	26.10	6.719e4	8.697e4	1.024	0.77	0.77	561.8	YES	NO	bb	bb	16.242
5	Total-tetradioxins	25.60	2.343e4	2.963e4	1.024	0.79	0.77	301.6	YES	NO	bb	bb	5.591
6	12389-PECDD	31.93	2.423e5	1.700e5	1.184	1.43	1.55	1246.0	YES	NO	bb	bd	49.543
7	12378-PeCDD	31.54	2.212e5	1.442e5	1.022	1.53	1.55	1124.1	YES	NO	bb	bb	50.849
8	12479-PECDD	28.82	3.593e5	2.367e5	2.301	1.52	1.55	1224.5	YES	NO	bb	bb	36.832
9	124679-HXCDD	34.01	2.330e5	1.909e5	1.115	1.22	1.24	1078.1	YES	NO	bb	bb	49.292
10	123789-HxCDD	36.52	2.114e5	1.814e5	0.907	1.17	1.24	982.1	YES	NO	bb	bd	51.723
11	123678-HxCDD	36.14	2.532e5	2.091e5	1.001	1.21	1.24	1112.6	YES	NO	db	db	51.126
12	123478-HxCDD	36.02	2.147e5	1.744e5	0.996	1.23	1.24	1055.8	YES	NO	bd	bd	50.696
13	1234678-HpCDD	40.27	1.700e5	1.663e5	1.039	1.02	1.05	1138.4	YES	NO	bd	bd	52.721
14	1234679-HPCDD	39.23	2.020e5	1.832e5	1.137	1.10	1.05	1451.0	YES	NO	bd	bb	55.196
15	OCDD	45.00	2.152e5	2.483e5	0.920	0.87	0.89	2785.0	YES	NO	bb	bb	97.150

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.27	3.446e4	4.665e4	0.678	0.74	0.77	339.5	YES	NO	bb	db	8.835
2	2378-TCDF	25.77	4.131e4	5.488e4	0.702	0.75	0.77	403.0	YES	NO	bb	bb	10.126
3	Total-tetrafurans	24.86	6.389e2	7.978e2	0.727	0.80	0.77	6.2	YES	NO	bb	bb	0.146
4	Total-tetrafurans	24.55	5.238e2	5.981e2	0.727	0.88	0.77	6.0	YES	NO	bb	bb	0.114
5	1368-TCDF	22.27	5.764e4	7.805e4	0.802	0.74	0.77	617.6	YES	NO	bb	bb	12.503
6	12389-PECDF	32.32	2.101e5	1.516e5	0.496	1.39	1.55	910.6	YES	NO	bb	bd	67.866
7	23478-PeCDF	31.28	2.189e5	1.466e5	0.786	1.49	1.55	1004.6	YES	NO	bb	bb	48.580
8	12378-PeCDF	29.93	2.094e5	1.387e5	0.679	1.51	1.55	956.2	YES	NO	bb	bb	47.721
9	Total-pentafurans	28.80	3.458e4	2.311e4	0.654	1.50	1.55	155.8	YES	NO	bb	bb	8.688
10	123478-HxCDF	34.90	2.702e5	2.168e5	1.166	1.25	1.24	1404.3	YES	NO	bd	bd	47.304
11	123468-HXCDF	33.23	2.880e5	2.384e5	1.169	1.21	1.24	1397.4	YES	NO	bb	bb	51.002
12	123789-HxCDF	36.93	2.304e5	1.857e5	1.137	1.24	1.24	1143.7	YES	NO	bb	bb	48.904
13	234678-HxCDF	35.91	2.808e5	2.345e5	1.140	1.20	1.24	1375.6	YES	NO	bb	bd	52.050
14	123678-HxCDF	35.04	3.125e5	2.496e5	1.091	1.25	1.24	1506.3	YES	NO	db	db	51.387
15	1234789-HpCDF	41.01	1.395e5	1.236e5	0.953	1.13	1.05	836.3	YES	NO	bd	bb	53.601
16	1234678-HpCDF	38.77	1.725e5	1.737e5	1.003	0.99	1.05	1326.3	YES	NO	bb	bb	47.690
17	OCDF	45.24	1.863e5	1.970e5	0.778	0.95	0.89	1745.6	YES	NO	bd	bb	95.021
18	13468-PECDF	27.13	3.611e5	2.330e5	1.246	1.55	1.55	7323.2	YES	NO	bb	bb	44.390
19	1368-TCDD	23.56	5.668e4	7.180e4	1.015	0.79	0.77	755.8	YES	NO	bb	bb	13.654
20	1289-TCDD	27.02	3.648e4	4.783e4	0.909	0.76	0.77	445.8	YES	NO	bb	bb	10.012
21	2378-TCDD	26.42	4.111e4	5.488e4	1.149	0.75	0.77	521.2	YES	NO	bb	bb	9.017
22	Total-tetradioxins	26.10	6.719e4	8.697e4	1.024	0.77	0.77	561.8	YES	NO	bb	bb	16.242
23	Total-tetradioxins	25.60	2.343e4	2.963e4	1.024	0.79	0.77	301.6	YES	NO	bb	bb	5.591
24	12389-PECDD	31.93	2.423e5	1.700e5	1.184	1.43	1.55	1246.0	YES	NO	bb	bd	49.543
25	12378-PeCDD	31.54	2.212e5	1.442e5	1.022	1.53	1.55	1124.1	YES	NO	bb	bb	50.849
26	12479-PECDD	28.82	3.593e5	2.367e5	2.301	1.52	1.55	1224.5	YES	NO	bb	bb	36.832
27	124679-HXCDD	34.01	2.330e5	1.909e5	1.115	1.22	1.24	1078.1	YES	NO	bb	bb	49.292
28	123789-HxCDD	36.52	2.114e5	1.814e5	0.907	1.17	1.24	982.1	YES	NO	bb	bd	51.723
29	123678-HxCDD	36.14	2.532e5	2.091e5	1.001	1.21	1.24	1112.6	YES	NO	db	db	51.126
30	123478-HxCDD	36.02	2.147e5	1.744e5	0.996	1.23	1.24	1055.8	YES	NO	bd	bd	50.696
31	1234678-HpCDD	40.27	1.700e5	1.663e5	1.039	1.02	1.05	1138.4	YES	NO	bd	bd	52.721
32	1234679-HPCDD	39.23	2.020e5	1.832e5	1.137	1.10	1.05	1451.0	YES	NO	bd	bb	55.196
33	OCDD	45.00	2.152e5	2.483e5	0.920	0.87	0.89	2785.0	YES	NO	bb	bb	97.150

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.45	3.397e6					9.1	YES		db		
2	FUNCTION1 PFK	22.00	4.124e6					5.2	YES		bd		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.25	2.674e4					2.5	NO		db		0.000
2	FUNCTION2 PFK	28.20	5.558e3					1.1	NO		dd		0.000
3	FUNCTION2 PFK	28.15	1.333e4					1.7	NO		bd		0.000
4	FUNCTION2 PFK	28.11	4.408e3					0.8	NO		bb		0.000
5	FUNCTION2 PFK	30.52	5.287e3					0.9	NO		bd		0.000
6	FUNCTION2 PFK	30.38	1.568e4					1.4	NO		bb		0.000
7	FUNCTION2 PFK	30.23	2.380e4					1.5	NO		db		0.000
8	FUNCTION2 PFK	30.10	2.694e4					1.7	NO		bd		0.000
9	FUNCTION2 PFK	29.99	2.076e3					0.5	NO		bb		0.000
10	FUNCTION2 PFK	29.89	7.421e3					1.2	NO		bb		0.000
11	FUNCTION2 PFK	29.80	6.022e3					0.5	NO		bb		0.000
12	FUNCTION2 PFK	29.62	1.101e4					1.2	NO		bb		0.000
13	FUNCTION2 PFK	29.52	2.200e4					2.0	NO		bb		0.000
14	FUNCTION2 PFK	29.42	7.036e3					1.0	NO		bb		0.000
15	FUNCTION2 PFK	29.29	2.309e4					2.2	NO		bb		0.000
16	FUNCTION2 PFK	29.03	1.036e4					1.7	NO		db		0.000
17	FUNCTION2 PFK	29.00	8.382e3					1.3	NO		bd		0.000
18	FUNCTION2 PFK	28.80	5.680e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	28.70	1.413e4					1.3	NO		bb		0.000
20	FUNCTION2 PFK	28.60	2.690e3					0.7	NO		bb		0.000
21	FUNCTION2 PFK	32.35	9.362e3					1.3	NO		bd		0.000
22	FUNCTION2 PFK	32.28	5.282e3					0.9	NO		bb		0.000
23	FUNCTION2 PFK	31.94	5.478e3					0.6	NO		bb		0.000
24	FUNCTION2 PFK	31.86	9.539e3					1.3	NO		bb		0.000
25	FUNCTION2 PFK	31.70	8.598e3					0.9	NO		bb		0.000
26	FUNCTION2 PFK	31.56	1.164e4					1.5	NO		bb		0.000
27	FUNCTION2 PFK	31.44	9.870e3					1.2	NO		bb		0.000
28	FUNCTION2 PFK	31.37	5.651e3					1.2	NO		bb		0.000
29	FUNCTION2 PFK	31.16	3.906e3					0.7	NO		db		0.000
30	FUNCTION2 PFK	31.10	5.259e3					1.0	NO		bd		0.000
31	FUNCTION2 PFK	31.00	2.220e3					0.5	NO		bb		0.000
32	FUNCTION2 PFK	30.93	4.197e3					0.6	NO		bb		0.000
33	FUNCTION2 PFK	30.84	1.813e4					1.7	NO		bb		0.000
34	FUNCTION2 PFK	30.68	6.046e3					1.3	NO		db		0.000
35	FUNCTION2 PFK	30.64	6.706e3					1.2	NO		dd		0.000
36	FUNCTION2 PFK	30.58	1.475e4					1.4	NO		dd		0.000
37	FUNCTION2 PFK	32.74	9.704e3					1.1	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	32.61	1.975e3					0.6	NO		bb		0.000
39	FUNCTION2 PFK	32.55	1.171e3					0.5	NO		bb		0.000
40	FUNCTION2 PFK	32.51	7.325e3					1.0	NO		db		0.000
41	FUNCTION2 PFK	32.45	9.340e3					1.3	NO		dd		0.000
42	FUNCTION2 PFK	32.41	1.322e4					1.9	NO		dd		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.70	5.175e4					1.9	NO		bb		0.000
2	FUNCTION3 PFK	35.52	3.681e5					3.3	YES		bb		0.000
3	FUNCTION3 PFK	34.42	8.023e6					1.5	NO		bb		0.000

PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.67	5.668e6					23.1	YES		db		
2	FUNCTION4 PFK	39.84	1.814e7					26.9	YES		dd		
3	FUNCTION4 PFK	38.09	2.173e6					22.8	YES		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	42.82	4.953e3					1.4	NO		bb		
2	FUNCTION5 PFK	45.79	4.078e3					1.3	NO		db		
3	FUNCTION5 PFK	45.76	2.296e3					0.8	NO		bd		
4	FUNCTION5 PFK	45.37	1.499e4					1.8	NO		bb		
5	FUNCTION5 PFK	45.31	3.040e3					1.0	NO		bb		
6	FUNCTION5 PFK	44.94	1.866e3					0.7	NO		bb		
7	FUNCTION5 PFK	44.62	4.342e3					1.3	NO		bb		
8	FUNCTION5 PFK	43.85	4.909e3					1.2	NO		bb		
9	FUNCTION5 PFK	43.55	9.698e3					1.7	NO		bb		
10	FUNCTION5 PFK	43.31	1.818e4					2.2	NO		bb		
11	FUNCTION5 PFK	43.18	3.274e3					1.0	NO		bb		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.14	7.703e1					2.6	NO		bb		0.000
2	FUNCTION1 HXCD...	25.58	1.369e2					3.0	NO		bb		0.000
3	FUNCTION1 HXCD...	24.29	7.654e1					1.4	NO		bb		0.000
4	FUNCTION1 HXCD...	23.49	8.895e1					2.4	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.41	1.026e2					2.4	NO		db		0.000
2	FUNCTION2 HPCD...	32.32	1.299e2					2.2	NO		bd		0.000
3	FUNCTION2 HPCD...	31.19	1.035e2					3.9	YES		db		0.000
4	FUNCTION2 HPCD...	31.15	2.274e2					6.9	YES		bd		0.000
5	FUNCTION2 HPCD...	29.21	1.504e2					2.9	NO		bb		0.000
6	FUNCTION2 HPCD...	28.77	9.035e1					2.8	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.51	9.563e1					4.4	YES		bb		0.000

ETHERS5

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

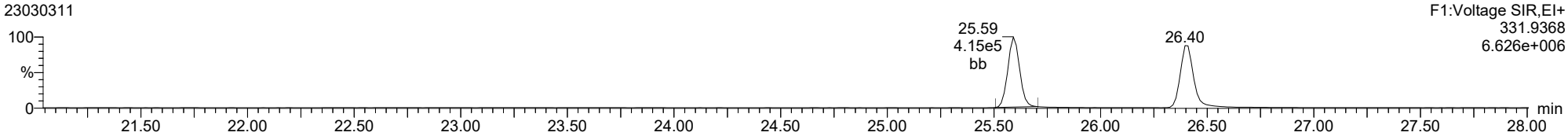
ETHERS6

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

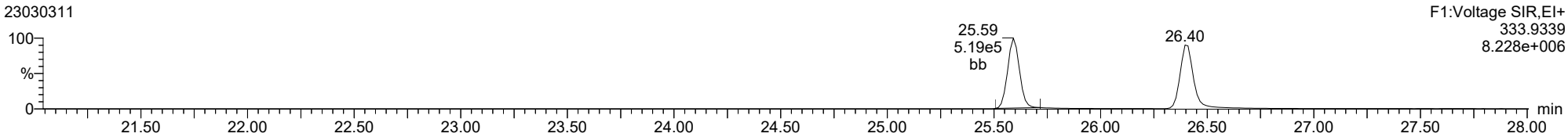
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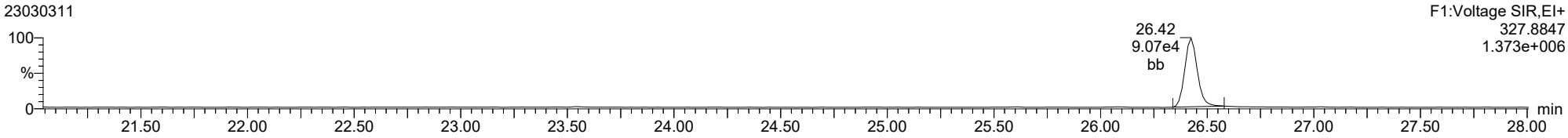
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13C-1234-TCDD

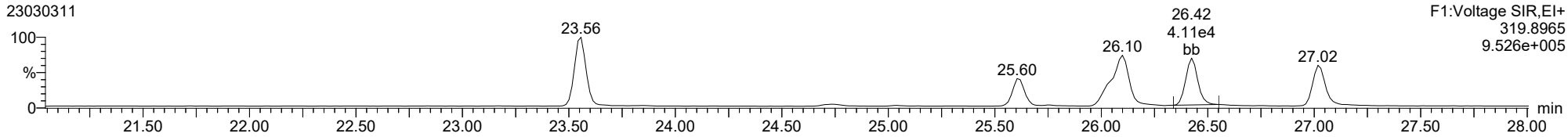


37CL-2378-TCDD

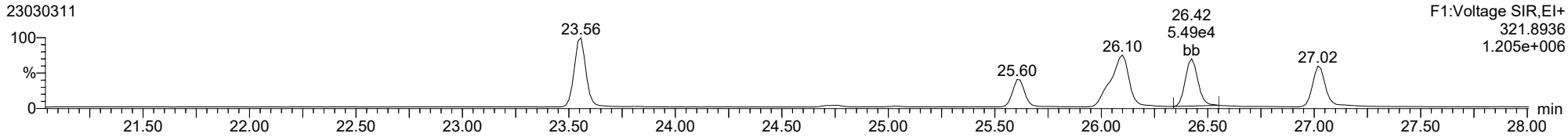


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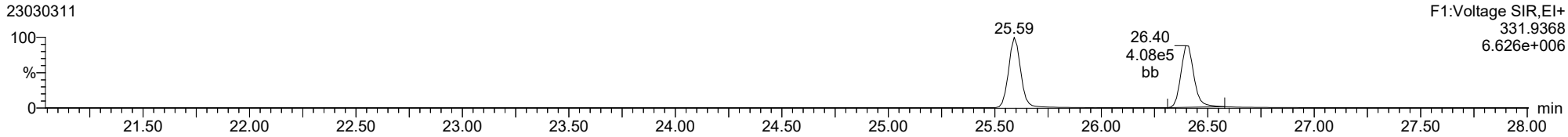
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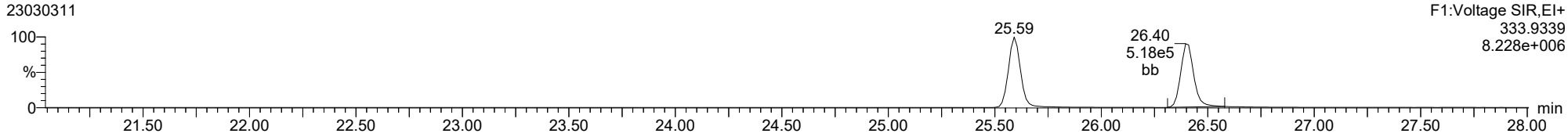
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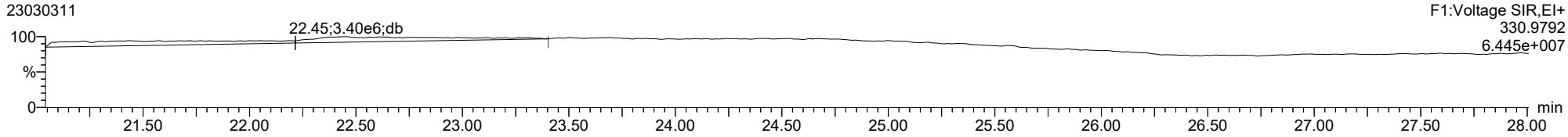
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13C-2378-TCDD

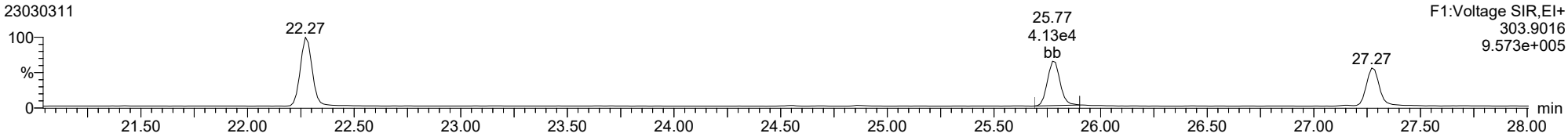


FUNCTION1 PFK

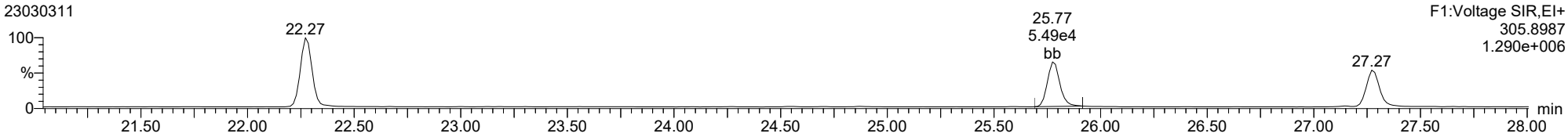


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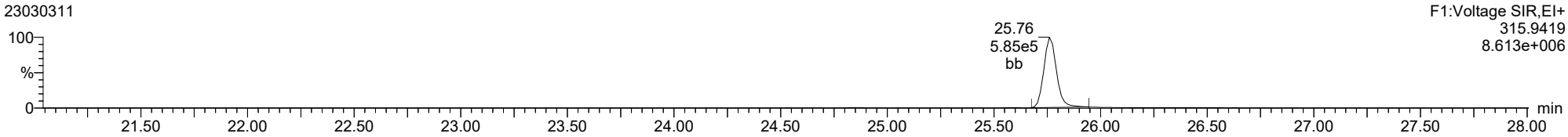
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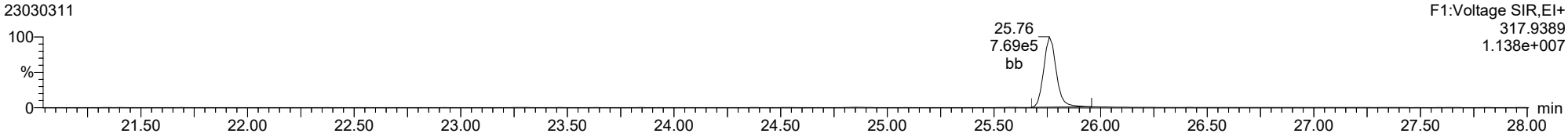
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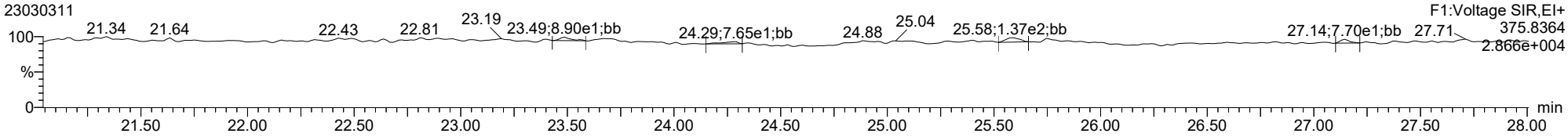
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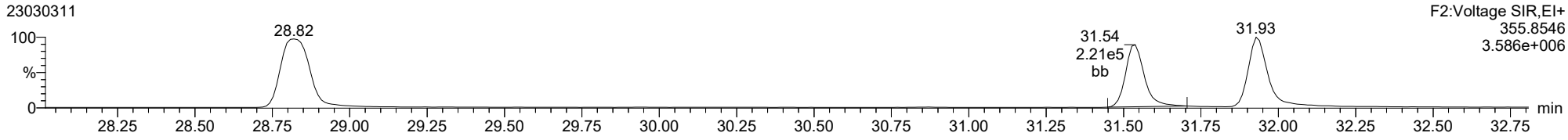


FUNCTION1 HXCDPE

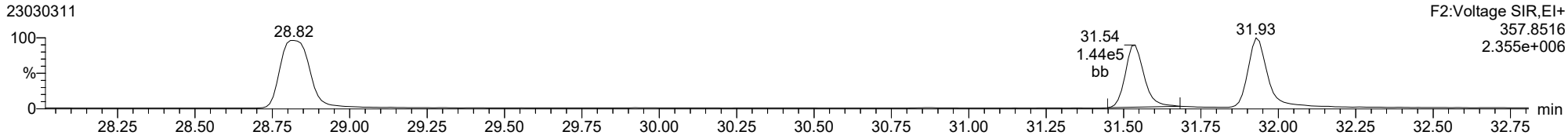


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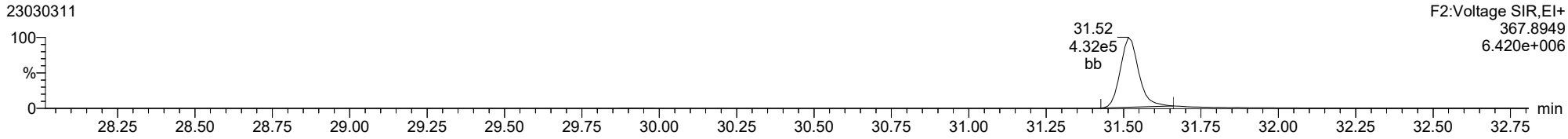
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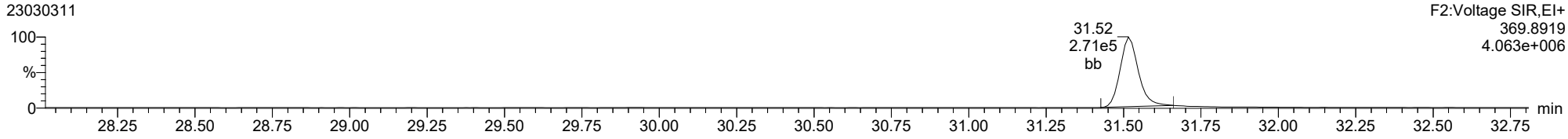
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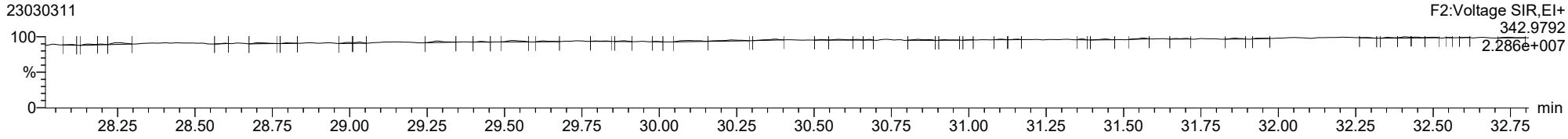
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13C-12378-PeCDD

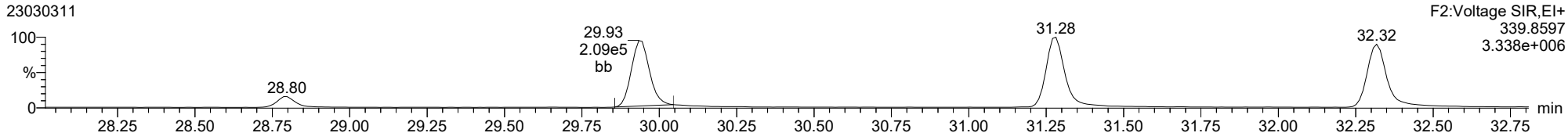


FUNCTION2 PFK

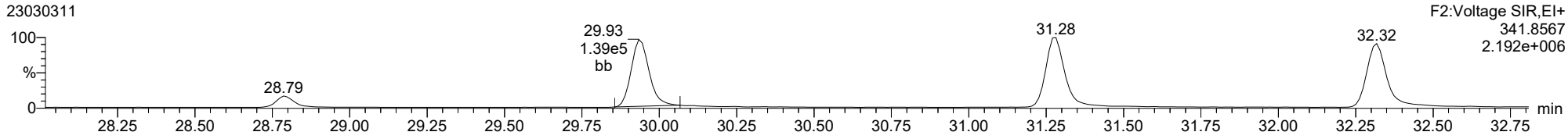


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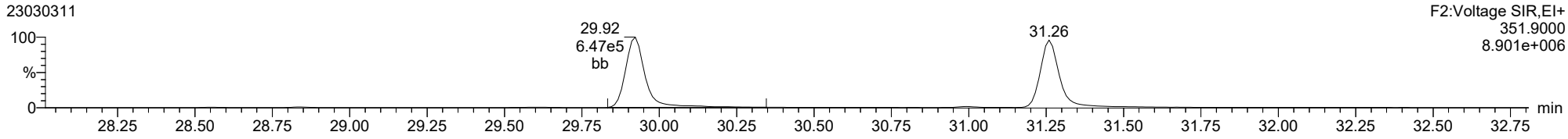
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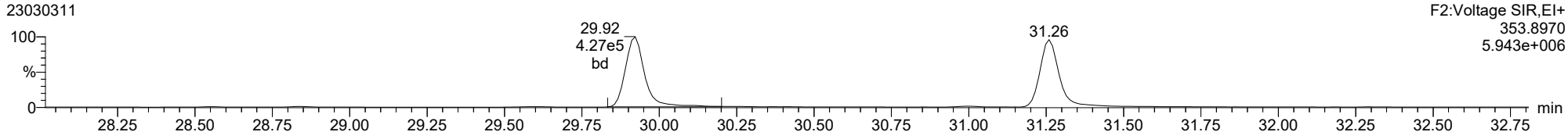
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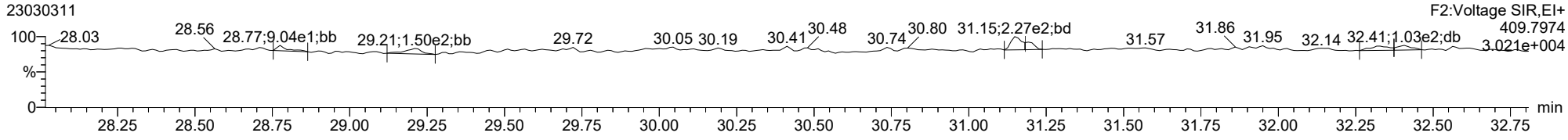
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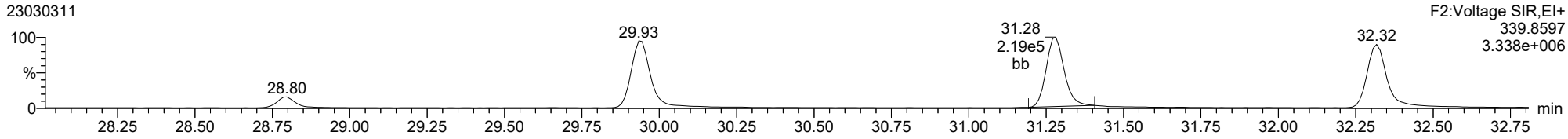


FUNCTION2 HPCDPE

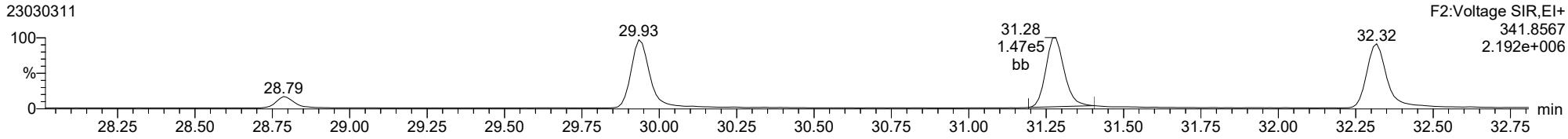


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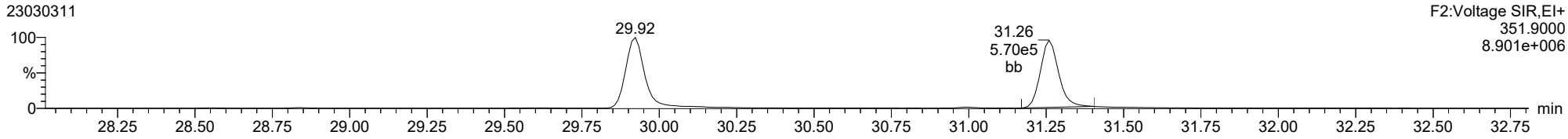
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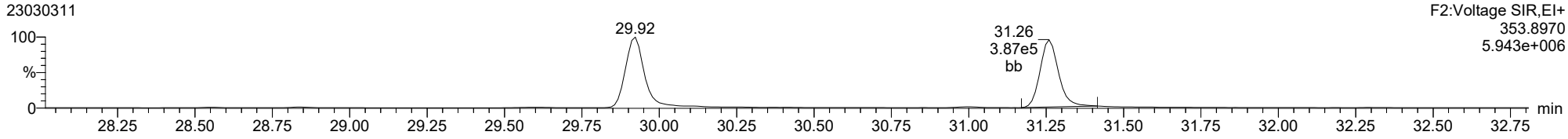
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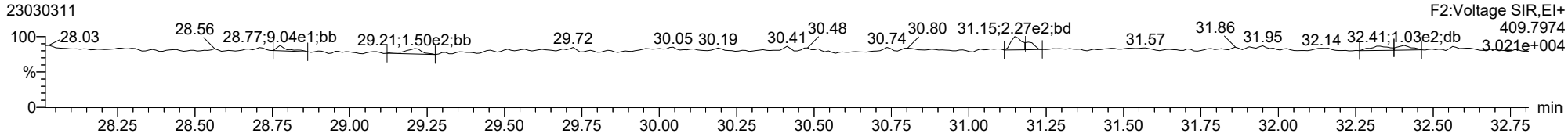
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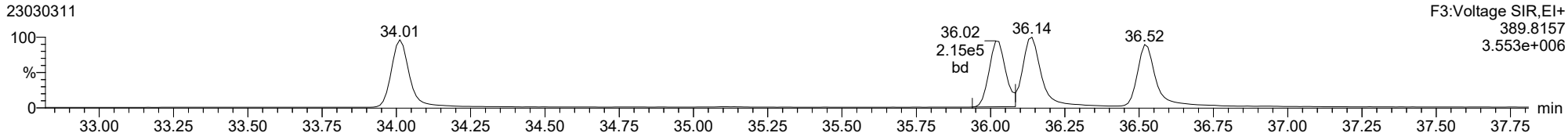


FUNCTION2 HPCDPE

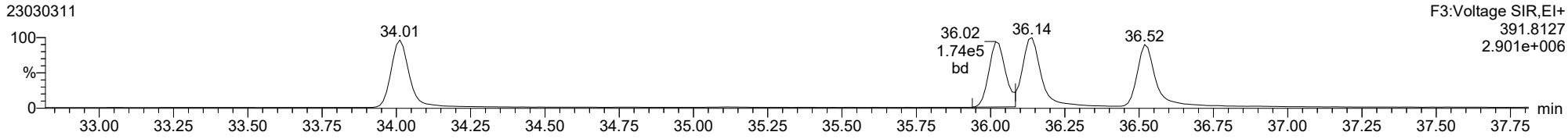


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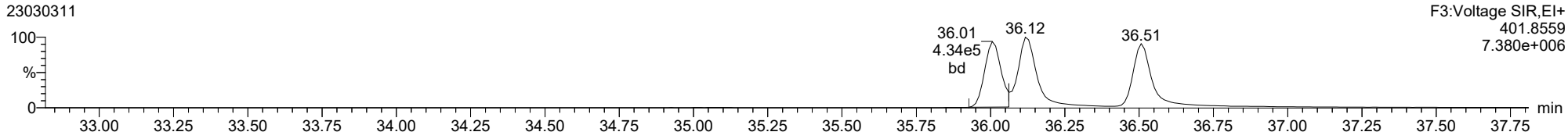
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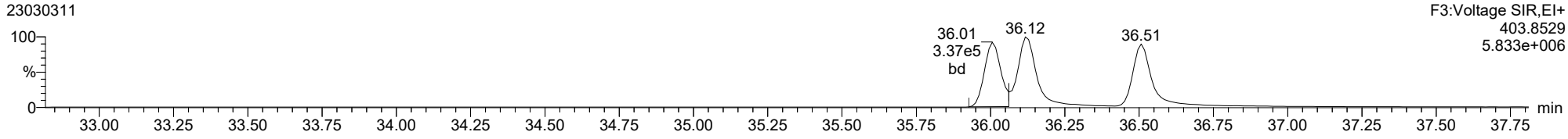
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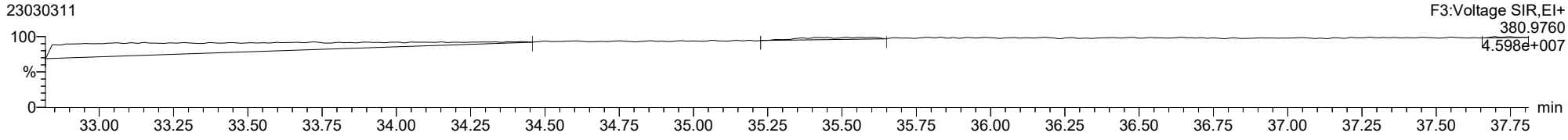
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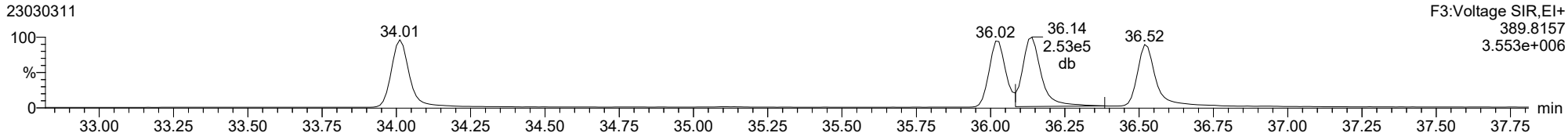
FUNCTION3 PFK



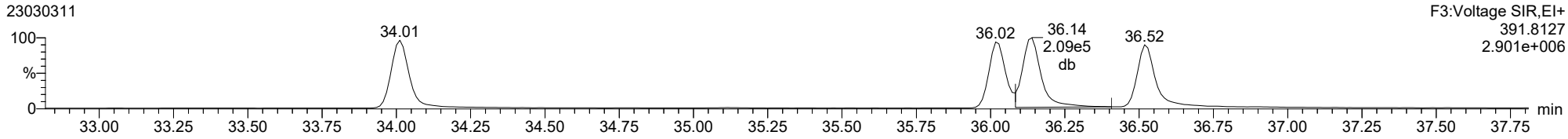
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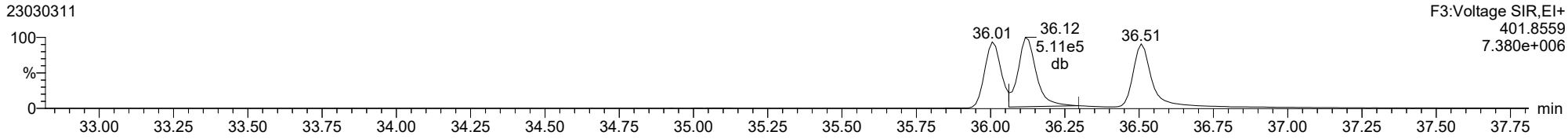
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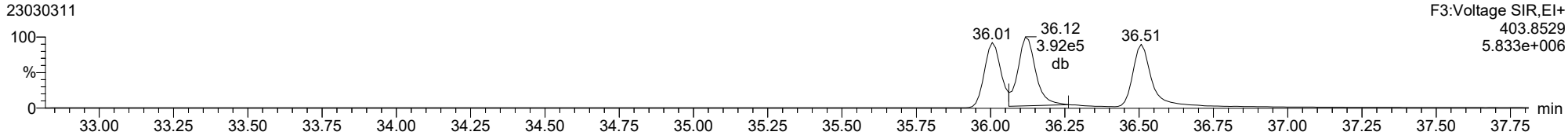
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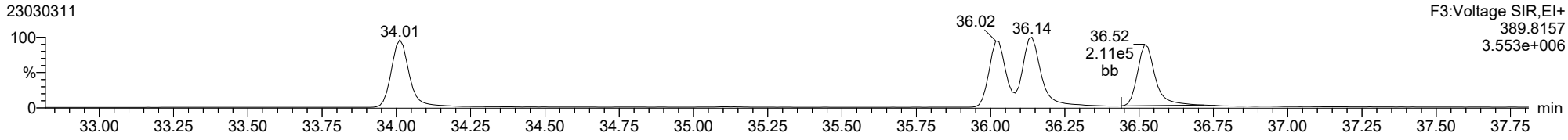


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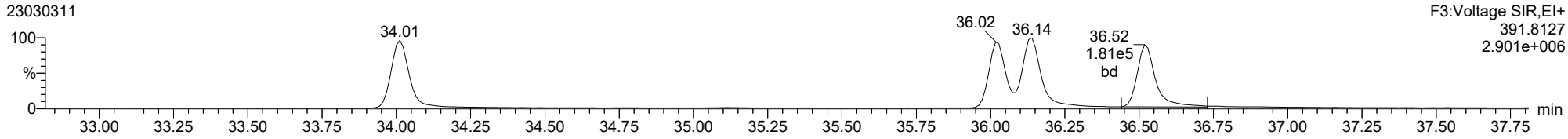


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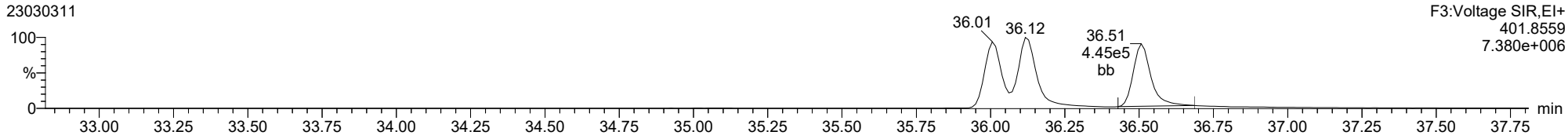
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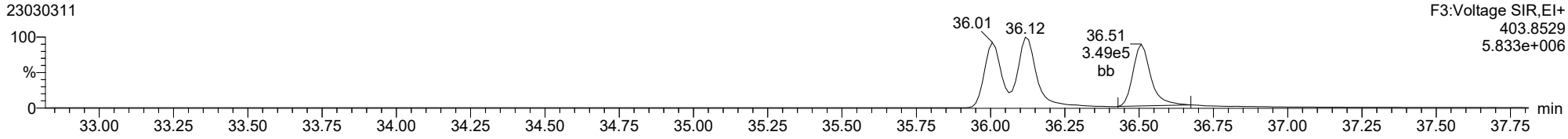
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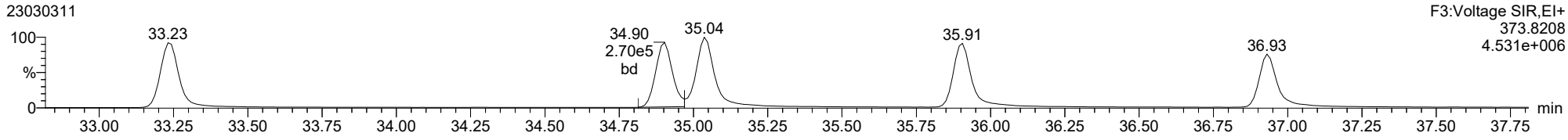


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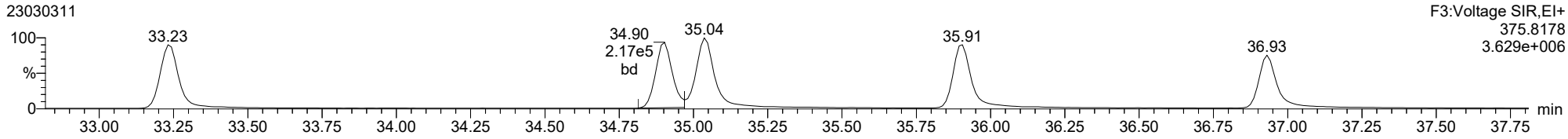


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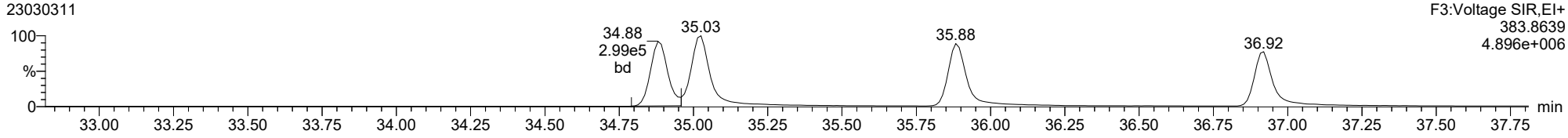
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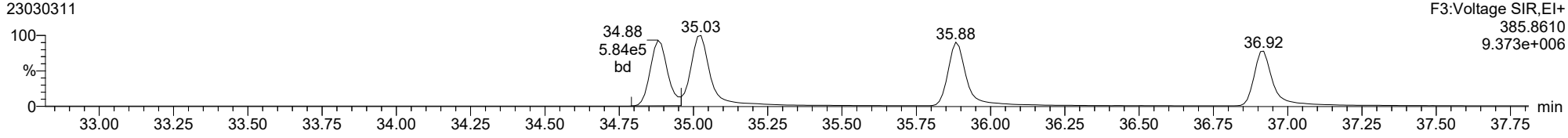
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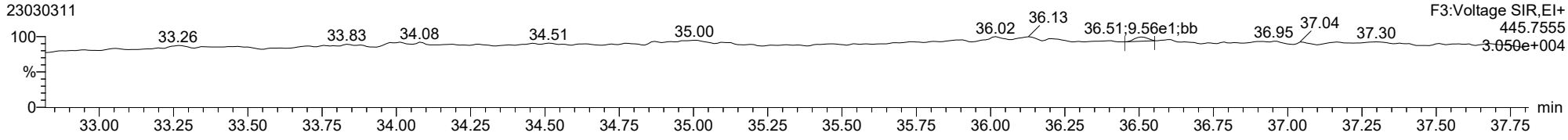
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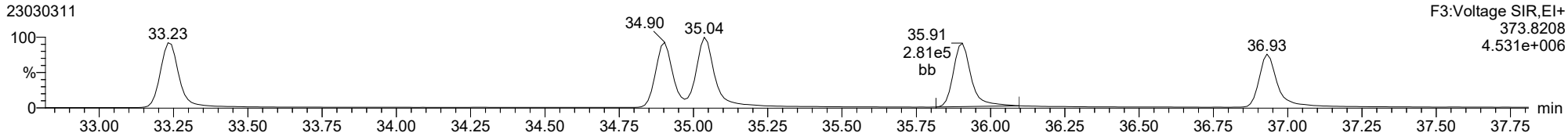


FUNCTION3 OCDPE

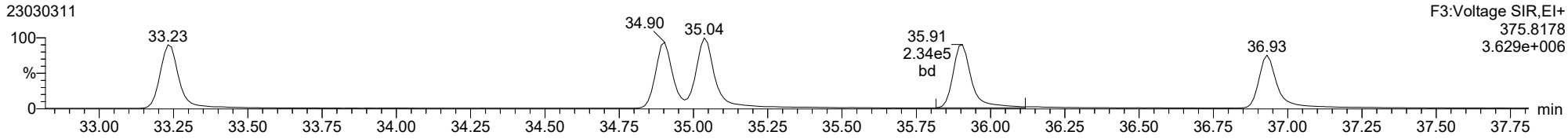


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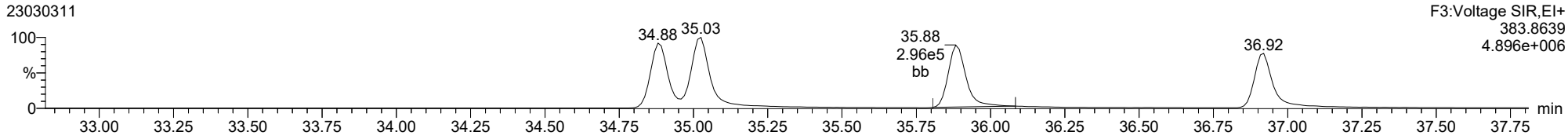
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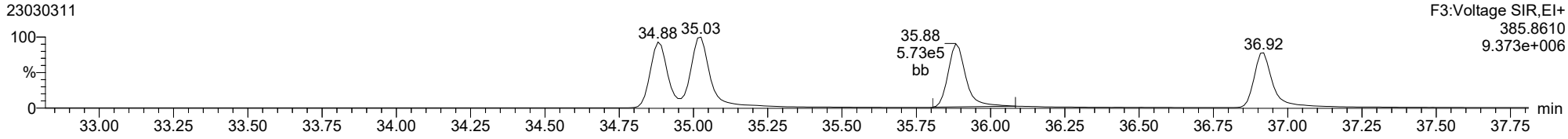
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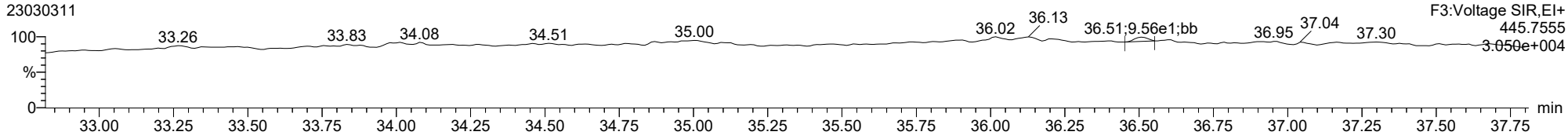
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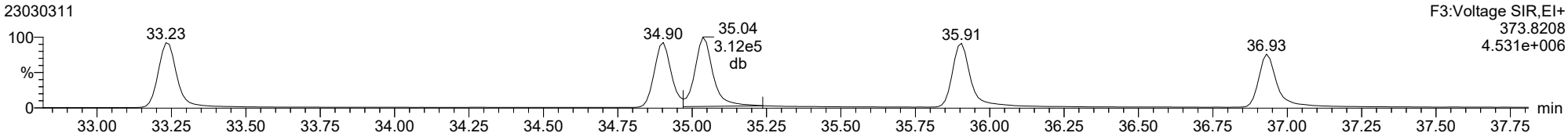


FUNCTION3 OCDPE

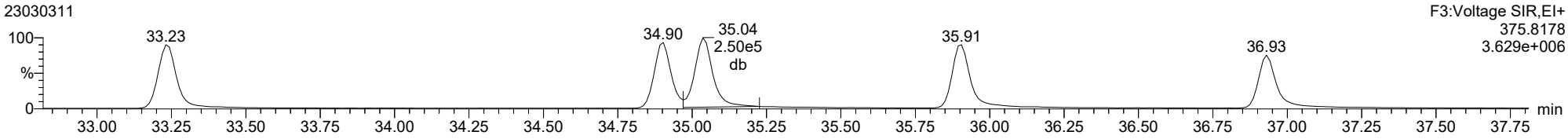


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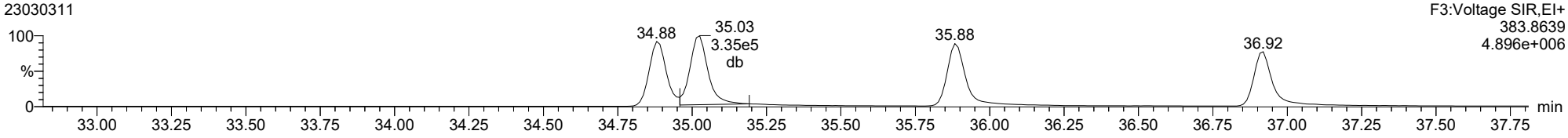
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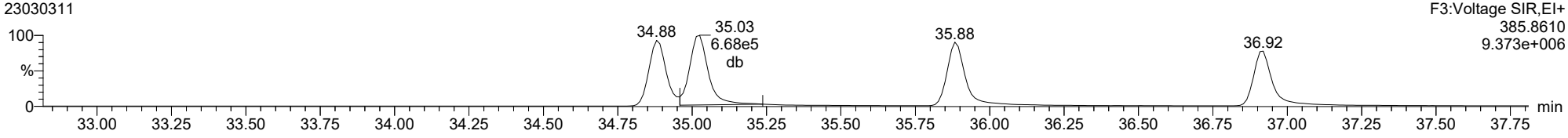
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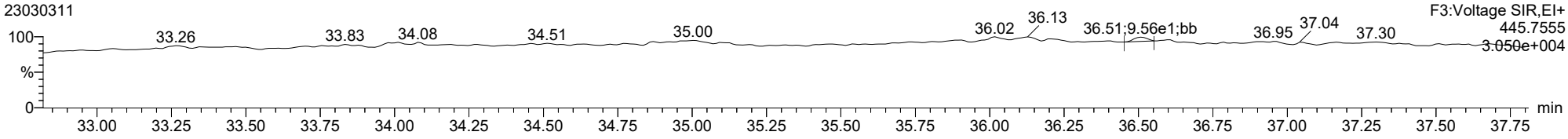
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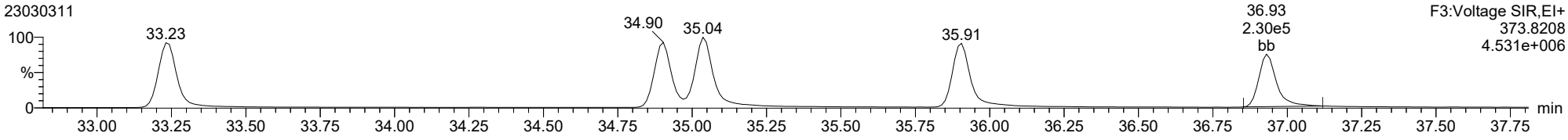


FUNCTION3 OCDPE

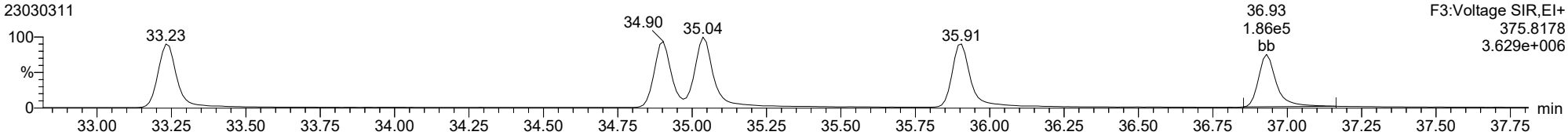


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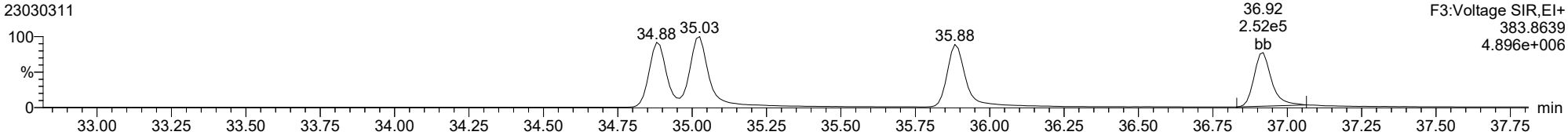
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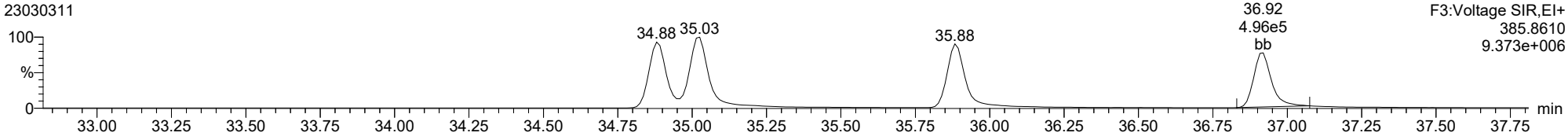
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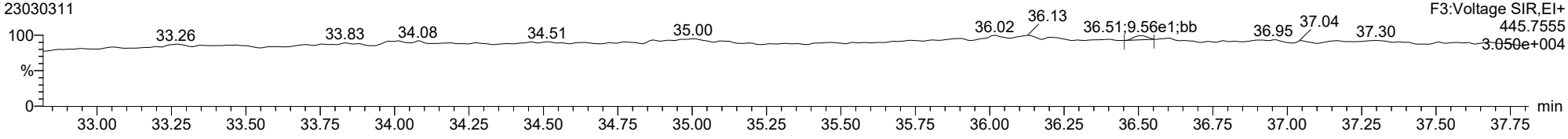
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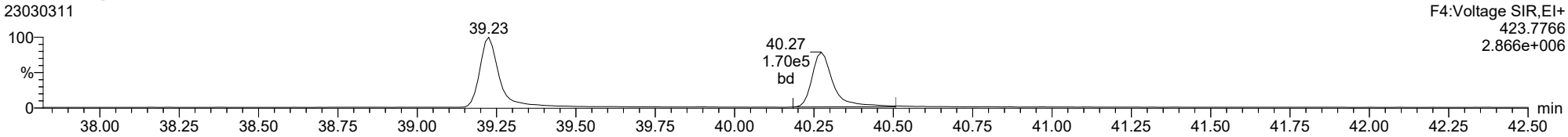


FUNCTION3 OCDPE

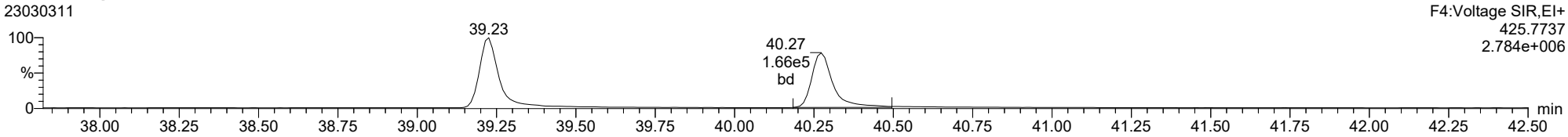


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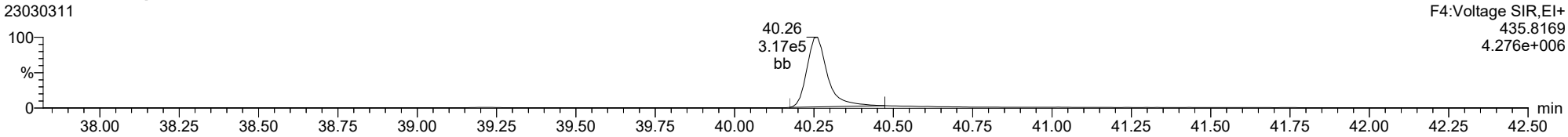
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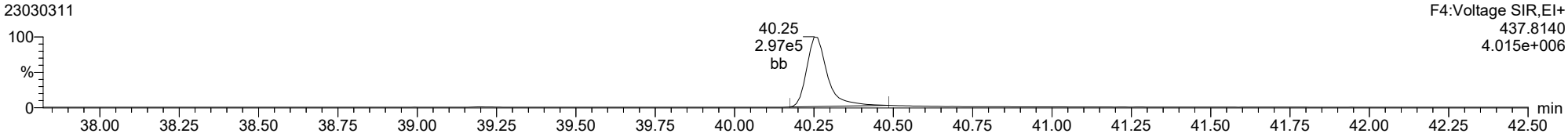
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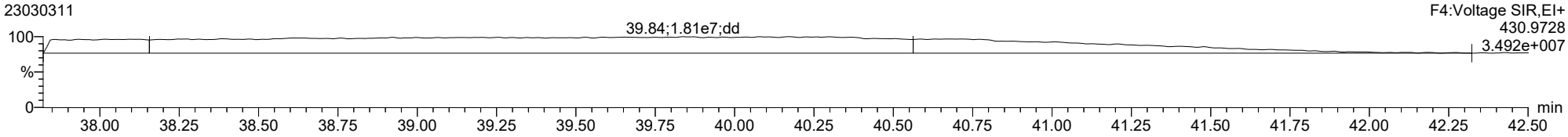
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13C-1234678-HpCDD

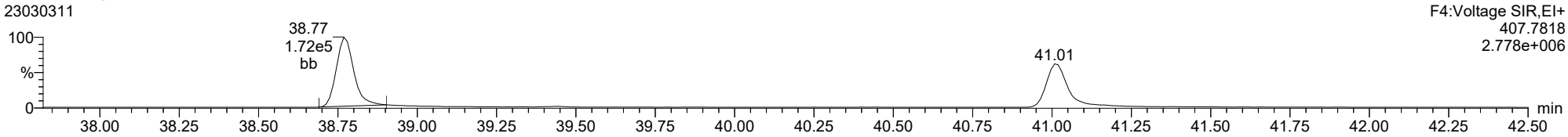


FUNCTION4 PFK

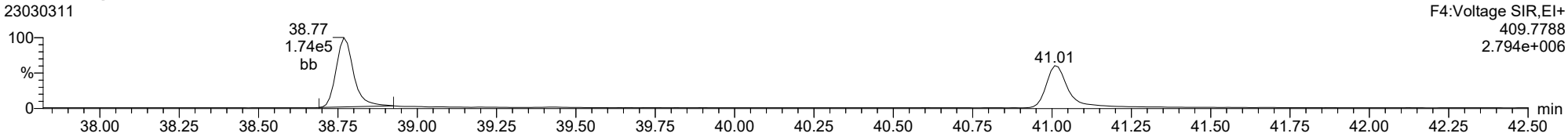


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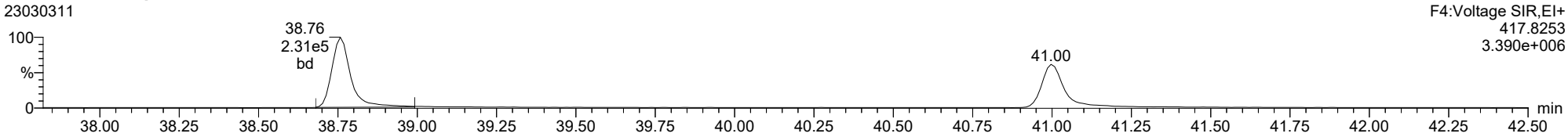
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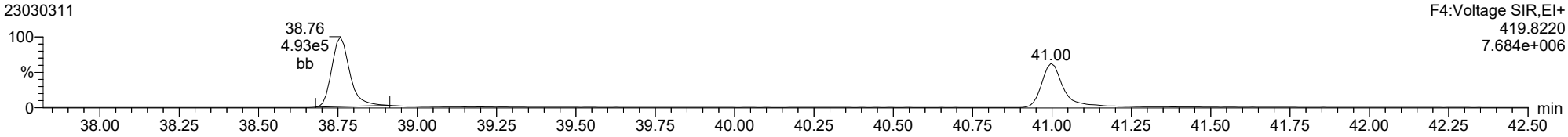
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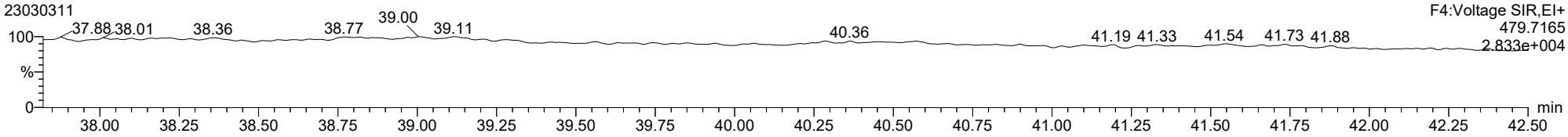
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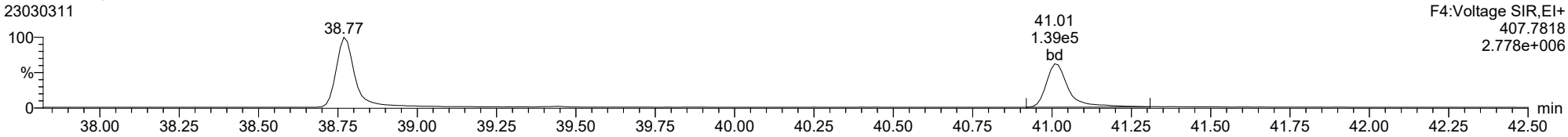


FUNCTION4 NCDPE

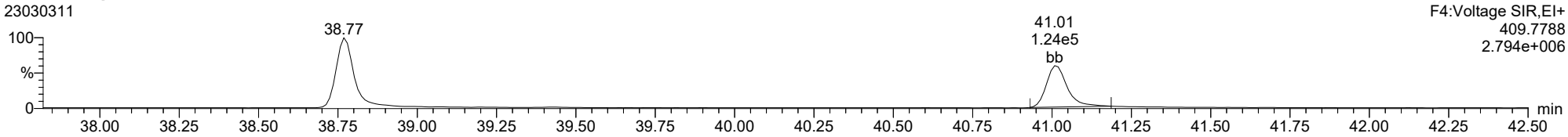


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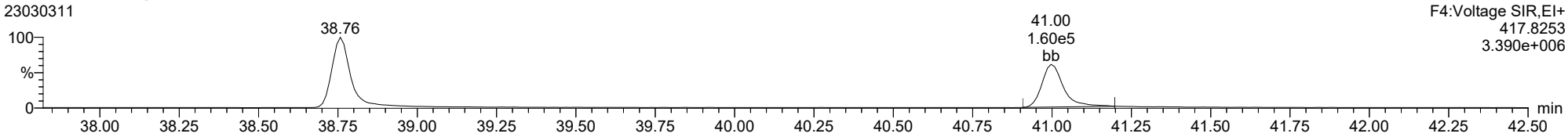
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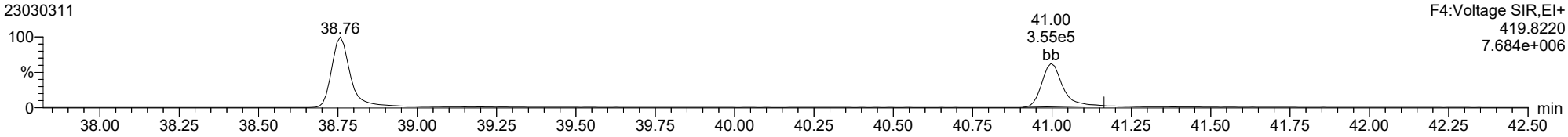
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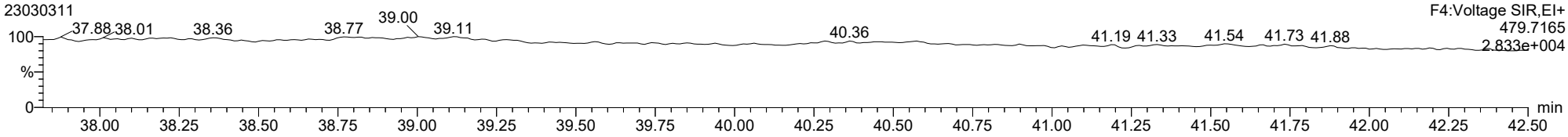
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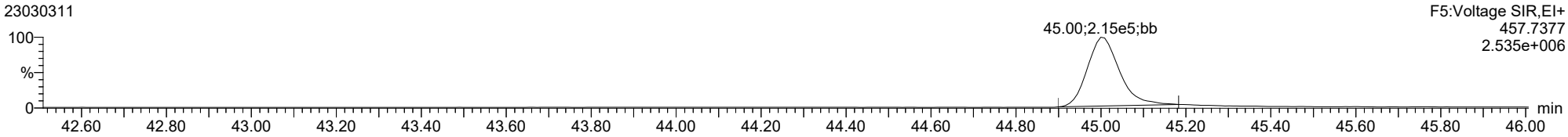


FUNCTION4 NCDPE

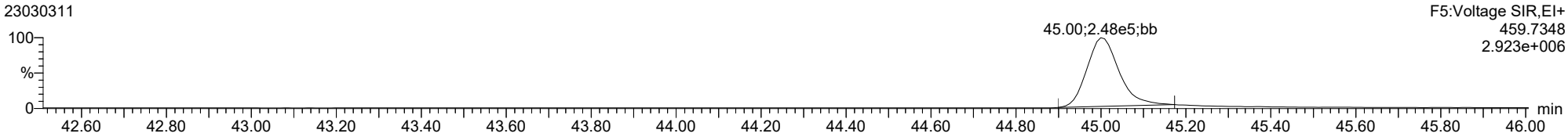


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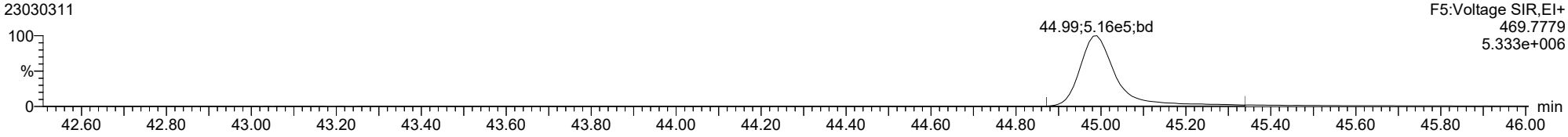
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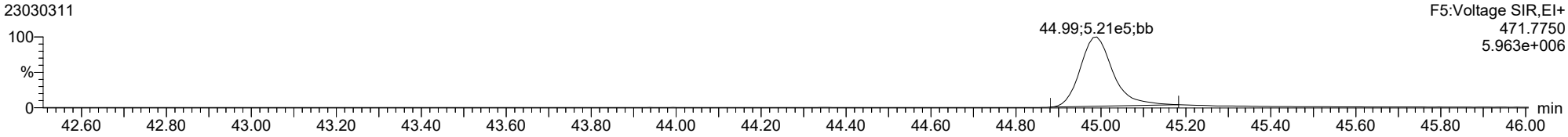
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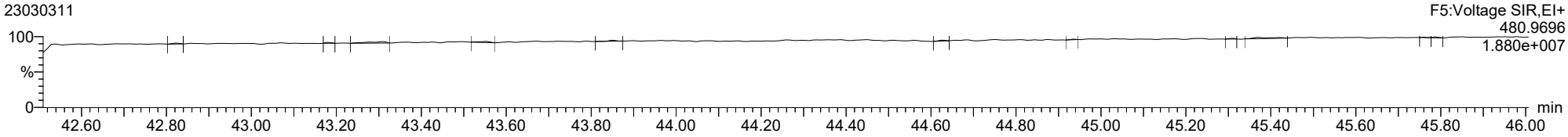
13C-OCDD



13C-OCDD

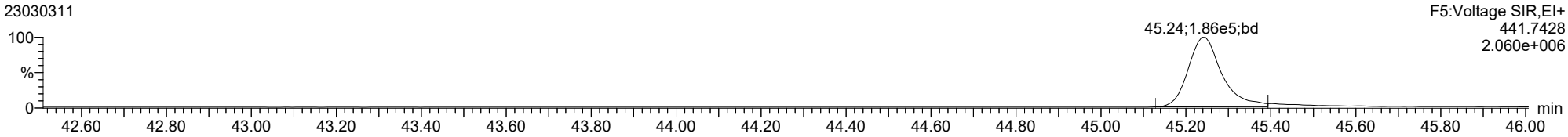


FUNCTION5 PFK

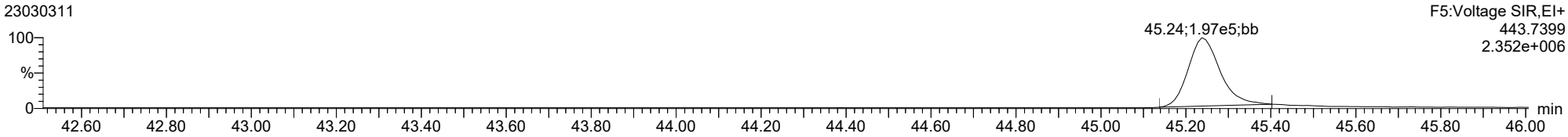


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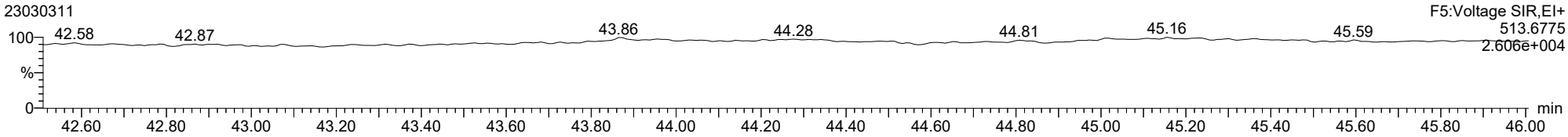
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OCDF

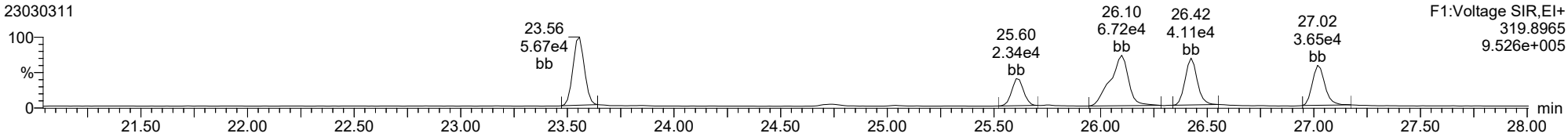


FUNCTION5 DCDPE

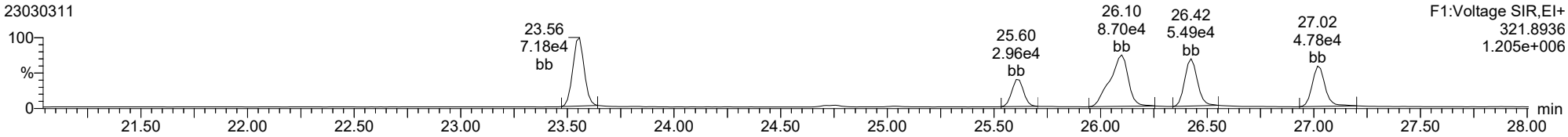


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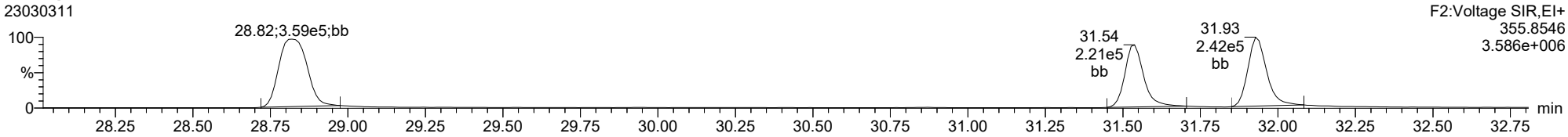
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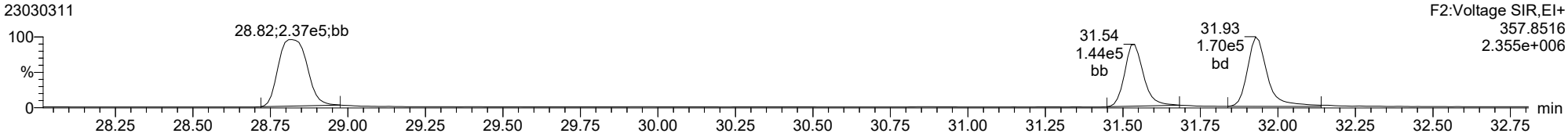
Total-tetradioxins



Total-pentadioxins

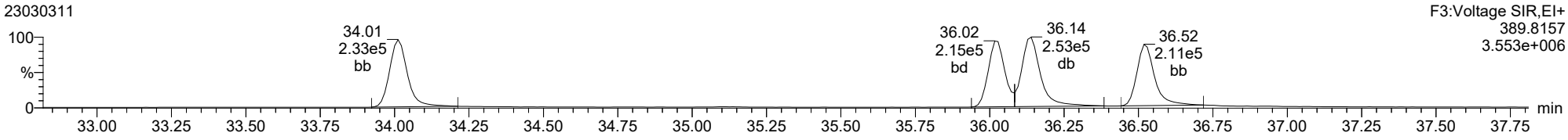


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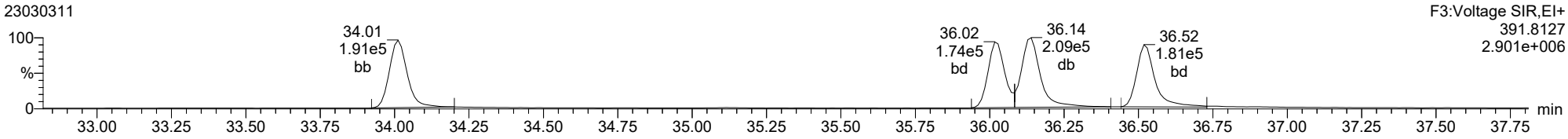


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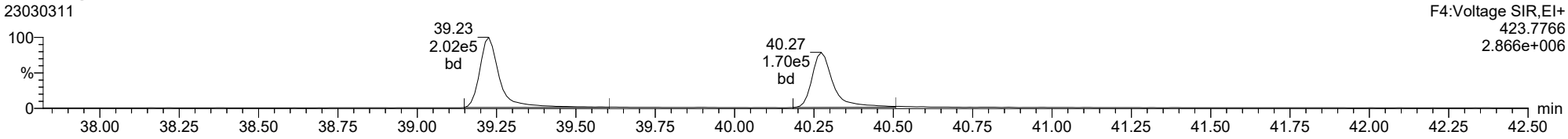
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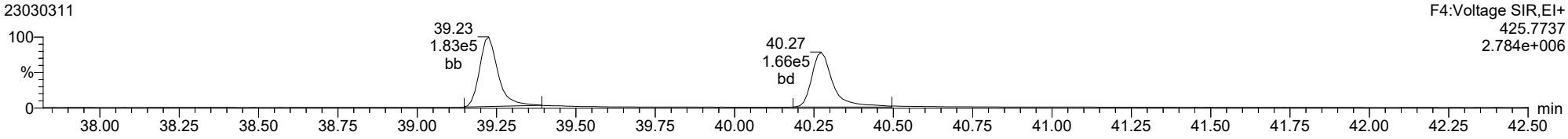
Total-hexadioxins



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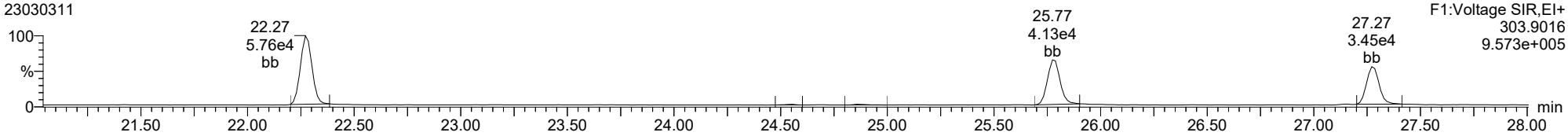


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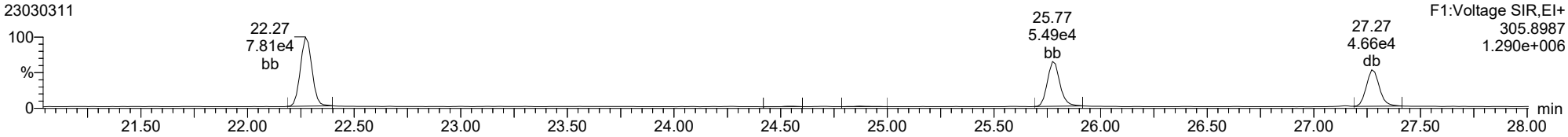


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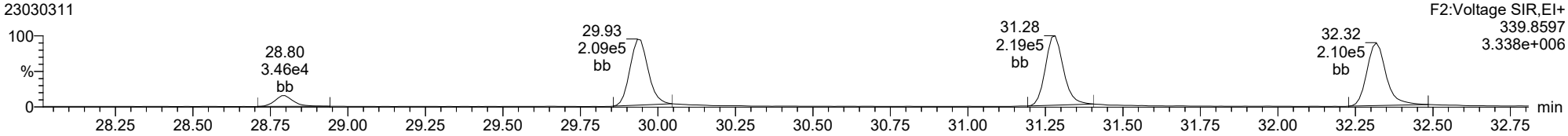
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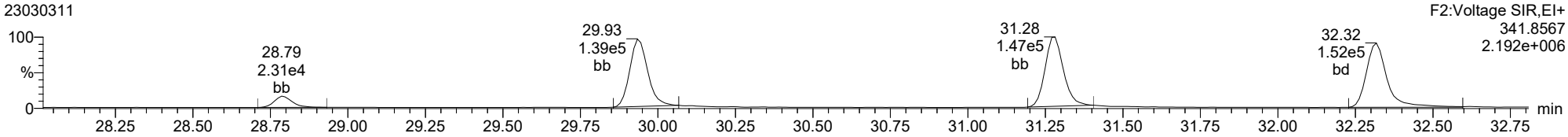
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Total-pentafurans

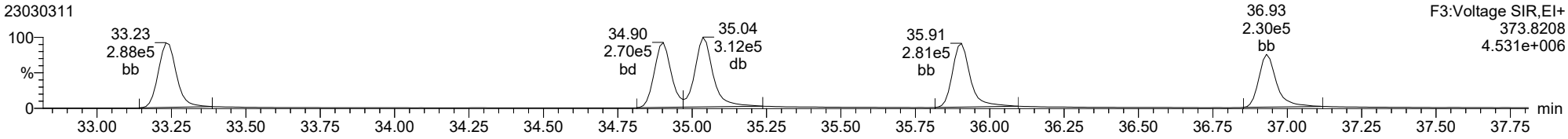


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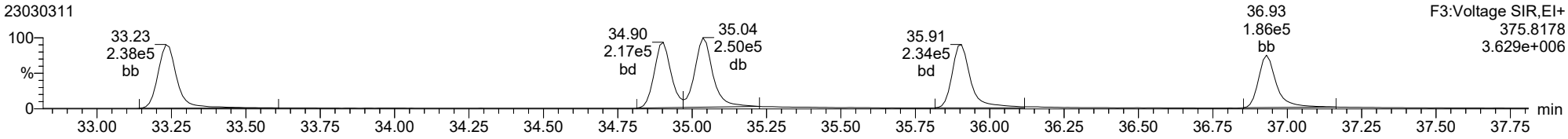


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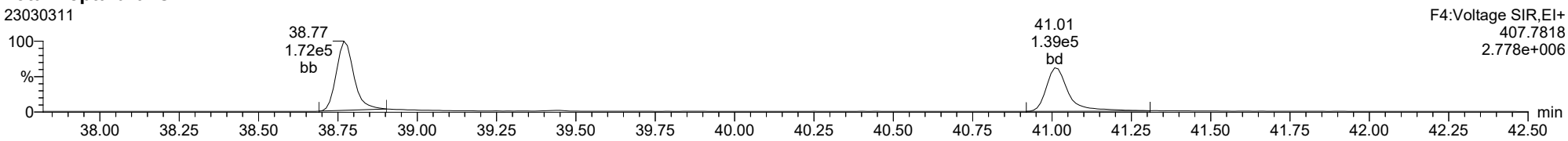
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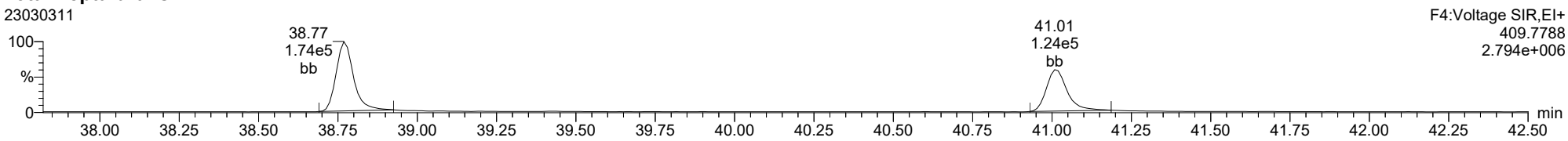
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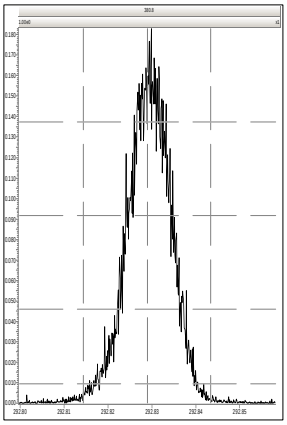


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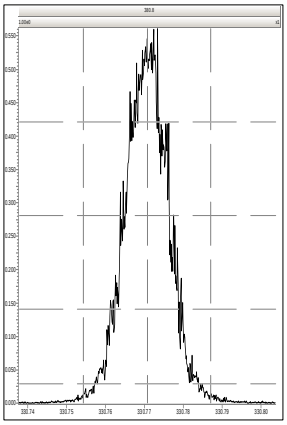


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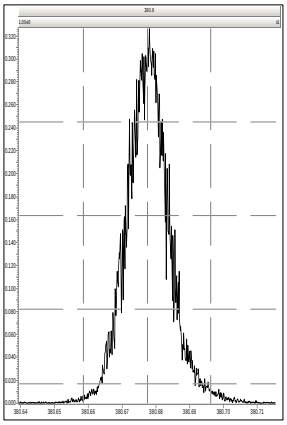
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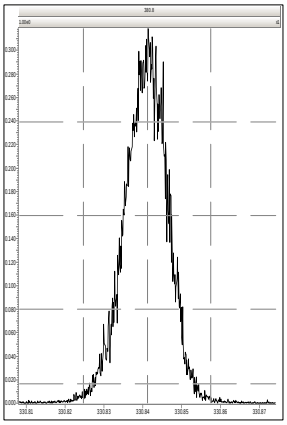
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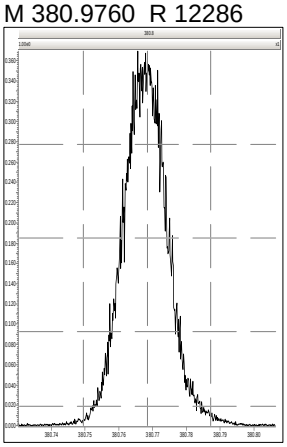
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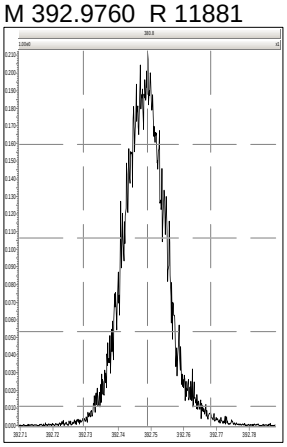
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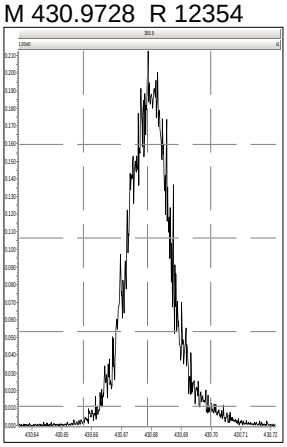
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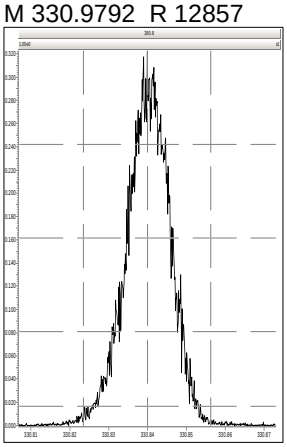
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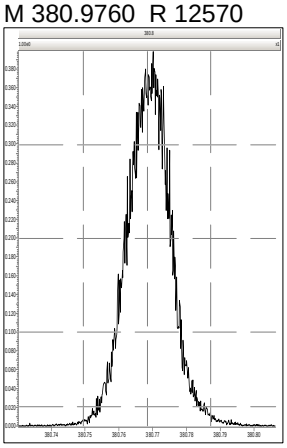
M 430.9728 R 12354



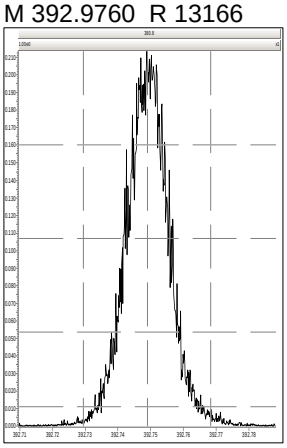
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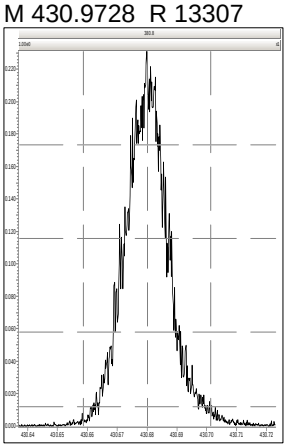
M 380.9760 R 12570



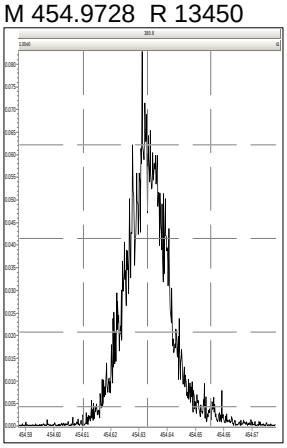
M 392.9760 R 13166



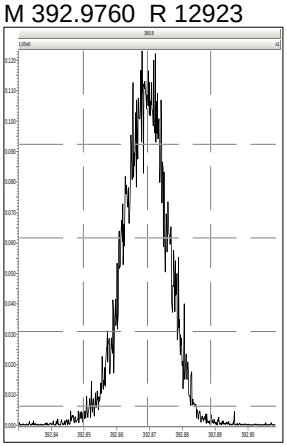
M 430.9728 R 13307



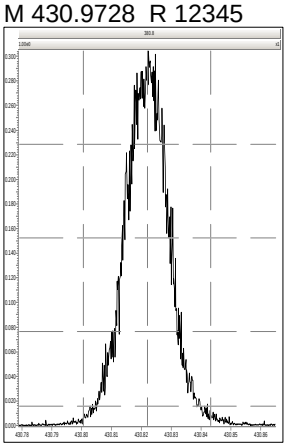
M 454.9728 R 13450



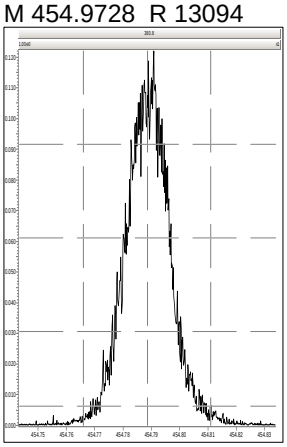
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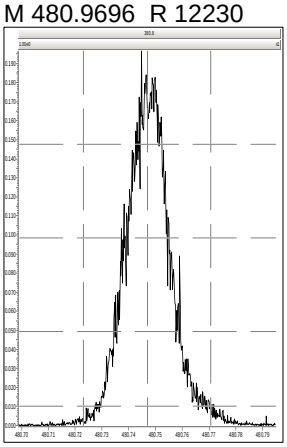
M 430.9728 R 12345



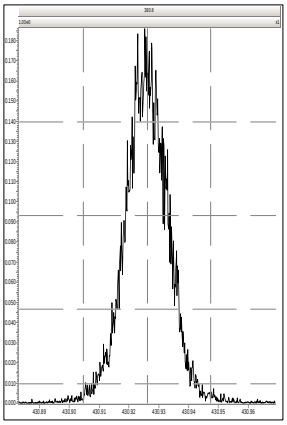
M 454.9728 R 13094



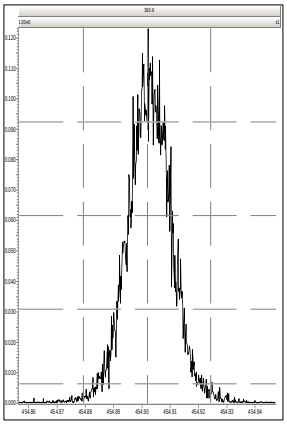
M 480.9696 R 12230



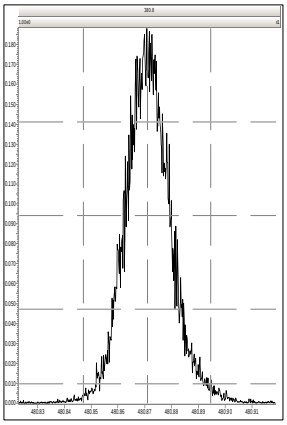
M 430.9728 R 12854



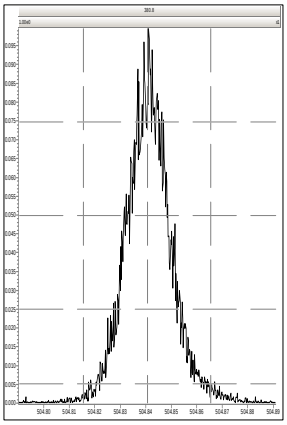
M 454.9728 R 13400



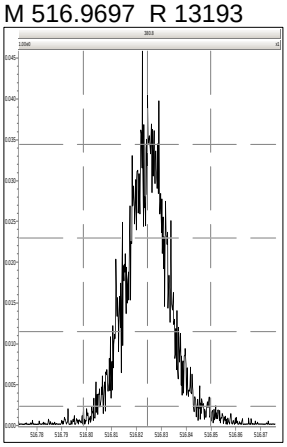
M 480.9696 R 11904

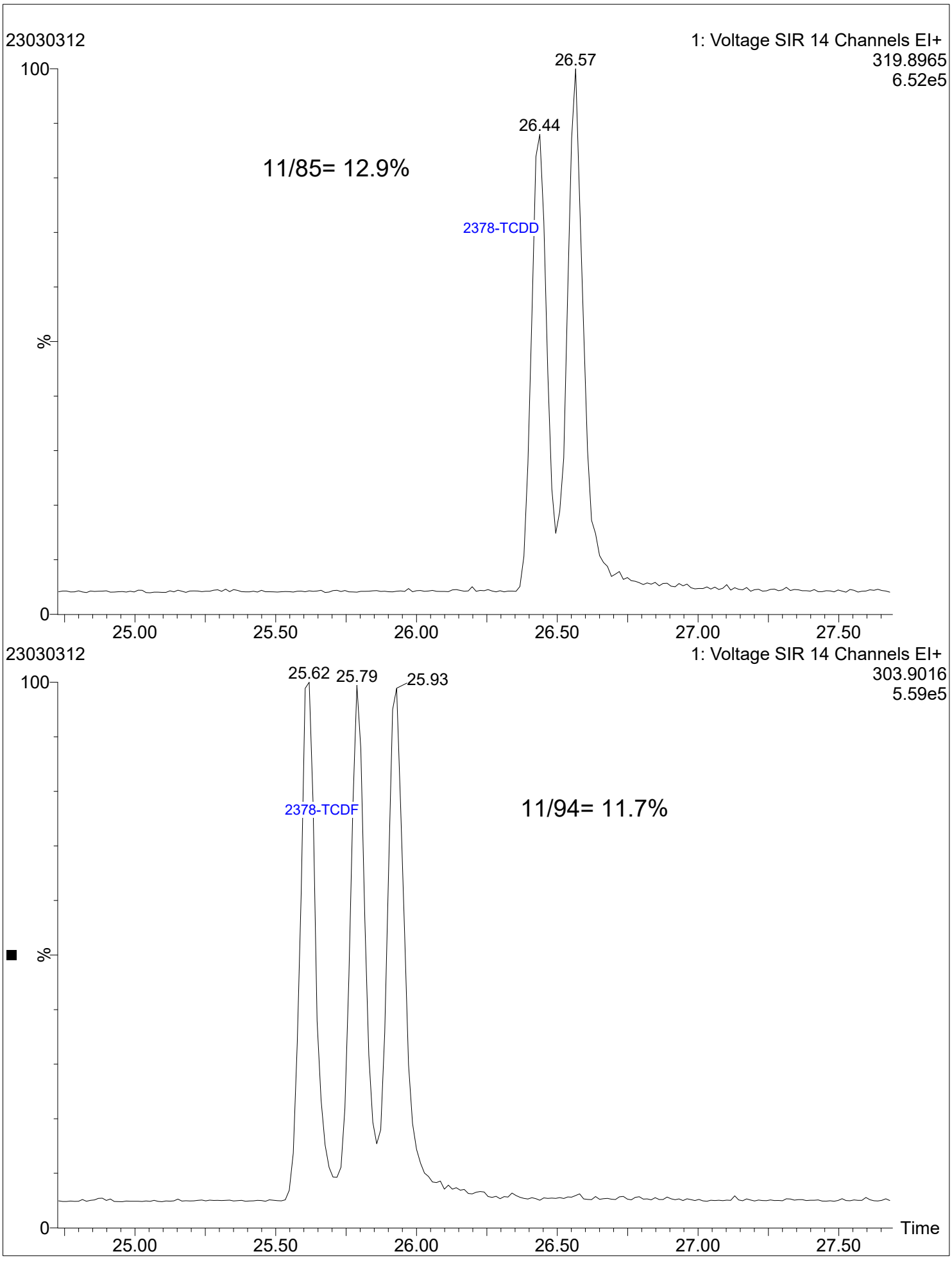


M 504.9696 R 12168



M 516.9697 R 13193




23030312
1: Voltage SIR 14 Channels EI+
319.8965
6.52e5
100
26.57
26.44
11/85= 12.9%
2378-TCDD
%
0
25.00
25.50
26.00
26.50
27.00
27.50
23030312
1: Voltage SIR 14 Channels EI+
303.9016
5.59e5
100
25.62
25.79
25.93
2378-TCDF
11/94= 11.7%
%
0
Time
25.00
25.50
26.00
26.50
27.00
27.50

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor
Calibration: GC00015
Laboratory ID: SLC0045-SCV1
Sequence: SLC0045
Sequence Name: ICVCW
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
2,3,7,8-TCDF	10.000	9.84	-1.6	
2,3,7,8-TCDD	10.000	9.81	-1.9	
1,2,3,7,8-PeCDF	50.000	51.4	2.8	
2,3,4,7,8-PeCDF	50.000	49.0	-2.0	
1,2,3,7,8-PeCDD	50.000	48.5	-2.9	
1,2,3,4,7,8-HxCDF	50.000	48.2	-3.5	
1,2,3,6,7,8-HxCDF	50.000	48.0	-4.0	
2,3,4,6,7,8-HxCDF	50.000	50.2	0.4	
1,2,3,7,8,9-HxCDF	50.000	49.1	-1.8	
1,2,3,4,7,8-HxCDD	50.000	50.8	1.6	
1,2,3,6,7,8-HxCDD	50.000	50.2	0.3	
1,2,3,7,8,9-HxCDD	50.000	51.6	3.2	
1,2,3,4,6,7,8-HpCDF	50.000	51.8	3.7	
1,2,3,4,7,8,9-HpCDF	50.000	48.5	-3.1	
1,2,3,4,6,7,8-HpCDD	50.000	49.2	-1.6	
OCDF	100.00	104	3.5	
OCDD	100.00	99.4	-0.6	
13C12-2,3,7,8-TCDF	100.00	96.9	-3.1	
13C12-2,3,7,8-TCDD	100.00	96.6	-3.4	
13C12-1,2,3,7,8-PeCDF	100.00	73.2	-26.8	
13C12-2,3,4,7,8-PeCDF	100.00	75.9	-24.1	
13C12-1,2,3,7,8-PeCDD	100.00	76.6	-23.4	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.0	-7.0	
13C12-1,2,3,6,7,8-HxCDF	100.00	98.0	-2.0	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-1,2,3,7,8,9-HxCDF	100.00	97.9	-2.1	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.9	-4.1	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.7	-2.3	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	2.1	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	104	4.0	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	102	2.5	
13C12-OCDD	200.00	162	-19.2	
37Cl4-2,3,7,8-TCDD	10.000	8.71	-12.9	

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
Client: Friedman & Bruya Inc.
Calibration: GC00015
Sequence: SLC0045

SDG: 23C0619
Project: Port of Friday Harbor
Laboratory ID: SLC0045-SCV1
Sequence Name: ICVCW
Standard ID: H008219

* Indicates values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor
Calibration: GC00015
Laboratory ID: SLC0045-SCV1
Sequence: SLC0045
Standard ID: H008219

ANALYTE	EXPECTED (ng/mL)	FOUND (ng/mL)	% DRIFT	QC LIMIT
OCDF	100.00	104	3.5	
OCDD	100.00	99.4	-0.6	
13C12-2,3,7,8-TCDF	100.00	96.9	-3.1	
13C12-2,3,7,8-TCDD	100.00	96.6	-3.4	
13C12-1,2,3,7,8-PeCDF	100.00	73.2	-26.8	
13C12-2,3,4,7,8-PeCDF	100.00	75.9	-24.1	
13C12-1,2,3,7,8-PeCDD	100.00	76.6	-23.4	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.0	-7.0	
13C12-1,2,3,6,7,8-HxCDF	100.00	98.0	-2.0	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.4	-6.6	
13C12-1,2,3,7,8,9-HxCDF	100.00	97.9	-2.1	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.9	-4.1	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.7	-2.3	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	2.1	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	104	4.0	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	102	2.5	
13C12-OCDD	200.00	162	-19.2	
37Cl4-2,3,7,8-TCDD	10.000	8.71	-12.9	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030302	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-ICV1	Injection Time:	09:51
Sequence Name:	CS3W1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	9.55	0.7015272	0.6699659		-4.5	+/-16
2,3,7,8-TCDD	A	10.000	9.45	1.1486620	1.0855020		-5.5	+/-22
1,2,3,7,8-PeCDF	A	50.000	49.6	0.6792300	0.6743560		-0.7	+/-18
2,3,4,7,8-PeCDF	A	50.000	47.5	0.7861704	0.7472986		-4.9	+/-18
1,2,3,7,8-PeCDD	A	50.000	49.7	1.0218450	1.0147700		-0.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.1	1.1660380	1.0988190		-5.8	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.6	1.0907410	1.0813380		-0.9	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	49.3	1.1396990	1.1246750		-1.3	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	47.0	1.1370930	1.0679460		-6.1	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	50.1	0.9955689	0.9966266		0.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	49.6	1.0009380	0.9938861		-0.7	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	54.2	0.9071139	0.9838286		8.5	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.5	1.0029930	0.9526502		-5.0	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	50.2	0.9531152	0.9573187		0.4	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	47.6	1.0390130	0.9895371		-4.8	+/-14
OCDF	A	100.00	88.6	0.7778078	0.6890651		-11.4	+/-37
OCDD	A	100.00	98.4	0.9199537	0.9055309		-1.6	+/-21
13C12-2,3,7,8-TCDF	A	100.00	94.0	1.6201960	1.5232274		-6.0	+/-29
13C12-2,3,7,8-TCDD	A	100.00	102	1.1524090	1.1727116		1.8	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	92.2	1.2404520	1.1438587		-7.8	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	87.6	1.1177860	0.9791895		-12.4	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	84.3	0.8288129	0.6985475		-15.7	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	84.0	1.1683050	0.9815313		-16.0	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	74.6	1.3864660	1.0348865		-25.4	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	88.7	1.1292560	1.0010969		-11.3	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	99.9	0.9317541	0.9305560		-0.1	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	93.5	0.9950393	0.9299453		-6.5	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	86.9	1.1566890	1.0052205		-13.1	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	95.3	0.8952017	0.8530837		-4.7	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	98.7	0.7697516	0.7594900		-1.3	+/-23

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030302	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-ICV1	Injection Time:	09:51
Sequence Name:	CS3W1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	105	0.8401226	0.8828452		5.1	+/-28
13C12-OCDD	A	200.00	214	0.7674714	0.8220320		7.1	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.05	1.2878040	1.1649542		-9.5	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23042402	Calibration Date:	03/03/2023
Sequence:	SLD0330	Injection Date:	04/24/23
Lab Sample ID:	SLD0330-ICV1	Injection Time:	14:09
Sequence Name:	CS3H1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	10.4	0.7015272	0.7264294		3.5	+/-16
2,3,7,8-TCDD	A	10.000	9.66	1.1486620	1.1099480		-3.4	+/-22
1,2,3,7,8-PeCDF	A	50.000	55.8	0.6792300	0.7579148		11.6	+/-18
2,3,4,7,8-PeCDF	A	50.000	56.0	0.7861704	0.8797639		11.9	+/-18
1,2,3,7,8-PeCDD	A	50.000	51.7	1.0218450	1.0576040		3.5	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	48.2	1.1660380	1.1236810		-3.6	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	54.2	1.0907410	1.1813550		8.3	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	52.2	1.1396990	1.1896070		4.4	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	49.4	1.1370930	1.1231330		-1.2	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.9	0.9955689	0.9528554		-4.3	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	51.7	1.0009380	1.0355710		3.5	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	50.9	0.9071139	0.9233348		1.8	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	48.1	1.0029930	0.9644220		-3.8	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	50.8	0.9531152	0.9676364		1.5	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	49.8	1.0390130	1.0343960		-0.4	+/-14
OCDF	A	100.00	120	0.7778078	0.9302962		19.6	+/-37
OCDD	A	100.00	100	0.9199537	0.9219826		0.2	+/-21
13C12-2,3,7,8-TCDF	A	100.00	95.5	1.6201960	1.5474233		-4.5	+/-29
13C12-2,3,7,8-TCDD	A	100.00	95.8	1.1524090	1.1041460		-4.2	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	104	1.2404520	1.2960622		4.5	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	102	1.1177860	1.1400831		2.0	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	85.1	0.8288129	0.7051279		-14.9	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	93.2	1.1683050	1.0886806		-6.8	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	87.5	1.3864660	1.2137673		-12.5	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	92.9	1.1292560	1.0495020		-7.1	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	92.4	0.9317541	0.8608178		-7.6	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	97.4	0.9950393	0.9690900		-2.6	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	91.0	1.1566890	1.0527379		-9.0	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	117	0.8952017	1.0492407		17.2	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	105	0.7697516	0.8053194		4.6	+/-23

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23042402	Calibration Date:	03/03/2023
Sequence:	SLD0330	Injection Date:	04/24/23
Lab Sample ID:	SLD0330-ICV1	Injection Time:	14:09
Sequence Name:	CS3H1		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	92.0	0.8401226	0.7732523		-8.0	+/-28
13C12-OCDD	A	200.00	201	0.7674714	0.7729152		0.7	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	8.51	1.2878040	1.0962038		-14.9	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:17:39 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3H1, Name: 23042402, Date: 24-Apr-2023, Time: 14:09:14, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.732	1.000	3.468e4	4.452e4	0.702	0.779	0.770	1087	2280	5.16e5	6.56e5	474.4	287.6	NO	bb	bb	10.355
12378-PeCDF	29.878	1.001	2.071e5	1.390e5	0.679	1.490	1.550	3409	2638	3.08e6	2.08e6	903.6	786.8	NO	bb	bb	55.792
23478-PeCDF	31.215	1.000	2.162e5	1.372e5	0.786	1.576	1.550	3409	2638	3.23e6	2.02e6	946.6	765.4	NO	bb	bb	55.952
123478-HxCDF	34.835	1.001	1.891e5	1.496e5	1.166	1.263	1.240	2594	2516	2.79e6	2.21e6	1075.1	879.1	NO	bd	bd	48.184
234678-HxCDF	35.838	1.001	1.903e5	1.554e5	1.140	1.224	1.240	2594	2516	2.66e6	2.10e6	1026.6	834.6	NO	bd	bb	52.190
123678-HxCDF	34.969	1.000	2.156e5	1.814e5	1.091	1.188	1.240	2594	2516	2.90e6	2.39e6	1118.5	948.0	NO	db	dd	54.154
123789-HxCDF	36.863	1.000	1.522e5	1.155e5	1.137	1.318	1.240	2594	2516	1.92e6	1.55e6	741.3	615.9	NO	bb	bb	49.386
1234678-HpCDF	38.701	1.000	1.420e5	1.382e5	1.003	1.028	1.050	2795	2566	2.38e6	2.27e6	850.0	885.5	NO	bb	bb	48.077
1234789-HpCDF	40.930	1.000	1.112e5	1.046e5	0.953	1.063	1.050	2795	2566	1.49e6	1.41e6	532.1	551.2	NO	bb	bb	50.762
OCDF	45.134	1.006	1.985e5	1.996e5	0.778	0.995	0.890	1380	1957	2.07e6	2.19e6	1498.9	1117.6	NO	bd	bb	119.605
2378-TCDD	26.368	1.000	3.904e4	4.730e4	1.149	0.825	0.770	1387	1505	5.44e5	6.74e5	392.2	447.6	NO	bd	bb	9.663
12378-PeCDD	31.471	1.000	1.597e5	1.030e5	1.022	1.550	1.550	2074	2271	2.38e6	1.52e6	1146.3	668.7	NO	bb	bb	51.750
123478-HxCDD	35.949	1.000	1.410e5	1.146e5	0.996	1.230	1.240	2161	2161	2.14e6	1.73e6	990.8	800.8	NO	bd	bd	47.855
123678-HxCDD	36.072	1.001	1.665e5	1.353e5	1.001	1.231	1.240	2161	2161	2.26e6	1.85e6	1047.4	854.9	NO	db	dd	51.730
123789-HxCDD	36.451	1.011	1.366e5	1.219e5	0.907	1.121	1.240	2161	2161	2.02e6	1.66e6	933.6	769.4	NO	bb	dd	50.894
1234678-HpCDD	40.194	1.000	1.103e5	1.112e5	1.039	0.992	1.050	2574	1959	1.55e6	1.53e6	602.7	780.4	NO	bb	bb	49.778
OCDD	44.896	1.000	1.901e5	2.045e5	0.920	0.930	0.890	2810	1828	2.04e6	2.29e6	724.9	1251.4	NO	bd	bb	100.221
13C-2378-TCDF	25.718	1.007	4.704e5	6.199e5	1.620	0.759	0.770	1522	1099	6.36e6	8.47e6	4177.8	7708.4	NO	bb	bd	95.508
13C-12378-PeCDF	29.855	1.169	5.554e5	3.578e5	1.240	1.553	1.550	3675	3593	7.32e6	4.78e6	1992.2	1331.6	NO	bd	bd	104.483
13C-23478-PeCDF	31.203	1.222	4.844e5	3.189e5	1.118	1.519	1.550	3675	3593	6.76e6	4.36e6	1839.4	1214.0	NO	bb	bb	101.995
13C-123478-HxCDF	34.813	0.955	2.041e5	3.988e5	1.168	0.512	0.510	2383	2771	2.98e6	5.82e6	1249.1	2099.1	NO	bd	bd	93.185
13C-123678-HxCDF	34.958	0.959	2.282e5	4.439e5	1.386	0.514	0.510	2383	2771	3.21e6	6.20e6	1348.4	2238.5	NO	db	db	87.544
13C-234678-HxCDF	35.816	0.983	1.988e5	3.823e5	1.129	0.520	0.510	2383	2771	2.90e6	5.58e6	1216.0	2015.3	NO	bb	bb	92.937
13C-123789-HxCDF	36.852	1.011	1.621e5	3.146e5	0.932	0.515	0.510	2383	2771	2.21e6	4.28e6	925.9	1543.7	NO	bb	bb	92.387
13C-1234678-HpCDF	38.690	1.062	1.802e5	4.008e5	0.895	0.449	0.440	2165	3100	2.67e6	6.02e6	1231.6	1942.7	NO	bb	bb	117.207
13C-1234789-HpCDF	40.918	1.123	1.336e5	3.123e5	0.770	0.428	0.440	2165	3100	1.71e6	3.92e6	788.7	1265.4	NO	bd	bb	104.621
13C-1234-TCDD	25.534	0.000	3.133e5	3.913e5	1.000	0.801	0.770	2069	1262	4.54e6	5.72e6	2194.4	4535.0	NO	bb	bb	100.000
13C-2378-TCDD	26.353	1.032	3.450e5	4.329e5	1.152	0.797	0.770	2069	1262	4.90e6	6.17e6	2367.8	4891.2	NO	bb	bb	95.812
13C-12378-PeCDD	31.459	1.232	3.171e5	1.797e5	0.829	1.765	1.550	1470	1312	4.05e6	2.47e6	2756.3	1879.9	NO	bb	bb	85.077
13C-123478-HxCDD	35.938	0.986	3.007e5	2.359e5	0.995	1.275	1.240	2947	2079	4.77e6	3.68e6	1618.4	1767.8	NO	bd	bd	97.392
13C-123678-HxCDD	36.050	0.989	3.210e5	2.620e5	1.157	1.225	1.240	2947	2079	4.65e6	3.75e6	1576.7	1804.1	NO	db	db	91.013
13C-1234678-HpCDD	40.183	1.103	2.255e5	2.027e5	0.840	1.112	1.050	2003	2247	2.90e6	2.64e6	1447.5	1174.0	NO	bd	bb	92.040
13C-OCDD	44.878	1.232	4.078e5	4.482e5	0.767	0.910	0.890	1810	1396	4.21e6	4.62e6	2323.0	3312.4	NO	bd	bd	201.419
13C-123789-HxCDD	36.439	0.000	3.114e5	2.424e5	1.000	1.285	1.240	2947	2079	4.48e6	3.53e6	1521.7	1699.4	NO	bb	bb	100.000
37CL-2378-TCDD	26.368	1.033	7.724e4		1.288			2226		1.08e6		484.4			bb		8.512

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:17:39 Pacific Daylight Time

ID: CS3H1, Name: 23042402, Date: 24-Apr-2023, Time: 14:09:14, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.229	0.864	4.700e4	6.185e4	0.802	0.760	0.770	1087	2280	7.11e5	9.51e5	653.8	417.4	NO	bb	bb	12.456
1289-TCDF	27.229	1.059	3.297e4	3.925e4	0.678	0.840	0.770	1087	2280	4.59e5	5.49e5	422.2	240.7	NO	bb	bb	9.770
13468-PECDF	27.074	0.907	3.285e5	2.157e5	1.246	1.523	1.550	672	1051	4.84e6	3.20e6	7210.3	3042.6	NO	bb	bb	47.812
12389-PECDF	32.251	1.080	1.906e5	1.217e5	0.496	1.566	1.550	3409	2638	2.65e6	1.69e6	777.1	638.9	NO	bb	bb	68.890
123468-HXCDF	33.164	0.953	2.103e5	1.656e5	1.169	1.270	1.240	2594	2516	3.01e6	2.37e6	1159.3	940.4	NO	bb	bb	53.332
1368-TCDD	23.500	0.892	3.993e4	5.082e4	1.015	0.786	0.770	1387	1505	5.99e5	7.37e5	432.1	489.9	NO	bb	bd	11.488
1289-TCDD	26.975	1.024	3.283e4	3.934e4	0.909	0.835	0.770	1387	1505	4.49e5	5.38e5	323.9	357.8	NO	bb	bd	10.210
12479-PECDD	28.753	0.914	2.954e5	1.977e5	2.301	1.494	1.550	2074	2271	2.84e6	1.84e6	1367.8	809.7	NO	bb	bb	43.119
12389-PECDD	31.872	1.013	1.820e5	1.160e5	1.184	1.570	1.550	2074	2271	2.56e6	1.65e6	1233.1	725.1	NO	bb	bb	50.670
124679-HXCDD	33.944	0.945	1.623e5	1.310e5	1.115	1.238	1.240	2161	2161	2.32e6	1.87e6	1074.8	867.2	NO	bb	bb	48.999
1234679-HPCDD	39.147	0.974	1.367e5	1.389e5	1.137	0.984	1.050	2574	1959	2.01e6	1.96e6	779.3	1001.4	NO	bb	bd	56.620
Total-tetrafurans			1.147e5		0.727			1087		1.68e6							32.581
Total-penta1			3.285e5					672		4.84e6							47.812
Total-pentafurans			6.501e5		0.654			3409		9.47e6							191.098
Total-hexafurans			9.574e5		1.141			2594		1.33e7							257.245
Total-heptafurans			2.535e5		0.978			2795		3.87e6							98.961
Total-Furans			2.503e6		0.922			1087		3.52e7							747.302
Total-tetradioxins			1.857e5		1.024			1387		2.44e6							52.605
Total-pentadioxins			6.371e5		1.502			2074		7.77e6							145.539
Total-hexadioxins			6.064e5		1.005			2161		8.75e6							199.478
Total-heptadioxins			2.470e5		1.088			2574		3.56e6							106.398
Total-Dioxins			1.866e6		1.130			1387		2.46e7							604.241
Total-TEQ			4.369e6					1387		5.98e7							1351.543
FUNCTION1 PFK			6.743e3					420852		4.79e5							
FUNCTION2 PFK			7.398e5					233034		1.70e7							0.000
FUNCTION3 PFK			0.000e0					242598		0.00e0							
FUNCTION4 PFK			2.668e5					289517		7.60e6							
FUNCTION5 PFK			0.000e0					147338		0.00e0							
FUNCTION1 HXCD...			2.149e2					667		3.51e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.384e3					1045		2.97e4							0.000
FUNCTION3 OCDPE			3.105e2					788		5.38e3							0.000
FUNCTION4 NCDPE			4.952e2					622		9.28e3							0.000
FUNCTION5 DCDPE			0.000e0					572		0.00e0							

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.23	3.297e4	3.925e4	0.678	0.84	0.77	422.2	YES	NO	bb	bb	9.770
2	2378-TCDF	25.73	3.468e4	4.452e4	0.702	0.78	0.77	474.4	YES	NO	bb	bb	10.355
3	1368-TCDF	22.23	4.700e4	6.185e4	0.802	0.76	0.77	653.8	YES	NO	bb	bb	12.456

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.07	3.285e5	2.157e5	1.246	1.52	1.55	7210.3	YES	NO	bb	bb	47.812

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.25	1.906e5	1.217e5	0.496	1.57	1.55	777.1	YES	NO	bb	bb	68.890
2	23478-PeCDF	31.21	2.162e5	1.372e5	0.786	1.58	1.55	946.6	YES	NO	bb	bb	55.952
3	12378-PeCDF	29.88	2.071e5	1.390e5	0.679	1.49	1.55	903.6	YES	NO	bb	bb	55.792
4	Total-pentafurans	28.74	3.620e4	2.252e4	0.654	1.61	1.55	152.2	YES	NO	bb	bb	10.463

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	234678-HxCDF	35.84	1.903e5	1.554e5	1.140	1.22	1.24	1026.6	YES	NO	bd	bb	52.190
2	123678-HxCDF	34.97	2.156e5	1.814e5	1.091	1.19	1.24	1118.5	YES	NO	db	dd	54.154
3	123478-HxCDF	34.84	1.891e5	1.496e5	1.166	1.26	1.24	1075.1	YES	NO	bd	bd	48.184
4	123468-HXCDF	33.16	2.103e5	1.656e5	1.169	1.27	1.24	1159.3	YES	NO	bb	bb	53.332
5	123789-HxCDF	36.86	1.522e5	1.155e5	1.137	1.32	1.24	741.3	YES	NO	bb	bb	49.386

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.93	1.112e5	1.046e5	0.953	1.06	1.05	532.1	YES	NO	bb	bb	50.762
2	Total-heptafurans	39.16	3.033e2	3.092e2	0.978	0.98	1.05	2.6	NO	NO	bb	dd	0.122
3	1234678-HpCDF	38.70	1.420e5	1.382e5	1.003	1.03	1.05	850.0	YES	NO	bb	bb	48.077

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.23	3.297e4	3.925e4	0.678	0.84	0.77	422.2	YES	NO	bb	bb	9.770
2	2378-TCDF	25.73	3.468e4	4.452e4	0.702	0.78	0.77	474.4	YES	NO	bb	bb	10.355
3	1368-TCDF	22.23	4.700e4	6.185e4	0.802	0.76	0.77	653.8	YES	NO	bb	bb	12.456
4	12389-PECDF	32.25	1.906e5	1.217e5	0.496	1.57	1.55	777.1	YES	NO	bb	bb	68.890
5	23478-PeCDF	31.21	2.162e5	1.372e5	0.786	1.58	1.55	946.6	YES	NO	bb	bb	55.952
6	12378-PeCDF	29.88	2.071e5	1.390e5	0.679	1.49	1.55	903.6	YES	NO	bb	bb	55.792
7	Total-pentafurans	28.74	3.620e4	2.252e4	0.654	1.61	1.55	152.2	YES	NO	bb	bb	10.463
8	234678-HxCDF	35.84	1.903e5	1.554e5	1.140	1.22	1.24	1026.6	YES	NO	bd	bb	52.190
9	123678-HxCDF	34.97	2.156e5	1.814e5	1.091	1.19	1.24	1118.5	YES	NO	db	dd	54.154
10	123478-HxCDF	34.84	1.891e5	1.496e5	1.166	1.26	1.24	1075.1	YES	NO	bd	bd	48.184
11	123468-HXCDF	33.16	2.103e5	1.656e5	1.169	1.27	1.24	1159.3	YES	NO	bb	bb	53.332
12	123789-HxCDF	36.86	1.522e5	1.155e5	1.137	1.32	1.24	741.3	YES	NO	bb	bb	49.386
13	1234789-HpCDF	40.93	1.112e5	1.046e5	0.953	1.06	1.05	532.1	YES	NO	bb	bb	50.762
14	Total-heptafurans	39.16	3.033e2	3.092e2	0.978	0.98	1.05	2.6	NO	NO	bb	dd	0.122
15	1234678-HpCDF	38.70	1.420e5	1.382e5	1.003	1.03	1.05	850.0	YES	NO	bb	bb	48.077
16	OCDF	45.13	1.985e5	1.996e5	0.778	0.99	0.89	1498.9	YES	NO	bd	bb	119.605
17	13468-PECDF	27.07	3.285e5	2.157e5	1.246	1.52	1.55	7210.3	YES	NO	bb	bb	47.812

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.50	3.993e4	5.082e4	1.015	0.79	0.77	432.1	YES	NO	bb	bd	11.488
2	1289-TCDD	26.97	3.283e4	3.934e4	0.909	0.83	0.77	323.9	YES	NO	bb	bd	10.210
3	2378-TCDD	26.37	3.904e4	4.730e4	1.149	0.83	0.77	392.2	YES	NO	bd	bb	9.663
4	Total-tetradioxins	26.04	5.548e4	7.115e4	1.024	0.78	0.77	406.3	YES	NO	bb	bb	15.893
5	Total-tetradioxins	25.56	1.795e4	2.352e4	1.024	0.76	0.77	199.2	YES	NO	bb	bb	5.205
6	Total-tetradioxins	25.00	5.075e2	6.678e2	1.024	0.76	0.77	5.8	YES	NO	bb	bb	0.147

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.87	1.820e5	1.160e5	1.184	1.57	1.55	1233.1	YES	NO	bb	bb	50.670
2	12378-PeCDD	31.47	1.597e5	1.030e5	1.022	1.55	1.55	1146.3	YES	NO	bb	bb	51.750
3	12479-PECDD	28.75	2.954e5	1.977e5	2.301	1.49	1.55	1367.8	YES	NO	bb	bb	43.119

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.94	1.623e5	1.310e5	1.115	1.24	1.24	1074.8	YES	NO	bb	bb	48.999
2	123789-HxCDD	36.45	1.366e5	1.219e5	0.907	1.12	1.24	933.6	YES	NO	bb	dd	50.894
3	123678-HxCDD	36.07	1.665e5	1.353e5	1.001	1.23	1.24	1047.4	YES	NO	db	dd	51.730
4	123478-HxCDD	35.95	1.410e5	1.146e5	0.996	1.23	1.24	990.8	YES	NO	bd	bd	47.855

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.19	1.103e5	1.112e5	1.039	0.99	1.05	602.7	YES	NO	bb	bb	49.778
2	1234679-HPCDD	39.15	1.367e5	1.389e5	1.137	0.98	1.05	779.3	YES	NO	bb	bd	56.620

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1368-TCDD	23.50	3.993e4	5.082e4	1.015	0.79	0.77	432.1	YES	NO	bb	bd	11.488
2	1289-TCDD	26.97	3.283e4	3.934e4	0.909	0.83	0.77	323.9	YES	NO	bb	bd	10.210
3	2378-TCDD	26.37	3.904e4	4.730e4	1.149	0.83	0.77	392.2	YES	NO	bd	bb	9.663
4	Total-tetradioxins	26.04	5.548e4	7.115e4	1.024	0.78	0.77	406.3	YES	NO	bb	bb	15.893
5	Total-tetradioxins	25.56	1.795e4	2.352e4	1.024	0.76	0.77	199.2	YES	NO	bb	bb	5.205
6	Total-tetradioxins	25.00	5.075e2	6.678e2	1.024	0.76	0.77	5.8	YES	NO	bb	bb	0.147
7	12389-PECDD	31.87	1.820e5	1.160e5	1.184	1.57	1.55	1233.1	YES	NO	bb	bb	50.670
8	12378-PeCDD	31.47	1.597e5	1.030e5	1.022	1.55	1.55	1146.3	YES	NO	bb	bb	51.750
9	12479-PECDD	28.75	2.954e5	1.977e5	2.301	1.49	1.55	1367.8	YES	NO	bb	bb	43.119
10	124679-HXCDD	33.94	1.623e5	1.310e5	1.115	1.24	1.24	1074.8	YES	NO	bb	bb	48.999
11	123789-HxCDD	36.45	1.366e5	1.219e5	0.907	1.12	1.24	933.6	YES	NO	bb	dd	50.894
12	123678-HxCDD	36.07	1.665e5	1.353e5	1.001	1.23	1.24	1047.4	YES	NO	db	dd	51.730
13	123478-HxCDD	35.95	1.410e5	1.146e5	0.996	1.23	1.24	990.8	YES	NO	bd	bd	47.855
14	1234678-HpCDD	40.19	1.103e5	1.112e5	1.039	0.99	1.05	602.7	YES	NO	bb	bb	49.778
15	1234679-HPCDD	39.15	1.367e5	1.389e5	1.137	0.98	1.05	779.3	YES	NO	bb	bd	56.620
16	OCDD	44.90	1.901e5	2.045e5	0.920	0.93	0.89	724.9	YES	NO	bd	bb	100.221

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.23	3.297e4	3.925e4	0.678	0.84	0.77	422.2	YES	NO	bb	bb	9.770
2	2378-TCDF	25.73	3.468e4	4.452e4	0.702	0.78	0.77	474.4	YES	NO	bb	bb	10.355
3	1368-TCDF	22.23	4.700e4	6.185e4	0.802	0.76	0.77	653.8	YES	NO	bb	bb	12.456
4	12389-PECDF	32.25	1.906e5	1.217e5	0.496	1.57	1.55	777.1	YES	NO	bb	bb	68.890
5	23478-PeCDF	31.21	2.162e5	1.372e5	0.786	1.58	1.55	946.6	YES	NO	bb	bb	55.952
6	12378-PeCDF	29.88	2.071e5	1.390e5	0.679	1.49	1.55	903.6	YES	NO	bb	bb	55.792
7	Total-pentafurans	28.74	3.620e4	2.252e4	0.654	1.61	1.55	152.2	YES	NO	bb	bb	10.463
8	234678-HxCDF	35.84	1.903e5	1.554e5	1.140	1.22	1.24	1026.6	YES	NO	bd	bb	52.190
9	123678-HxCDF	34.97	2.156e5	1.814e5	1.091	1.19	1.24	1118.5	YES	NO	db	dd	54.154
10	123478-HxCDF	34.84	1.891e5	1.496e5	1.166	1.26	1.24	1075.1	YES	NO	bd	bd	48.184
11	123468-HXCDF	33.16	2.103e5	1.656e5	1.169	1.27	1.24	1159.3	YES	NO	bb	bb	53.332
12	123789-HxCDF	36.86	1.522e5	1.155e5	1.137	1.32	1.24	741.3	YES	NO	bb	bb	49.386
13	1234789-HpCDF	40.93	1.112e5	1.046e5	0.953	1.06	1.05	532.1	YES	NO	bb	bb	50.762
14	Total-heptafurans	39.16	3.033e2	3.092e2	0.978	0.98	1.05	2.6	NO	NO	bb	dd	0.122
15	1234678-HpCDF	38.70	1.420e5	1.382e5	1.003	1.03	1.05	850.0	YES	NO	bb	bb	48.077
16	OCDF	45.13	1.985e5	1.996e5	0.778	0.99	0.89	1498.9	YES	NO	bd	bb	119.605
17	13468-PECDF	27.07	3.285e5	2.157e5	1.246	1.52	1.55	7210.3	YES	NO	bb	bb	47.812
18	1368-TCDD	23.50	3.993e4	5.082e4	1.015	0.79	0.77	432.1	YES	NO	bb	bd	11.488
19	1289-TCDD	26.97	3.283e4	3.934e4	0.909	0.83	0.77	323.9	YES	NO	bb	bd	10.210
20	2378-TCDD	26.37	3.904e4	4.730e4	1.149	0.83	0.77	392.2	YES	NO	bd	bb	9.663
21	Total-tetradioxins	26.04	5.548e4	7.115e4	1.024	0.78	0.77	406.3	YES	NO	bb	bb	15.893
22	Total-tetradioxins	25.56	1.795e4	2.352e4	1.024	0.76	0.77	199.2	YES	NO	bb	bb	5.205
23	Total-tetradioxins	25.00	5.075e2	6.678e2	1.024	0.76	0.77	5.8	YES	NO	bb	bb	0.147
24	12389-PECDD	31.87	1.820e5	1.160e5	1.184	1.57	1.55	1233.1	YES	NO	bb	bb	50.670
25	12378-PeCDD	31.47	1.597e5	1.030e5	1.022	1.55	1.55	1146.3	YES	NO	bb	bb	51.750
26	12479-PECDD	28.75	2.954e5	1.977e5	2.301	1.49	1.55	1367.8	YES	NO	bb	bb	43.119
27	124679-HXCDD	33.94	1.623e5	1.310e5	1.115	1.24	1.24	1074.8	YES	NO	bb	bb	48.999
28	123789-HxCDD	36.45	1.366e5	1.219e5	0.907	1.12	1.24	933.6	YES	NO	bb	dd	50.894
29	123678-HxCDD	36.07	1.665e5	1.353e5	1.001	1.23	1.24	1047.4	YES	NO	db	dd	51.730
30	123478-HxCDD	35.95	1.410e5	1.146e5	0.996	1.23	1.24	990.8	YES	NO	bd	bd	47.855
31	1234678-HpCDD	40.19	1.103e5	1.112e5	1.039	0.99	1.05	602.7	YES	NO	bb	bb	49.778
32	1234679-HPCDD	39.15	1.367e5	1.389e5	1.137	0.98	1.05	779.3	YES	NO	bb	bd	56.620
33	OCDD	44.90	1.901e5	2.045e5	0.920	0.93	0.89	724.9	YES	NO	bd	bb	100.221

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.24	6.743e3					1.1	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.60	3.337e4					2.6	NO		dd		0.000
2	FUNCTION2 PFK	28.45	5.779e4					2.4	NO		dd		0.000
3	FUNCTION2 PFK	28.40	3.019e4					3.7	YES		dd		0.000
4	FUNCTION2 PFK	28.35	4.599e4					3.6	YES		dd		0.000
5	FUNCTION2 PFK	28.24	7.808e4					4.1	YES		bd		0.000
6	FUNCTION2 PFK	29.82	4.429e3					0.8	NO		bb		0.000
7	FUNCTION2 PFK	29.68	1.480e4					1.3	NO		db		0.000
8	FUNCTION2 PFK	29.57	2.454e4					2.0	NO		dd		0.000
9	FUNCTION2 PFK	29.47	1.392e4					2.0	NO		dd		0.000
10	FUNCTION2 PFK	29.42	1.551e4					1.8	NO		dd		0.000
11	FUNCTION2 PFK	29.33	2.398e4					1.8	NO		dd		0.000
12	FUNCTION2 PFK	29.29	1.166e4					1.3	NO		bd		0.000
13	FUNCTION2 PFK	29.21	4.199e3					0.6	NO		bb		0.000
14	FUNCTION2 PFK	29.12	3.054e3					0.7	NO		bb		0.000
15	FUNCTION2 PFK	29.06	1.233e3					0.5	NO		bb		0.000
16	FUNCTION2 PFK	29.01	6.716e3					1.0	NO		bb		0.000
17	FUNCTION2 PFK	28.92	7.596e2					0.3	NO		bb		0.000
18	FUNCTION2 PFK	28.88	8.025e3					1.3	NO		db		0.000
19	FUNCTION2 PFK	28.82	2.600e4					1.9	NO		dd		0.000
20	FUNCTION2 PFK	28.74	2.651e4					2.4	NO		dd		0.000
21	FUNCTION2 PFK	28.65	2.076e4					1.8	NO		dd		0.000
22	FUNCTION2 PFK	31.60	7.547e3					1.0	NO		bb		0.000
23	FUNCTION2 PFK	31.45	1.132e3					0.4	NO		bb		0.000
24	FUNCTION2 PFK	31.36	2.797e3					0.6	NO		bb		0.000
25	FUNCTION2 PFK	31.23	1.763e4					1.6	NO		db		0.000
26	FUNCTION2 PFK	31.13	2.840e4					2.6	NO		bd		0.000
27	FUNCTION2 PFK	30.99	2.041e4					1.7	NO		bb		0.000
28	FUNCTION2 PFK	30.89	3.633e3					0.9	NO		bb		0.000
29	FUNCTION2 PFK	30.81	9.225e3					1.7	NO		bb		0.000
30	FUNCTION2 PFK	30.66	1.064e4					1.0	NO		bb		0.000
31	FUNCTION2 PFK	30.41	3.972e3					0.6	NO		bb		0.000
32	FUNCTION2 PFK	30.37	5.950e3					1.2	NO		bb		0.000
33	FUNCTION2 PFK	30.26	3.900e3					0.7	NO		db		0.000
34	FUNCTION2 PFK	30.20	2.901e3					0.5	NO		bd		0.000
35	FUNCTION2 PFK	30.12	5.635e3					0.9	NO		db		0.000
36	FUNCTION2 PFK	30.08	1.093e4					1.6	NO		bd		0.000
37	FUNCTION2 PFK	29.91	4.217e3					0.7	NO		bb		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	32.75	1.036e4					1.1	NO		bb		0.000
39	FUNCTION2 PFK	32.62	4.585e3					1.0	NO		db		0.000
40	FUNCTION2 PFK	32.58	1.874e4					1.2	NO		dd		0.000
41	FUNCTION2 PFK	32.50	7.540e3					1.2	NO		bd		0.000
42	FUNCTION2 PFK	32.42	4.111e3					0.7	NO		bb		0.000
43	FUNCTION2 PFK	32.25	5.382e3					0.9	NO		bb		0.000
44	FUNCTION2 PFK	32.21	9.670e3					1.6	NO		db		0.000
45	FUNCTION2 PFK	32.16	5.434e3					0.8	NO		bd		0.000
46	FUNCTION2 PFK	32.07	5.891e3					1.0	NO		bb		0.000
47	FUNCTION2 PFK	31.94	2.146e4					1.8	NO		db		0.000
48	FUNCTION2 PFK	31.86	2.212e4					2.1	NO		dd		0.000
49	FUNCTION2 PFK	31.81	1.203e4					1.5	NO		bd		0.000
50	FUNCTION2 PFK	31.70	2.076e4					1.7	NO		db		0.000
51	FUNCTION2 PFK	31.65	1.257e3					0.4	NO		bd		0.000

PFK3

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

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	40.80	6.912e3					1.0	NO		bb		
2	FUNCTION4 PFK	40.74	1.007e4					1.2	NO		bb		
3	FUNCTION4 PFK	40.55	1.272e3					0.4	NO		bb		
4	FUNCTION4 PFK	40.34	1.743e4					1.2	NO		db		
5	FUNCTION4 PFK	40.26	9.429e3					1.1	NO		dd		
6	FUNCTION4 PFK	40.22	7.232e3					1.1	NO		bd		
7	FUNCTION4 PFK	39.48	3.282e3					0.6	NO		bb		
8	FUNCTION4 PFK	39.33	4.282e3					0.8	NO		bb		
9	FUNCTION4 PFK	38.80	1.631e4					1.2	NO		bb		
10	FUNCTION4 PFK	38.67	1.228e3					0.4	NO		bb		
11	FUNCTION4 PFK	38.53	2.525e4					0.7	NO		bb		
12	FUNCTION4 PFK	38.17	2.871e3					0.6	NO		bb		
13	FUNCTION4 PFK	38.12	3.455e3					0.6	NO		bb		
14	FUNCTION4 PFK	38.07	1.515e4					1.4	NO		db		
15	FUNCTION4 PFK	38.00	9.558e3					1.2	NO		dd		
16	FUNCTION4 PFK	37.92	2.626e4					1.6	NO		bd		
17	FUNCTION4 PFK	42.73	1.232e4					0.9	NO		db		
18	FUNCTION4 PFK	42.70	3.260e3					0.7	NO		bd		
19	FUNCTION4 PFK	42.54	3.229e4					1.7	NO		bb		
20	FUNCTION4 PFK	41.90	1.020e4					1.2	NO		db		
21	FUNCTION4 PFK	41.85	9.516e3					1.3	NO		bd		
22	FUNCTION4 PFK	41.76	5.645e3					0.9	NO		bb		
23	FUNCTION4 PFK	41.62	1.715e4					1.4	NO		bb		
24	FUNCTION4 PFK	41.41	3.662e3					0.7	NO		bb		
25	FUNCTION4 PFK	41.21	4.380e3					0.9	NO		bb		
26	FUNCTION4 PFK	41.15	4.561e3					0.8	NO		bb		
27	FUNCTION4 PFK	41.02	3.850e3					0.7	NO		bb		

PFK5

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

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	23.56	1.243e2					2.6	NO		bb		0.000
2	FUNCTION1 HXCD...	21.85	9.055e1					2.6	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.53	9.864e1					1.4	NO		bb		0.000
2	FUNCTION2 HPCD...	32.40	1.293e2					3.4	YES		bb		0.000
3	FUNCTION2 HPCD...	32.17	8.502e1					3.0	NO		bb		0.000
4	FUNCTION2 HPCD...	31.87	8.398e1					1.1	NO		bb		0.000
5	FUNCTION2 HPCD...	31.77	9.722e1					2.2	NO		bb		0.000
6	FUNCTION2 HPCD...	31.62	7.751e1					1.9	NO		bb		0.000
7	FUNCTION2 HPCD...	31.10	8.571e1					1.9	NO		bb		0.000
8	FUNCTION2 HPCD...	30.30	8.760e1					1.7	NO		bb		0.000
9	FUNCTION2 HPCD...	29.94	7.882e1					1.9	NO		db		0.000
10	FUNCTION2 HPCD...	29.88	1.057e2					1.7	NO		dd		0.000
11	FUNCTION2 HPCD...	29.77	9.508e1					1.4	NO		dd		0.000
12	FUNCTION2 HPCD...	29.67	9.015e1					1.8	NO		bd		0.000
13	FUNCTION2 HPCD...	28.80	1.155e2					2.2	NO		db		0.000
14	FUNCTION2 HPCD...	28.72	8.253e1					1.1	NO		bd		0.000
15	FUNCTION2 HPCD...	28.15	7.075e1					1.9	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.43	1.368e2					3.0	NO		bb		0.000
2	FUNCTION3 OCDPE	35.94	9.948e1					2.1	NO		bb		0.000
3	FUNCTION3 OCDPE	34.81	7.419e1					1.7	NO		bb		0.000

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ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	41.78	8.596e1					2.8	NO		db		0.000
2	FUNCTION4 NCDPE	41.72	8.929e1					2.2	NO		dd		0.000
3	FUNCTION4 NCDPE	41.64	8.338e1					2.1	NO		dd		0.000
4	FUNCTION4 NCDPE	41.54	7.945e1					2.4	NO		bd		0.000
5	FUNCTION4 NCDPE	40.18	7.042e1					2.0	NO		bb		0.000
6	FUNCTION4 NCDPE	39.07	8.671e1					3.4	YES		bb		0.000

ETHERS6

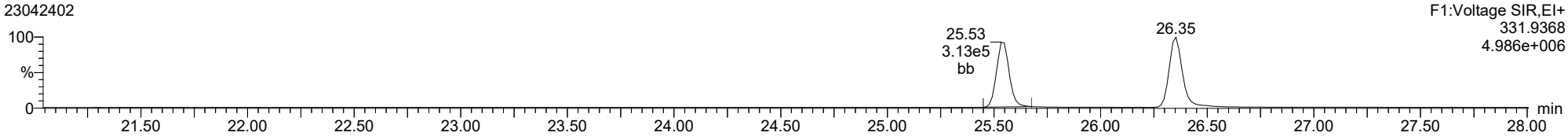
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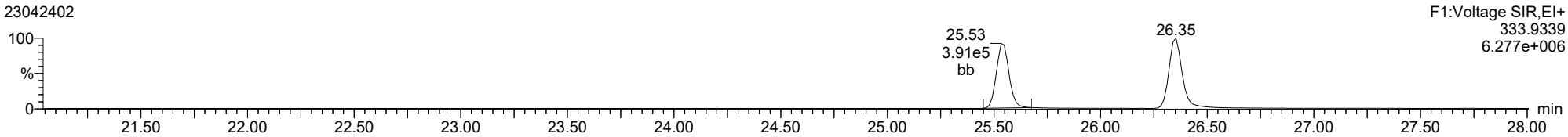
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ID: CS3H1, Name: 23042402, Date: 24-Apr-2023, Time: 14:09:14, Conditions: AUTOSPEC01, User: pk

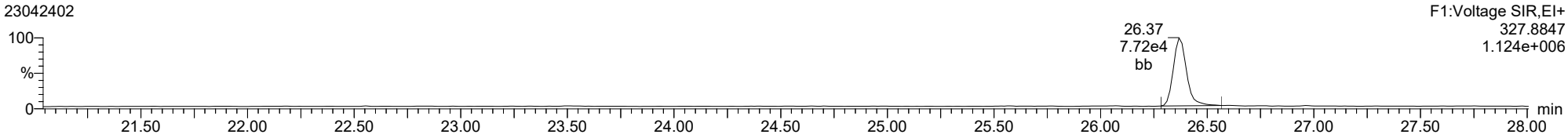
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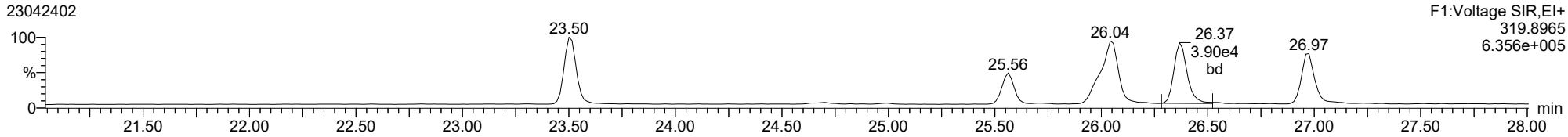


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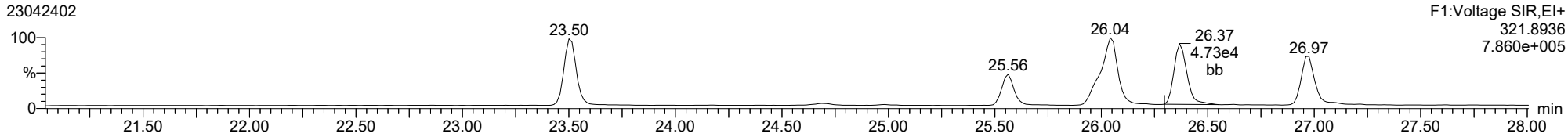


ID: CS3H1, Name: 23042402, Date: 24-Apr-2023, Time: 14:09:14, Conditions: AUTOSPEC01, User: pk

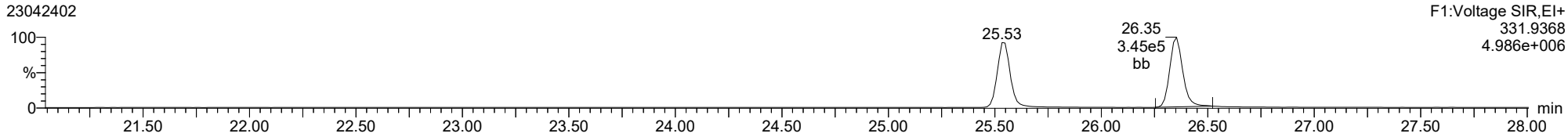
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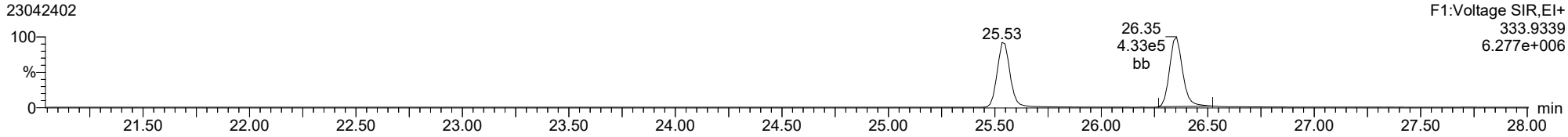
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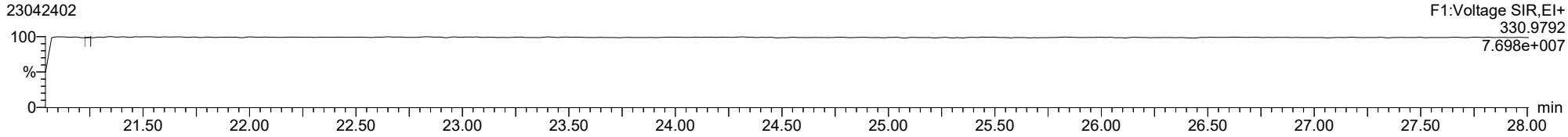
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13C-2378-TCDD

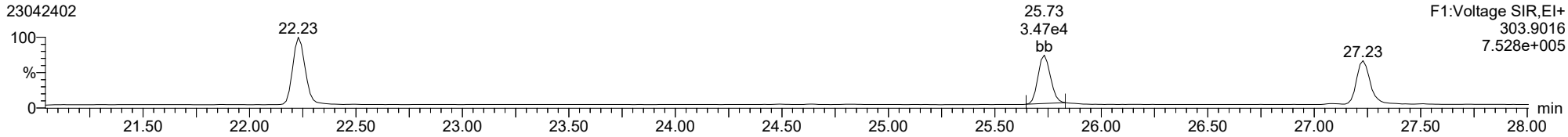


FUNCTION1 PFK

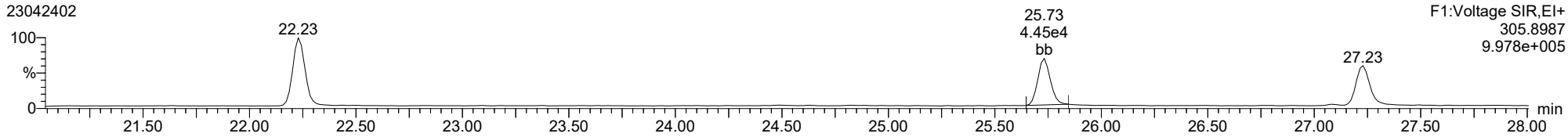


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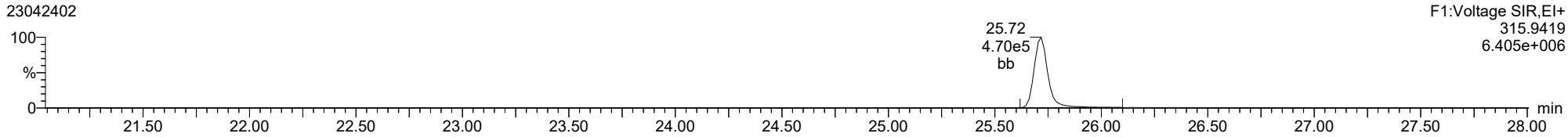
2378-TCDF



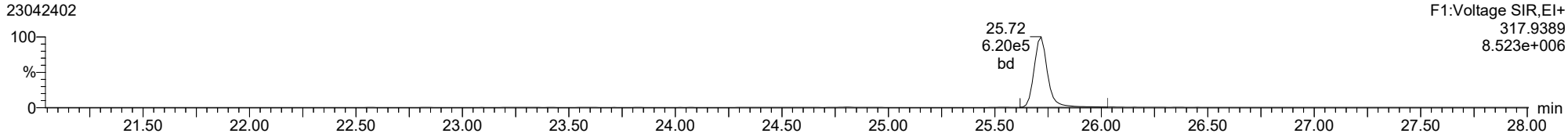
2378-TCDF



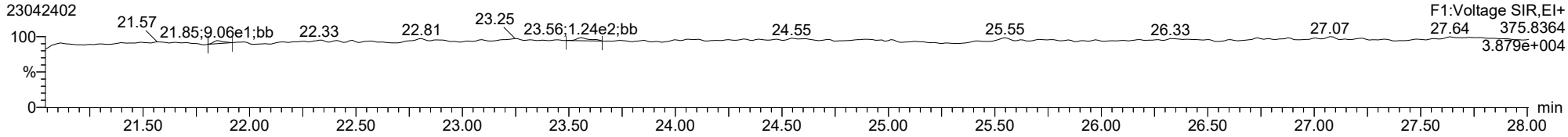
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13C-2378-TCDF

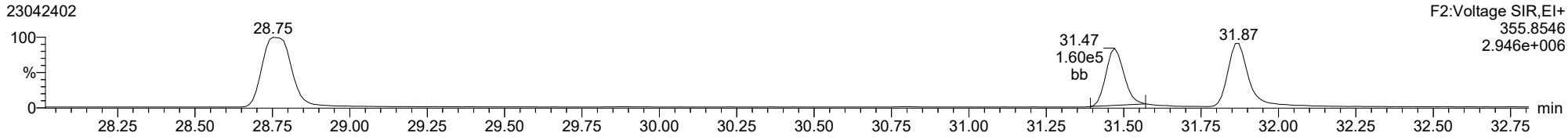


FUNCTION1 HXCDPE

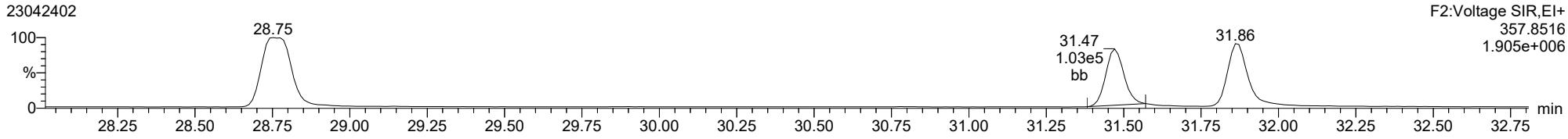


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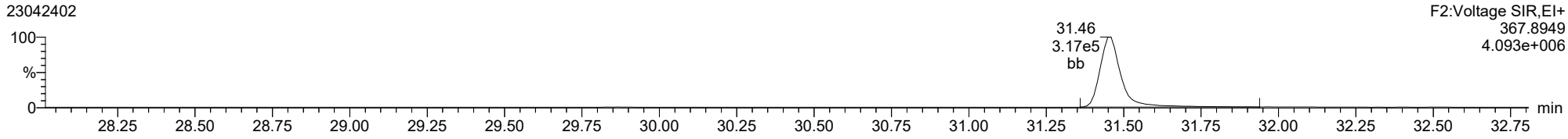
12378-PeCDD



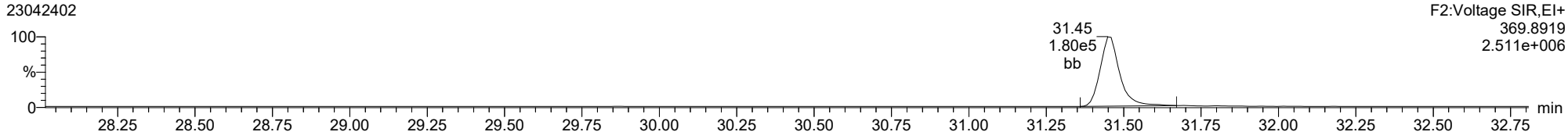
12378-PeCDD



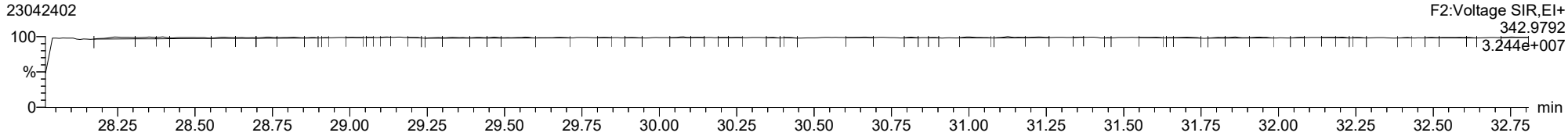
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13C-12378-PeCDD

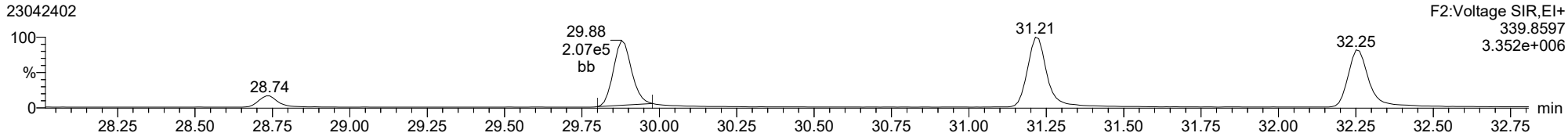


FUNCTION2 PFK

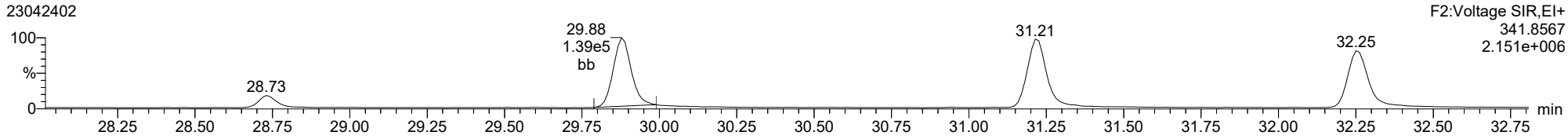


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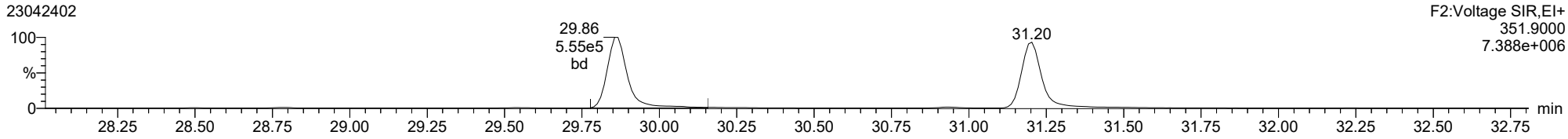
12378-PeCDF



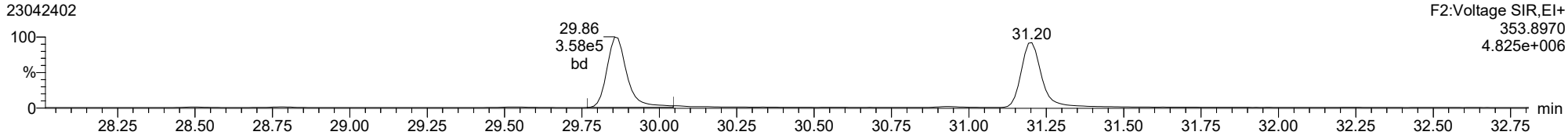
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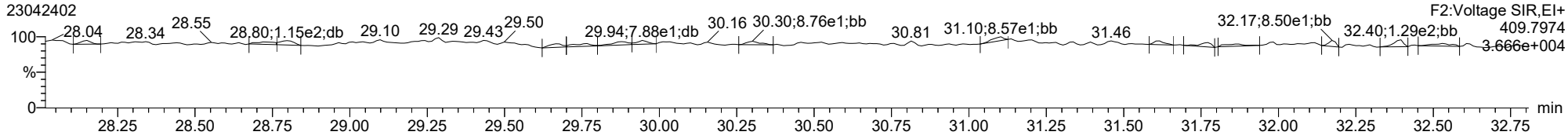
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13C-12378-PeCDF

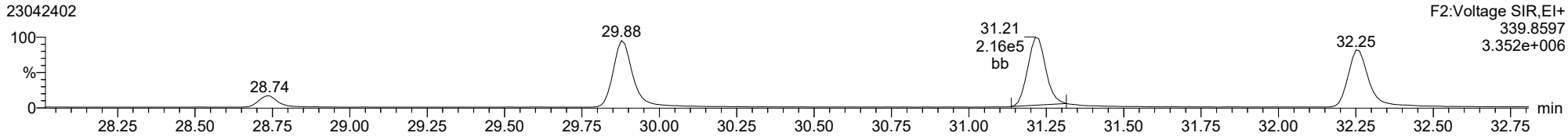


FUNCTION2 HPCDPE

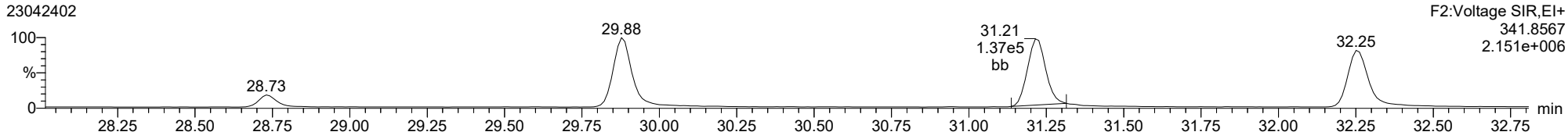


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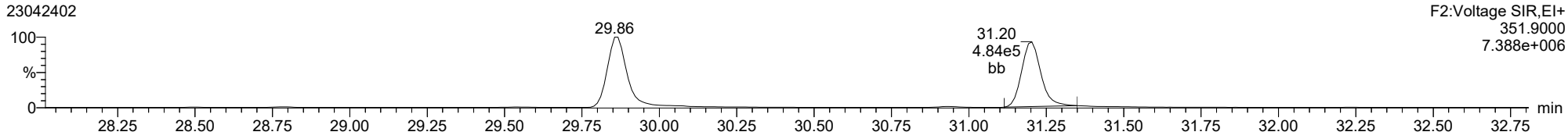
23478-PeCDF



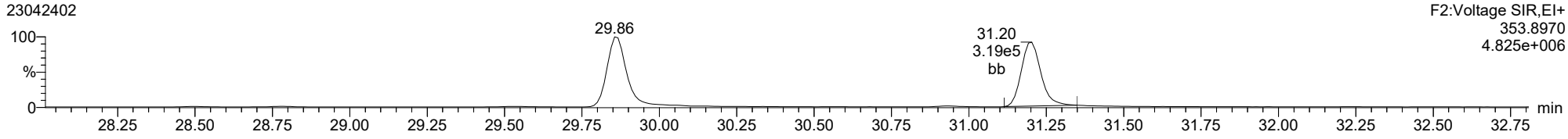
23478-PeCDF



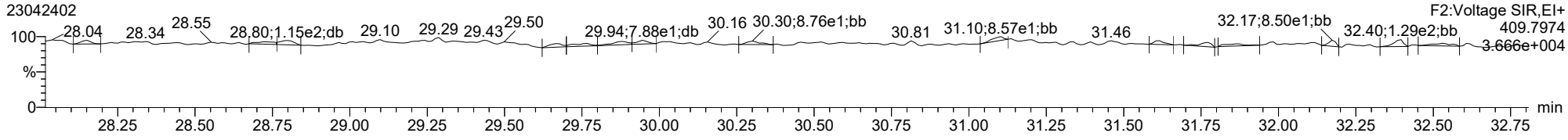
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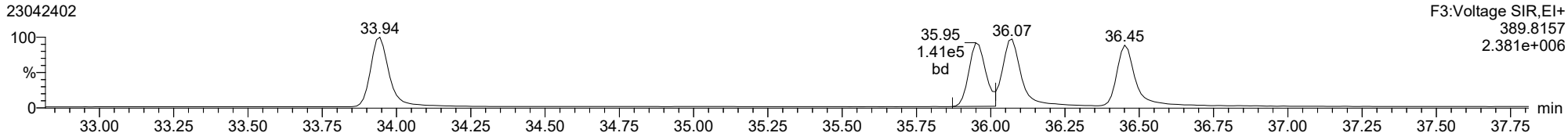


FUNCTION2 HPCDPE

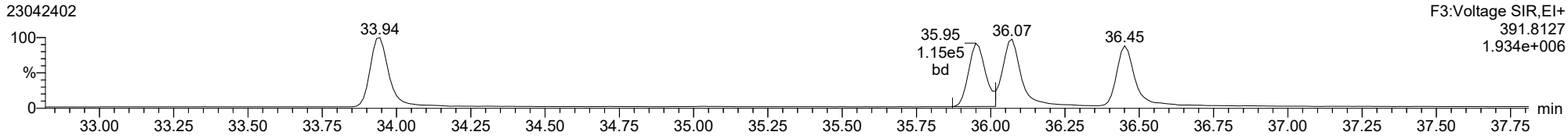


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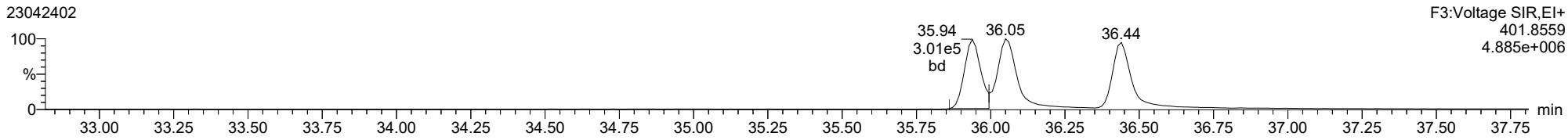
123478-HxCDD



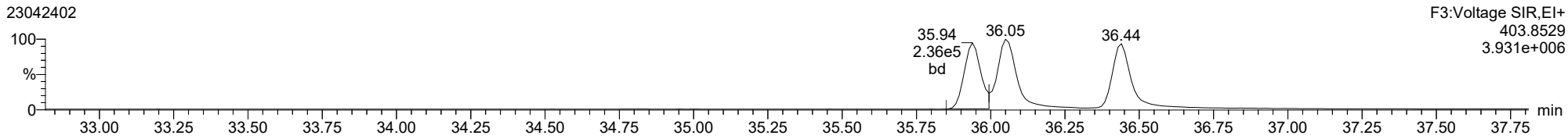
123478-HxCDD



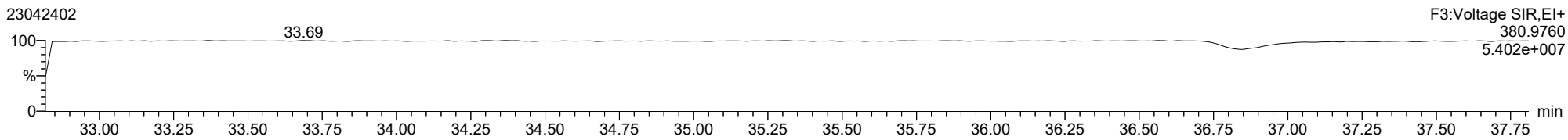
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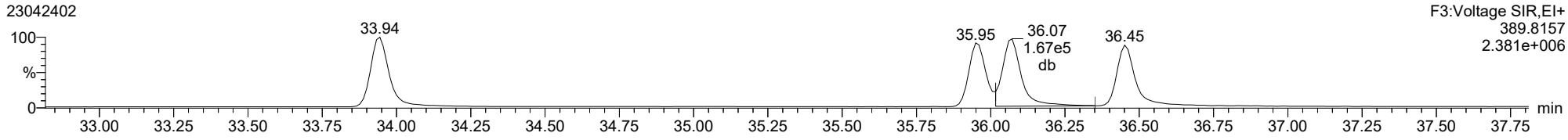


FUNCTION3 PFK

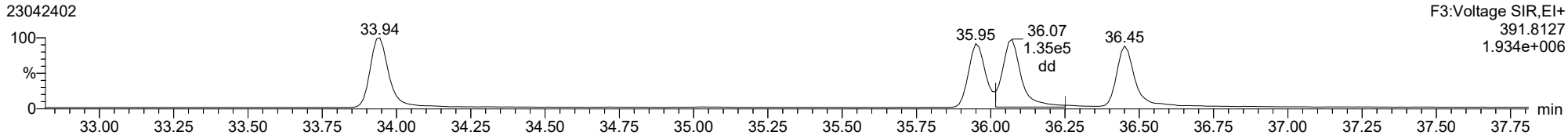


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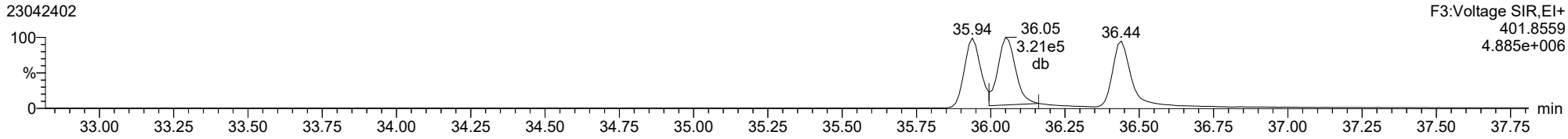
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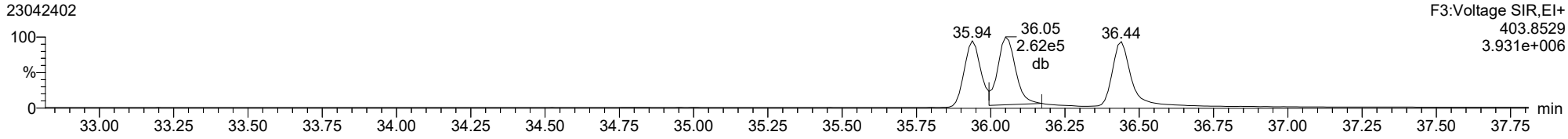
123678-HxCDD



13C-123678-HxCDD

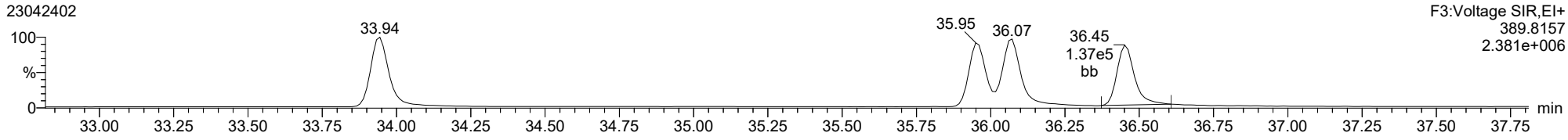


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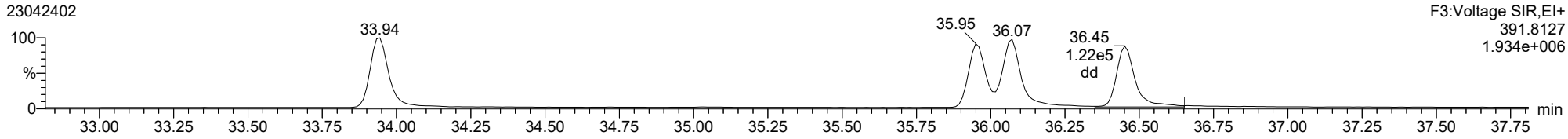


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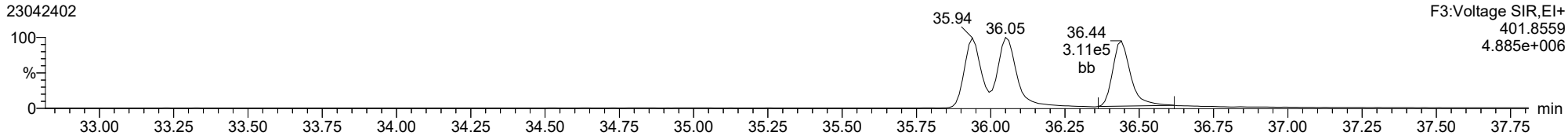
123789-HxCDD



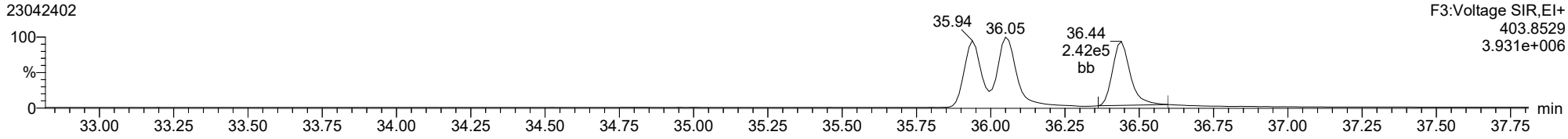
123789-HxCDD



13C-123789-HxCDD

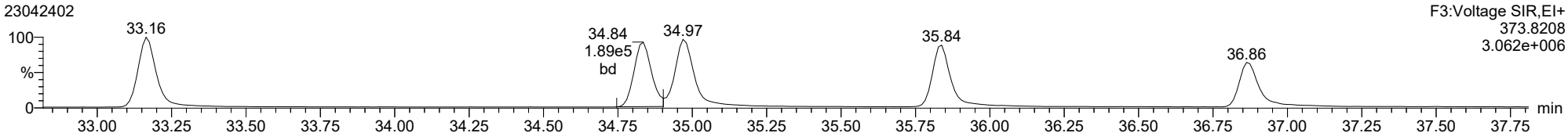


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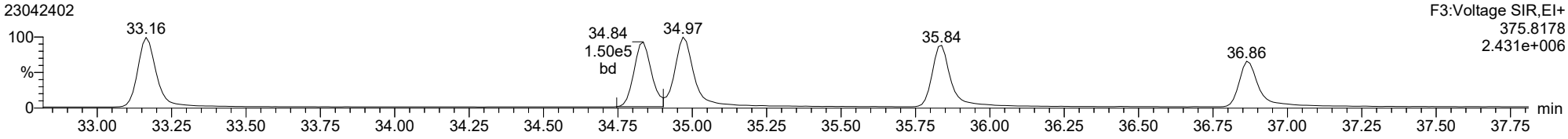


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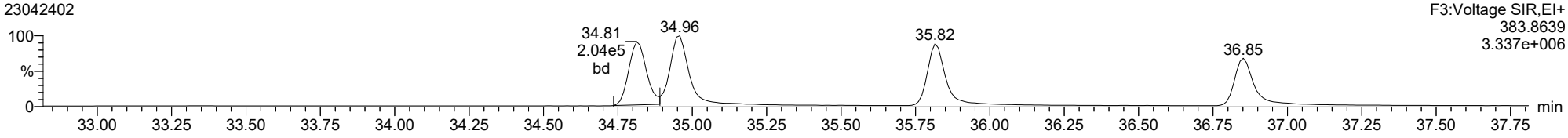
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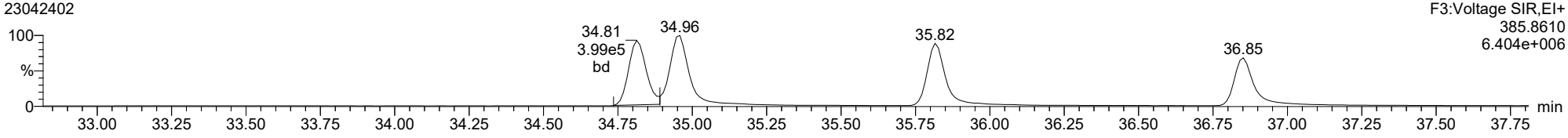
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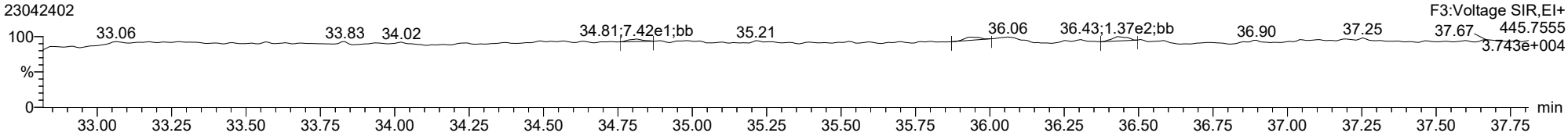
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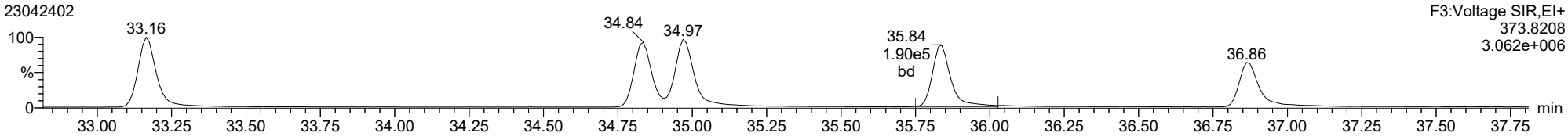


FUNCTION3 OCDPE

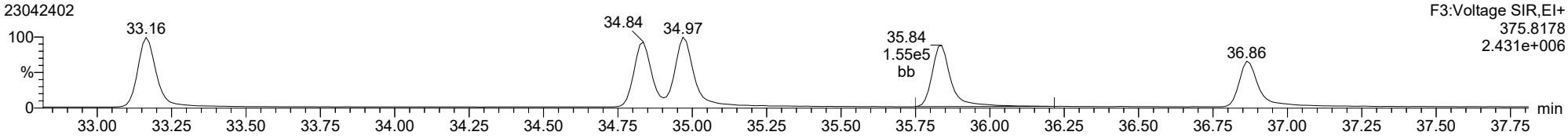


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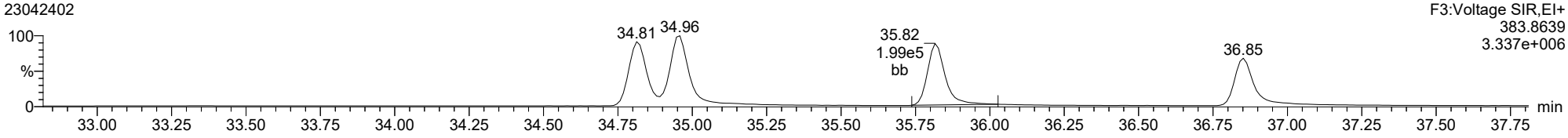
234678-HxCDF



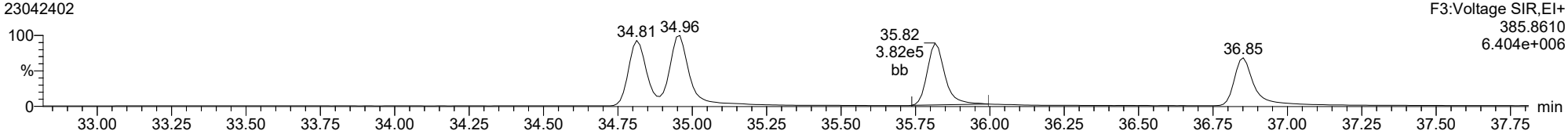
234678-HxCDF



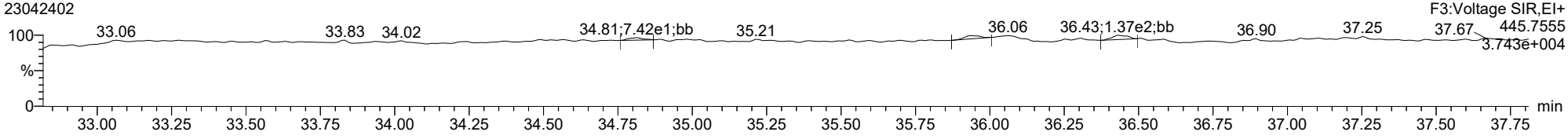
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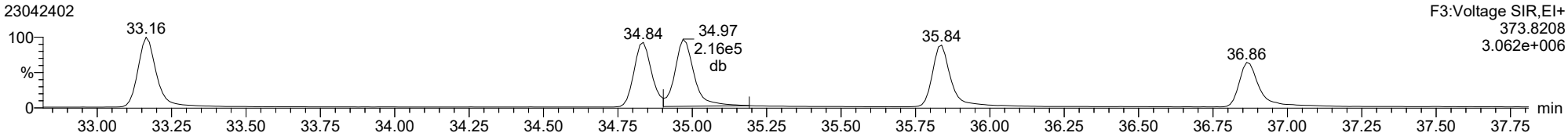


FUNCTION3 OCDPE

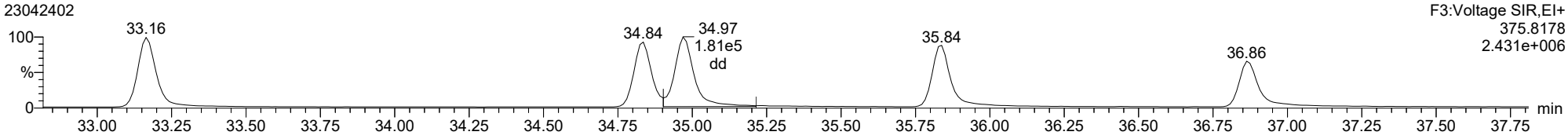


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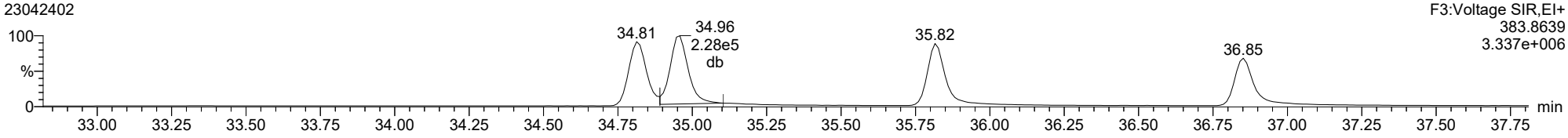
123678-HxCDF



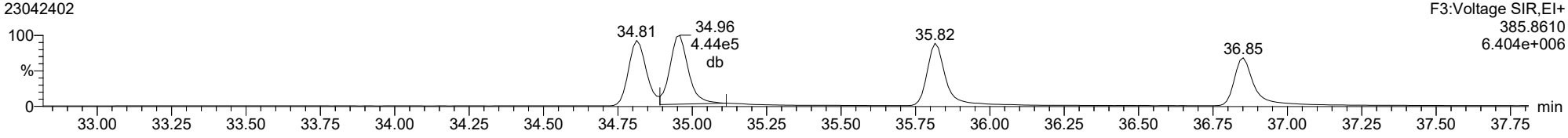
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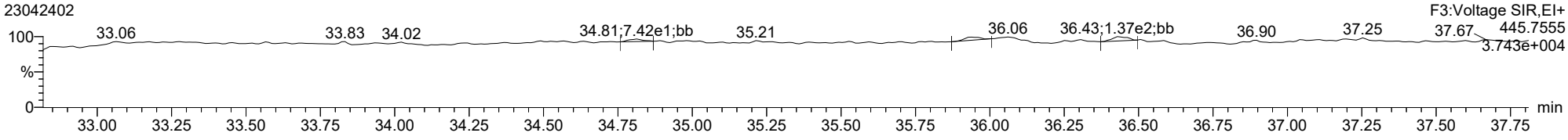
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13C-123678-HxCDF

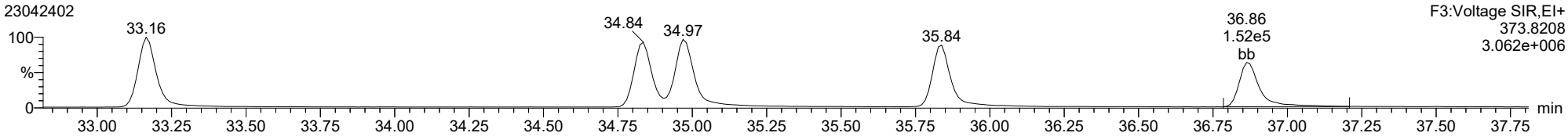


FUNCTION3 OCDPE

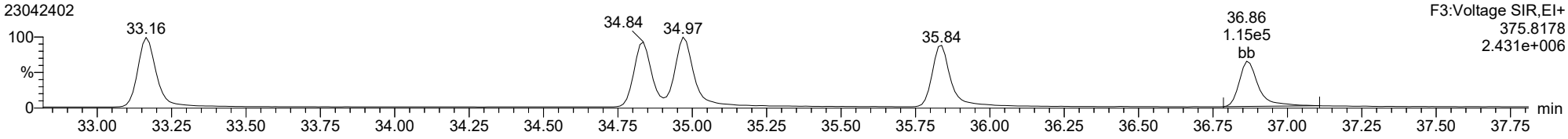


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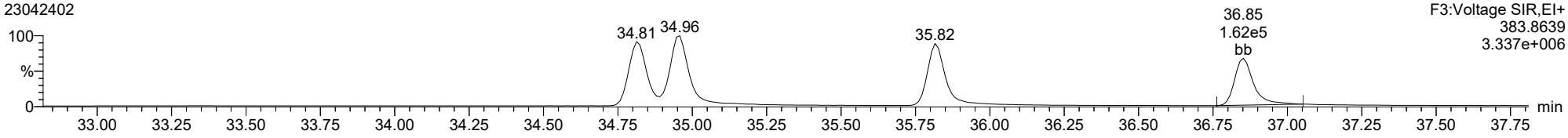
123789-HxCDF



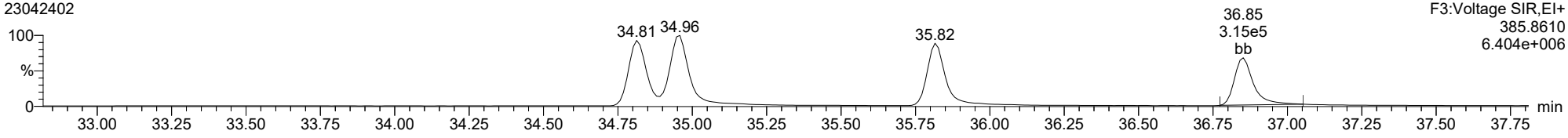
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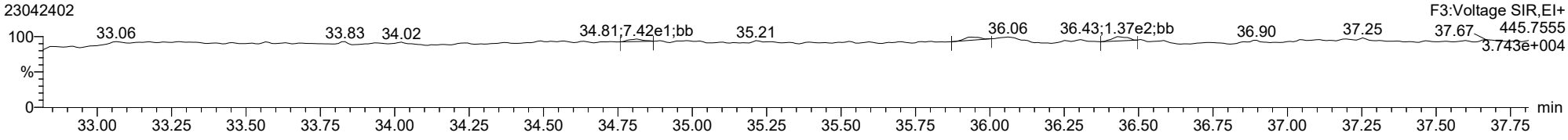
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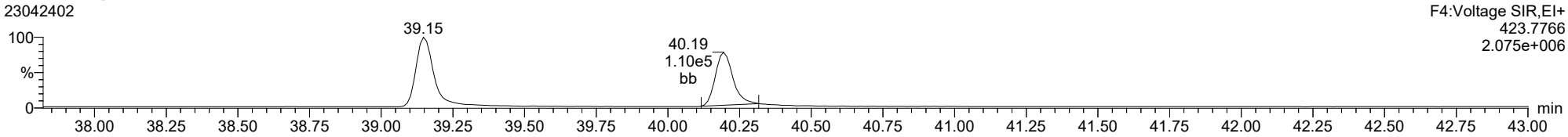


FUNCTION3 OCDPE

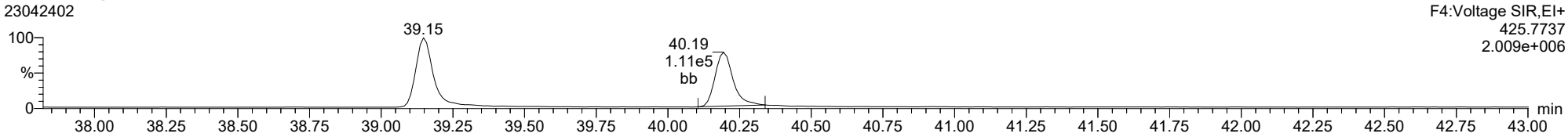


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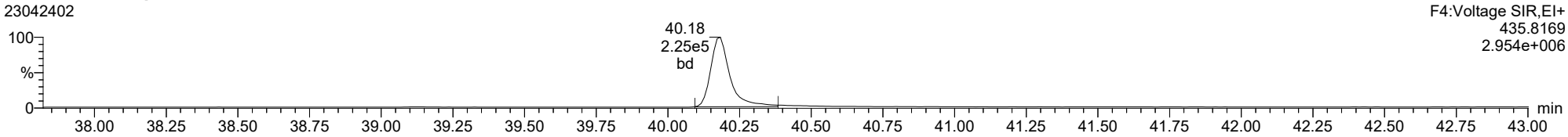
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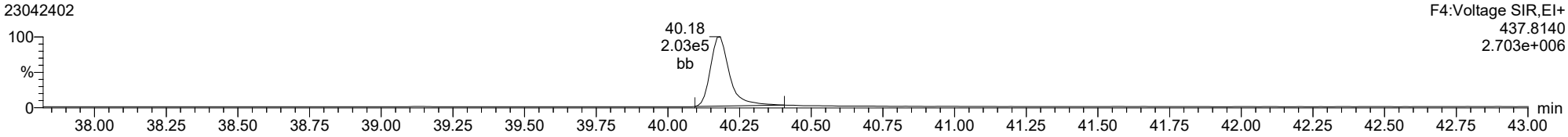
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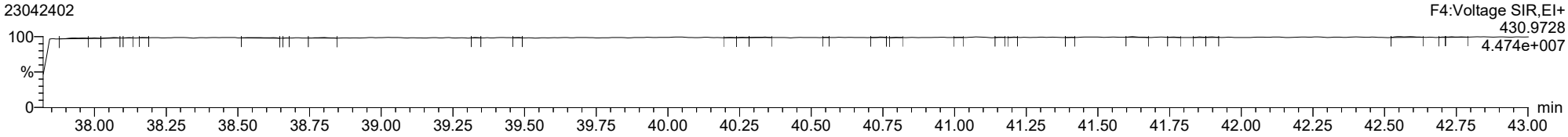
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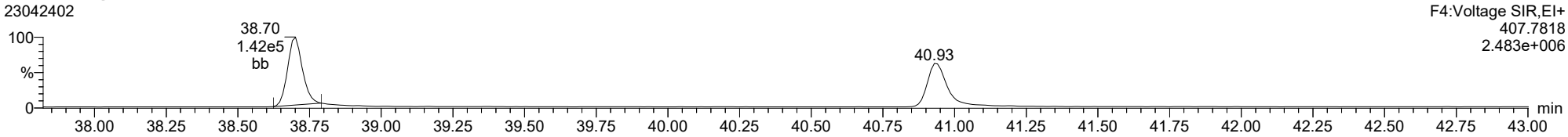


FUNCTION4 PFK

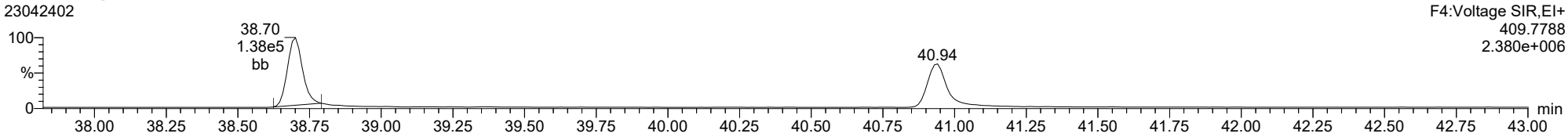


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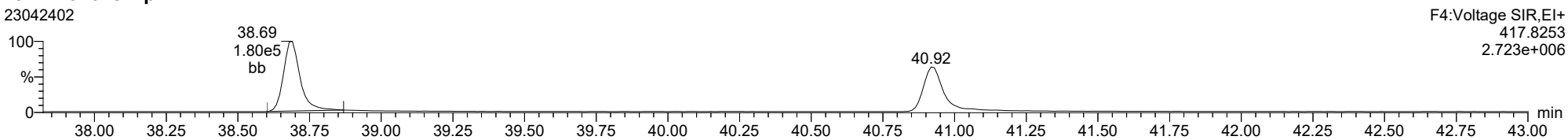
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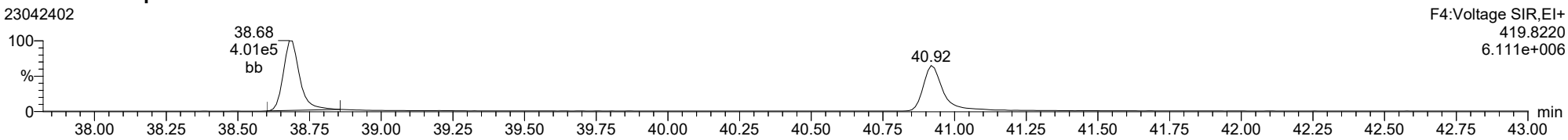
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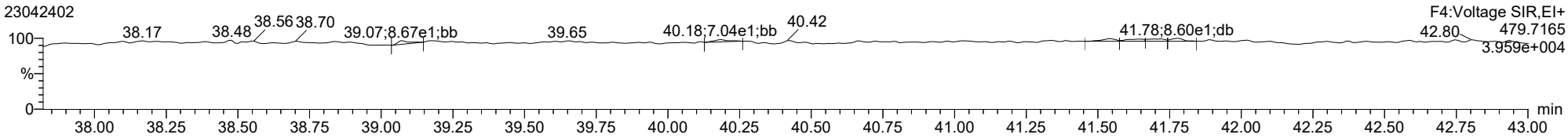
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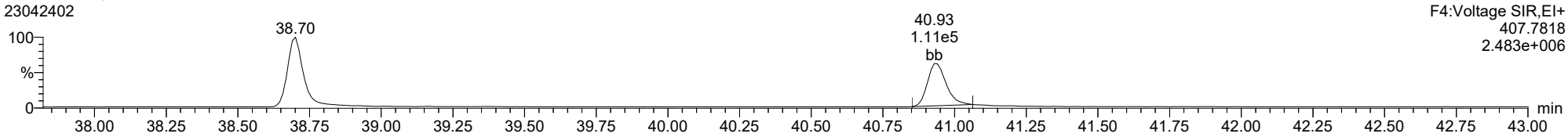


FUNCTION4 NCDPE

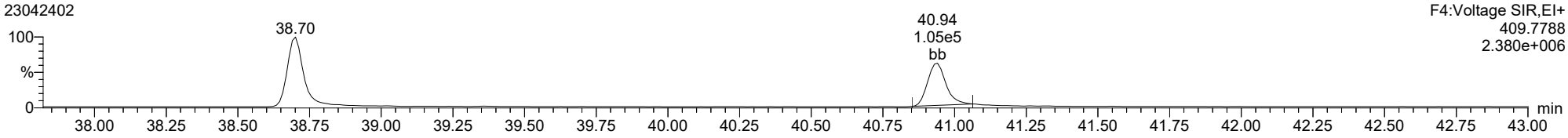


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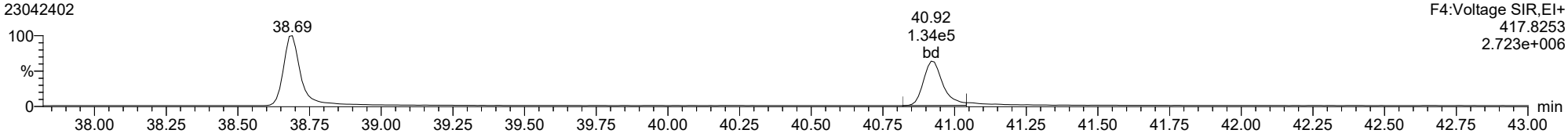
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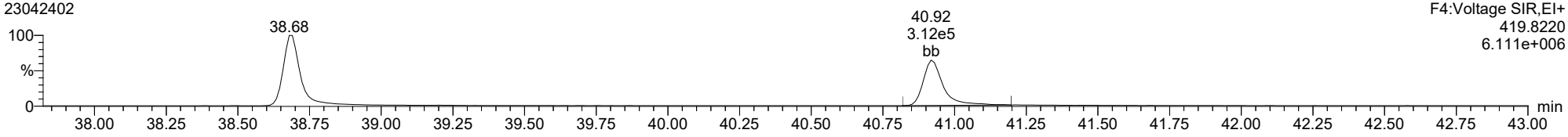
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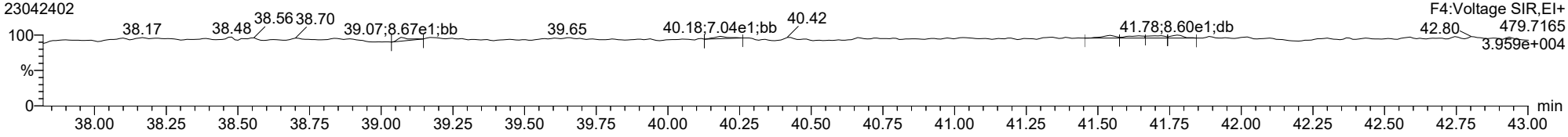
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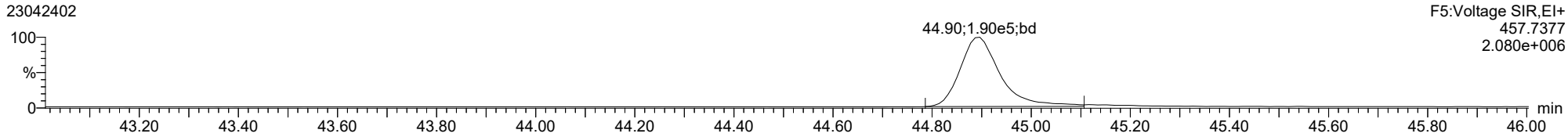


FUNCTION4 NCDPE

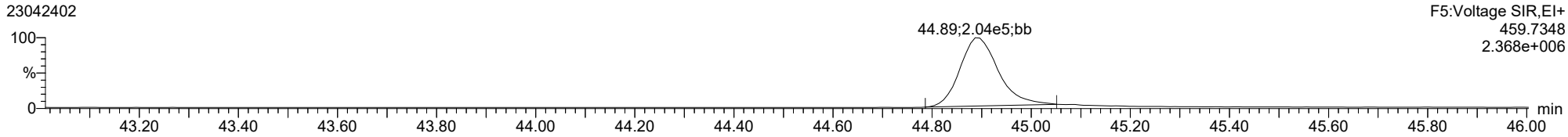


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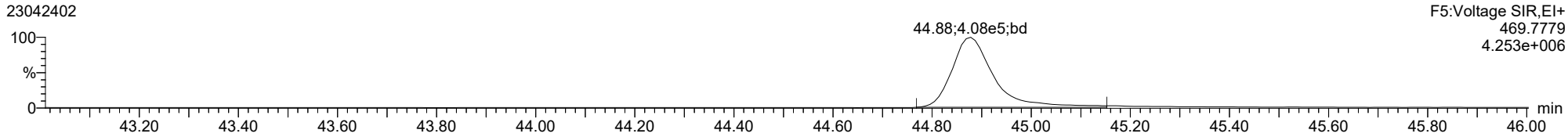
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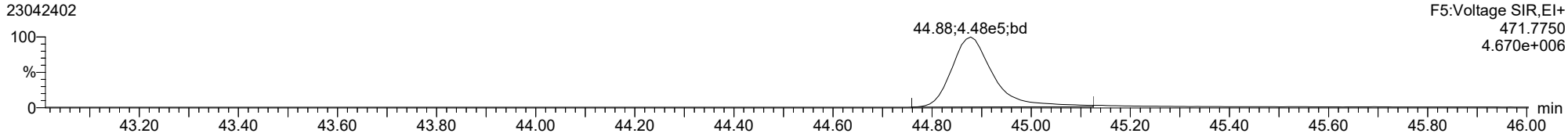
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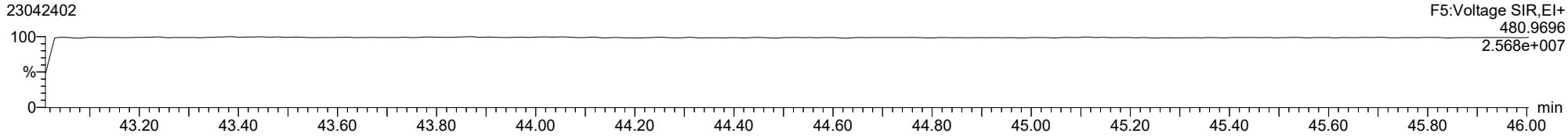
13C-OCDD



13C-OCDD

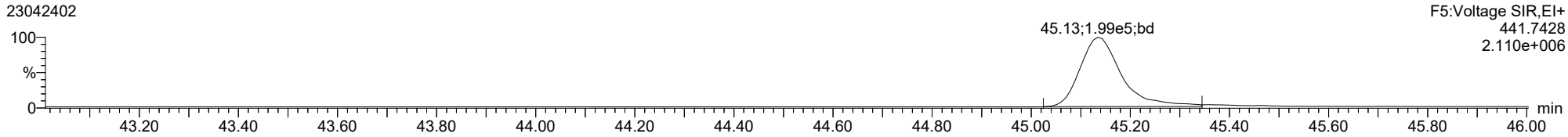


FUNCTION5 PFK

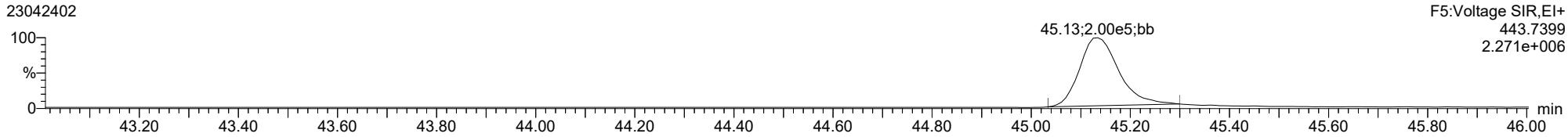


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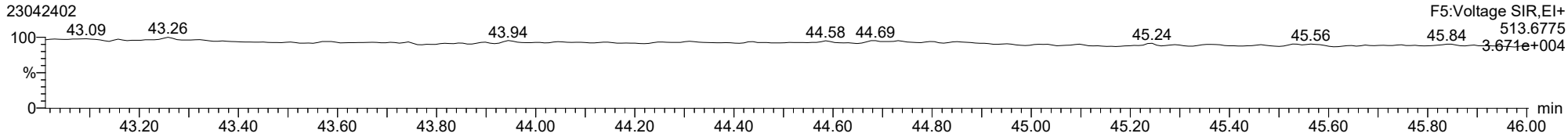
OCDF



OCDF

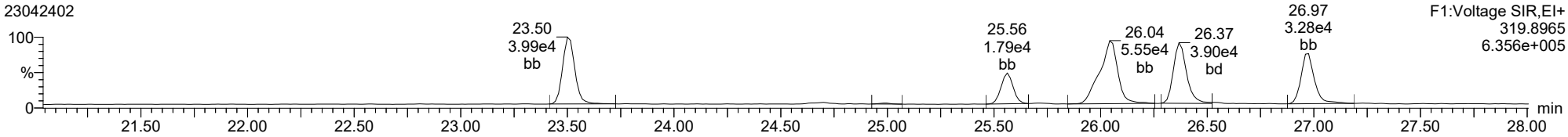


FUNCTION5 DCDPE

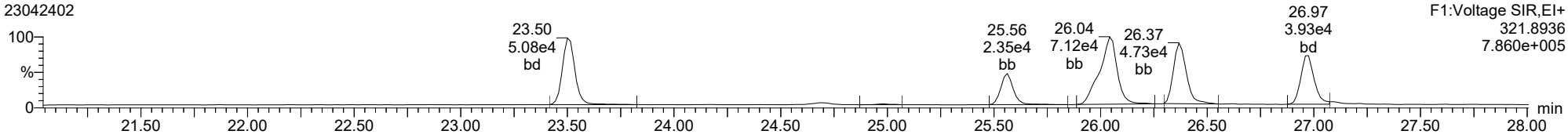


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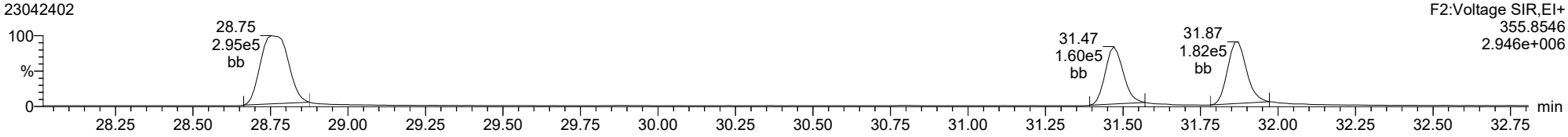
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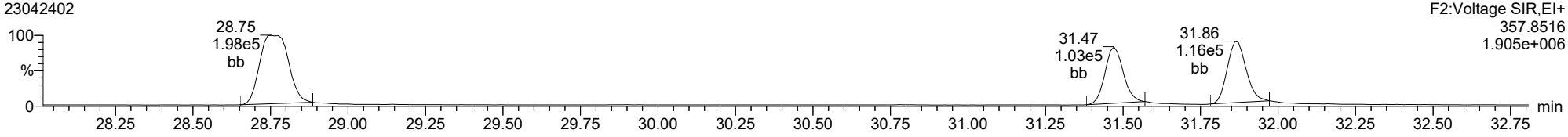
Total-tetradioxins



Total-pentadioxins

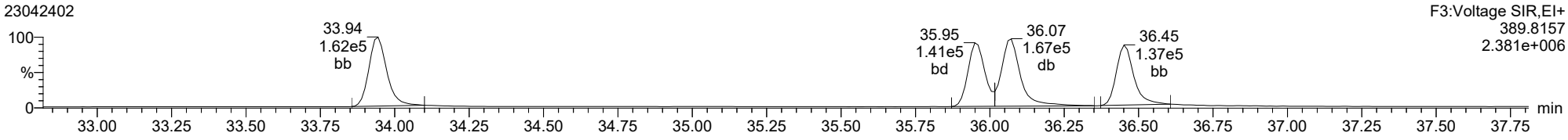


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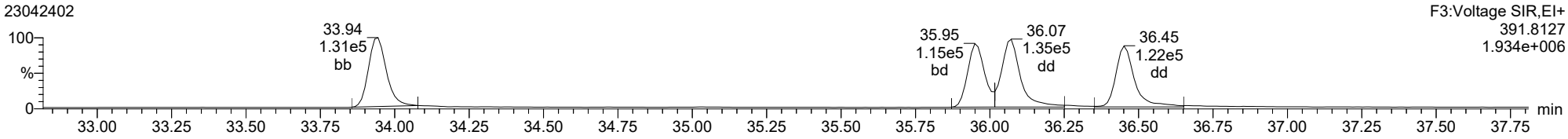


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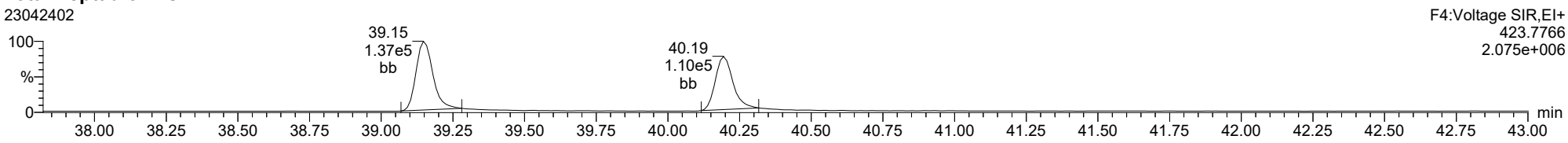
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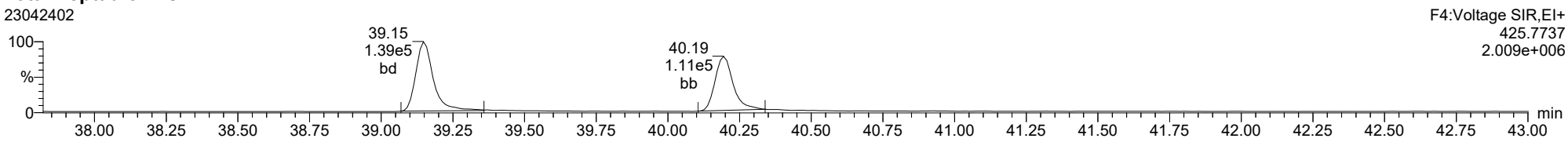
Total-hexadioxins



Total-heptadioxins

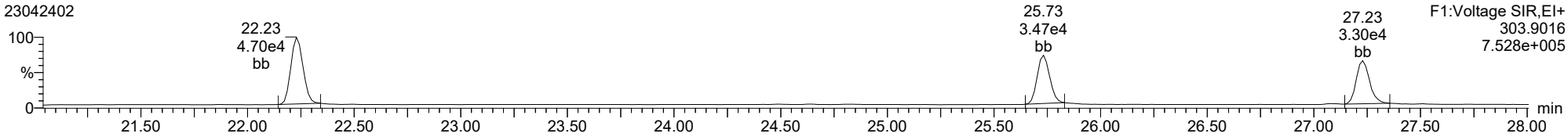


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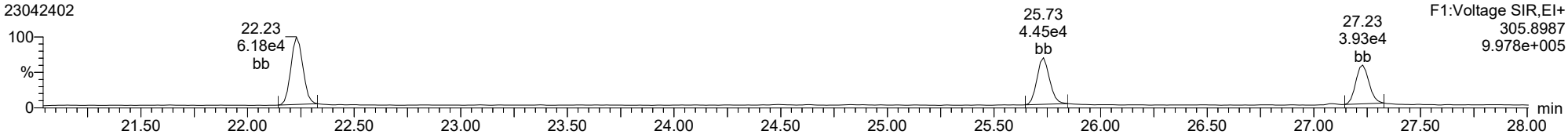


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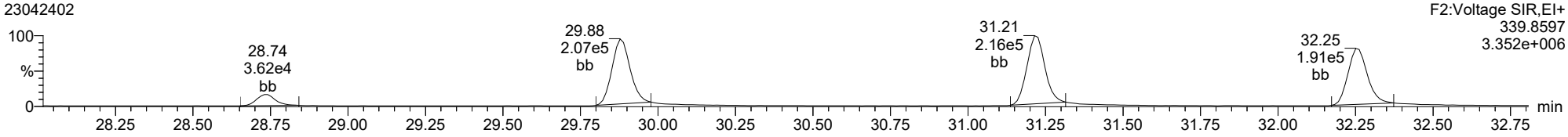
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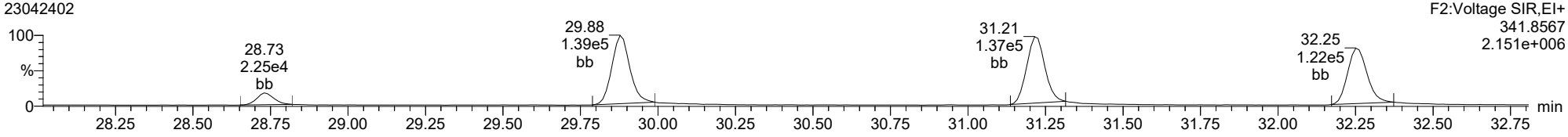
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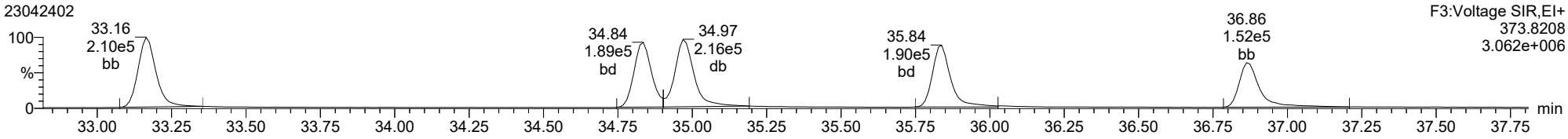


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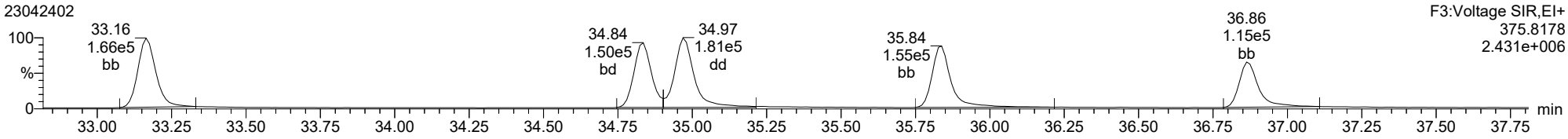


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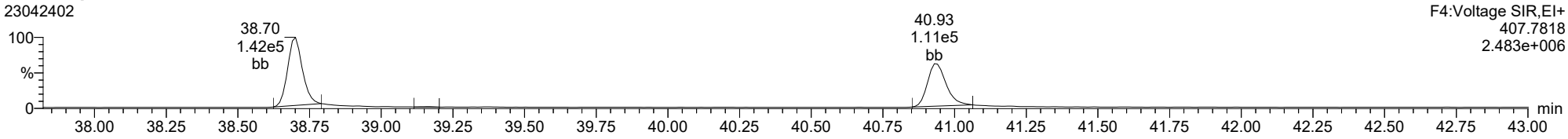
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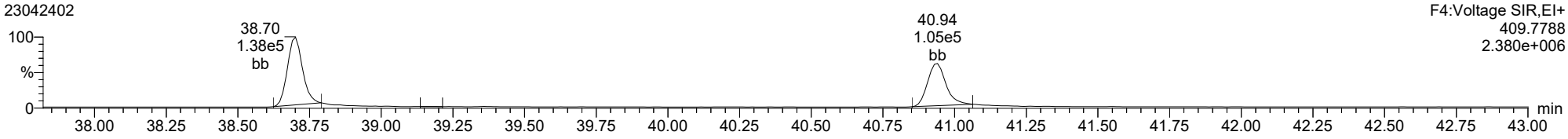
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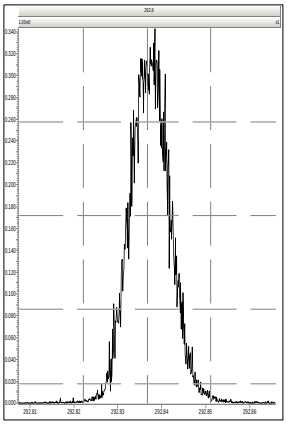


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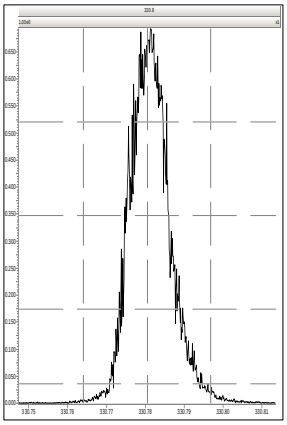


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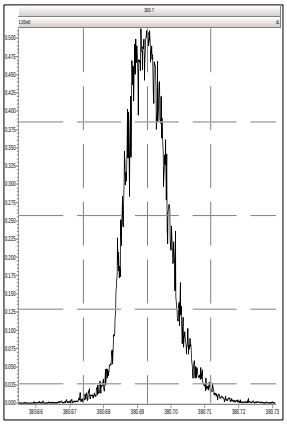
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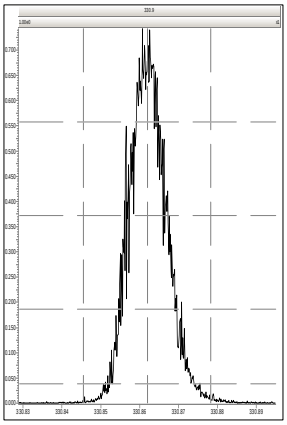
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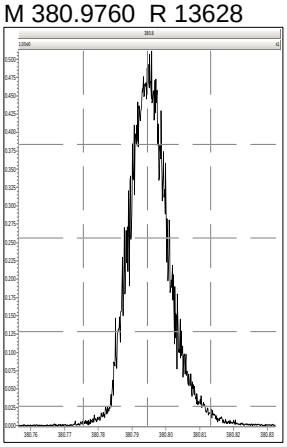
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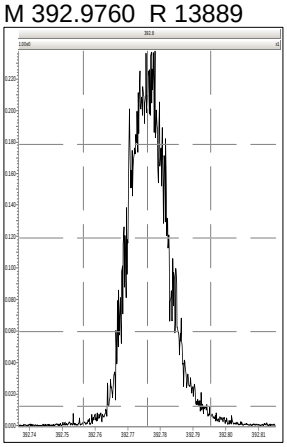
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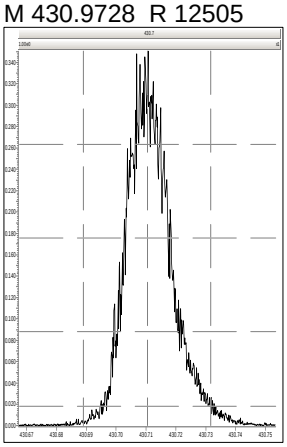
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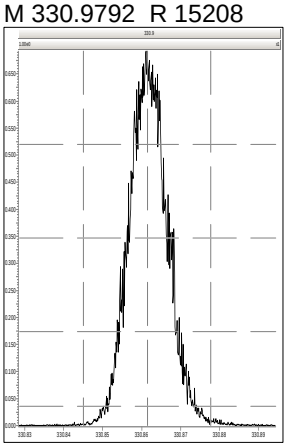
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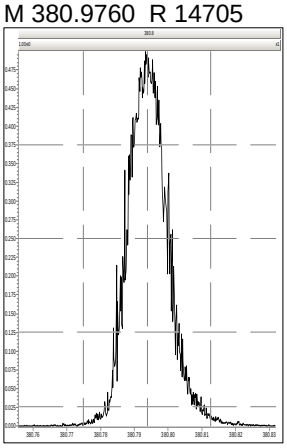
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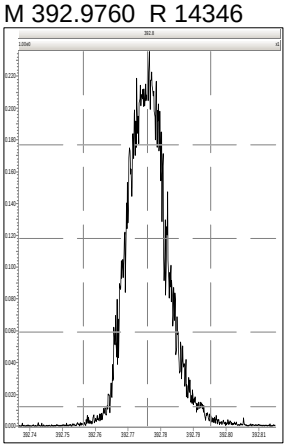
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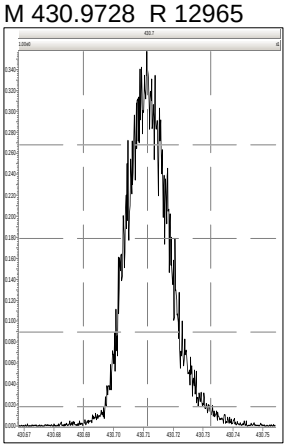
M 380.9760 R 14705



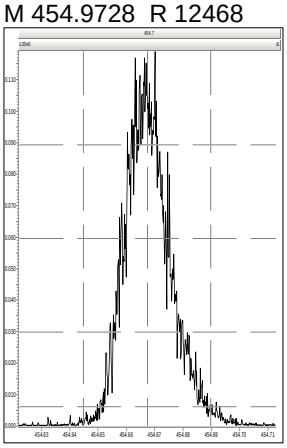
M 392.9760 R 14346



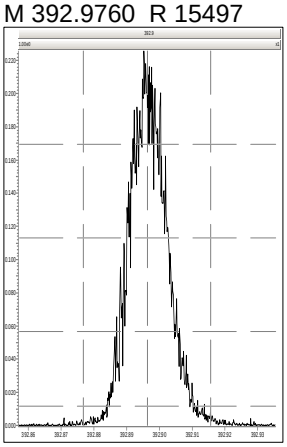
M 430.9728 R 12965



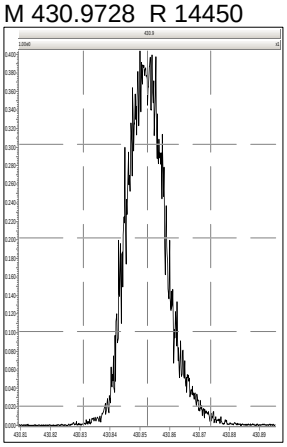
M 454.9728 R 12468



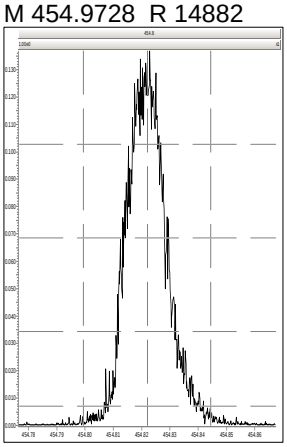
M 392.9760 R 15497



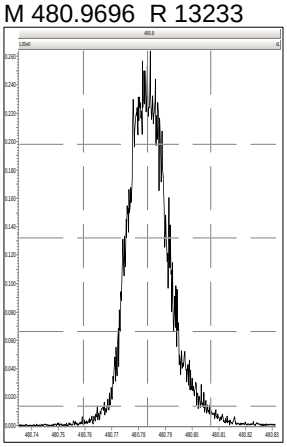
M 430.9728 R 14450



M 454.9728 R 14882

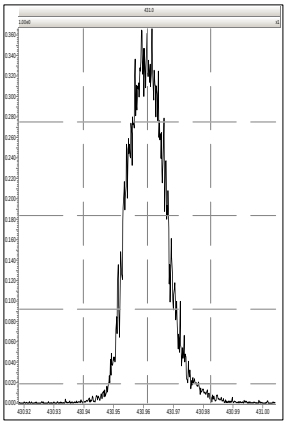


M 480.9696 R 13233

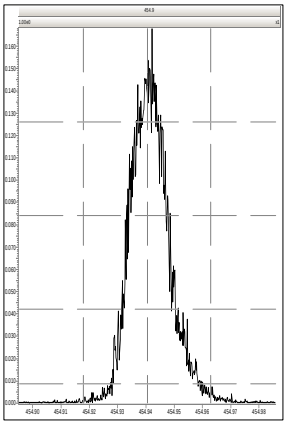


Printed: Monday, April 24, 2023 14:04:01 Pacific Daylight Time

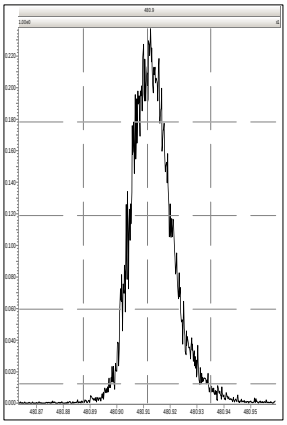
M 430.9728 R 15479



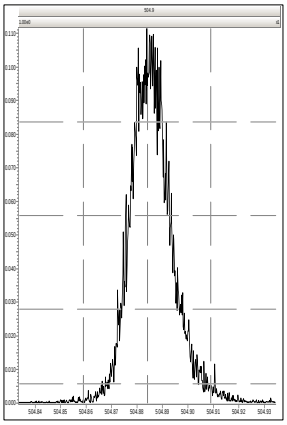
M 454.9728 R 14662



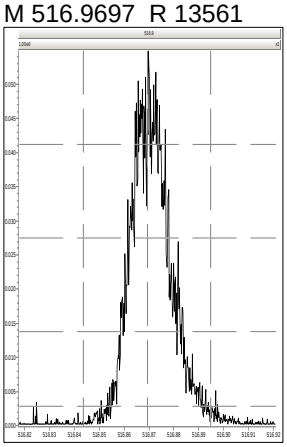
M 480.9696 R 13932

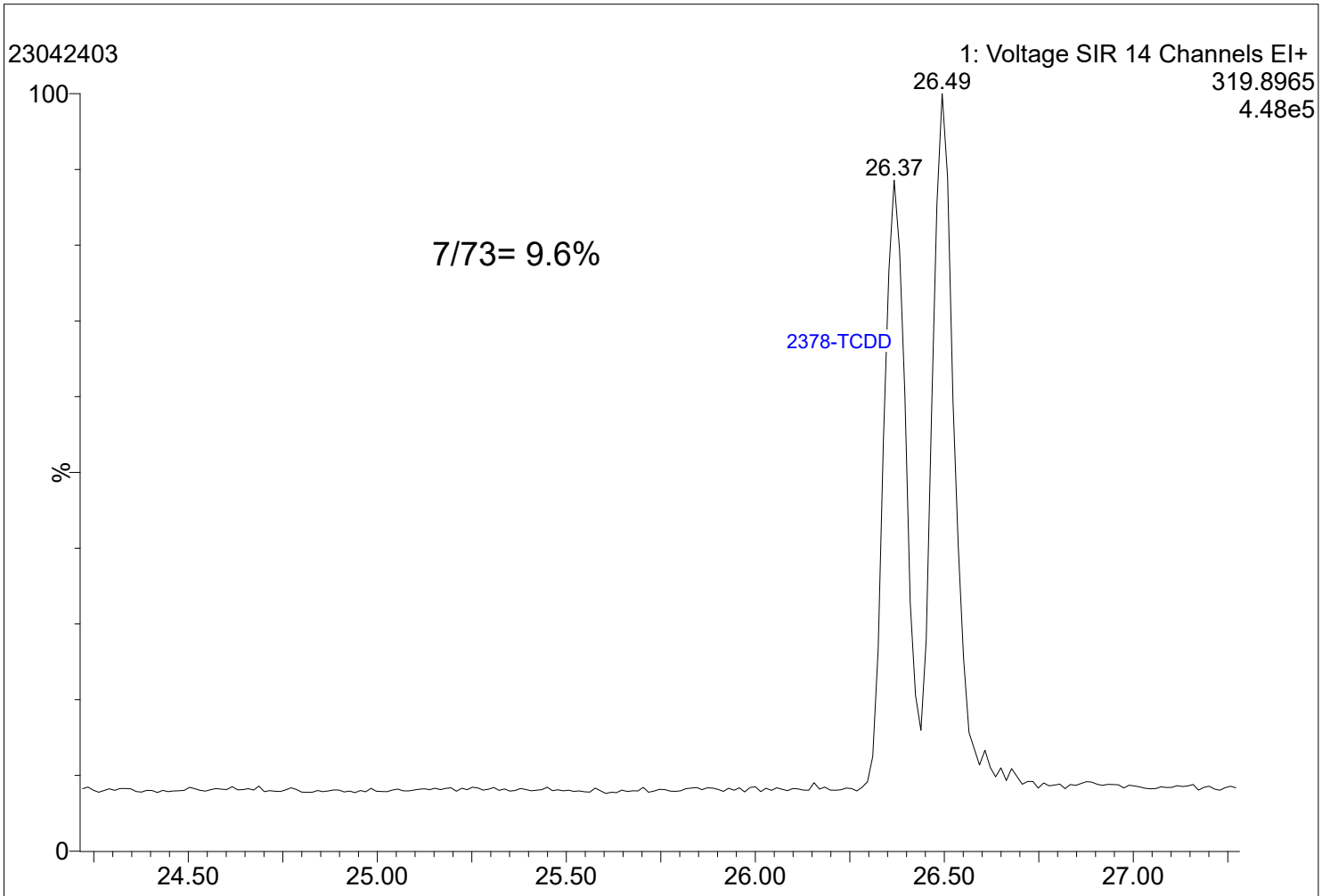


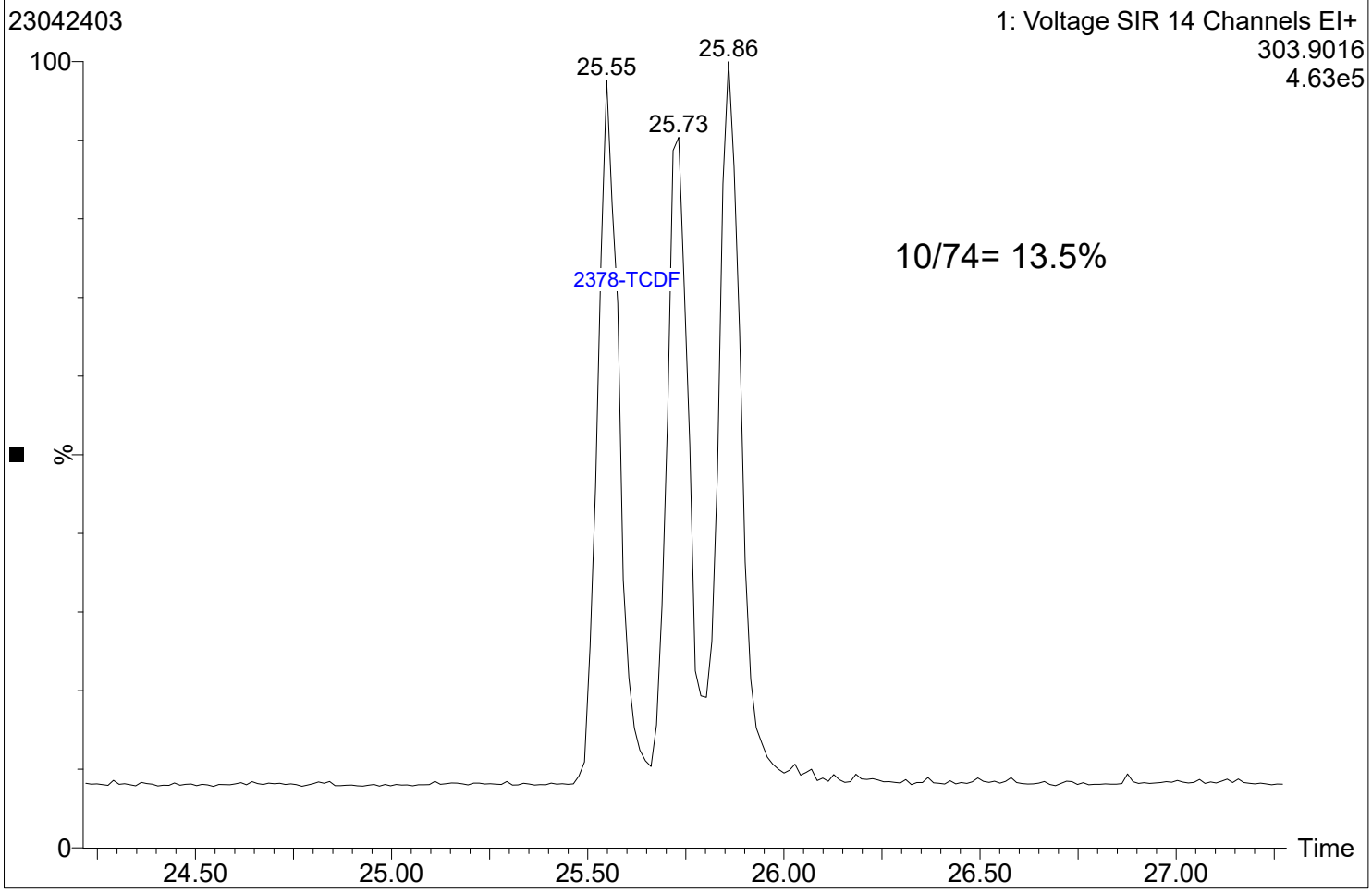
M 504.9696 R 13774



M 516.9697 R 13561




23042403
1: Voltage SIR 14 Channels EI+
319.8965
4.48e5
26.49
26.37
7/73= 9.6%
2378-TCDD
100
%
0
24.50
25.00
25.50
26.00
26.50
27.00


23042403
1: Voltage SIR 14 Channels EI+
303.9016
4.63e5
25.86
25.55
25.73
10/74= 13.5%
2378-TCDF
100
%
0
Time
24.50
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23041932A	Calibration Date:	03/03/2023
Sequence:	SLD0342	Injection Date:	04/20/23
Lab Sample ID:	SLD0342-ICV1	Injection Time:	16:35
Sequence Name:	CS3F4		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF	
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT
2,3,7,8-TCDF	A	10.000	10.9	0.7015272	0.7664283		9.3	+/-16
2,3,7,8-TCDD	A	10.000	10.1	1.1486620	1.1636600		1.3	+/-22
1,2,3,7,8-PeCDF	A	50.000	57.7	0.6792300	0.7837675		15.4	+/-18
2,3,4,7,8-PeCDF	A	50.000	55.4	0.7861704	0.8710917		10.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	53.8	1.0218450	1.0991190		7.6	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.8	1.1660380	1.1150400		-4.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	54.2	1.0907410	1.1824180		8.4	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	51.1	1.1396990	1.1646100		2.2	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.2	1.1370930	1.0959370		-3.6	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.5	0.9955689	0.9448363		-5.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	47.6	1.0009380	0.9520269		-4.9	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	45.0	0.9071139	0.8476901		-10.1	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	51.5	1.0029930	1.0336320		3.1	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	56.0	0.9531152	1.0683730		12.1	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	56.0	1.0390130	1.1633190		12.0	+/-14
OCDF	A	100.00	110	0.7778078	0.8533282		9.7	+/-37
OCDD	A	100.00	106	0.9199537	0.9767915		6.2	+/-21
13C12-2,3,7,8-TCDF	A	100.00	101	1.6201960	1.6404416		1.2	+/-29
13C12-2,3,7,8-TCDD	A	100.00	103	1.1524090	1.1835833		2.7	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	121	1.2404520	1.5033424		21.2	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	126	1.1177860	1.4089987		26.1	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	115	0.8288129	0.9539471		15.1	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	90.0	1.1683050	1.0513716		-10.0	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	88.8	1.3864660	1.2304953		-11.2	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	89.5	1.1292560	1.0102078		-10.5	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	89.1	0.9317541	0.8299490		-10.9	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	93.6	0.9950393	0.9314329		-6.4	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	102	1.1566890	1.1755542		1.6	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	93.9	0.8952017	0.8410000		-6.1	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	84.1	0.7697516	0.6469881		-15.9	+/-23

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

INITIAL CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23041932A	Calibration Date:	03/03/2023
Sequence:	SLD0342	Injection Date:	04/20/23
Lab Sample ID:	SLD0342-ICV1	Injection Time:	16:35
Sequence Name:	CS3F4		

		CONC. (ng/mL)		RESPONSE FACTOR			% DRIFT/DIFF		
COMPOUND	TYPE	STD	ICV	ICAL	ICV	MIN	ICV	LIMIT	
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	67.5	0.8401226	0.5673436		-32.5	+/-28	*
13C12-OCDD	A	200.00	186	0.7674714	0.7125164		-7.2	+/-52	
37Cl4-2,3,7,8-TCDD	A	10.000	8.74	1.2878040	1.1256338		-12.6		

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:06:06 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230420IH.mdb 25 Apr 2023 09:50:41
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3F4, Name: 23041932, Date: 20-Apr-2023, Time: 16:35:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.760	1.001	2.450e4	3.184e4	0.702	0.770	0.770	921	1514	3.57e5	4.51e5	388.1	297.9	NO	bb	bb	10.925
12378-PeCDF	29.912	1.001	1.623e5	1.017e5	0.679	1.596	1.550	2642	2752	2.32e6	1.47e6	876.1	533.5	NO	bb	bb	57.695
23478-PeCDF	31.249	1.001	1.685e5	1.064e5	0.786	1.584	1.550	2642	2752	2.47e6	1.57e6	936.6	571.5	NO	bb	bb	55.401
123478-HxCDF	34.869	1.001	1.622e5	1.294e5	1.166	1.254	1.240	2955	2212	2.40e6	1.93e6	811.8	870.6	NO	bd	bd	47.813
234678-HxCDF	35.872	1.001	1.660e5	1.266e5	1.140	1.311	1.240	2955	2212	2.20e6	1.72e6	743.7	778.1	NO	bd	bb	51.093
123678-HxCDF	35.003	1.000	2.005e5	1.614e5	1.091	1.242	1.240	2955	2212	2.52e6	2.03e6	854.0	918.1	NO	dd	dd	54.202
123789-HxCDF	36.897	1.000	1.234e5	1.029e5	1.137	1.199	1.240	2955	2212	1.63e6	1.31e6	550.7	592.2	NO	bb	bb	48.190
1234678-HpCDF	38.736	1.000	1.159e5	1.003e5	1.003	1.155	1.050	2040	2118	1.62e6	1.53e6	793.8	720.5	NO	bd	bb	51.527
1234789-HpCDF	40.975	1.000	8.772e4	8.421e4	0.953	1.042	1.050	2040	2118	1.06e6	1.05e6	520.2	494.3	NO	MM	bd	56.046
OCDF	45.199	1.006	1.422e5	1.603e5	0.778	0.887	0.890	2078	2023	1.60e6	1.74e6	768.6	861.4	NO	bb	bb	109.709
2378-TCDD	26.396	1.001	2.715e4	3.457e4	1.149	0.785	0.770	1114	707	3.77e5	4.49e5	338.6	634.3	NO	bd	dd	10.131
12378-PeCDD	31.505	1.001	1.445e5	9.037e4	1.022	1.599	1.550	2468	1823	1.88e6	1.24e6	763.3	678.0	NO	bd	bb	53.781
123478-HxCDD	35.995	1.001	1.201e5	9.884e4	0.996	1.215	1.240	2011	2120	1.83e6	1.45e6	909.1	683.5	NO	bd	bd	47.452
123678-HxCDD	36.106	1.000	1.526e5	1.258e5	1.001	1.213	1.240	2011	2120	1.98e6	1.63e6	984.3	770.5	NO	dd	db	47.557
123789-HxCDD	36.485	1.011	1.177e5	9.600e4	0.907	1.226	1.240	2011	2120	1.60e6	1.31e6	794.4	615.9	NO	bb	bb	44.956
1234678-HpCDD	40.239	1.001	8.359e4	8.057e4	1.039	1.038	1.050	2618	2536	1.05e6	9.77e5	400.4	385.3	NO	bd	bd	55.982
OCDD	44.952	1.000	1.607e5	1.855e5	0.920	0.867	0.890	1699	1777	1.67e6	1.95e6	985.6	1096.6	NO	bd	bd	106.178
13C-2378-TCDF	25.732	1.007	3.193e5	4.157e5	1.620	0.768	0.770	907	916	4.32e6	5.65e6	4761.6	6166.9	NO	bb	bb	101.250
13C-12378-PeCDF	29.889	1.169	4.056e5	2.680e5	1.240	1.513	1.550	3616	3537	5.78e6	3.72e6	1599.0	1050.4	NO	bb	bb	121.193
13C-23478-PeCDF	31.226	1.222	3.802e5	2.512e5	1.118	1.513	1.550	3616	3537	5.43e6	3.60e6	1501.3	1018.4	NO	bb	bb	126.053
13C-123478-HxCDF	34.847	0.955	1.749e5	3.482e5	1.168	0.502	0.510	2198	1698	2.51e6	5.00e6	1140.4	2943.2	NO	bd	bd	89.991
13C-123678-HxCDF	34.992	0.959	2.059e5	4.063e5	1.386	0.507	0.510	2198	1698	2.78e6	5.46e6	1264.1	3212.1	NO	db	db	88.750
13C-234678-HxCDF	35.850	0.983	1.712e5	3.313e5	1.129	0.517	0.510	2198	1698	2.36e6	4.61e6	1075.2	2717.0	NO	bb	bb	89.458
13C-123789-HxCDF	36.886	1.011	1.362e5	2.767e5	0.932	0.492	0.510	2198	1698	1.83e6	3.66e6	830.6	2153.6	NO	bb	bb	89.074
13C-1234678-HpCDF	38.724	1.062	1.328e5	2.856e5	0.895	0.465	0.440	2381	2835	1.82e6	4.06e6	764.8	1431.3	NO	bd	bb	93.945
13C-1234789-HpCDF	40.964	1.123	1.005e5	2.213e5	0.770	0.454	0.440	2381	2835	1.18e6	2.67e6	497.5	940.7	NO	bb	bd	84.052
13C-1234-TCDD	25.563	0.000	1.973e5	2.507e5	1.000	0.787	0.770	1354	1243	2.93e6	3.69e6	2159.9	2965.9	NO	bb	bb	100.000
13C-2378-TCDD	26.382	1.032	2.331e5	2.972e5	1.152	0.784	0.770	1354	1243	3.07e6	4.01e6	2266.6	3223.7	NO	bb	bb	102.705
13C-12378-PeCDD	31.482	1.232	2.662e5	1.613e5	0.829	1.651	1.550	837	1171	3.37e6	2.06e6	4023.0	1761.9	NO	bb	bd	115.098
13C-123478-HxCDD	35.972	0.986	2.600e5	2.034e5	0.995	1.278	1.240	1455	1909	4.01e6	3.16e6	2756.8	1654.9	NO	bd	bd	93.608
13C-123678-HxCDD	36.095	0.990	3.283e5	2.565e5	1.157	1.280	1.240	1455	1909	4.27e6	3.35e6	2934.3	1755.6	NO	db	db	101.631
13C-1234678-HpCDD	40.217	1.103	1.518e5	1.305e5	0.840	1.163	1.050	1874	2003	1.78e6	1.66e6	950.5	829.4	NO	bd	bb	67.531
13C-OCDD	44.943	1.232	3.402e5	3.687e5	0.767	0.923	0.890	2350	2131	3.43e6	3.78e6	1457.2	1774.1	NO	bd	bd	185.679
13C-123789-HxCDD	36.474	0.000	2.787e5	2.188e5	1.000	1.274	1.240	1455	1909	3.75e6	2.94e6	2579.2	1539.0	NO	bb	bb	100.000
37CL-2378-TCDD	26.396	1.033	5.044e4		1.288			1365		6.78e5		496.7			bb		8.741

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:06:06 Pacific Daylight Time

ID: CS3F4, Name: 23041932, Date: 20-Apr-2023, Time: 16:35:22, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.257	0.865	3.670e4	4.874e4	0.802	0.753	0.770	921	1514	5.65e5	7.51e5	613.9	496.3	NO	bb	bb	14.503
1289-TCDF	27.258	1.059	2.604e4	3.219e4	0.678	0.809	0.770	921	1514	3.61e5	4.42e5	391.5	291.9	NO	db	bb	11.685
13468-PECDF	27.102	0.907	2.392e5	1.551e5	1.246	1.542	1.550	641	740	3.50e6	2.22e6	5460.0	3005.6	NO	bb	bb	46.967
12389-PECDF	32.285	1.080	1.451e5	9.433e4	0.496	1.538	1.550	2642	2752	2.02e6	1.35e6	765.1	491.0	NO	bb	bb	71.607
123468-HXCDF	33.198	0.953	1.771e5	1.397e5	1.169	1.268	1.240	2955	2212	2.38e6	1.89e6	805.0	856.2	NO	bb	bb	51.815
1368-TCDD	23.528	0.892	2.500e4	3.134e4	1.015	0.798	0.770	1114	707	3.71e5	4.66e5	333.4	658.3	NO	bd	bb	10.462
1289-TCDD	26.989	1.023	2.384e4	2.946e4	0.909	0.809	0.770	1114	707	3.23e5	4.04e5	290.3	570.8	NO	bd	bd	11.061
12479-PECDD	28.786	0.914	2.390e5	1.516e5	2.301	1.576	1.550	2468	1823	2.20e6	1.38e6	892.7	756.6	NO	bb	bb	39.706
12389-PECDD	31.906	1.013	1.505e5	9.746e4	1.184	1.544	1.550	2468	1823	1.99e6	1.30e6	806.8	711.5	NO	bb	bb	49.015
124679-HXCDD	33.978	0.945	1.462e5	1.267e5	1.115	1.154	1.240	2011	2120	2.00e6	1.67e6	995.3	789.7	NO	bb	bd	52.800
1234679-HPCDD	39.192	0.975	9.434e4	9.548e4	1.137	0.988	1.050	2618	2536	1.30e6	1.25e6	497.2	492.6	NO	bd	bd	59.159
Total-tetrafurans			8.724e4		0.727			921		1.28e6							37.112
Total-penta1			2.392e5					641		3.50e6							46.967
Total-pentafurans			5.022e5		0.654			2642		7.19e6							194.765
Total-hexafurans			8.292e5		1.141			2955		1.11e7							253.114
Total-heptafurans			2.041e5		0.978			2040		2.69e6							107.815
Total-Furans			2.004e6		0.922			921		2.74e7							749.481
Total-tetradioxins			1.244e5		1.024			1114		1.62e6							52.138
Total-pentadioxins			5.340e5		1.502			2468		6.08e6							142.502
Total-hexadioxins			5.366e5		1.005			2011		7.41e6							192.765
Total-heptadioxins			1.779e5		1.088			2618		2.35e6							115.141
Total-Dioxins			1.534e6		1.130			1114		1.91e7							608.725
Total-TEQ			3.538e6					1114		4.65e7							1358.206
FUNCTION1 PFK			4.290e7					391480		3.51e7							
FUNCTION2 PFK			1.630e5					214633		4.85e6							0.000
FUNCTION3 PFK			2.518e5					418891		2.36e6							0.000
FUNCTION4 PFK			5.759e6					227751		6.99e6							
FUNCTION5 PFK			1.829e5					211518		6.95e6							
FUNCTION1 HXCD...			2.964e2					503		3.01e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			3.454e2					597		6.09e3							0.000
FUNCTION3 OCDPE			2.603e2					410		4.01e3							0.000
FUNCTION4 NCDPE			7.556e1					482		1.53e3							0.000
FUNCTION5 DCDPE			0.000e0					453		0.00e0							

Method: T:\Autospec\Methods\Dioxin230420IH.mdb 25 Apr 2023 09:50:41
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

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TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.26	2.604e4	3.219e4	0.678	0.81	0.77	391.5	YES	NO	db	bb	11.685
2	2378-TCDF	25.76	2.450e4	3.184e4	0.702	0.77	0.77	388.1	YES	NO	bb	bb	10.925
3	1368-TCDF	22.26	3.670e4	4.874e4	0.802	0.75	0.77	613.9	YES	NO	bb	bb	14.503

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.10	2.392e5	1.551e5	1.246	1.54	1.55	5460.0	YES	NO	bb	bb	46.967

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.25	1.685e5	1.064e5	0.786	1.58	1.55	936.6	YES	NO	bb	bb	55.401
2	12378-PeCDF	29.91	1.623e5	1.017e5	0.679	1.60	1.55	876.1	YES	NO	bb	bb	57.695
3	Total-pentafurans	28.76	2.627e4	1.666e4	0.654	1.58	1.55	142.5	YES	NO	bb	bb	10.062
4	12389-PECDF	32.28	1.451e5	9.433e4	0.496	1.54	1.55	765.1	YES	NO	bb	bb	71.607

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDF	35.00	2.005e5	1.614e5	1.091	1.24	1.24	854.0	YES	NO	dd	dd	54.202
2	123478-HxCDF	34.87	1.622e5	1.294e5	1.166	1.25	1.24	811.8	YES	NO	bd	bd	47.813
3	123468-HXCDF	33.20	1.771e5	1.397e5	1.169	1.27	1.24	805.0	YES	NO	bb	bb	51.815
4	123789-HxCDF	36.90	1.234e5	1.029e5	1.137	1.20	1.24	550.7	YES	NO	bb	bb	48.190
5	234678-HxCDF	35.87	1.660e5	1.266e5	1.140	1.31	1.24	743.7	YES	NO	bd	bb	51.093

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.97	8.772e4	8.421e4	0.953	1.04	1.05	520.2	YES	NO	MM	bd	56.046
2	Total-heptafurans	39.39	4.536e2	4.190e2	0.978	1.08	1.05	4.9	YES	NO	db	bb	0.241
3	1234678-HpCDF	38.74	1.159e5	1.003e5	1.003	1.16	1.05	793.8	YES	NO	bd	bb	51.527

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.26	2.604e4	3.219e4	0.678	0.81	0.77	391.5	YES	NO	db	bb	11.685
2	2378-TCDF	25.76	2.450e4	3.184e4	0.702	0.77	0.77	388.1	YES	NO	bb	bb	10.925
3	1368-TCDF	22.26	3.670e4	4.874e4	0.802	0.75	0.77	613.9	YES	NO	bb	bb	14.503
4	23478-PeCDF	31.25	1.685e5	1.064e5	0.786	1.58	1.55	936.6	YES	NO	bb	bb	55.401
5	12378-PeCDF	29.91	1.623e5	1.017e5	0.679	1.60	1.55	876.1	YES	NO	bb	bb	57.695
6	Total-pentafurans	28.76	2.627e4	1.666e4	0.654	1.58	1.55	142.5	YES	NO	bb	bb	10.062
7	123678-HxCDF	35.00	2.005e5	1.614e5	1.091	1.24	1.24	854.0	YES	NO	dd	dd	54.202
8	123478-HxCDF	34.87	1.622e5	1.294e5	1.166	1.25	1.24	811.8	YES	NO	bd	bd	47.813
9	123468-HXCDF	33.20	1.771e5	1.397e5	1.169	1.27	1.24	805.0	YES	NO	bb	bb	51.815
10	12389-PECDF	32.28	1.451e5	9.433e4	0.496	1.54	1.55	765.1	YES	NO	bb	bb	71.607
11	123789-HxCDF	36.90	1.234e5	1.029e5	1.137	1.20	1.24	550.7	YES	NO	bb	bb	48.190
12	234678-HxCDF	35.87	1.660e5	1.266e5	1.140	1.31	1.24	743.7	YES	NO	bd	bb	51.093
13	1234789-HpCDF	40.97	8.772e4	8.421e4	0.953	1.04	1.05	520.2	YES	NO	MM	bd	56.046
14	Total-heptafurans	39.39	4.536e2	4.190e2	0.978	1.08	1.05	4.9	YES	NO	db	bb	0.241
15	1234678-HpCDF	38.74	1.159e5	1.003e5	1.003	1.16	1.05	793.8	YES	NO	bd	bb	51.527
16	OCDF	45.20	1.422e5	1.603e5	0.778	0.89	0.89	768.6	YES	NO	bb	bb	109.709
17	13468-PECDF	27.10	2.392e5	1.551e5	1.246	1.54	1.55	5460.0	YES	NO	bb	bb	46.967

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	26.07	3.705e4	4.804e4	1.024	0.77	0.77	340.5	YES	NO	bb	bd	15.665
2	Total-tetradioxins	25.59	1.135e4	1.483e4	1.024	0.77	0.77	153.8	YES	NO	bb	bb	4.819
3	1368-TCDD	23.53	2.500e4	3.134e4	1.015	0.80	0.77	333.4	YES	NO	bd	bb	10.462
4	1289-TCDD	26.99	2.384e4	2.946e4	0.909	0.81	0.77	290.3	YES	NO	bd	bd	11.061
5	2378-TCDD	26.40	2.715e4	3.457e4	1.149	0.79	0.77	338.6	YES	NO	bd	dd	10.131

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.91	1.505e5	9.746e4	1.184	1.54	1.55	806.8	YES	NO	bb	bb	49.015
2	12378-PeCDD	31.50	1.445e5	9.037e4	1.022	1.60	1.55	763.3	YES	NO	bd	bb	53.781
3	12479-PECDD	28.79	2.390e5	1.516e5	2.301	1.58	1.55	892.7	YES	NO	bb	bb	39.706

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.98	1.462e5	1.267e5	1.115	1.15	1.24	995.3	YES	NO	bb	bd	52.800
2	123789-HxCDD	36.48	1.177e5	9.600e4	0.907	1.23	1.24	794.4	YES	NO	bb	bb	44.956
3	123678-HxCDD	36.11	1.526e5	1.258e5	1.001	1.21	1.24	984.3	YES	NO	dd	db	47.557
4	123478-HxCDD	35.99	1.201e5	9.884e4	0.996	1.21	1.24	909.1	YES	NO	bd	bd	47.452

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234679-HPCDD	39.19	9.434e4	9.548e4	1.137	0.99	1.05	497.2	YES	NO	bd	bd	59.159
2	1234678-HpCDD	40.24	8.359e4	8.057e4	1.039	1.04	1.05	400.4	YES	NO	bd	bd	55.982

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	26.07	3.705e4	4.804e4	1.024	0.77	0.77	340.5	YES	NO	bb	bd	15.665
2	Total-tetradioxins	25.59	1.135e4	1.483e4	1.024	0.77	0.77	153.8	YES	NO	bb	bb	4.819
3	1368-TCDD	23.53	2.500e4	3.134e4	1.015	0.80	0.77	333.4	YES	NO	bd	bb	10.462
4	1289-TCDD	26.99	2.384e4	2.946e4	0.909	0.81	0.77	290.3	YES	NO	bd	bd	11.061
5	2378-TCDD	26.40	2.715e4	3.457e4	1.149	0.79	0.77	338.6	YES	NO	bd	dd	10.131
6	12389-PECDD	31.91	1.505e5	9.746e4	1.184	1.54	1.55	806.8	YES	NO	bb	bb	49.015
7	12378-PeCDD	31.50	1.445e5	9.037e4	1.022	1.60	1.55	763.3	YES	NO	bd	bb	53.781
8	12479-PECDD	28.79	2.390e5	1.516e5	2.301	1.58	1.55	892.7	YES	NO	bb	bb	39.706
9	124679-HXCDD	33.98	1.462e5	1.267e5	1.115	1.15	1.24	995.3	YES	NO	bb	bd	52.800
10	123789-HxCDD	36.48	1.177e5	9.600e4	0.907	1.23	1.24	794.4	YES	NO	bb	bb	44.956
11	123678-HxCDD	36.11	1.526e5	1.258e5	1.001	1.21	1.24	984.3	YES	NO	dd	db	47.557
12	123478-HxCDD	35.99	1.201e5	9.884e4	0.996	1.21	1.24	909.1	YES	NO	bd	bd	47.452
13	1234679-HPCDD	39.19	9.434e4	9.548e4	1.137	0.99	1.05	497.2	YES	NO	bd	bd	59.159
14	1234678-HpCDD	40.24	8.359e4	8.057e4	1.039	1.04	1.05	400.4	YES	NO	bd	bd	55.982
15	OCDD	44.95	1.607e5	1.855e5	0.920	0.87	0.89	985.6	YES	NO	bd	bd	106.178

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.26	2.604e4	3.219e4	0.678	0.81	0.77	391.5	YES	NO	db	bb	11.685
2	2378-TCDF	25.76	2.450e4	3.184e4	0.702	0.77	0.77	388.1	YES	NO	bb	bb	10.925
3	1368-TCDF	22.26	3.670e4	4.874e4	0.802	0.75	0.77	613.9	YES	NO	bb	bb	14.503
4	23478-PeCDF	31.25	1.685e5	1.064e5	0.786	1.58	1.55	936.6	YES	NO	bb	bb	55.401
5	12378-PeCDF	29.91	1.623e5	1.017e5	0.679	1.60	1.55	876.1	YES	NO	bb	bb	57.695
6	Total-pentafurans	28.76	2.627e4	1.666e4	0.654	1.58	1.55	142.5	YES	NO	bb	bb	10.062
7	123678-HxCDF	35.00	2.005e5	1.614e5	1.091	1.24	1.24	854.0	YES	NO	dd	dd	54.202
8	123478-HxCDF	34.87	1.622e5	1.294e5	1.166	1.25	1.24	811.8	YES	NO	bd	bd	47.813
9	123468-HXCDF	33.20	1.771e5	1.397e5	1.169	1.27	1.24	805.0	YES	NO	bb	bb	51.815
10	12389-PECDF	32.28	1.451e5	9.433e4	0.496	1.54	1.55	765.1	YES	NO	bb	bb	71.607
11	123789-HxCDF	36.90	1.234e5	1.029e5	1.137	1.20	1.24	550.7	YES	NO	bb	bb	48.190
12	234678-HxCDF	35.87	1.660e5	1.266e5	1.140	1.31	1.24	743.7	YES	NO	bd	bb	51.093
13	1234789-HpCDF	40.97	8.772e4	8.421e4	0.953	1.04	1.05	520.2	YES	NO	MM	bd	56.046
14	Total-heptafurans	39.39	4.536e2	4.190e2	0.978	1.08	1.05	4.9	YES	NO	db	bb	0.241
15	1234678-HpCDF	38.74	1.159e5	1.003e5	1.003	1.16	1.05	793.8	YES	NO	bd	bb	51.527
16	OCDF	45.20	1.422e5	1.603e5	0.778	0.89	0.89	768.6	YES	NO	bb	bb	109.709
17	13468-PECDF	27.10	2.392e5	1.551e5	1.246	1.54	1.55	5460.0	YES	NO	bb	bb	46.967
18	Total-tetradioxins	26.07	3.705e4	4.804e4	1.024	0.77	0.77	340.5	YES	NO	bb	bd	15.665
19	Total-tetradioxins	25.59	1.135e4	1.483e4	1.024	0.77	0.77	153.8	YES	NO	bb	bb	4.819
20	1368-TCDD	23.53	2.500e4	3.134e4	1.015	0.80	0.77	333.4	YES	NO	bd	bb	10.462
21	1289-TCDD	26.99	2.384e4	2.946e4	0.909	0.81	0.77	290.3	YES	NO	bd	bd	11.061
22	2378-TCDD	26.40	2.715e4	3.457e4	1.149	0.79	0.77	338.6	YES	NO	bd	dd	10.131
23	12389-PECDD	31.91	1.505e5	9.746e4	1.184	1.54	1.55	806.8	YES	NO	bb	bb	49.015
24	12378-PeCDD	31.50	1.445e5	9.037e4	1.022	1.60	1.55	763.3	YES	NO	bd	bb	53.781
25	12479-PECDD	28.79	2.390e5	1.516e5	2.301	1.58	1.55	892.7	YES	NO	bb	bb	39.706
26	124679-HXCDD	33.98	1.462e5	1.267e5	1.115	1.15	1.24	995.3	YES	NO	bb	bd	52.800
27	123789-HxCDD	36.48	1.177e5	9.600e4	0.907	1.23	1.24	794.4	YES	NO	bb	bb	44.956
28	123678-HxCDD	36.11	1.526e5	1.258e5	1.001	1.21	1.24	984.3	YES	NO	dd	db	47.557
29	123478-HxCDD	35.99	1.201e5	9.884e4	0.996	1.21	1.24	909.1	YES	NO	bd	bd	47.452
30	1234679-HPCDD	39.19	9.434e4	9.548e4	1.137	0.99	1.05	497.2	YES	NO	bd	bd	59.159
31	1234678-HpCDD	40.24	8.359e4	8.057e4	1.039	1.04	1.05	400.4	YES	NO	bd	bd	55.982
32	OCDD	44.95	1.607e5	1.855e5	0.920	0.87	0.89	985.6	YES	NO	bd	bd	106.178

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	26.85	1.740e6					6.2	YES		bb		
2	FUNCTION1 PFK	22.82	1.181e7					26.8	YES		db		
3	FUNCTION1 PFK	21.44	2.935e7					56.7	YES		bd		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	31.24	1.061e3					0.4	NO		bb		0.000
2	FUNCTION2 PFK	31.19	1.021e3					0.4	NO		bb		0.000
3	FUNCTION2 PFK	30.98	7.073e3					0.9	NO		bb		0.000
4	FUNCTION2 PFK	30.88	1.751e4					1.4	NO		bb		0.000
5	FUNCTION2 PFK	30.50	1.194e3					0.5	NO		bb		0.000
6	FUNCTION2 PFK	30.46	1.574e3					0.7	NO		bb		0.000
7	FUNCTION2 PFK	30.37	2.484e4					2.2	NO		bb		0.000
8	FUNCTION2 PFK	29.35	8.654e3					1.2	NO		bb		0.000
9	FUNCTION2 PFK	29.27	1.201e4					1.2	NO		bb		0.000
10	FUNCTION2 PFK	28.47	4.234e3					0.9	NO		bb		0.000
11	FUNCTION2 PFK	32.73	5.561e3					1.1	NO		bb		0.000
12	FUNCTION2 PFK	32.67	4.408e3					0.9	NO		bb		0.000
13	FUNCTION2 PFK	32.46	2.052e4					2.3	NO		bb		0.000
14	FUNCTION2 PFK	32.24	5.252e3					0.9	NO		bb		0.000
15	FUNCTION2 PFK	32.20	1.689e3					0.7	NO		bb		0.000
16	FUNCTION2 PFK	32.06	4.422e3					0.9	NO		bb		0.000
17	FUNCTION2 PFK	32.02	1.268e3					0.5	NO		bb		0.000
18	FUNCTION2 PFK	31.96	4.118e3					0.9	NO		bb		0.000
19	FUNCTION2 PFK	31.92	6.179e3					1.1	NO		bb		0.000
20	FUNCTION2 PFK	31.79	2.760e4					2.8	NO		bb		0.000
21	FUNCTION2 PFK	31.30	2.862e3					0.6	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	34.20	5.192e3					1.1	NO		bb		0.000
2	FUNCTION3 PFK	33.48	2.249e5					2.5	NO		bb		0.000
3	FUNCTION3 PFK	32.92	2.172e4					2.0	NO		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	41.51	1.230e5					0.8	NO		bb		
2	FUNCTION4 PFK	37.89	5.636e6					29.9	YES		bb		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.27	1.044e4					1.7	NO		bb		
2	FUNCTION5 PFK	44.22	3.955e3					0.9	NO		db		
3	FUNCTION5 PFK	44.19	5.813e3					0.9	NO		bd		
4	FUNCTION5 PFK	44.13	8.659e2					0.3	NO		bb		
5	FUNCTION5 PFK	43.79	2.665e3					0.8	NO		bb		
6	FUNCTION5 PFK	43.53	6.266e2					0.3	NO		bb		
7	FUNCTION5 PFK	43.43	8.188e3					1.2	NO		db		
8	FUNCTION5 PFK	43.35	7.209e3					1.0	NO		dd		
9	FUNCTION5 PFK	43.32	7.941e2					0.4	NO		bd		
10	FUNCTION5 PFK	43.26	2.168e3					0.7	NO		bb		
11	FUNCTION5 PFK	43.16	6.050e3					1.2	NO		db		
12	FUNCTION5 PFK	43.10	1.389e4					2.8	NO		dd		
13	FUNCTION5 PFK	43.08	9.289e3					1.8	NO		bd		
14	FUNCTION5 PFK	45.74	1.477e4					1.8	NO		dd		
15	FUNCTION5 PFK	45.68	7.985e3					1.8	NO		bd		
16	FUNCTION5 PFK	45.49	4.724e3					1.1	NO		bb		
17	FUNCTION5 PFK	45.39	2.546e3					0.7	NO		bb		
18	FUNCTION5 PFK	45.35	1.061e4					1.1	NO		bb		
19	FUNCTION5 PFK	45.29	9.199e2					0.5	NO		bb		
20	FUNCTION5 PFK	45.25	2.922e3					0.8	NO		bb		
21	FUNCTION5 PFK	45.15	7.720e3					1.1	NO		db		
22	FUNCTION5 PFK	45.13	3.950e3					1.1	NO		bd		
23	FUNCTION5 PFK	44.94	7.987e3					1.0	NO		bb		
24	FUNCTION5 PFK	44.87	1.804e3					0.5	NO		bb		
25	FUNCTION5 PFK	44.82	2.133e3					0.6	NO		bb		
26	FUNCTION5 PFK	44.61	1.110e3					0.6	NO		bb		
27	FUNCTION5 PFK	44.58	8.663e3					1.2	NO		bb		
28	FUNCTION5 PFK	44.49	1.240e3					0.5	NO		db		
29	FUNCTION5 PFK	44.47	3.016e3					0.7	NO		bd		
30	FUNCTION5 PFK	45.92	1.380e3					0.7	NO		bb		
31	FUNCTION5 PFK	45.89	2.478e3					0.9	NO		db		
32	FUNCTION5 PFK	45.84	2.273e4					1.4	NO		bd		
33	FUNCTION5 PFK	45.77	2.276e3					0.8	NO		db		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.67	1.372e2					3.1	YES		bb		0.000
2	FUNCTION1 HXCD...	21.35	1.593e2					2.9	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.13	3.454e2					10.2	YES		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.48	1.023e2					4.0	YES		bb		0.000
2	FUNCTION3 OCDPE	36.08	8.677e1					3.0	NO		bb		0.000
3	FUNCTION3 OCDPE	33.29	7.125e1					2.8	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.43	7.556e1					3.2	YES		bb		0.000

ETHERS6

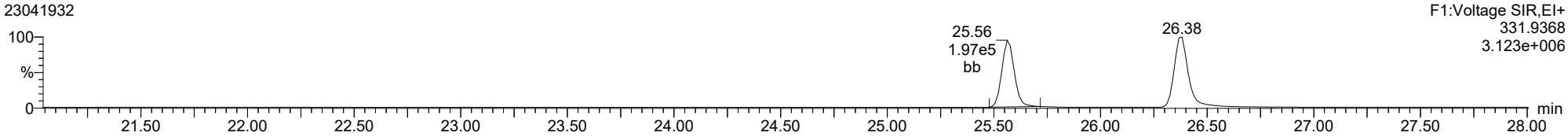
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1													

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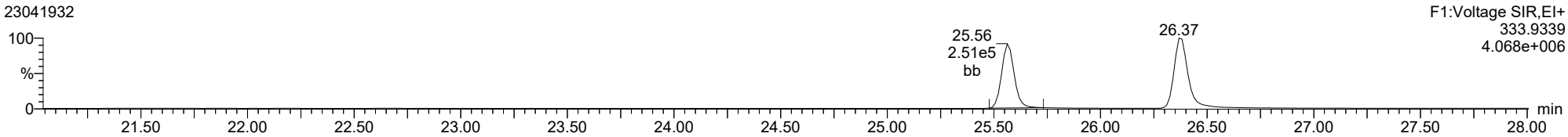
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ID: CS3F4, Name: 23041932, Date: 20-Apr-2023, Time: 16:35:22, Conditions: AUTOSPEC01, User: pk

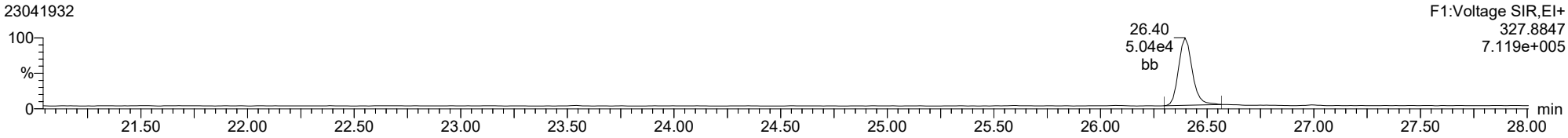
13C-1234-TCDD



13C-1234-TCDD

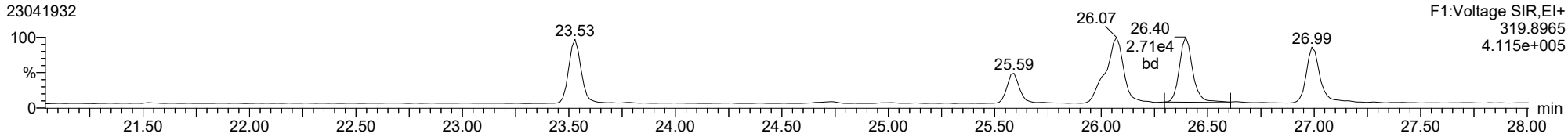


37CL-2378-TCDD

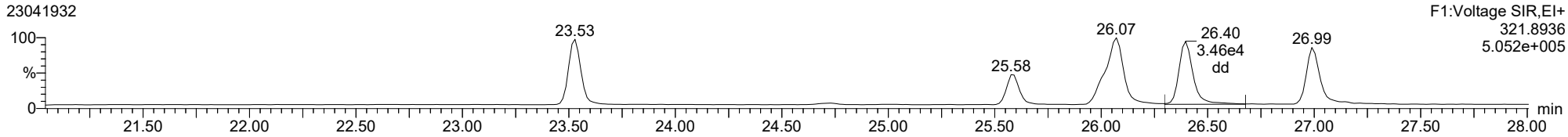


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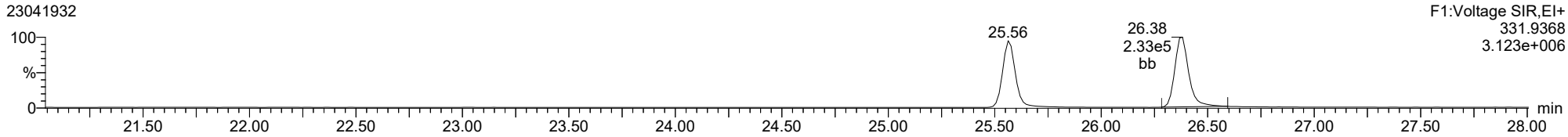
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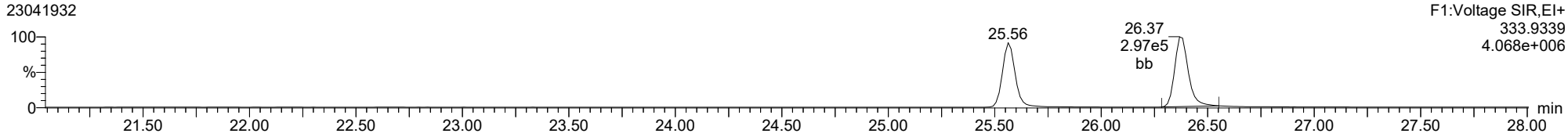
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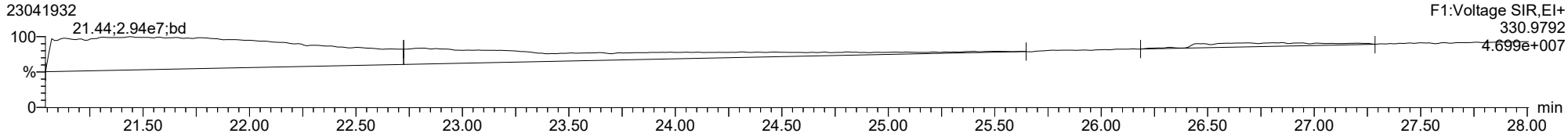
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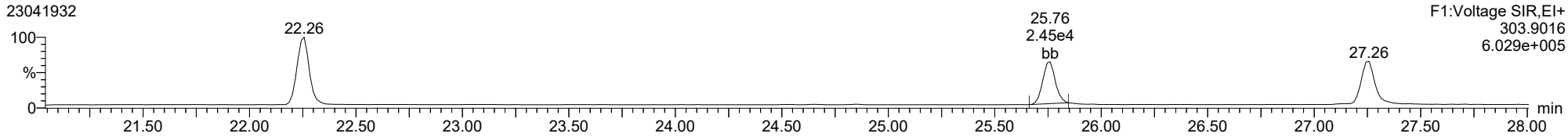


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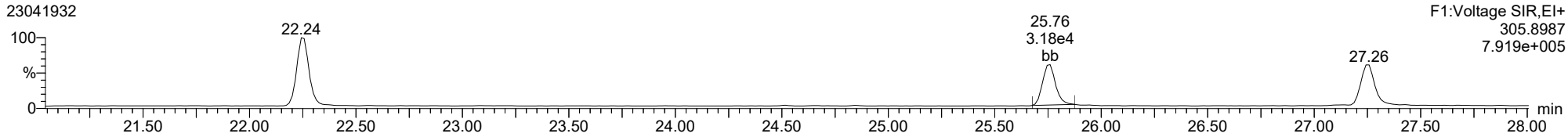


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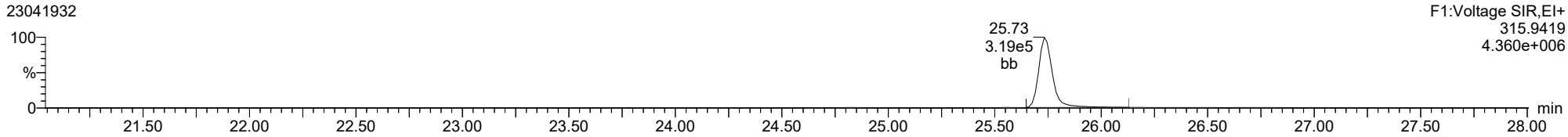
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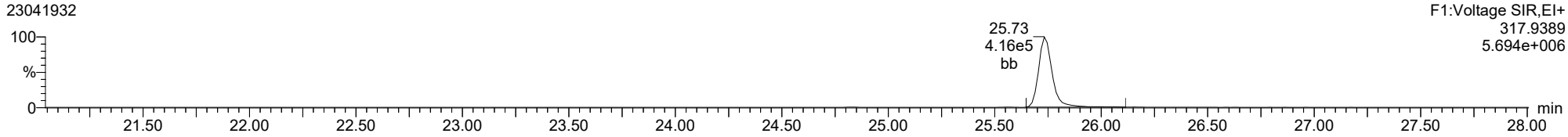
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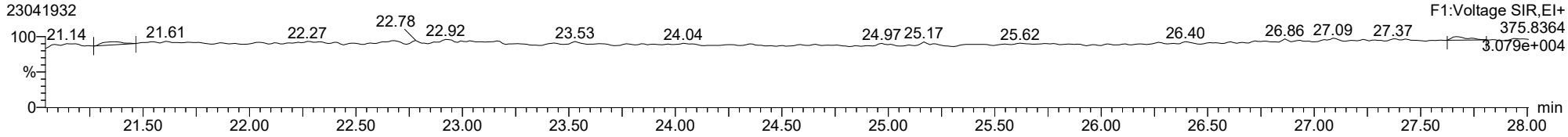
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13C-2378-TCDF

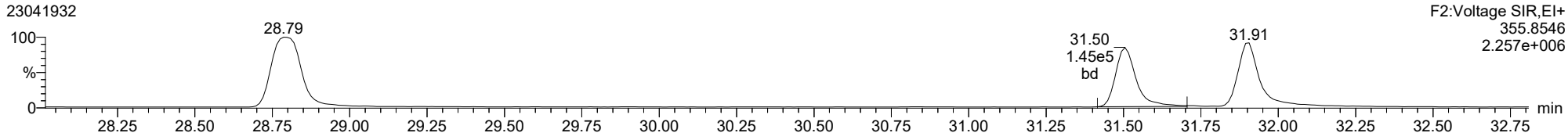


FUNCTION1 HXCDPE

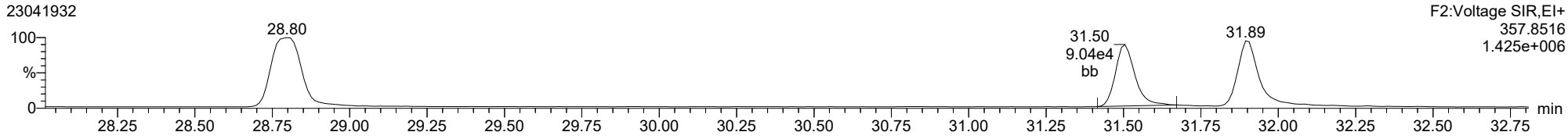


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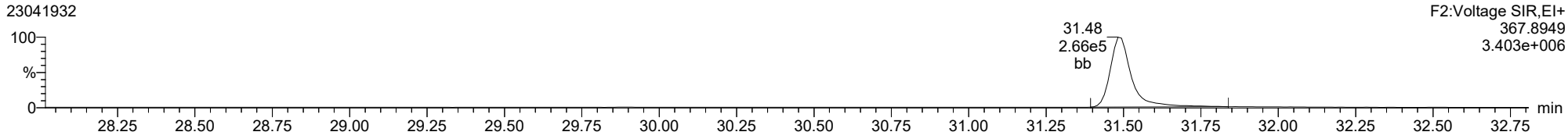
12378-PeCDD



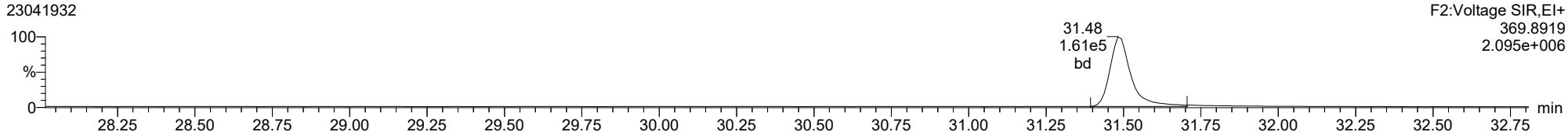
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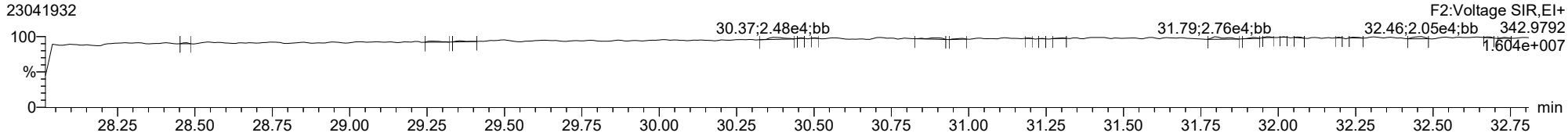
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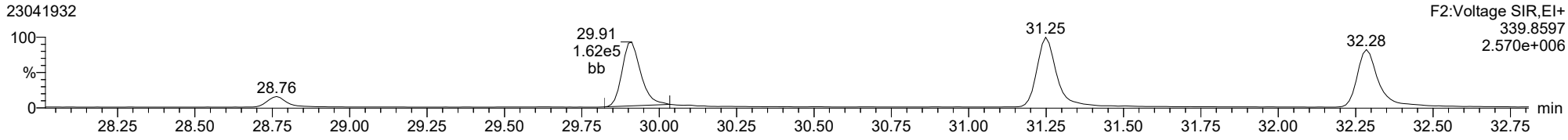


FUNCTION2 PFK

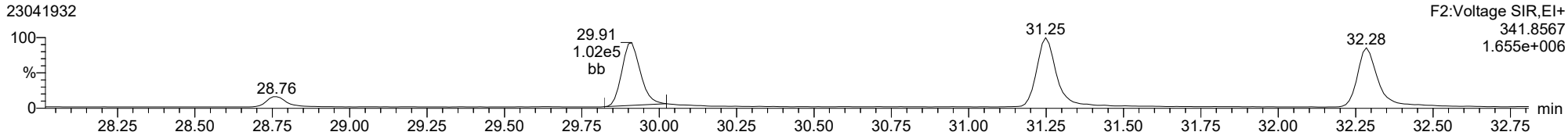


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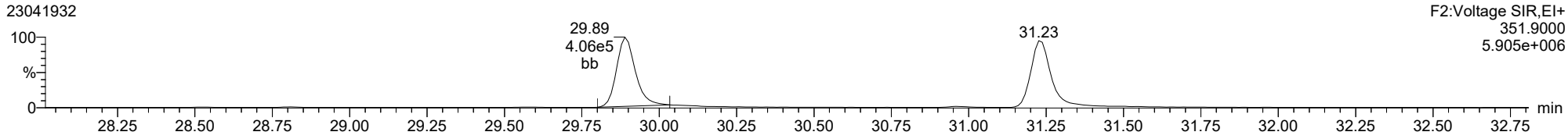
12378-PeCDF



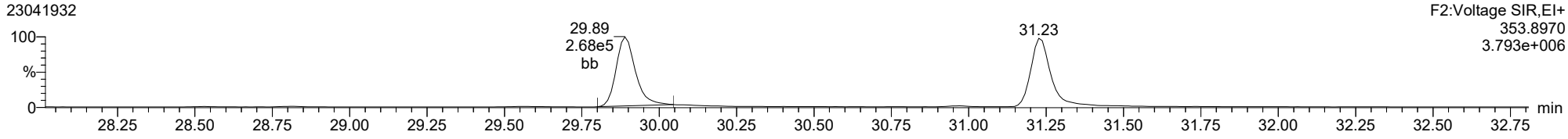
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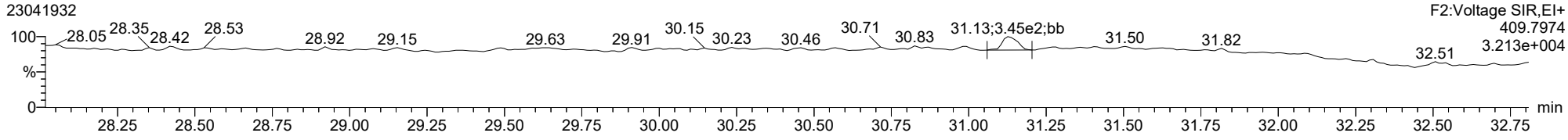
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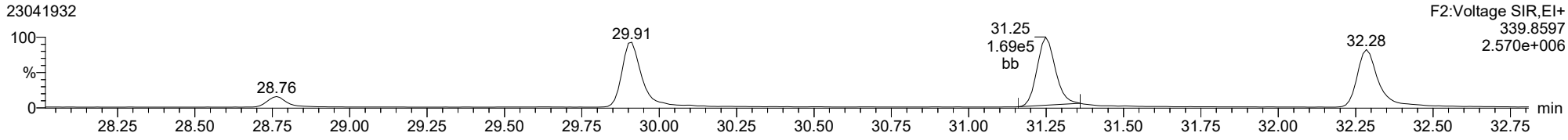


FUNCTION2 HPCDPE

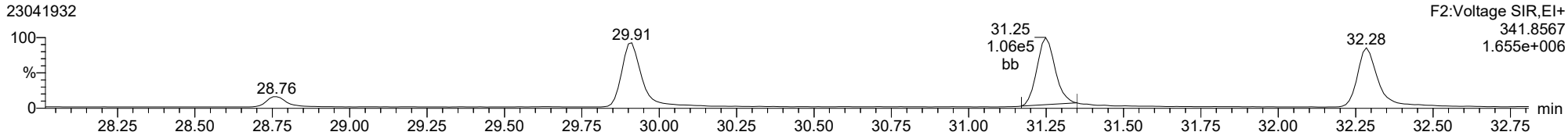


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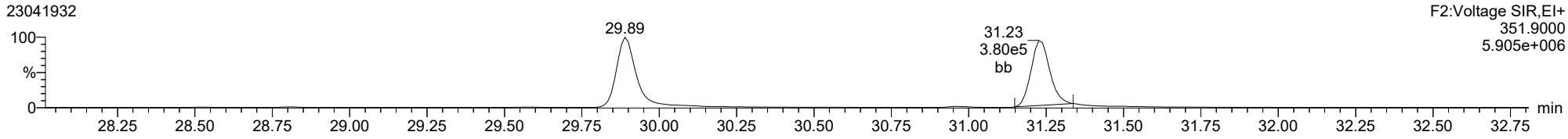
23478-PeCDF



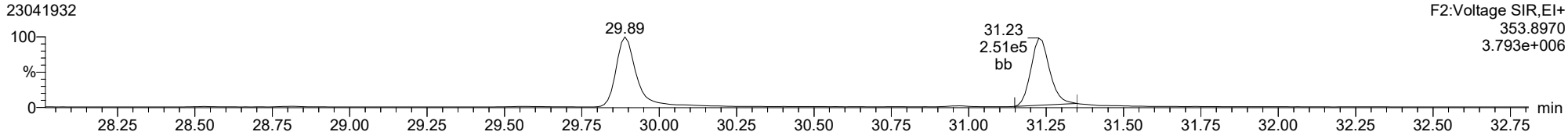
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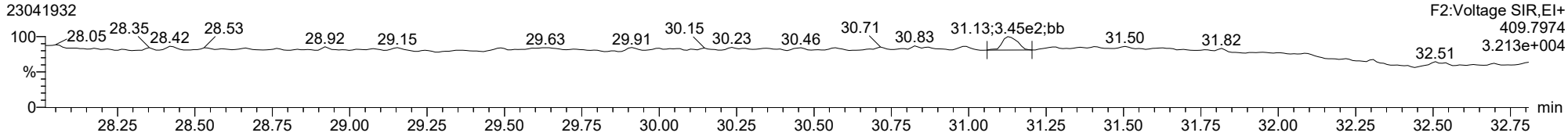
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13C-23478-PeCDF

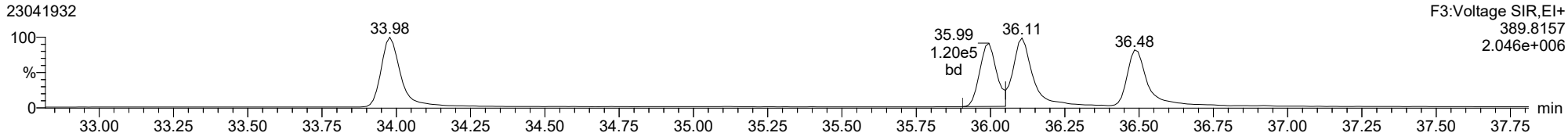


FUNCTION2 HPCDPE

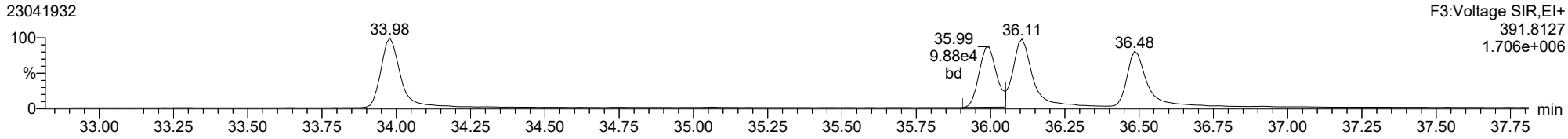


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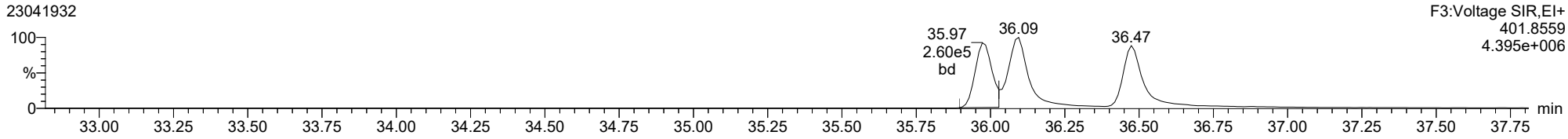
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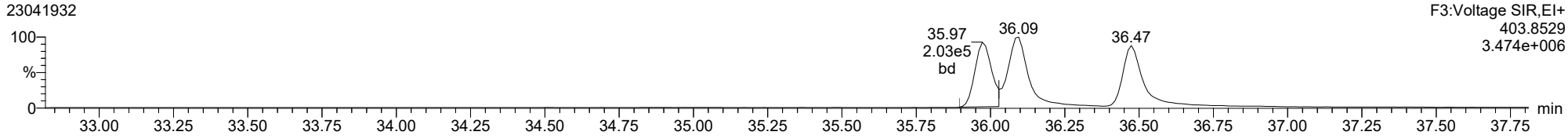
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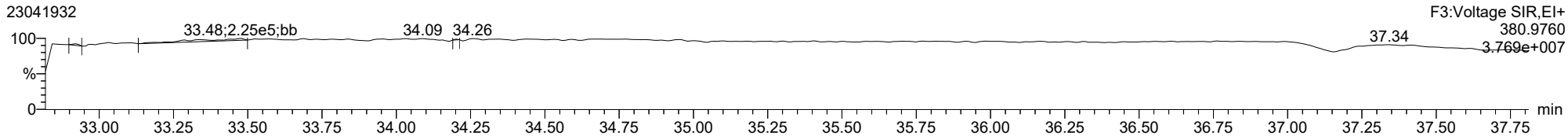
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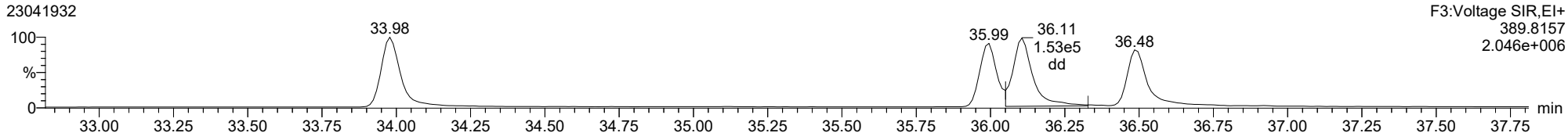


FUNCTION3 PFK

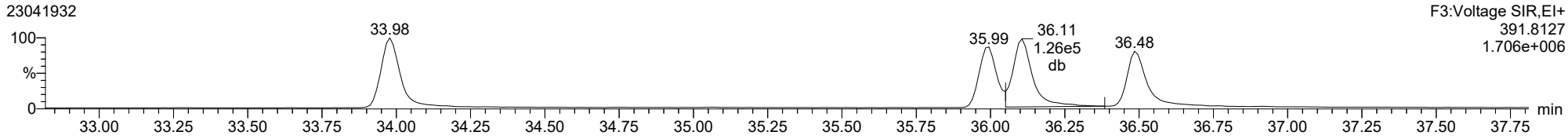


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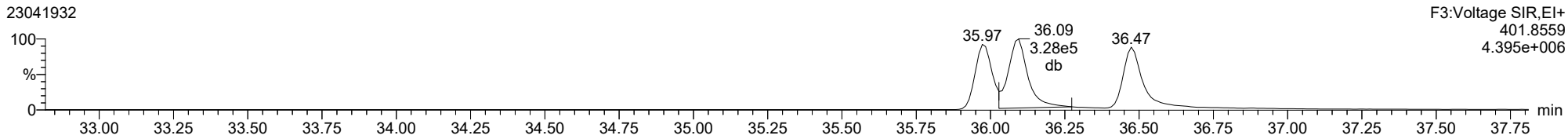
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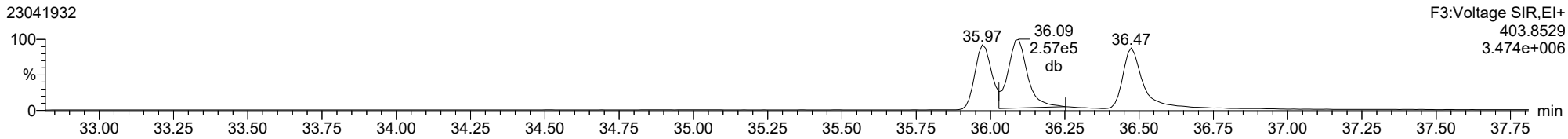
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13C-123678-HxCDD

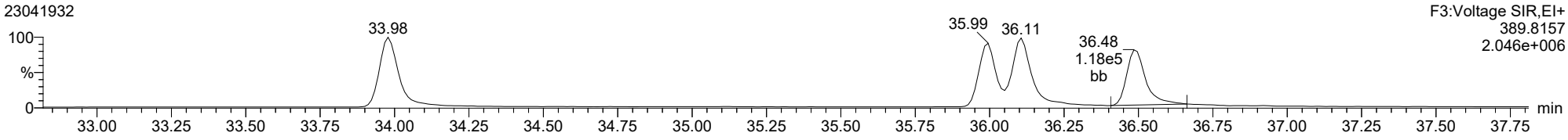


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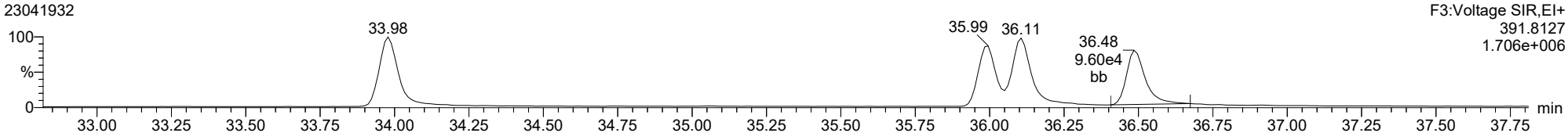


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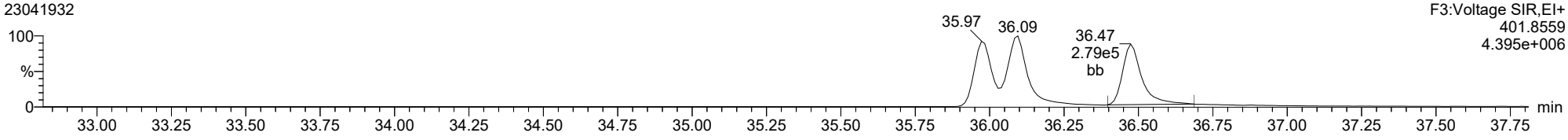
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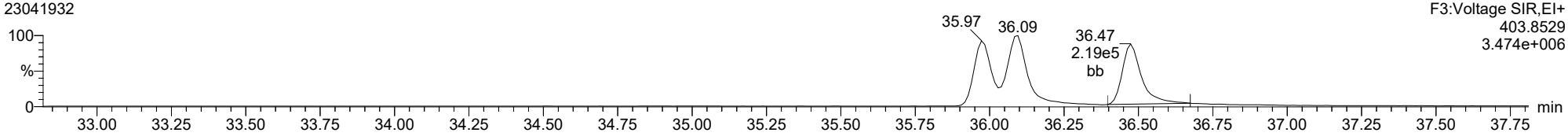
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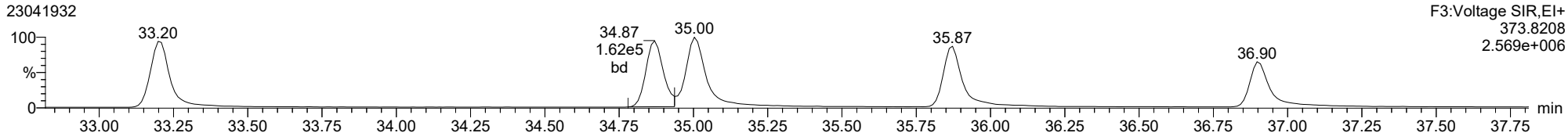


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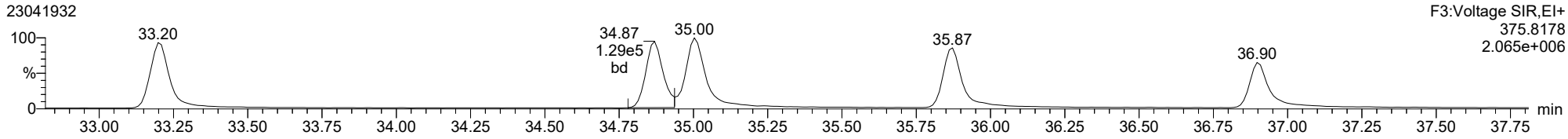


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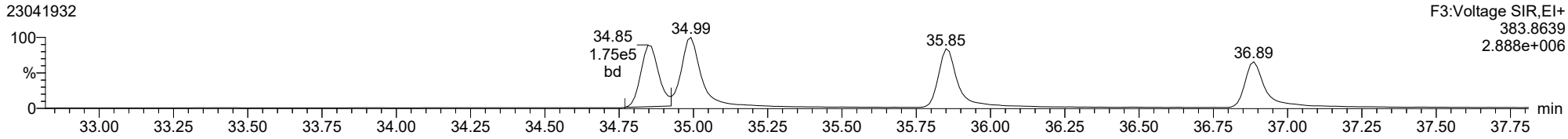
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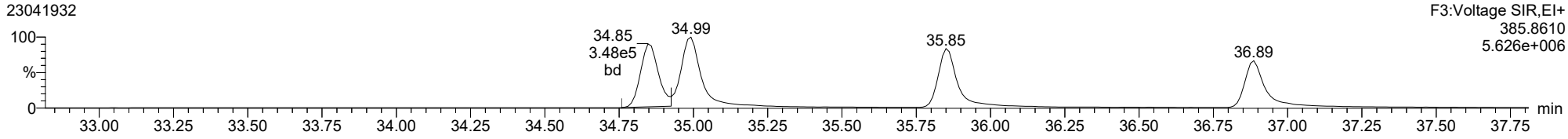
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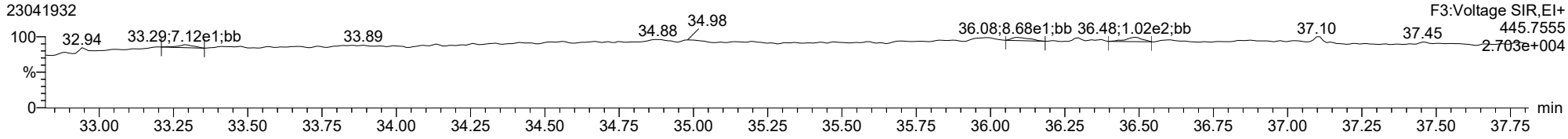
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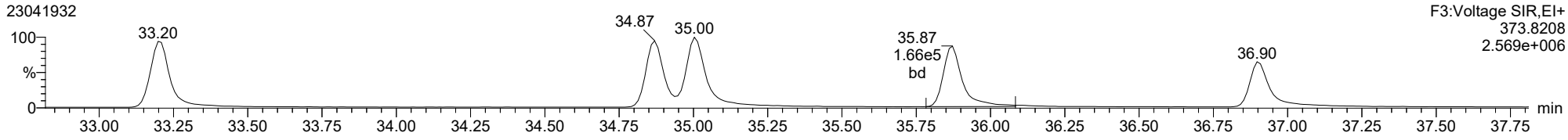


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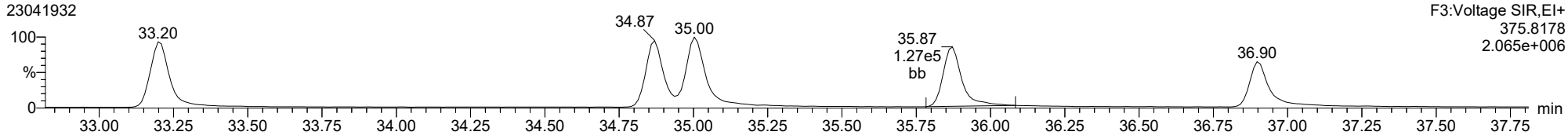


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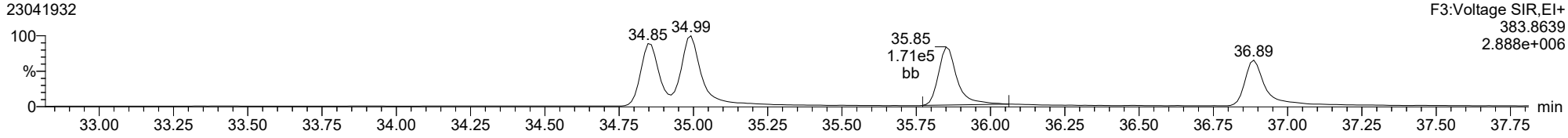
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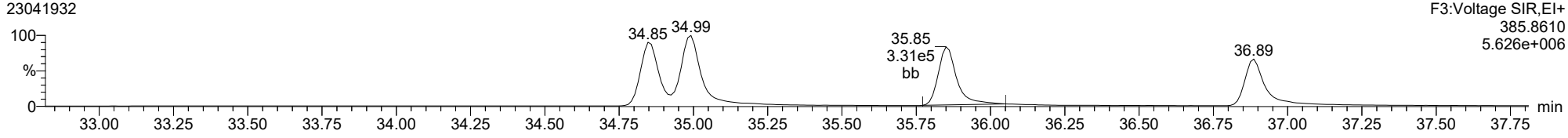
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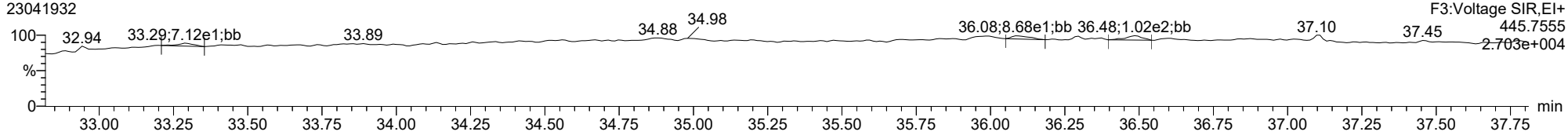
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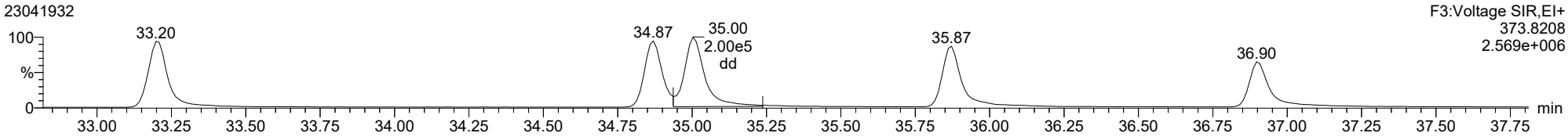


FUNCTION3 OCDPE

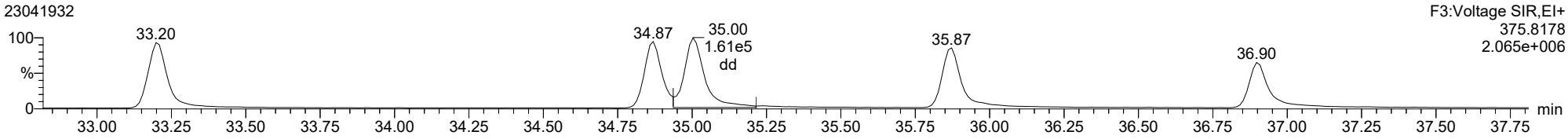


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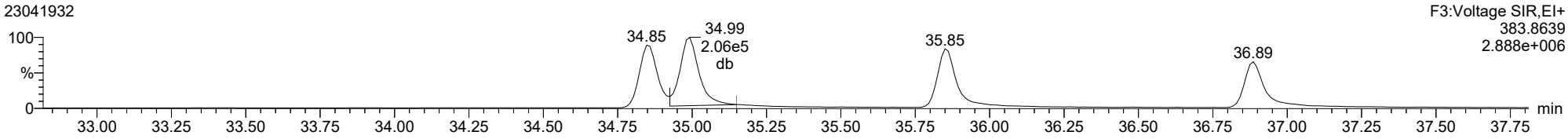
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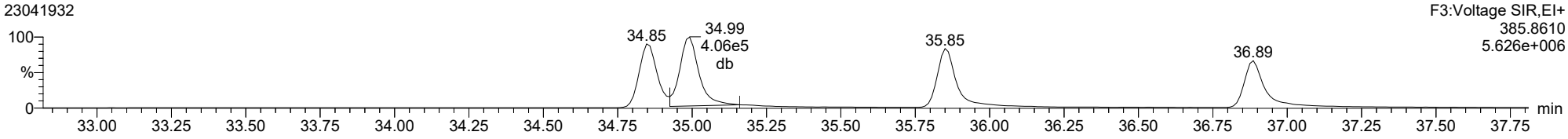
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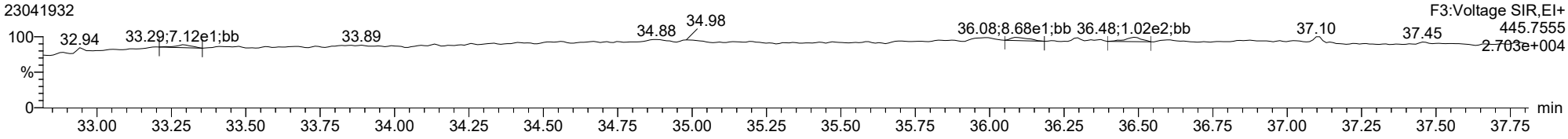
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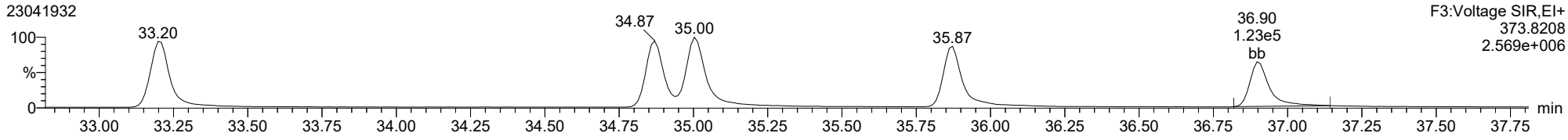


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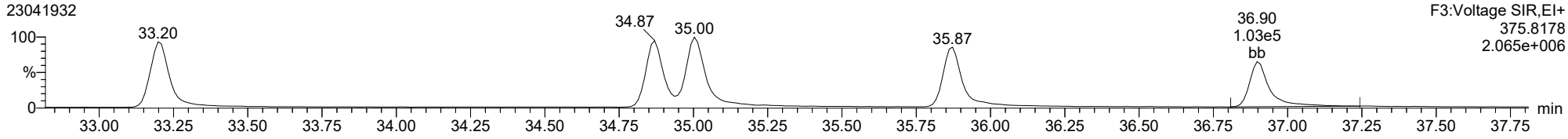


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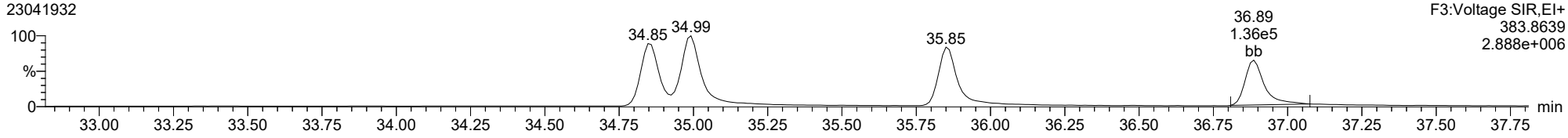
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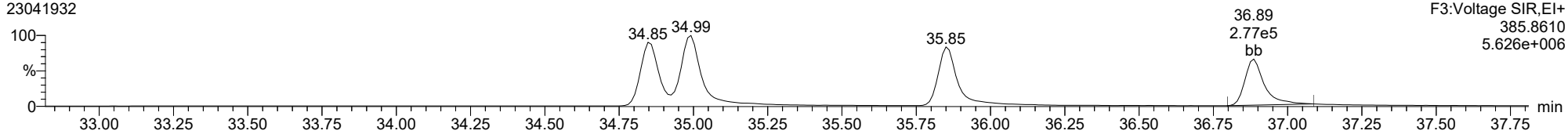
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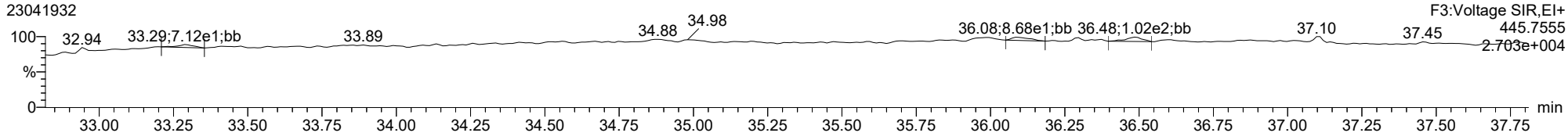
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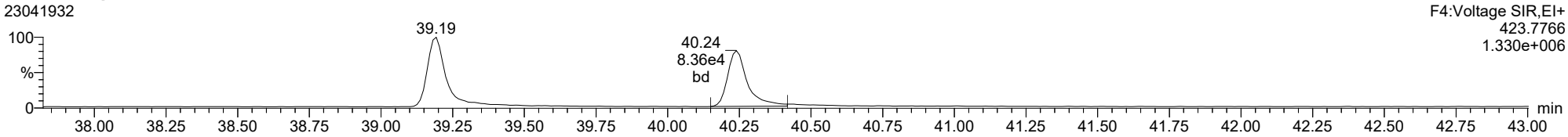


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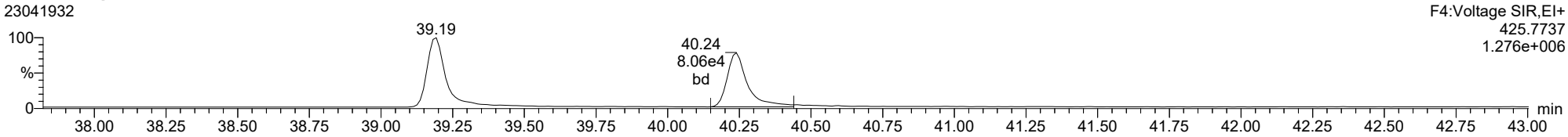


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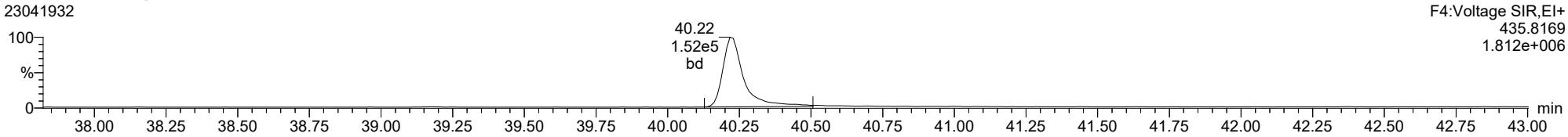
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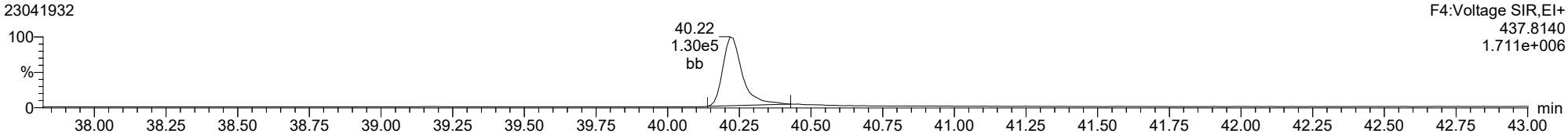
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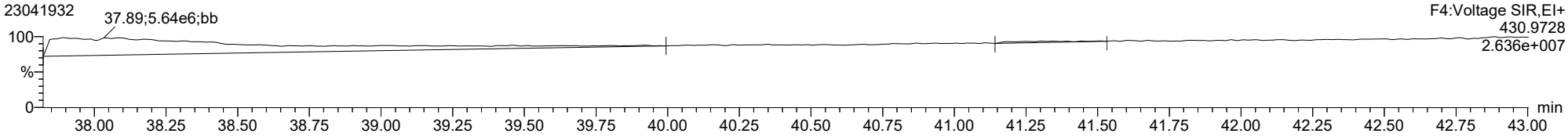
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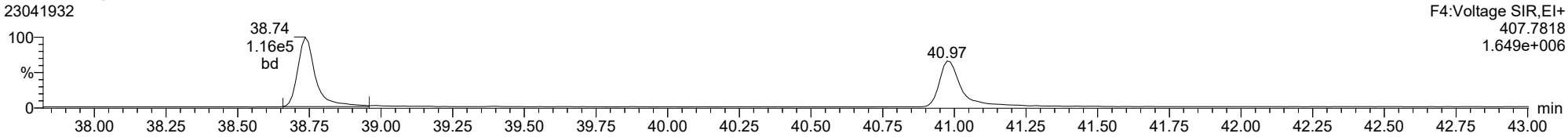


FUNCTION4 PFK

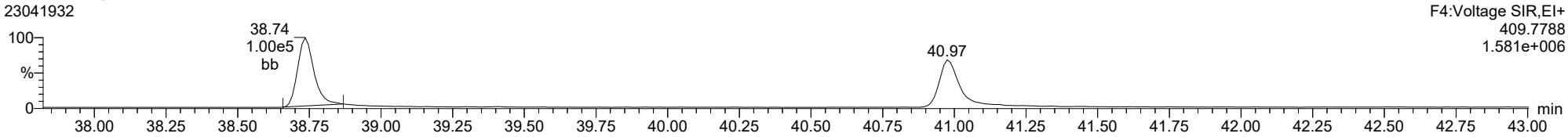


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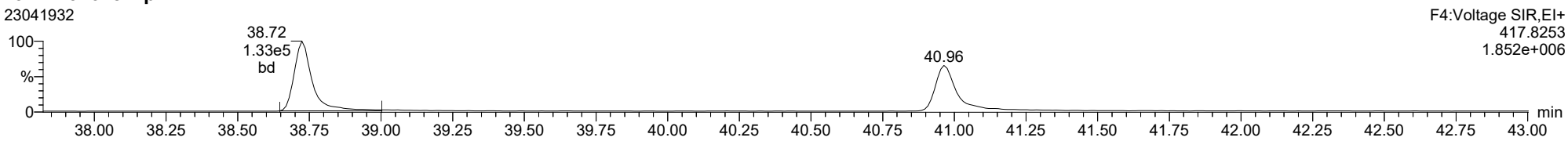
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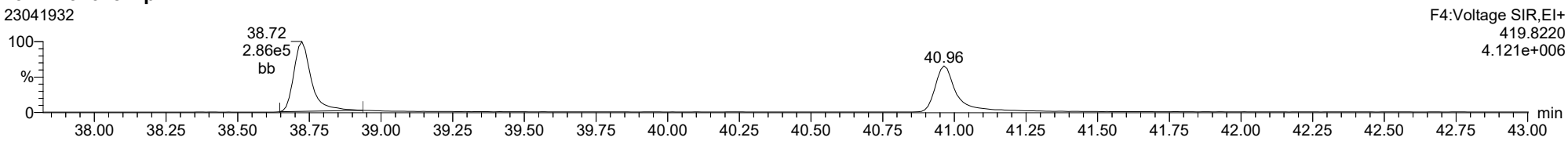
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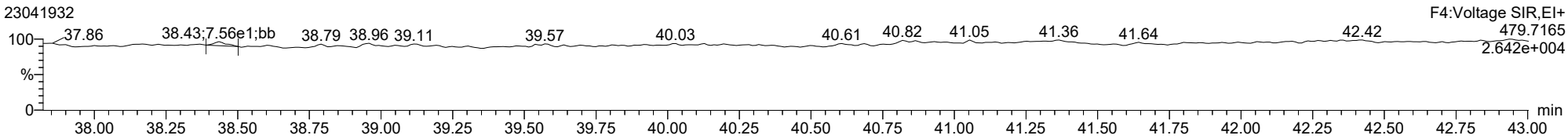
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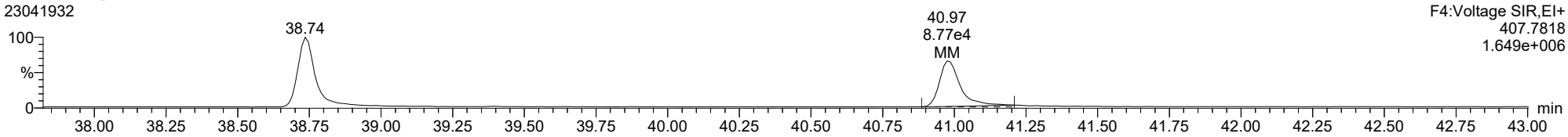


FUNCTION4 NCDPE

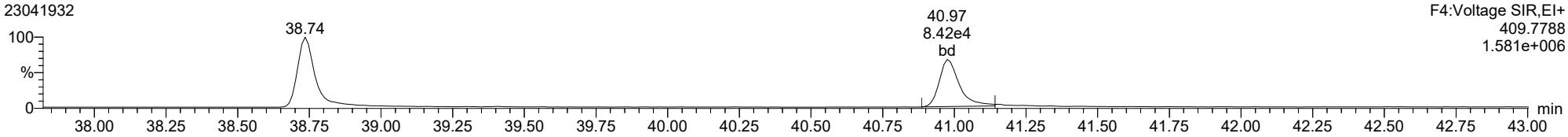


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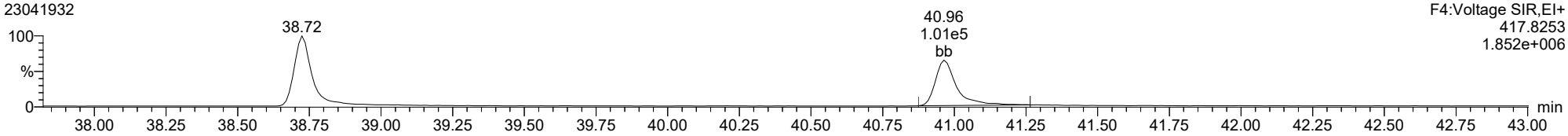
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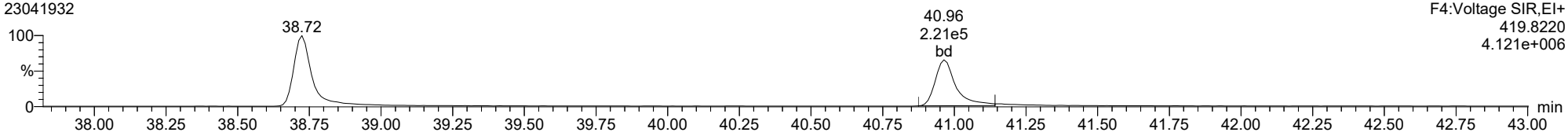
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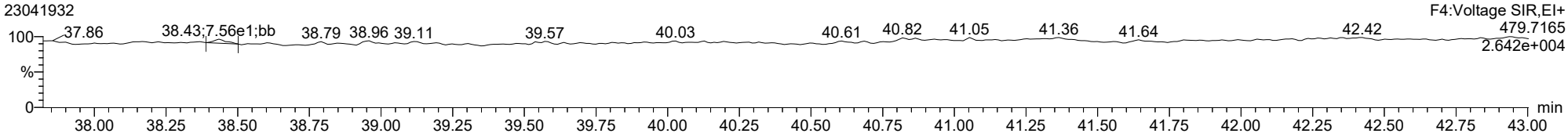
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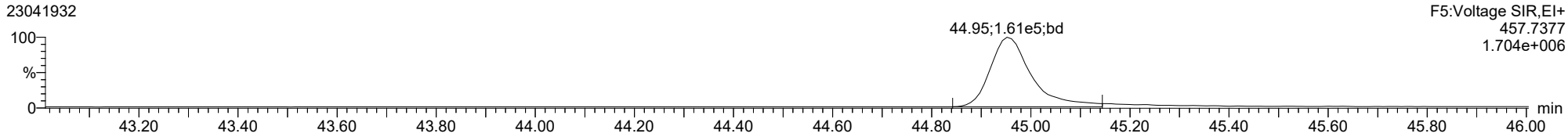


FUNCTION4 NCDPE

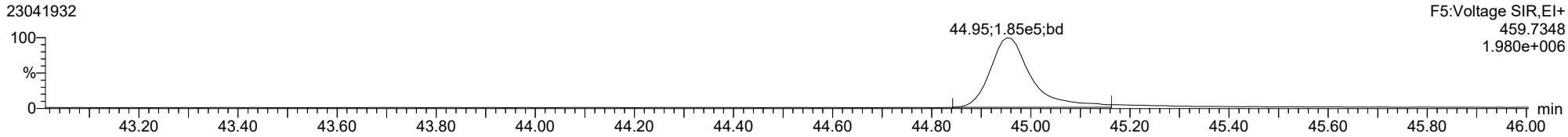


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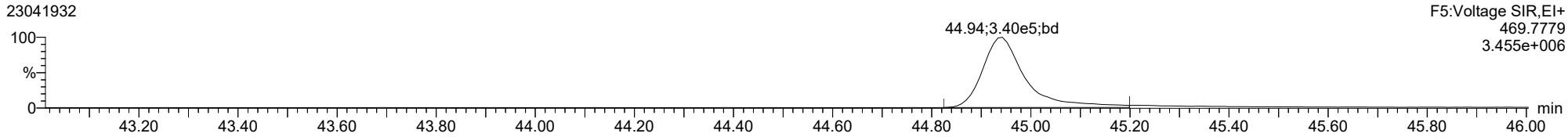
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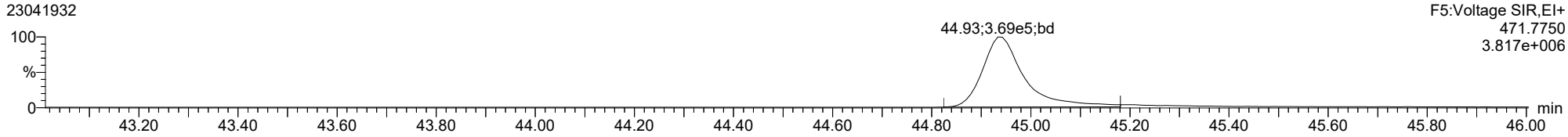
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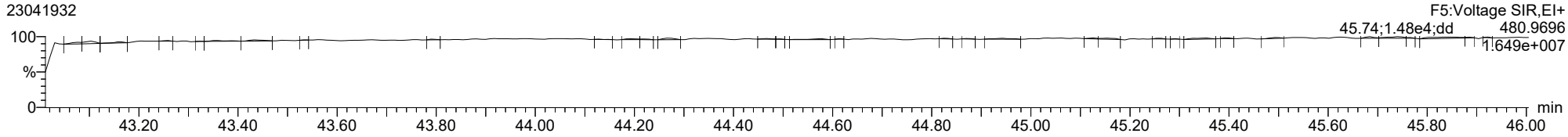
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13C-OCDD

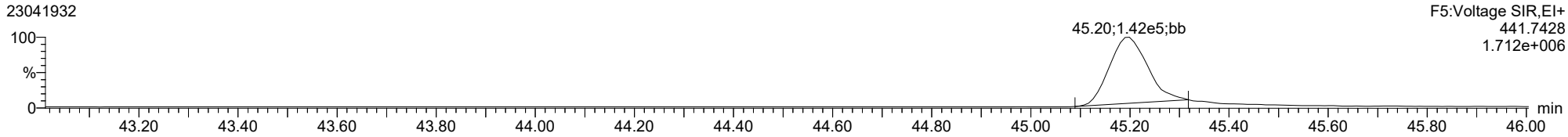


FUNCTION5 PFK

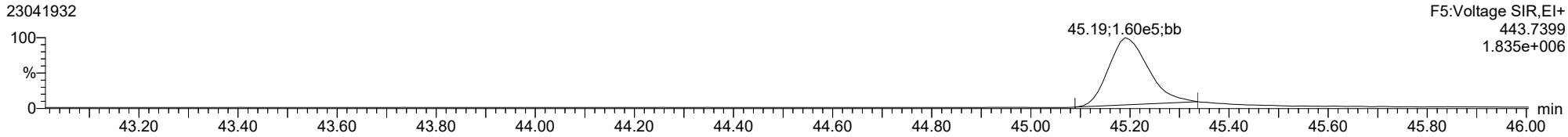


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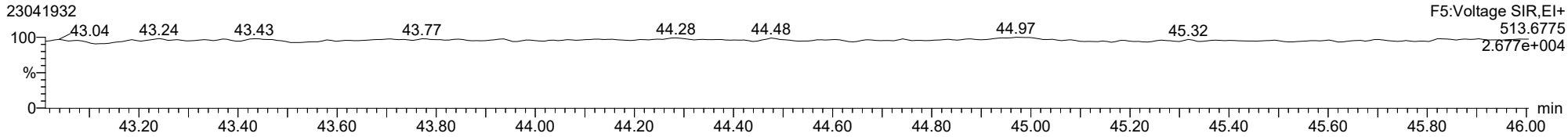
OCDF



OCDF

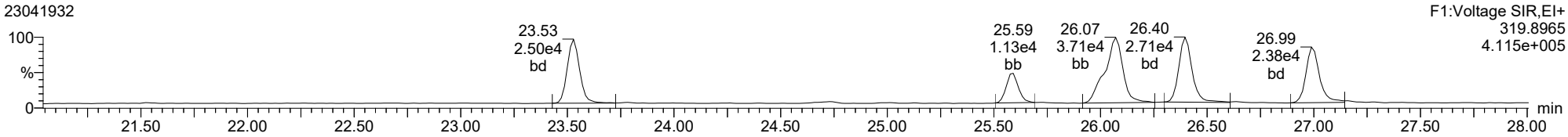


FUNCTION5 DCDPE

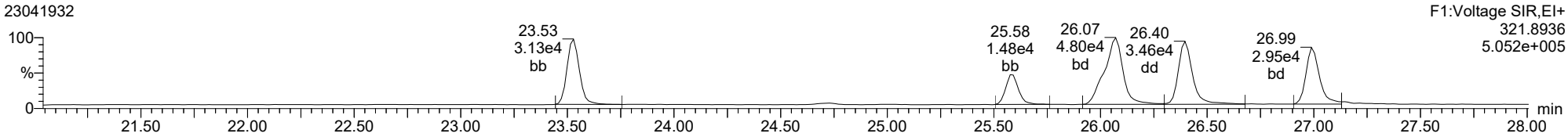


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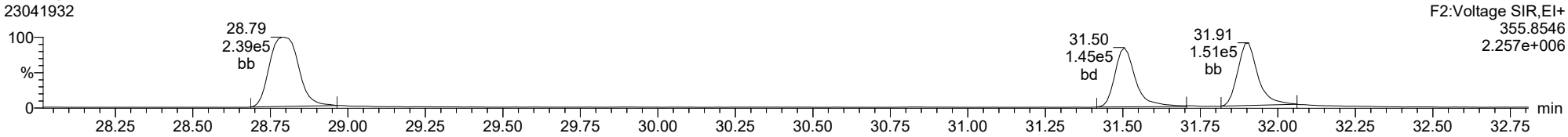
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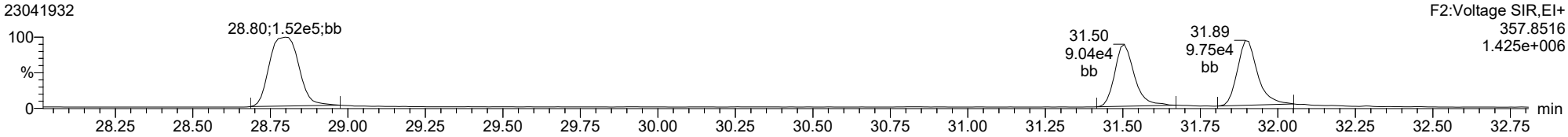
Total-tetradioxins



Total-pentadioxins

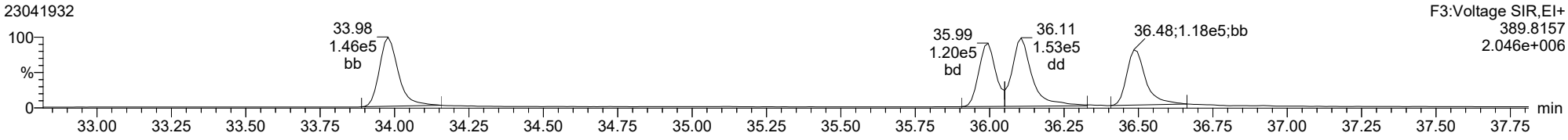


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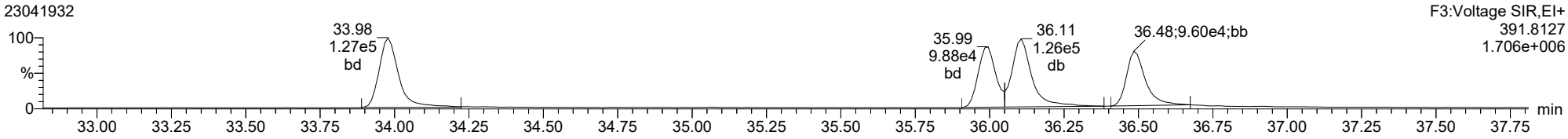


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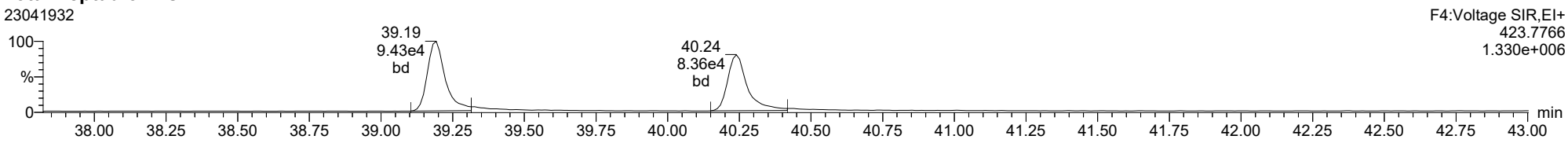
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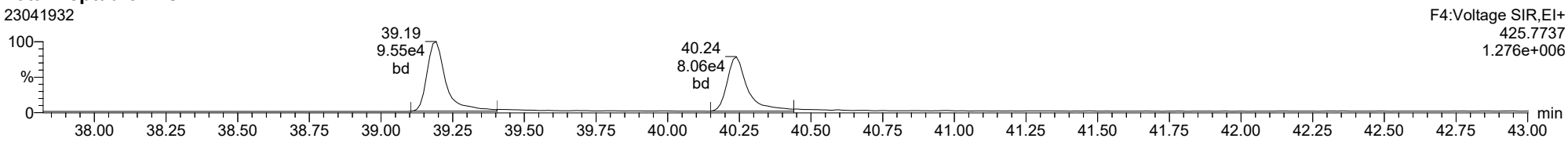
Total-hexadioxins



Total-heptadioxins

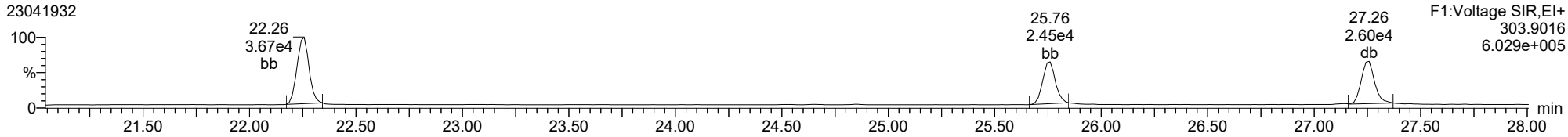


Total-heptadioxins

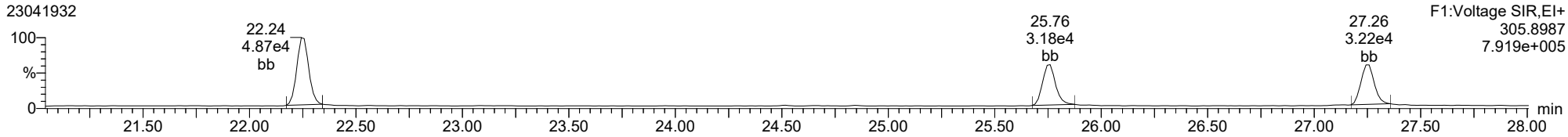


ID: CS3F4, Name: 23041932, Date: 20-Apr-2023, Time: 16:35:22, Conditions: AUTOSPEC01, User: pk

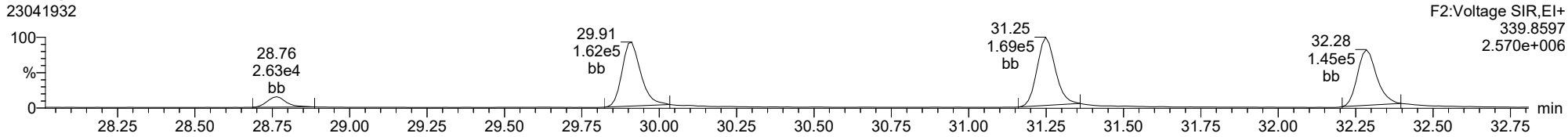
Total-tetrafurans



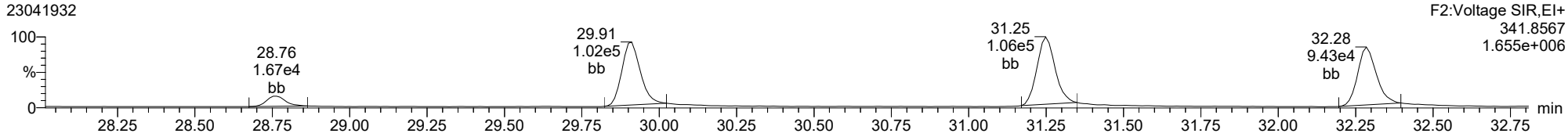
Total-tetrafurans



Total-pentafurans

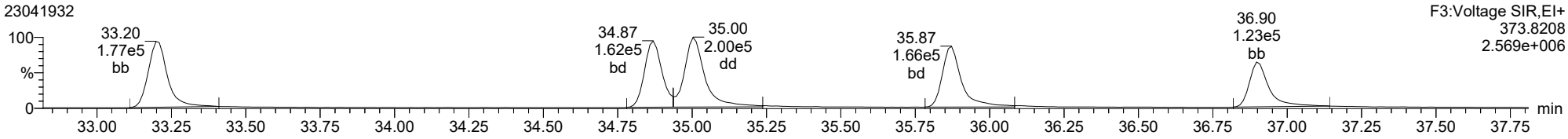


Total-pentafurans

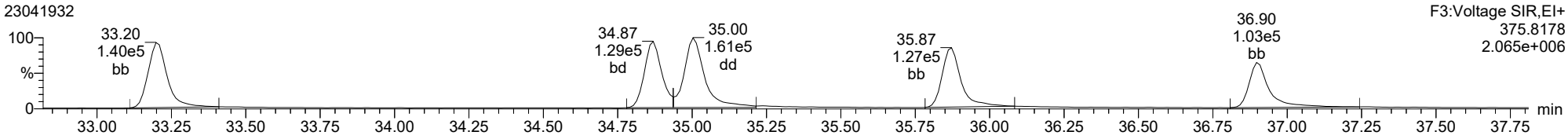


ID: CS3F4, Name: 23041932, Date: 20-Apr-2023, Time: 16:35:22, Conditions: AUTOSPEC01, User: pk

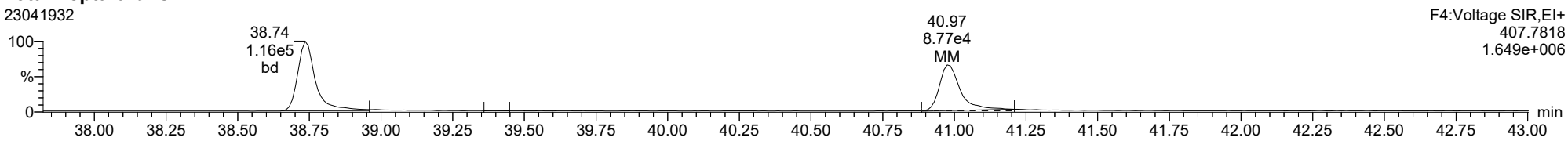
Total-hexafurans



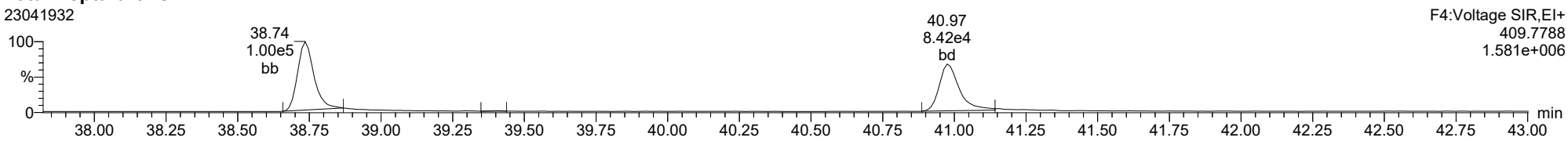
Total-hexafurans



Total-heptafurans

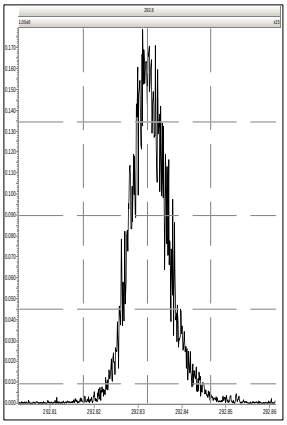


Total-heptafurans

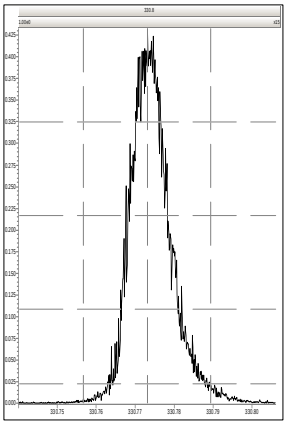


Printed: Thursday, April 20, 2023 17:28:25 Pacific Daylight Time

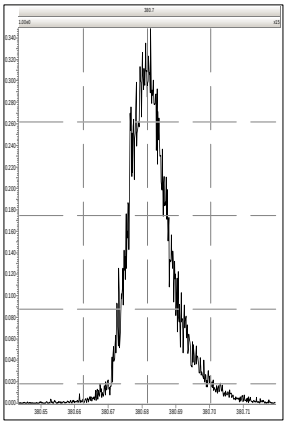
M 292.9824 R 15939



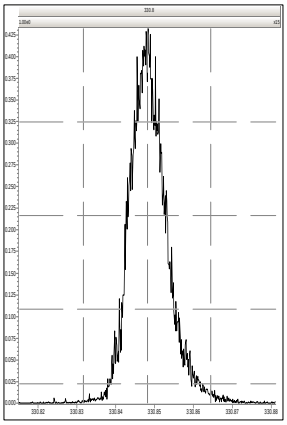
M 330.9792 R 13661



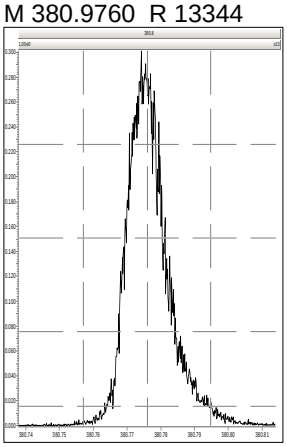
M 380.9760 R 12661



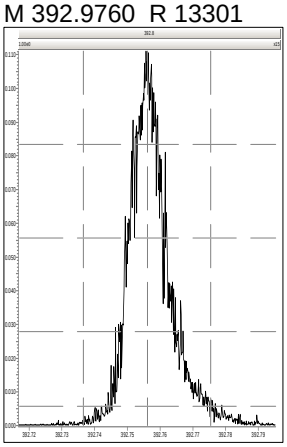
M 330.9792 R 14527



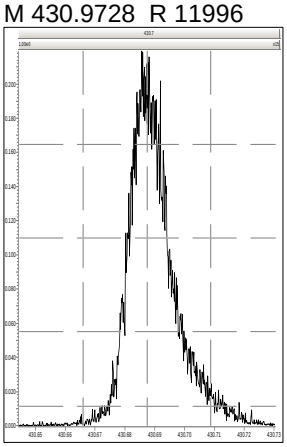
M 380.9760 R 13344



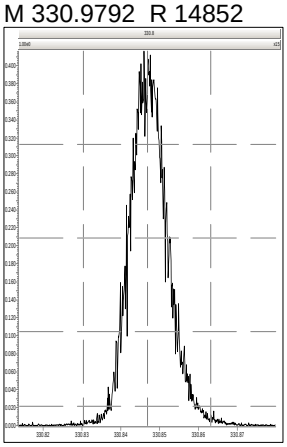
M 392.9760 R 13301



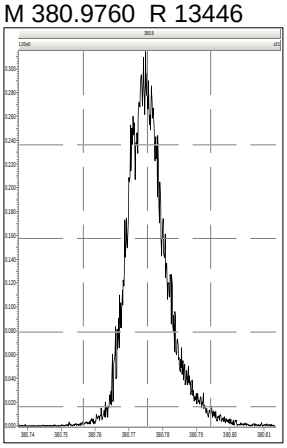
M 430.9728 R 11996



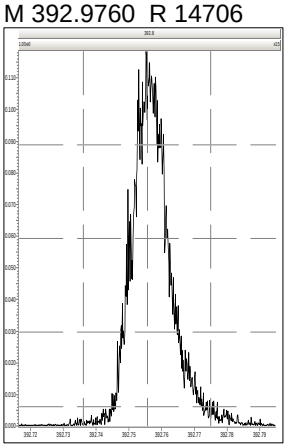
M 330.9792 R 14852



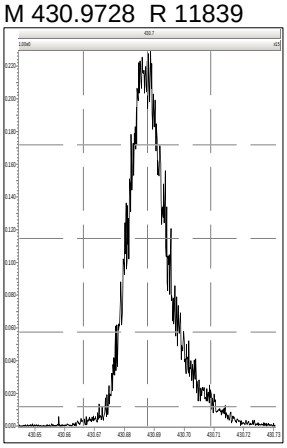
M 380.9760 R 13446



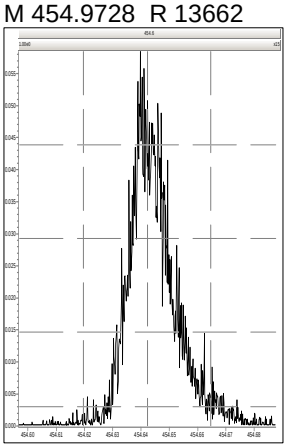
M 392.9760 R 14706



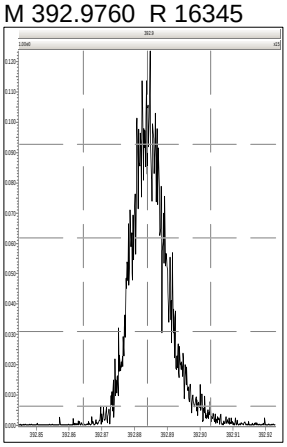
M 430.9728 R 11839



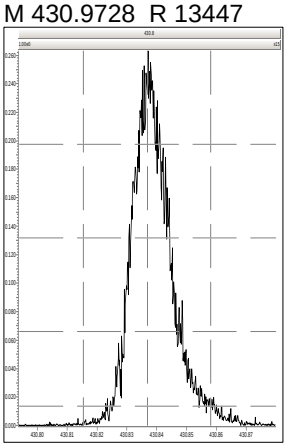
M 454.9728 R 13662



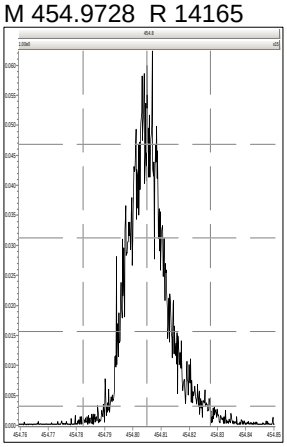
M 392.9760 R 16345



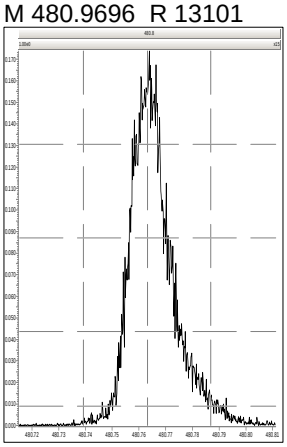
M 430.9728 R 13447



M 454.9728 R 14165

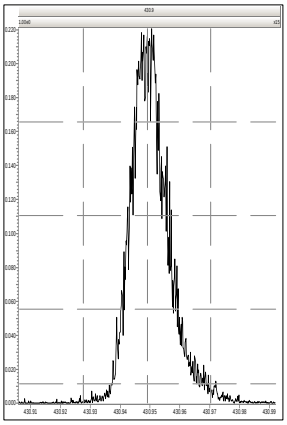


M 480.9696 R 13101

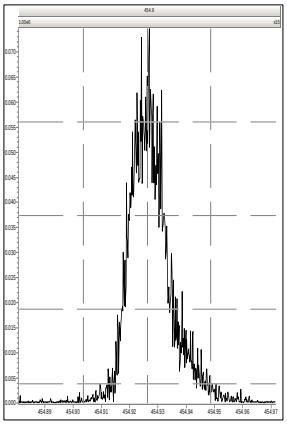


Printed: Thursday, April 20, 2023 17:28:25 Pacific Daylight Time

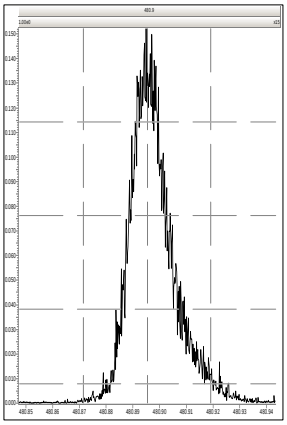
M 430.9728 R 14177



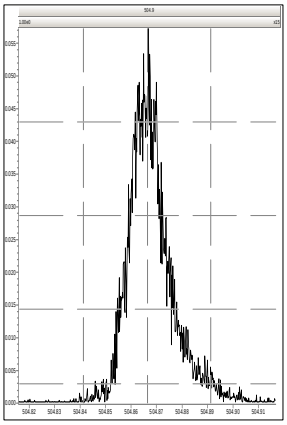
M 454.9728 R 15772



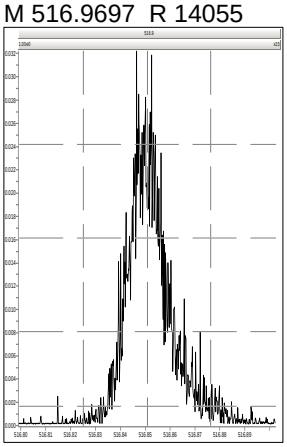
M 480.9696 R 12970

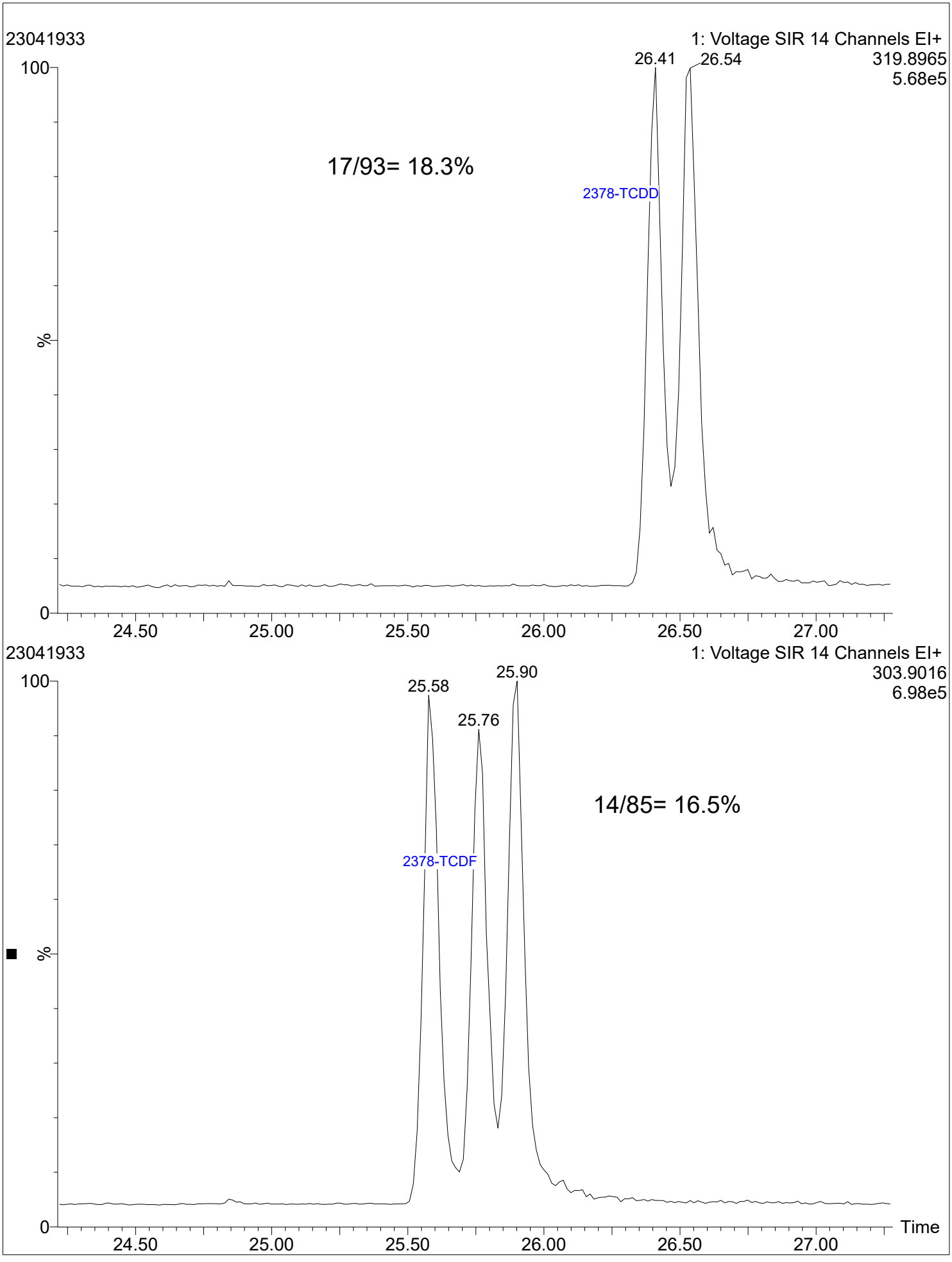


M 504.9696 R 13675



M 516.9697 R 14055




23041933
1: Voltage SIR 14 Channels EI+
319.8965
5.68e5
26.41
26.54
100
%
0
17/93= 18.3%
2378-TCDD
24.50
25.00
25.50
26.00
26.50
27.00
23041933
1: Voltage SIR 14 Channels EI+
303.9016
6.98e5
25.58
25.76
25.90
100
%
0
14/85= 16.5%
2378-TCDF
Time
24.50
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030311	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-CCV1	Injection Time:	17:25
Sequence Name:	CS3V4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	10.1	0.7015272	0.7103909		1.3	+/-16
2,3,7,8-TCDD	A	10.000	9.02	1.1486620	1.0358000		-9.8	+/-22
1,2,3,7,8-PeCDF	A	50.000	47.7	0.6792300	0.6482723		-4.6	+/-18
2,3,4,7,8-PeCDF	A	50.000	48.6	0.7861704	0.7638484		-2.8	+/-18
1,2,3,7,8-PeCDD	A	50.000	50.8	1.0218450	1.0391930		1.7	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.3	1.1660380	1.1031690		-5.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	51.4	1.0907410	1.1209930		2.8	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	52.1	1.1396990	1.1864330		4.1	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	48.9	1.1370930	1.1121660		-2.2	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	50.7	0.9955689	1.0094320		1.4	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	51.1	1.0009380	1.0234880		2.3	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.7	0.9071139	0.9383686		3.4	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	47.7	1.0029930	0.9566603		-4.6	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	53.6	0.9531152	1.0217610		7.2	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	52.7	1.0390130	1.0955650		5.4	+/-14
OCDF	A	100.00	95.0	0.7778078	0.7390842		-5.0	+/-37
OCDD	A	100.00	97.1	0.9199537	0.8937318		-2.9	+/-21
13C12-2,3,7,8-TCDF	A	100.00	89.4	1.6201960	1.4487738		-10.6	+/-29
13C12-2,3,7,8-TCDD	A	100.00	86.0	1.1524090	0.9914363		-14.0	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	92.6	1.2404520	1.1488109		-7.4	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	91.6	1.1177860	1.0240744		-8.4	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	90.8	0.8288129	0.7523463		-9.2	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	95.2	1.1683050	1.1119828		-4.8	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	91.1	1.3864660	1.2630996		-8.9	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	96.9	1.1292560	1.0940819		-3.1	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	101	0.9317541	0.9426254		1.2	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	97.6	0.9950393	0.9710534		-2.4	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	98.4	1.1566890	1.1378328		-1.6	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	102	0.8952017	0.9116661		1.8	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	84.3	0.7697516	0.6486548		-15.7	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	92.0	0.8401226	0.7731635		-8.0	+/-28
13C12-OCDD	A	200.00	170	0.7674714	0.6532994		-14.9	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	7.54	1.2878040	0.9705402		-24.6	

* Values outside of QC limits

* Values outside of QC limits

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

SECOND-SOURCE
CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23030310	Calibration Date:	03/03/2023
Sequence:	SLC0045	Injection Date:	03/03/23
Lab Sample ID:	SLC0045-SCV1	Injection Time:	16:36
Sequence Name:	ICVCW		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.84	0.7015272	0.6901560		-1.6	
2,3,7,8-TCDD	A	10.000	9.81	1.1486620	1.1273700		-1.9	
1,2,3,7,8-PeCDF	A	50.000	51.4	0.6792300	0.6981249		2.8	
2,3,4,7,8-PeCDF	A	50.000	49.0	0.7861704	0.7701368		-2.0	
1,2,3,7,8-PeCDD	A	50.000	48.5	1.0218450	0.9921504		-2.9	
1,2,3,4,7,8-HxCDF	A	50.000	48.2	1.1660380	1.1251100		-3.5	
1,2,3,6,7,8-HxCDF	A	50.000	48.0	1.0907410	1.0469270		-4.0	
2,3,4,6,7,8-HxCDF	A	50.000	50.2	1.1396990	1.1448090		0.4	
1,2,3,7,8,9-HxCDF	A	50.000	49.1	1.1370930	1.1161010		-1.8	
1,2,3,4,7,8-HxCDD	A	50.000	50.8	0.9955689	1.0114830		1.6	
1,2,3,6,7,8-HxCDD	A	50.000	50.2	1.0009380	1.0044310		0.3	
1,2,3,7,8,9-HxCDD	A	50.000	51.6	0.9071139	8347.938		3.2	
1,2,3,4,6,7,8-HpCDF	A	50.000	51.8	1.0029930	1.0398620		3.7	
1,2,3,4,7,8,9-HpCDF	A	50.000	48.5	0.9531152	0.9237809		-3.1	
1,2,3,4,6,7,8-HpCDD	A	50.000	49.2	1.0390130	1.0223590		-1.6	
OCDF	A	100.00	104	0.7778078	0.8050743		3.5	
OCDD	A	100.00	99.4	0.9199537	0.9146365		-0.6	
13C12-2,3,7,8-TCDF	A	100.00	96.9	1.6201960	1.5703703		-3.1	
13C12-2,3,7,8-TCDD	A	100.00	96.6	1.1524090	1.1130294		-3.4	
13C12-1,2,3,7,8-PeCDF	A	100.00	73.2	1.2404520	0.9079224		-26.8	
13C12-2,3,4,7,8-PeCDF	A	100.00	75.9	1.1177860	0.8488817		-24.1	
13C12-1,2,3,7,8-PeCDD	A	100.00	76.6	0.8288129	0.6346243		-23.4	
13C12-1,2,3,4,7,8-HxCDF	A	100.00	93.0	1.1683050	1.0861993		-7.0	
13C12-1,2,3,6,7,8-HxCDF	A	100.00	98.0	1.3864660	1.3581552		-2.0	
13C12-2,3,4,6,7,8-HxCDF	A	100.00	93.4	1.1292560	1.0544008		-6.6	
13C12-1,2,3,7,8,9-HxCDF	A	100.00	97.9	0.9317541	0.9122440		-2.1	
13C12-1,2,3,4,7,8-HxCDD	A	100.00	95.9	0.9950393	0.9546162		-4.1	
13C12-1,2,3,6,7,8-HxCDD	A	100.00	97.7	1.1566890	1.1296183		-2.3	
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	102	0.8952017	0.9144345		2.1	
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	104	0.7697516	0.8001798		4.0	
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	102	0.8401226	0.8609226		2.5	
13C12-OCDD	A	200.00	162	0.7674714	0.6199758		-19.2	
37Cl4-2,3,7,8-TCDD	A	10.000	8.71	1.2878040	1.1221835		-12.9	

* Values outside of QC limits

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23042412	Calibration Date:	03/03/2023
Sequence:	SLD0330	Injection Date:	04/24/23
Lab Sample ID:	SLD0330-CCV1	Injection Time:	23:24
Sequence Name:	CS3H2		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	9.90	0.7015272	0.6944122		-1.0	+/-16
2,3,7,8-TCDD	A	10.000	9.66	1.1486620	1.1101490		-3.4	+/-22
1,2,3,7,8-PeCDF	A	50.000	56.3	0.6792300	0.7652336		12.7	+/-18
2,3,4,7,8-PeCDF	A	50.000	55.8	0.7861704	0.8781388		11.7	+/-18
1,2,3,7,8-PeCDD	A	50.000	57.4	1.0218450	1.1726760		14.8	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	46.9	1.1660380	1.0935520		-6.2	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	52.3	1.0907410	1.1415920		4.7	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	50.0	1.1396990	1.1392720		-0.04	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	49.5	1.1370930	1.1248120		-1.1	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	47.0	0.9955689	0.9355558		-6.0	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	49.5	1.0009380	0.9911102		-1.0	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	49.7	0.9071139	0.9020172		-0.6	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	46.7	1.0029930	0.9368372		-6.6	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	48.6	0.9531152	0.9263722		-2.8	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	54.0	1.0390130	1.1219930		8.0	+/-14
OCDF	A	100.00	87.3	0.7778078	0.6788068		-12.7	+/-37
OCDD	A	100.00	95.5	0.9199537	0.8786901		-4.5	+/-21
13C12-2,3,7,8-TCDF	A	100.00	88.5	1.6201960	1.4340779		-11.5	+/-29
13C12-2,3,7,8-TCDD	A	100.00	95.3	1.1524090	1.0981698		-4.7	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	101	1.2404520	1.2483417		0.6	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	99.1	1.1177860	1.1081110		-0.9	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	77.9	0.8288129	0.6459942		-22.1	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	95.7	1.1683050	1.1184467		-4.3	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	88.8	1.3864660	1.2306426		-11.2	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	96.2	1.1292560	1.0862550		-3.8	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	89.8	0.9317541	0.8363495		-10.2	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	98.5	0.9950393	0.9802430		-1.5	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	90.4	1.1566890	1.0460008		-9.6	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	117	0.8952017	1.0438366		16.6	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	98.2	0.7697516	0.7559233		-1.8	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	92.2	0.8401226	0.7745414		-7.8	+/-28
13C12-OCDD	A	200.00	208	0.7674714	0.8000736		4.2	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	8.12	1.2878040	1.0462190		-18.8	

* Values outside of QC limits

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:20:46 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3H2, Name: 23042412, Date: 24-Apr-2023, Time: 23:24:30, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.704	1.001	3.678e4	4.731e4	0.702	0.777	0.770	1440	1836	5.20e5	7.00e5	361.4	381.1	NO	bb	bb	9.899
12378-PeCDF	29.855	1.001	2.454e5	1.580e5	0.679	1.554	1.550	3525	2680	3.63e6	2.26e6	1029.9	845.0	NO	bb	bb	56.331
23478-PeCDF	31.192	1.001	2.490e5	1.619e5	0.786	1.538	1.550	3525	2680	3.77e6	2.46e6	1070.2	917.5	NO	bb	bb	55.849
123478-HxCDF	34.813	1.001	2.320e5	1.889e5	1.166	1.228	1.240	2316	2449	3.52e6	2.86e6	1520.9	1167.0	NO	bd	bd	46.892
234678-HxCDF	35.816	1.000	2.453e5	1.806e5	1.140	1.358	1.240	2316	2449	3.44e6	2.76e6	1483.4	1126.2	NO	bb	bb	49.981
123678-HxCDF	34.947	1.000	2.603e5	2.231e5	1.091	1.167	1.240	2316	2449	3.51e6	2.94e6	1514.7	1201.4	NO	db	dd	52.331
123789-HxCDF	36.852	1.001	1.767e5	1.470e5	1.137	1.202	1.240	2316	2449	2.45e6	1.97e6	1058.6	806.2	NO	bb	bd	49.460
1234678-HpCDF	38.679	1.000	1.708e5	1.657e5	1.003	1.031	1.050	2163	2322	2.72e6	2.63e6	1256.7	1132.0	NO	bb	bb	46.702
1234789-HpCDF	40.918	1.000	1.234e5	1.176e5	0.953	1.050	1.050	2163	2322	1.67e6	1.60e6	771.8	687.0	NO	bb	bb	48.597
OCDF	45.125	1.006	1.781e5	1.957e5	0.778	0.910	0.890	1519	1933	2.10e6	2.24e6	1384.7	1160.2	NO	bb	bb	87.272
2378-TCDD	26.339	1.000	4.559e4	5.736e4	1.149	0.795	0.770	1292	867	6.27e5	8.29e5	485.5	956.1	NO	dd	bd	9.665
12378-PeCDD	31.448	1.001	1.924e5	1.274e5	1.022	1.510	1.550	2370	2511	2.79e6	1.84e6	1175.9	734.7	NO	bb	bb	57.380
123478-HxCDD	35.927	1.000	1.754e5	1.401e5	0.996	1.252	1.240	2005	2287	2.65e6	2.12e6	1322.4	926.1	NO	bd	bd	46.986
123678-HxCDD	36.050	1.000	1.957e5	1.611e5	1.001	1.215	1.240	2005	2287	2.96e6	2.38e6	1478.3	1038.5	NO	db	db	49.509
123789-HxCDD	36.429	1.011	1.757e5	1.388e5	0.907	1.266	1.240	2005	2287	2.56e6	2.00e6	1274.7	876.6	NO	bb	bb	49.719
1234678-HpCDD	40.183	1.001	1.573e5	1.417e5	1.039	1.110	1.050	2643	2502	2.00e6	1.94e6	756.6	774.5	NO	bd	bb	53.993
OCDD	44.878	1.000	2.227e5	2.611e5	0.920	0.853	0.890	2770	2117	2.51e6	2.90e6	908.1	1371.8	NO	bb	bb	95.515
13C-2378-TCDF	25.690	1.007	5.192e5	6.918e5	1.620	0.751	0.770	1213	1425	7.10e6	9.32e6	5851.9	6542.2	NO	bb	bb	88.513
13C-12378-PeCDF	29.833	1.170	6.392e5	4.150e5	1.240	1.540	1.550	3491	2952	8.87e6	5.76e6	2540.2	1952.4	NO	bd	bd	100.636
13C-23478-PeCDF	31.170	1.222	5.631e5	3.726e5	1.118	1.511	1.550	3491	2952	8.12e6	5.43e6	2326.3	1838.4	NO	bb	bb	99.135
13C-123478-HxCDF	34.791	0.955	2.582e5	5.115e5	1.168	0.505	0.510	2127	2447	3.82e6	7.50e6	1796.8	3066.5	NO	bd	bd	95.732
13C-123678-HxCDF	34.936	0.959	2.870e5	5.600e5	1.386	0.512	0.510	2127	2447	4.14e6	8.07e6	1948.4	3299.1	NO	db	db	88.761
13C-234678-HxCDF	35.805	0.983	2.543e5	4.933e5	1.129	0.516	0.510	2127	2447	3.70e6	7.15e6	1738.0	2922.2	NO	bb	bb	96.192
13C-123789-HxCDF	36.830	1.011	1.954e5	3.802e5	0.932	0.514	0.510	2127	2447	2.70e6	5.21e6	1269.2	2130.1	NO	bb	bb	89.761
13C-1234678-HpCDF	38.668	1.062	2.222e5	4.962e5	0.895	0.448	0.440	2260	4531	3.37e6	7.59e6	1489.3	1675.0	NO	bb	bb	116.603
13C-1234789-HpCDF	40.907	1.123	1.583e5	3.620e5	0.770	0.437	0.440	2260	4531	1.98e6	4.49e6	874.1	991.1	NO	bd	bd	98.204
13C-1234-TCDD	25.506	0.000	3.766e5	4.679e5	1.000	0.805	0.770	2079	1360	5.54e6	7.02e6	2662.2	5158.3	NO	bb	bb	100.000
13C-2378-TCDD	26.325	1.032	4.067e5	5.206e5	1.152	0.781	0.770	2079	1360	5.72e6	7.29e6	2750.3	5357.6	NO	bb	bb	95.293
13C-12378-PeCDD	31.426	1.232	3.390e5	2.065e5	0.829	1.641	1.550	962	1072	4.67e6	2.81e6	4851.1	2621.8	NO	bb	bb	77.942
13C-123478-HxCDD	35.916	0.986	3.819e5	2.927e5	0.995	1.305	1.240	1834	2085	5.84e6	4.66e6	3183.8	2236.6	NO	bd	bd	98.513
13C-123678-HxCDD	36.039	0.990	3.995e5	3.204e5	1.157	1.247	1.240	1834	2085	5.78e6	4.67e6	3150.0	2241.3	NO	db	db	90.431
13C-1234678-HpCDD	40.161	1.103	2.771e5	2.560e5	0.840	1.082	1.050	2022	1617	3.64e6	3.40e6	1801.8	2103.7	NO	bb	bb	92.194
13C-OCDD	44.869	1.232	5.250e5	5.762e5	0.767	0.911	0.890	2028	1780	5.48e6	6.10e6	2702.4	3427.4	NO	bd	bd	208.496
13C-123789-HxCDD	36.417	0.000	3.813e5	3.069e5	1.000	1.242	1.240	1834	2085	5.53e6	4.50e6	3013.8	2159.7	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.033	8.835e4		1.288			2377		1.29e6		543.0			bb		8.124

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:20:46 Pacific Daylight Time

ID: CS3H2, Name: 23042412, Date: 24-Apr-2023, Time: 23:24:30, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.201	0.864	4.790e4	6.389e4	0.802	0.750	0.770	1440	1836	7.13e5	9.66e5	495.3	526.0	NO	bb	bb	11.517
1289-TCDF	27.201	1.059	3.337e4	4.363e4	0.678	0.765	0.770	1440	1836	4.79e5	6.06e5	332.9	330.2	NO	bb	db	9.379
13468-PECDF	27.045	0.907	3.976e5	2.639e5	1.246	1.506	1.550	637	1093	5.89e6	3.93e6	9257.2	3598.4	NO	bb	bb	50.342
12389-PECDF	32.228	1.080	2.091e5	1.391e5	0.496	1.503	1.550	3525	2680	3.04e6	1.99e6	861.8	742.0	NO	bb	bb	66.540
123468-HXCDF	33.142	0.953	2.542e5	2.011e5	1.169	1.264	1.240	2316	2449	3.58e6	2.90e6	1545.5	1184.2	NO	bb	bb	50.598
1368-TCDD	23.472	0.892	4.390e4	5.724e4	1.015	0.767	0.770	1292	867	6.60e5	8.76e5	511.2	1010.3	NO	bb	bd	10.740
1289-TCDD	26.933	1.023	3.732e4	4.813e4	0.909	0.775	0.770	1292	867	5.14e5	6.47e5	397.9	745.5	NO	bb	bd	10.140
12479-PECDD	28.719	0.914	3.406e5	2.207e5	2.301	1.543	1.550	2370	2511	3.29e6	2.13e6	1389.9	848.4	NO	bb	bb	44.703
12389-PECDD	31.838	1.013	2.192e5	1.406e5	1.184	1.559	1.550	2370	2511	3.19e6	2.08e6	1347.9	828.5	NO	bb	bb	55.717
124679-HXCDD	33.922	0.945	2.153e5	1.672e5	1.115	1.287	1.240	2005	2287	3.01e6	2.40e6	1503.8	1047.6	NO	bd	bb	50.838
1234679-HPCDD	39.136	0.975	1.664e5	1.630e5	1.137	1.021	1.050	2643	2502	2.61e6	2.50e6	986.1	1000.2	NO	bb	bb	54.361
Total-tetrafurans			1.184e5		0.727			1440		1.72e6							30.876
Total-penta1			3.976e5					637		5.89e6							50.342
Total-pentafurans			7.454e5		0.654			3525		1.11e7							189.374
Total-hexafurans			1.168e6		1.141			2316		1.65e7							249.262
Total-heptafurans			2.945e5		0.978			2163		4.40e6							95.381
Total-Furans			2.902e6		0.922			1440		4.17e7							702.506
Total-tetradioxins			2.170e5		1.024			1292		2.81e6							51.811
Total-pentadioxins			7.521e5		1.502			2370		9.27e6							157.801
Total-hexadioxins			7.622e5		1.005			2005		1.12e7							197.052
Total-heptadioxins			3.237e5		1.088			2643		4.61e6							108.355
Total-Dioxins			2.278e6		1.130			1292		3.04e7							610.532
Total-TEQ			5.180e6					1292		7.21e7							1313.038
FUNCTION1 PFK			6.636e5					387587		1.62e7							
FUNCTION2 PFK			1.514e5					227864		5.24e6							0.000
FUNCTION3 PFK			4.502e6					272014		9.44e6							0.000
FUNCTION4 PFK			0.000e0					216462		0.00e0							
FUNCTION5 PFK			6.120e4					162318		2.36e6							
FUNCTION1 HXCD...			4.242e2					770		6.02e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			9.470e2					1334		2.38e4							0.000
FUNCTION3 OCDPE			0.000e0					547		0.00e0							
FUNCTION4 NCDPE			2.240e2					626		3.64e3							0.000
FUNCTION5 DCDPE			8.616e1					598		1.48e3							0.000

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3H2, Name: 23042412, Date: 24-Apr-2023, Time: 23:24:30, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	3.337e4	4.363e4	0.678	0.76	0.77	332.9	YES	NO	bb	db	9.379
2	2378-TCDF	25.70	3.678e4	4.731e4	0.702	0.78	0.77	361.4	YES	NO	bb	bb	9.899
3	Total-tetrafurans	24.47	3.025e2	4.142e2	0.727	0.73	0.77	2.7	NO	NO	bb	bb	0.081
4	1368-TCDF	22.20	4.790e4	6.389e4	0.802	0.75	0.77	495.3	YES	NO	bb	bb	11.517

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.05	3.976e5	2.639e5	1.246	1.51	1.55	9257.2	YES	NO	bb	bb	50.342

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	23478-PeCDF	31.19	2.490e5	1.619e5	0.786	1.54	1.55	1070.2	YES	NO	bb	bb	55.849
2	12378-PeCDF	29.86	2.454e5	1.580e5	0.679	1.55	1.55	1029.9	YES	NO	bb	bb	56.331
3	Total-pentafurans	28.71	4.195e4	2.737e4	0.654	1.53	1.55	177.1	YES	NO	bb	bb	10.654
4	12389-PECDF	32.23	2.091e5	1.391e5	0.496	1.50	1.55	861.8	YES	NO	bb	bb	66.540

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.85	1.767e5	1.470e5	1.137	1.20	1.24	1058.6	YES	NO	bb	bd	49.460
2	234678-HxCDF	35.82	2.453e5	1.806e5	1.140	1.36	1.24	1483.4	YES	NO	bb	bb	49.981
3	123678-HxCDF	34.95	2.603e5	2.231e5	1.091	1.17	1.24	1514.7	YES	NO	db	dd	52.331
4	123478-HxCDF	34.81	2.320e5	1.889e5	1.166	1.23	1.24	1520.9	YES	NO	bd	bd	46.892
5	123468-HXCDF	33.14	2.542e5	2.011e5	1.169	1.26	1.24	1545.5	YES	NO	bb	bb	50.598

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptafurans	41.20	2.571e2	2.382e2	0.978	1.08	1.05	4.8	NO	NO	bb	bb	0.082
2	1234789-HpCDF	40.92	1.234e5	1.176e5	0.953	1.05	1.05	771.8	YES	NO	bb	bb	48.597
3	1234678-HpCDF	38.68	1.708e5	1.657e5	1.003	1.03	1.05	1256.7	YES	NO	bb	bb	46.702

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	3.337e4	4.363e4	0.678	0.76	0.77	332.9	YES	NO	bb	db	9.379
2	2378-TCDF	25.70	3.678e4	4.731e4	0.702	0.78	0.77	361.4	YES	NO	bb	bb	9.899
3	Total-tetrafurans	24.47	3.025e2	4.142e2	0.727	0.73	0.77	2.7	NO	NO	bb	bb	0.081
4	1368-TCDF	22.20	4.790e4	6.389e4	0.802	0.75	0.77	495.3	YES	NO	bb	bb	11.517
5	23478-PeCDF	31.19	2.490e5	1.619e5	0.786	1.54	1.55	1070.2	YES	NO	bb	bb	55.849
6	12378-PeCDF	29.86	2.454e5	1.580e5	0.679	1.55	1.55	1029.9	YES	NO	bb	bb	56.331
7	Total-pentafurans	28.71	4.195e4	2.737e4	0.654	1.53	1.55	177.1	YES	NO	bb	bb	10.654
8	12389-PECDF	32.23	2.091e5	1.391e5	0.496	1.50	1.55	861.8	YES	NO	bb	bb	66.540
9	123789-HxCDF	36.85	1.767e5	1.470e5	1.137	1.20	1.24	1058.6	YES	NO	bb	bd	49.460
10	234678-HxCDF	35.82	2.453e5	1.806e5	1.140	1.36	1.24	1483.4	YES	NO	bb	bb	49.981
11	123678-HxCDF	34.95	2.603e5	2.231e5	1.091	1.17	1.24	1514.7	YES	NO	db	dd	52.331
12	123478-HxCDF	34.81	2.320e5	1.889e5	1.166	1.23	1.24	1520.9	YES	NO	bd	bd	46.892
13	123468-HXCDF	33.14	2.542e5	2.011e5	1.169	1.26	1.24	1545.5	YES	NO	bb	bb	50.598
14	Total-heptafurans	41.20	2.571e2	2.382e2	0.978	1.08	1.05	4.8	NO	NO	bb	bb	0.082
15	1234789-HpCDF	40.92	1.234e5	1.176e5	0.953	1.05	1.05	771.8	YES	NO	bb	bb	48.597
16	1234678-HpCDF	38.68	1.708e5	1.657e5	1.003	1.03	1.05	1256.7	YES	NO	bb	bb	46.702
17	OCDF	45.13	1.781e5	1.957e5	0.778	0.91	0.89	1384.7	YES	NO	bb	bb	87.272
18	13468-PECDF	27.05	3.976e5	2.639e5	1.246	1.51	1.55	9257.2	YES	NO	bb	bb	50.342

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.53	2.156e4	2.753e4	1.024	0.78	0.77	238.1	YES	NO	bd	bd	5.168
2	Total-tetradioxins	24.67	2.176e3	2.700e3	1.024	0.81	0.77	15.3	YES	NO	bd	bb	0.513
3	1368-TCDD	23.47	4.390e4	5.724e4	1.015	0.77	0.77	511.2	YES	NO	bb	bd	10.740
4	1289-TCDD	26.93	3.732e4	4.813e4	0.909	0.78	0.77	397.9	YES	NO	bb	bd	10.140
5	2378-TCDD	26.34	4.559e4	5.736e4	1.149	0.79	0.77	485.5	YES	NO	dd	bd	9.665
6	Total-tetradioxins	26.01	6.647e4	8.157e4	1.024	0.81	0.77	526.8	YES	NO	dd	bb	15.585

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.84	2.192e5	1.406e5	1.184	1.56	1.55	1347.9	YES	NO	bb	bb	55.717
2	12378-PeCDD	31.45	1.924e5	1.274e5	1.022	1.51	1.55	1175.9	YES	NO	bb	bb	57.380
3	12479-PECDD	28.72	3.406e5	2.207e5	2.301	1.54	1.55	1389.9	YES	NO	bb	bb	44.703

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.92	2.153e5	1.672e5	1.115	1.29	1.24	1503.8	YES	NO	bd	bb	50.838
2	123789-HxCDD	36.43	1.757e5	1.388e5	0.907	1.27	1.24	1274.7	YES	NO	bb	bb	49.719
3	123678-HxCDD	36.05	1.957e5	1.611e5	1.001	1.22	1.24	1478.3	YES	NO	db	db	49.509
4	123478-HxCDD	35.93	1.754e5	1.401e5	0.996	1.25	1.24	1322.4	YES	NO	bd	bd	46.986

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	1.573e5	1.417e5	1.039	1.11	1.05	756.6	YES	NO	bd	bb	53.993
2	1234679-HPCDD	39.14	1.664e5	1.630e5	1.137	1.02	1.05	986.1	YES	NO	bb	bb	54.361

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-tetradioxins	25.53	2.156e4	2.753e4	1.024	0.78	0.77	238.1	YES	NO	bd	bd	5.168
2	Total-tetradioxins	24.67	2.176e3	2.700e3	1.024	0.81	0.77	15.3	YES	NO	bd	bb	0.513
3	1368-TCDD	23.47	4.390e4	5.724e4	1.015	0.77	0.77	511.2	YES	NO	bb	bd	10.740
4	1289-TCDD	26.93	3.732e4	4.813e4	0.909	0.78	0.77	397.9	YES	NO	bb	bd	10.140
5	2378-TCDD	26.34	4.559e4	5.736e4	1.149	0.79	0.77	485.5	YES	NO	dd	bd	9.665
6	Total-tetradioxins	26.01	6.647e4	8.157e4	1.024	0.81	0.77	526.8	YES	NO	dd	bb	15.585
7	12389-PECDD	31.84	2.192e5	1.406e5	1.184	1.56	1.55	1347.9	YES	NO	bb	bb	55.717
8	12378-PeCDD	31.45	1.924e5	1.274e5	1.022	1.51	1.55	1175.9	YES	NO	bb	bb	57.380
9	12479-PECDD	28.72	3.406e5	2.207e5	2.301	1.54	1.55	1389.9	YES	NO	bb	bb	44.703
10	124679-HXCDD	33.92	2.153e5	1.672e5	1.115	1.29	1.24	1503.8	YES	NO	bd	bb	50.838
11	123789-HxCDD	36.43	1.757e5	1.388e5	0.907	1.27	1.24	1274.7	YES	NO	bb	bb	49.719
12	123678-HxCDD	36.05	1.957e5	1.611e5	1.001	1.22	1.24	1478.3	YES	NO	db	db	49.509
13	123478-HxCDD	35.93	1.754e5	1.401e5	0.996	1.25	1.24	1322.4	YES	NO	bd	bd	46.986
14	1234678-HpCDD	40.18	1.573e5	1.417e5	1.039	1.11	1.05	756.6	YES	NO	bd	bb	53.993
15	1234679-HPCDD	39.14	1.664e5	1.630e5	1.137	1.02	1.05	986.1	YES	NO	bb	bb	54.361
16	OCDD	44.88	2.227e5	2.611e5	0.920	0.85	0.89	908.1	YES	NO	bb	bb	95.515

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	3.337e4	4.363e4	0.678	0.76	0.77	332.9	YES	NO	bb	db	9.379
2	2378-TCDF	25.70	3.678e4	4.731e4	0.702	0.78	0.77	361.4	YES	NO	bb	bb	9.899
3	Total-tetrafurans	24.47	3.025e2	4.142e2	0.727	0.73	0.77	2.7	NO	NO	bb	bb	0.081
4	1368-TCDF	22.20	4.790e4	6.389e4	0.802	0.75	0.77	495.3	YES	NO	bb	bb	11.517
5	23478-PeCDF	31.19	2.490e5	1.619e5	0.786	1.54	1.55	1070.2	YES	NO	bb	bb	55.849
6	12378-PeCDF	29.86	2.454e5	1.580e5	0.679	1.55	1.55	1029.9	YES	NO	bb	bb	56.331
7	Total-pentafurans	28.71	4.195e4	2.737e4	0.654	1.53	1.55	177.1	YES	NO	bb	bb	10.654
8	12389-PECDF	32.23	2.091e5	1.391e5	0.496	1.50	1.55	861.8	YES	NO	bb	bb	66.540
9	123789-HxCDF	36.85	1.767e5	1.470e5	1.137	1.20	1.24	1058.6	YES	NO	bb	bd	49.460
10	234678-HxCDF	35.82	2.453e5	1.806e5	1.140	1.36	1.24	1483.4	YES	NO	bb	bb	49.981
11	123678-HxCDF	34.95	2.603e5	2.231e5	1.091	1.17	1.24	1514.7	YES	NO	db	dd	52.331
12	123478-HxCDF	34.81	2.320e5	1.889e5	1.166	1.23	1.24	1520.9	YES	NO	bd	bd	46.892
13	123468-HXCDF	33.14	2.542e5	2.011e5	1.169	1.26	1.24	1545.5	YES	NO	bb	bb	50.598
14	Total-heptafurans	41.20	2.571e2	2.382e2	0.978	1.08	1.05	4.8	NO	NO	bb	bb	0.082
15	1234789-HpCDF	40.92	1.234e5	1.176e5	0.953	1.05	1.05	771.8	YES	NO	bb	bb	48.597
16	1234678-HpCDF	38.68	1.708e5	1.657e5	1.003	1.03	1.05	1256.7	YES	NO	bb	bb	46.702
17	OCDF	45.13	1.781e5	1.957e5	0.778	0.91	0.89	1384.7	YES	NO	bb	bb	87.272
18	13468-PECDF	27.05	3.976e5	2.639e5	1.246	1.51	1.55	9257.2	YES	NO	bb	bb	50.342
19	Total-tetradioxins	25.53	2.156e4	2.753e4	1.024	0.78	0.77	238.1	YES	NO	bd	bd	5.168
20	Total-tetradioxins	24.67	2.176e3	2.700e3	1.024	0.81	0.77	15.3	YES	NO	bd	bb	0.513
21	1368-TCDD	23.47	4.390e4	5.724e4	1.015	0.77	0.77	511.2	YES	NO	bb	bd	10.740
22	1289-TCDD	26.93	3.732e4	4.813e4	0.909	0.78	0.77	397.9	YES	NO	bb	bd	10.140
23	2378-TCDD	26.34	4.559e4	5.736e4	1.149	0.79	0.77	485.5	YES	NO	dd	bd	9.665
24	Total-tetradioxins	26.01	6.647e4	8.157e4	1.024	0.81	0.77	526.8	YES	NO	dd	bb	15.585
25	12389-PECDD	31.84	2.192e5	1.406e5	1.184	1.56	1.55	1347.9	YES	NO	bb	bb	55.717
26	12378-PeCDD	31.45	1.924e5	1.274e5	1.022	1.51	1.55	1175.9	YES	NO	bb	bb	57.380
27	12479-PECDD	28.72	3.406e5	2.207e5	2.301	1.54	1.55	1389.9	YES	NO	bb	bb	44.703
28	124679-HXCDD	33.92	2.153e5	1.672e5	1.115	1.29	1.24	1503.8	YES	NO	bd	bb	50.838
29	123789-HxCDD	36.43	1.757e5	1.388e5	0.907	1.27	1.24	1274.7	YES	NO	bb	bb	49.719
30	123678-HxCDD	36.05	1.957e5	1.611e5	1.001	1.22	1.24	1478.3	YES	NO	db	db	49.509
31	123478-HxCDD	35.93	1.754e5	1.401e5	0.996	1.25	1.24	1322.4	YES	NO	bd	bd	46.986
32	1234678-HpCDD	40.18	1.573e5	1.417e5	1.039	1.11	1.05	756.6	YES	NO	bd	bb	53.993
33	1234679-HPCDD	39.14	1.664e5	1.630e5	1.137	1.02	1.05	986.1	YES	NO	bb	bb	54.361
34	OCDD	44.88	2.227e5	2.611e5	0.920	0.85	0.89	908.1	YES	NO	bb	bb	95.515

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	22.65	3.183e4					1.3	NO		bb		
2	FUNCTION1 PFK	22.53	2.529e4					1.2	NO		bb		
3	FUNCTION1 PFK	22.43	1.256e4					1.1	NO		bb		
4	FUNCTION1 PFK	22.07	2.699e4					1.4	NO		bb		
5	FUNCTION1 PFK	21.89	4.939e4					1.4	NO		db		
6	FUNCTION1 PFK	21.85	1.044e4					0.8	NO		bd		
7	FUNCTION1 PFK	21.68	4.560e3					0.6	NO		bb		
8	FUNCTION1 PFK	21.62	2.578e3					0.4	NO		db		
9	FUNCTION1 PFK	21.58	3.454e3					0.5	NO		bd		
10	FUNCTION1 PFK	21.31	3.385e4					1.7	NO		bb		
11	FUNCTION1 PFK	21.21	6.306e3					1.2	NO		bb		
12	FUNCTION1 PFK	21.16	2.232e4					1.9	NO		bb		
13	FUNCTION1 PFK	25.42	1.900e4					1.2	NO		dd		
14	FUNCTION1 PFK	25.35	1.455e4					1.3	NO		dd		
15	FUNCTION1 PFK	25.27	1.578e4					1.0	NO		bd		
16	FUNCTION1 PFK	24.98	1.538e4					1.2	NO		db		
17	FUNCTION1 PFK	24.90	3.355e4					1.3	NO		dd		
18	FUNCTION1 PFK	24.76	2.780e4					1.0	NO		bd		
19	FUNCTION1 PFK	24.56	6.805e3					0.7	NO		bb		
20	FUNCTION1 PFK	24.50	1.898e3					0.3	NO		bb		
21	FUNCTION1 PFK	24.31	1.206e4					0.9	NO		db		
22	FUNCTION1 PFK	24.25	2.636e4					1.6	NO		dd		
23	FUNCTION1 PFK	24.16	1.391e4					0.9	NO		bd		
24	FUNCTION1 PFK	23.80	1.506e4					1.1	NO		db		
25	FUNCTION1 PFK	23.73	1.947e4					1.1	NO		bd		
26	FUNCTION1 PFK	23.47	1.166e4					0.8	NO		bb		
27	FUNCTION1 PFK	23.36	1.248e4					0.9	NO		bb		
28	FUNCTION1 PFK	22.91	1.129e4					0.9	NO		bb		
29	FUNCTION1 PFK	27.92	2.354e4					0.9	NO		bb		
30	FUNCTION1 PFK	27.41	2.068e4					1.8	NO		db		
31	FUNCTION1 PFK	27.37	1.960e4					1.4	NO		bd		
32	FUNCTION1 PFK	27.27	7.930e3					0.7	NO		bb		
33	FUNCTION1 PFK	27.00	1.367e4					1.0	NO		bb		
34	FUNCTION1 PFK	26.89	5.019e3					0.6	NO		bb		
35	FUNCTION1 PFK	26.68	4.925e3					0.5	NO		bb		
36	FUNCTION1 PFK	26.42	2.049e4					0.8	NO		bb		
37	FUNCTION1 PFK	26.30	1.658e4					0.6	NO		bb		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	26.24	1.017e4					1.0	NO		bb		
39	FUNCTION1 PFK	25.89	1.099e4					1.1	NO		bb		
40	FUNCTION1 PFK	25.56	8.447e3					0.8	NO		bb		
41	FUNCTION1 PFK	25.48	1.490e4					1.0	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.26	1.221e4					1.4	NO		bb		0.000
2	FUNCTION2 PFK	28.07	1.329e3					0.5	NO		bb		0.000
3	FUNCTION2 PFK	31.99	6.583e3					1.0	NO		bb		0.000
4	FUNCTION2 PFK	31.84	5.849e3					0.8	NO		bb		0.000
5	FUNCTION2 PFK	31.74	3.066e3					0.6	NO		bb		0.000
6	FUNCTION2 PFK	31.62	1.964e3					0.8	NO		bb		0.000
7	FUNCTION2 PFK	31.53	3.164e3					0.8	NO		bb		0.000
8	FUNCTION2 PFK	31.40	1.082e4					0.9	NO		bb		0.000
9	FUNCTION2 PFK	30.98	3.405e3					0.7	NO		bb		0.000
10	FUNCTION2 PFK	30.87	1.150e3					0.5	NO		bb		0.000
11	FUNCTION2 PFK	30.61	1.615e3					0.6	NO		bb		0.000
12	FUNCTION2 PFK	30.29	3.557e3					0.9	NO		bb		0.000
13	FUNCTION2 PFK	29.80	1.469e4					2.1	NO		bb		0.000
14	FUNCTION2 PFK	29.54	1.431e4					1.0	NO		bb		0.000
15	FUNCTION2 PFK	29.37	9.278e3					1.2	NO		bb		0.000
16	FUNCTION2 PFK	29.20	6.507e3					1.2	NO		bb		0.000
17	FUNCTION2 PFK	28.98	4.838e3					1.1	NO		bb		0.000
18	FUNCTION2 PFK	28.52	7.941e3					1.3	NO		bb		0.000
19	FUNCTION2 PFK	32.60	1.864e3					0.5	NO		bb		0.000
20	FUNCTION2 PFK	32.41	8.213e3					1.2	NO		db		0.000
21	FUNCTION2 PFK	32.36	2.329e4					2.4	NO		bd		0.000
22	FUNCTION2 PFK	32.30	4.193e3					0.9	NO		bb		0.000
23	FUNCTION2 PFK	32.25	1.573e3					0.6	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.22	2.092e6					10.9	YES		bb		0.000
2	FUNCTION3 PFK	36.57	2.410e6					23.8	YES		bb		0.000

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PFK4

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

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.44	4.109e3					1.1	NO		bd		
2	FUNCTION5 PFK	43.49	9.665e3					1.1	NO		db		
3	FUNCTION5 PFK	43.42	6.455e3					1.4	NO		bd		
4	FUNCTION5 PFK	43.37	2.249e3					0.7	NO		bb		
5	FUNCTION5 PFK	43.17	6.893e2					0.5	NO		bb		
6	FUNCTION5 PFK	43.10	5.581e3					1.7	NO		bb		
7	FUNCTION5 PFK	45.82	6.716e3					1.7	NO		bb		
8	FUNCTION5 PFK	45.78	5.843e3					1.4	NO		bb		
9	FUNCTION5 PFK	45.34	2.140e3					0.7	NO		bb		
10	FUNCTION5 PFK	45.22	1.137e4					2.1	NO		bb		
11	FUNCTION5 PFK	44.94	4.435e3					1.4	NO		bb		
12	FUNCTION5 PFK	44.48	1.948e3					0.7	NO		db		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.05	9.774e1					2.3	NO		bb		0.000
2	FUNCTION1 HXCD...	26.35	9.621e1					2.0	NO		bb		0.000
3	FUNCTION1 HXCD...	23.29	1.580e2					1.9	NO		bb		0.000
4	FUNCTION1 HXCD...	21.90	7.225e1					1.6	NO		bb		0.000

ETHERS2

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

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ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.06	2.475e2					4.5	YES		bb		0.000
2	FUNCTION2 HPCD...	30.81	1.103e2					3.1	YES		bb		0.000
3	FUNCTION2 HPCD...	28.71	7.488e1					1.7	NO		bb		0.000
4	FUNCTION2 HPCD...	28.07	7.794e1					1.8	NO		bb		0.000
5	FUNCTION2 HPCD...	32.13	7.489e1					1.2	NO		bb		0.000
6	FUNCTION2 HPCD...	31.57	9.130e1					1.9	NO		bb		0.000
7	FUNCTION2 HPCD...	31.44	1.308e2					1.9	NO		bb		0.000
8	FUNCTION2 HPCD...	31.31	1.394e2					1.8	NO		bb		0.000

ETHERS4

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

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.24	1.488e2					3.8	YES		bb		0.000
2	FUNCTION4 NCDPE	41.28	7.527e1					2.0	NO		bb		0.000

ETHERS6

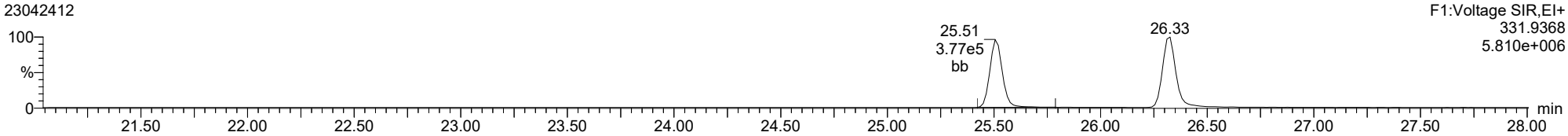
	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	45.55	8.616e1					2.5	NO		bb		0.000

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Printed: Tuesday, April 25, 2023 11:20:46 Pacific Daylight Time

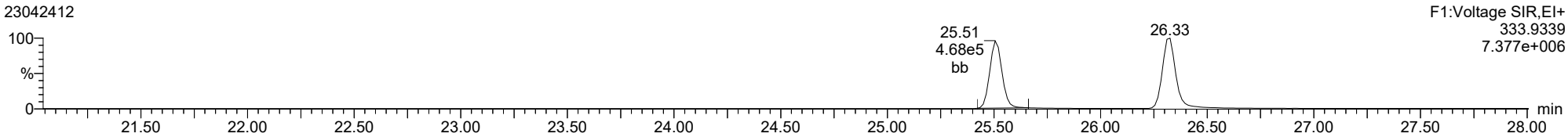
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ID: CS3H2, Name: 23042412, Date: 24-Apr-2023, Time: 23:24:30, Conditions: AUTOSPEC01, User: pk

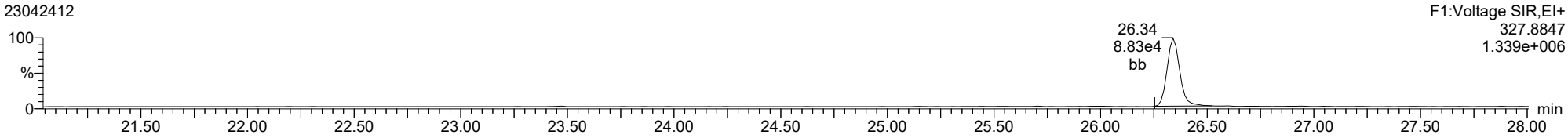
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13C-1234-TCDD

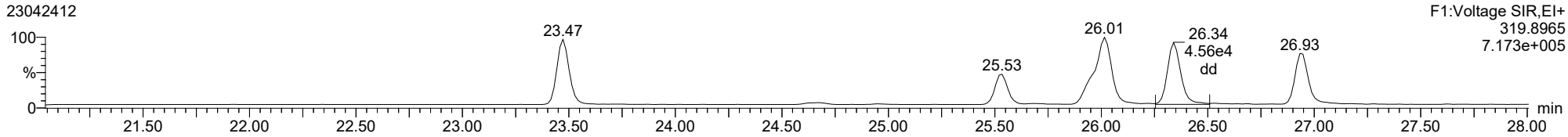


37CL-2378-TCDD

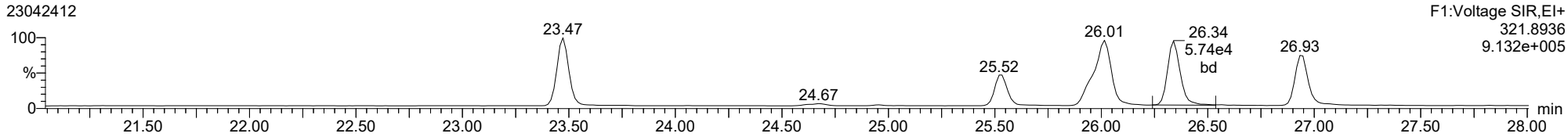


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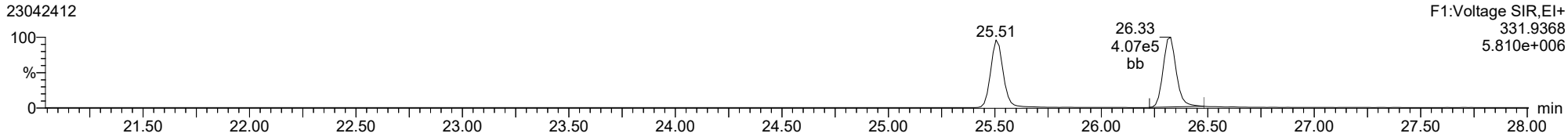
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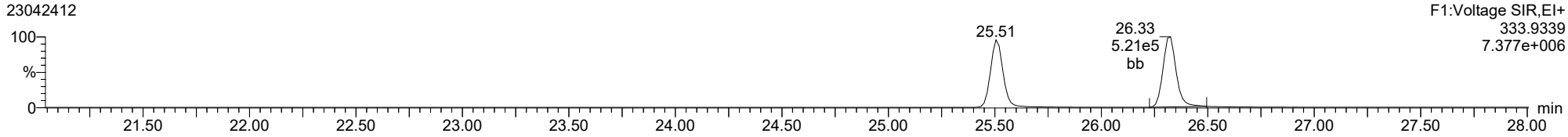
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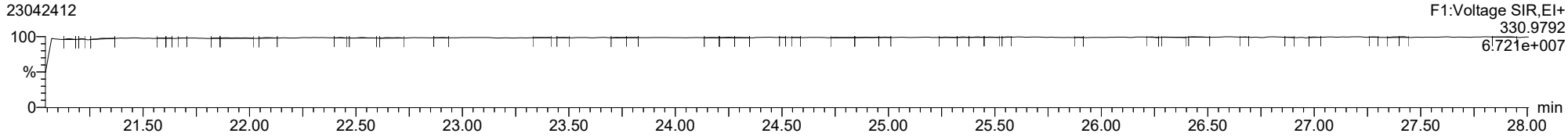
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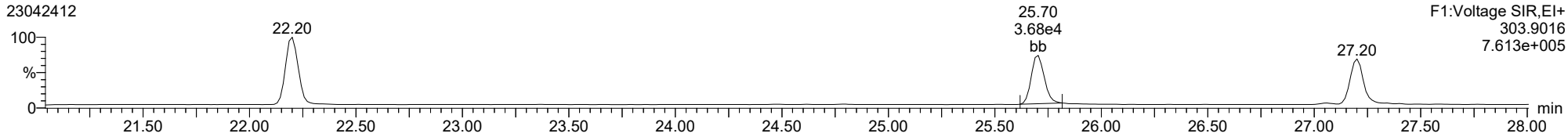


FUNCTION1 PFK

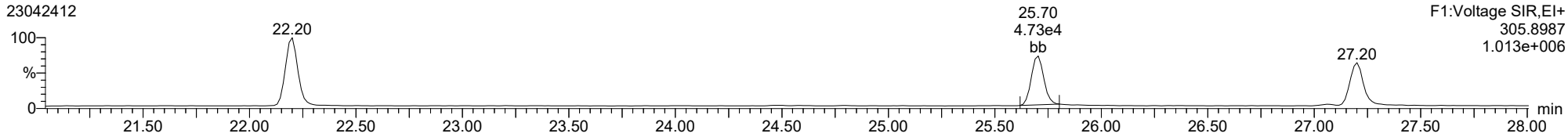


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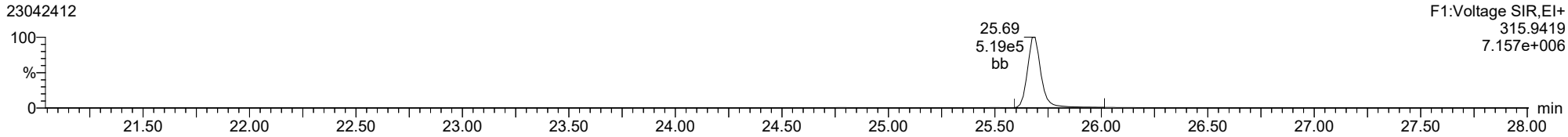
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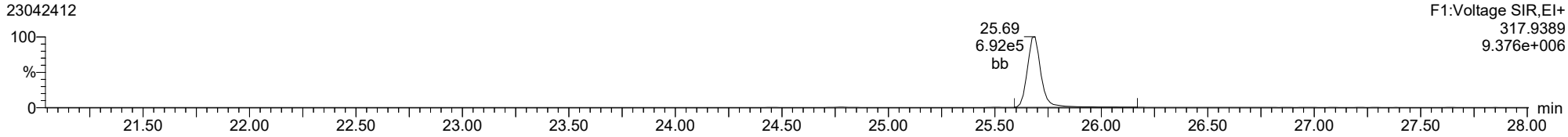
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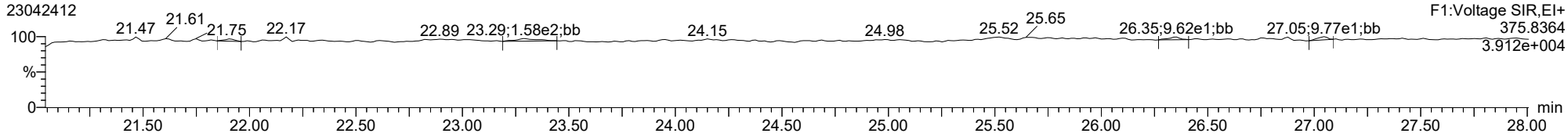
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13C-2378-TCDF

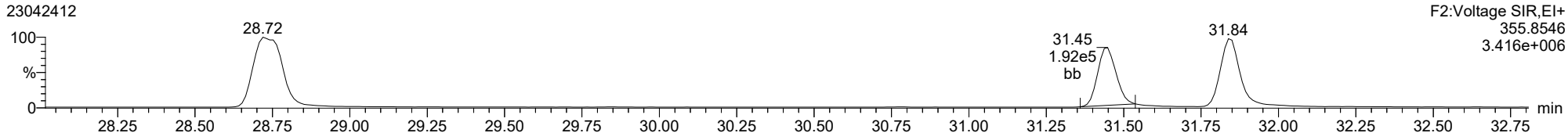


FUNCTION1 HXCDPE

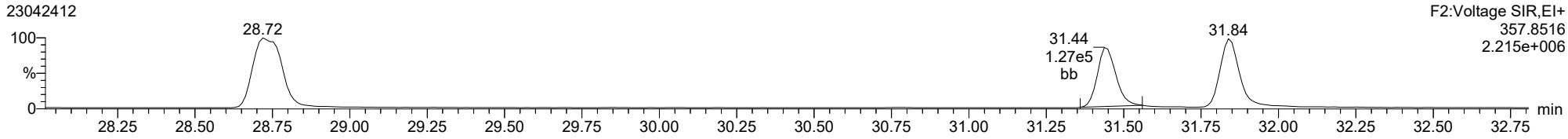


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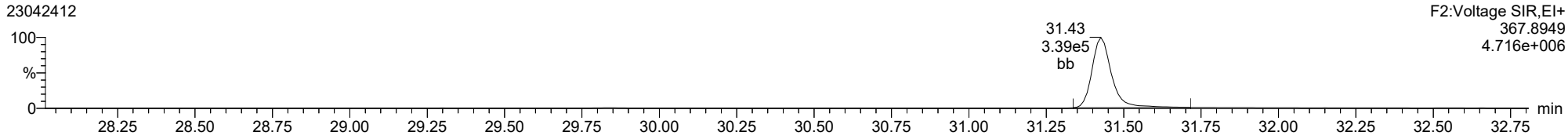
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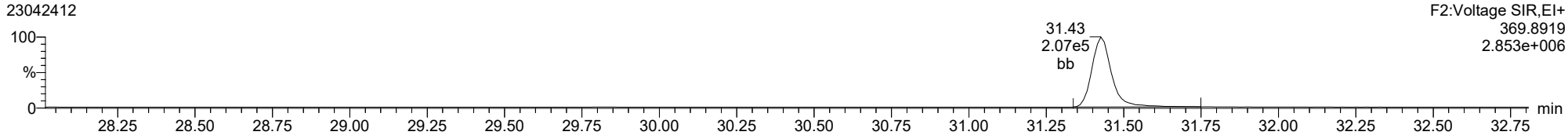
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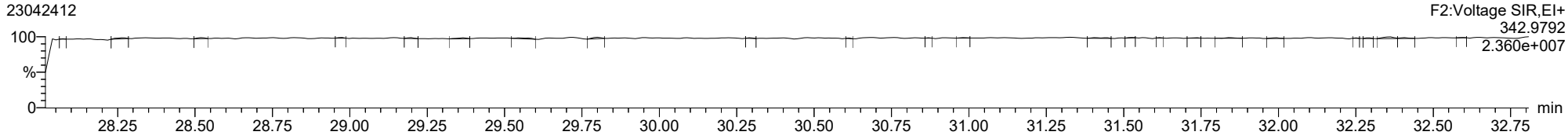
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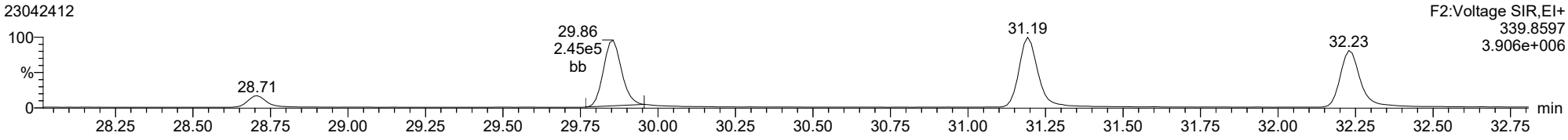


FUNCTION2 PFK

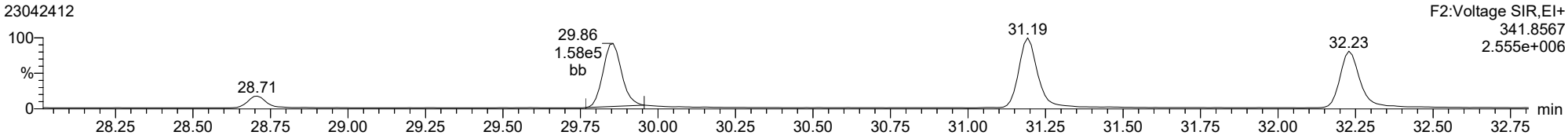


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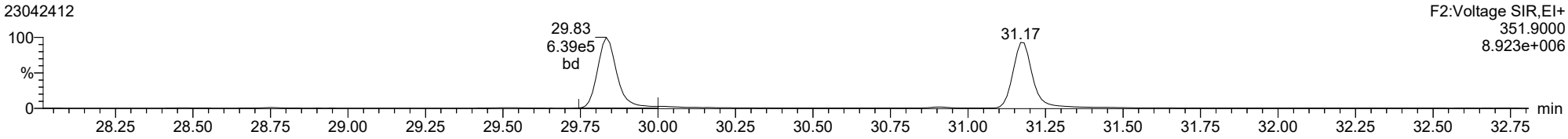
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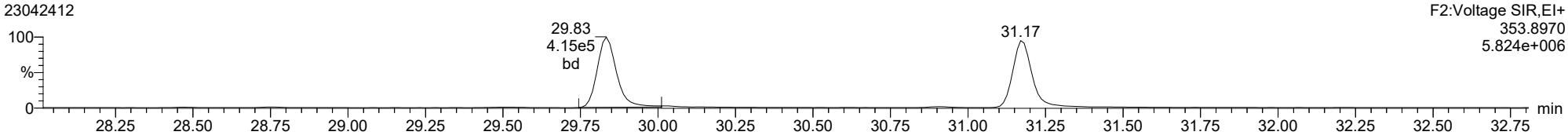
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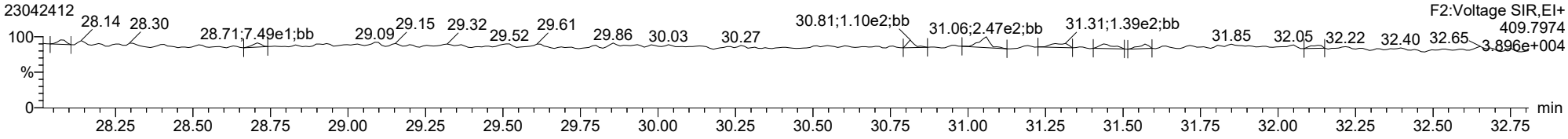
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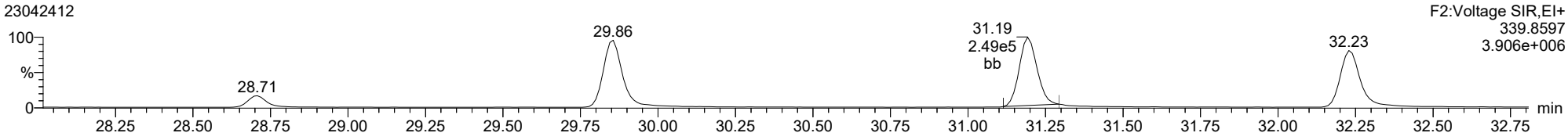


FUNCTION2 HPCDPE

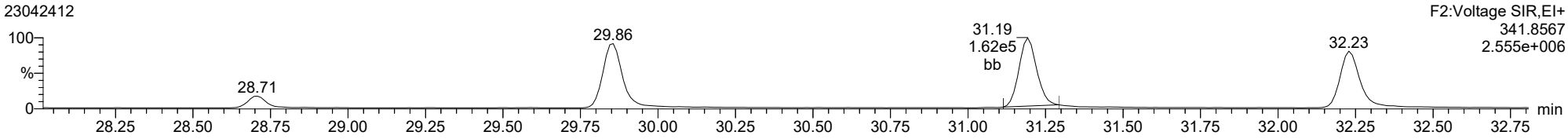


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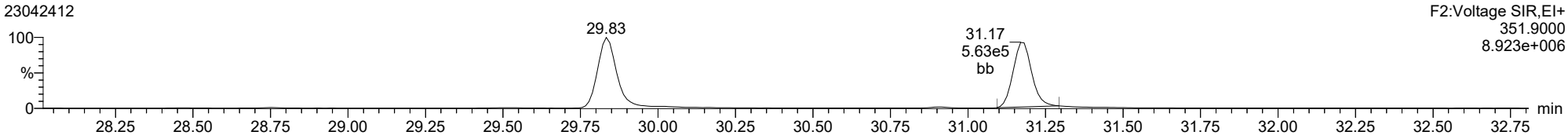
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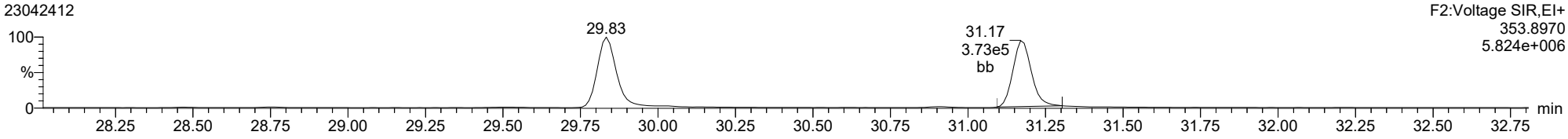
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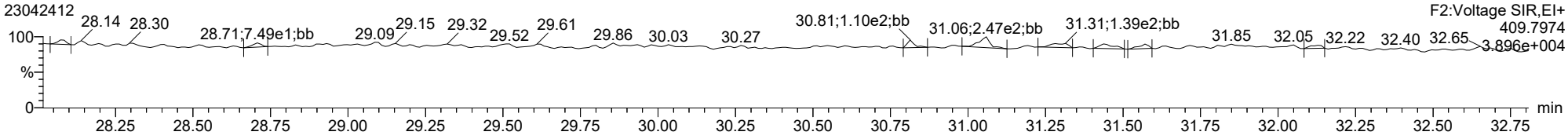
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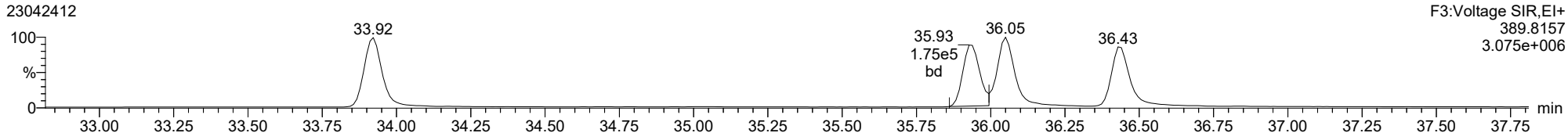


FUNCTION2 HPCDPE

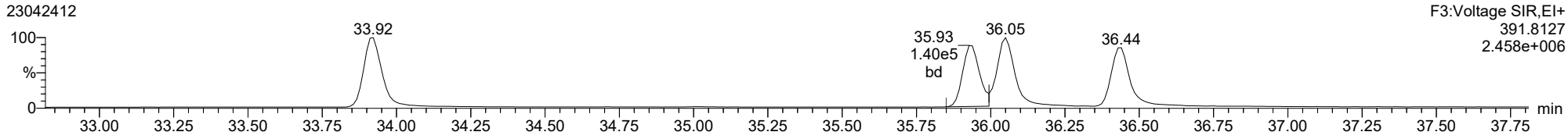


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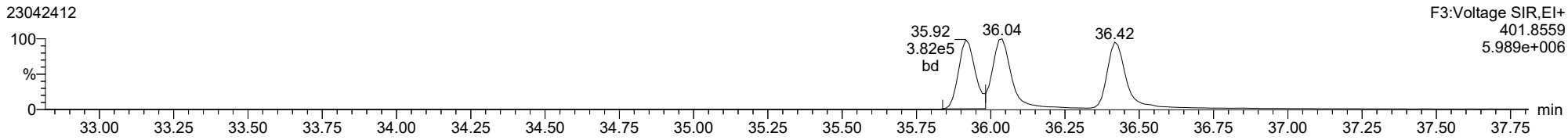
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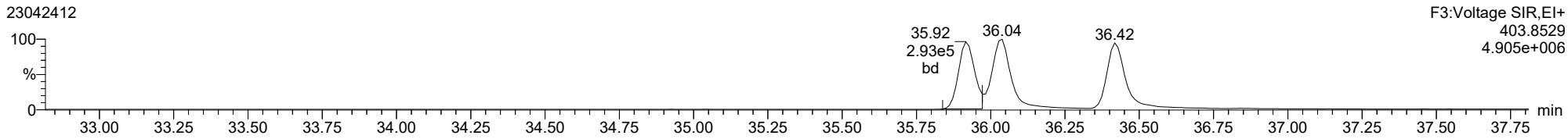
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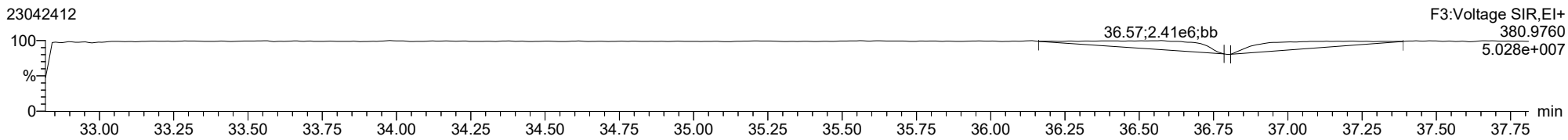
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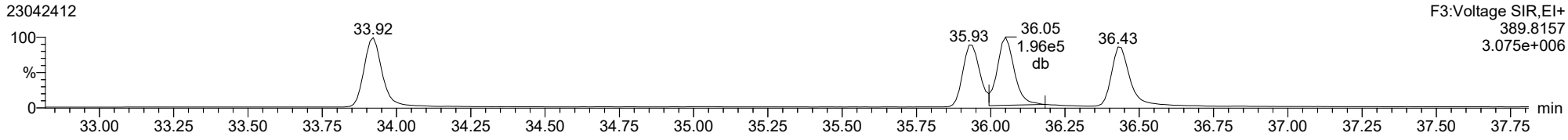


FUNCTION3 PFK

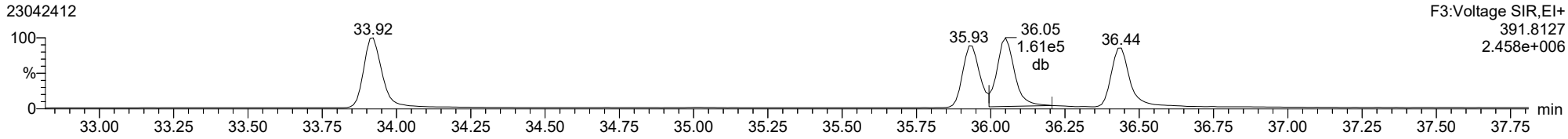


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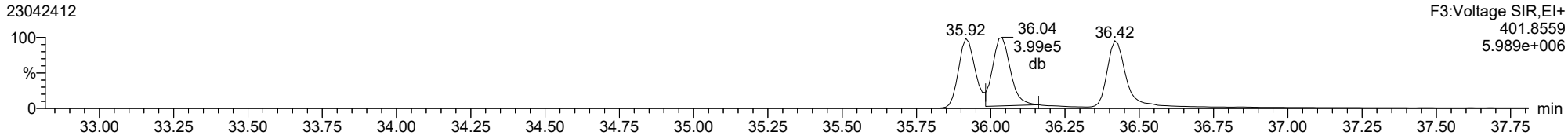
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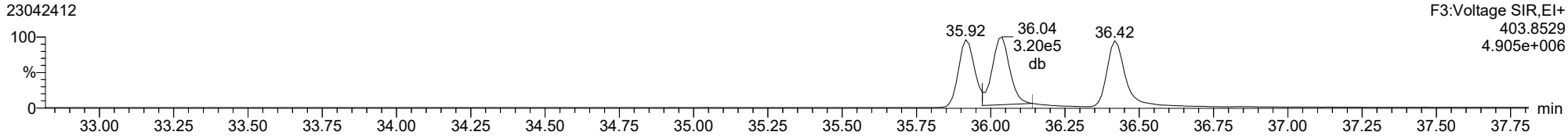
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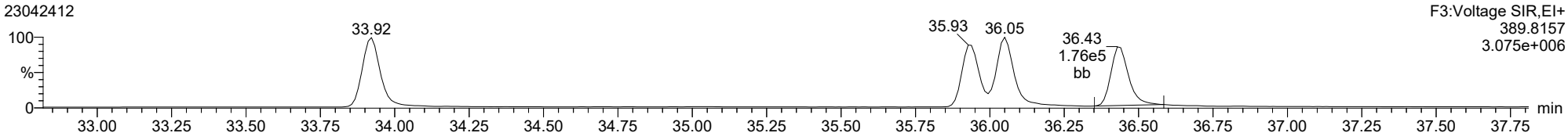


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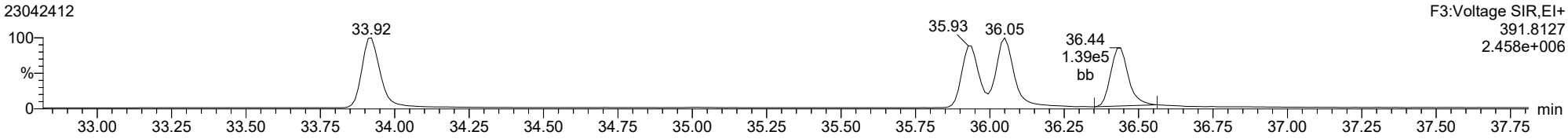


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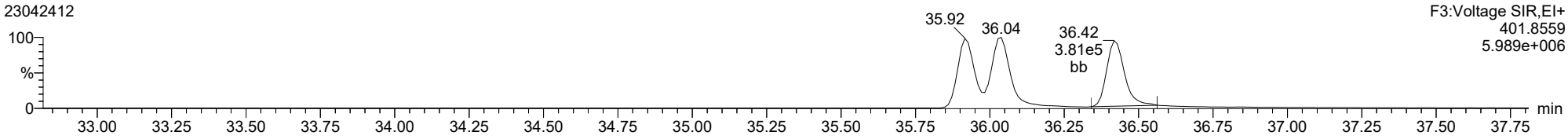
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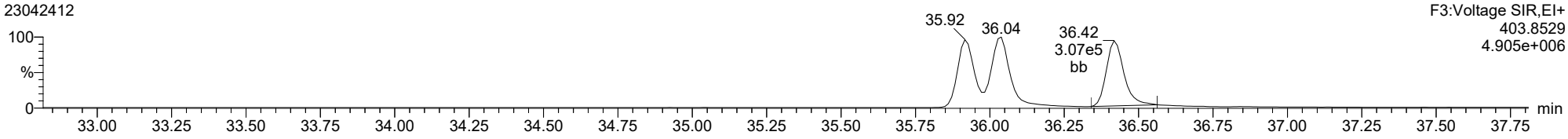
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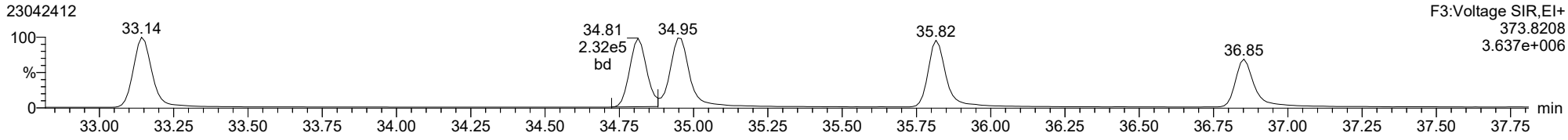


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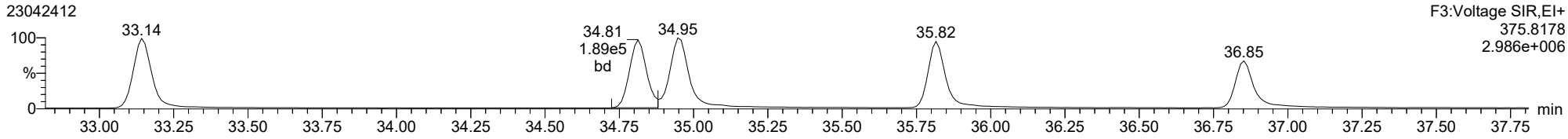


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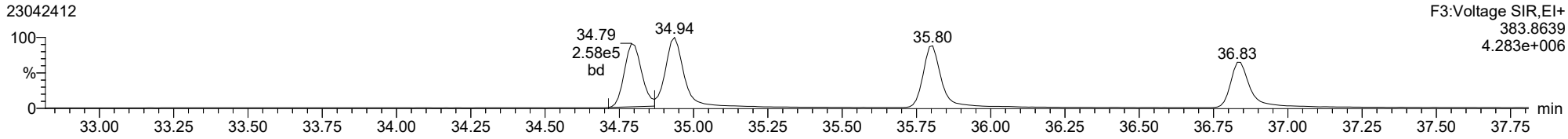
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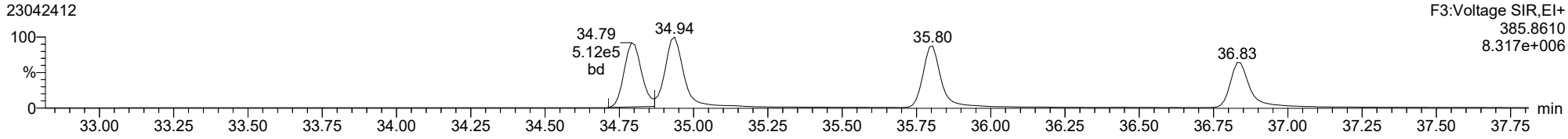
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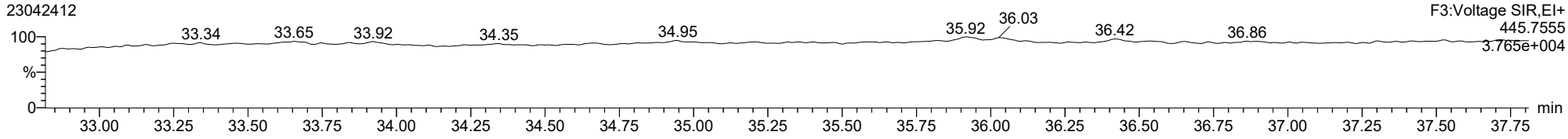
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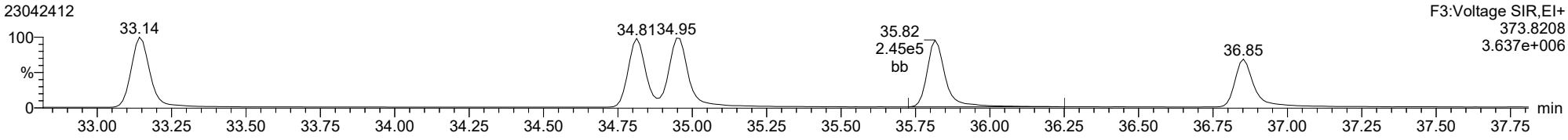


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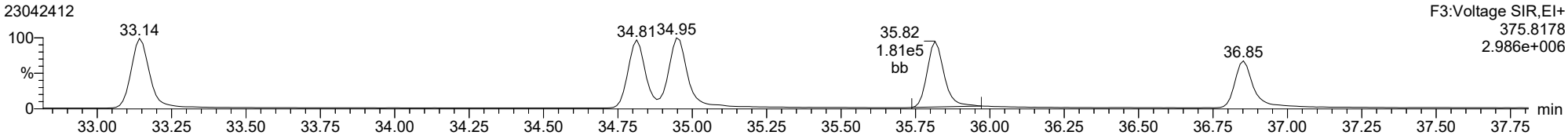


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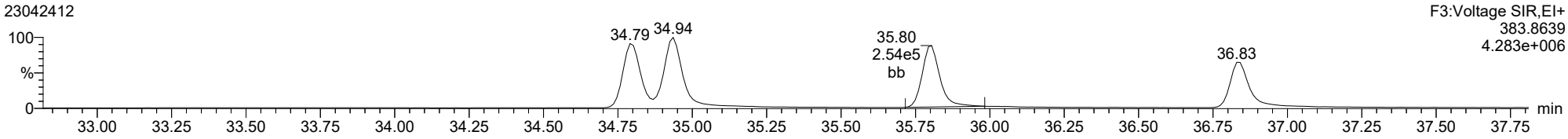
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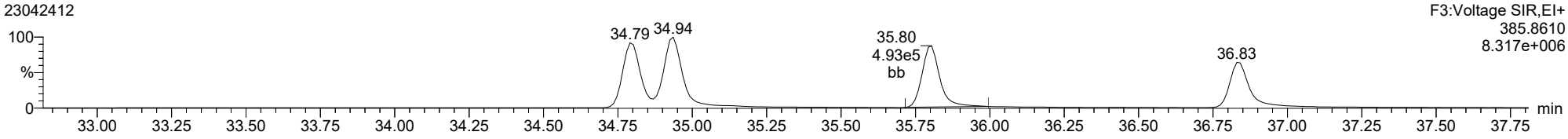
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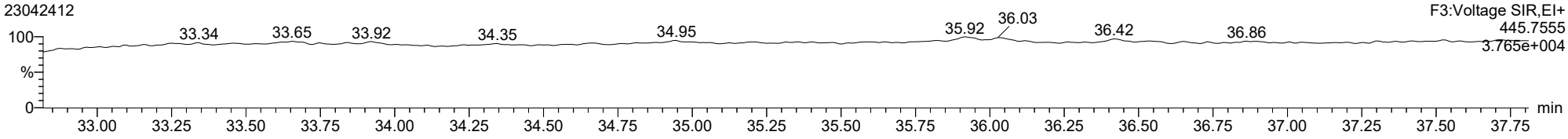
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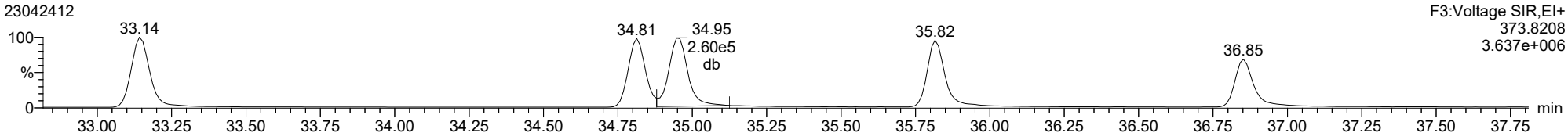


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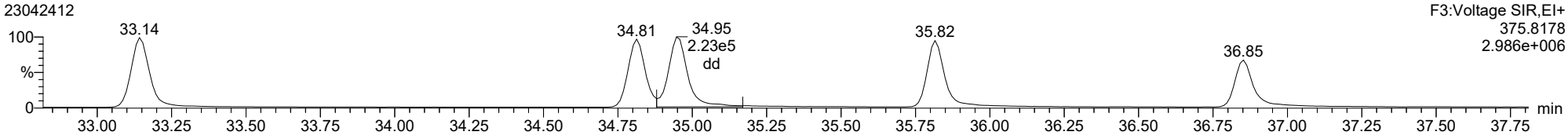


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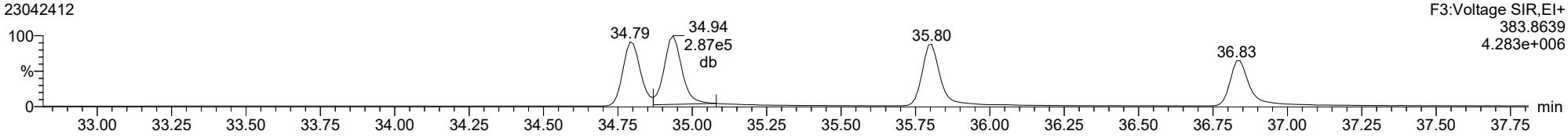
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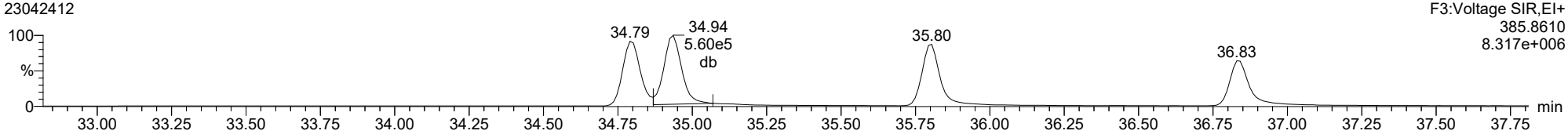
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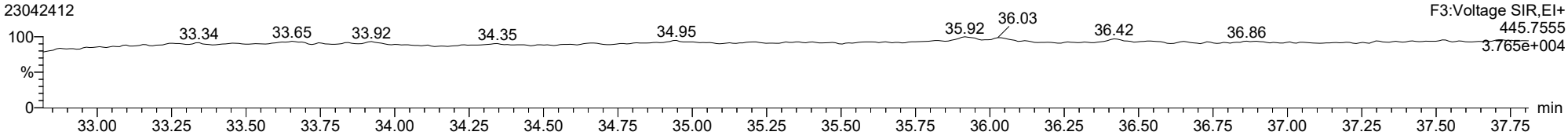
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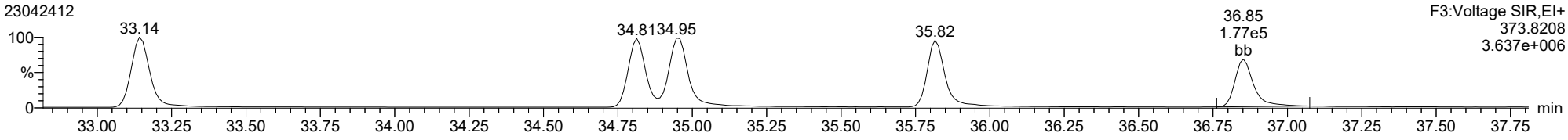


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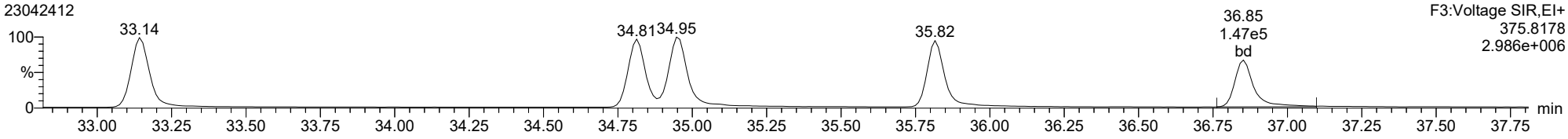


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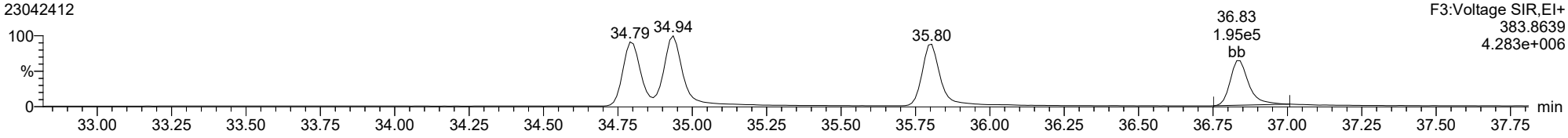
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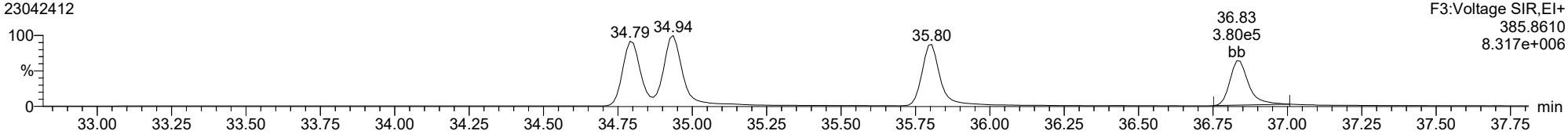
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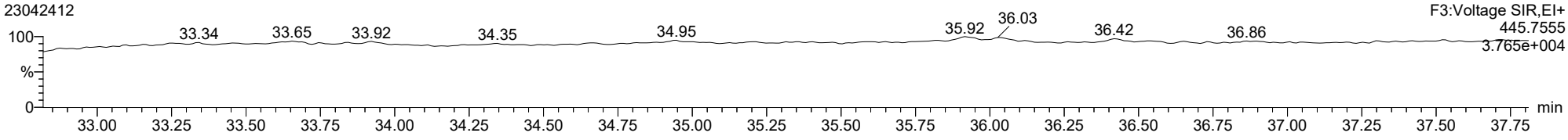
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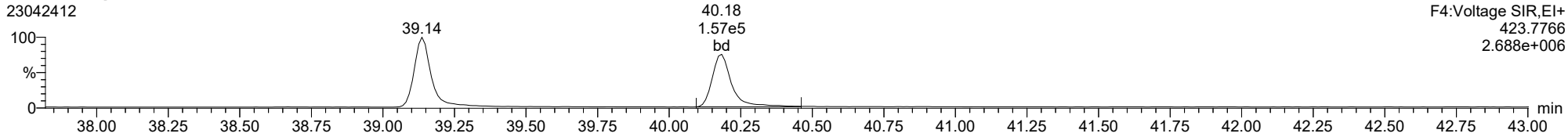


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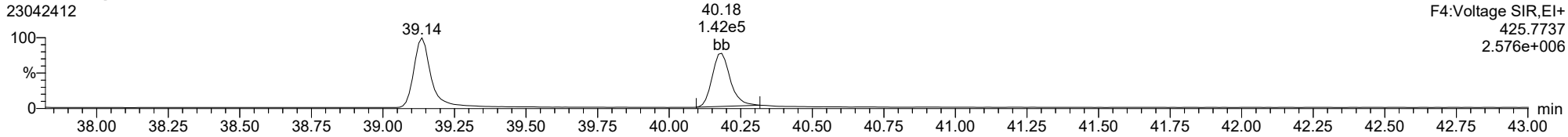


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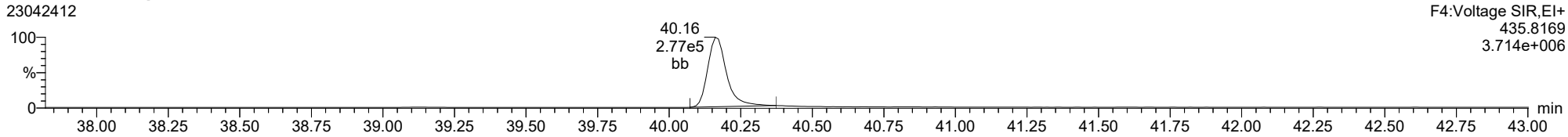
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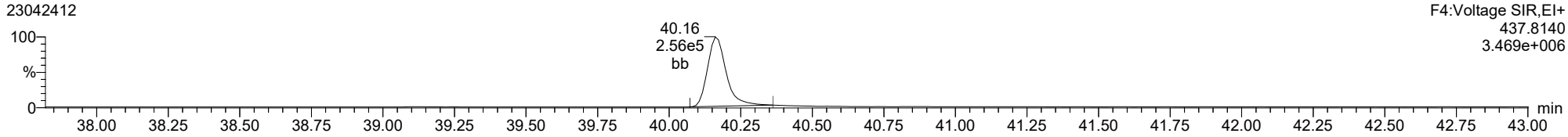
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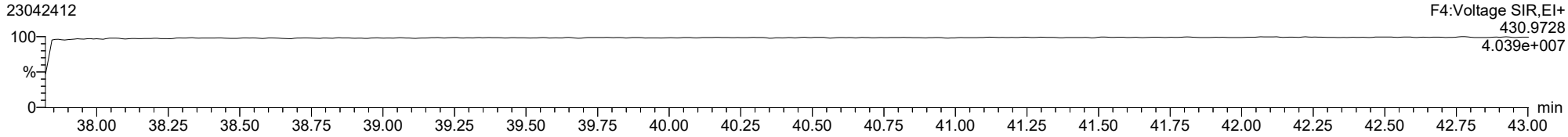
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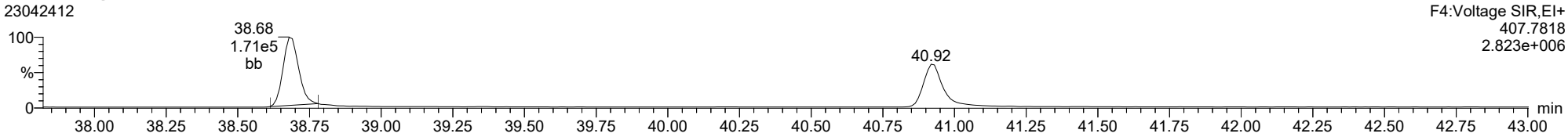


FUNCTION4 PFK

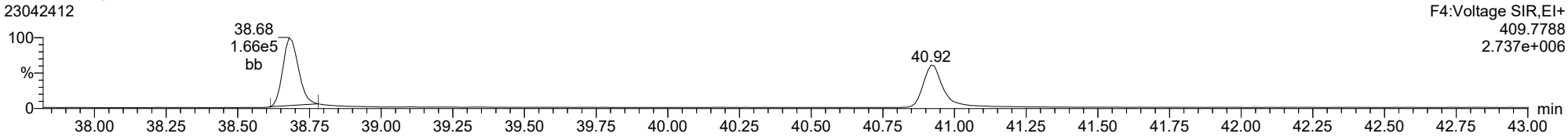


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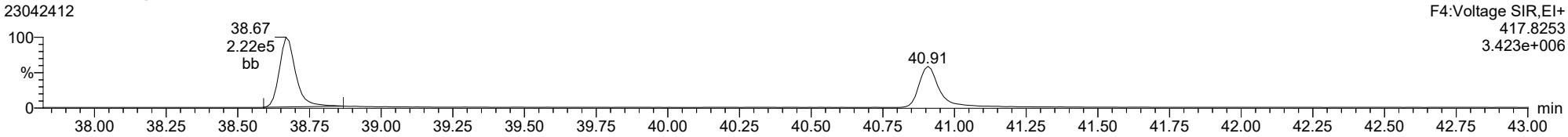
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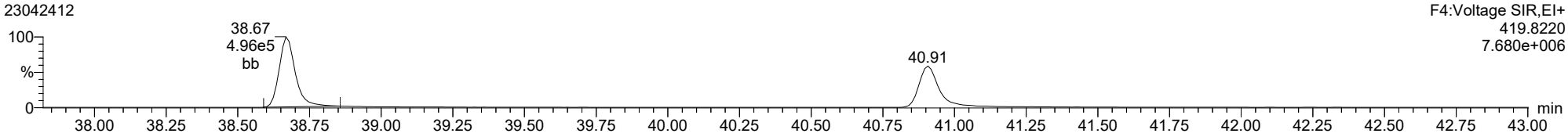
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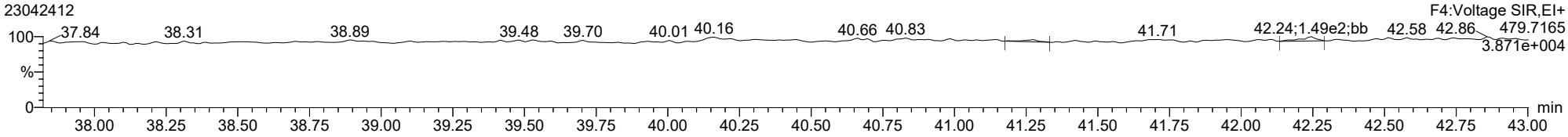
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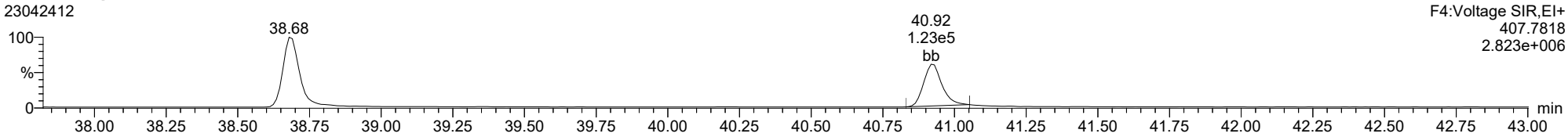


FUNCTION4 NCDPE

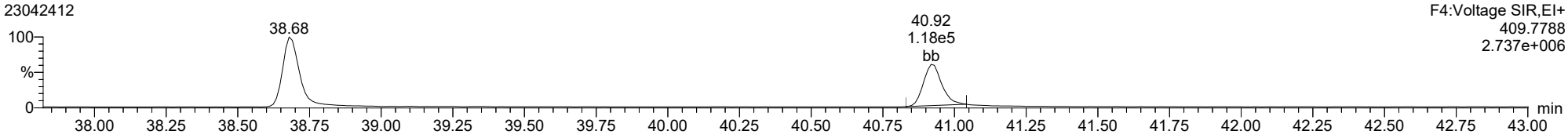


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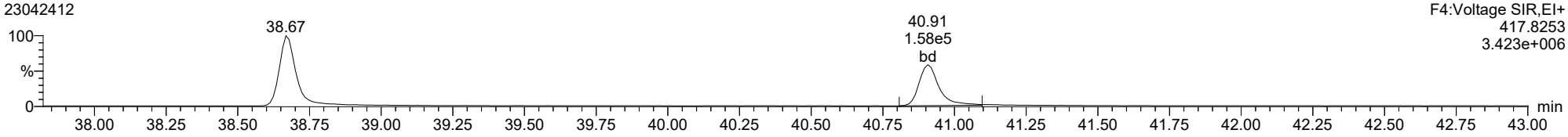
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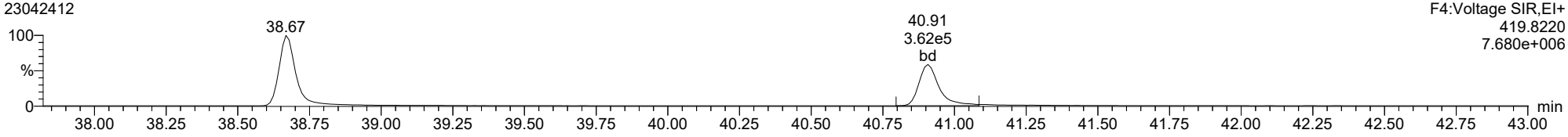
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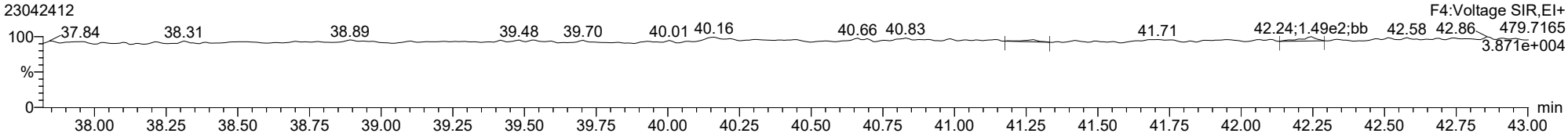
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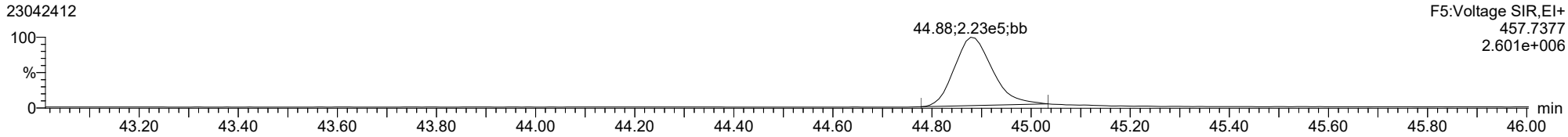


FUNCTION4 NCDPE

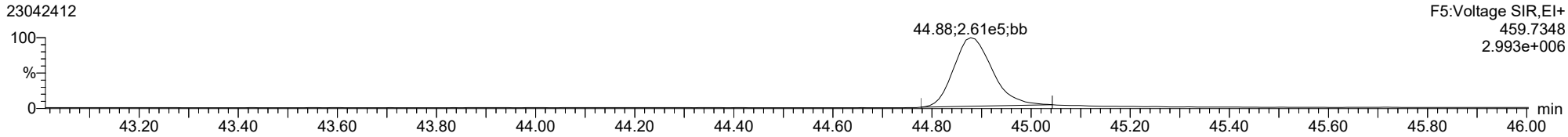


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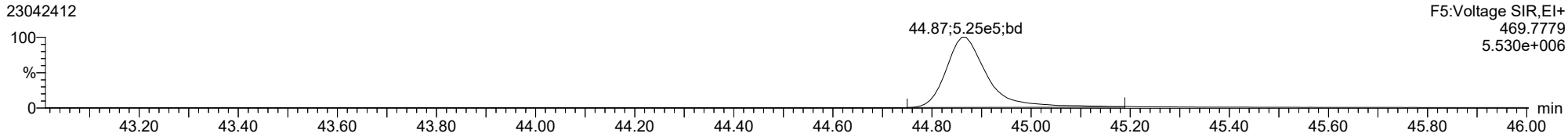
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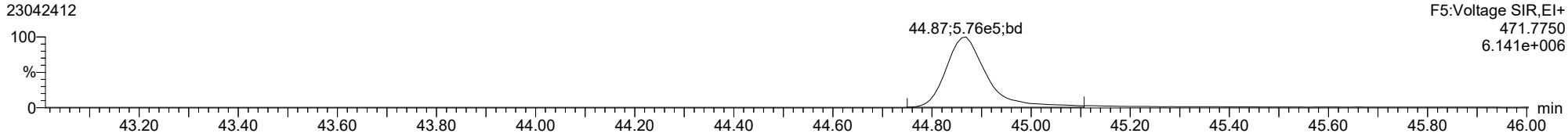
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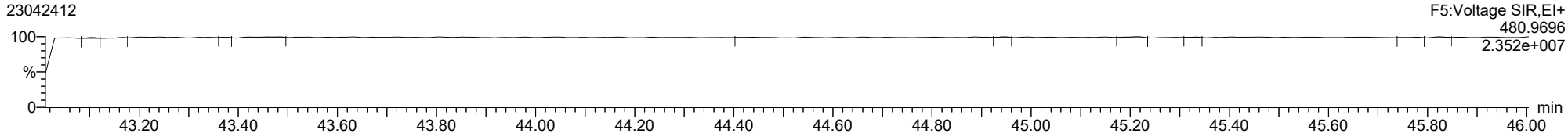
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13C-OCDD

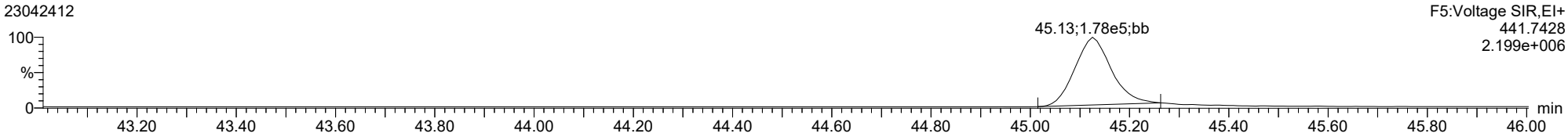


FUNCTION5 PFK

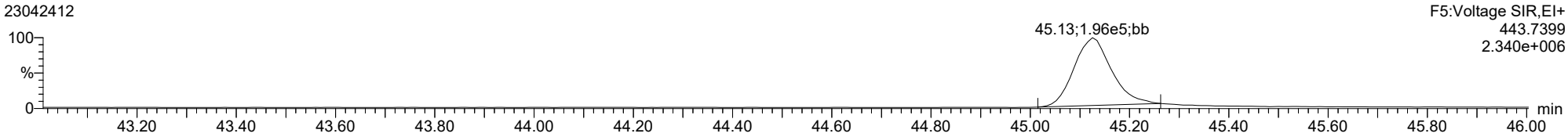


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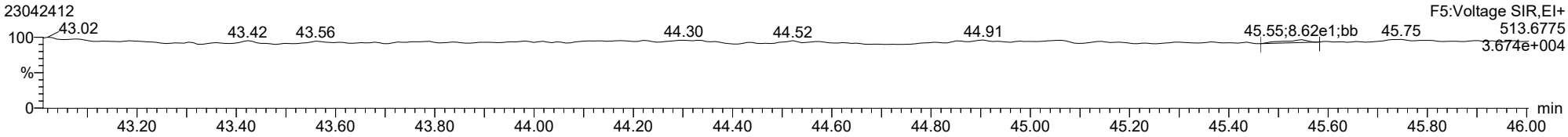
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OCDF

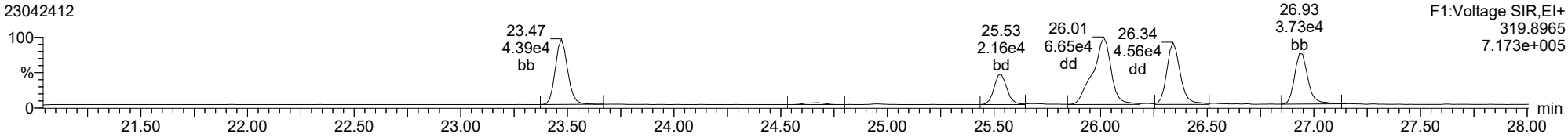


FUNCTION5 DCDPE

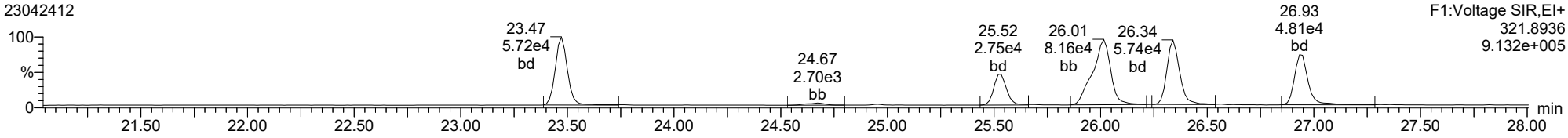


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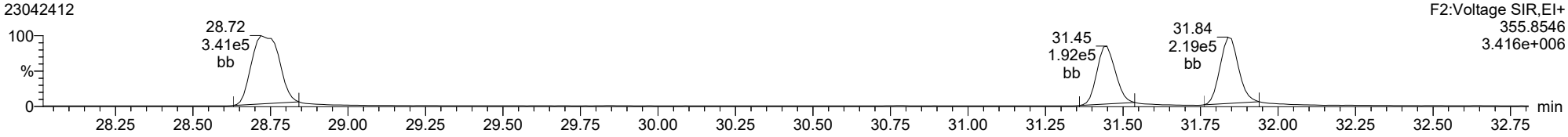
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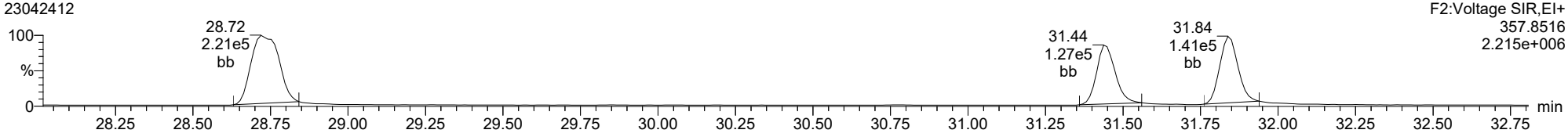
Total-tetradioxins



Total-pentadioxins

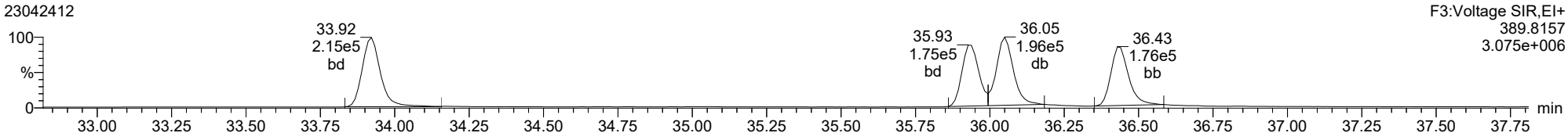


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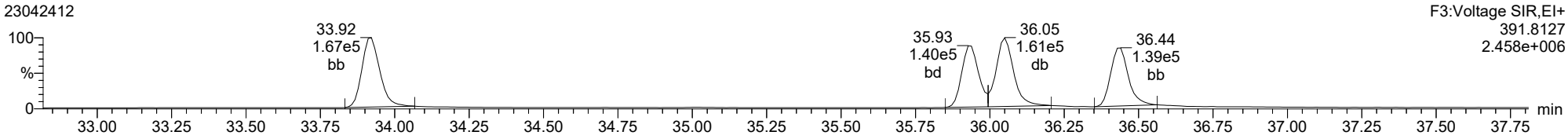


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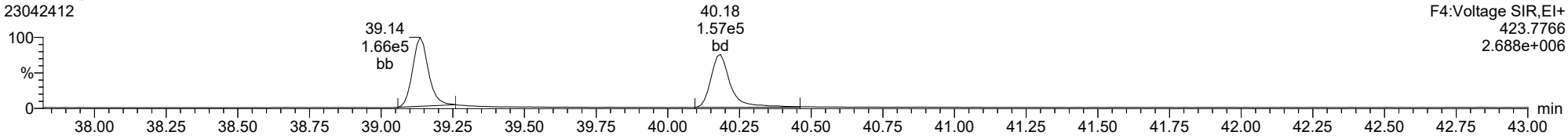
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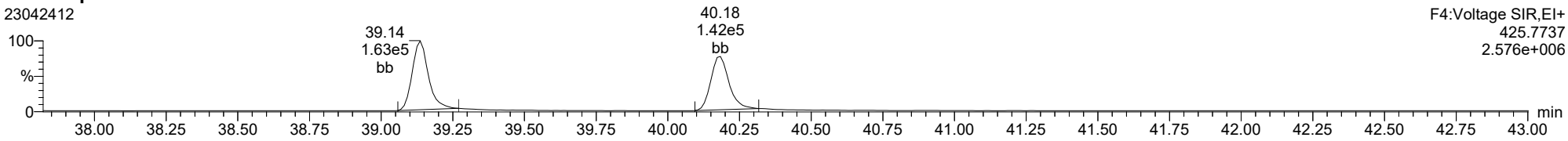
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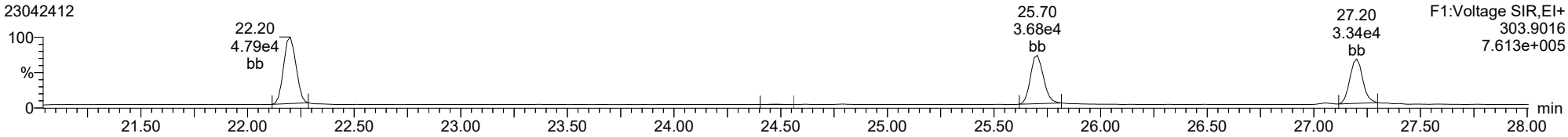


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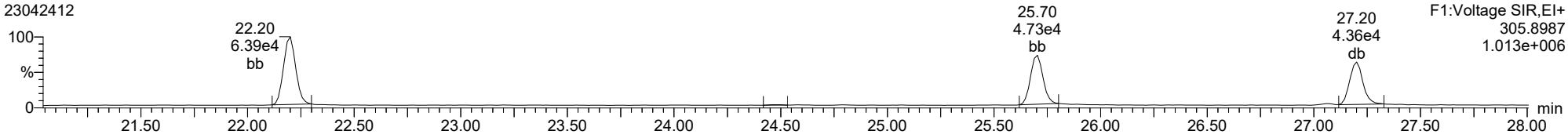


ID: CS3H2, Name: 23042412, Date: 24-Apr-2023, Time: 23:24:30, Conditions: AUTOSPEC01, User: pk

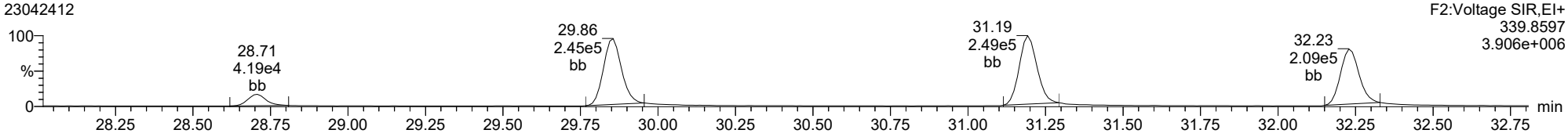
Total-tetrafurans



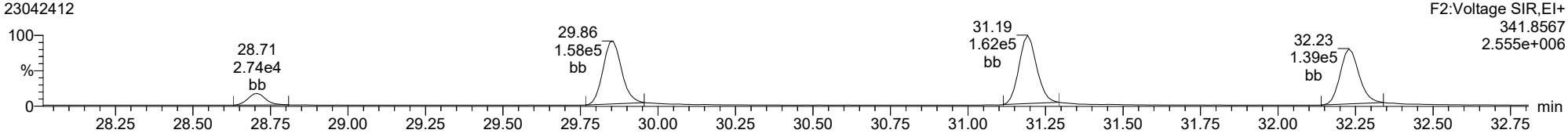
Total-tetrafurans



Total-pentafurans

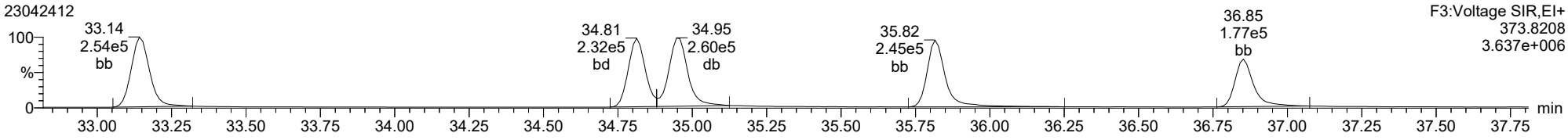


Total-pentafurans

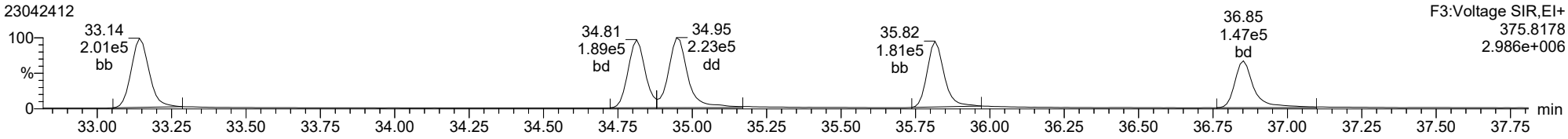


ID: CS3H2, Name: 23042412, Date: 24-Apr-2023, Time: 23:24:30, Conditions: AUTOSPEC01, User: pk

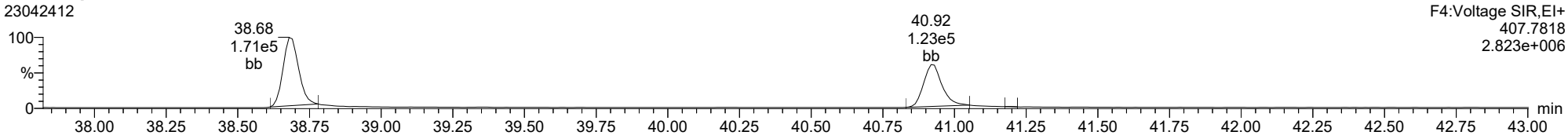
Total-hexafurans



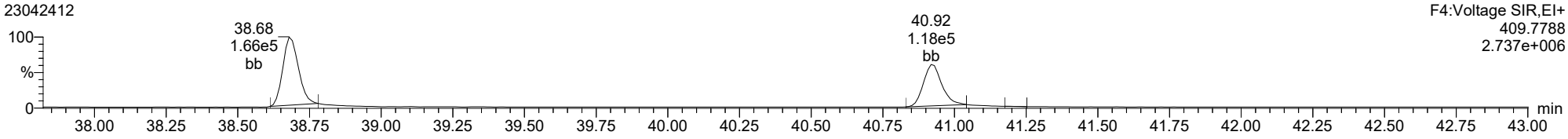
Total-hexafurans



Total-heptafurans

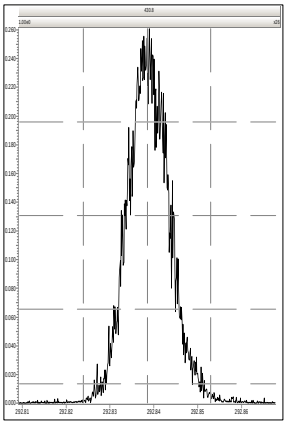


Total-heptafurans

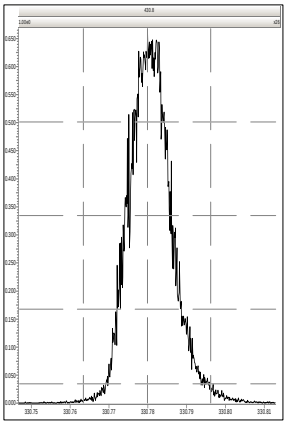


Printed: Tuesday, April 25, 2023 00:17:31 Pacific Daylight Time

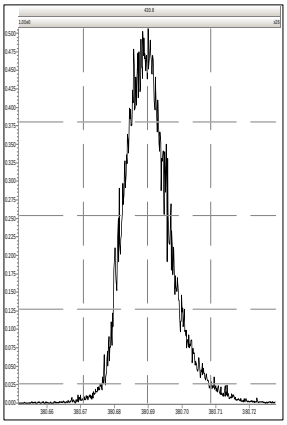
M 292.9824 R 13442



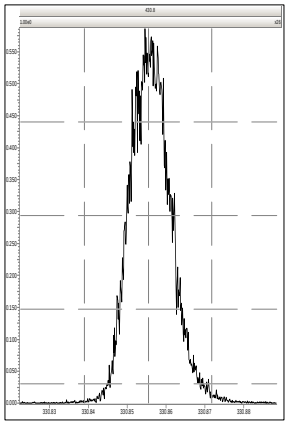
M 330.9792 R 13194



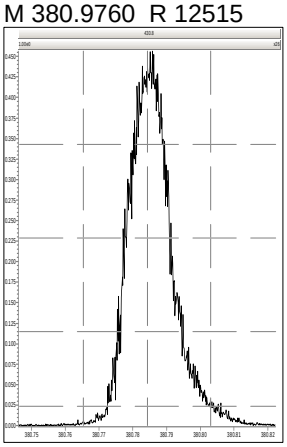
M 380.9760 R 12048



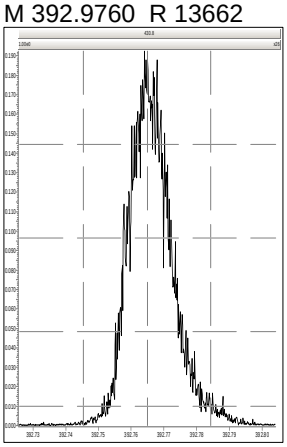
M 330.9792 R 14583



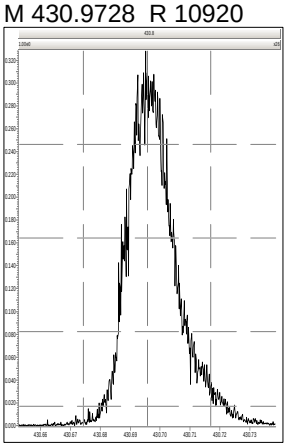
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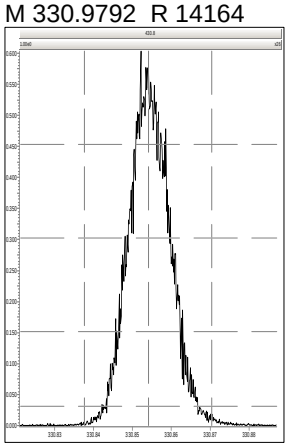
M 392.9760 R 13662



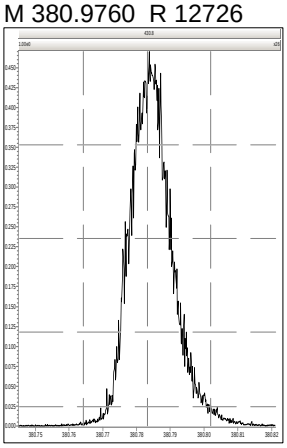
M 430.9728 R 10920



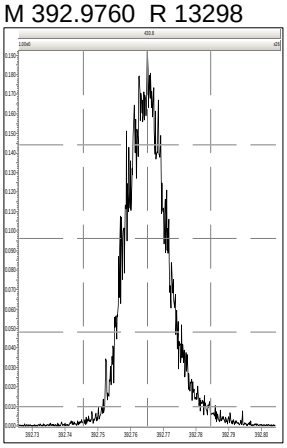
M 330.9792 R 14164



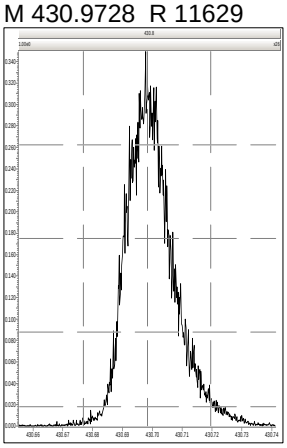
M 380.9760 R 12726



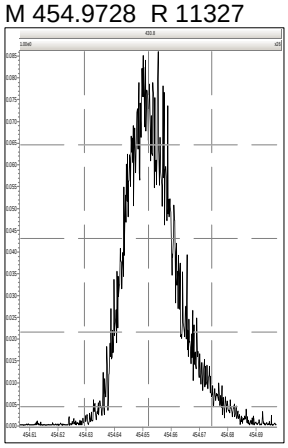
M 392.9760 R 13298



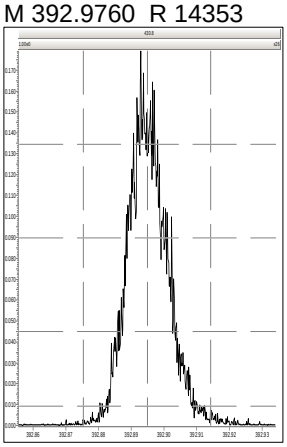
M 430.9728 R 11629



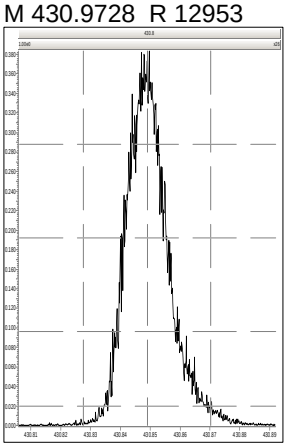
M 454.9728 R 11327



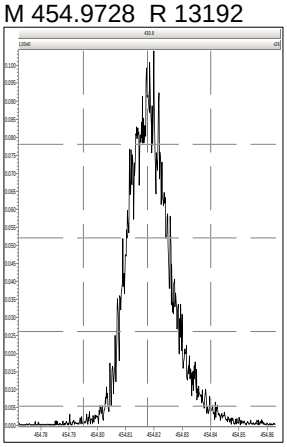
M 392.9760 R 14353



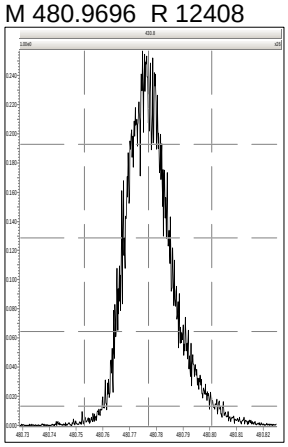
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M 454.9728 R 13192

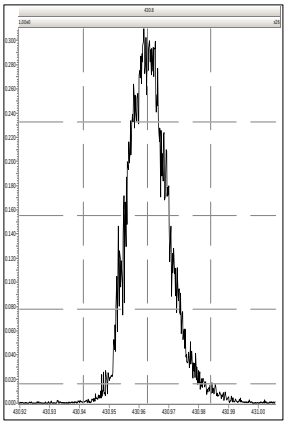


M 480.9696 R 12408

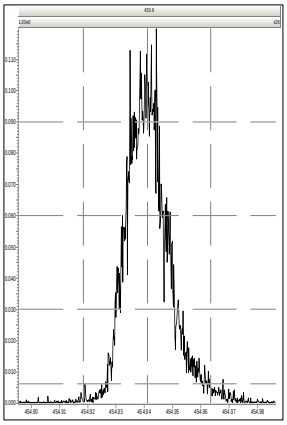


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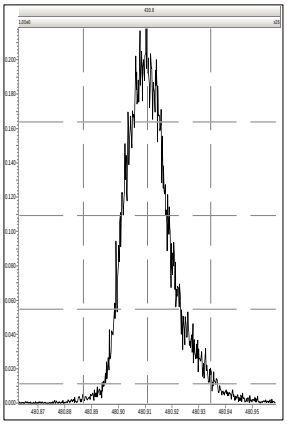
M 430.9728 R 13628



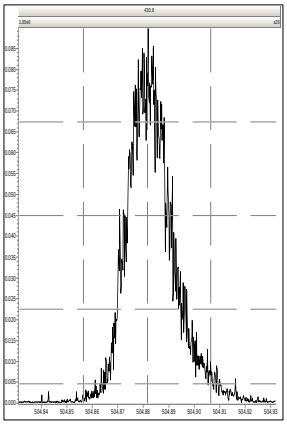
M 454.9728 R 13782



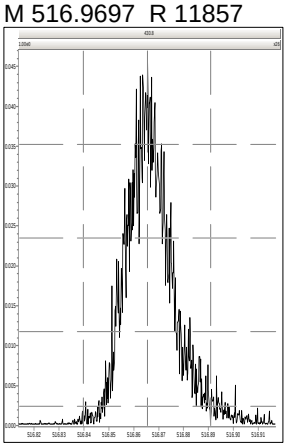
M 480.9696 R 12140

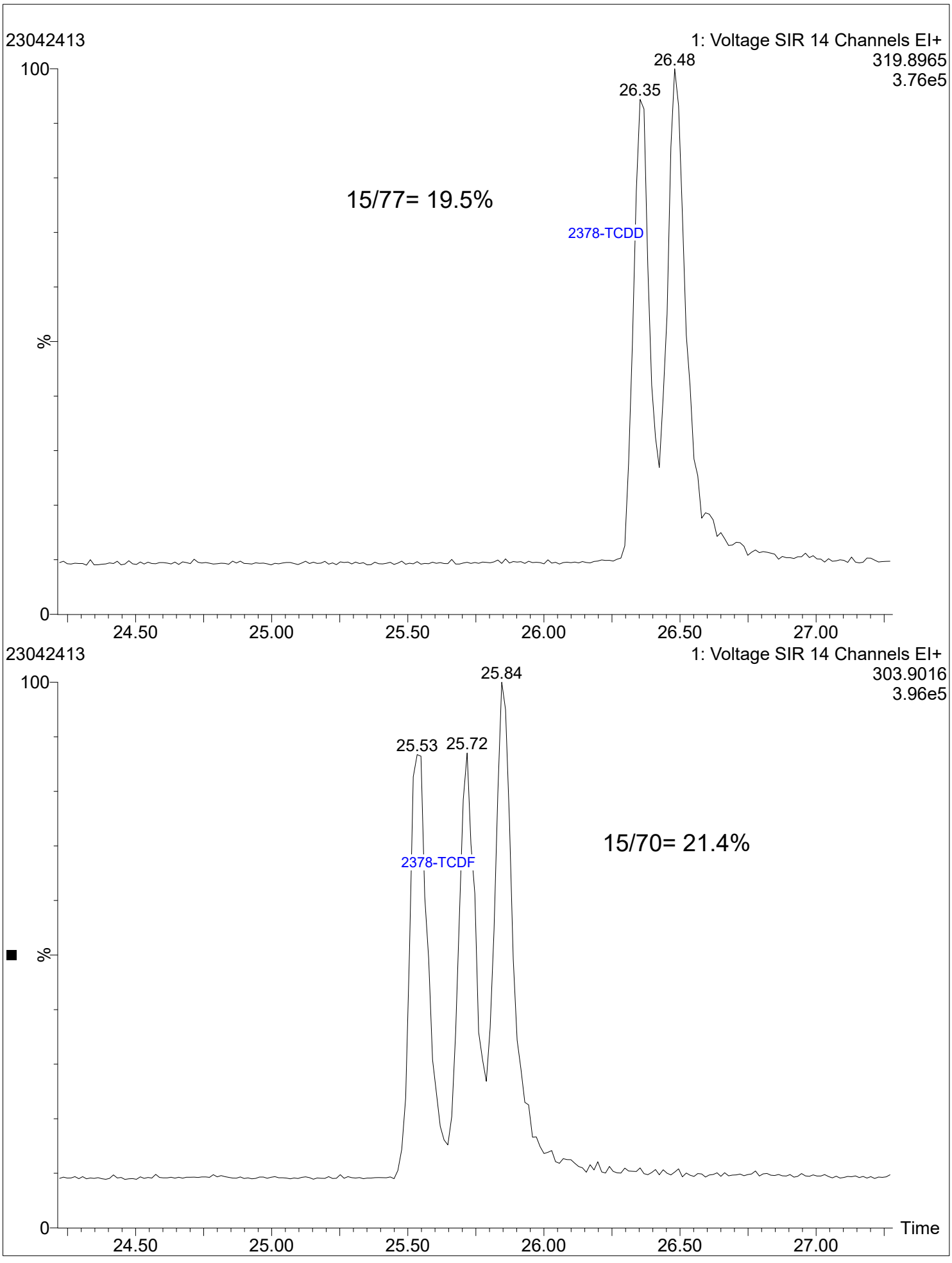


M 504.9696 R 12791



M 516.9697 R 11857




23042413
1: Voltage SIR 14 Channels EI+
319.8965
3.76e5
26.48
26.35
15/77= 19.5%
2378-TCDD
100
%
0
24.50
25.00
25.50
26.00
26.50
27.00
23042413
1: Voltage SIR 14 Channels EI+
303.9016
3.96e5
25.84
25.53
25.72
15/70= 21.4%
2378-TCDF
100
%
0
Time
24.50
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23042421	Calibration Date:	03/03/2023
Sequence:	SLD0330	Injection Date:	04/25/23
Lab Sample ID:	SLD0330-CCV2	Injection Time:	06:52
Sequence Name:	CS3H3		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	10.2	0.7015272	0.7182209		2.4	+/-16
2,3,7,8-TCDD	A	10.000	9.30	1.1486620	1.0681480		-7.0	+/-22
1,2,3,7,8-PeCDF	A	50.000	58.1	0.6792300	0.7891171		16.2	+/-18
2,3,4,7,8-PeCDF	A	50.000	54.4	0.7861704	0.8559960		8.9	+/-18
1,2,3,7,8-PeCDD	A	50.000	56.0	1.0218450	1.1442470		12.0	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	46.8	1.1660380	1.0915770		-6.4	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.2	1.0907410	1.0739260		-1.5	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	47.7	1.1396990	1.0881760		-4.5	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	46.3	1.1370930	1.0530250		-7.4	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	46.9	0.9955689	0.9342354		-6.2	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	50.0	1.0009380	1.0011860		0.02	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	51.8	0.9071139	0.9397122		3.6	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	46.4	1.0029930	0.9307525		-7.2	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	48.6	0.9531152	0.9266867		-2.8	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	49.4	1.0390130	1.0271350		-1.1	+/-14
OCDF	A	100.00	90.2	0.7778078	0.7019156		-9.8	+/-37
OCDD	A	100.00	99.3	0.9199537	0.9132202		-0.7	+/-21
13C12-2,3,7,8-TCDF	A	100.00	88.1	1.6201960	1.4273653		-11.9	+/-29
13C12-2,3,7,8-TCDD	A	100.00	98.9	1.1524090	1.1393374		-1.1	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	103	1.2404520	1.2726844		2.6	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	108	1.1177860	1.2110728		8.3	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	86.8	0.8288129	0.7194208		-13.2	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	92.3	1.1683050	1.0788000		-7.7	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	83.8	1.3864660	1.1617231		-16.2	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	94.3	1.1292560	1.0649716		-5.7	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	91.8	0.9317541	0.8553225		-8.2	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	97.3	0.9950393	0.9678997		-2.7	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	87.9	1.1566890	1.0167500		-12.1	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	111	0.8952017	0.9919779		10.8	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	98.9	0.7697516	0.7609049		-1.1	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	94.8	0.8401226	0.7963563		-5.2	+/-28
13C12-OCDD	A	200.00	201	0.7674714	0.7724502		0.6	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	8.29	1.2878040	1.0673418		-17.1	

* Values outside of QC limits

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:57 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3H3, Name: 23042421, Date: 25-Apr-2023, Time: 06:52:00, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.689	1.000	4.034e4	5.338e4	0.702	0.756	0.770	796	1180	5.96e5	8.11e5	748.8	687.1	NO	bb	bb	10.238
12378-PeCDF	29.844	1.001	2.807e5	1.784e5	0.679	1.574	1.550	2211	2850	4.23e6	2.72e6	1913.2	954.2	NO	bb	bb	58.089
23478-PeCDF	31.181	1.000	2.857e5	1.882e5	0.786	1.518	1.550	2211	2850	4.35e6	2.83e6	1965.8	993.1	NO	bb	bb	54.441
123478-HxCDF	34.802	1.000	2.878e5	2.308e5	1.166	1.247	1.240	2001	2221	4.44e6	3.56e6	2216.7	1601.5	NO	bd	bd	46.807
234678-HxCDF	35.816	1.001	2.825e5	2.278e5	1.140	1.240	1.240	2001	2221	4.20e6	3.39e6	2098.3	1526.3	NO	bb	bb	47.740
123678-HxCDF	34.947	1.001	3.043e5	2.451e5	1.091	1.241	1.240	2001	2221	4.54e6	3.56e6	2266.1	1603.6	NO	db	db	49.229
123789-HxCDF	36.841	1.000	2.212e5	1.755e5	1.137	1.260	1.240	2001	2221	3.19e6	2.53e6	1592.4	1138.5	NO	bb	bb	46.303
1234678-HpCDF	38.679	1.000	2.057e5	2.009e5	1.003	1.024	1.050	2467	1788	3.41e6	3.31e6	1381.1	1850.0	NO	bb	bb	46.399
1234789-HpCDF	40.918	1.000	1.576e5	1.529e5	0.953	1.031	1.050	2467	1788	2.20e6	2.16e6	889.8	1205.4	NO	bb	bb	48.614
OCDF	45.116	1.006	2.315e5	2.460e5	0.778	0.941	0.890	1767	1653	2.65e6	2.86e6	1496.9	1729.5	NO	bb	bb	90.243
2378-TCDD	26.339	1.001	4.808e4	6.317e4	1.149	0.761	0.770	1254	1244	6.83e5	8.69e5	545.0	698.4	NO	bb	dd	9.299
12378-PeCDD	31.437	1.001	2.288e5	1.475e5	1.022	1.551	1.550	1429	1627	3.42e6	2.24e6	2396.1	1373.8	NO	bb	bb	55.989
123478-HxCDD	35.927	1.000	2.188e5	1.794e5	0.996	1.220	1.240	1933	1758	3.55e6	2.91e6	1837.9	1653.7	NO	bd	bd	46.920
123678-HxCDD	36.039	1.000	2.390e5	2.092e5	1.001	1.142	1.240	1933	1758	3.59e6	2.96e6	1859.5	1685.2	NO	db	db	50.012
123789-HxCDD	36.428	1.011	2.250e5	1.857e5	0.907	1.212	1.240	1933	1758	3.43e6	2.84e6	1771.9	1616.3	NO	bb	bb	51.797
1234678-HpCDD	40.172	1.000	1.822e5	1.780e5	1.039	1.024	1.050	2039	2006	2.70e6	2.63e6	1324.0	1313.1	NO	bb	bb	49.428
OCDD	44.878	1.000	2.903e5	3.310e5	0.920	0.877	0.890	2548	1810	3.53e6	4.02e6	1385.1	2223.9	NO	bb	bb	99.268
13C-2378-TCDF	25.675	1.007	5.571e5	7.478e5	1.620	0.745	0.770	2173	1270	8.05e6	1.09e7	3703.2	8611.8	NO	bb	bd	88.098
13C-12378-PeCDF	29.822	1.169	7.015e5	4.619e5	1.240	1.519	1.550	2605	2030	1.01e7	6.74e6	3890.5	3319.3	NO	bb	bb	102.598
13C-23478-PeCDF	31.170	1.222	6.724e5	4.348e5	1.118	1.546	1.550	2605	2030	1.01e7	6.51e6	3859.9	3207.4	NO	bb	bb	108.346
13C-123478-HxCDF	34.791	0.955	3.186e5	6.316e5	1.168	0.504	0.510	1893	2084	4.97e6	9.81e6	2624.6	4708.6	NO	bd	bd	92.339
13C-123678-HxCDF	34.924	0.959	3.484e5	6.748e5	1.386	0.516	0.510	1893	2084	5.11e6	1.00e7	2700.2	4812.3	NO	db	db	83.790
13C-234678-HxCDF	35.793	0.983	3.291e5	6.088e5	1.129	0.541	0.510	1893	2084	4.84e6	9.47e6	2558.0	4543.1	NO	bb	bb	94.307
13C-123789-HxCDF	36.829	1.011	2.550e5	4.983e5	0.932	0.512	0.510	1893	2084	3.85e6	7.42e6	2031.4	3560.1	NO	bb	bb	91.797
13C-1234678-HpCDF	38.668	1.062	2.683e5	6.054e5	0.895	0.443	0.440	1558	2932	4.21e6	9.57e6	2699.3	3262.7	NO	bb	bb	110.811
13C-1234789-HpCDF	40.907	1.123	2.082e5	4.619e5	0.770	0.451	0.440	1558	2932	2.67e6	6.08e6	1716.2	2072.1	NO	bb	bb	98.851
13C-1234-TCDD	25.506	0.000	4.025e5	5.117e5	1.000	0.787	0.770	1663	1264	6.12e6	7.73e6	3678.3	6120.8	NO	bb	bb	100.000
13C-2378-TCDD	26.311	1.032	4.576e5	5.839e5	1.152	0.784	0.770	1663	1264	6.67e6	8.56e6	4007.6	6775.0	NO	bb	bb	98.866
13C-12378-PeCDD	31.415	1.232	4.155e5	2.421e5	0.829	1.716	1.550	1088	930	5.73e6	3.46e6	5268.6	3721.9	NO	bb	bd	86.801
13C-123478-HxCDD	35.916	0.986	4.761e5	3.764e5	0.995	1.265	1.240	1524	1777	7.49e6	5.93e6	4914.0	3335.5	NO	bd	bd	97.272
13C-123678-HxCDD	36.027	0.989	4.937e5	4.018e5	1.157	1.229	1.240	1524	1777	7.77e6	6.26e6	5095.8	3524.7	NO	db	db	87.902
13C-1234678-HpCDD	40.161	1.103	3.549e5	3.465e5	0.840	1.024	1.050	2066	1953	5.08e6	4.72e6	2459.1	2418.1	NO	bb	bd	94.790
13C-OCDD	44.860	1.232	6.448e5	7.159e5	0.767	0.901	0.890	1595	1270	7.28e6	8.12e6	4563.8	6398.1	NO	bd	bb	201.297
13C-123789-HxCDD	36.417	0.000	4.858e5	3.949e5	1.000	1.230	1.240	1524	1777	7.49e6	5.99e6	4912.0	3368.1	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.033	9.757e4		1.288			2025		1.40e6		693.3			bb		8.288

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Last Altered: Tuesday, April 25, 2023 10:49:58 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:22:57 Pacific Daylight Time

ID: CS3H3, Name: 23042421, Date: 25-Apr-2023, Time: 06:52:00, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.187	0.864	5.039e4	6.421e4	0.802	0.785	0.770	796	1180	7.82e5	9.99e5	981.9	846.8	NO	bb	bb	10.958
1289-TCDF	27.187	1.059	3.483e4	4.900e4	0.678	0.711	0.770	796	1180	5.25e5	7.34e5	659.6	622.1	NO	bb	db	9.476
13468-PECDF	27.045	0.907	4.326e5	2.861e5	1.246	1.512	1.550	584	1073	6.54e6	4.27e6	11207.5	3981.1	NO	bb	bb	49.561
12389-PECDF	32.228	1.081	2.651e5	1.697e5	0.496	1.562	1.550	2211	2850	3.85e6	2.41e6	1739.3	845.1	NO	bb	bb	75.293
123468-HXCDF	33.142	0.953	2.907e5	2.331e5	1.169	1.247	1.240	2001	2221	4.25e6	3.39e6	2123.2	1526.3	NO	bb	bb	47.158
1368-TCDD	23.472	0.892	4.662e4	6.053e4	1.015	0.770	0.770	1254	1244	6.82e5	9.13e5	543.9	734.4	NO	bd	bb	10.131
1289-TCDD	26.932	1.024	4.182e4	5.388e4	0.909	0.776	0.770	1254	1244	5.80e5	7.80e5	462.8	627.6	NO	bb	bd	10.111
12479-PECDD	28.719	0.914	3.964e5	2.496e5	2.301	1.588	1.550	1429	1627	3.86e6	2.46e6	2703.6	1509.1	NO	bb	bb	42.685
12389-PECDD	31.838	1.013	2.651e5	1.644e5	1.184	1.612	1.550	1429	1627	3.99e6	2.42e6	2791.8	1486.4	NO	bb	bb	55.184
124679-HXCDD	33.910	0.944	2.574e5	1.989e5	1.115	1.294	1.240	1933	1758	3.74e6	3.00e6	1936.3	1705.1	NO	bb	bb	47.984
1234679-HPCDD	39.125	0.974	2.072e5	1.979e5	1.137	1.047	1.050	2039	2006	3.31e6	3.12e6	1623.0	1557.7	NO	bb	bb	50.805
Total-tetrafurans			1.256e5		0.727			796		1.90e6							30.671
Total-penta1			4.326e5					584		6.54e6							49.561
Total-pentafurans			8.777e5		0.654			2211		1.31e7							198.022
Total-hexafurans			1.386e6		1.141			2001		2.06e7							237.237
Total-heptafurans			3.644e5		0.978			2467		5.62e6							95.290
Total-Furans			3.418e6		0.922			796		5.04e7							701.026
Total-tetradioxins			2.299e5		1.024			1254		3.00e6							49.563
Total-pentadioxins			8.903e5		1.502			1429		1.13e7							153.858
Total-hexadioxins			9.419e5		1.005			1933		1.43e7							197.047
Total-heptadioxins			3.896e5		1.088			2039		6.02e6							100.288
Total-Dioxins			2.742e6		1.130			1254		3.82e7							600.024
Total-TEQ			6.160e6					1254		8.86e7							1301.050
FUNCTION1 PFK			3.528e5					333501		9.18e6							
FUNCTION2 PFK			2.459e5					168519		6.84e6							0.000
FUNCTION3 PFK			1.852e4					211347		7.74e5							0.000
FUNCTION4 PFK			2.991e5					205340		8.98e6							
FUNCTION5 PFK			2.608e4					131510		9.50e5							
FUNCTION1 HXCD...			4.151e2					598		5.19e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.045e3					1177		2.11e4							0.000
FUNCTION3 OCDPE			4.026e2					506		6.22e3							0.000
FUNCTION4 NCDPE			2.932e2					784		4.26e3							0.000
FUNCTION5 DCDPE			0.000e0					598		0.00e0							

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ID: CS3H3, Name: 23042421, Date: 25-Apr-2023, Time: 06:52:00, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.19	3.483e4	4.900e4	0.678	0.71	0.77	659.6	YES	NO	bb	db	9.476
2	2378-TCDF	25.69	4.034e4	5.338e4	0.702	0.76	0.77	748.8	YES	NO	bb	bb	10.238
3	1368-TCDF	22.19	5.039e4	6.421e4	0.802	0.78	0.77	981.9	YES	NO	bb	bb	10.958

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.05	4.326e5	2.861e5	1.246	1.51	1.55	11207.5	YES	NO	bb	bb	49.561

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.23	2.651e5	1.697e5	0.496	1.56	1.55	1739.3	YES	NO	bb	bb	75.293
2	23478-PeCDF	31.18	2.857e5	1.882e5	0.786	1.52	1.55	1965.8	YES	NO	bb	bb	54.441
3	12378-PeCDF	29.84	2.807e5	1.784e5	0.679	1.57	1.55	1913.2	YES	NO	bb	bb	58.089
4	Total-pentafurans	28.70	4.616e4	2.956e4	0.654	1.56	1.55	317.0	YES	NO	bb	bb	10.199

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123478-HxCDF	34.80	2.878e5	2.308e5	1.166	1.25	1.24	2216.7	YES	NO	bd	bd	46.807
2	123468-HXCDF	33.14	2.907e5	2.331e5	1.169	1.25	1.24	2123.2	YES	NO	bb	bb	47.158
3	123789-HxCDF	36.84	2.212e5	1.755e5	1.137	1.26	1.24	1592.4	YES	NO	bb	bb	46.303
4	234678-HxCDF	35.82	2.825e5	2.278e5	1.140	1.24	1.24	2098.3	YES	NO	bb	bb	47.740
5	123678-HxCDF	34.95	3.043e5	2.451e5	1.091	1.24	1.24	2266.1	YES	NO	db	db	49.229

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234789-HpCDF	40.92	1.576e5	1.529e5	0.953	1.03	1.05	889.8	YES	NO	bb	bb	48.614
2	Total-heptafurans	39.35	1.054e3	1.046e3	0.978	1.01	1.05	6.0	YES	NO	bb	bb	0.278
3	1234678-HpCDF	38.68	2.057e5	2.009e5	1.003	1.02	1.05	1381.1	YES	NO	bb	bb	46.399

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.19	3.483e4	4.900e4	0.678	0.71	0.77	659.6	YES	NO	bb	db	9.476
2	2378-TCDF	25.69	4.034e4	5.338e4	0.702	0.76	0.77	748.8	YES	NO	bb	bb	10.238
3	1368-TCDF	22.19	5.039e4	6.421e4	0.802	0.78	0.77	981.9	YES	NO	bb	bb	10.958
4	12389-PECDF	32.23	2.651e5	1.697e5	0.496	1.56	1.55	1739.3	YES	NO	bb	bb	75.293
5	23478-PeCDF	31.18	2.857e5	1.882e5	0.786	1.52	1.55	1965.8	YES	NO	bb	bb	54.441
6	12378-PeCDF	29.84	2.807e5	1.784e5	0.679	1.57	1.55	1913.2	YES	NO	bb	bb	58.089
7	Total-pentafurans	28.70	4.616e4	2.956e4	0.654	1.56	1.55	317.0	YES	NO	bb	bb	10.199
8	123478-HxCDF	34.80	2.878e5	2.308e5	1.166	1.25	1.24	2216.7	YES	NO	bd	bd	46.807
9	123468-HXCDF	33.14	2.907e5	2.331e5	1.169	1.25	1.24	2123.2	YES	NO	bb	bb	47.158
10	123789-HxCDF	36.84	2.212e5	1.755e5	1.137	1.26	1.24	1592.4	YES	NO	bb	bb	46.303
11	234678-HxCDF	35.82	2.825e5	2.278e5	1.140	1.24	1.24	2098.3	YES	NO	bb	bb	47.740
12	123678-HxCDF	34.95	3.043e5	2.451e5	1.091	1.24	1.24	2266.1	YES	NO	db	db	49.229
13	1234789-HpCDF	40.92	1.576e5	1.529e5	0.953	1.03	1.05	889.8	YES	NO	bb	bb	48.614
14	Total-heptafurans	39.35	1.054e3	1.046e3	0.978	1.01	1.05	6.0	YES	NO	bb	bb	0.278
15	1234678-HpCDF	38.68	2.057e5	2.009e5	1.003	1.02	1.05	1381.1	YES	NO	bb	bb	46.399
16	OCDF	45.12	2.315e5	2.460e5	0.778	0.94	0.89	1496.9	YES	NO	bb	bb	90.243
17	13468-PECDF	27.05	4.326e5	2.861e5	1.246	1.51	1.55	11207.5	YES	NO	bb	bb	49.561

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.93	4.182e4	5.388e4	0.909	0.78	0.77	462.8	YES	NO	bb	bd	10.111
2	2378-TCDD	26.34	4.808e4	6.317e4	1.149	0.76	0.77	545.0	YES	NO	bb	dd	9.299
3	Total-tetradioxins	26.01	7.053e4	9.140e4	1.024	0.77	0.77	564.2	YES	NO	bd	bd	15.178
4	Total-tetradioxins	25.52	2.289e4	2.878e4	1.024	0.80	0.77	280.5	YES	NO	bd	bb	4.844
5	1368-TCDD	23.47	4.662e4	6.053e4	1.015	0.77	0.77	543.9	YES	NO	bd	bb	10.131

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDD	31.44	2.288e5	1.475e5	1.022	1.55	1.55	2396.1	YES	NO	bb	bb	55.989
2	12479-PECDD	28.72	3.964e5	2.496e5	2.301	1.59	1.55	2703.6	YES	NO	bb	bb	42.685
3	12389-PECDD	31.84	2.651e5	1.644e5	1.184	1.61	1.55	2791.8	YES	NO	bb	bb	55.184

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDD	36.43	2.250e5	1.857e5	0.907	1.21	1.24	1771.9	YES	NO	bb	bb	51.797
2	123678-HxCDD	36.04	2.390e5	2.092e5	1.001	1.14	1.24	1859.5	YES	NO	db	db	50.012
3	123478-HxCDD	35.93	2.188e5	1.794e5	0.996	1.22	1.24	1837.9	YES	NO	bd	bd	46.920
4	Total-hexadioxins	35.01	1.685e3	1.246e3	1.005	1.35	1.24	8.8	YES	NO	db	bb	0.334
5	124679-HXCDD	33.91	2.574e5	1.989e5	1.115	1.29	1.24	1936.3	YES	NO	bb	bb	47.984

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	Total-heptadioxins	40.45	2.173e2	2.030e2	1.088	1.07	1.05	4.5	YES	NO	bb	bb	0.055
2	1234678-HpCDD	40.17	1.822e5	1.780e5	1.039	1.02	1.05	1324.0	YES	NO	bb	bb	49.428
3	1234679-HPCDD	39.12	2.072e5	1.979e5	1.137	1.05	1.05	1623.0	YES	NO	bb	bb	50.805

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.93	4.182e4	5.388e4	0.909	0.78	0.77	462.8	YES	NO	bb	bd	10.111
2	2378-TCDD	26.34	4.808e4	6.317e4	1.149	0.76	0.77	545.0	YES	NO	bb	dd	9.299
3	Total-tetradioxins	26.01	7.053e4	9.140e4	1.024	0.77	0.77	564.2	YES	NO	bd	bd	15.178
4	Total-tetradioxins	25.52	2.289e4	2.878e4	1.024	0.80	0.77	280.5	YES	NO	bd	bb	4.844
5	1368-TCDD	23.47	4.662e4	6.053e4	1.015	0.77	0.77	543.9	YES	NO	bd	bb	10.131
6	12378-PeCDD	31.44	2.288e5	1.475e5	1.022	1.55	1.55	2396.1	YES	NO	bb	bb	55.989
7	12479-PECDD	28.72	3.964e5	2.496e5	2.301	1.59	1.55	2703.6	YES	NO	bb	bb	42.685
8	123789-HxCDD	36.43	2.250e5	1.857e5	0.907	1.21	1.24	1771.9	YES	NO	bb	bb	51.797
9	123678-HxCDD	36.04	2.390e5	2.092e5	1.001	1.14	1.24	1859.5	YES	NO	db	db	50.012
10	123478-HxCDD	35.93	2.188e5	1.794e5	0.996	1.22	1.24	1837.9	YES	NO	bd	bd	46.920
11	Total-hexadioxins	35.01	1.685e3	1.246e3	1.005	1.35	1.24	8.8	YES	NO	db	bb	0.334
12	124679-HXCDD	33.91	2.574e5	1.989e5	1.115	1.29	1.24	1936.3	YES	NO	bb	bb	47.984
13	12389-PECDD	31.84	2.651e5	1.644e5	1.184	1.61	1.55	2791.8	YES	NO	bb	bb	55.184
14	Total-heptadioxins	40.45	2.173e2	2.030e2	1.088	1.07	1.05	4.5	YES	NO	bb	bb	0.055
15	1234678-HpCDD	40.17	1.822e5	1.780e5	1.039	1.02	1.05	1324.0	YES	NO	bb	bb	49.428
16	1234679-HPCDD	39.12	2.072e5	1.979e5	1.137	1.05	1.05	1623.0	YES	NO	bb	bb	50.805
17	OCDD	44.88	2.903e5	3.310e5	0.920	0.88	0.89	1385.1	YES	NO	bb	bb	99.268

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.19	3.483e4	4.900e4	0.678	0.71	0.77	659.6	YES	NO	bb	db	9.476
2	2378-TCDF	25.69	4.034e4	5.338e4	0.702	0.76	0.77	748.8	YES	NO	bb	bb	10.238
3	1368-TCDF	22.19	5.039e4	6.421e4	0.802	0.78	0.77	981.9	YES	NO	bb	bb	10.958
4	12389-PECDF	32.23	2.651e5	1.697e5	0.496	1.56	1.55	1739.3	YES	NO	bb	bb	75.293
5	23478-PeCDF	31.18	2.857e5	1.882e5	0.786	1.52	1.55	1965.8	YES	NO	bb	bb	54.441
6	12378-PeCDF	29.84	2.807e5	1.784e5	0.679	1.57	1.55	1913.2	YES	NO	bb	bb	58.089
7	Total-pentafurans	28.70	4.616e4	2.956e4	0.654	1.56	1.55	317.0	YES	NO	bb	bb	10.199
8	123478-HxCDF	34.80	2.878e5	2.308e5	1.166	1.25	1.24	2216.7	YES	NO	bd	bd	46.807
9	123468-HXCDF	33.14	2.907e5	2.331e5	1.169	1.25	1.24	2123.2	YES	NO	bb	bb	47.158
10	123789-HxCDF	36.84	2.212e5	1.755e5	1.137	1.26	1.24	1592.4	YES	NO	bb	bb	46.303
11	234678-HxCDF	35.82	2.825e5	2.278e5	1.140	1.24	1.24	2098.3	YES	NO	bb	bb	47.740
12	123678-HxCDF	34.95	3.043e5	2.451e5	1.091	1.24	1.24	2266.1	YES	NO	db	db	49.229
13	1234789-HpCDF	40.92	1.576e5	1.529e5	0.953	1.03	1.05	889.8	YES	NO	bb	bb	48.614
14	Total-heptafurans	39.35	1.054e3	1.046e3	0.978	1.01	1.05	6.0	YES	NO	bb	bb	0.278
15	1234678-HpCDF	38.68	2.057e5	2.009e5	1.003	1.02	1.05	1381.1	YES	NO	bb	bb	46.399
16	OCDF	45.12	2.315e5	2.460e5	0.778	0.94	0.89	1496.9	YES	NO	bb	bb	90.243
17	13468-PECDF	27.05	4.326e5	2.861e5	1.246	1.51	1.55	11207.5	YES	NO	bb	bb	49.561
18	1289-TCDD	26.93	4.182e4	5.388e4	0.909	0.78	0.77	462.8	YES	NO	bb	bd	10.111
19	2378-TCDD	26.34	4.808e4	6.317e4	1.149	0.76	0.77	545.0	YES	NO	bb	dd	9.299
20	Total-tetradioxins	26.01	7.053e4	9.140e4	1.024	0.77	0.77	564.2	YES	NO	bd	bd	15.178
21	Total-tetradioxins	25.52	2.289e4	2.878e4	1.024	0.80	0.77	280.5	YES	NO	bd	bb	4.844
22	1368-TCDD	23.47	4.662e4	6.053e4	1.015	0.77	0.77	543.9	YES	NO	bd	bb	10.131
23	12378-PeCDD	31.44	2.288e5	1.475e5	1.022	1.55	1.55	2396.1	YES	NO	bb	bb	55.989
24	12479-PECDD	28.72	3.964e5	2.496e5	2.301	1.59	1.55	2703.6	YES	NO	bb	bb	42.685
25	123789-HxCDD	36.43	2.250e5	1.857e5	0.907	1.21	1.24	1771.9	YES	NO	bb	bb	51.797
26	123678-HxCDD	36.04	2.390e5	2.092e5	1.001	1.14	1.24	1859.5	YES	NO	db	db	50.012
27	123478-HxCDD	35.93	2.188e5	1.794e5	0.996	1.22	1.24	1837.9	YES	NO	bd	bd	46.920
28	Total-hexadioxins	35.01	1.685e3	1.246e3	1.005	1.35	1.24	8.8	YES	NO	db	bb	0.334
29	124679-HXCDD	33.91	2.574e5	1.989e5	1.115	1.29	1.24	1936.3	YES	NO	bb	bb	47.984
30	12389-PECDD	31.84	2.651e5	1.644e5	1.184	1.61	1.55	2791.8	YES	NO	bb	bb	55.184
31	Total-heptadioxins	40.45	2.173e2	2.030e2	1.088	1.07	1.05	4.5	YES	NO	bb	bb	0.055
32	1234678-HpCDD	40.17	1.822e5	1.780e5	1.039	1.02	1.05	1324.0	YES	NO	bb	bb	49.428
33	1234679-HPCDD	39.12	2.072e5	1.979e5	1.137	1.05	1.05	1623.0	YES	NO	bb	bb	50.805
34	OCDD	44.88	2.903e5	3.310e5	0.920	0.88	0.89	1385.1	YES	NO	bb	bb	99.268

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	23.40	2.562e3					0.5	NO		bb		
2	FUNCTION1 PFK	23.13	2.582e3					0.5	NO		bb		
3	FUNCTION1 PFK	23.01	2.000e3					0.4	NO		bb		
4	FUNCTION1 PFK	21.47	2.065e3					0.4	NO		bb		
5	FUNCTION1 PFK	21.21	3.745e4					3.0	YES		db		
6	FUNCTION1 PFK	21.14	5.376e4					3.3	YES		bd		
7	FUNCTION1 PFK	27.91	1.885e3					0.4	NO		bb		
8	FUNCTION1 PFK	27.24	1.636e4					1.0	NO		bb		
9	FUNCTION1 PFK	26.88	8.796e3					0.9	NO		bb		
10	FUNCTION1 PFK	26.17	1.559e4					1.1	NO		db		
11	FUNCTION1 PFK	26.10	1.027e4					1.0	NO		bd		
12	FUNCTION1 PFK	25.75	1.590e4					1.0	NO		bb		
13	FUNCTION1 PFK	24.93	5.919e3					0.8	NO		bb		
14	FUNCTION1 PFK	24.87	2.628e4					2.2	NO		db		
15	FUNCTION1 PFK	24.77	5.113e4					2.1	NO		dd		
16	FUNCTION1 PFK	24.73	2.027e4					2.2	NO		bd		
17	FUNCTION1 PFK	24.66	1.833e4					1.5	NO		bb		
18	FUNCTION1 PFK	24.52	7.732e3					0.8	NO		bb		
19	FUNCTION1 PFK	24.45	1.072e4					1.0	NO		db		
20	FUNCTION1 PFK	24.40	2.640e4					1.5	NO		bd		
21	FUNCTION1 PFK	23.95	2.163e3					0.5	NO		bb		
22	FUNCTION1 PFK	23.58	1.467e4					1.3	NO		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.00	1.235e4					1.9	NO		bb		0.000
2	FUNCTION2 PFK	29.80	1.671e4					2.2	NO		bb		0.000
3	FUNCTION2 PFK	29.65	8.983e3					1.0	NO		db		0.000
4	FUNCTION2 PFK	29.62	5.606e3					1.3	NO		bd		0.000
5	FUNCTION2 PFK	29.42	1.164e4					1.5	NO		bb		0.000
6	FUNCTION2 PFK	29.18	7.045e3					1.1	NO		bb		0.000
7	FUNCTION2 PFK	28.89	3.196e3					0.9	NO		db		0.000
8	FUNCTION2 PFK	28.81	9.626e3					1.4	NO		bd		0.000
9	FUNCTION2 PFK	28.67	2.969e3					0.8	NO		bb		0.000
10	FUNCTION2 PFK	28.59	5.346e3					1.1	NO		db		0.000
11	FUNCTION2 PFK	28.53	8.407e3					1.5	NO		bd		0.000
12	FUNCTION2 PFK	28.34	2.478e3					0.7	NO		db		0.000
13	FUNCTION2 PFK	28.30	1.027e4					1.8	NO		dd		0.000
14	FUNCTION2 PFK	28.27	1.341e4					1.1	NO		bd		0.000
15	FUNCTION2 PFK	28.17	4.551e3					1.2	NO		bb		0.000
16	FUNCTION2 PFK	32.56	1.004e4					1.3	NO		bb		0.000
17	FUNCTION2 PFK	32.45	3.923e3					0.9	NO		bb		0.000
18	FUNCTION2 PFK	32.17	4.066e3					1.0	NO		bb		0.000
19	FUNCTION2 PFK	31.92	1.529e4					1.6	NO		bb		0.000
20	FUNCTION2 PFK	31.74	9.082e3					1.8	NO		bb		0.000
21	FUNCTION2 PFK	31.66	7.338e3					1.1	NO		bb		0.000
22	FUNCTION2 PFK	31.58	2.692e3					0.7	NO		bb		0.000
23	FUNCTION2 PFK	31.37	1.038e3					0.6	NO		bb		0.000
24	FUNCTION2 PFK	31.33	3.357e3					1.0	NO		bb		0.000
25	FUNCTION2 PFK	30.96	3.125e3					0.8	NO		bb		0.000
26	FUNCTION2 PFK	30.68	4.786e3					0.7	NO		bb		0.000
27	FUNCTION2 PFK	30.51	1.215e4					1.6	NO		db		0.000
28	FUNCTION2 PFK	30.43	1.225e4					1.4	NO		bd		0.000
29	FUNCTION2 PFK	30.25	4.794e3					1.1	NO		bb		0.000
30	FUNCTION2 PFK	30.19	2.785e3					1.0	NO		bb		0.000
31	FUNCTION2 PFK	30.15	5.202e3					1.1	NO		bb		0.000
32	FUNCTION2 PFK	32.73	1.754e4					2.0	NO		db		0.000
33	FUNCTION2 PFK	32.69	3.840e3					1.1	NO		bd		0.000

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PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	32.99	1.852e4					3.7	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	39.57	1.866e4					2.0	NO		bb		
2	FUNCTION4 PFK	39.02	9.528e3					1.2	NO		bb		
3	FUNCTION4 PFK	38.83	6.290e3					1.2	NO		bb		
4	FUNCTION4 PFK	38.58	5.750e3					1.2	NO		bb		
5	FUNCTION4 PFK	38.52	7.848e3					1.3	NO		bb		
6	FUNCTION4 PFK	38.39	1.179e3					0.5	NO		bb		
7	FUNCTION4 PFK	38.34	2.416e3					0.7	NO		bb		
8	FUNCTION4 PFK	38.28	1.115e4					1.7	NO		bb		
9	FUNCTION4 PFK	38.22	3.858e3					1.0	NO		bb		
10	FUNCTION4 PFK	38.08	6.637e3					1.2	NO		db		
11	FUNCTION4 PFK	38.03	3.955e3					0.8	NO		bd		
12	FUNCTION4 PFK	42.17	8.867e3					1.8	NO		bd		
13	FUNCTION4 PFK	41.97	1.378e4					1.6	NO		bb		
14	FUNCTION4 PFK	41.45	7.751e3					1.2	NO		bb		
15	FUNCTION4 PFK	41.38	5.091e3					0.9	NO		bb		
16	FUNCTION4 PFK	41.30	1.040e4					1.7	NO		db		
17	FUNCTION4 PFK	41.24	1.090e4					1.2	NO		bd		
18	FUNCTION4 PFK	41.17	1.033e4					1.4	NO		bb		
19	FUNCTION4 PFK	40.99	1.483e4					2.0	NO		bb		
20	FUNCTION4 PFK	40.90	1.357e4					1.7	NO		db		
21	FUNCTION4 PFK	40.82	5.556e3					1.2	NO		bd		
22	FUNCTION4 PFK	40.70	1.040e4					1.5	NO		bb		
23	FUNCTION4 PFK	40.49	6.520e3					1.3	NO		db		
24	FUNCTION4 PFK	40.46	1.805e4					1.5	NO		bd		
25	FUNCTION4 PFK	40.05	1.693e4					1.9	NO		db		
26	FUNCTION4 PFK	40.00	1.139e4					1.7	NO		bd		
27	FUNCTION4 PFK	39.70	3.329e3					0.7	NO		bb		
28	FUNCTION4 PFK	42.69	1.119e4					1.1	NO		bb		
29	FUNCTION4 PFK	42.61	1.908e3					0.5	NO		bb		
30	FUNCTION4 PFK	42.39	5.446e3					0.9	NO		bb		
31	FUNCTION4 PFK	42.33	1.519e4					1.8	NO		db		
32	FUNCTION4 PFK	42.26	1.184e4					1.6	NO		bd		
33	FUNCTION4 PFK	42.20	8.565e3					1.6	NO		db		

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PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	45.34	8.253e2					0.7	NO		bb		
2	FUNCTION5 PFK	45.26	1.014e4					1.7	NO		bb		
3	FUNCTION5 PFK	44.83	6.721e2					0.6	NO		bb		
4	FUNCTION5 PFK	44.69	5.022e3					1.6	NO		bb		
5	FUNCTION5 PFK	43.27	6.724e2					0.6	NO		bb		
6	FUNCTION5 PFK	43.16	8.751e3					2.2	NO		bb		

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.13	8.586e1					2.2	NO		db		0.000
2	FUNCTION1 HXCD...	27.05	1.814e2					3.7	YES		bd		0.000
3	FUNCTION1 HXCD...	27.61	1.478e2					2.8	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	32.55	1.191e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	32.38	1.275e2					1.3	NO		bb		0.000
3	FUNCTION2 HPCD...	31.81	1.523e2					1.9	NO		bb		0.000
4	FUNCTION2 HPCD...	31.23	8.509e1					1.9	NO		bb		0.000
5	FUNCTION2 HPCD...	31.07	1.505e2					2.6	NO		bb		0.000
6	FUNCTION2 HPCD...	30.90	1.155e2					2.4	NO		bb		0.000
7	FUNCTION2 HPCD...	30.02	8.221e1					1.3	NO		bb		0.000
8	FUNCTION2 HPCD...	29.74	1.040e2					2.2	NO		bb		0.000
9	FUNCTION2 HPCD...	28.23	1.090e2					1.7	NO		bb		0.000

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ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.89	1.034e2					3.1	YES		bb		0.000
2	FUNCTION3 OCDPE	36.42	1.867e2					5.2	YES		bb		0.000
3	FUNCTION3 OCDPE	35.93	1.126e2					4.0	YES		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.30	9.767e1					1.6	NO		bb		0.000
2	FUNCTION4 NCDPE	40.16	1.187e2					2.4	NO		bb		0.000
3	FUNCTION4 NCDPE	38.71	7.687e1					1.5	NO		bb		0.000

ETHERS6

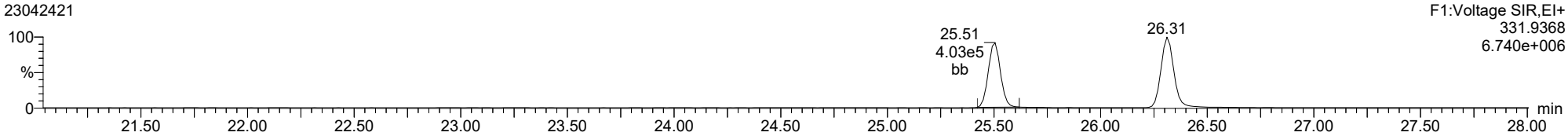
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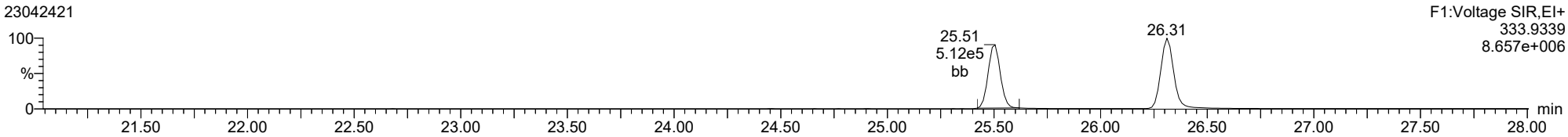
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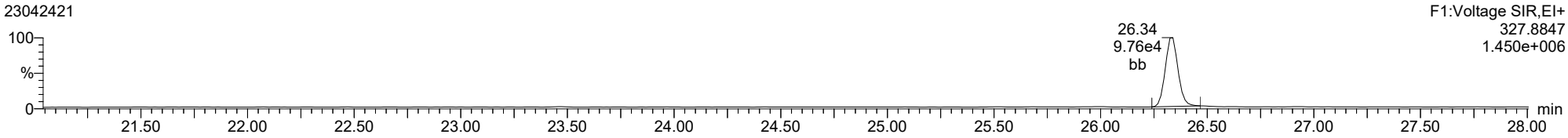
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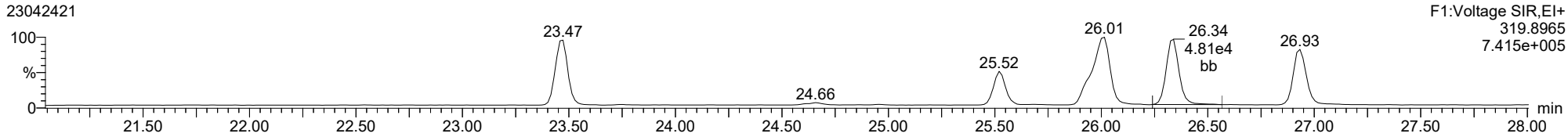


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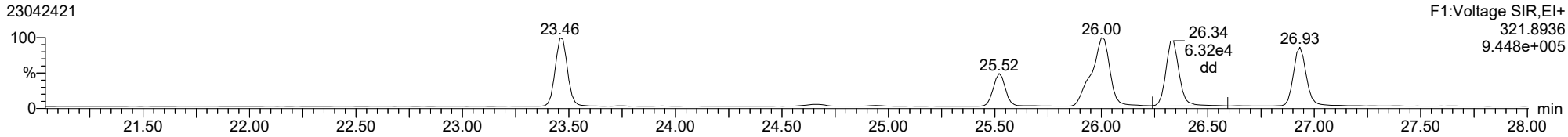


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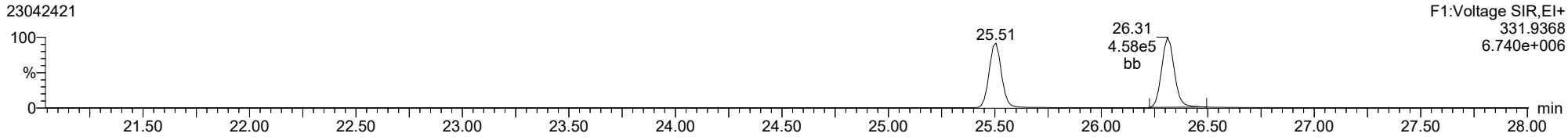
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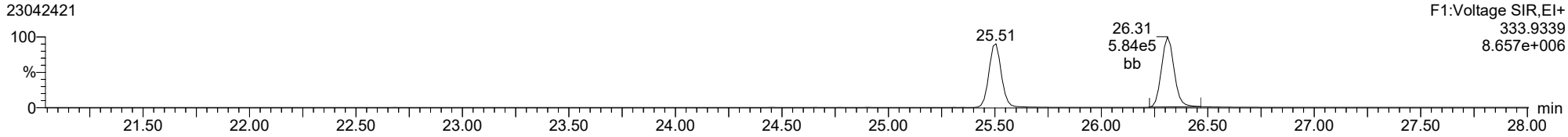
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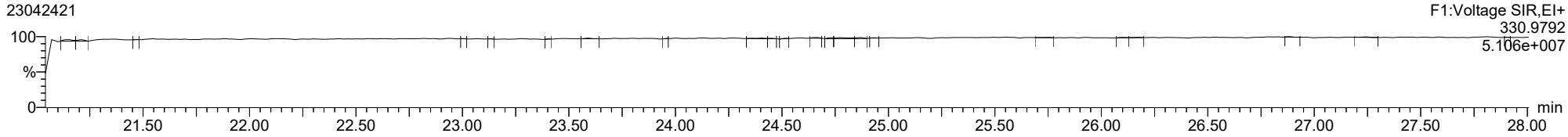
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13C-2378-TCDD

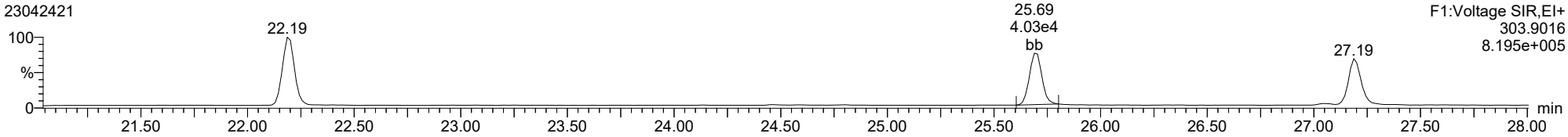


FUNCTION1 PFK

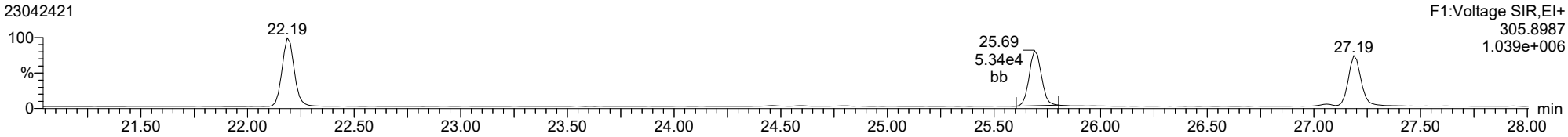


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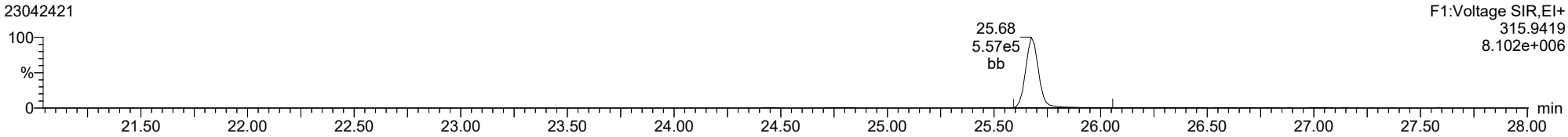
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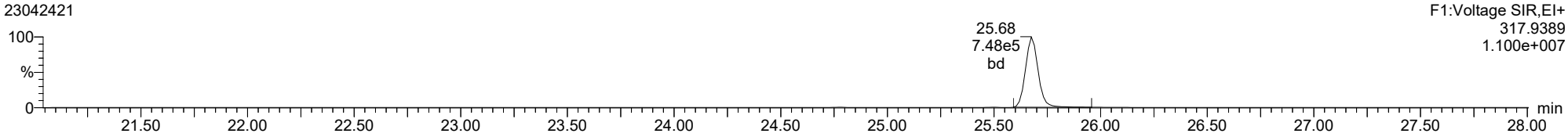
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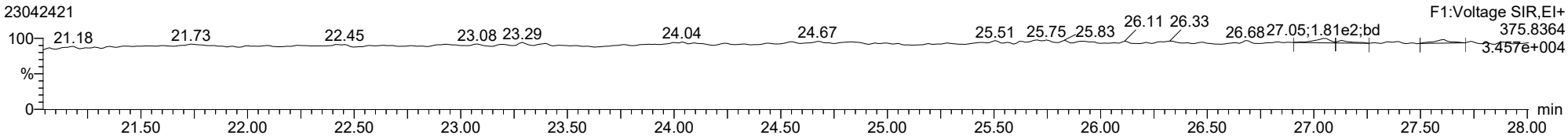
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13C-2378-TCDF

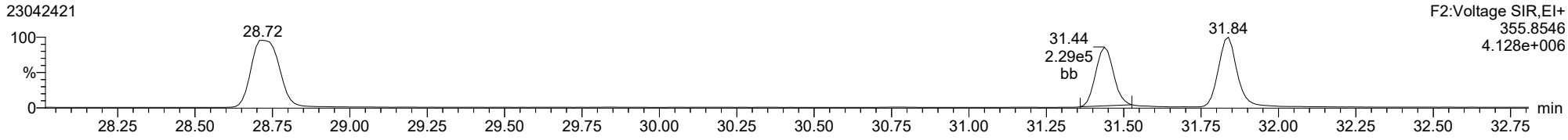


FUNCTION1 HXCDPE

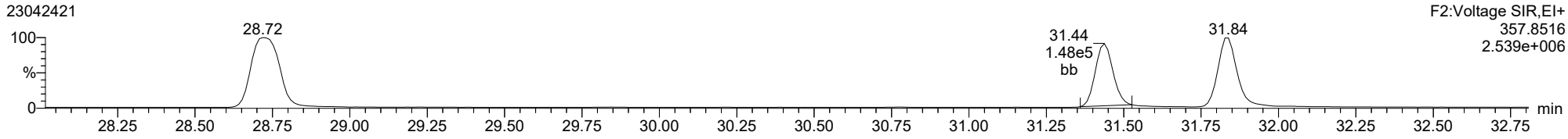


ID: CS3H3, Name: 23042421, Date: 25-Apr-2023, Time: 06:52:00, Conditions: AUTOSPEC01, User: pk

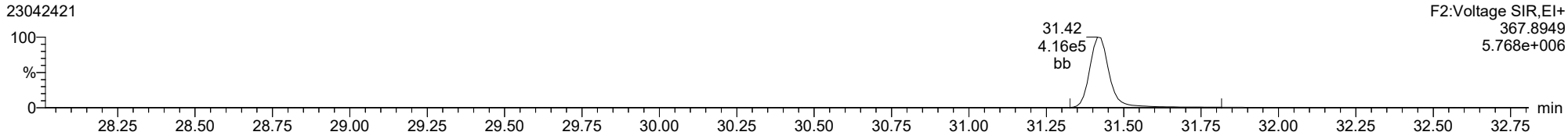
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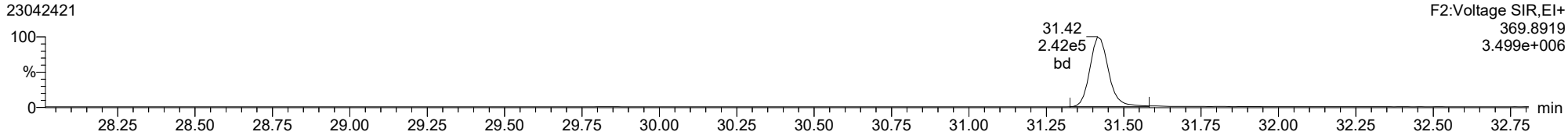
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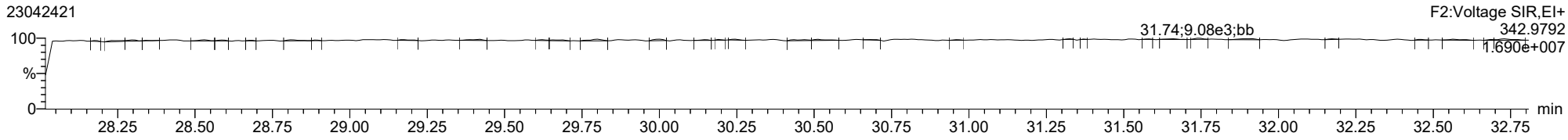
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13C-12378-PeCDD

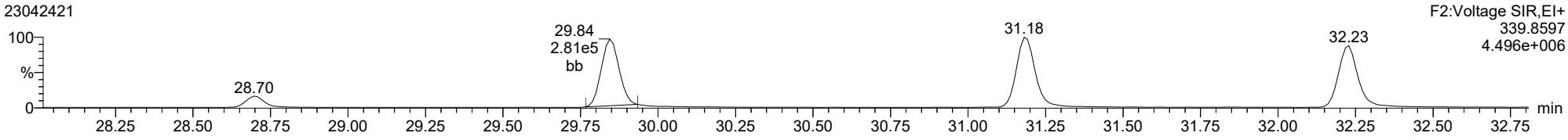


FUNCTION2 PFK

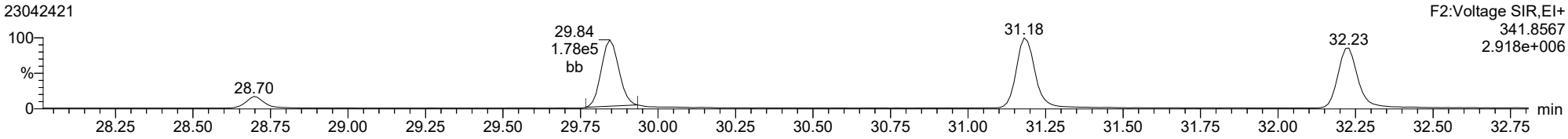


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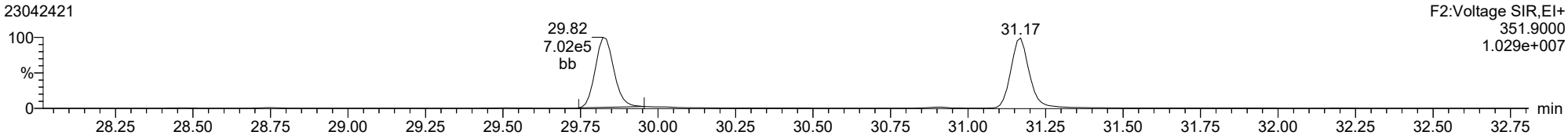
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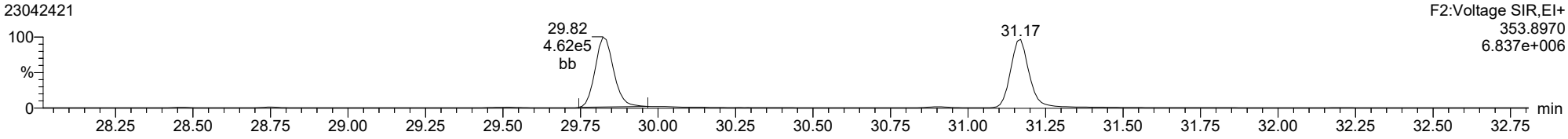
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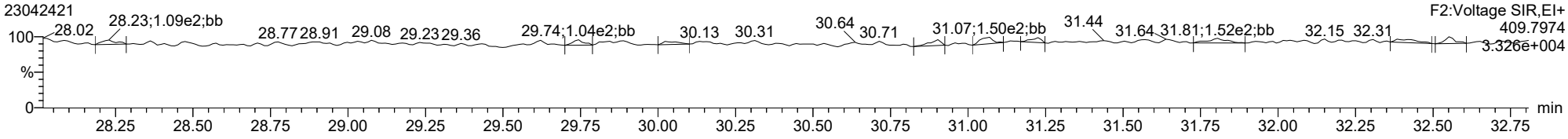
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13C-12378-PeCDF

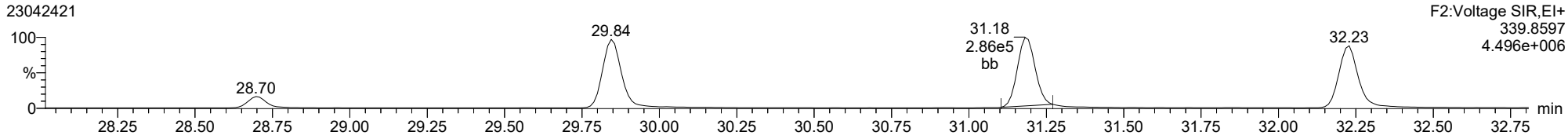


FUNCTION2 HPCDPE

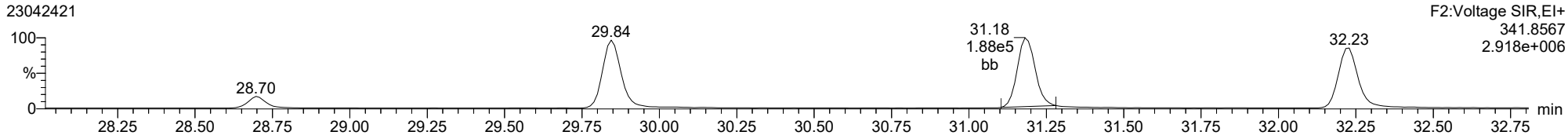


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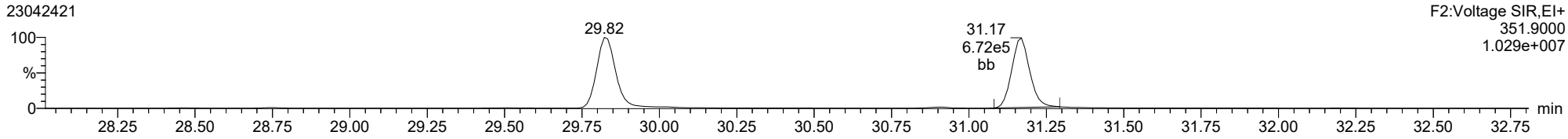
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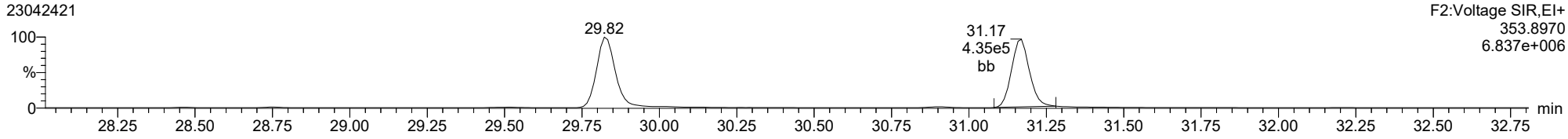
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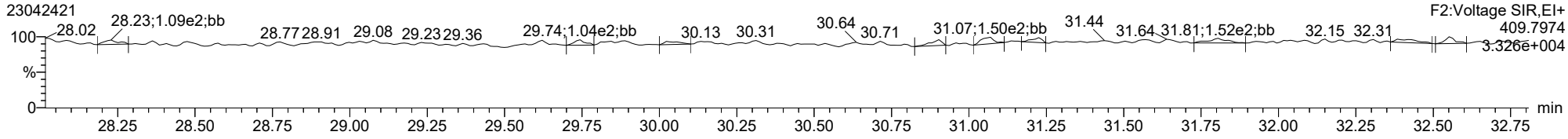
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13C-23478-PeCDF

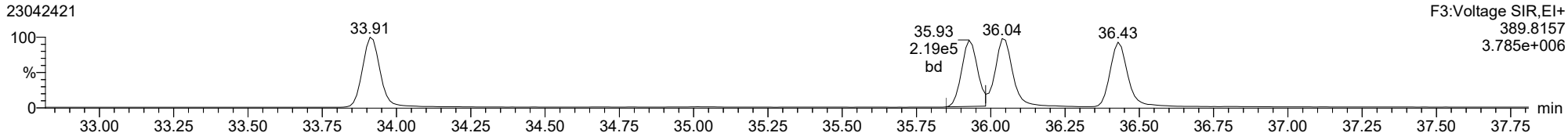


FUNCTION2 HPCDPE

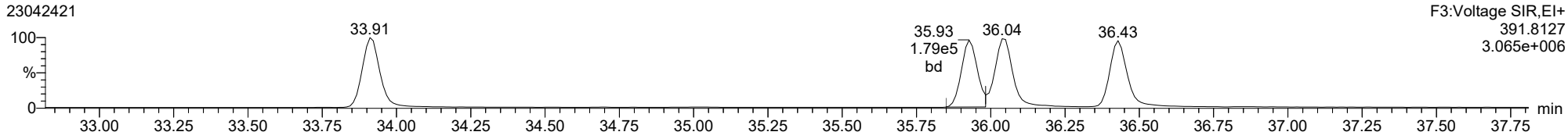


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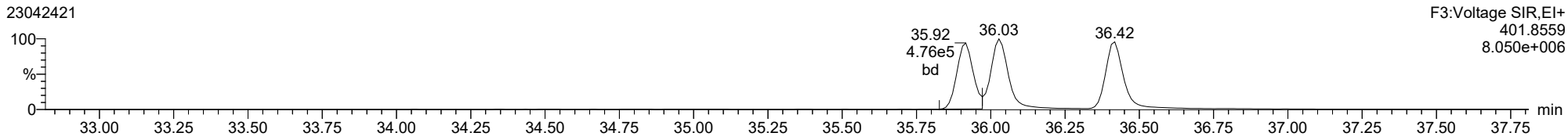
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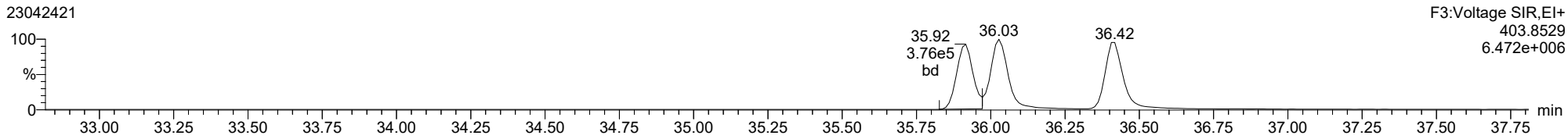
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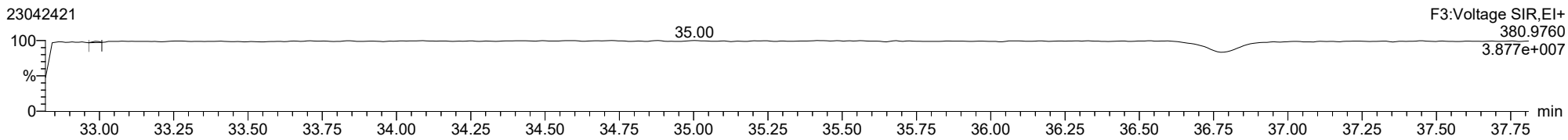
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13C-123478-HxCDD

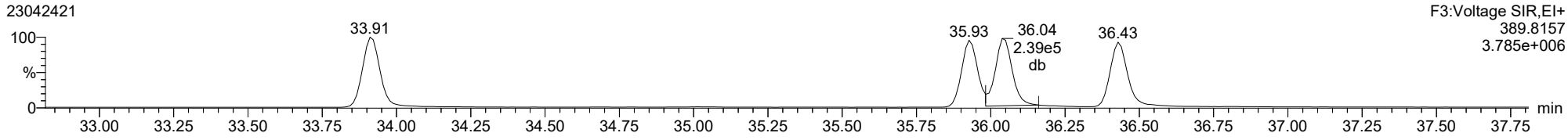


FUNCTION3 PFK

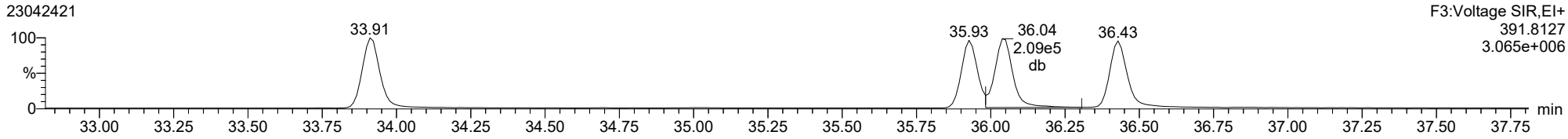


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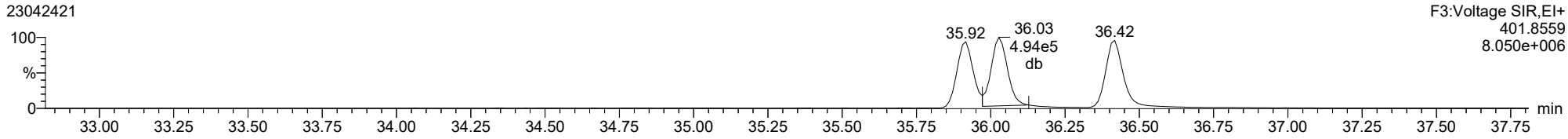
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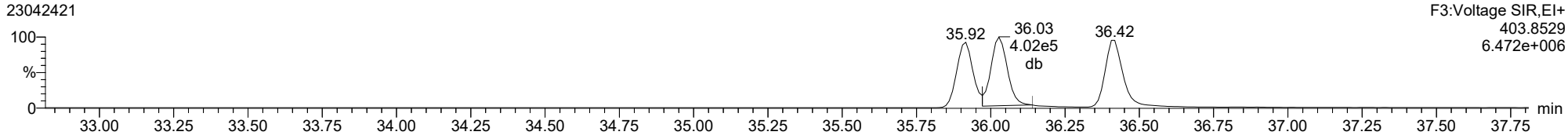
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13C-123678-HxCDD

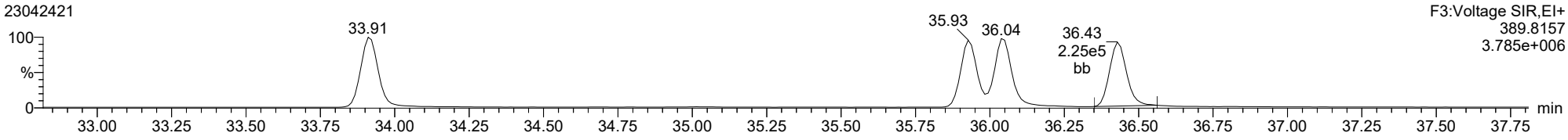


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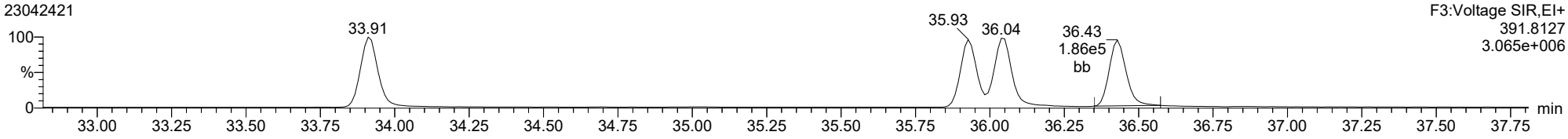


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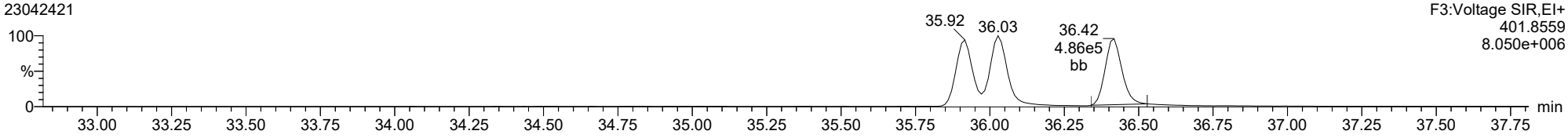
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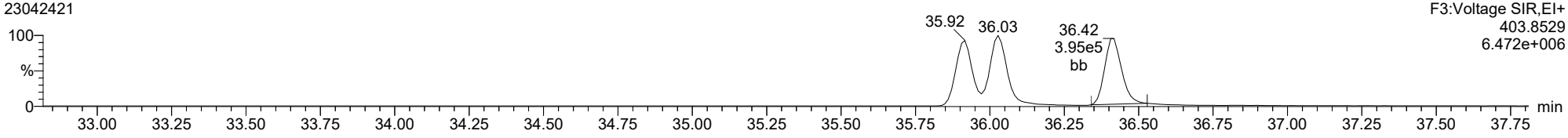
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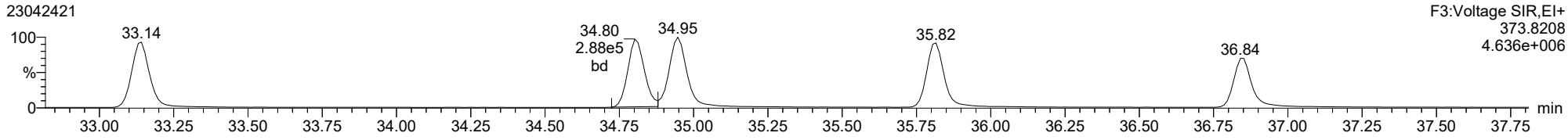


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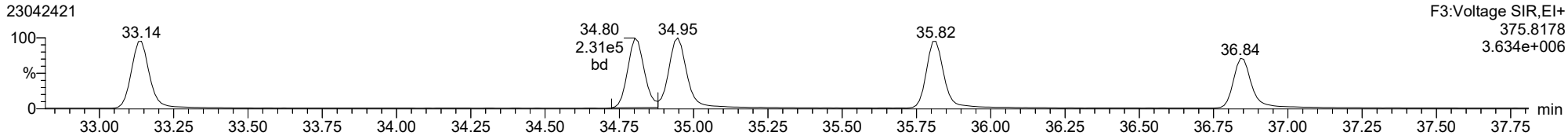


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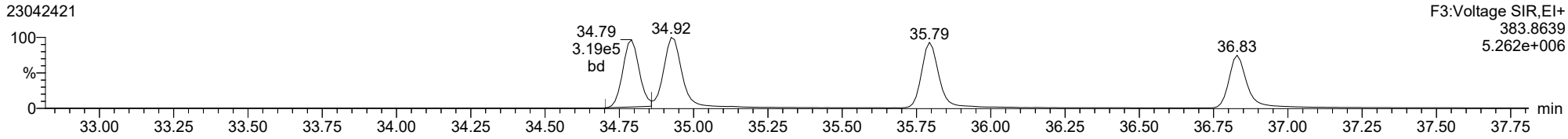
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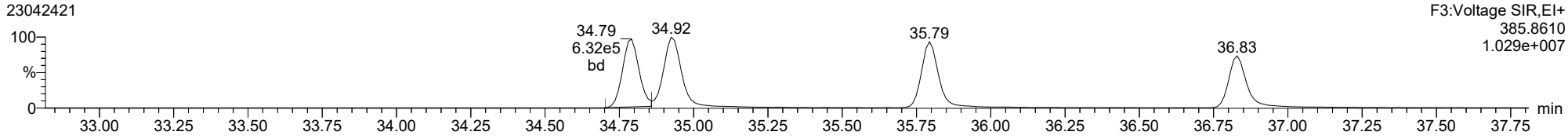
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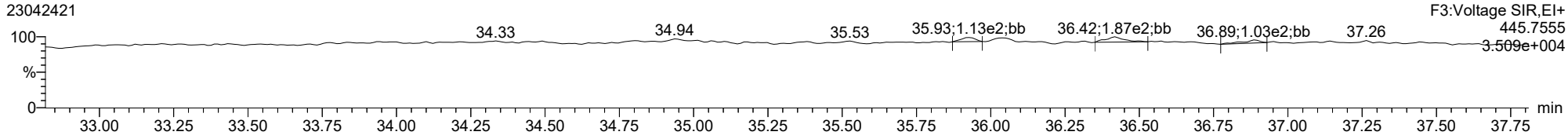
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13C-123478-HxCDF

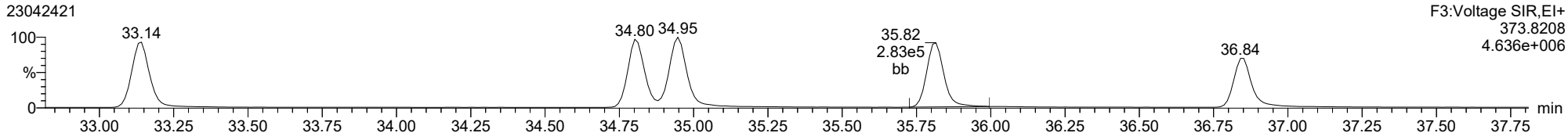


FUNCTION3 OCDPE

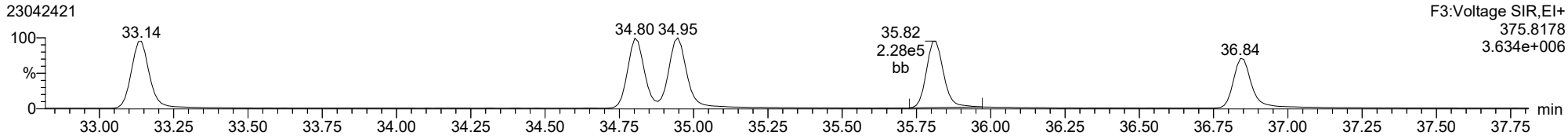


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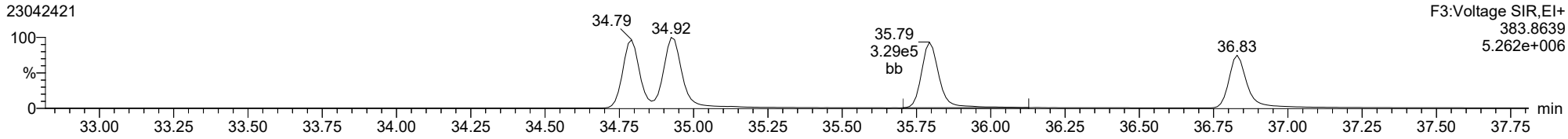
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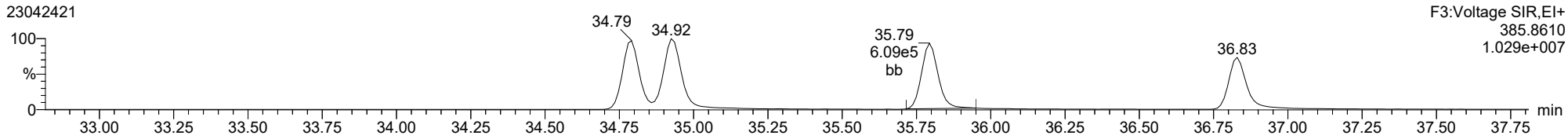
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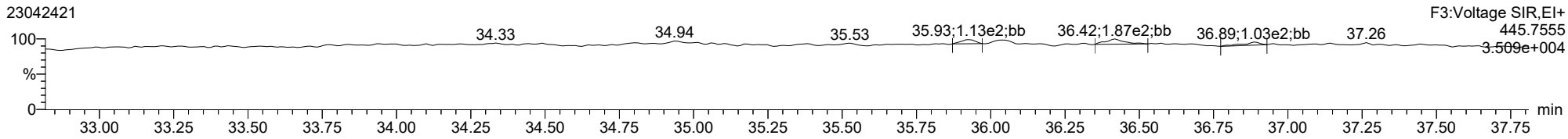
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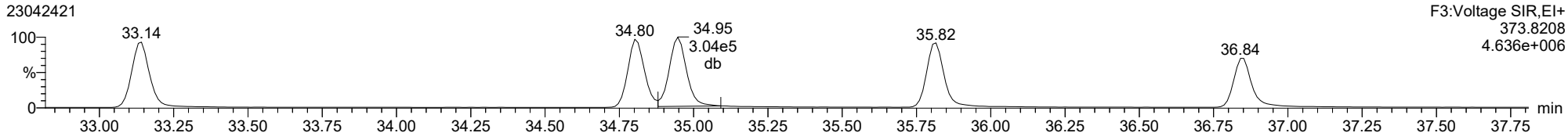


FUNCTION3 OCDPE

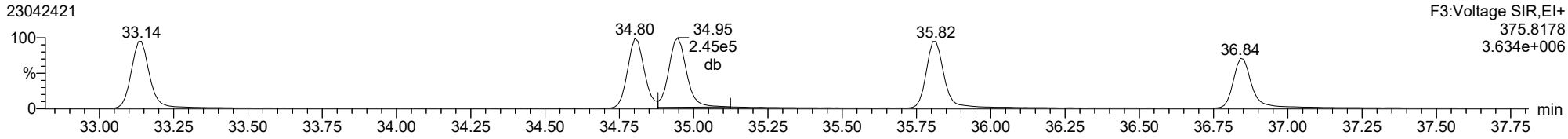


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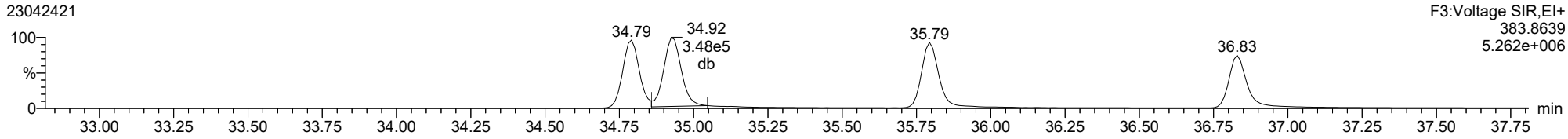
123678-HxCDF



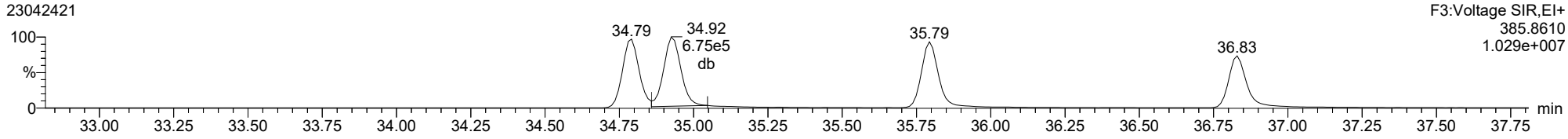
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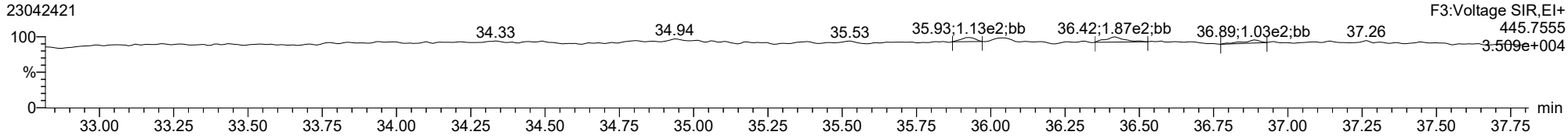
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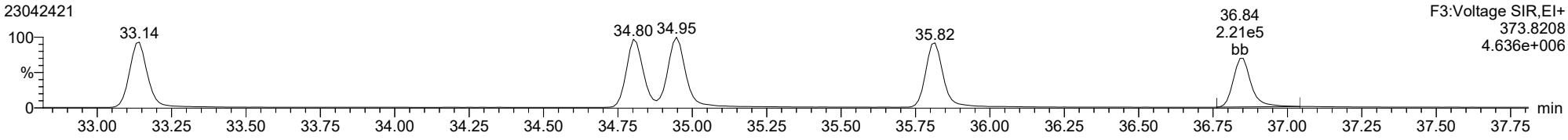


FUNCTION3 OCDPE

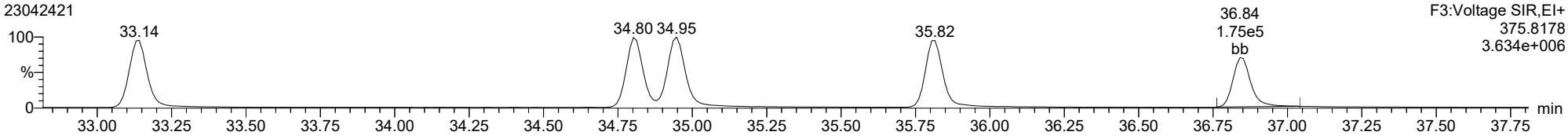


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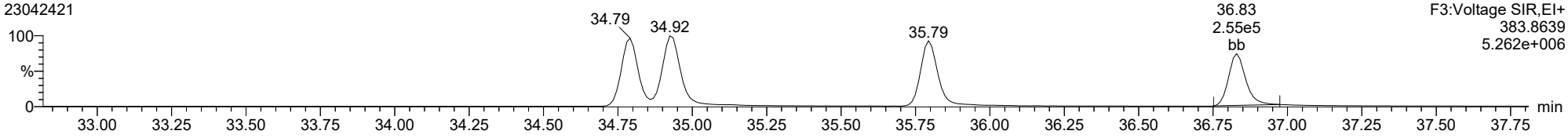
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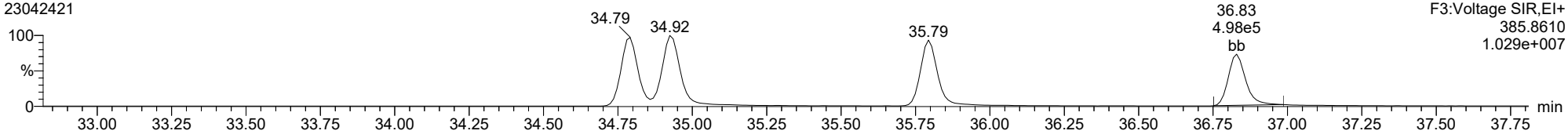
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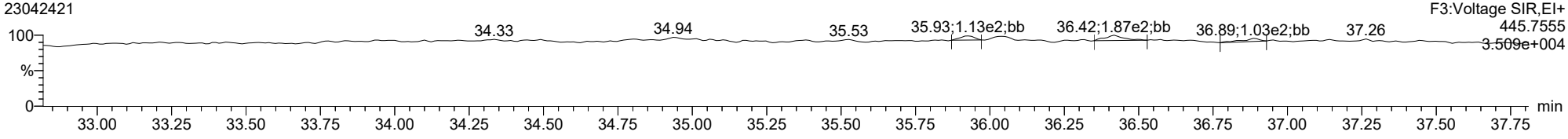
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13C-123789-HxCDF

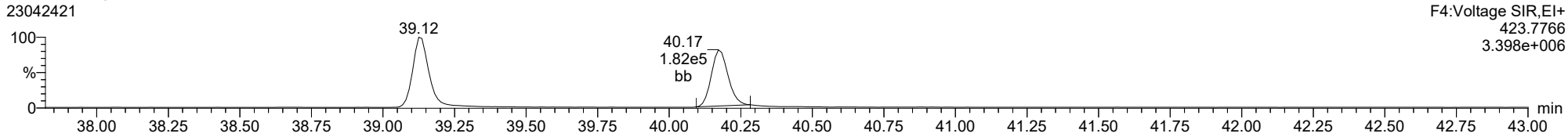


FUNCTION3 OCDPE

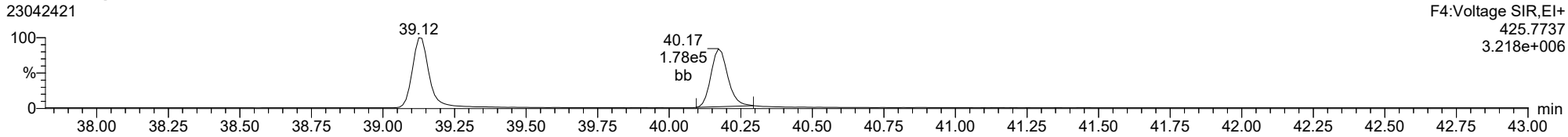


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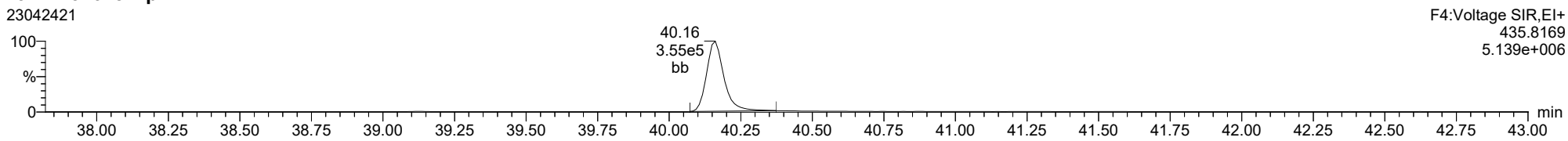
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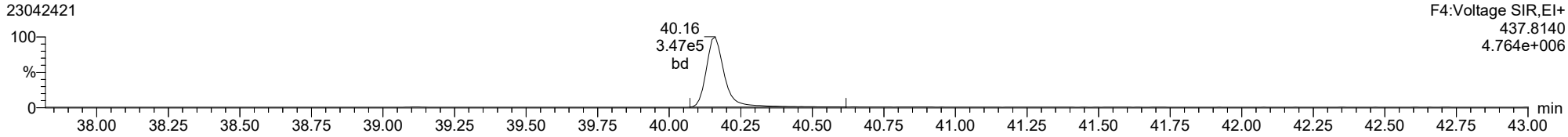
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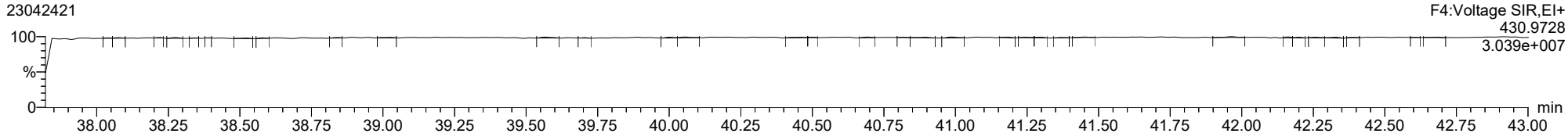
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13C-1234678-HpCDD

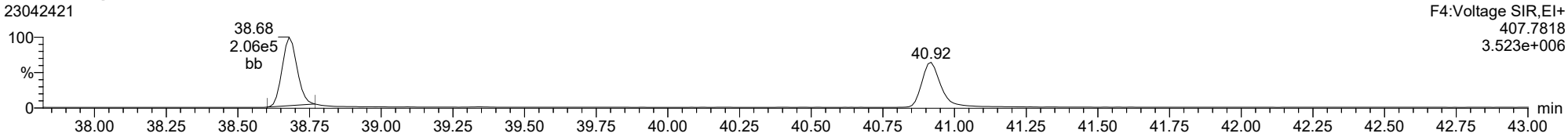


FUNCTION4 PFK

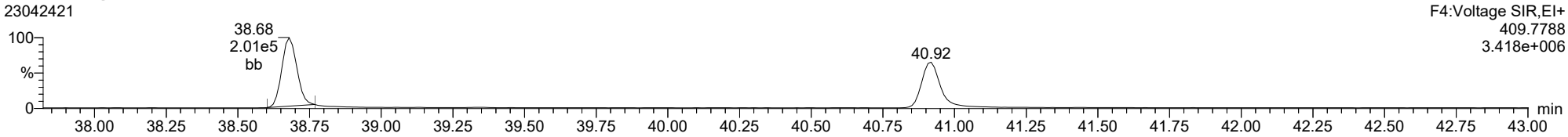


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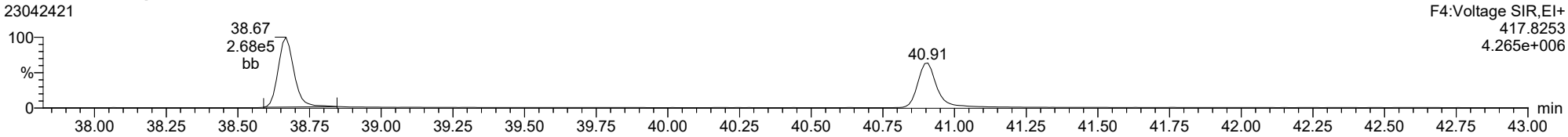
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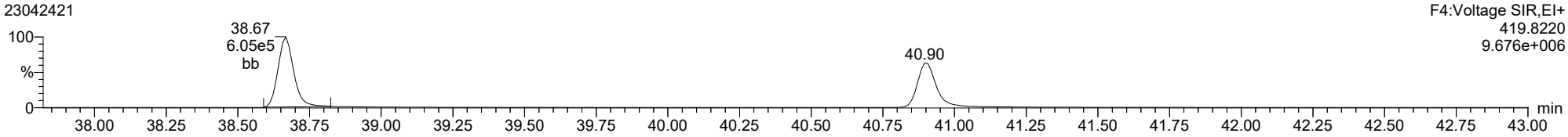
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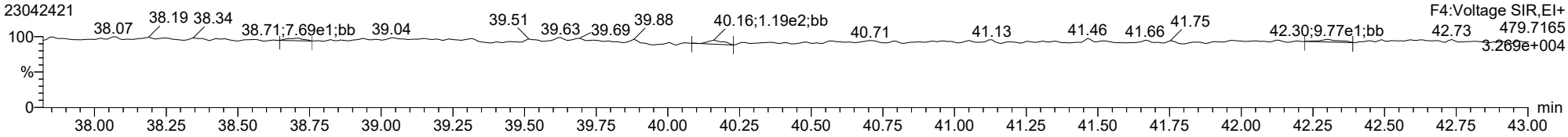
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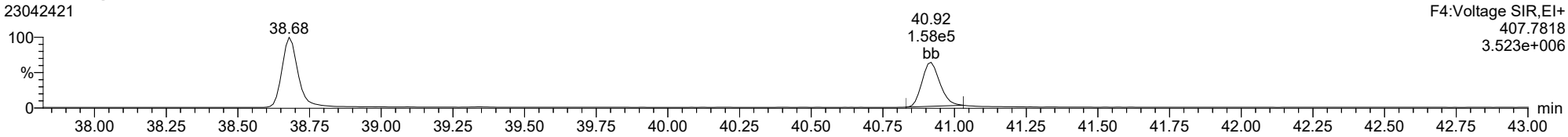


FUNCTION4 NCDPE

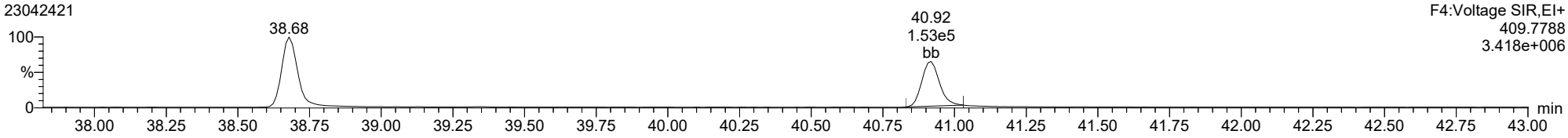


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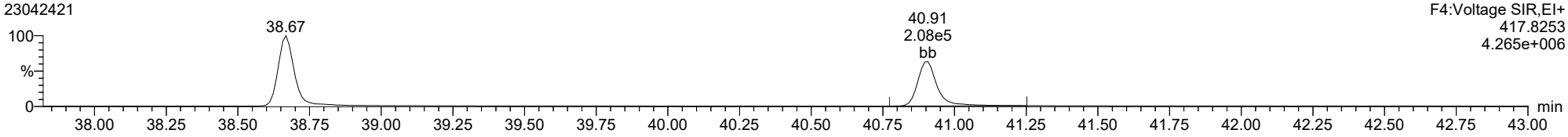
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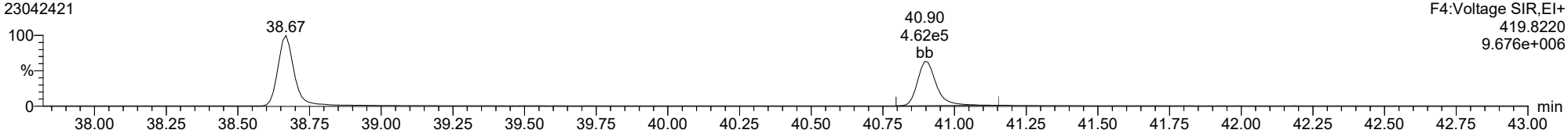
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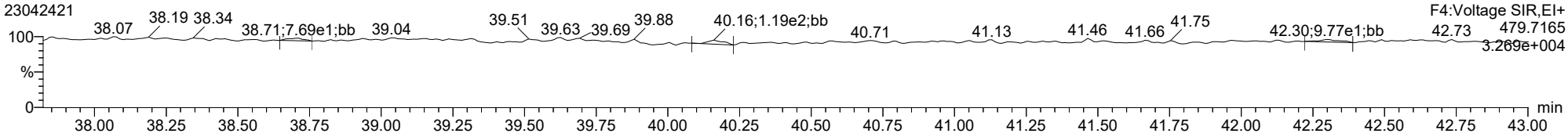
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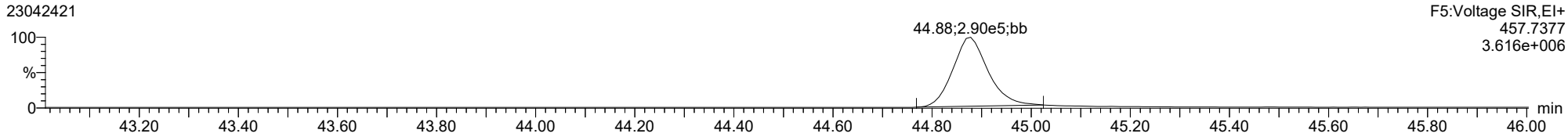


FUNCTION4 NCDPE

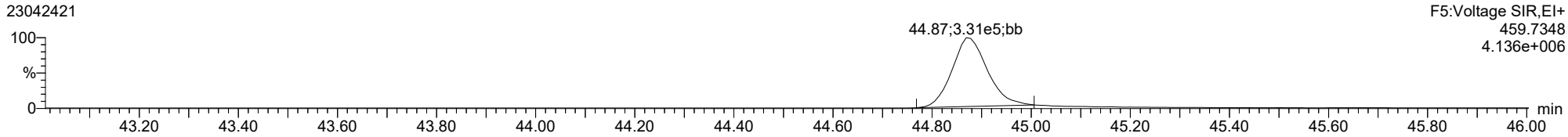


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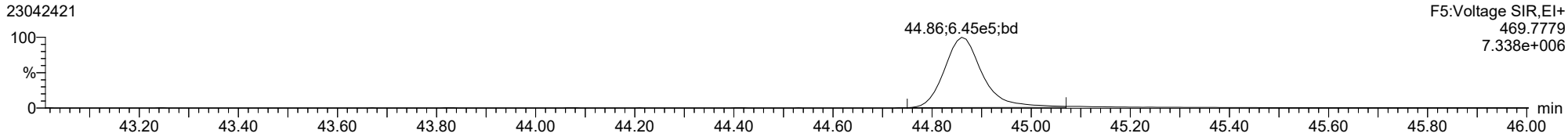
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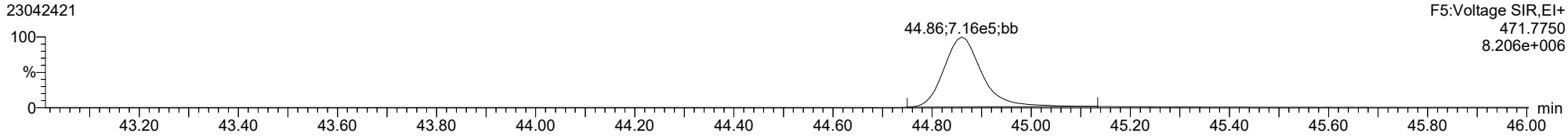
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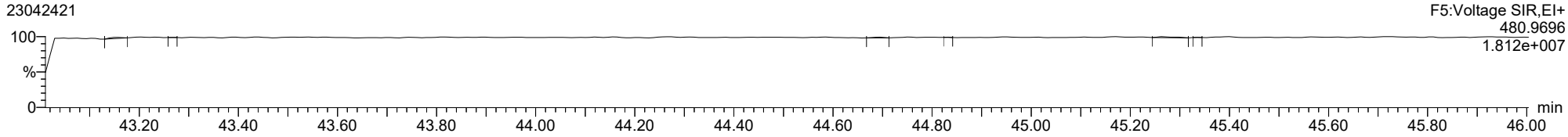
13C-OCDD



13C-OCDD

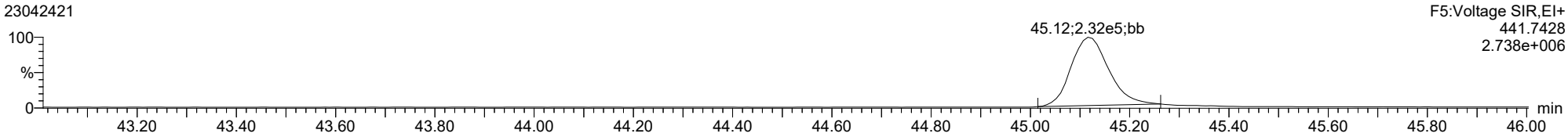


FUNCTION5 PFK

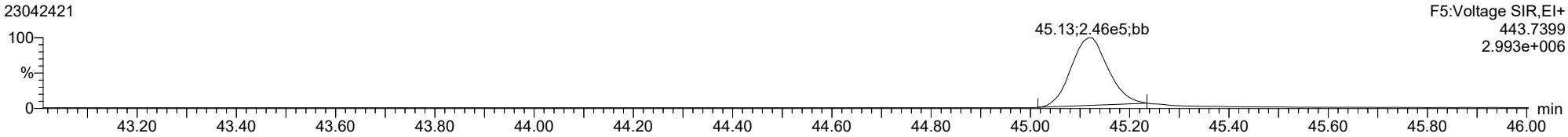


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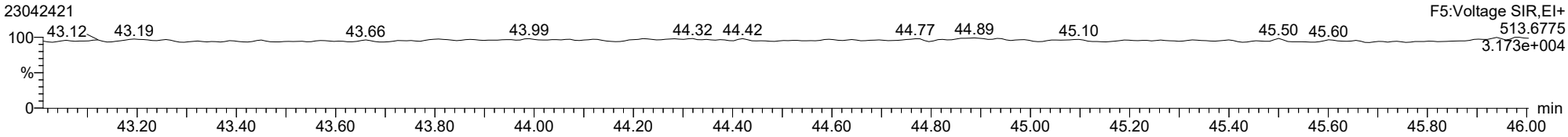
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OCDF

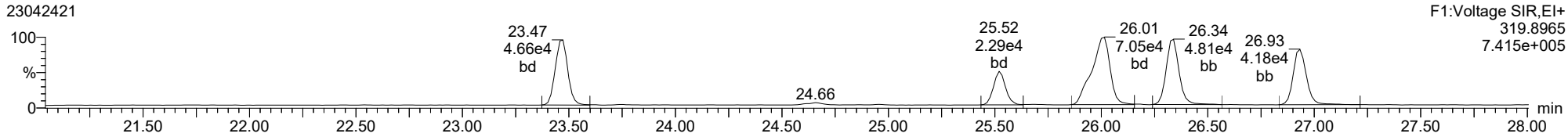


FUNCTION5 DCDPE

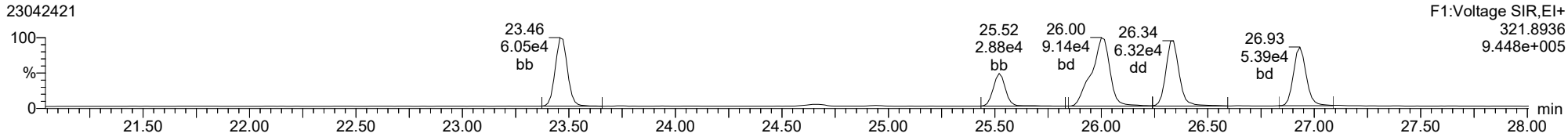


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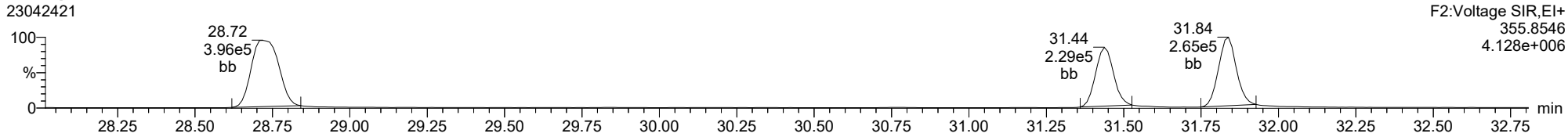
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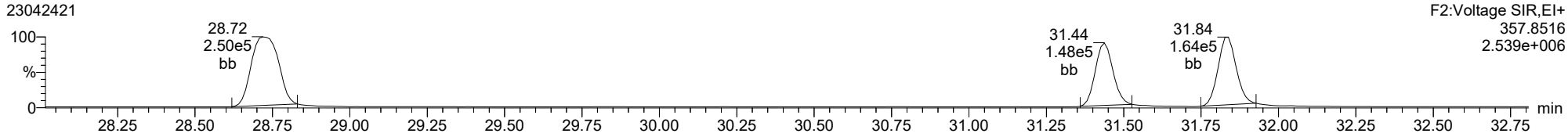
Total-tetradioxins



Total-pentadioxins

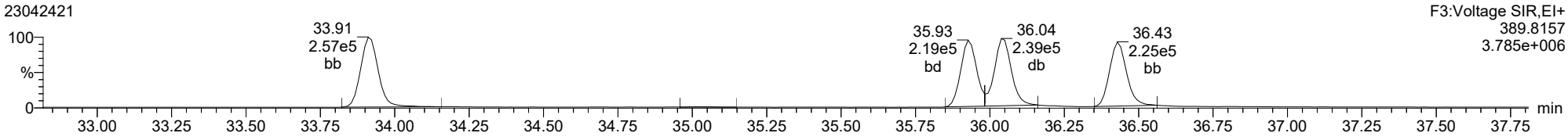


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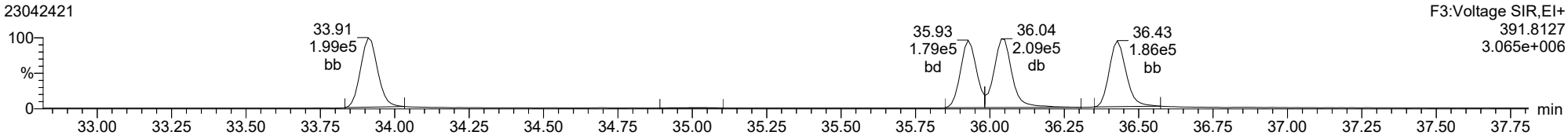


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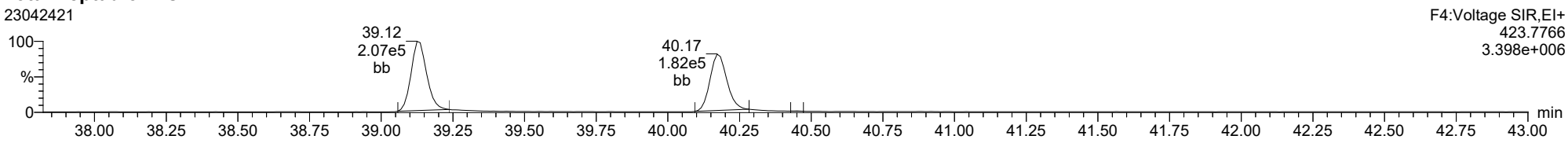
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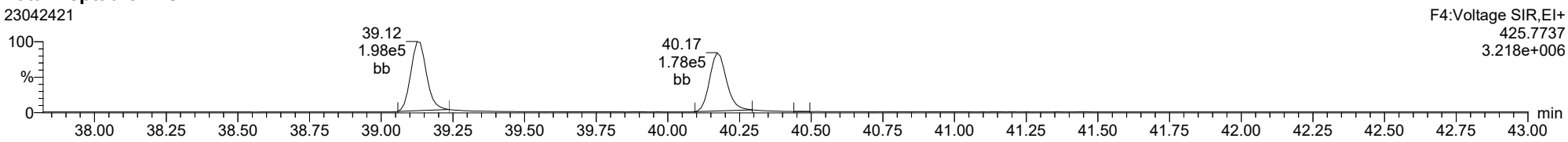
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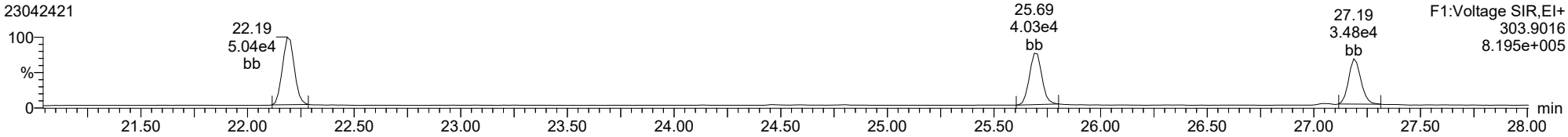


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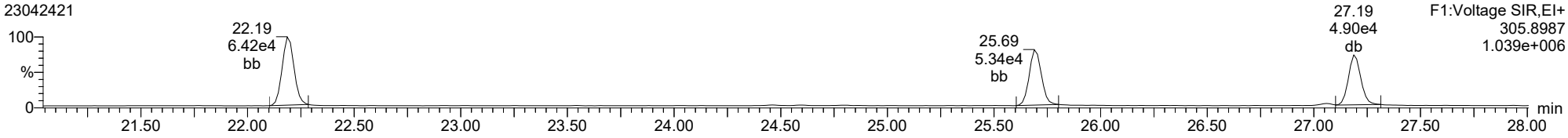


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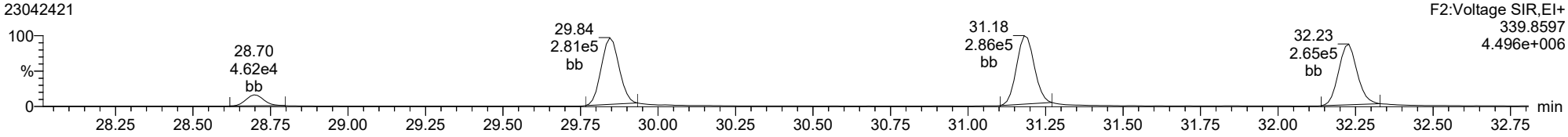
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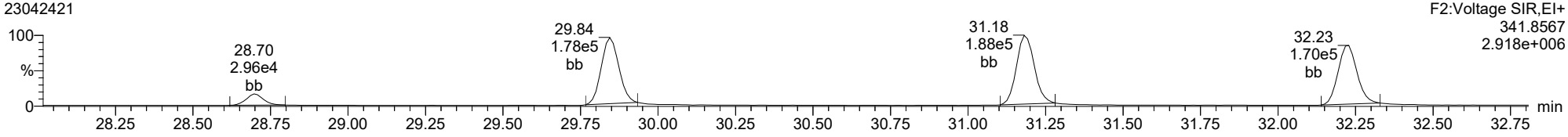
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Total-pentafurans

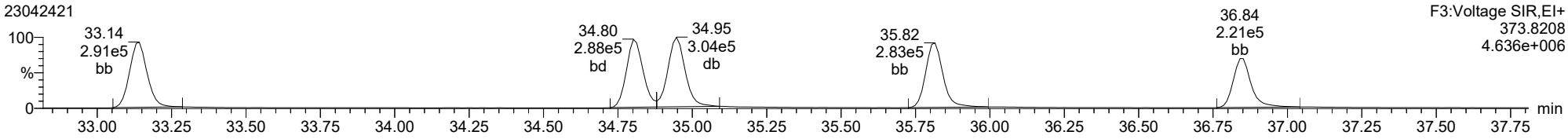


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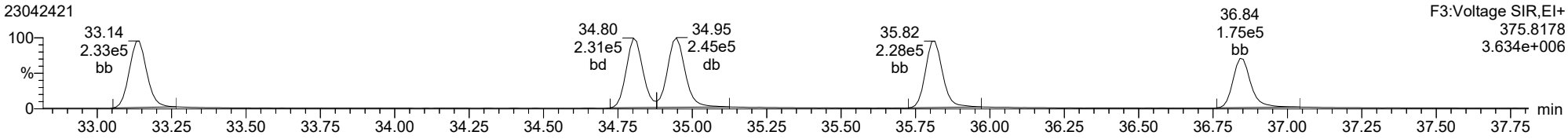


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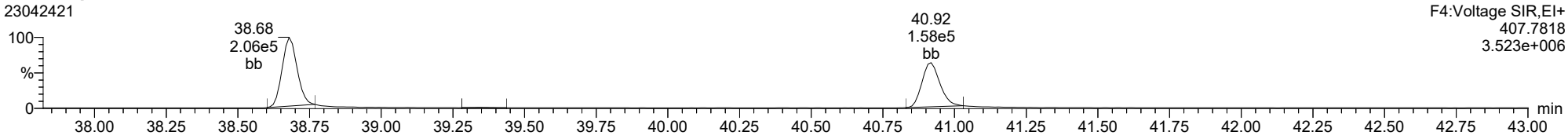
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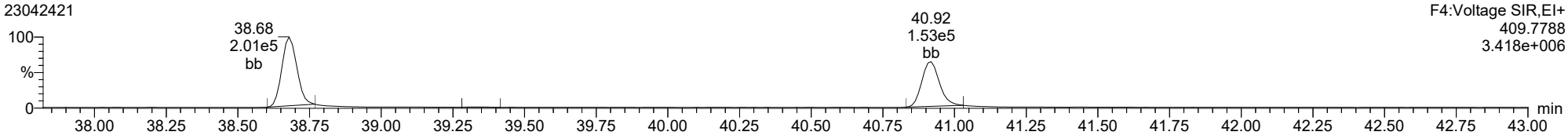
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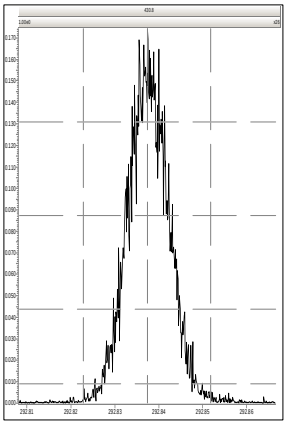


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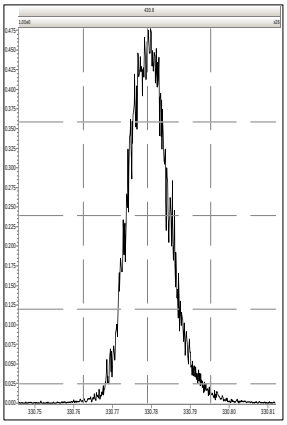


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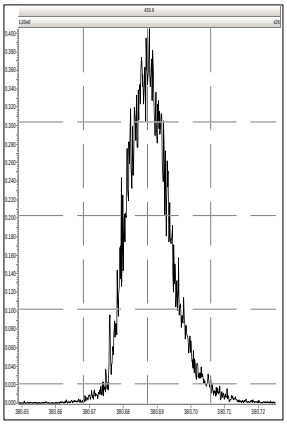
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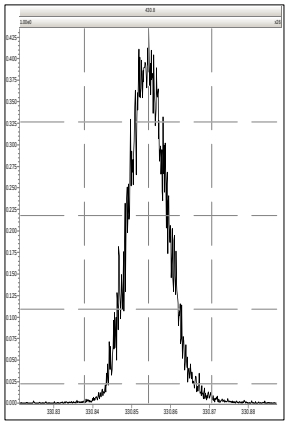
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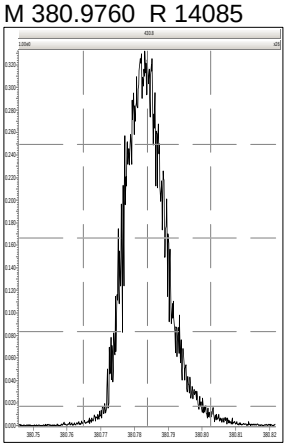
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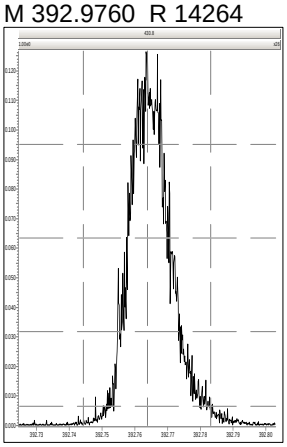
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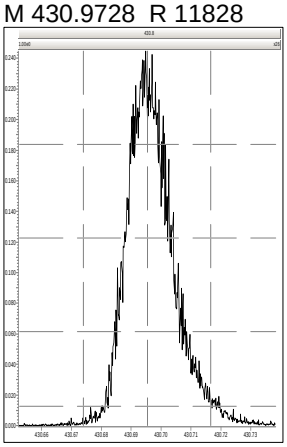
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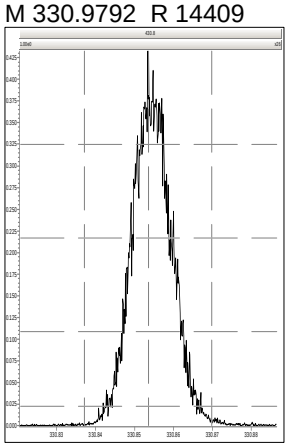
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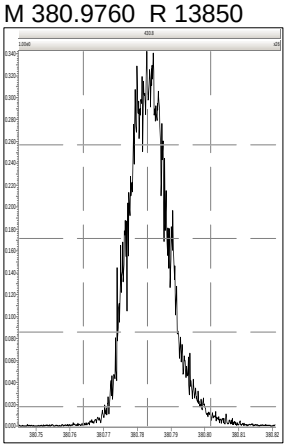
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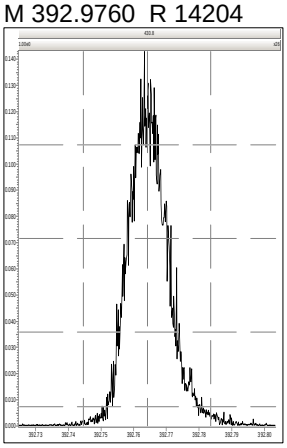
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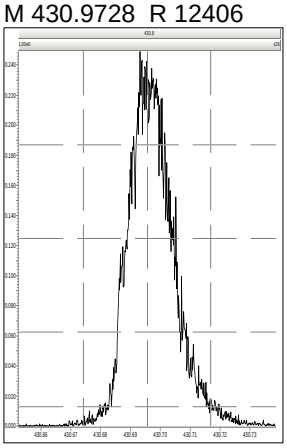
M 380.9760 R 13850



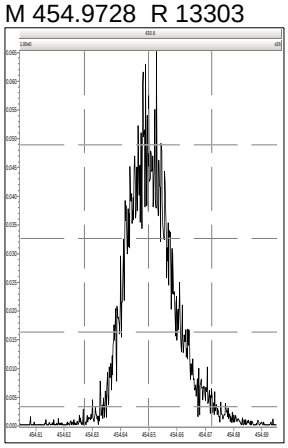
M 392.9760 R 14204



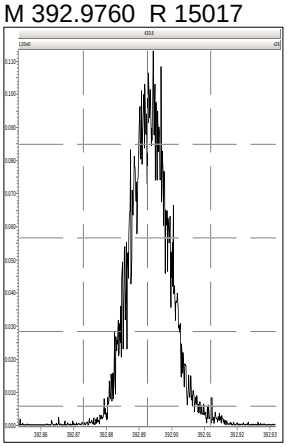
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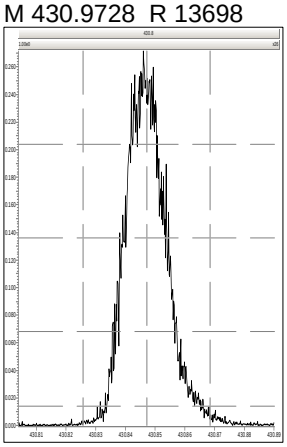
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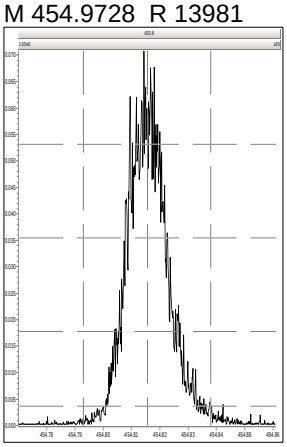
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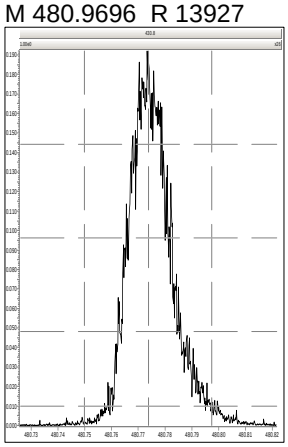
M 430.9728 R 13698



M 454.9728 R 13981

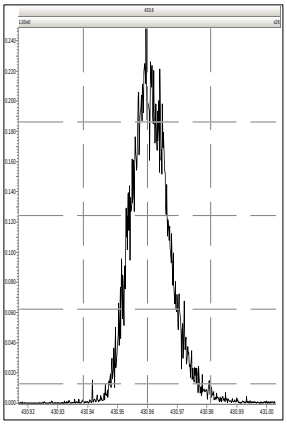


M 480.9696 R 13927

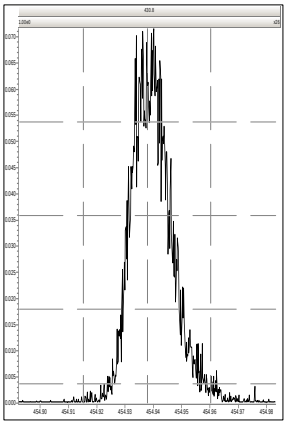


Printed: Tuesday, April 25, 2023 07:44:50 Pacific Daylight Time

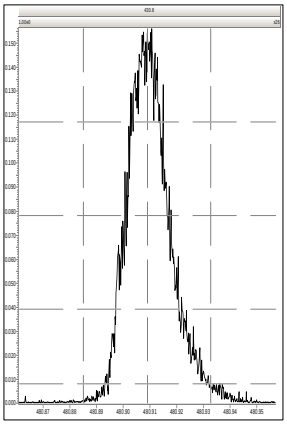
M 430.9728 R 14408



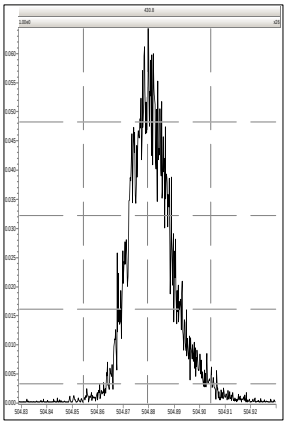
M 454.9728 R 15068



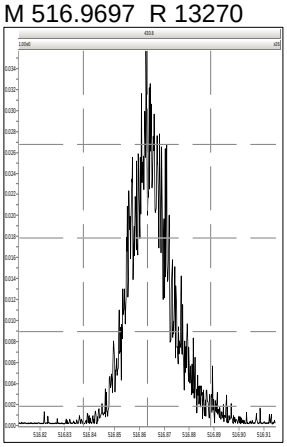
M 480.9696 R 13023

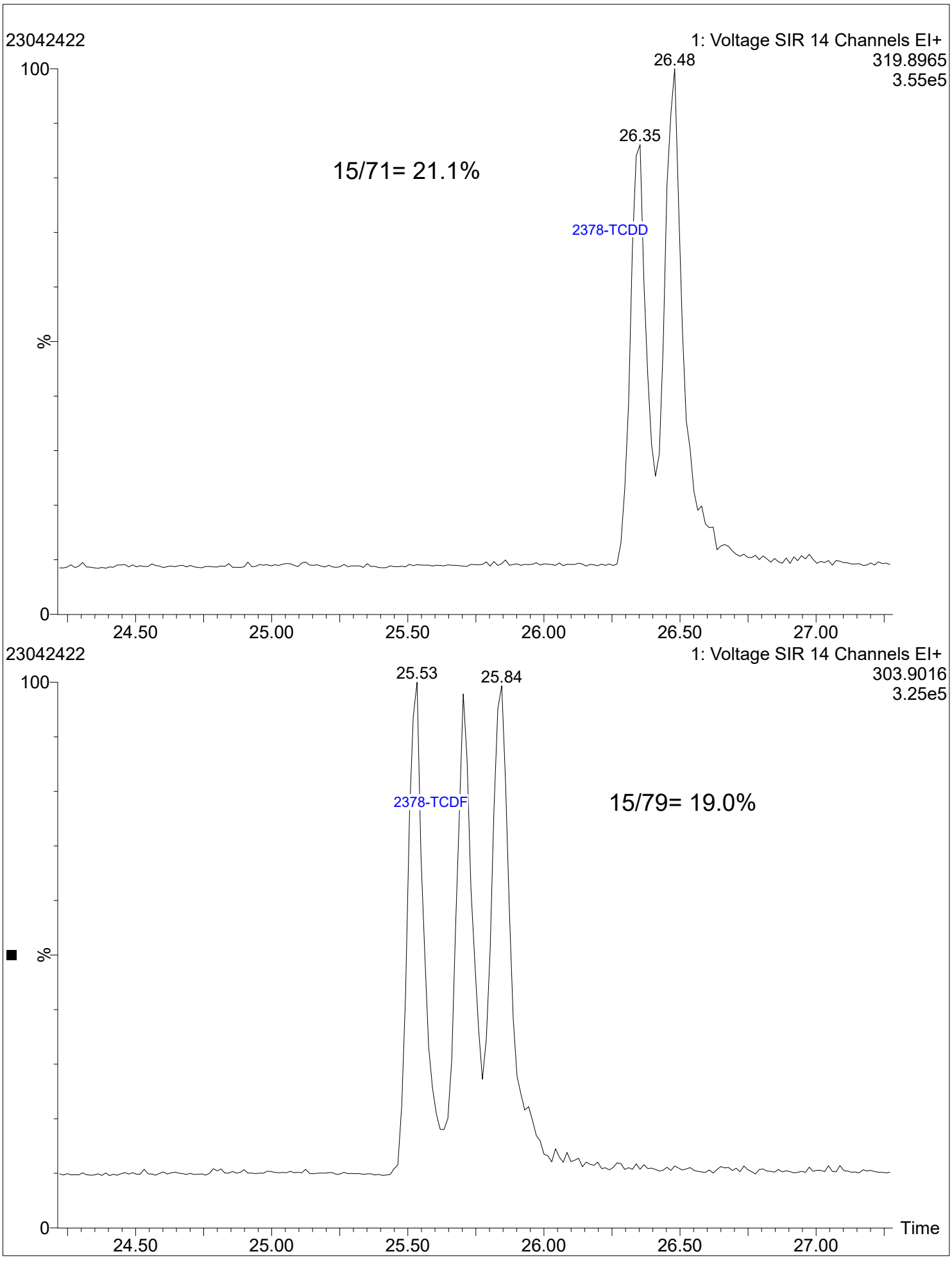


M 504.9696 R 12891



M 516.9697 R 13270




23042422
1: Voltage SIR 14 Channels EI+
319.8965
3.55e5
26.48
26.35
15/71= 21.1%
2378-TCDD
100
%
0
24.50
25.00
25.50
26.00
26.50
27.00
23042422
1: Voltage SIR 14 Channels EI+
303.9016
3.25e5
25.53
25.84
2378-TCDF
15/79= 19.0%
100
%
0
Time
24.50
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23042432	Calibration Date:	03/03/2023
Sequence:	SLD0330	Injection Date:	04/25/23
Lab Sample ID:	SLD0330-CCV3	Injection Time:	15:57
Sequence Name:	CS3H4		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF		
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT	
2,3,7,8-TCDF	A	10.000	9.91	0.7015272	0.6950099		-0.9	+/-16	
2,3,7,8-TCDD	A	10.000	9.32	1.1486620	1.0705120		-6.8	+/-22	
1,2,3,7,8-PeCDF	A	50.000	59.5	0.6792300	0.8082688		19.0	+/-18	
2,3,4,7,8-PeCDF	A	50.000	58.4	0.7861704	0.9187243		16.9	+/-18	
1,2,3,7,8-PeCDD	A	50.000	63.8	1.0218450	1.3048270		27.7	+/-22	
1,2,3,4,7,8-HxCDF	A	50.000	47.3	1.1660380	1.1020340		-5.5	+/-10	
1,2,3,6,7,8-HxCDF	A	50.000	50.5	1.0907410	1.1013280		1.0	+/-12	
2,3,4,6,7,8-HxCDF	A	50.000	49.4	1.1396990	1.1250930		-1.3	+/-12	
1,2,3,7,8,9-HxCDF	A	50.000	48.1	1.1370930	1.0930290		-3.9	+/-10	
1,2,3,4,7,8-HxCDD	A	50.000	51.3	0.9955689	1.0212500		2.6	+/-22	
1,2,3,6,7,8-HxCDD	A	50.000	51.6	1.0009380	1.0319940		3.1	+/-22	
1,2,3,7,8,9-HxCDD	A	50.000	57.6	0.9071139	1.0445200		15.1	+/-18	
1,2,3,4,6,7,8-HpCDF	A	50.000	46.8	1.0029930	0.9393190		-6.3	+/-10	
1,2,3,4,7,8,9-HpCDF	A	50.000	47.2	0.9531152	0.8992606		-5.7	+/-14	
1,2,3,4,6,7,8-HpCDD	A	50.000	52.6	1.0390130	1.0923470		5.1	+/-14	
OCDF	A	100.00	89.2	0.7778078	0.6939731		-10.8	+/-37	
OCDD	A	100.00	100	0.9199537	0.9199764		0.003	+/-21	
13C12-2,3,7,8-TCDF	A	100.00	89.8	1.6201960	1.4543682		-10.2	+/-29	
13C12-2,3,7,8-TCDD	A	100.00	100	1.1524090	1.1525714		0.01	+/-18	
13C12-1,2,3,7,8-PeCDF	A	100.00	110	1.2404520	1.3609447		9.7	+/-24	
13C12-2,3,4,7,8-PeCDF	A	100.00	115	1.1177860	1.2871132		15.1	+/-23	
13C12-1,2,3,7,8-PeCDD	A	100.00	80.2	0.8288129	0.6646713		-19.8	+/-38	
13C12-1,2,3,4,7,8-HxCDF	A	100.00	95.5	1.1683050	1.1155204		-4.5	+/-24	
13C12-1,2,3,6,7,8-HxCDF	A	100.00	83.0	1.3864660	1.1504893		-17.0	+/-30	
13C12-2,3,4,6,7,8-HxCDF	A	100.00	95.6	1.1292560	1.0790172		-4.4	+/-27	
13C12-1,2,3,7,8,9-HxCDF	A	100.00	95.4	0.9317541	0.8885925		-4.6	+/-26	
13C12-1,2,3,4,7,8-HxCDD	A	100.00	93.0	0.9950393	0.9249542		-7.0	+/-15	
13C12-1,2,3,6,7,8-HxCDD	A	100.00	81.4	1.1566890	0.9419700		-18.6	+/-15	*
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	120	0.8952017	1.0727353		19.8	+/-22	
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	111	0.7697516	0.8551528		11.1	+/-23	
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	101	0.8401226	0.8479809		0.9	+/-28	
13C12-OCDD	A	200.00	215	0.7674714	0.8241873		7.4	+/-52	
37Cl4-2,3,7,8-TCDD	A	10.000	8.73	1.2878040	1.1240730		-12.7		

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230424D3.qld
Last Altered: Wednesday, April 26, 2023 10:40:47 Pacific Daylight Time
Printed: Wednesday, April 26, 2023 10:56:55 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3H4, Name: 23042432, Date: 25-Apr-2023, Time: 15:57:20, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.704	1.001	4.804e4	6.329e4	0.702	0.759	0.770	1237	1459	7.03e5	9.74e5	568.1	667.7	NO	bb	bb	9.907
12378-PeCDF	29.855	1.000	3.692e5	2.366e5	0.679	1.560	1.550	4672	3864	5.71e6	3.64e6	1222.3	941.5	NO	bb	bb	59.499
23478-PeCDF	31.204	1.001	3.954e5	2.558e5	0.786	1.546	1.550	4672	3864	6.07e6	3.92e6	1299.1	1014.9	NO	bb	bb	58.430
123478-HxCDF	34.824	1.001	3.594e5	2.892e5	1.166	1.243	1.240	1949	2384	5.65e6	4.49e6	2899.3	1882.9	NO	bd	bd	47.256
234678-HxCDF	35.827	1.001	3.539e5	2.867e5	1.140	1.234	1.240	1949	2384	5.53e6	4.39e6	2835.2	1839.8	NO	bb	bb	49.359
123678-HxCDF	34.958	1.000	3.686e5	2.999e5	1.091	1.229	1.240	1949	2384	5.78e6	4.62e6	2966.7	1938.8	NO	db	db	50.485
123789-HxCDF	36.863	1.001	2.812e5	2.313e5	1.137	1.216	1.240	1949	2384	4.27e6	3.43e6	2189.5	1437.6	NO	bb	bd	48.062
1234678-HpCDF	38.690	1.000	2.679e5	2.637e5	1.003	1.016	1.050	1981	1960	4.58e6	4.43e6	2309.9	2262.0	NO	bb	bb	46.826
1234789-HpCDF	40.930	1.000	2.087e5	1.971e5	0.953	1.059	1.050	1981	1960	3.06e6	2.93e6	1542.8	1493.3	NO	bb	bb	47.175
OCDF	45.134	1.006	2.889e5	3.146e5	0.778	0.918	0.890	1001	1975	3.52e6	3.69e6	3515.7	1869.7	NO	bb	bb	89.222
2378-TCDD	26.353	1.001	6.011e4	7.578e4	1.149	0.793	0.770	1378	839	8.81e5	1.11e6	639.5	1321.0	NO	bd	bd	9.320
12378-PeCDD	31.448	1.001	2.907e5	1.868e5	1.022	1.556	1.550	1718	1304	4.40e6	2.88e6	2558.6	2206.3	NO	bb	bb	63.847
123478-HxCDD	35.938	1.000	2.817e5	2.167e5	0.996	1.300	1.240	1549	1628	4.62e6	3.61e6	2979.0	2220.5	NO	bd	bd	51.290
123678-HxCDD	36.061	1.001	2.778e5	2.352e5	1.001	1.181	1.240	1549	1628	4.37e6	3.65e6	2818.8	2242.3	NO	db	db	51.551
123789-HxCDD	36.440	1.011	2.828e5	2.317e5	0.907	1.221	1.240	1549	1628	4.55e6	3.69e6	2938.6	2264.0	NO	bb	bb	57.574
1234678-HpCDD	40.183	1.000	2.487e5	2.400e5	1.039	1.036	1.050	2177	1769	3.79e6	3.65e6	1741.8	2064.3	NO	bb	bb	52.567
OCDD	44.896	1.000	3.707e5	4.294e5	0.920	0.863	0.890	1430	1850	4.56e6	5.31e6	3187.3	2869.3	NO	bb	bb	100.002
13C-2378-TCDF	25.689	1.007	6.886e5	9.132e5	1.620	0.754	0.770	1562	1335	1.02e7	1.37e7	6523.4	10248.9	NO	bb	bb	89.765
13C-12378-PeCDF	29.844	1.169	9.106e5	5.882e5	1.240	1.548	1.550	3094	2143	1.37e7	8.85e6	4441.2	4129.1	NO	bb	bb	109.714
13C-23478-PeCDF	31.181	1.222	8.591e5	5.584e5	1.118	1.538	1.550	3094	2143	1.30e7	8.45e6	4203.2	3943.5	NO	bb	bb	115.149
13C-123478-HxCDF	34.802	0.955	4.011e5	7.761e5	1.168	0.517	0.510	2168	2032	6.31e6	1.22e7	2912.7	6017.0	NO	bd	bd	95.482
13C-123678-HxCDF	34.947	0.959	4.082e5	8.058e5	1.386	0.507	0.510	2168	2032	6.38e6	1.23e7	2940.7	6048.6	NO	db	db	82.980
13C-234678-HxCDF	35.805	0.983	3.889e5	7.497e5	1.129	0.519	0.510	2168	2032	6.06e6	1.18e7	2797.0	5800.6	NO	bb	bb	95.551
13C-123789-HxCDF	36.841	1.011	3.199e5	6.178e5	0.932	0.518	0.510	2168	2032	5.00e6	9.77e6	2307.9	4808.5	NO	bb	bb	95.368
13C-1234678-HpCDF	38.679	1.062	3.538e5	7.782e5	0.895	0.455	0.440	1790	2499	5.75e6	1.27e7	3214.3	5094.1	NO	bb	bb	119.832
13C-1234789-HpCDF	40.918	1.123	2.765e5	6.259e5	0.770	0.442	0.440	1790	2499	3.71e6	8.38e6	2073.5	3351.2	NO	bd	bd	111.095
13C-1234-TCDD	25.520	0.000	4.894e5	6.119e5	1.000	0.800	0.770	2234	1122	7.38e6	9.24e6	3302.6	8240.0	NO	bb	bb	100.000
13C-2378-TCDD	26.325	1.032	5.598e5	7.096e5	1.152	0.789	0.770	2234	1122	8.51e6	1.09e7	3811.2	9714.5	NO	bb	bb	100.014
13C-12378-PeCDD	31.426	1.231	4.629e5	2.691e5	0.829	1.720	1.550	1174	2023	6.58e6	3.80e6	5601.4	1878.4	NO	bd	bb	80.196
13C-123478-HxCDD	35.927	0.986	5.531e5	4.230e5	0.995	1.308	1.240	2519	2480	9.13e6	6.76e6	3626.0	2725.5	NO	bd	bd	92.957
13C-123678-HxCDD	36.039	0.989	5.514e5	4.427e5	1.157	1.246	1.240	2519	2480	8.70e6	7.08e6	3454.0	2856.4	NO	db	db	81.437
13C-1234678-HpCDD	40.172	1.103	4.638e5	4.310e5	0.840	1.076	1.050	1815	1540	7.00e6	6.46e6	3858.5	4194.7	NO	bb	bb	100.935
13C-OCDD	44.878	1.232	8.269e5	9.125e5	0.767	0.906	0.890	2135	1223	9.65e6	1.07e7	4519.8	8747.5	NO	bb	bb	214.780
13C-123789-HxCDD	36.429	0.000	5.919e5	4.634e5	1.000	1.277	1.240	2519	2480	9.77e6	7.43e6	3876.9	2996.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.339	1.032	1.238e5		1.288			2172		1.81e6		833.4			bb		8.729

Dataset: T:\Autospec\Processed Data Batch\230424D3.qld
Last Altered: Wednesday, April 26, 2023 10:40:47 Pacific Daylight Time
Printed: Wednesday, April 26, 2023 10:56:55 Pacific Daylight Time

ID: CS3H4, Name: 23042432, Date: 25-Apr-2023, Time: 15:57:20, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.201	0.864	5.679e4	7.226e4	0.802	0.786	0.770	1237	1459	9.22e5	1.13e6	744.9	774.9	NO	bb	bb	10.052
1289-TCDF	27.201	1.059	4.447e4	5.787e4	0.678	0.768	0.770	1237	1459	6.79e5	8.64e5	548.5	592.2	NO	bb	bb	9.424
13468-PECDF	27.059	0.907	5.134e5	3.388e5	1.246	1.515	1.550	693	1219	7.78e6	5.10e6	11223.7	4184.2	NO	bb	bb	45.612
12389-PECDF	32.239	1.080	3.650e5	2.317e5	0.496	1.575	1.550	4672	3864	5.39e6	3.42e6	1154.5	884.5	NO	bb	bb	80.196
123468-HXCDF	33.153	0.953	3.686e5	2.896e5	1.169	1.273	1.240	1949	2384	5.52e6	4.31e6	2831.2	1809.3	NO	bb	bb	47.830
1368-TCDD	23.472	0.892	5.611e4	7.158e4	1.015	0.784	0.770	1378	839	8.74e5	1.09e6	634.3	1297.8	NO	bb	bb	9.906
1289-TCDD	26.947	1.024	5.080e4	6.562e4	0.909	0.774	0.770	1378	839	7.53e5	9.58e5	546.9	1141.6	NO	bb	bb	10.093
12479-PECDD	28.730	0.914	4.905e5	3.133e5	2.301	1.565	1.550	1718	1304	4.71e6	3.05e6	2741.1	2339.9	NO	bb	bb	47.711
12389-PECDD	31.850	1.013	3.361e5	2.203e5	1.184	1.526	1.550	1718	1304	5.21e6	3.37e6	3034.1	2584.7	NO	bb	bb	64.212
124679-HXCDD	33.933	0.945	2.933e5	2.413e5	1.115	1.216	1.240	1549	1628	4.61e6	3.83e6	2975.5	2350.4	NO	bb	bb	49.104
1234679-HPCDD	39.147	0.975	2.786e5	2.706e5	1.137	1.030	1.050	2177	1769	4.42e6	4.22e6	2030.1	2385.8	NO	bb	bb	53.996
Total-tetrafurans			1.509e5		0.727			1237		2.33e6							29.681
Total-penta1			5.134e5					693		7.78e6							45.612
Total-pentafurans			1.191e6		0.654			4672		1.81e7							208.597
Total-hexafurans			1.732e6		1.141			1949		2.67e7							242.992
Total-heptafurans			4.779e5		0.978			1981		7.65e6							94.251
Total-Furans			4.353e6		0.922			1237		6.62e7							710.354
Total-tetradioxins			2.864e5		1.024			1378		3.87e6							50.081
Total-pentadioxins			1.119e6		1.502			1718		1.43e7							176.073
Total-hexadioxins			1.136e6		1.005			1549		1.82e7							209.634
Total-heptadioxins			5.273e5		1.088			2177		8.21e6							106.563
Total-Dioxins			3.440e6		1.130			1378		4.91e7							642.352
Total-TEQ			7.793e6					1378		1.15e8							1352.706
FUNCTION1 PFK			4.990e7					395454		3.57e8							
FUNCTION2 PFK			1.428e5					232168		4.47e6							0.000
FUNCTION3 PFK			4.218e7					308610		2.56e7							0.000
FUNCTION4 PFK			1.045e5					257096		4.60e6							
FUNCTION5 PFK			0.000e0					187549		0.00e0							
FUNCTION1 HXCD...			1.126e3					722		1.65e4							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			1.843e3					1786		4.09e4							0.000
FUNCTION3 OCDPE			1.074e3					715		1.66e4							0.000
FUNCTION4 NCDPE			3.398e2					746		7.72e3							0.000
FUNCTION5 DCDPE			2.411e2					760		5.58e3							0.000

Method: T:\Autospec\Methods\Dioxin230424.mdb 25 Apr 2023 07:59:40
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3H4, Name: 23042432, Date: 25-Apr-2023, Time: 15:57:20, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	4.447e4	5.787e4	0.678	0.77	0.77	548.5	YES	NO	bb	bb	9.424
2	Total-tetrafurans	27.07	1.094e3	1.272e3	0.727	0.86	0.77	16.1	YES	NO	bb	bb	0.203
3	2378-TCDF	25.70	4.804e4	6.329e4	0.702	0.76	0.77	568.1	YES	NO	bb	bb	9.907
4	Total-tetrafurans	24.80	4.744e2	6.309e2	0.727	0.75	0.77	4.4	YES	NO	bb	bb	0.095
5	1368-TCDF	22.20	5.679e4	7.226e4	0.802	0.79	0.77	744.9	YES	NO	bb	bb	10.052

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.06	5.134e5	3.388e5	1.246	1.52	1.55	11223.7	YES	NO	bb	bb	45.612

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDF	32.24	3.650e5	2.317e5	0.496	1.58	1.55	1154.5	YES	NO	bb	bb	80.196
2	23478-PeCDF	31.20	3.954e5	2.558e5	0.786	1.55	1.55	1299.1	YES	NO	bb	bb	58.430
3	12378-PeCDF	29.86	3.692e5	2.366e5	0.679	1.56	1.55	1222.3	YES	NO	bb	bb	59.499
4	Total-pentafurans	28.71	6.113e4	3.872e4	0.654	1.58	1.55	205.4	YES	NO	bb	bb	10.472

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.86	2.812e5	2.313e5	1.137	1.22	1.24	2189.5	YES	NO	bb	bd	48.062
2	234678-HxCDF	35.83	3.539e5	2.867e5	1.140	1.23	1.24	2835.2	YES	NO	bb	bb	49.359
3	123678-HxCDF	34.96	3.686e5	2.999e5	1.091	1.23	1.24	2966.7	YES	NO	db	db	50.485
4	123478-HxCDF	34.82	3.594e5	2.892e5	1.166	1.24	1.24	2899.3	YES	NO	bd	bd	47.256
5	123468-HXCDF	33.15	3.686e5	2.896e5	1.169	1.27	1.24	2831.2	YES	NO	bb	bb	47.830

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.69	2.679e5	2.637e5	1.003	1.02	1.05	2309.9	YES	NO	bb	bb	46.826
2	1234789-HpCDF	40.93	2.087e5	1.971e5	0.953	1.06	1.05	1542.8	YES	NO	bb	bb	47.175
3	Total-heptafurans	39.36	1.280e3	1.214e3	0.978	1.05	1.05	10.9	YES	NO	bb	bb	0.251

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	4.447e4	5.787e4	0.678	0.77	0.77	548.5	YES	NO	bb	bb	9.424
2	Total-tetrafurans	27.07	1.094e3	1.272e3	0.727	0.86	0.77	16.1	YES	NO	bb	bb	0.203
3	2378-TCDF	25.70	4.804e4	6.329e4	0.702	0.76	0.77	568.1	YES	NO	bb	bb	9.907
4	Total-tetrafurans	24.80	4.744e2	6.309e2	0.727	0.75	0.77	4.4	YES	NO	bb	bb	0.095
5	1368-TCDF	22.20	5.679e4	7.226e4	0.802	0.79	0.77	744.9	YES	NO	bb	bb	10.052
6	12389-PECDF	32.24	3.650e5	2.317e5	0.496	1.58	1.55	1154.5	YES	NO	bb	bb	80.196
7	23478-PeCDF	31.20	3.954e5	2.558e5	0.786	1.55	1.55	1299.1	YES	NO	bb	bb	58.430
8	12378-PeCDF	29.86	3.692e5	2.366e5	0.679	1.56	1.55	1222.3	YES	NO	bb	bb	59.499
9	Total-pentafurans	28.71	6.113e4	3.872e4	0.654	1.58	1.55	205.4	YES	NO	bb	bb	10.472
10	123789-HxCDF	36.86	2.812e5	2.313e5	1.137	1.22	1.24	2189.5	YES	NO	bb	bd	48.062
11	234678-HxCDF	35.83	3.539e5	2.867e5	1.140	1.23	1.24	2835.2	YES	NO	bb	bb	49.359
12	123678-HxCDF	34.96	3.686e5	2.999e5	1.091	1.23	1.24	2966.7	YES	NO	db	db	50.485
13	123478-HxCDF	34.82	3.594e5	2.892e5	1.166	1.24	1.24	2899.3	YES	NO	bd	bd	47.256
14	123468-HXCDF	33.15	3.686e5	2.896e5	1.169	1.27	1.24	2831.2	YES	NO	bb	bb	47.830
15	1234678-HpCDF	38.69	2.679e5	2.637e5	1.003	1.02	1.05	2309.9	YES	NO	bb	bb	46.826
16	1234789-HpCDF	40.93	2.087e5	1.971e5	0.953	1.06	1.05	1542.8	YES	NO	bb	bb	47.175
17	Total-heptafurans	39.36	1.280e3	1.214e3	0.978	1.05	1.05	10.9	YES	NO	bb	bb	0.251
18	OCDF	45.13	2.889e5	3.146e5	0.778	0.92	0.89	3515.7	YES	NO	bb	bb	89.222
19	13468-PECDF	27.06	5.134e5	3.388e5	1.246	1.52	1.55	11223.7	YES	NO	bb	bb	45.612

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.95	5.080e4	6.562e4	0.909	0.77	0.77	546.9	YES	NO	bb	bb	10.093
2	2378-TCDD	26.35	6.011e4	7.578e4	1.149	0.79	0.77	639.5	YES	NO	bd	bd	9.320
3	Total-tetradioxins	26.03	8.787e4	1.115e5	1.024	0.79	0.77	644.0	YES	NO	bb	bb	15.331
4	Total-tetradioxins	25.53	2.809e4	3.486e4	1.024	0.81	0.77	320.8	YES	NO	bd	bb	4.842
5	Total-tetradioxins	24.97	8.353e2	9.441e2	1.024	0.88	0.77	9.5	YES	NO	bb	bb	0.137
6	Total-tetradioxins	24.67	2.584e3	3.303e3	1.024	0.78	0.77	17.0	YES	NO	bb	bb	0.453
7	1368-TCDD	23.47	5.611e4	7.158e4	1.015	0.78	0.77	634.3	YES	NO	bb	bb	9.906

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PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.85	3.361e5	2.203e5	1.184	1.53	1.55	3034.1	YES	NO	bb	bb	64.212
2	12378-PeCDD	31.45	2.907e5	1.868e5	1.022	1.56	1.55	2558.6	YES	NO	bb	bb	63.847
3	Total-pentadioxins	30.79	1.267e3	7.723e2	1.502	1.64	1.55	9.8	YES	NO	bb	bb	0.185
4	Total-pentadioxins	29.87	8.270e2	4.704e2	1.502	1.76	1.55	7.6	YES	NO	bb	bb	0.118
5	12479-PECDD	28.73	4.905e5	3.133e5	2.301	1.57	1.55	2741.1	YES	NO	bb	bb	47.711

HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123678-HxCDD	36.06	2.778e5	2.352e5	1.001	1.18	1.24	2818.8	YES	NO	db	db	51.551
2	123478-HxCDD	35.94	2.817e5	2.167e5	0.996	1.30	1.24	2979.0	YES	NO	bd	bd	51.290
3	Total-hexadioxins	34.70	5.861e2	5.492e2	1.005	1.07	1.24	6.6	YES	NO	bb	bb	0.115
4	124679-HXCDD	33.93	2.933e5	2.413e5	1.115	1.22	1.24	2975.5	YES	NO	bb	bb	49.104
5	123789-HxCDD	36.44	2.828e5	2.317e5	0.907	1.22	1.24	2938.6	YES	NO	bb	bb	57.574

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.18	2.487e5	2.400e5	1.039	1.04	1.05	1741.8	YES	NO	bb	bb	52.567
2	1234679-HPCDD	39.15	2.786e5	2.706e5	1.137	1.03	1.05	2030.1	YES	NO	bb	bb	53.996

Dataset: T:\Autospec\Processed Data Batch\230424D3.qld
Last Altered: Wednesday, April 26, 2023 10:40:47 Pacific Daylight Time
Printed: Wednesday, April 26, 2023 10:56:55 Pacific Daylight Time

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Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDD	26.95	5.080e4	6.562e4	0.909	0.77	0.77	546.9	YES	NO	bb	bb	10.093
2	2378-TCDD	26.35	6.011e4	7.578e4	1.149	0.79	0.77	639.5	YES	NO	bd	bd	9.320
3	Total-tetradioxins	26.03	8.787e4	1.115e5	1.024	0.79	0.77	644.0	YES	NO	bb	bb	15.331
4	Total-tetradioxins	25.53	2.809e4	3.486e4	1.024	0.81	0.77	320.8	YES	NO	bd	bb	4.842
5	Total-tetradioxins	24.97	8.353e2	9.441e2	1.024	0.88	0.77	9.5	YES	NO	bb	bb	0.137
6	Total-tetradioxins	24.67	2.584e3	3.303e3	1.024	0.78	0.77	17.0	YES	NO	bb	bb	0.453
7	1368-TCDD	23.47	5.611e4	7.158e4	1.015	0.78	0.77	634.3	YES	NO	bb	bb	9.906
8	12389-PECDD	31.85	3.361e5	2.203e5	1.184	1.53	1.55	3034.1	YES	NO	bb	bb	64.212
9	12378-PeCDD	31.45	2.907e5	1.868e5	1.022	1.56	1.55	2558.6	YES	NO	bb	bb	63.847
10	Total-pentadioxins	30.79	1.267e3	7.723e2	1.502	1.64	1.55	9.8	YES	NO	bb	bb	0.185
11	Total-pentadioxins	29.87	8.270e2	4.704e2	1.502	1.76	1.55	7.6	YES	NO	bb	bb	0.118
12	12479-PECDD	28.73	4.905e5	3.133e5	2.301	1.57	1.55	2741.1	YES	NO	bb	bb	47.711
13	123678-HxCDD	36.06	2.778e5	2.352e5	1.001	1.18	1.24	2818.8	YES	NO	db	db	51.551
14	123478-HxCDD	35.94	2.817e5	2.167e5	0.996	1.30	1.24	2979.0	YES	NO	bd	bd	51.290
15	Total-hexadioxins	34.70	5.861e2	5.492e2	1.005	1.07	1.24	6.6	YES	NO	bb	bb	0.115
16	124679-HXCDD	33.93	2.933e5	2.413e5	1.115	1.22	1.24	2975.5	YES	NO	bb	bb	49.104
17	123789-HxCDD	36.44	2.828e5	2.317e5	0.907	1.22	1.24	2938.6	YES	NO	bb	bb	57.574
18	1234678-HpCDD	40.18	2.487e5	2.400e5	1.039	1.04	1.05	1741.8	YES	NO	bb	bb	52.567
19	1234679-HPCDD	39.15	2.786e5	2.706e5	1.137	1.03	1.05	2030.1	YES	NO	bb	bb	53.996
20	OCDD	44.90	3.707e5	4.294e5	0.920	0.86	0.89	3187.3	YES	NO	bb	bb	100.002

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.20	4.447e4	5.787e4	0.678	0.77	0.77	548.5	YES	NO	bb	bb	9.424
2	Total-tetrafurans	27.07	1.094e3	1.272e3	0.727	0.86	0.77	16.1	YES	NO	bb	bb	0.203
3	2378-TCDF	25.70	4.804e4	6.329e4	0.702	0.76	0.77	568.1	YES	NO	bb	bb	9.907
4	Total-tetrafurans	24.80	4.744e2	6.309e2	0.727	0.75	0.77	4.4	YES	NO	bb	bb	0.095
5	1368-TCDF	22.20	5.679e4	7.226e4	0.802	0.79	0.77	744.9	YES	NO	bb	bb	10.052
6	12389-PECDF	32.24	3.650e5	2.317e5	0.496	1.58	1.55	1154.5	YES	NO	bb	bb	80.196
7	23478-PeCDF	31.20	3.954e5	2.558e5	0.786	1.55	1.55	1299.1	YES	NO	bb	bb	58.430
8	12378-PeCDF	29.86	3.692e5	2.366e5	0.679	1.56	1.55	1222.3	YES	NO	bb	bb	59.499
9	Total-pentafurans	28.71	6.113e4	3.872e4	0.654	1.58	1.55	205.4	YES	NO	bb	bb	10.472
10	123789-HxCDF	36.86	2.812e5	2.313e5	1.137	1.22	1.24	2189.5	YES	NO	bb	bd	48.062
11	234678-HxCDF	35.83	3.539e5	2.867e5	1.140	1.23	1.24	2835.2	YES	NO	bb	bb	49.359
12	123678-HxCDF	34.96	3.686e5	2.999e5	1.091	1.23	1.24	2966.7	YES	NO	db	db	50.485
13	123478-HxCDF	34.82	3.594e5	2.892e5	1.166	1.24	1.24	2899.3	YES	NO	bd	bd	47.256
14	123468-HXCDF	33.15	3.686e5	2.896e5	1.169	1.27	1.24	2831.2	YES	NO	bb	bb	47.830
15	1234678-HpCDF	38.69	2.679e5	2.637e5	1.003	1.02	1.05	2309.9	YES	NO	bb	bb	46.826
16	1234789-HpCDF	40.93	2.087e5	1.971e5	0.953	1.06	1.05	1542.8	YES	NO	bb	bb	47.175
17	Total-heptafurans	39.36	1.280e3	1.214e3	0.978	1.05	1.05	10.9	YES	NO	bb	bb	0.251
18	OCDF	45.13	2.889e5	3.146e5	0.778	0.92	0.89	3515.7	YES	NO	bb	bb	89.222
19	13468-PECDF	27.06	5.134e5	3.388e5	1.246	1.52	1.55	11223.7	YES	NO	bb	bb	45.612
20	1289-TCDD	26.95	5.080e4	6.562e4	0.909	0.77	0.77	546.9	YES	NO	bb	bb	10.093
21	2378-TCDD	26.35	6.011e4	7.578e4	1.149	0.79	0.77	639.5	YES	NO	bd	bd	9.320
22	Total-tetradioxins	26.03	8.787e4	1.115e5	1.024	0.79	0.77	644.0	YES	NO	bb	bb	15.331
23	Total-tetradioxins	25.53	2.809e4	3.486e4	1.024	0.81	0.77	320.8	YES	NO	bd	bb	4.842
24	Total-tetradioxins	24.97	8.353e2	9.441e2	1.024	0.88	0.77	9.5	YES	NO	bb	bb	0.137
25	Total-tetradioxins	24.67	2.584e3	3.303e3	1.024	0.78	0.77	17.0	YES	NO	bb	bb	0.453
26	1368-TCDD	23.47	5.611e4	7.158e4	1.015	0.78	0.77	634.3	YES	NO	bb	bb	9.906
27	12389-PECDD	31.85	3.361e5	2.203e5	1.184	1.53	1.55	3034.1	YES	NO	bb	bb	64.212
28	12378-PeCDD	31.45	2.907e5	1.868e5	1.022	1.56	1.55	2558.6	YES	NO	bb	bb	63.847
29	Total-pentadioxins	30.79	1.267e3	7.723e2	1.502	1.64	1.55	9.8	YES	NO	bb	bb	0.185
30	Total-pentadioxins	29.87	8.270e2	4.704e2	1.502	1.76	1.55	7.6	YES	NO	bb	bb	0.118
31	12479-PECDD	28.73	4.905e5	3.133e5	2.301	1.57	1.55	2741.1	YES	NO	bb	bb	47.711
32	123678-HxCDD	36.06	2.778e5	2.352e5	1.001	1.18	1.24	2818.8	YES	NO	db	db	51.551
33	123478-HxCDD	35.94	2.817e5	2.167e5	0.996	1.30	1.24	2979.0	YES	NO	bd	bd	51.290
34	Total-hexadioxins	34.70	5.861e2	5.492e2	1.005	1.07	1.24	6.6	YES	NO	bb	bb	0.115
35	124679-HXCDD	33.93	2.933e5	2.413e5	1.115	1.22	1.24	2975.5	YES	NO	bb	bb	49.104
36	123789-HxCDD	36.44	2.828e5	2.317e5	0.907	1.22	1.24	2938.6	YES	NO	bb	bb	57.574
37	1234678-HpCDD	40.18	2.487e5	2.400e5	1.039	1.04	1.05	1741.8	YES	NO	bb	bb	52.567

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	1234679-HPCDD	39.15	2.786e5	2.706e5	1.137	1.03	1.05	2030.1	YES	NO	bb	bb	53.996
39	OCDD	44.90	3.707e5	4.294e5	0.920	0.86	0.89	3187.3	YES	NO	bb	bb	100.002

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.59	2.119e6					76.9	YES		dd		
2	FUNCTION1 PFK	21.32	9.214e6					87.0	YES		dd		
3	FUNCTION1 PFK	21.24	1.941e6					88.3	YES		dd		
4	FUNCTION1 PFK	21.16	2.993e6					90.9	YES		dd		
5	FUNCTION1 PFK	21.11	3.073e6					92.8	YES		bd		
6	FUNCTION1 PFK	24.55	3.557e4					1.3	NO		bd		
7	FUNCTION1 PFK	24.38	1.635e3					0.3	NO		bb		
8	FUNCTION1 PFK	24.04	5.033e3					0.9	NO		bb		
9	FUNCTION1 PFK	23.94	8.212e3					0.9	NO		bb		
10	FUNCTION1 PFK	23.85	4.869e3					0.5	NO		bb		
11	FUNCTION1 PFK	23.77	1.921e4					1.0	NO		bb		
12	FUNCTION1 PFK	23.50	2.131e5					7.1	YES		db		
13	FUNCTION1 PFK	23.49	2.757e5					7.1	YES		dd		
14	FUNCTION1 PFK	23.29	2.571e6					15.4	YES		dd		
15	FUNCTION1 PFK	22.89	3.221e6					29.2	YES		dd		
16	FUNCTION1 PFK	22.34	7.581e6					49.7	YES		dd		
17	FUNCTION1 PFK	22.24	1.478e6					53.8	YES		dd		
18	FUNCTION1 PFK	22.06	5.128e6					59.5	YES		dd		
19	FUNCTION1 PFK	21.82	5.079e6					68.4	YES		dd		
20	FUNCTION1 PFK	21.73	1.950e6					71.4	YES		dd		
21	FUNCTION1 PFK	21.65	2.444e6					74.3	YES		dd		
22	FUNCTION1 PFK	26.49	6.108e4					1.6	NO		dd		
23	FUNCTION1 PFK	26.44	1.553e4					1.4	NO		bd		
24	FUNCTION1 PFK	26.23	2.337e4					1.3	NO		bb		
25	FUNCTION1 PFK	26.14	2.506e3					0.4	NO		bb		
26	FUNCTION1 PFK	26.08	1.110e4					1.0	NO		db		
27	FUNCTION1 PFK	26.04	1.252e4					0.8	NO		bd		
28	FUNCTION1 PFK	25.96	1.334e4					1.0	NO		bb		
29	FUNCTION1 PFK	25.83	3.622e4					1.9	NO		bb		
30	FUNCTION1 PFK	25.70	1.114e4					0.4	NO		db		
31	FUNCTION1 PFK	25.66	6.875e3					0.7	NO		bd		
32	FUNCTION1 PFK	25.56	5.111e4					2.0	NO		bb		
33	FUNCTION1 PFK	25.41	6.036e3					0.6	NO		bb		
34	FUNCTION1 PFK	25.31	2.057e3					0.4	NO		bb		
35	FUNCTION1 PFK	25.14	6.250e3					0.7	NO		bb		
36	FUNCTION1 PFK	24.73	7.489e3					0.7	NO		bb		
37	FUNCTION1 PFK	24.66	1.350e4					1.1	NO		db		

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION1 PFK	27.89	4.255e4					2.0	NO		db		
39	FUNCTION1 PFK	27.84	7.142e3					0.8	NO		dd		
40	FUNCTION1 PFK	27.79	1.927e4					1.3	NO		bd		
41	FUNCTION1 PFK	27.71	6.402e4					2.7	NO		db		
42	FUNCTION1 PFK	27.60	1.930e4					1.0	NO		bd		
43	FUNCTION1 PFK	27.00	1.653e3					0.3	NO		bb		
44	FUNCTION1 PFK	26.76	8.933e4					1.5	NO		bb		
45	FUNCTION1 PFK	26.61	2.061e4					1.5	NO		db		

PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	30.30	6.759e3					1.3	NO		bb		0.000
2	FUNCTION2 PFK	30.02	9.102e3					1.2	NO		bb		0.000
3	FUNCTION2 PFK	29.20	1.510e4					2.0	NO		bb		0.000
4	FUNCTION2 PFK	29.11	8.042e3					1.4	NO		bb		0.000
5	FUNCTION2 PFK	28.24	5.507e3					0.8	NO		bb		0.000
6	FUNCTION2 PFK	28.18	6.984e3					1.3	NO		bb		0.000
7	FUNCTION2 PFK	28.11	1.102e4					1.9	NO		bb		0.000
8	FUNCTION2 PFK	32.61	2.522e4					1.7	NO		bb		0.000
9	FUNCTION2 PFK	32.11	1.736e4					2.3	NO		db		0.000
10	FUNCTION2 PFK	32.06	1.376e4					1.6	NO		bd		0.000
11	FUNCTION2 PFK	30.71	1.283e4					1.5	NO		bb		0.000
12	FUNCTION2 PFK	30.66	4.148e3					1.0	NO		bb		0.000
13	FUNCTION2 PFK	30.36	6.997e3					1.3	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.13	4.774e6					23.8	YES		bb		0.000
2	FUNCTION3 PFK	35.97	4.709e6					8.3	YES		bb		0.000
3	FUNCTION3 PFK	33.79	3.270e7					50.7	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.62	1.910e3					0.7	NO		bb		
2	FUNCTION4 PFK	38.43	2.813e3					0.7	NO		bb		
3	FUNCTION4 PFK	38.04	1.656e3					0.6	NO		bb		
4	FUNCTION4 PFK	38.00	3.293e3					1.1	NO		bb		
5	FUNCTION4 PFK	37.96	1.649e3					0.6	NO		bb		
6	FUNCTION4 PFK	42.67	5.857e3					0.7	NO		bb		
7	FUNCTION4 PFK	42.50	8.674e3					1.3	NO		bb		
8	FUNCTION4 PFK	42.29	6.239e3					1.0	NO		bb		
9	FUNCTION4 PFK	42.19	6.946e3					1.1	NO		bb		
10	FUNCTION4 PFK	41.87	1.701e4					1.7	NO		bb		
11	FUNCTION4 PFK	41.68	3.367e3					0.7	NO		bb		
12	FUNCTION4 PFK	41.24	6.385e3					1.0	NO		db		
13	FUNCTION4 PFK	41.20	6.806e3					1.2	NO		bd		
14	FUNCTION4 PFK	40.66	5.602e3					1.0	NO		bb		
15	FUNCTION4 PFK	40.03	2.687e3					0.9	NO		bb		
16	FUNCTION4 PFK	39.97	1.012e4					1.1	NO		bb		
17	FUNCTION4 PFK	39.47	8.488e3					1.2	NO		bb		
18	FUNCTION4 PFK	39.36	1.231e3					0.4	NO		bb		
19	FUNCTION4 PFK	38.85	3.796e3					0.8	NO		bb		

PFK5

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

ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.92	8.044e1					2.0	NO		bb		0.000
2	FUNCTION1 HXCD...	27.06	2.793e2					4.3	YES		bb		0.000
3	FUNCTION1 HXCD...	25.72	9.661e1					2.6	NO		bb		0.000
4	FUNCTION1 HXCD...	25.38	7.250e1					1.7	NO		bb		0.000
5	FUNCTION1 HXCD...	22.24	8.399e1					1.9	NO		bb		0.000
6	FUNCTION1 HXCD...	21.96	9.625e1					2.8	NO		db		0.000
7	FUNCTION1 HXCD...	21.81	8.592e1					1.6	NO		bd		0.000
8	FUNCTION1 HXCD...	21.16	3.315e2					5.8	YES		bb		0.000

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ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.84	1.549e2					2.7	NO		bb		0.000
2	FUNCTION2 HPCD...	31.56	7.391e1					1.4	NO		bb		0.000
3	FUNCTION2 HPCD...	31.06	7.348e1					1.6	NO		bb		0.000
4	FUNCTION2 HPCD...	30.72	8.770e1					1.3	NO		bb		0.000
5	FUNCTION2 HPCD...	29.98	1.181e2					1.4	NO		db		0.000
6	FUNCTION2 HPCD...	29.87	2.493e2					1.7	NO		bd		0.000
7	FUNCTION2 HPCD...	28.31	1.197e2					1.2	NO		bb		0.000
8	FUNCTION2 HPCD...	32.73	3.152e2					2.9	NO		db		0.000
9	FUNCTION2 HPCD...	32.65	1.083e2					1.5	NO		dd		0.000
10	FUNCTION2 HPCD...	32.61	1.424e2					2.7	NO		dd		0.000
11	FUNCTION2 HPCD...	32.51	2.204e2					2.2	NO		bd		0.000
12	FUNCTION2 HPCD...	32.35	1.794e2					2.2	NO		bb		0.000

ETHERS4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 OCDPE	36.43	2.220e2					4.4	YES		bb		0.000
2	FUNCTION3 OCDPE	36.04	2.012e2					4.7	YES		db		0.000
3	FUNCTION3 OCDPE	35.92	2.713e2					5.3	YES		dd		0.000
4	FUNCTION3 OCDPE	35.83	1.196e2					2.9	NO		bd		0.000
5	FUNCTION3 OCDPE	35.20	9.131e1					2.0	NO		bb		0.000
6	FUNCTION3 OCDPE	34.81	7.676e1					2.1	NO		bb		0.000
7	FUNCTION3 OCDPE	34.63	9.213e1					1.8	NO		bb		0.000

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	38.69	1.455e2					4.9	YES		bb		0.000
2	FUNCTION4 NCDPE	38.38	1.137e2					3.1	YES		bb		0.000
3	FUNCTION4 NCDPE	41.14	8.055e1					2.3	NO		bb		0.000

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ETHERS6

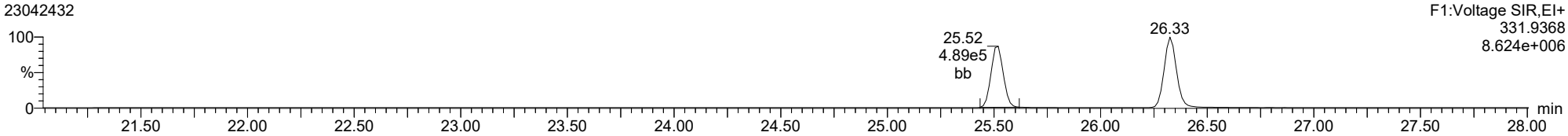
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1	FUNCTION5 DCDPE	45.82	7.034e1					2.0	NO		bb		0.000
2	FUNCTION5 DCDPE	44.31	8.003e1					3.0	YES		db		0.000
3	FUNCTION5 DCDPE	44.25	9.076e1					2.4	NO		bd		0.000

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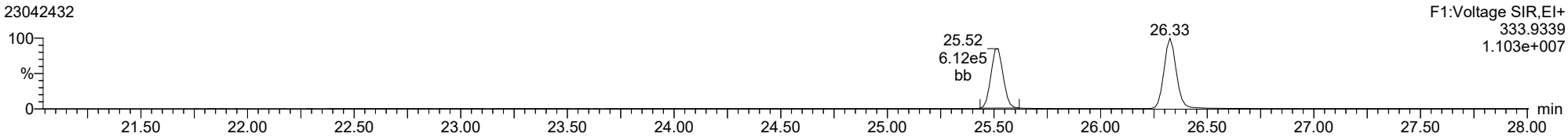
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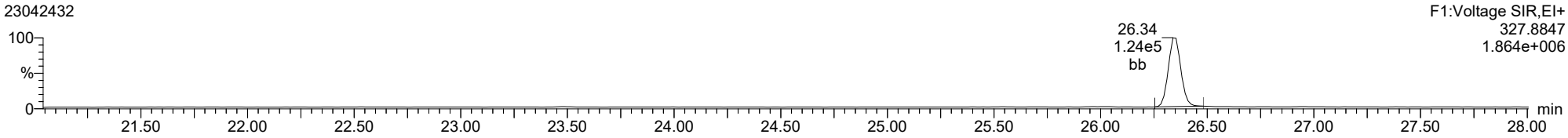
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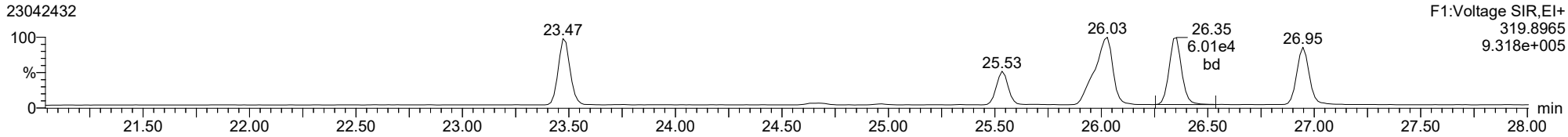


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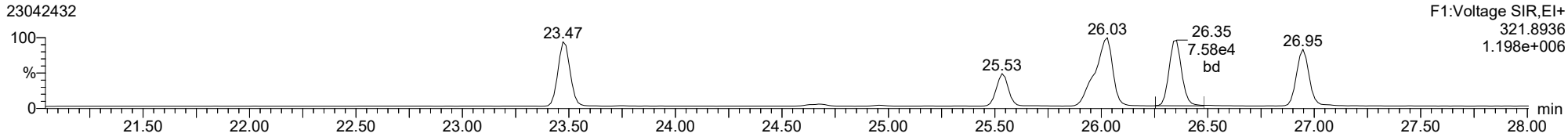


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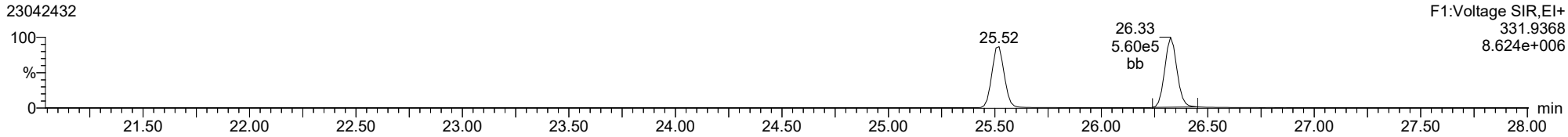
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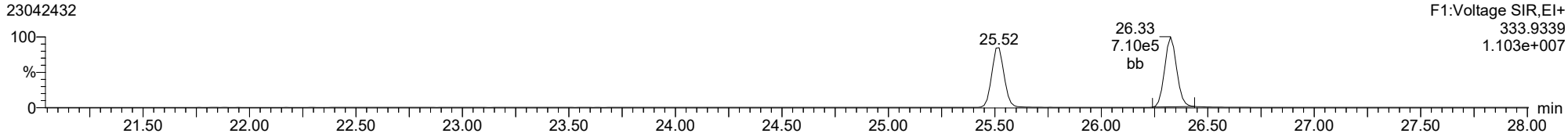
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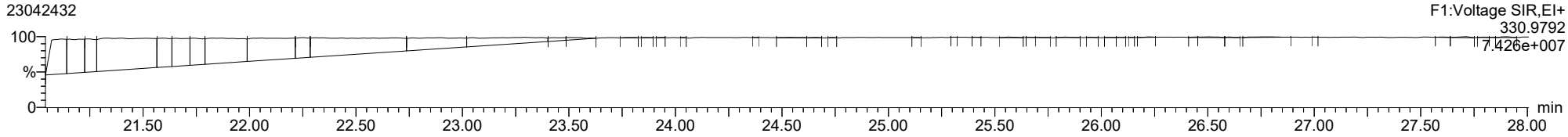
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13C-2378-TCDD

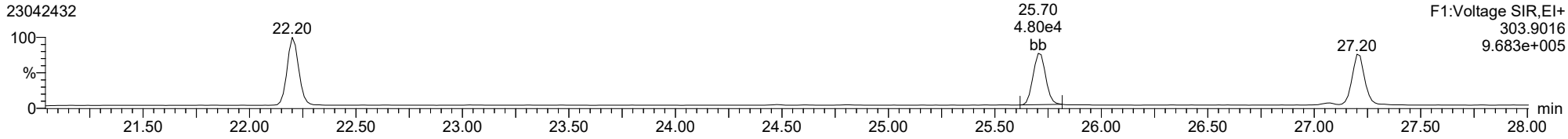


FUNCTION1 PFK

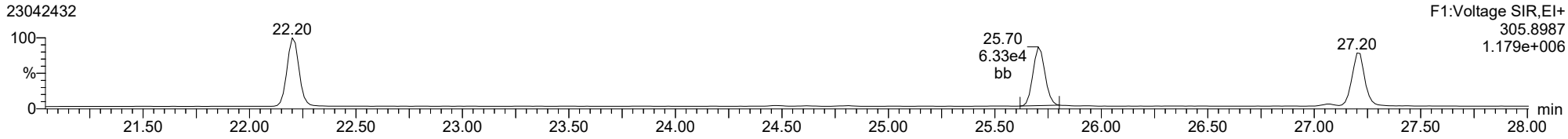


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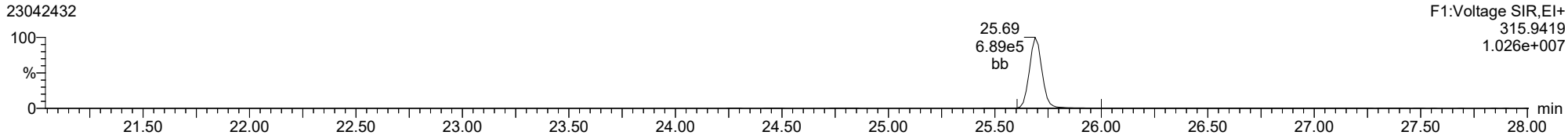
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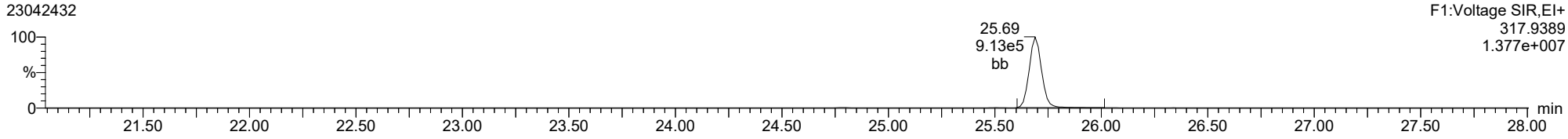
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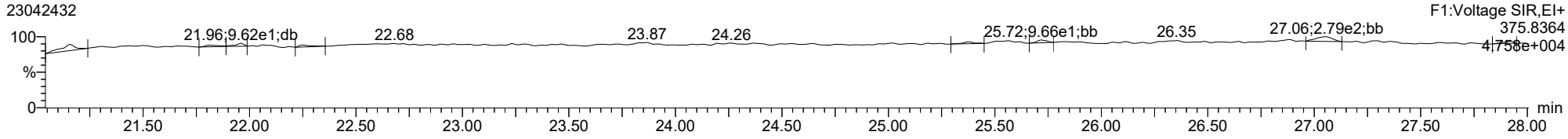
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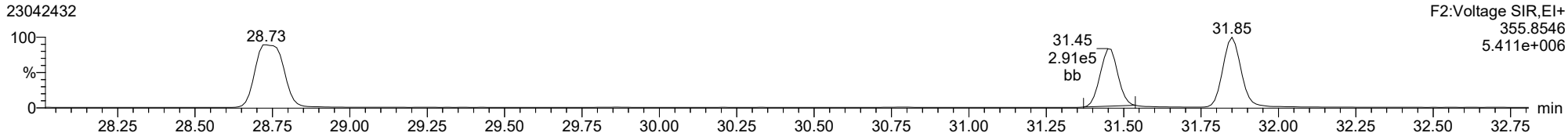


FUNCTION1 HXCDPE

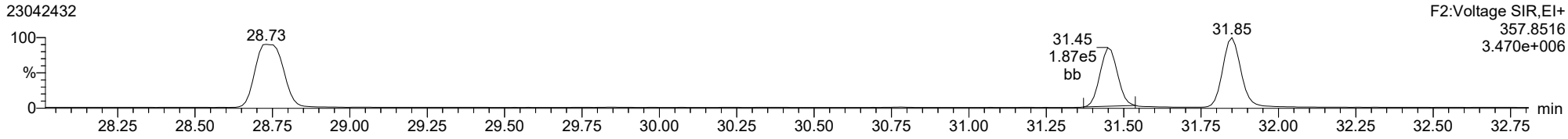


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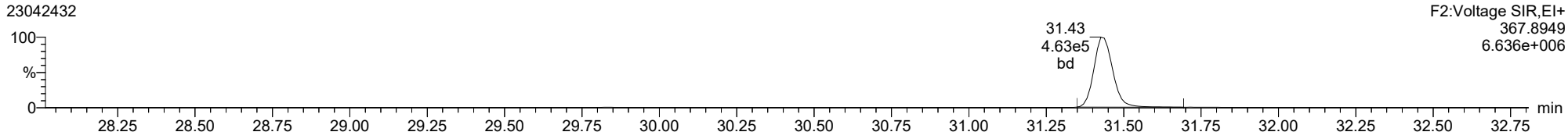
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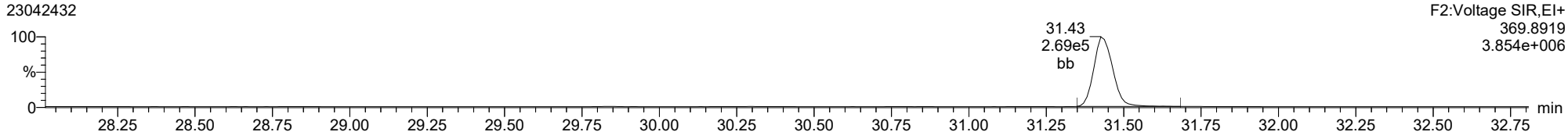
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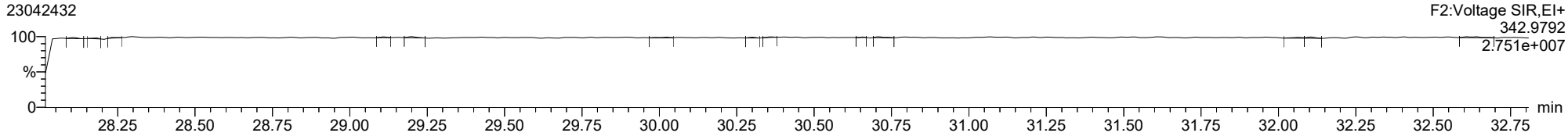
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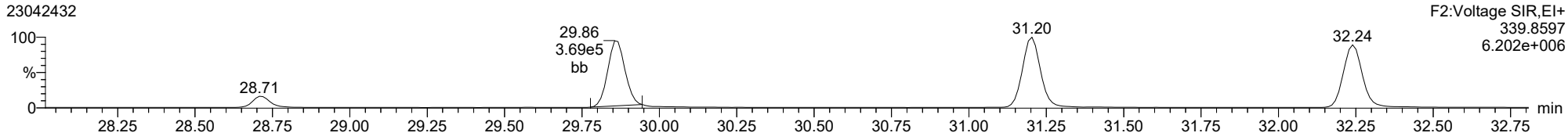


FUNCTION2 PFK

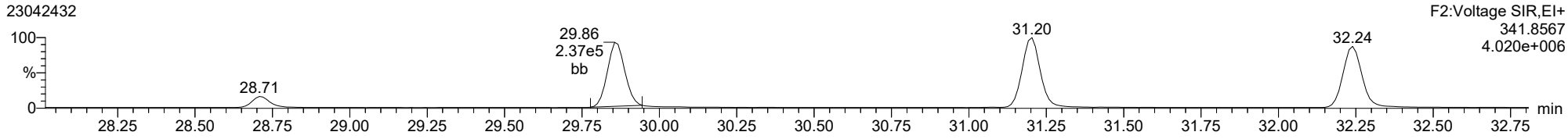


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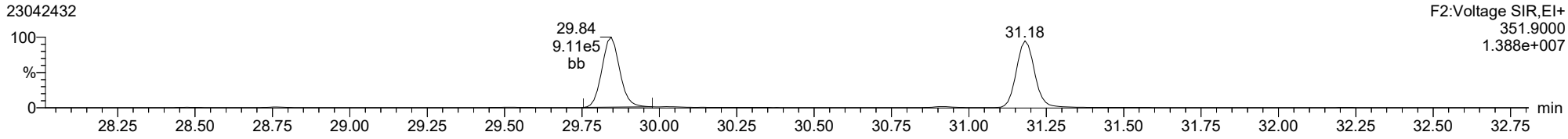
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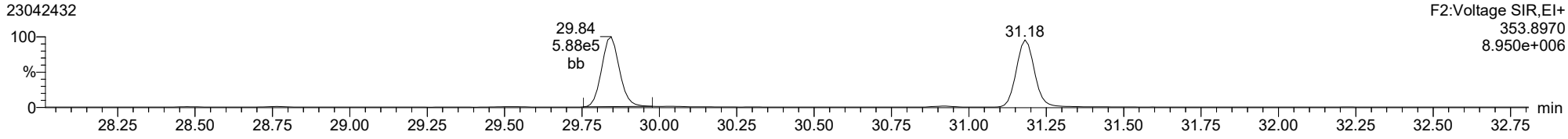
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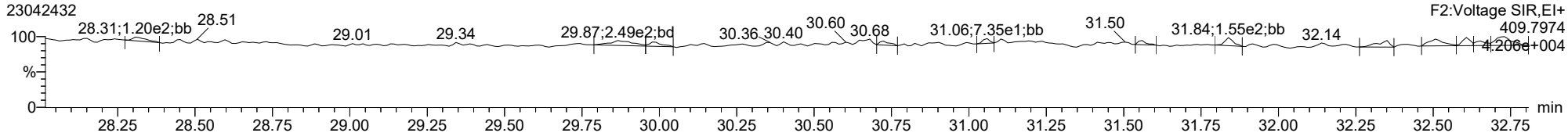
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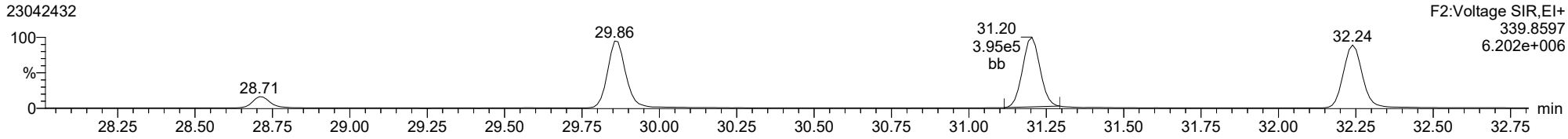


FUNCTION2 HPCDPE

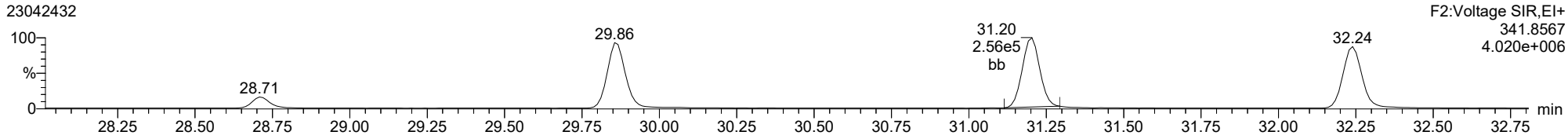


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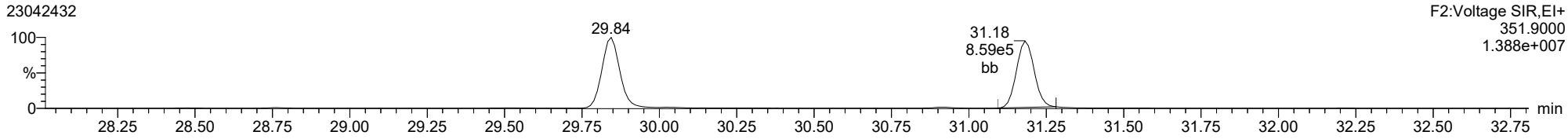
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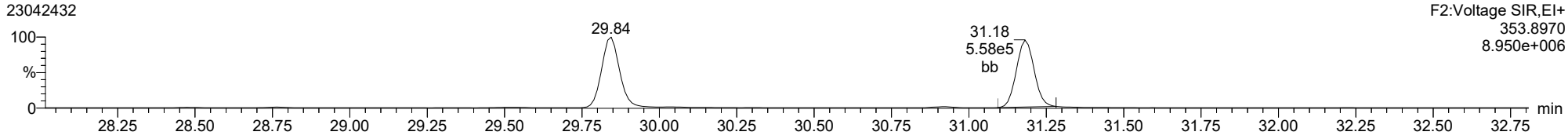
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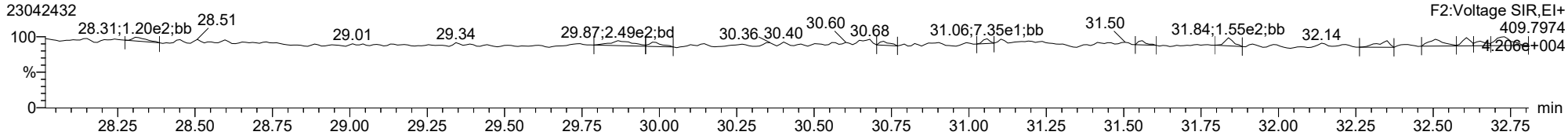
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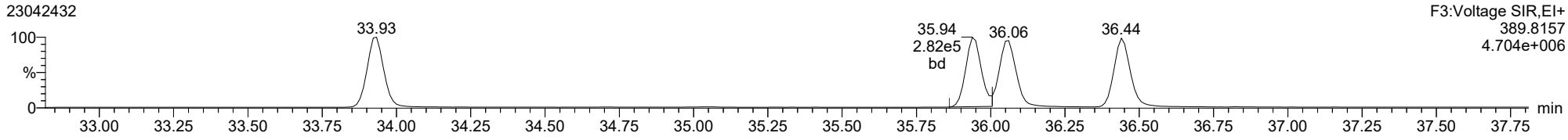


FUNCTION2 HPCDPE

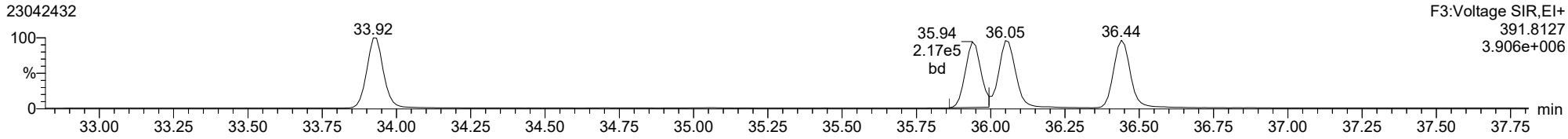


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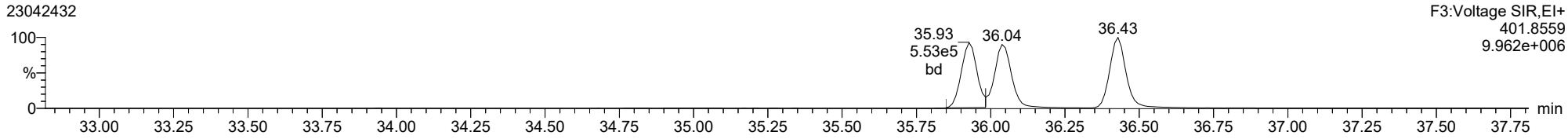
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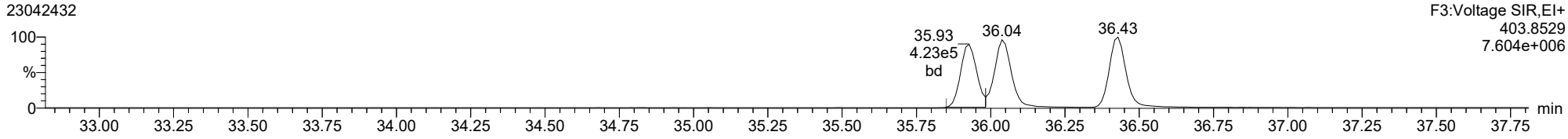
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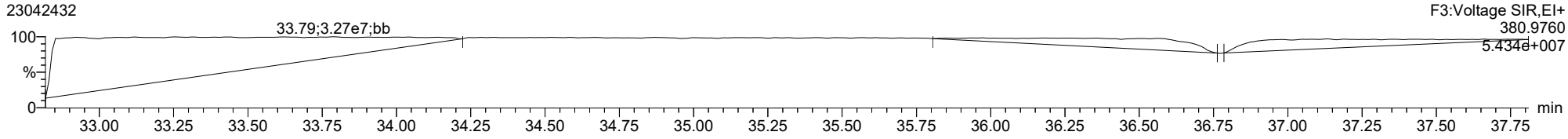
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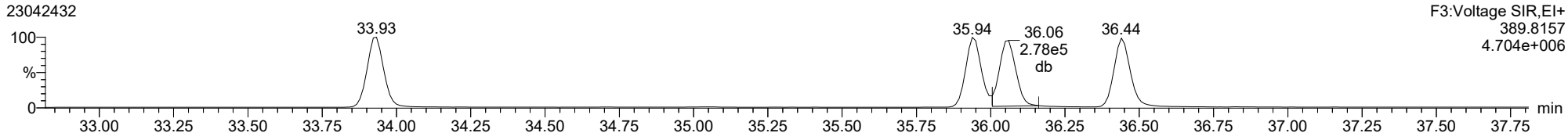
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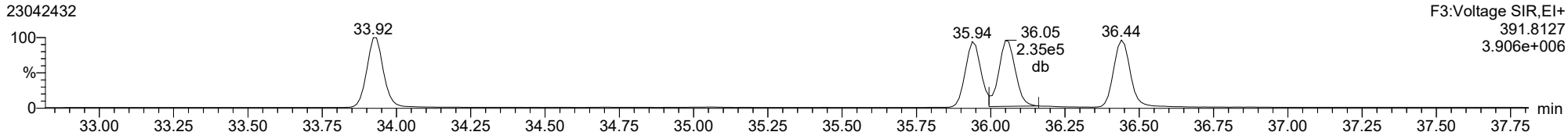
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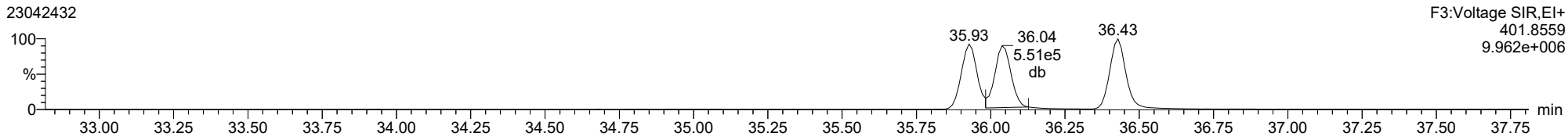
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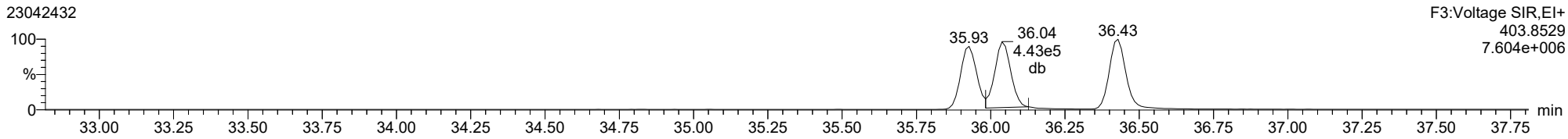
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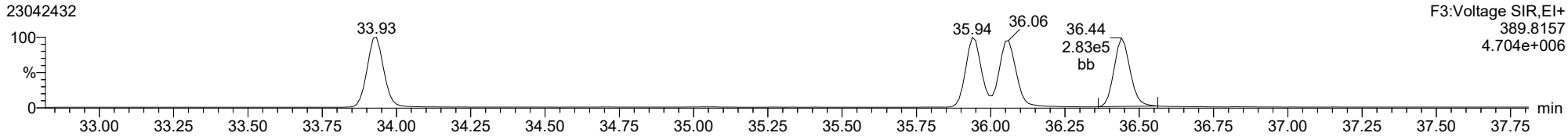


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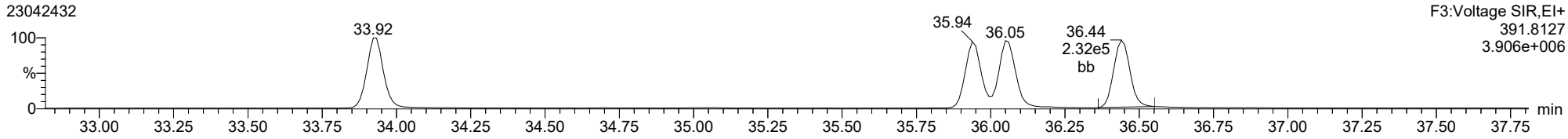


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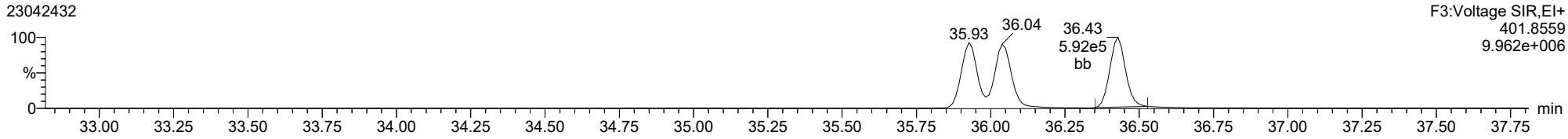
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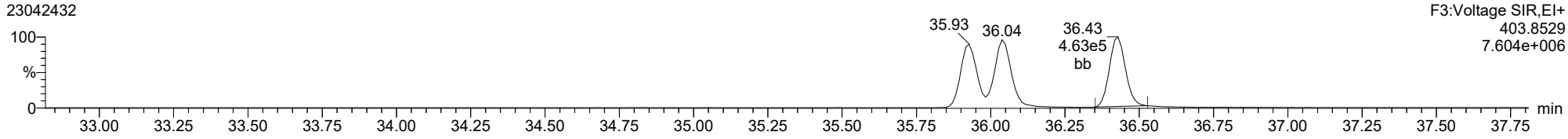
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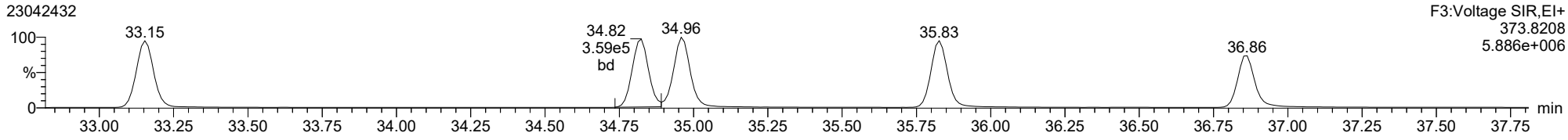


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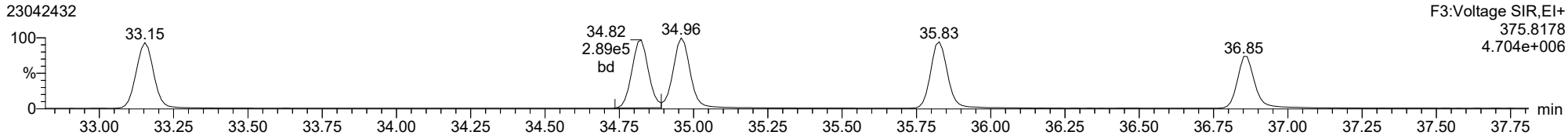


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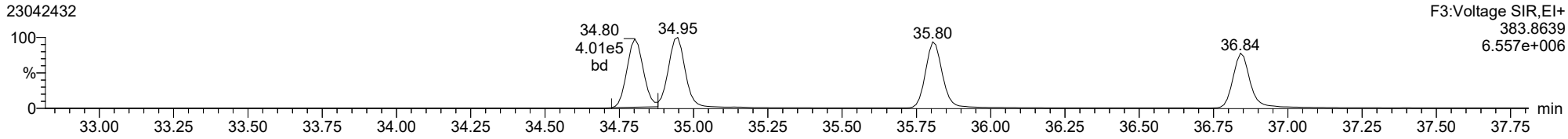
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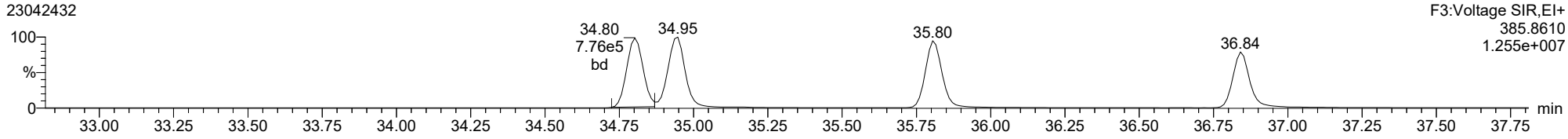
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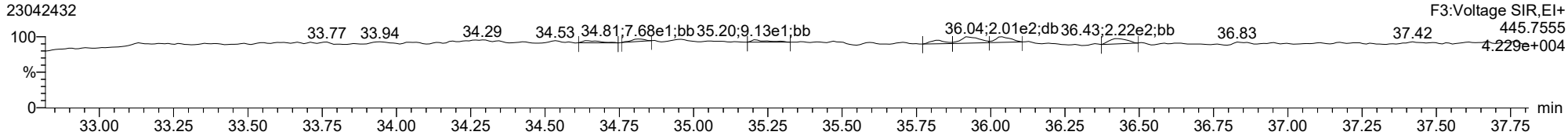
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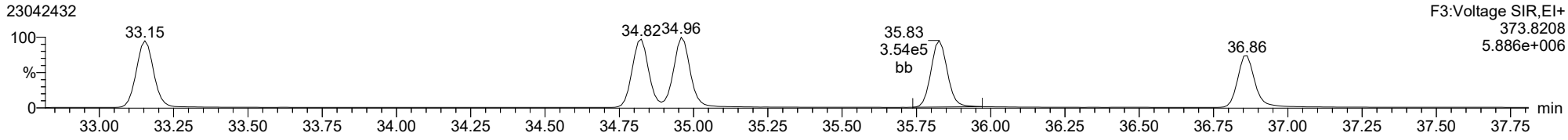


FUNCTION3 OCDPE

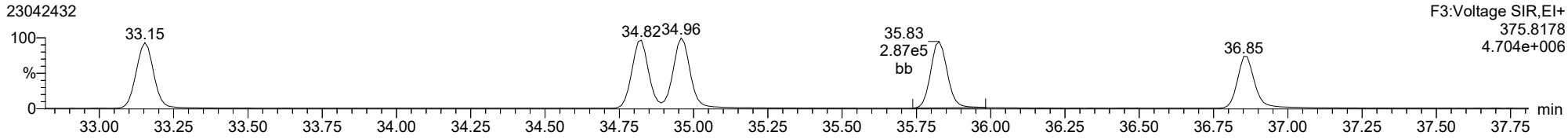


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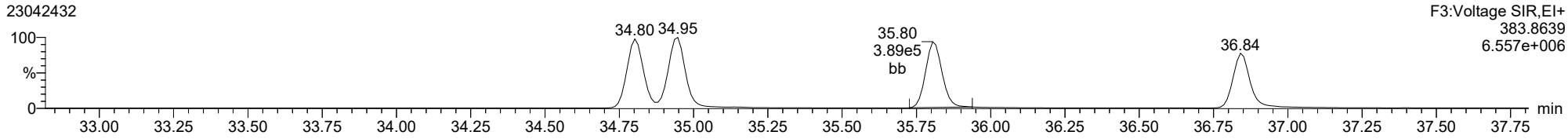
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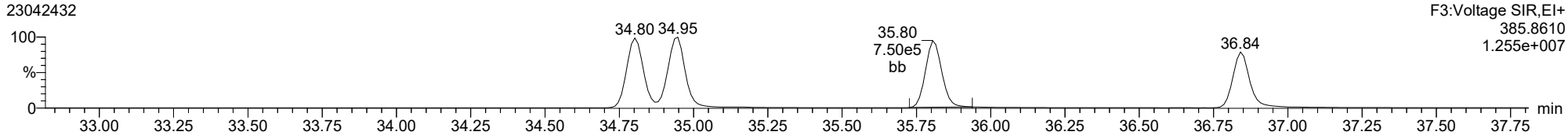
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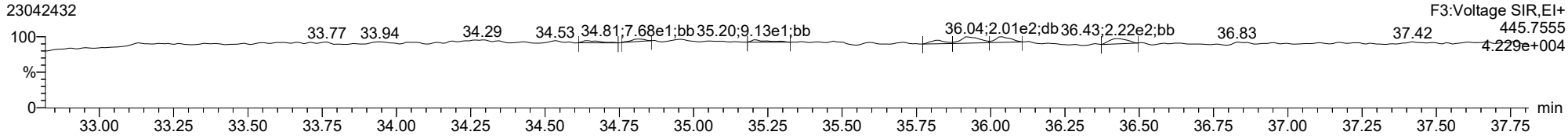
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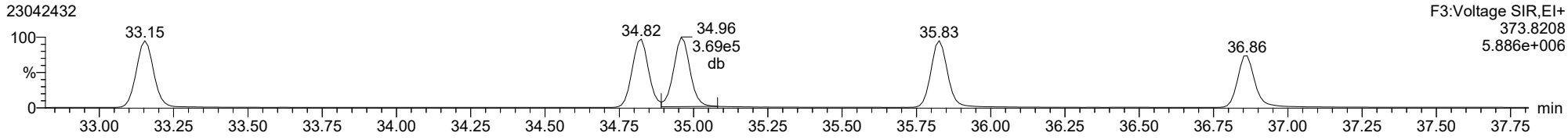


FUNCTION3 OCDPE

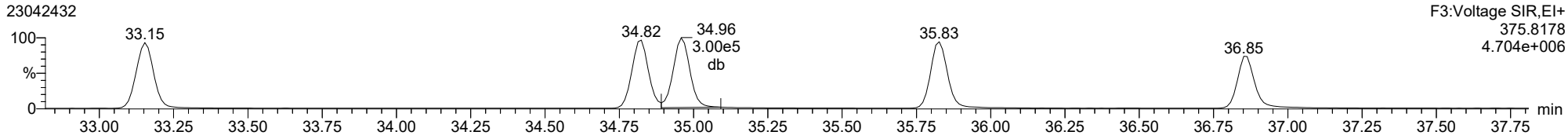


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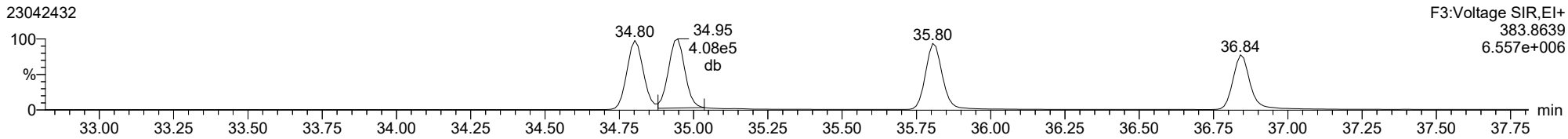
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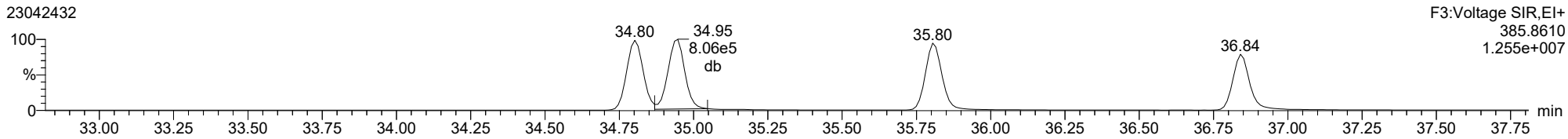
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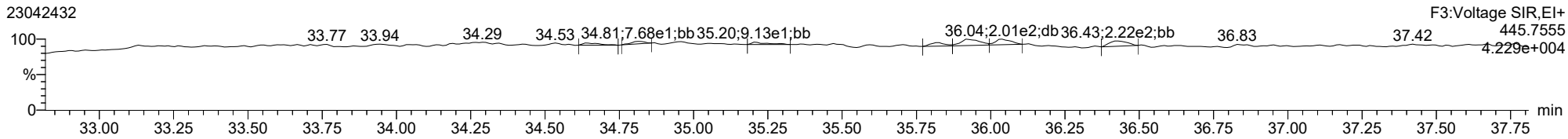
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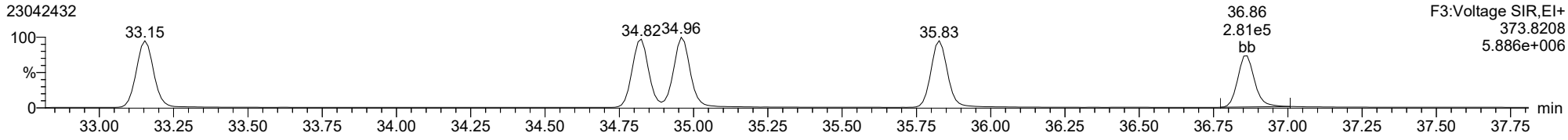


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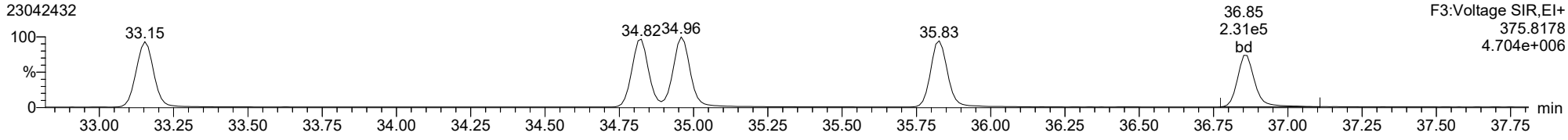


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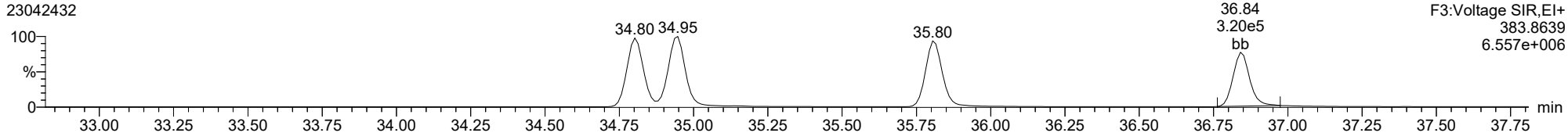
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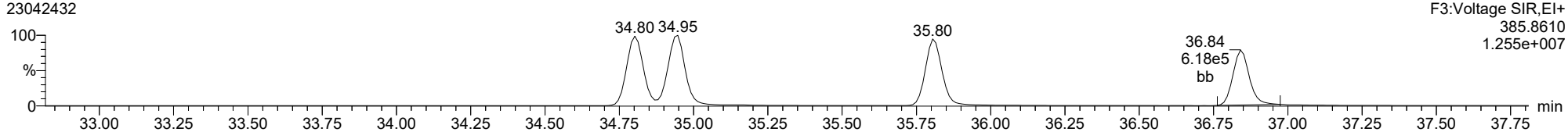
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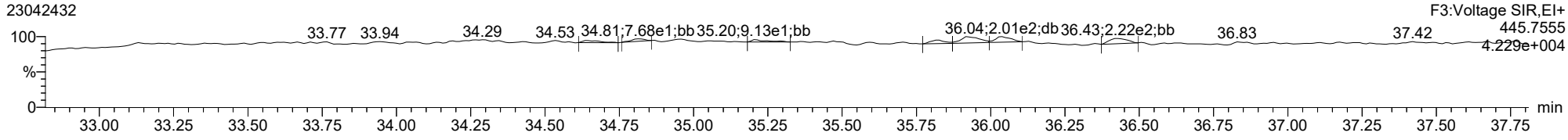
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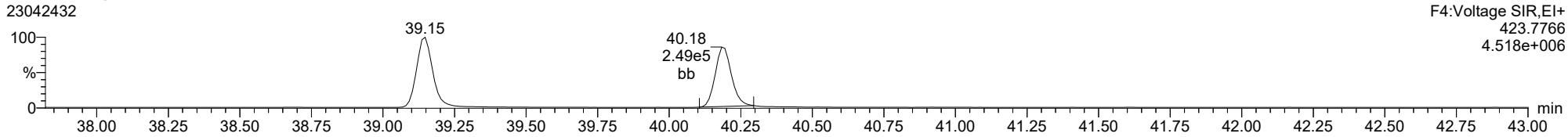


FUNCTION3 OCDPE

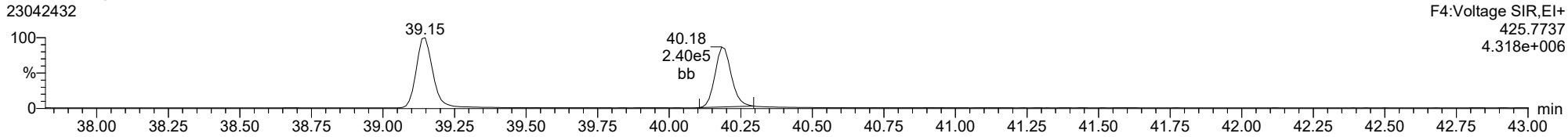


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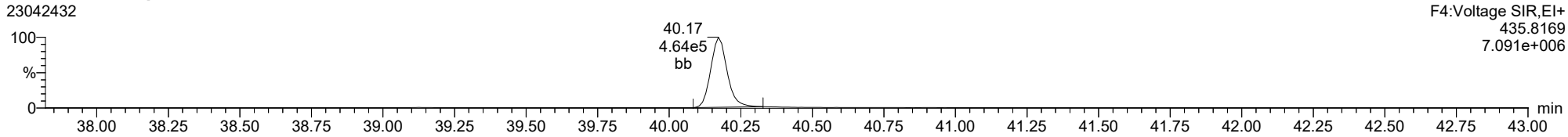
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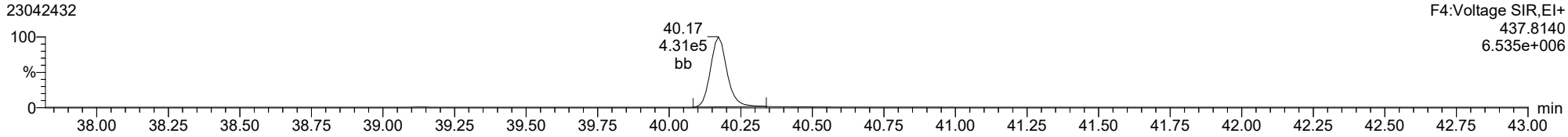
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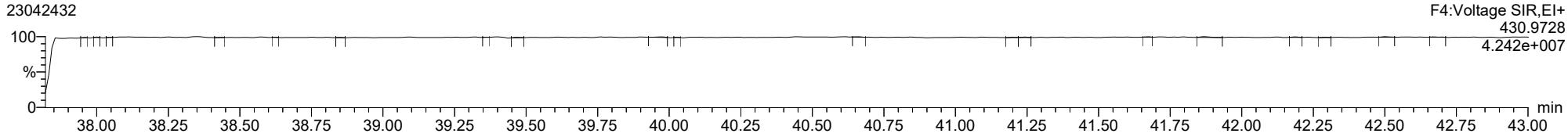
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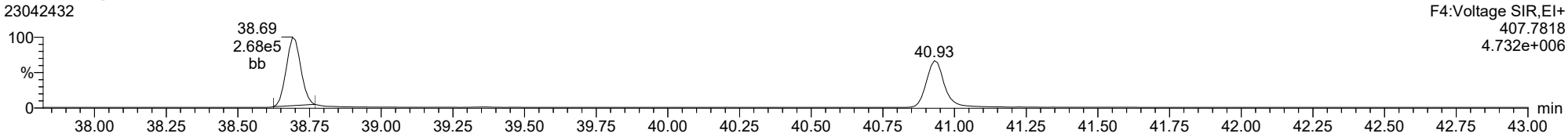


FUNCTION4 PFK

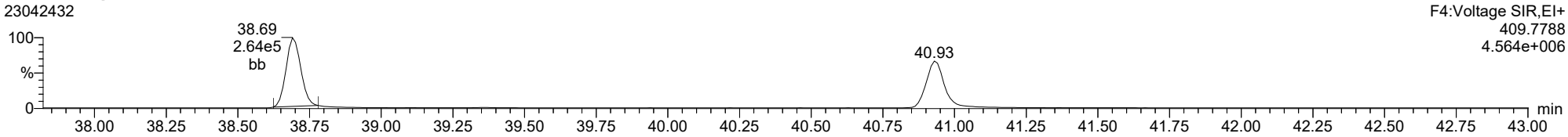


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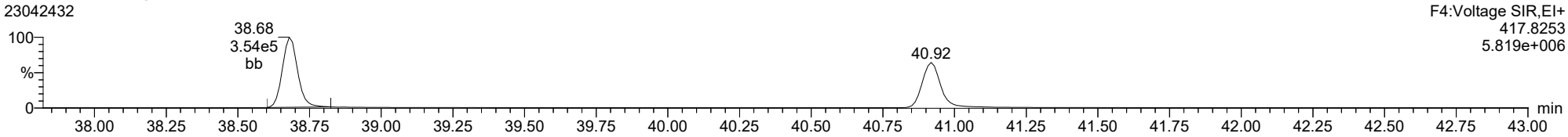
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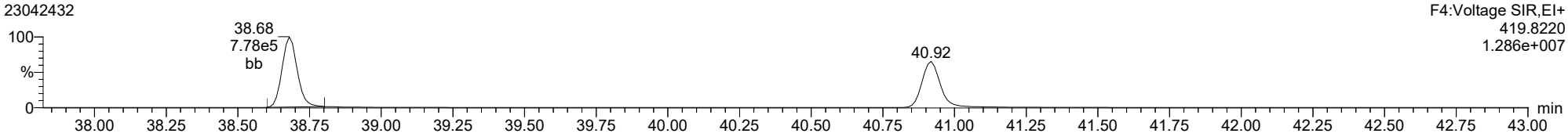
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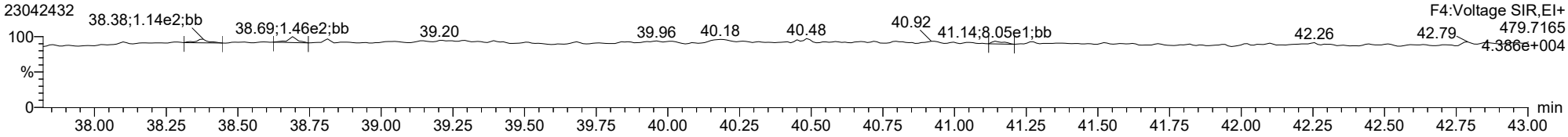
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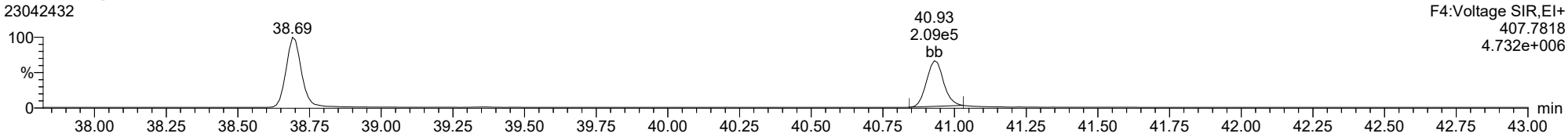


FUNCTION4 NCDPE

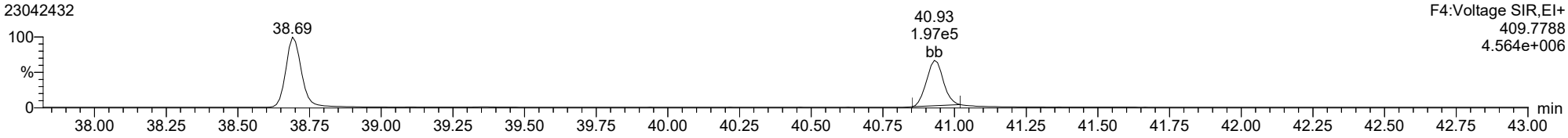


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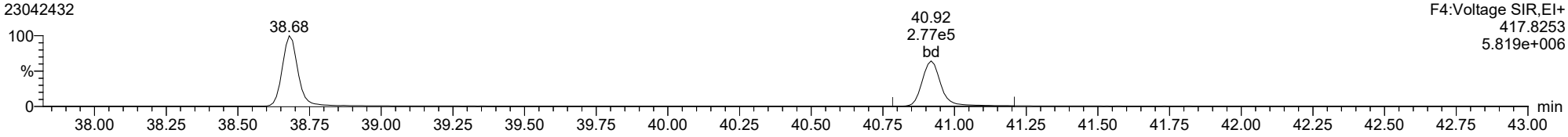
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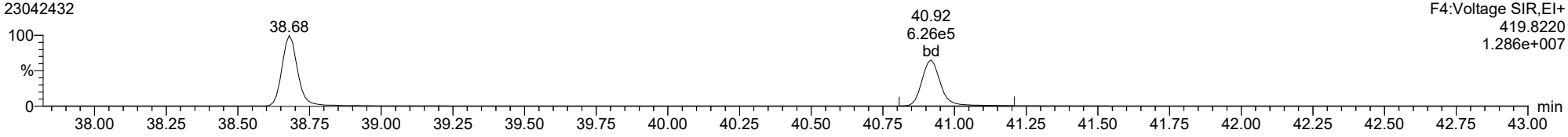
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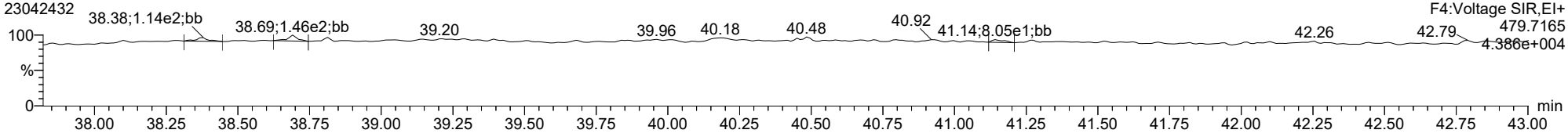
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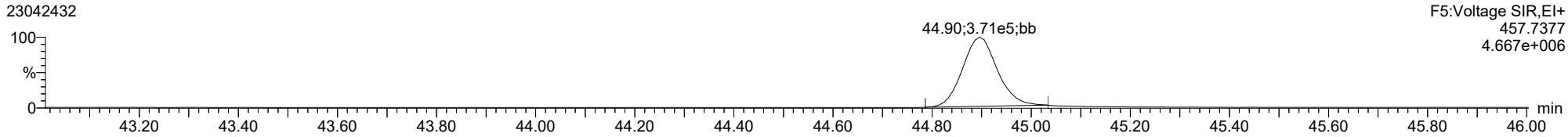


FUNCTION4 NCDPE

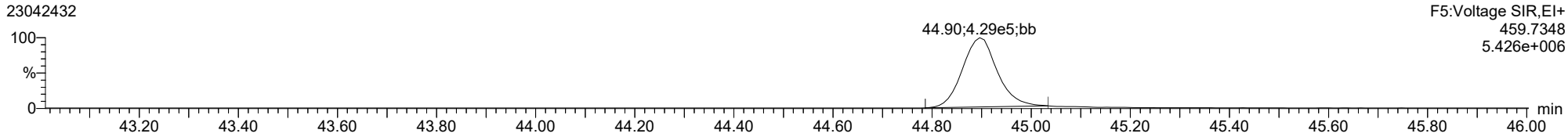


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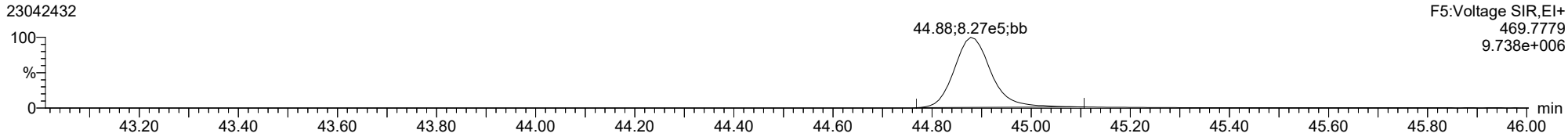
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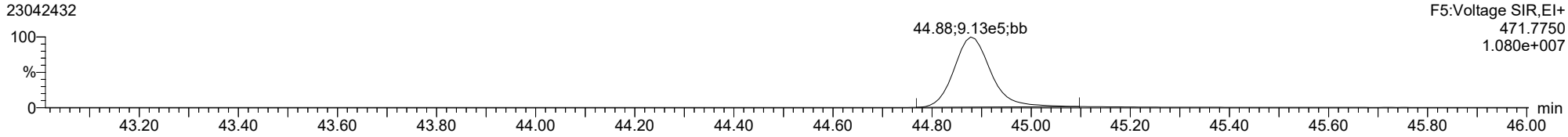
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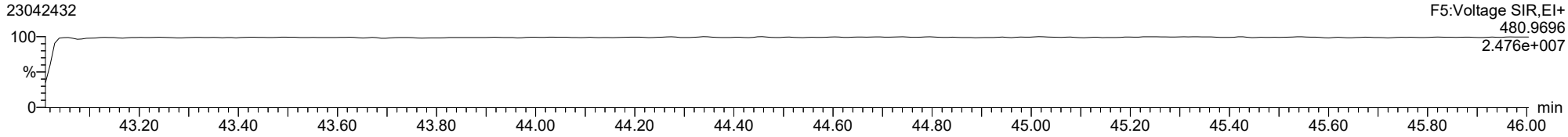
13C-OCDD



13C-OCDD



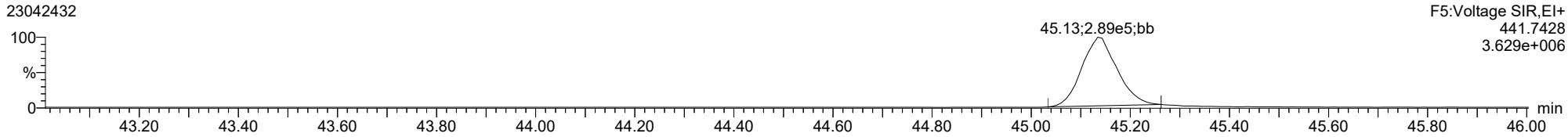
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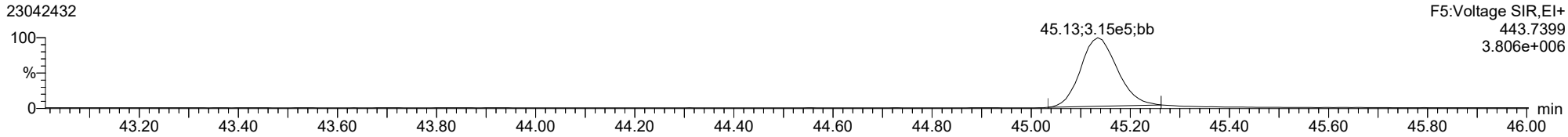
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Printed: Wednesday, April 26, 2023 10:56:55 Pacific Daylight Time

ID: CS3H4, Name: 23042432, Date: 25-Apr-2023, Time: 15:57:20, Conditions: AUTOSPEC01, User: pk

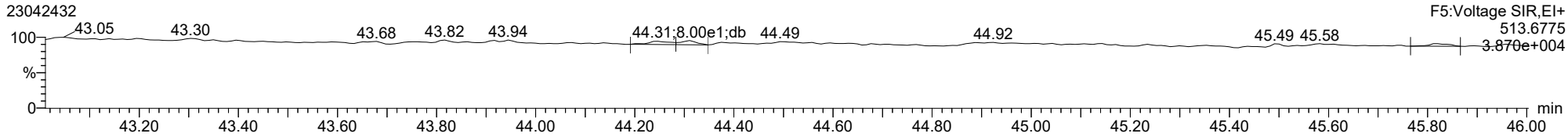
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OCDF

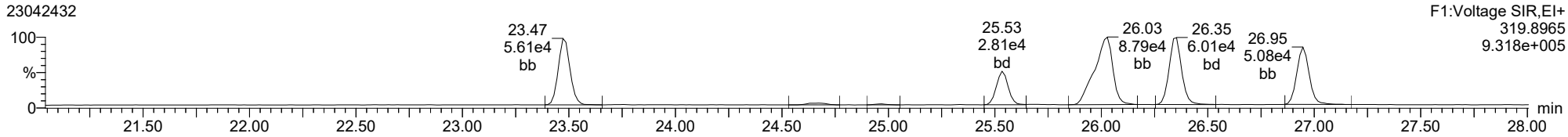


FUNCTION5 DCDPE

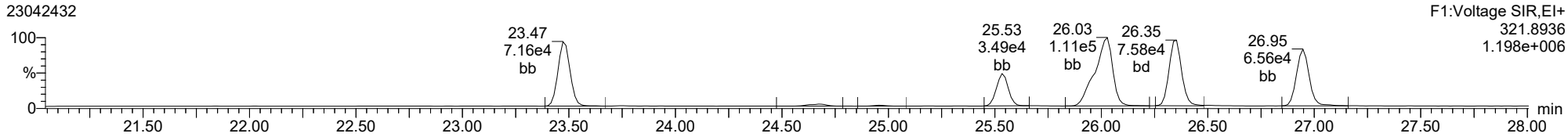


ID: CS3H4, Name: 23042432, Date: 25-Apr-2023, Time: 15:57:20, Conditions: AUTOSPEC01, User: pk

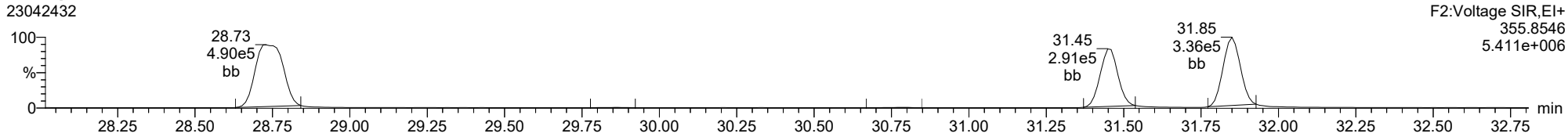
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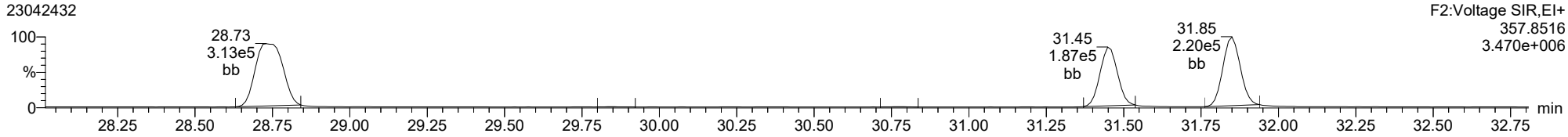
Total-tetradioxins



Total-pentadioxins

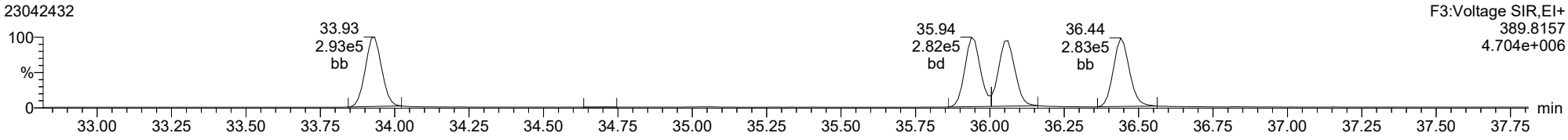


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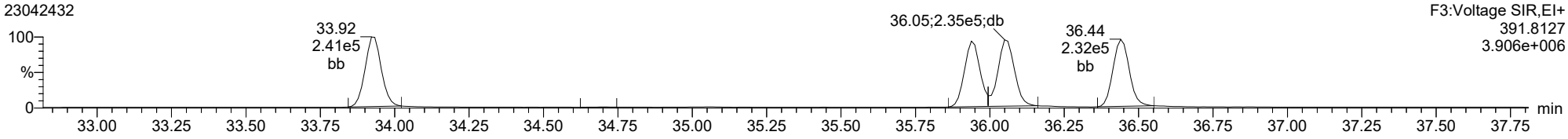


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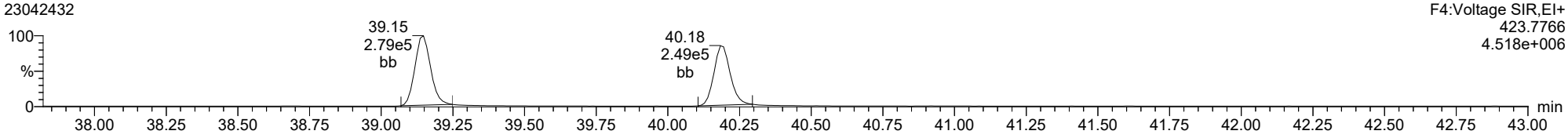
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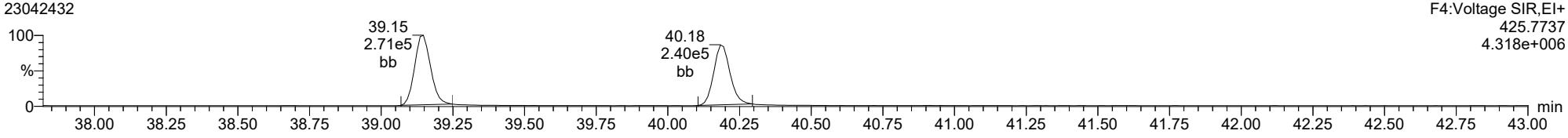
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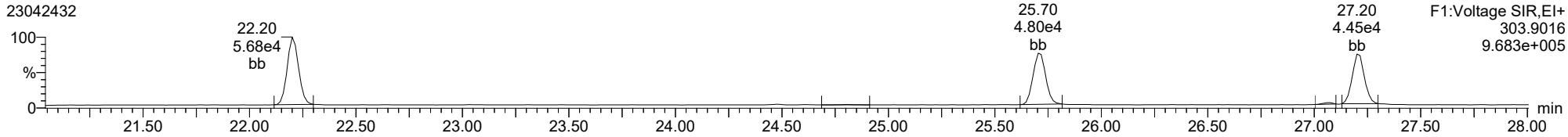


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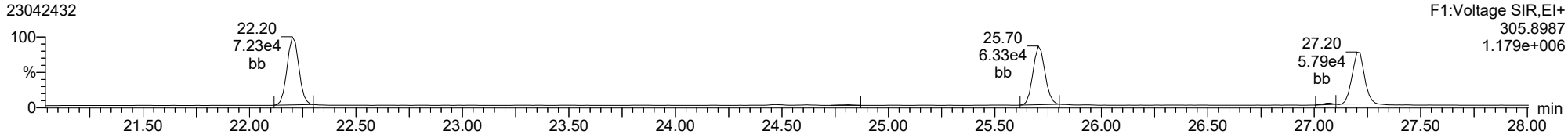


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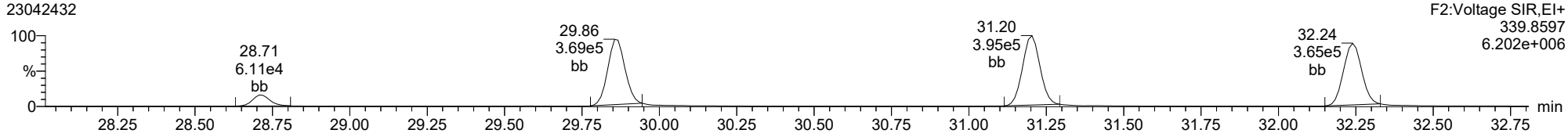
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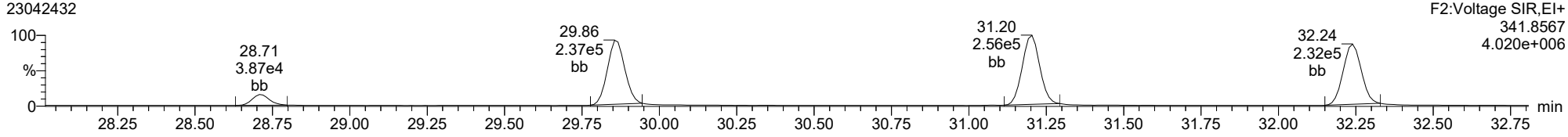
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Total-pentafurans



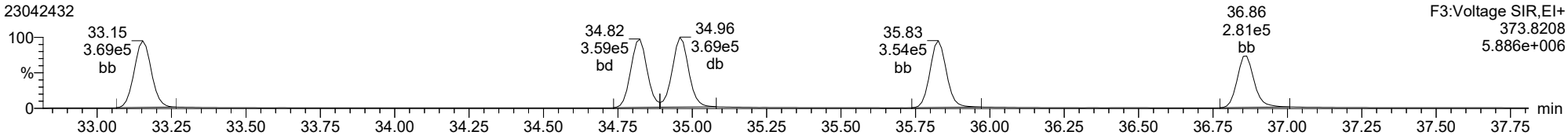
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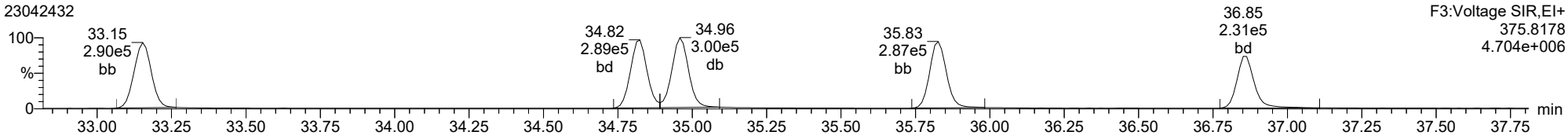
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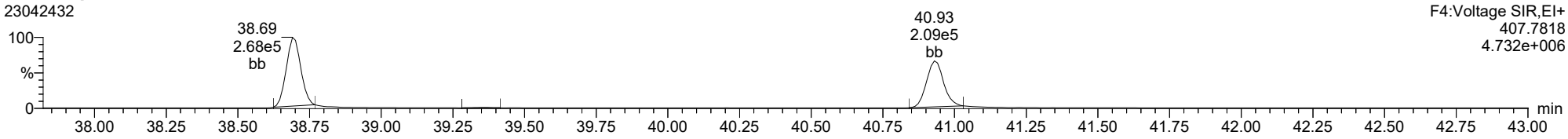
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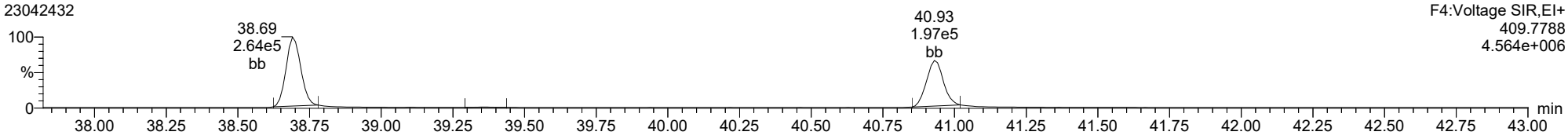
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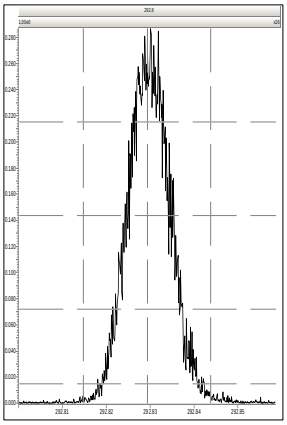


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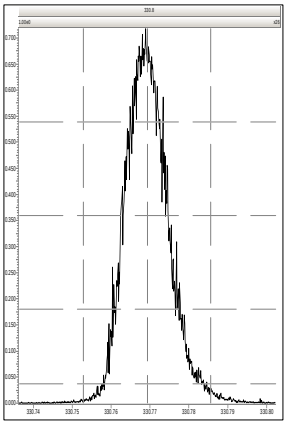


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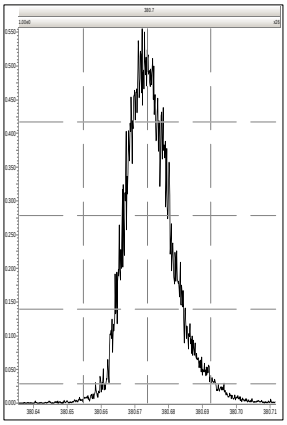
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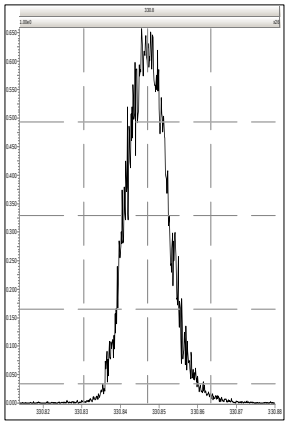
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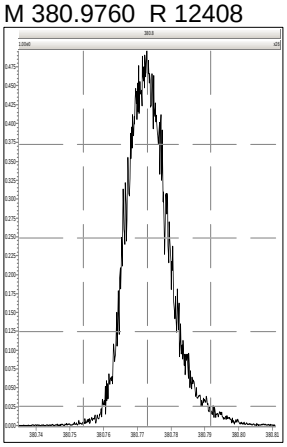
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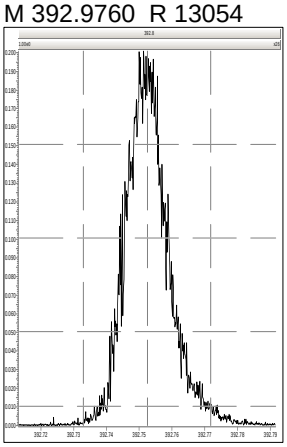
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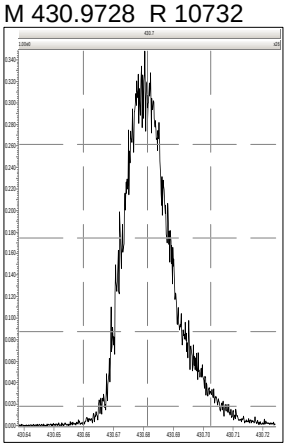
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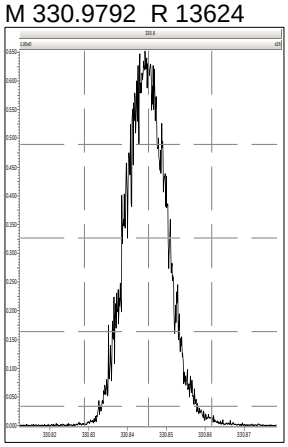
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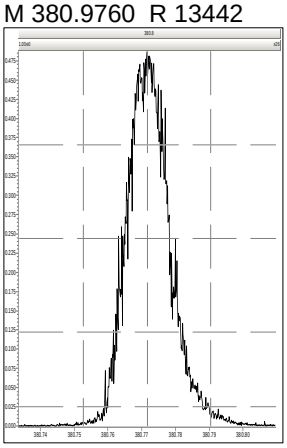
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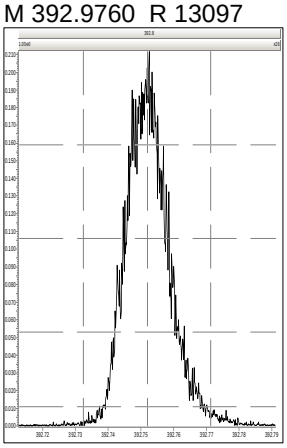
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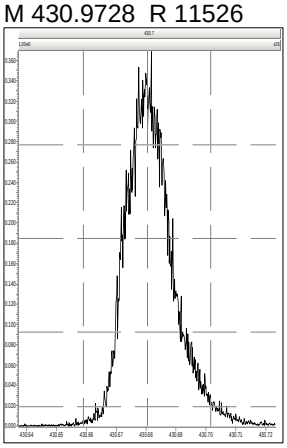
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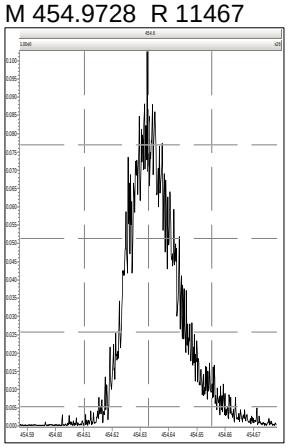
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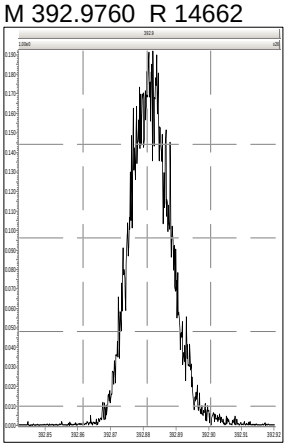
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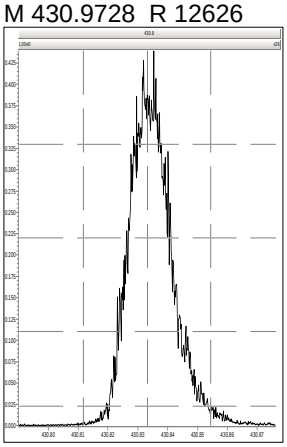
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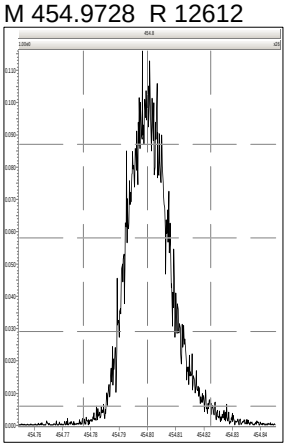
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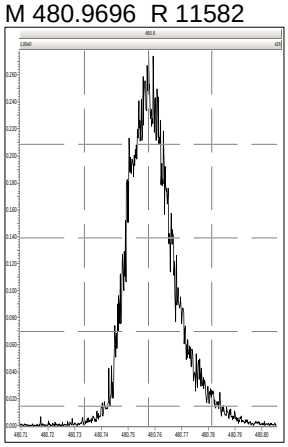
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M 454.9728 R 12612

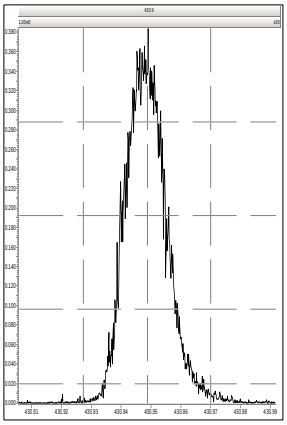


M 480.9696 R 11582

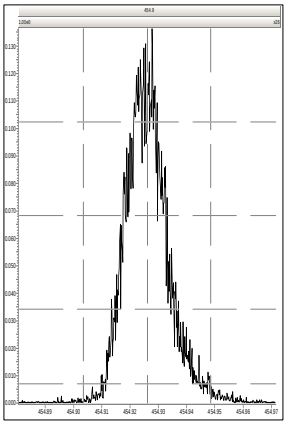


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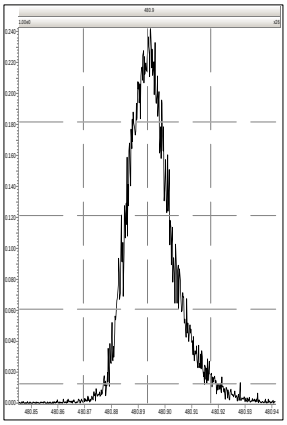
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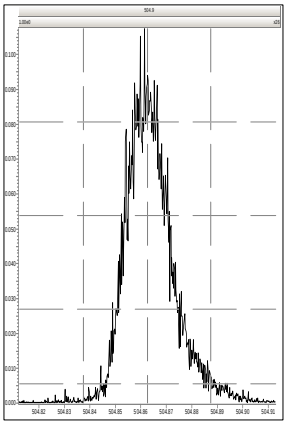
M 454.9728 R 13838



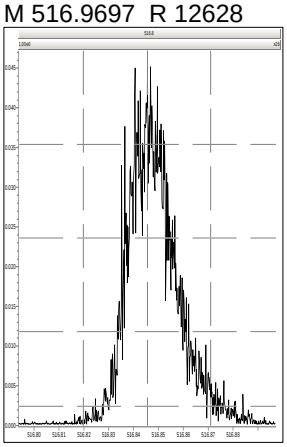
M 480.9696 R 12095

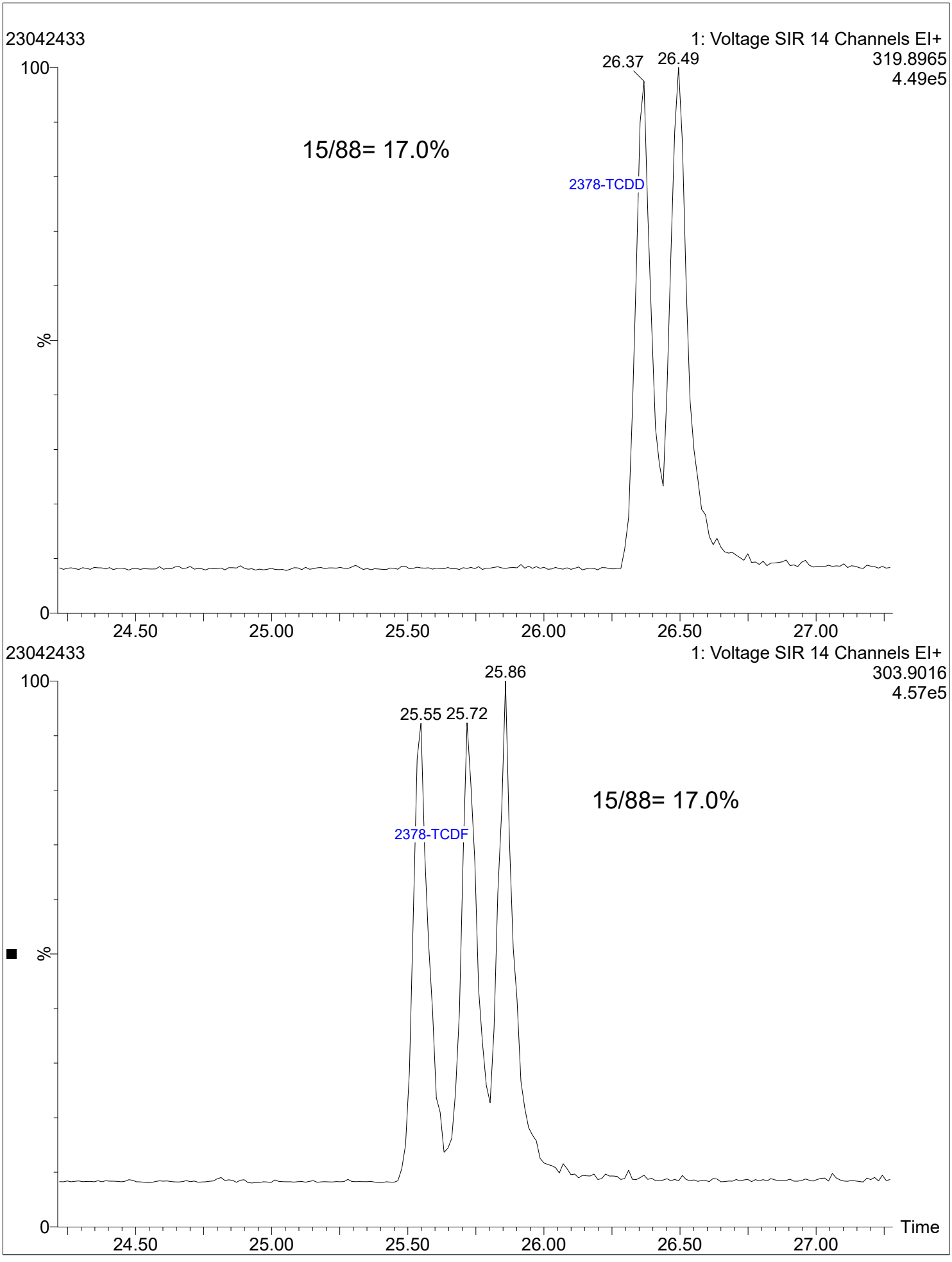


M 504.9696 R 12672



M 516.9697 R 12628




23042433
1: Voltage SIR 14 Channels EI+
319.8965
4.49e5
26.37
26.49
15/88= 17.0%
2378-TCDD
100
%
0
24.50
25.00
25.50
26.00
26.50
27.00
23042433
1: Voltage SIR 14 Channels EI+
303.9016
4.57e5
25.86
25.55
25.72
15/88= 17.0%
2378-TCDF
100
%
0
Time
24.50
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CONTINUING CALIBRATION CHECK
EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Instrument ID:	AUTOSPEC01	Calibration:	GC00015
Lab File ID:	23041940A	Calibration Date:	03/03/2023
Sequence:	SLD0342	Injection Date:	04/20/23
Lab Sample ID:	SLD0342-CCV1	Injection Time:	23:12
Sequence Name:	CS3F5		

		CONC. (ng/mL)		RESPONSE FACTOR (RRF)			% DRIFT/DIFF	
COMPOUND	TYPE	STD	CCV	ICAL	CCV	MIN	CCV	LIMIT
2,3,7,8-TCDF	A	10.000	11.2	0.7015272	0.7864983		12.1	+/-16
2,3,7,8-TCDD	A	10.000	10.1	1.1486620	1.1640950		1.3	+/-22
1,2,3,7,8-PeCDF	A	50.000	57.6	0.6792300	0.7823200		15.2	+/-18
2,3,4,7,8-PeCDF	A	50.000	57.3	0.7861704	0.9012319		14.6	+/-18
1,2,3,7,8-PeCDD	A	50.000	53.0	1.0218450	1.0832920		6.0	+/-22
1,2,3,4,7,8-HxCDF	A	50.000	47.4	1.1660380	1.1055130		-5.2	+/-10
1,2,3,6,7,8-HxCDF	A	50.000	49.3	1.0907410	1.0764960		-1.3	+/-12
2,3,4,6,7,8-HxCDF	A	50.000	48.0	1.1396990	1.0940580		-4.0	+/-12
1,2,3,7,8,9-HxCDF	A	50.000	45.6	1.1370930	1.0376230		-8.7	+/-10
1,2,3,4,7,8-HxCDD	A	50.000	46.0	0.9955689	0.9152182		-8.1	+/-22
1,2,3,6,7,8-HxCDD	A	50.000	45.2	1.0009380	0.9058236		-9.5	+/-22
1,2,3,7,8,9-HxCDD	A	50.000	49.8	0.9071139	0.9175163		-0.5	+/-18
1,2,3,4,6,7,8-HpCDF	A	50.000	51.7	1.0029930	1.0372440		3.4	+/-10
1,2,3,4,7,8,9-HpCDF	A	50.000	53.8	0.9531152	1.0247360		7.5	+/-14
1,2,3,4,6,7,8-HpCDD	A	50.000	54.2	1.0390130	1.1270530		8.5	+/-14
OCDF	A	100.00	117	0.7778078	0.9123372		17.3	+/-37
OCDD	A	100.00	109	0.9199537	0.9991585		8.6	+/-21
13C12-2,3,7,8-TCDF	A	100.00	102	1.6201960	1.6475293		1.7	+/-29
13C12-2,3,7,8-TCDD	A	100.00	100	1.1524090	1.1563385		0.3	+/-18
13C12-1,2,3,7,8-PeCDF	A	100.00	120	1.2404520	1.4923304		20.3	+/-24
13C12-2,3,4,7,8-PeCDF	A	100.00	128	1.1177860	1.4265848		27.6	+/-23
13C12-1,2,3,7,8-PeCDD	A	100.00	113	0.8288129	0.9401976		13.4	+/-38
13C12-1,2,3,4,7,8-HxCDF	A	100.00	101	1.1683050	1.1770500		0.7	+/-24
13C12-1,2,3,6,7,8-HxCDF	A	100.00	89.0	1.3864660	1.2335739		-11.0	+/-30
13C12-2,3,4,6,7,8-HxCDF	A	100.00	88.8	1.1292560	1.0026934		-11.2	+/-27
13C12-1,2,3,7,8,9-HxCDF	A	100.00	90.0	0.9317541	0.8388898		-10.0	+/-26
13C12-1,2,3,4,7,8-HxCDD	A	100.00	97.4	0.9950393	0.9689050		-2.6	+/-15
13C12-1,2,3,6,7,8-HxCDD	A	100.00	87.0	1.1566890	1.0064456		-13.0	+/-15
13C12-1,2,3,4,6,7,8-HpCDF	A	100.00	119	0.8952017	1.0635596		18.8	+/-22
13C12-1,2,3,4,7,8,9-HpCDF	A	100.00	124	0.7697516	0.9565933		24.3	+/-23
13C12-1,2,3,4,6,7,8-HpCDD	A	100.00	99.8	0.8401226	0.8387030		-0.2	+/-28
13C12-OCDD	A	200.00	235	0.7674714	0.9005450		17.3	+/-52
37Cl4-2,3,7,8-TCDD	A	10.000	9.08	1.2878040	1.1688701		-9.2	

* Values outside of QC limits

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:07:11 Pacific Daylight Time

Method: T:\Autospec\Methods\Dioxin230420IH.mdb 25 Apr 2023 09:50:41
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3F5, Name: 23041940, Date: 20-Apr-2023, Time: 23:12:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
2378-TCDF	25.746	1.001	3.484e4	4.800e4	0.702	0.726	0.770	840	1489	5.30e5	7.22e5	630.8	485.1	NO	bb	bb	11.211
12378-PeCDF	29.900	1.001	2.271e5	1.461e5	0.679	1.555	1.550	3061	2062	3.53e6	2.27e6	1152.0	1101.8	NO	bb	bb	57.589
23478-PeCDF	31.237	1.001	2.505e5	1.604e5	0.786	1.562	1.550	3061	2062	3.86e6	2.47e6	1259.7	1200.1	NO	bb	bb	57.318
123478-HxCDF	34.858	1.001	2.267e5	1.800e5	1.166	1.259	1.240	1417	1539	3.54e6	2.76e6	2497.5	1793.8	NO	bd	bd	47.405
234678-HxCDF	35.849	1.000	1.906e5	1.522e5	1.140	1.252	1.240	1417	1539	2.96e6	2.39e6	2092.2	1551.3	NO	bb	bb	47.998
123678-HxCDF	34.992	1.000	2.304e5	1.846e5	1.091	1.248	1.240	1417	1539	3.49e6	2.80e6	2464.9	1817.7	NO	db	db	49.347
123789-HxCDF	36.886	1.000	1.512e5	1.209e5	1.137	1.250	1.240	1417	1539	2.38e6	1.91e6	1680.4	1238.7	NO	bb	bb	45.626
1234678-HpCDF	38.724	1.000	1.757e5	1.690e5	1.003	1.040	1.050	2206	1195	2.97e6	2.85e6	1347.7	2387.3	NO	bb	bb	51.707
1234789-HpCDF	40.963	1.000	1.548e5	1.516e5	0.953	1.021	1.050	2206	1195	2.30e6	2.21e6	1042.2	1853.4	NO	bb	bb	53.757
OCDF	45.180	1.006	2.442e5	2.694e5	0.778	0.906	0.890	705	1327	3.03e6	3.39e6	4301.1	2552.3	NO	bb	bb	117.296
2378-TCDD	26.382	1.001	3.741e4	4.865e4	1.149	0.769	0.770	919	762	5.69e5	7.14e5	618.6	936.8	NO	bd	bb	10.134
12378-PeCDD	31.493	1.001	1.977e5	1.279e5	1.022	1.546	1.550	1275	1462	3.02e6	1.92e6	2371.3	1314.2	NO	bb	bb	53.007
123478-HxCDD	35.972	1.000	1.516e5	1.256e5	0.996	1.207	1.240	1306	2008	2.41e6	2.02e6	1842.3	1004.0	NO	bd	bd	45.965
123678-HxCDD	36.095	1.001	1.547e5	1.302e5	1.001	1.188	1.240	1306	2008	2.46e6	2.02e6	1881.5	1005.7	NO	db	db	45.249
123789-HxCDD	36.473	1.011	1.528e5	1.258e5	0.907	1.215	1.240	1306	2008	2.49e6	2.00e6	1907.0	996.6	NO	bb	bb	49.756
1234678-HpCDD	40.228	1.001	1.512e5	1.442e5	1.039	1.049	1.050	1651	1397	2.29e6	2.21e6	1389.5	1583.3	NO	bb	bb	54.237
OCDD	44.942	1.001	2.639e5	2.986e5	0.920	0.884	0.890	1723	930	3.13e6	3.56e6	1814.8	3828.7	NO	bb	bb	108.610
13C-2378-TCDF	25.718	1.007	4.570e5	5.963e5	1.620	0.766	0.770	955	1667	6.81e6	8.87e6	7136.7	5321.6	NO	bd	bb	101.687
13C-12378-PeCDF	29.878	1.169	5.743e5	3.799e5	1.240	1.512	1.550	2196	1669	8.88e6	5.85e6	4040.9	3507.1	NO	bb	bb	120.305
13C-23478-PeCDF	31.215	1.222	5.522e5	3.598e5	1.118	1.535	1.550	2196	1669	8.45e6	5.59e6	3846.8	3352.3	NO	bb	bb	127.626
13C-123478-HxCDF	34.836	0.955	2.460e5	4.897e5	1.168	0.502	0.510	1530	1901	3.88e6	7.82e6	2537.5	4114.5	NO	bd	bd	100.749
13C-123678-HxCDF	34.980	0.959	2.594e5	5.117e5	1.386	0.507	0.510	1530	1901	3.91e6	7.67e6	2557.7	4033.6	NO	db	db	88.973
13C-234678-HxCDF	35.838	0.983	2.134e5	4.134e5	1.129	0.516	0.510	1530	1901	3.42e6	6.61e6	2233.9	3478.0	NO	bb	bb	88.792
13C-123789-HxCDF	36.874	1.011	1.770e5	3.473e5	0.932	0.510	0.510	1530	1901	2.82e6	5.53e6	1845.6	2910.4	NO	bb	bb	90.033
13C-1234678-HpCDF	38.713	1.062	2.053e5	4.595e5	0.895	0.447	0.440	1595	1906	3.36e6	7.47e6	2106.6	3919.9	NO	bb	bb	118.807
13C-1234789-HpCDF	40.952	1.123	1.829e5	4.150e5	0.770	0.441	0.440	1595	1906	2.57e6	5.79e6	1612.2	3039.4	NO	bb	bb	124.273
13C-1234-TCDD	25.548	0.000	2.818e5	3.575e5	1.000	0.788	0.770	1447	947	4.27e6	5.47e6	2946.7	5772.3	NO	bb	bb	100.000
13C-2378-TCDD	26.368	1.032	3.229e5	4.164e5	1.152	0.775	0.770	1447	947	4.86e6	6.18e6	3359.2	6530.5	NO	bb	bb	100.341
13C-12378-PeCDD	31.471	1.232	3.736e5	2.275e5	0.829	1.642	1.550	1149	969	5.55e6	3.33e6	4826.0	3436.2	NO	bd	bd	113.439
13C-123478-HxCDD	35.961	0.986	3.402e5	2.654e5	0.995	1.282	1.240	1552	1382	5.56e6	4.36e6	3580.4	3152.9	NO	bd	bd	97.374
13C-123678-HxCDD	36.072	0.989	3.481e5	2.810e5	1.157	1.239	1.240	1552	1382	5.58e6	4.49e6	3592.4	3247.5	NO	db	db	87.011
13C-1234678-HpCDD	40.206	1.103	2.699e5	2.543e5	0.840	1.061	1.050	1533	1442	4.08e6	3.82e6	2659.5	2647.6	NO	bb	bb	99.831
13C-OCDD	44.915	1.232	5.356e5	5.902e5	0.767	0.908	0.890	2164	1560	6.13e6	6.64e6	2834.1	4253.5	NO	bb	bd	234.679
13C-123789-HxCDD	36.462	0.000	3.451e5	2.800e5	1.000	1.233	1.240	1552	1382	5.63e6	4.46e6	3624.9	3223.9	NO	bb	bb	100.000
37CL-2378-TCDD	26.382	1.033	7.473e4		1.288			1343		1.15e6		855.1			bb		9.076

Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:07:11 Pacific Daylight Time

ID: CS3F5, Name: 23041940, Date: 20-Apr-2023, Time: 23:12:43, Conditions: AUTOSPEC01, User: pk

Compound	RT	RRT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	Noise 1	Noise 2	Height 1	Height 2	S/N 1	S/N 2	EMPC	Int.1	Int.2	pg
1368-TCDF	22.243	0.865	3.747e4	4.997e4	0.802	0.750	0.770	840	1489	6.07e5	8.17e5	723.3	548.7	NO	bb	bb	10.357
1289-TCDF	27.243	1.059	3.651e4	4.694e4	0.678	0.778	0.770	840	1489	5.26e5	6.86e5	626.4	460.7	NO	bb	db	11.684
13468-PECDF	27.088	0.907	3.062e5	2.007e5	1.246	1.526	1.550	533	750	4.65e6	3.06e6	8708.3	4084.9	NO	bb	bb	42.624
12389-PECDF	32.273	1.080	2.451e5	1.542e5	0.496	1.590	1.550	3061	2062	3.80e6	2.40e6	1239.8	1162.4	NO	bb	bb	84.322
123468-HXCDF	33.187	0.953	2.469e5	1.963e5	1.169	1.258	1.240	1417	1539	3.79e6	3.04e6	2678.5	1975.5	NO	bb	bb	51.534
1368-TCDD	23.514	0.892	3.090e4	3.847e4	1.015	0.803	0.770	919	762	4.98e5	5.94e5	541.8	778.9	NO	bb	bb	9.240
1289-TCDD	26.975	1.023	3.380e4	4.087e4	0.909	0.827	0.770	919	762	5.02e5	5.96e5	545.9	781.2	NO	bb	bb	11.115
12479-PECDD	28.764	0.914	3.169e5	2.014e5	2.301	1.574	1.550	1275	1462	3.08e6	1.93e6	2411.8	1320.1	NO	bb	bb	37.461
12389-PECDD	31.883	1.013	2.364e5	1.526e5	1.184	1.549	1.550	1275	1462	3.58e6	2.31e6	2805.5	1577.3	NO	bb	bb	54.676
124679-HXCDD	33.967	0.945	2.035e5	1.682e5	1.115	1.210	1.240	1306	2008	3.13e6	2.57e6	2394.9	1278.6	NO	bb	bb	55.015
1234679-HPCDD	39.181	0.975	1.647e5	1.564e5	1.137	1.053	1.050	1651	1397	2.67e6	2.50e6	1618.1	1789.7	NO	bb	bb	53.867
Total-tetrafurans			1.095e5		0.727			840		1.68e6							33.461
Total-penta1			3.062e5					533		4.65e6							42.624
Total-pentafurans			7.599e5		0.654			3061		1.18e7							209.221
Total-hexafurans			1.046e6		1.141			1417		1.62e7							241.910
Total-heptafurans			3.322e5		0.978			2206		5.30e6							105.973
Total-Furans			2.798e6		0.922			840		4.26e7							750.484
Total-tetradioxins			1.731e5		1.024			919		2.40e6							51.874
Total-pentadioxins			7.510e5		1.502			1275		9.68e6							145.143
Total-hexadioxins			6.640e5		1.005			1306		1.05e7							196.383
Total-heptadioxins			3.159e5		1.088			1651		4.97e6							108.104
Total-Dioxins			2.168e6		1.130			919		3.07e7							610.113
Total-TEQ			4.966e6					919		7.33e7							1360.597
FUNCTION1 PFK			2.412e7					343845		1.88e7							
FUNCTION2 PFK			3.760e5					191441		1.10e7							0.000
FUNCTION3 PFK			1.086e7					337908		1.37e7							0.000
FUNCTION4 PFK			4.540e5					260543		1.36e7							
FUNCTION5 PFK			1.447e5					180142		4.89e6							
FUNCTION1 HXCD...			4.940e2					579		4.98e3							0.000
FUNCTION1 HPCD...																	
FUNCTION2 HPCD...			4.969e2					669		8.76e3							0.000
FUNCTION3 OCDPE			0.000e0					663		0.00e0							
FUNCTION4 NCDPE			2.113e2					588		3.31e3							0.000
FUNCTION5 DCDPE			7.574e1					487		1.09e3							0.000

Method: T:\Autospec\Methods\Dioxin230420IH.mdb 25 Apr 2023 09:50:41
Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3F5, Name: 23041940, Date: 20-Apr-2023, Time: 23:12:43, Conditions: AUTOSPEC01, User: pk

TF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.24	3.651e4	4.694e4	0.678	0.78	0.77	626.4	YES	NO	bb	db	11.684
2	Total-tetrafurans	27.10	6.606e2	9.306e2	0.727	0.71	0.77	16.6	YES	NO	bb	bd	0.208
3	2378-TCDF	25.75	3.484e4	4.800e4	0.702	0.73	0.77	630.8	YES	NO	bb	bb	11.211
4	1368-TCDF	22.24	3.747e4	4.997e4	0.802	0.75	0.77	723.3	YES	NO	bb	bb	10.357

PP

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	13468-PECDF	27.09	3.062e5	2.007e5	1.246	1.53	1.55	8708.3	YES	NO	bb	bb	42.624

PF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12378-PeCDF	29.90	2.271e5	1.461e5	0.679	1.55	1.55	1152.0	YES	NO	bb	bb	57.589
2	Total-pentafurans	28.75	3.706e4	2.391e4	0.654	1.55	1.55	190.1	YES	NO	bb	bb	9.992
3	12389-PECDF	32.27	2.451e5	1.542e5	0.496	1.59	1.55	1239.8	YES	NO	bb	bb	84.322
4	23478-PeCDF	31.24	2.505e5	1.604e5	0.786	1.56	1.55	1259.7	YES	NO	bb	bb	57.318

HF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	123789-HxCDF	36.89	1.512e5	1.209e5	1.137	1.25	1.24	1680.4	YES	NO	bb	bb	45.626
2	234678-HxCDF	35.85	1.906e5	1.522e5	1.140	1.25	1.24	2092.2	YES	NO	bb	bb	47.998
3	123678-HxCDF	34.99	2.304e5	1.846e5	1.091	1.25	1.24	2464.9	YES	NO	db	db	49.347
4	123478-HxCDF	34.86	2.267e5	1.800e5	1.166	1.26	1.24	2497.5	YES	NO	bd	bd	47.405
5	123468-HXCDF	33.19	2.469e5	1.963e5	1.169	1.26	1.24	2678.5	YES	NO	bb	bb	51.534

HPF

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDF	38.72	1.757e5	1.690e5	1.003	1.04	1.05	1347.7	YES	NO	bb	bb	51.707
2	Total-heptafurans	41.17	8.947e1	7.468e1	0.978	1.20	1.05	1.7	NO	NO	bb	bb	0.027
3	1234789-HpCDF	40.96	1.548e5	1.516e5	0.953	1.02	1.05	1042.2	YES	NO	bb	bb	53.757
4	Total-heptafurans	39.39	1.560e3	1.415e3	0.978	1.10	1.05	11.6	YES	NO	db	bb	0.482

ID: CS3F5, Name: 23041940, Date: 20-Apr-2023, Time: 23:12:43, Conditions: AUTOSPEC01, User: pk

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

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.24	3.651e4	4.694e4	0.678	0.78	0.77	626.4	YES	NO	bb	db	11.684
2	Total-tetrafurans	27.10	6.606e2	9.306e2	0.727	0.71	0.77	16.6	YES	NO	bb	bd	0.208
3	2378-TCDF	25.75	3.484e4	4.800e4	0.702	0.73	0.77	630.8	YES	NO	bb	bb	11.211
4	1368-TCDF	22.24	3.747e4	4.997e4	0.802	0.75	0.77	723.3	YES	NO	bb	bb	10.357
5	12378-PeCDF	29.90	2.271e5	1.461e5	0.679	1.55	1.55	1152.0	YES	NO	bb	bb	57.589
6	Total-pentafurans	28.75	3.706e4	2.391e4	0.654	1.55	1.55	190.1	YES	NO	bb	bb	9.992
7	12389-PECDF	32.27	2.451e5	1.542e5	0.496	1.59	1.55	1239.8	YES	NO	bb	bb	84.322
8	23478-PeCDF	31.24	2.505e5	1.604e5	0.786	1.56	1.55	1259.7	YES	NO	bb	bb	57.318
9	123789-HxCDF	36.89	1.512e5	1.209e5	1.137	1.25	1.24	1680.4	YES	NO	bb	bb	45.626
10	234678-HxCDF	35.85	1.906e5	1.522e5	1.140	1.25	1.24	2092.2	YES	NO	bb	bb	47.998
11	123678-HxCDF	34.99	2.304e5	1.846e5	1.091	1.25	1.24	2464.9	YES	NO	db	db	49.347
12	123478-HxCDF	34.86	2.267e5	1.800e5	1.166	1.26	1.24	2497.5	YES	NO	bd	bd	47.405
13	123468-HXCDF	33.19	2.469e5	1.963e5	1.169	1.26	1.24	2678.5	YES	NO	bb	bb	51.534
14	1234678-HpCDF	38.72	1.757e5	1.690e5	1.003	1.04	1.05	1347.7	YES	NO	bb	bb	51.707
15	Total-heptafurans	41.17	8.947e1	7.468e1	0.978	1.20	1.05	1.7	NO	NO	bb	bb	0.027
16	1234789-HpCDF	40.96	1.548e5	1.516e5	0.953	1.02	1.05	1042.2	YES	NO	bb	bb	53.757
17	Total-heptafurans	39.39	1.560e3	1.415e3	0.978	1.10	1.05	11.6	YES	NO	db	bb	0.482
18	OCDF	45.18	2.442e5	2.694e5	0.778	0.91	0.89	4301.1	YES	NO	bb	bb	117.296
19	13468-PECDF	27.09	3.062e5	2.007e5	1.246	1.53	1.55	8708.3	YES	NO	bb	bb	42.624

TD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.38	3.741e4	4.865e4	1.149	0.77	0.77	618.6	YES	NO	bd	bb	10.134
2	Total-tetradioxins	26.06	5.373e4	6.890e4	1.024	0.78	0.77	616.3	YES	NO	bb	bb	16.194
3	Total-tetradioxins	25.58	1.695e4	2.162e4	1.024	0.78	0.77	283.5	YES	NO	bd	bb	5.093
4	Total-tetradioxins	25.00	3.203e2	4.177e2	1.024	0.77	0.77	6.0	YES	NO	bb	bb	0.097
5	1368-TCDD	23.51	3.090e4	3.847e4	1.015	0.80	0.77	541.8	YES	NO	bb	bb	9.240
6	1289-TCDD	26.98	3.380e4	4.087e4	0.909	0.83	0.77	545.9	YES	NO	bb	bb	11.115

PD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	12389-PECDD	31.88	2.364e5	1.526e5	1.184	1.55	1.55	2805.5	YES	NO	bb	bb	54.676
2	12378-PeCDD	31.49	1.977e5	1.279e5	1.022	1.55	1.55	2371.3	YES	NO	bb	bb	53.007
3	12479-PECDD	28.76	3.169e5	2.014e5	2.301	1.57	1.55	2411.8	YES	NO	bb	bb	37.461

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HD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	124679-HXCDD	33.97	2.035e5	1.682e5	1.115	1.21	1.24	2394.9	YES	NO	bb	bb	55.015
2	123789-HxCDD	36.47	1.528e5	1.258e5	0.907	1.22	1.24	1907.0	YES	NO	bb	bb	49.756
3	123678-HxCDD	36.09	1.547e5	1.302e5	1.001	1.19	1.24	1881.5	YES	NO	db	db	45.249
4	123478-HxCDD	35.97	1.516e5	1.256e5	0.996	1.21	1.24	1842.3	YES	NO	bd	bd	45.965
5	Total-hexadioxins	35.07	1.395e3	1.078e3	1.005	1.29	1.24	10.9	YES	NO	bb	bb	0.399

HPD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1234678-HpCDD	40.23	1.512e5	1.442e5	1.039	1.05	1.05	1389.5	YES	NO	bb	bb	54.237
2	1234679-HPCDD	39.18	1.647e5	1.564e5	1.137	1.05	1.05	1618.1	YES	NO	bb	bb	53.867

Dioxins,TD,PD,HD,HPD,OD

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	2378-TCDD	26.38	3.741e4	4.865e4	1.149	0.77	0.77	618.6	YES	NO	bd	bb	10.134
2	Total-tetradioxins	26.06	5.373e4	6.890e4	1.024	0.78	0.77	616.3	YES	NO	bb	bb	16.194
3	Total-tetradioxins	25.58	1.695e4	2.162e4	1.024	0.78	0.77	283.5	YES	NO	bd	bb	5.093
4	Total-tetradioxins	25.00	3.203e2	4.177e2	1.024	0.77	0.77	6.0	YES	NO	bb	bb	0.097
5	1368-TCDD	23.51	3.090e4	3.847e4	1.015	0.80	0.77	541.8	YES	NO	bb	bb	9.240
6	12389-PECDD	31.88	2.364e5	1.526e5	1.184	1.55	1.55	2805.5	YES	NO	bb	bb	54.676
7	12378-PeCDD	31.49	1.977e5	1.279e5	1.022	1.55	1.55	2371.3	YES	NO	bb	bb	53.007
8	12479-PECDD	28.76	3.169e5	2.014e5	2.301	1.57	1.55	2411.8	YES	NO	bb	bb	37.461
9	1289-TCDD	26.98	3.380e4	4.087e4	0.909	0.83	0.77	545.9	YES	NO	bb	bb	11.115
10	124679-HXCDD	33.97	2.035e5	1.682e5	1.115	1.21	1.24	2394.9	YES	NO	bb	bb	55.015
11	123789-HxCDD	36.47	1.528e5	1.258e5	0.907	1.22	1.24	1907.0	YES	NO	bb	bb	49.756
12	123678-HxCDD	36.09	1.547e5	1.302e5	1.001	1.19	1.24	1881.5	YES	NO	db	db	45.249
13	123478-HxCDD	35.97	1.516e5	1.256e5	0.996	1.21	1.24	1842.3	YES	NO	bd	bd	45.965
14	Total-hexadioxins	35.07	1.395e3	1.078e3	1.005	1.29	1.24	10.9	YES	NO	bb	bb	0.399
15	1234678-HpCDD	40.23	1.512e5	1.442e5	1.039	1.05	1.05	1389.5	YES	NO	bb	bb	54.237
16	1234679-HPCDD	39.18	1.647e5	1.564e5	1.137	1.05	1.05	1618.1	YES	NO	bb	bb	53.867
17	OCDD	44.94	2.639e5	2.986e5	0.920	0.88	0.89	1814.8	YES	NO	bb	bb	108.610

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TotalTEQ,Furans,Dioxins

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	1289-TCDF	27.24	3.651e4	4.694e4	0.678	0.78	0.77	626.4	YES	NO	bb	db	11.684
2	Total-tetrafurans	27.10	6.606e2	9.306e2	0.727	0.71	0.77	16.6	YES	NO	bb	bd	0.208
3	2378-TCDF	25.75	3.484e4	4.800e4	0.702	0.73	0.77	630.8	YES	NO	bb	bb	11.211
4	1368-TCDF	22.24	3.747e4	4.997e4	0.802	0.75	0.77	723.3	YES	NO	bb	bb	10.357
5	12378-PeCDF	29.90	2.271e5	1.461e5	0.679	1.55	1.55	1152.0	YES	NO	bb	bb	57.589
6	Total-pentafurans	28.75	3.706e4	2.391e4	0.654	1.55	1.55	190.1	YES	NO	bb	bb	9.992
7	12389-PECDF	32.27	2.451e5	1.542e5	0.496	1.59	1.55	1239.8	YES	NO	bb	bb	84.322
8	23478-PeCDF	31.24	2.505e5	1.604e5	0.786	1.56	1.55	1259.7	YES	NO	bb	bb	57.318
9	123789-HxCDF	36.89	1.512e5	1.209e5	1.137	1.25	1.24	1680.4	YES	NO	bb	bb	45.626
10	234678-HxCDF	35.85	1.906e5	1.522e5	1.140	1.25	1.24	2092.2	YES	NO	bb	bb	47.998
11	123678-HxCDF	34.99	2.304e5	1.846e5	1.091	1.25	1.24	2464.9	YES	NO	db	db	49.347
12	123478-HxCDF	34.86	2.267e5	1.800e5	1.166	1.26	1.24	2497.5	YES	NO	bd	bd	47.405
13	123468-HXCDF	33.19	2.469e5	1.963e5	1.169	1.26	1.24	2678.5	YES	NO	bb	bb	51.534
14	1234678-HpCDF	38.72	1.757e5	1.690e5	1.003	1.04	1.05	1347.7	YES	NO	bb	bb	51.707
15	Total-heptafurans	41.17	8.947e1	7.468e1	0.978	1.20	1.05	1.7	NO	NO	bb	bb	0.027
16	1234789-HpCDF	40.96	1.548e5	1.516e5	0.953	1.02	1.05	1042.2	YES	NO	bb	bb	53.757
17	Total-heptafurans	39.39	1.560e3	1.415e3	0.978	1.10	1.05	11.6	YES	NO	db	bb	0.482
18	OCDF	45.18	2.442e5	2.694e5	0.778	0.91	0.89	4301.1	YES	NO	bb	bb	117.296
19	13468-PECDF	27.09	3.062e5	2.007e5	1.246	1.53	1.55	8708.3	YES	NO	bb	bb	42.624
20	2378-TCDD	26.38	3.741e4	4.865e4	1.149	0.77	0.77	618.6	YES	NO	bd	bb	10.134
21	Total-tetradioxins	26.06	5.373e4	6.890e4	1.024	0.78	0.77	616.3	YES	NO	bb	bb	16.194
22	Total-tetradioxins	25.58	1.695e4	2.162e4	1.024	0.78	0.77	283.5	YES	NO	bd	bb	5.093
23	Total-tetradioxins	25.00	3.203e2	4.177e2	1.024	0.77	0.77	6.0	YES	NO	bb	bb	0.097
24	1368-TCDD	23.51	3.090e4	3.847e4	1.015	0.80	0.77	541.8	YES	NO	bb	bb	9.240
25	12389-PECDD	31.88	2.364e5	1.526e5	1.184	1.55	1.55	2805.5	YES	NO	bb	bb	54.676
26	12378-PeCDD	31.49	1.977e5	1.279e5	1.022	1.55	1.55	2371.3	YES	NO	bb	bb	53.007
27	12479-PECDD	28.76	3.169e5	2.014e5	2.301	1.57	1.55	2411.8	YES	NO	bb	bb	37.461
28	1289-TCDD	26.98	3.380e4	4.087e4	0.909	0.83	0.77	545.9	YES	NO	bb	bb	11.115
29	124679-HXCDD	33.97	2.035e5	1.682e5	1.115	1.21	1.24	2394.9	YES	NO	bb	bb	55.015
30	123789-HxCDD	36.47	1.528e5	1.258e5	0.907	1.22	1.24	1907.0	YES	NO	bb	bb	49.756
31	123678-HxCDD	36.09	1.547e5	1.302e5	1.001	1.19	1.24	1881.5	YES	NO	db	db	45.249
32	123478-HxCDD	35.97	1.516e5	1.256e5	0.996	1.21	1.24	1842.3	YES	NO	bd	bd	45.965
33	Total-hexadioxins	35.07	1.395e3	1.078e3	1.005	1.29	1.24	10.9	YES	NO	bb	bb	0.399
34	1234678-HpCDD	40.23	1.512e5	1.442e5	1.039	1.05	1.05	1389.5	YES	NO	bb	bb	54.237
35	1234679-HPCDD	39.18	1.647e5	1.564e5	1.137	1.05	1.05	1618.1	YES	NO	bb	bb	53.867
36	OCDD	44.94	2.639e5	2.986e5	0.920	0.88	0.89	1814.8	YES	NO	bb	bb	108.610

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PFK1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 PFK	21.32	2.412e7					54.6	YES		bb		

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 PFK	28.17	4.094e3					1.1	NO		bb		0.000
2	FUNCTION2 PFK	28.11	9.392e3					1.3	NO		bb		0.000
3	FUNCTION2 PFK	29.64	4.652e3					0.9	NO		bd		0.000
4	FUNCTION2 PFK	29.57	5.960e3					1.0	NO		db		0.000
5	FUNCTION2 PFK	29.51	3.902e3					0.7	NO		bd		0.000
6	FUNCTION2 PFK	29.37	2.285e3					0.6	NO		bb		0.000
7	FUNCTION2 PFK	29.32	4.207e3					0.9	NO		bb		0.000
8	FUNCTION2 PFK	29.22	1.485e4					1.5	NO		bb		0.000
9	FUNCTION2 PFK	29.15	1.765e4					3.1	YES		db		0.000
10	FUNCTION2 PFK	29.11	8.590e3					1.3	NO		dd		0.000
11	FUNCTION2 PFK	29.06	1.279e4					1.4	NO		bd		0.000
12	FUNCTION2 PFK	28.98	1.399e4					1.9	NO		db		0.000
13	FUNCTION2 PFK	28.94	5.691e3					1.2	NO		bd		0.000
14	FUNCTION2 PFK	28.84	3.127e3					0.7	NO		bb		0.000
15	FUNCTION2 PFK	28.70	4.001e3					0.8	NO		db		0.000
16	FUNCTION2 PFK	28.62	1.161e4					1.7	NO		bd		0.000
17	FUNCTION2 PFK	28.43	1.470e4					1.1	NO		db		0.000
18	FUNCTION2 PFK	28.30	5.627e3					0.9	NO		bd		0.000
19	FUNCTION2 PFK	31.01	1.364e4					1.2	NO		db		0.000
20	FUNCTION2 PFK	30.94	5.819e3					1.3	NO		bd		0.000
21	FUNCTION2 PFK	30.88	4.898e3					0.9	NO		db		0.000
22	FUNCTION2 PFK	30.85	3.669e3					0.6	NO		bd		0.000
23	FUNCTION2 PFK	30.72	2.751e3					0.7	NO		db		0.000
24	FUNCTION2 PFK	30.68	1.404e4					1.6	NO		dd		0.000
25	FUNCTION2 PFK	30.64	4.432e3					0.9	NO		bd		0.000
26	FUNCTION2 PFK	30.56	1.080e3					0.4	NO		db		0.000
27	FUNCTION2 PFK	30.51	5.655e3					1.2	NO		bd		0.000
28	FUNCTION2 PFK	30.40	1.399e4					1.4	NO		bb		0.000
29	FUNCTION2 PFK	30.33	5.402e2					0.3	NO		bb		0.000
30	FUNCTION2 PFK	30.28	9.982e2					0.4	NO		bb		0.000
31	FUNCTION2 PFK	30.17	9.754e3					1.1	NO		db		0.000
32	FUNCTION2 PFK	30.10	6.432e3					1.2	NO		bd		0.000
33	FUNCTION2 PFK	29.89	3.098e3					0.7	NO		bb		0.000
34	FUNCTION2 PFK	29.71	1.805e4					1.3	NO		db		0.000
35	FUNCTION2 PFK	32.47	2.225e3					0.6	NO		bb		0.000
36	FUNCTION2 PFK	32.43	6.495e3					1.4	NO		db		0.000
37	FUNCTION2 PFK	32.37	9.363e3					1.5	NO		bd		0.000

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PFK2

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION2 PFK	32.30	6.444e3					1.5	NO		db		0.000
39	FUNCTION2 PFK	32.24	5.013e3					0.9	NO		dd		0.000
40	FUNCTION2 PFK	32.17	1.403e4					1.6	NO		bd		0.000
41	FUNCTION2 PFK	32.08	9.295e3					1.6	NO		bb		0.000
42	FUNCTION2 PFK	31.94	2.691e3					0.6	NO		bb		0.000
43	FUNCTION2 PFK	31.88	3.962e3					0.8	NO		bb		0.000
44	FUNCTION2 PFK	31.70	7.390e3					1.1	NO		db		0.000
45	FUNCTION2 PFK	31.66	5.128e3					1.2	NO		bd		0.000
46	FUNCTION2 PFK	31.55	6.330e3					1.2	NO		db		0.000
47	FUNCTION2 PFK	31.48	5.209e3					0.7	NO		bd		0.000
48	FUNCTION2 PFK	31.40	1.132e3					0.5	NO		bb		0.000
49	FUNCTION2 PFK	31.30	1.233e4					0.9	NO		bb		0.000
50	FUNCTION2 PFK	31.10	1.837e3					0.5	NO		bb		0.000
51	FUNCTION2 PFK	32.74	7.198e3					1.2	NO		bb		0.000
52	FUNCTION2 PFK	32.69	8.336e3					1.1	NO		db		0.000
53	FUNCTION2 PFK	32.64	4.532e3					1.0	NO		bd		0.000
54	FUNCTION2 PFK	32.56	1.127e3					0.5	NO		bb		0.000

PFK3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION3 PFK	37.48	1.309e6					7.0	YES		bb		0.000
2	FUNCTION3 PFK	36.76	1.422e6					9.0	YES		bb		0.000
3	FUNCTION3 PFK	33.26	8.126e6					24.4	YES		bb		0.000

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 PFK	38.70	1.066e3					0.3	NO		bb		
2	FUNCTION4 PFK	38.62	1.106e4					1.5	NO		db		
3	FUNCTION4 PFK	38.59	5.780e3					0.9	NO		bd		
4	FUNCTION4 PFK	38.41	6.567e3					1.0	NO		db		
5	FUNCTION4 PFK	38.37	4.651e3					0.6	NO		bd		
6	FUNCTION4 PFK	37.96	4.008e4					3.3	YES		db		
7	FUNCTION4 PFK	37.90	2.142e4					2.3	NO		bd		
8	FUNCTION4 PFK	40.25	4.447e3					0.6	NO		bb		
9	FUNCTION4 PFK	39.92	9.871e3					1.3	NO		db		
10	FUNCTION4 PFK	39.87	9.725e3					0.6	NO		bd		
11	FUNCTION4 PFK	39.76	1.705e4					1.7	NO		db		
12	FUNCTION4 PFK	39.73	1.379e4					1.6	NO		dd		
13	FUNCTION4 PFK	39.68	9.122e3					1.0	NO		bd		
14	FUNCTION4 PFK	39.54	3.723e3					0.6	NO		bb		
15	FUNCTION4 PFK	39.47	1.469e3					0.5	NO		bb		
16	FUNCTION4 PFK	39.37	2.092e4					1.7	NO		db		
17	FUNCTION4 PFK	39.31	1.048e4					1.3	NO		dd		
18	FUNCTION4 PFK	39.27	8.243e3					1.0	NO		bd		
19	FUNCTION4 PFK	39.19	5.778e3					0.8	NO		bb		
20	FUNCTION4 PFK	39.07	1.468e3					0.5	NO		bb		
21	FUNCTION4 PFK	39.04	4.708e3					0.8	NO		db		
22	FUNCTION4 PFK	38.95	1.898e4					1.3	NO		bd		
23	FUNCTION4 PFK	38.76	4.688e3					0.7	NO		bb		
24	FUNCTION4 PFK	42.39	4.042e3					0.7	NO		bb		
25	FUNCTION4 PFK	42.09	1.994e4					1.7	NO		bb		
26	FUNCTION4 PFK	41.99	1.585e4					1.2	NO		db		
27	FUNCTION4 PFK	41.94	4.179e3					0.6	NO		bd		
28	FUNCTION4 PFK	41.48	7.305e3					0.9	NO		bb		
29	FUNCTION4 PFK	41.41	2.675e3					0.4	NO		bb		
30	FUNCTION4 PFK	41.28	7.041e3					1.0	NO		bb		
31	FUNCTION4 PFK	41.22	9.718e3					1.1	NO		db		
32	FUNCTION4 PFK	41.17	4.925e3					0.9	NO		bd		
33	FUNCTION4 PFK	41.05	2.728e4					2.3	NO		bb		
34	FUNCTION4 PFK	40.94	1.272e4					1.4	NO		db		
35	FUNCTION4 PFK	40.87	4.397e3					0.7	NO		bd		
36	FUNCTION4 PFK	40.75	3.990e3					0.7	NO		bb		
37	FUNCTION4 PFK	40.61	4.902e3					1.1	NO		bb		

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PFK4

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
38	FUNCTION4 PFK	40.37	3.157e3					0.5	NO		bb		
39	FUNCTION4 PFK	40.29	1.550e3					0.5	NO		bb		
40	FUNCTION4 PFK	42.95	1.303e4					1.9	NO		db		
41	FUNCTION4 PFK	42.87	2.291e4					1.7	NO		dd		
42	FUNCTION4 PFK	42.81	1.125e4					1.5	NO		bd		
43	FUNCTION4 PFK	42.69	5.031e3					0.7	NO		bb		
44	FUNCTION4 PFK	42.57	1.095e4					1.4	NO		db		
45	FUNCTION4 PFK	42.52	1.584e4					2.0	NO		dd		
46	FUNCTION4 PFK	42.49	6.197e3					1.2	NO		bd		

PFK5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 PFK	44.03	8.415e3					1.4	NO		bd		
2	FUNCTION5 PFK	43.86	2.901e3					0.9	NO		bb		
3	FUNCTION5 PFK	43.66	3.660e3					1.3	NO		bb		
4	FUNCTION5 PFK	43.62	2.195e3					0.7	NO		bb		
5	FUNCTION5 PFK	43.19	6.924e3					1.2	NO		db		
6	FUNCTION5 PFK	43.15	3.689e3					1.0	NO		bd		
7	FUNCTION5 PFK	43.10	4.443e3					1.2	NO		db		
8	FUNCTION5 PFK	43.07	9.013e3					2.4	NO		bd		
9	FUNCTION5 PFK	45.88	9.113e2					0.6	NO		bb		
10	FUNCTION5 PFK	45.81	1.150e3					0.7	NO		bb		
11	FUNCTION5 PFK	45.77	2.682e3					0.8	NO		bb		
12	FUNCTION5 PFK	45.52	1.419e4					2.0	NO		bb		
13	FUNCTION5 PFK	45.47	1.508e4					1.7	NO		bb		
14	FUNCTION5 PFK	44.95	2.324e3					0.9	NO		bb		
15	FUNCTION5 PFK	44.91	8.432e2					0.5	NO		bb		
16	FUNCTION5 PFK	44.78	2.616e3					0.9	NO		db		
17	FUNCTION5 PFK	44.74	1.160e4					1.6	NO		dd		
18	FUNCTION5 PFK	44.65	1.799e4					1.6	NO		bd		
19	FUNCTION5 PFK	44.47	1.583e3					0.6	NO		bb		
20	FUNCTION5 PFK	44.35	1.473e3					0.6	NO		bb		
21	FUNCTION5 PFK	44.28	2.205e3					0.8	NO		bb		
22	FUNCTION5 PFK	44.13	6.507e3					1.7	NO		db		
23	FUNCTION5 PFK	44.07	2.230e4					2.2	NO		dd		

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ETHERS1

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION1 HXCD...	27.64	7.421e1					1.6	NO		bb		0.000
2	FUNCTION1 HXCD...	21.99	7.139e1					1.7	NO		bb		0.000
3	FUNCTION1 HXCD...	21.75	1.048e2					2.2	NO		bb		0.000
4	FUNCTION1 HXCD...	21.42	1.082e2					1.7	NO		bb		0.000
5	FUNCTION1 HXCD...	21.18	1.354e2					1.5	NO		bb		0.000

ETHERS2

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

ETHERS3

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION2 HPCD...	31.88	8.164e1					1.9	NO		bb		0.000
2	FUNCTION2 HPCD...	31.11	2.640e2					8.1	YES		bb		0.000
3	FUNCTION2 HPCD...	30.02	7.766e1					1.7	NO		bb		0.000
4	FUNCTION2 HPCD...	29.32	7.360e1					1.3	NO		bb		0.000

ETHERS4

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

ETHERS5

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION4 NCDPE	42.62	9.466e1					2.8	NO		bb		0.000
2	FUNCTION4 NCDPE	38.91	1.167e2					2.9	NO		bb		0.000

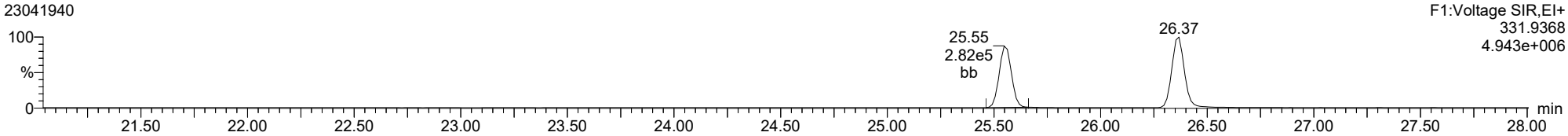
ETHERS6

	Compound	RT	Ion1Area	Ion2Area	RRF	Ratio	Pred R	S/N 1	SNFlag	EMPC	Int.1	Int.2	pg
1	FUNCTION5 DCDPE	44.50	7.574e1					2.2	NO		bb		0.000

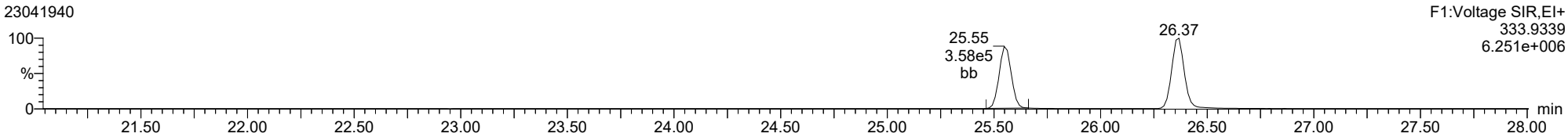
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Calibration: T:\Autospec\Curves\230303ICIH.cdb 06 Mar 2023 11:57:27

ID: CS3F5, Name: 23041940, Date: 20-Apr-2023, Time: 23:12:43, Conditions: AUTOSPEC01, User: pk

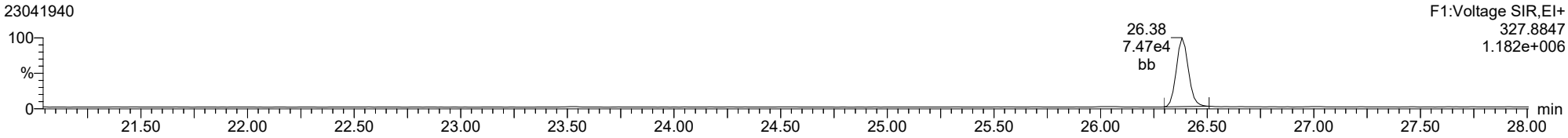
13C-1234-TCDD



13C-1234-TCDD

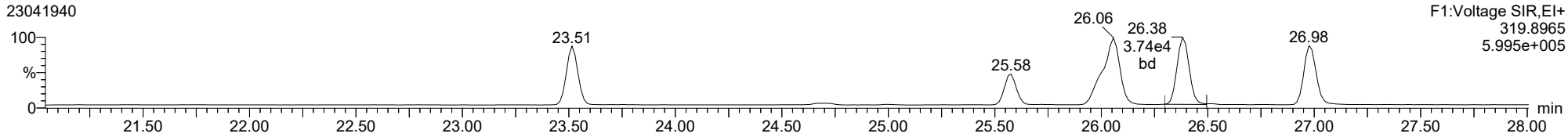


37CL-2378-TCDD

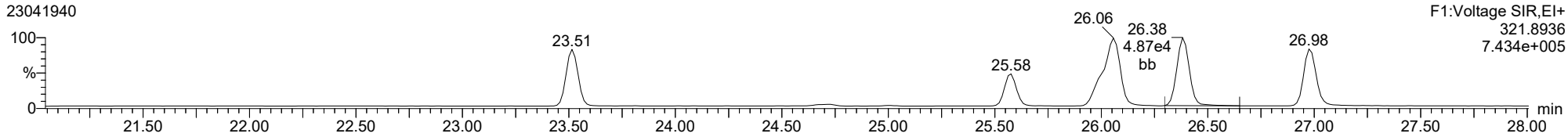


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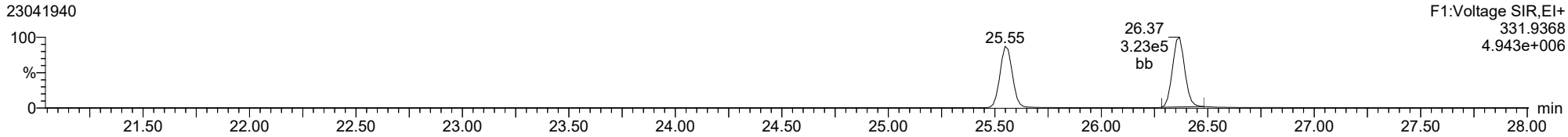
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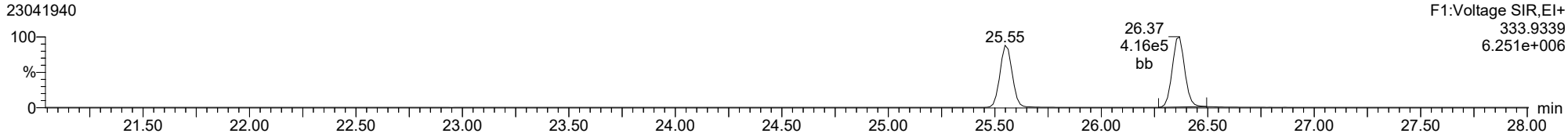
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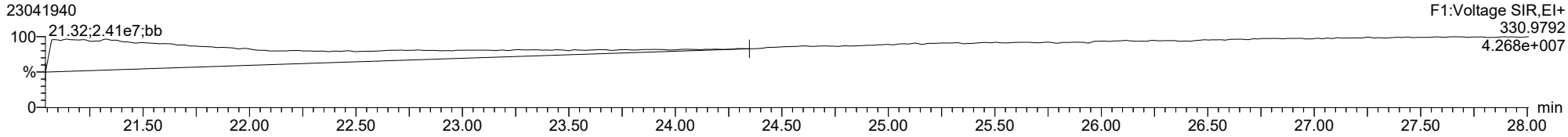
13C-2378-TCDD



13C-2378-TCDD

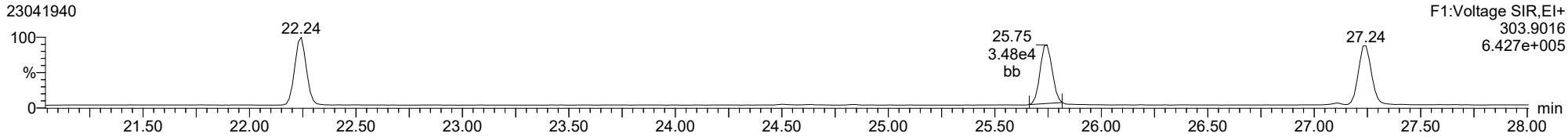


FUNCTION1 PFK

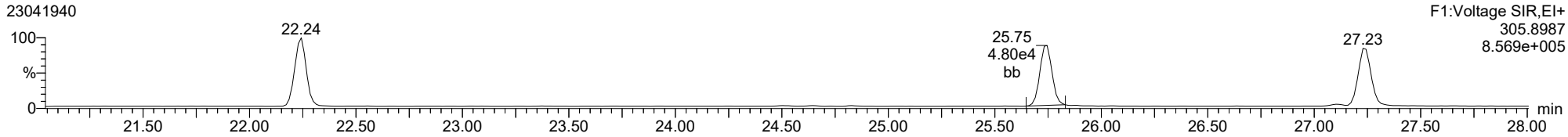


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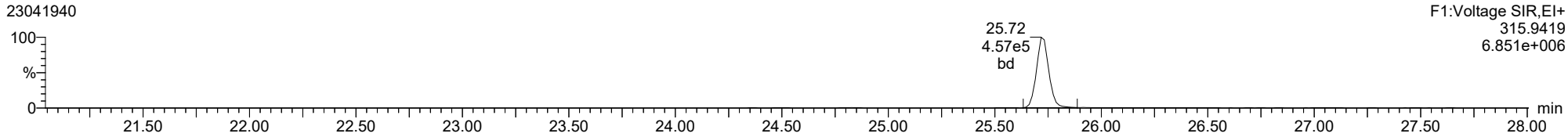
2378-TCDF



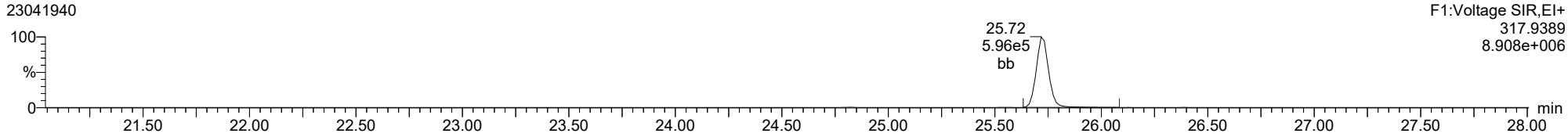
2378-TCDF



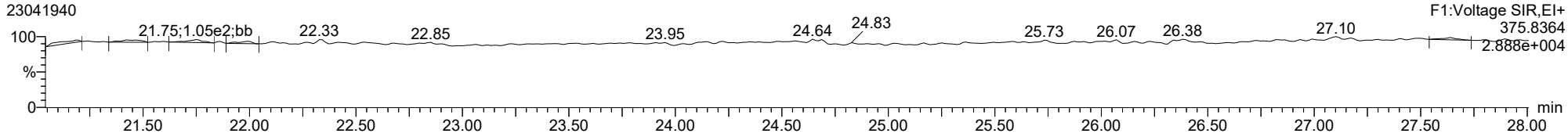
13C-2378-TCDF



13C-2378-TCDF

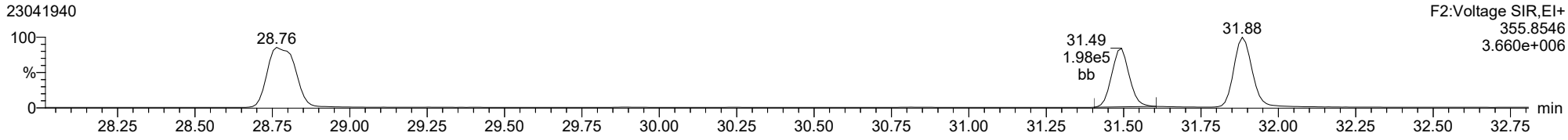


FUNCTION1 HXCDPE

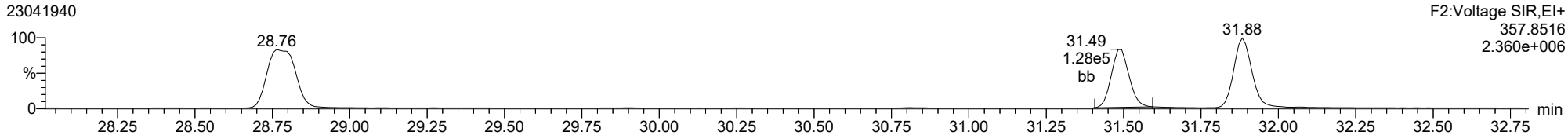


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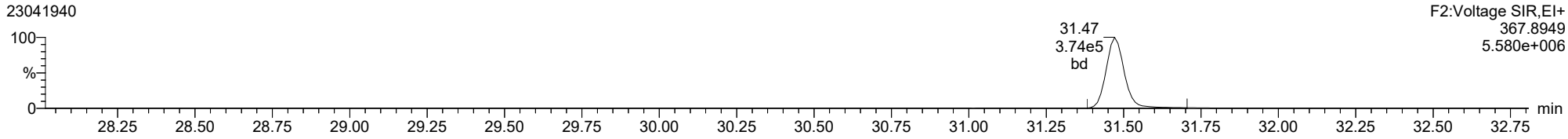
12378-PeCDD



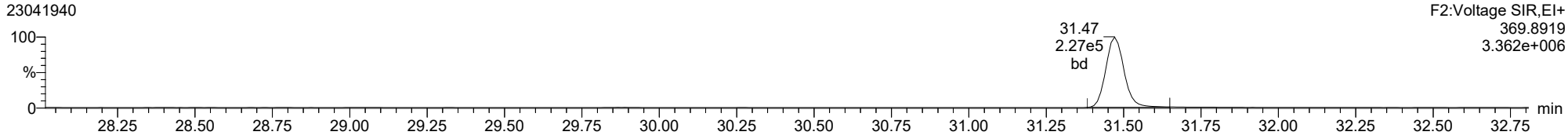
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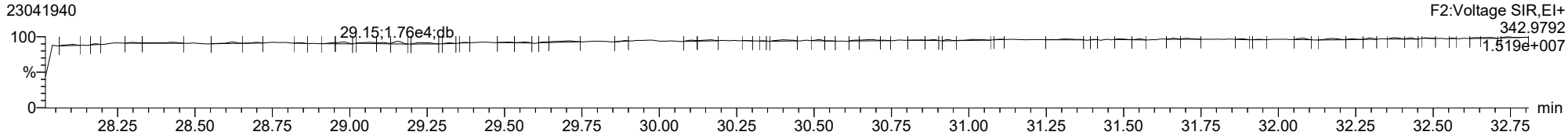
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13C-12378-PeCDD

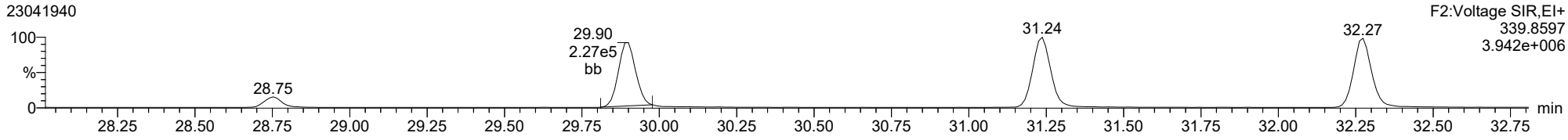


FUNCTION2 PFK

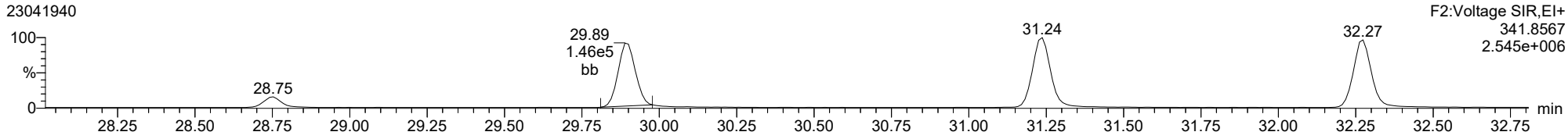


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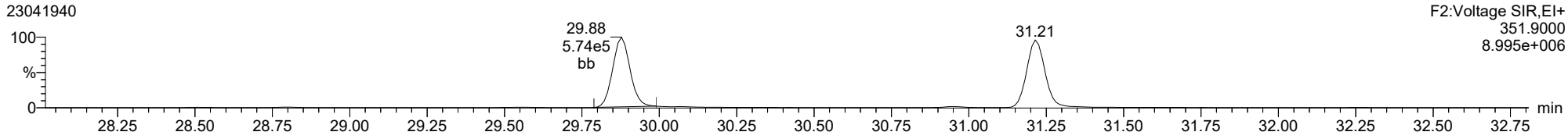
12378-PeCDF



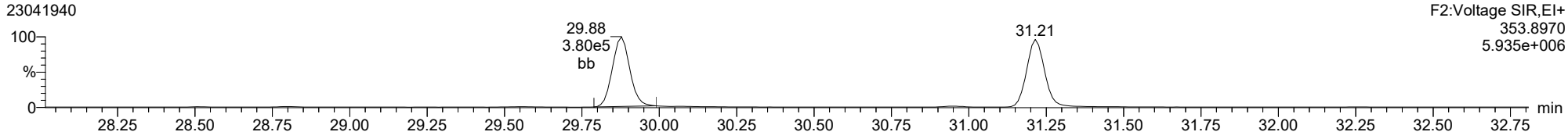
12378-PeCDF



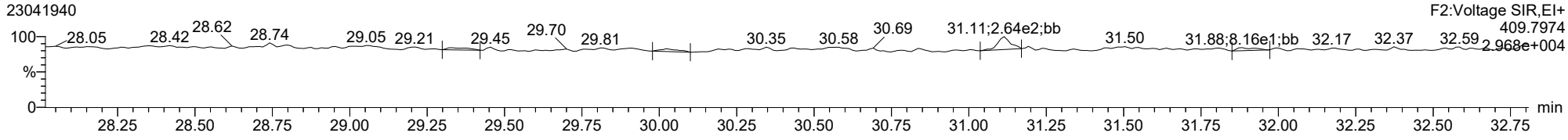
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13C-12378-PeCDF

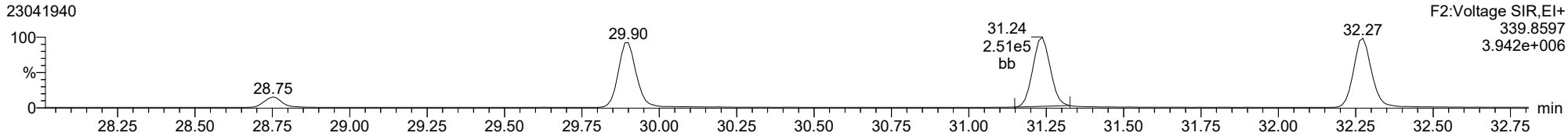


FUNCTION2 HPCDPE

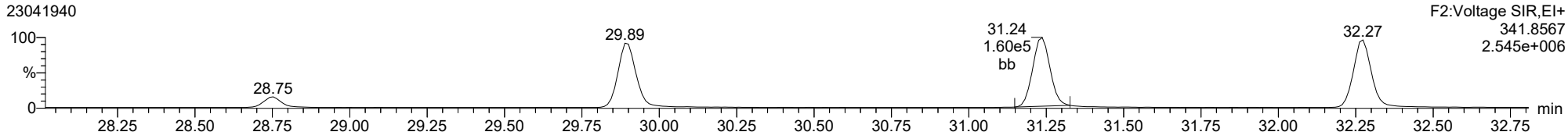


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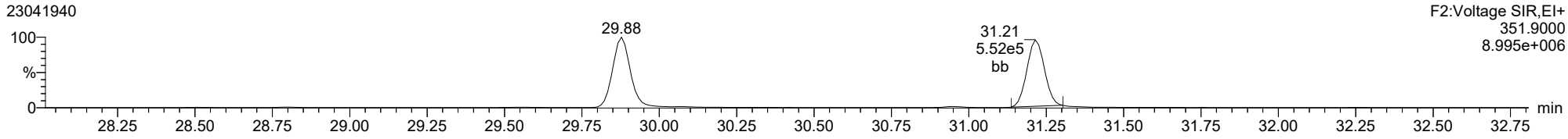
23478-PeCDF



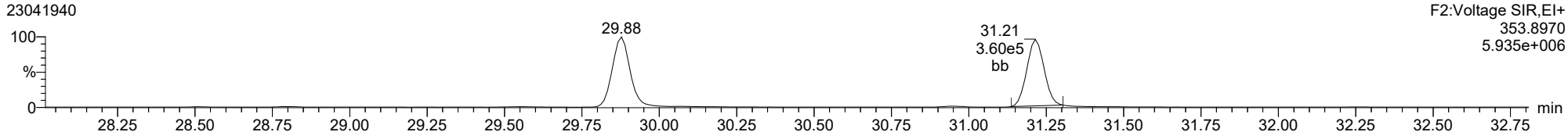
23478-PeCDF



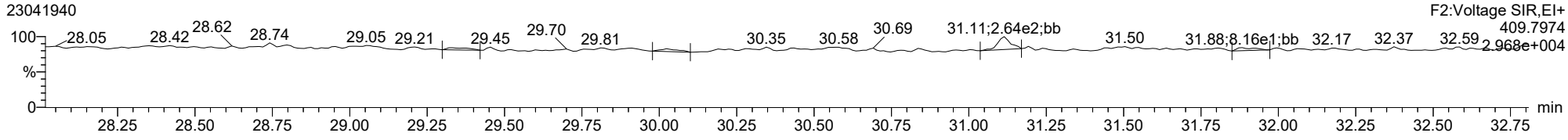
13C-23478-PeCDF



13C-23478-PeCDF

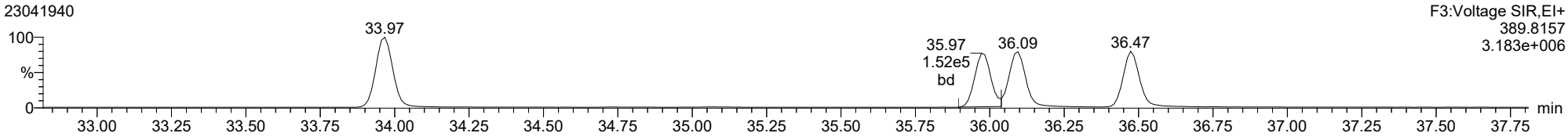


FUNCTION2 HPCDPE

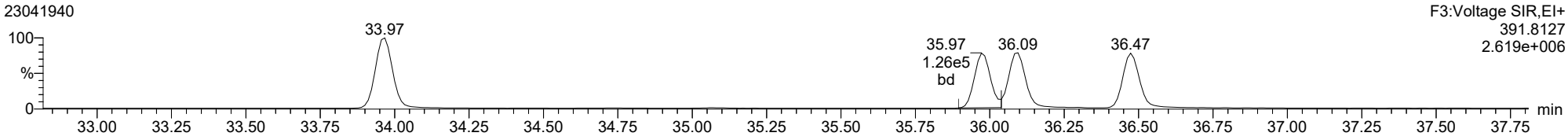


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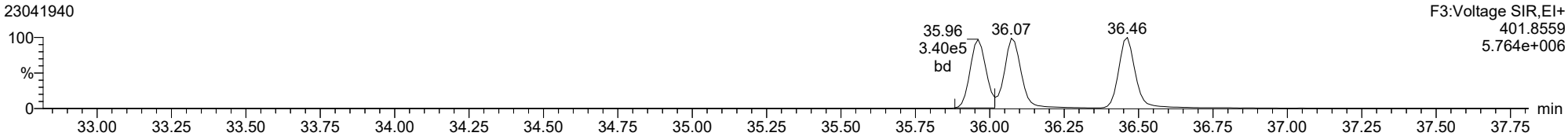
123478-HxCDD



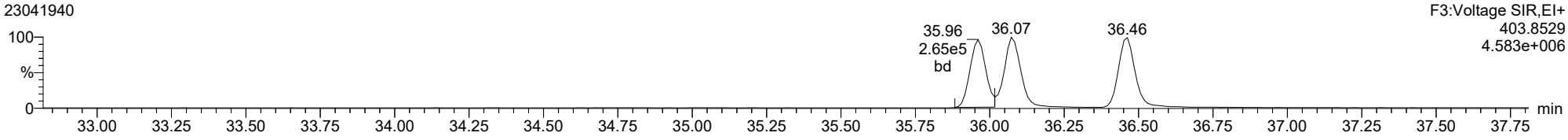
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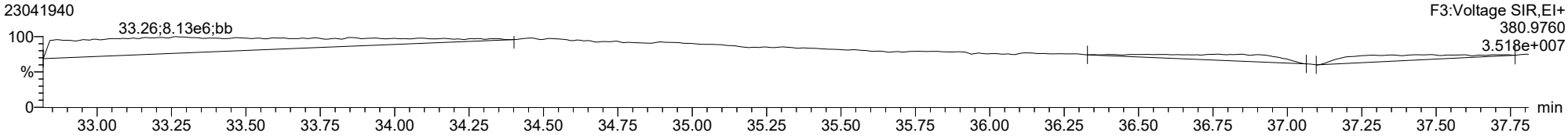
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13C-123478-HxCDD

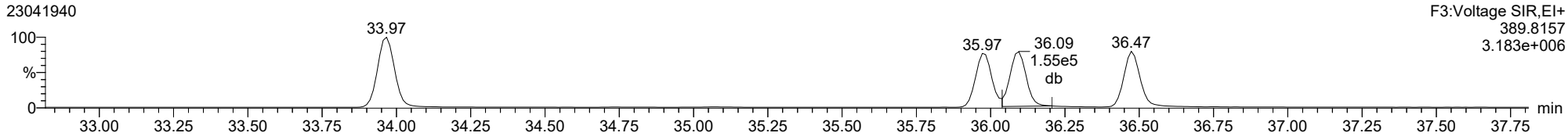


FUNCTION3 PFK

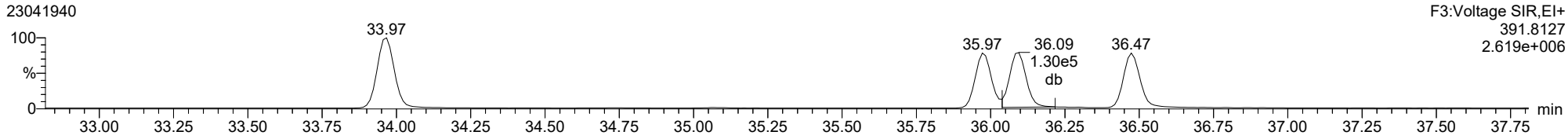


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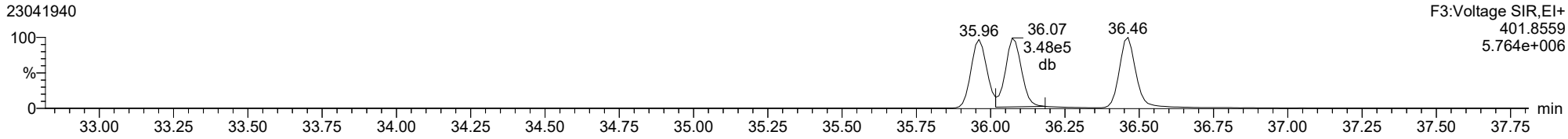
123678-HxCDD



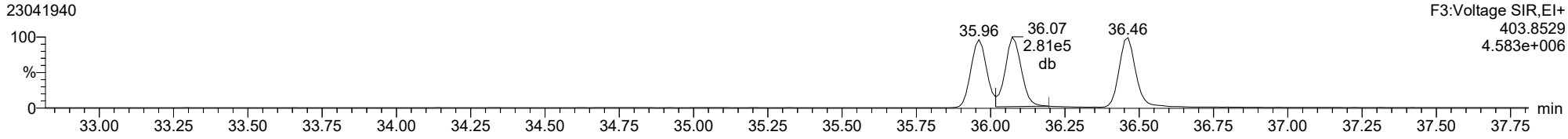
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13C-123678-HxCDD

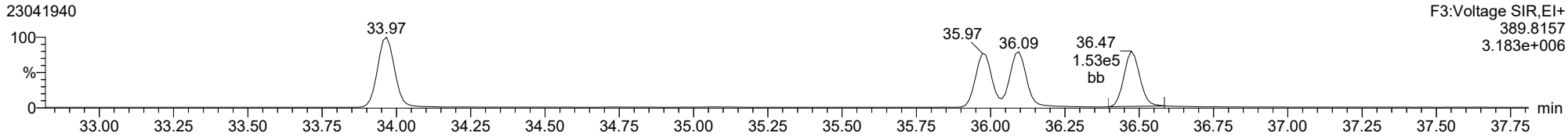


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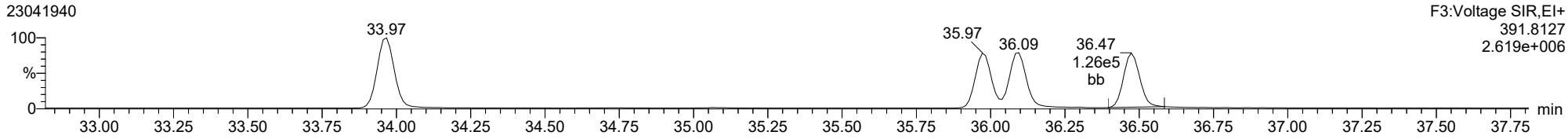


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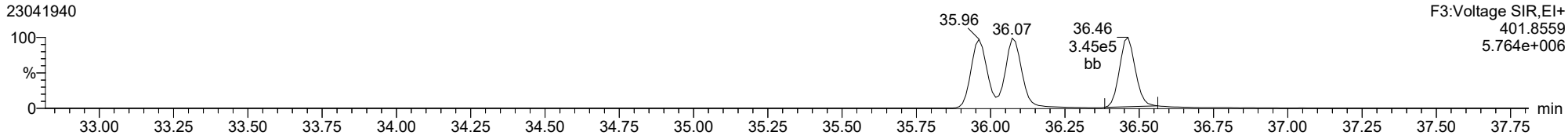
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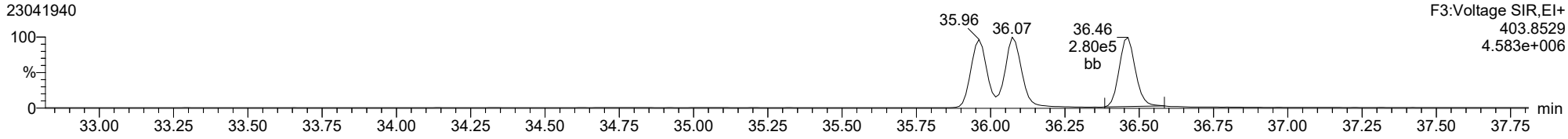
123789-HxCDD



13C-123789-HxCDD

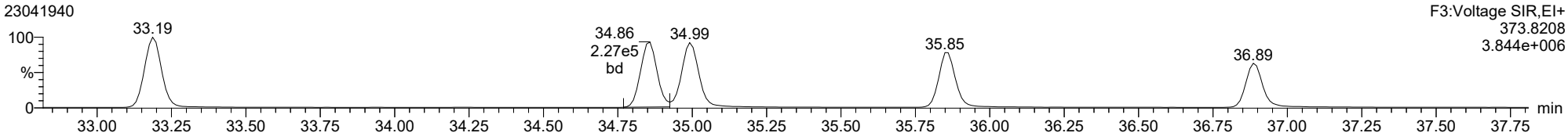


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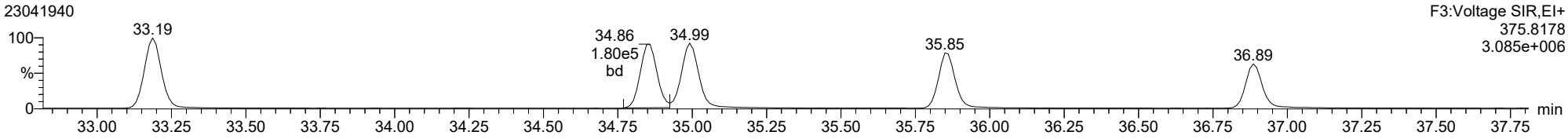


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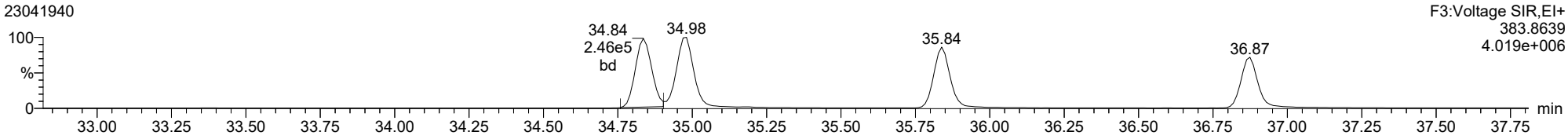
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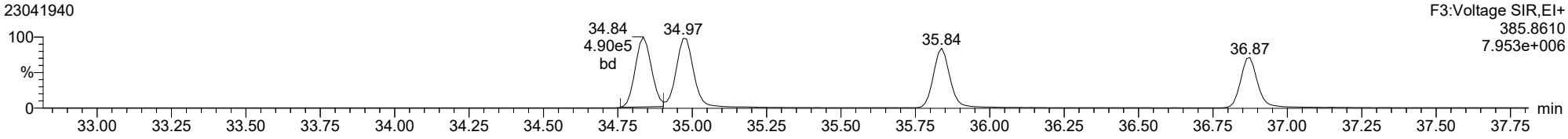
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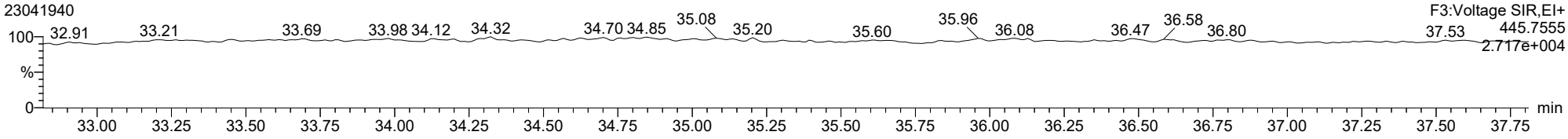
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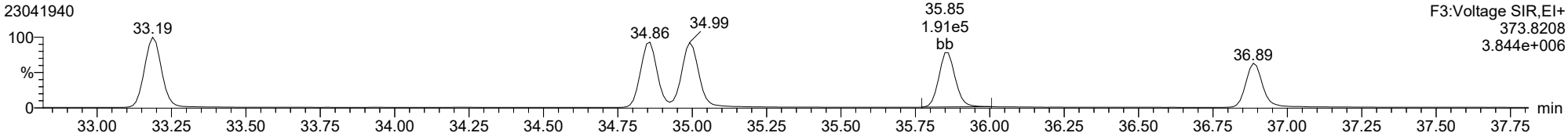


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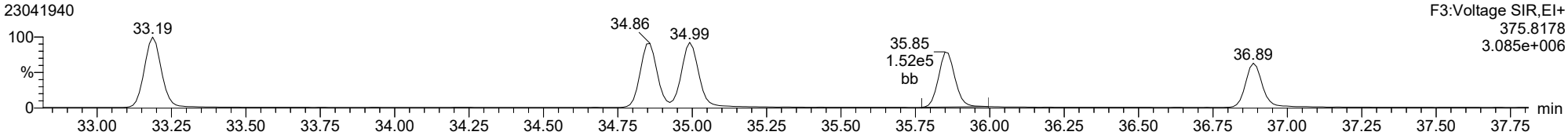


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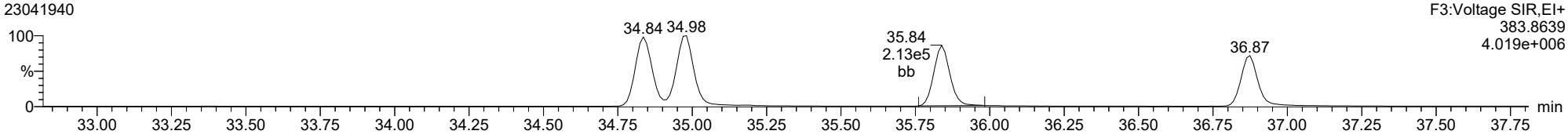
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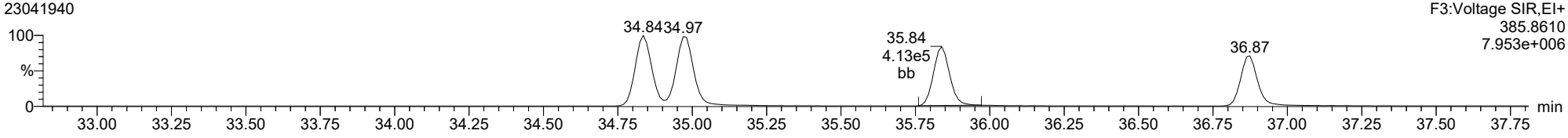
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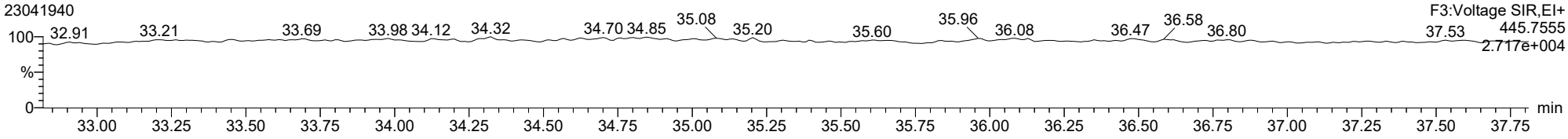
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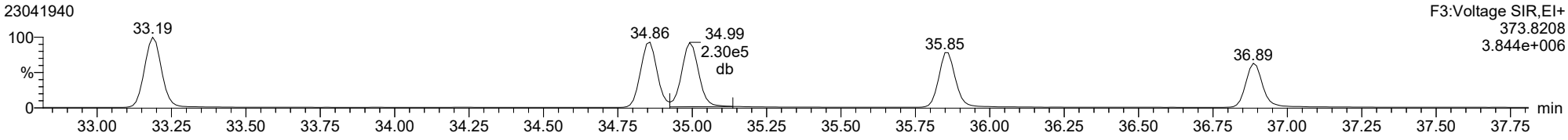


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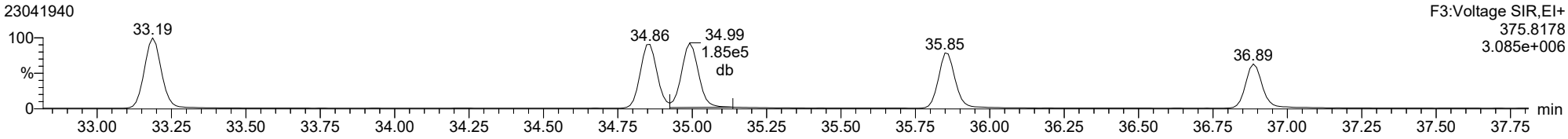


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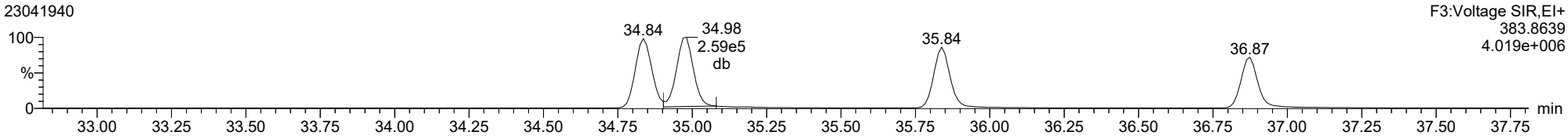
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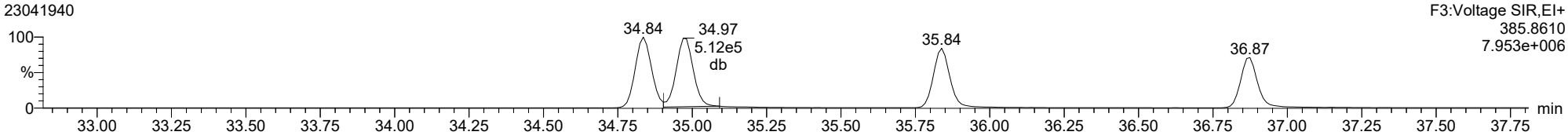
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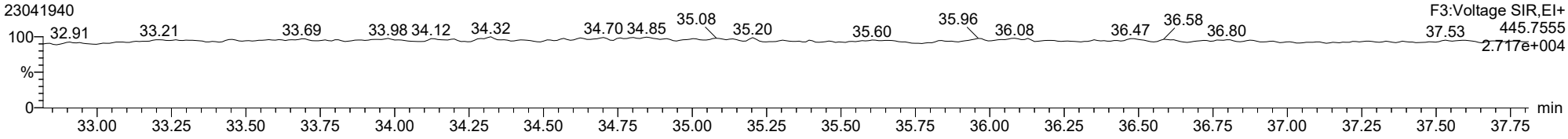
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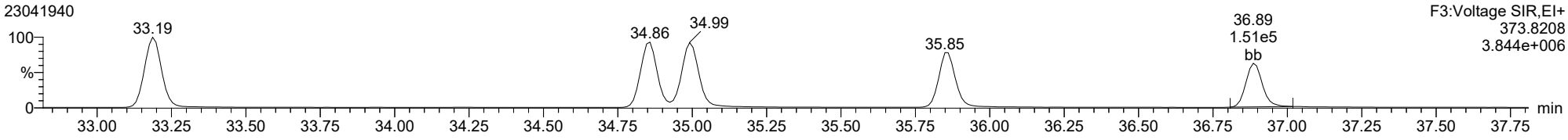


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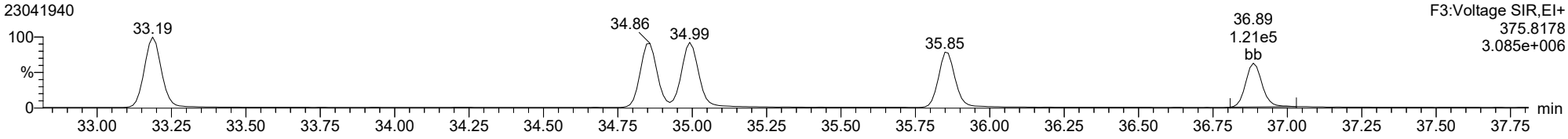


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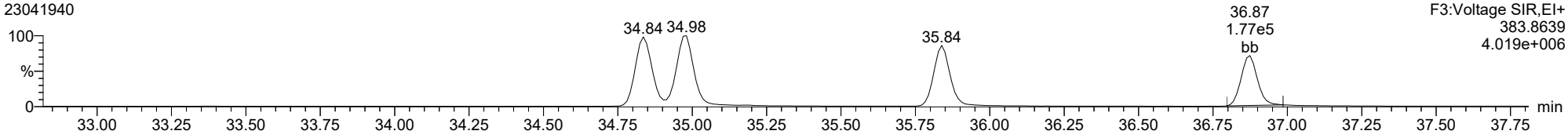
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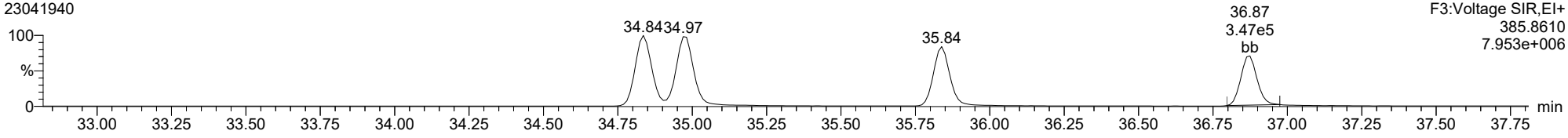
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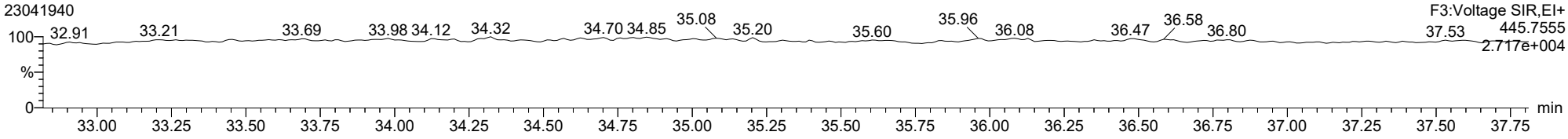
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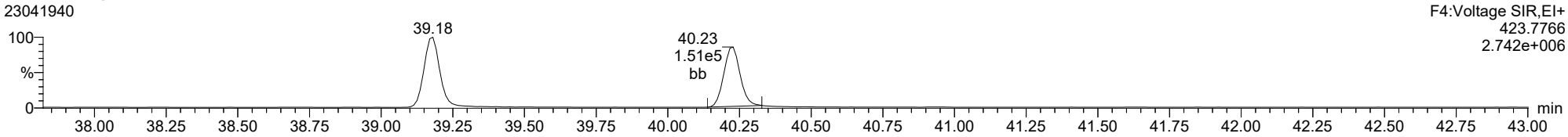


FUNCTION3 OCDPE

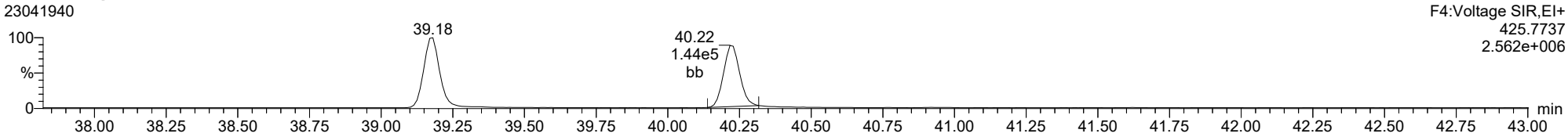


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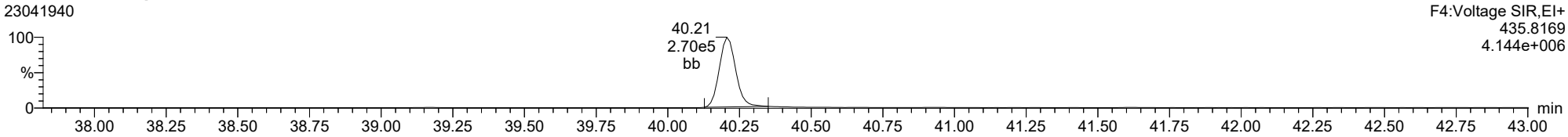
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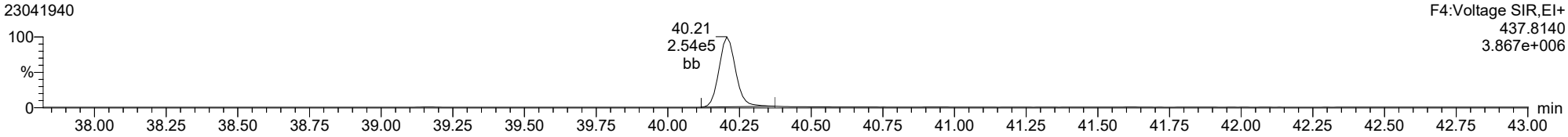
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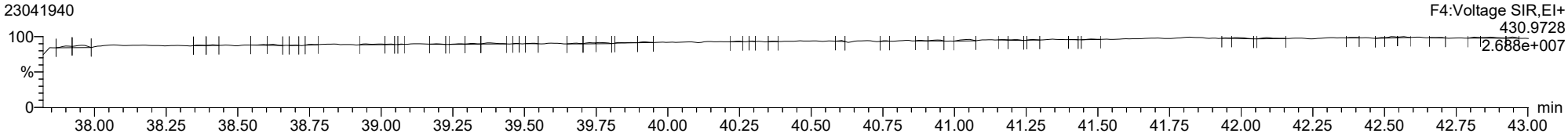
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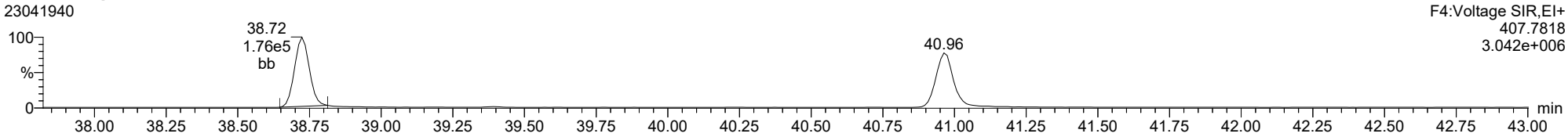


FUNCTION4 PFK

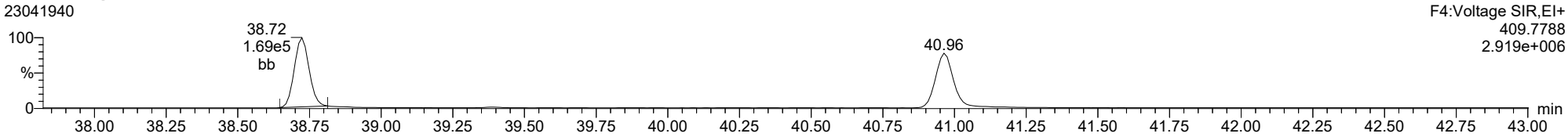


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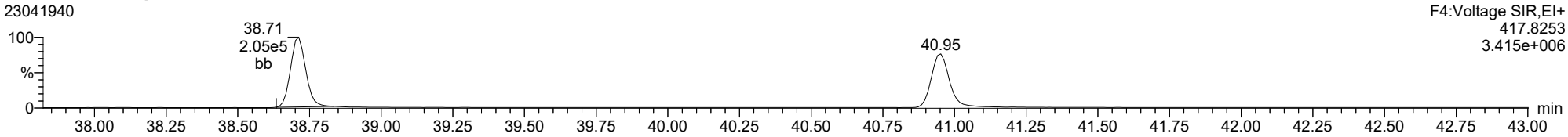
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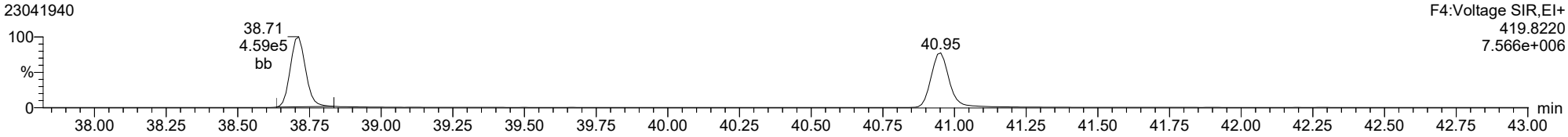
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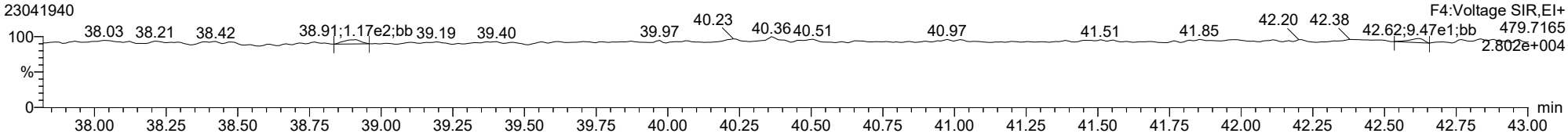
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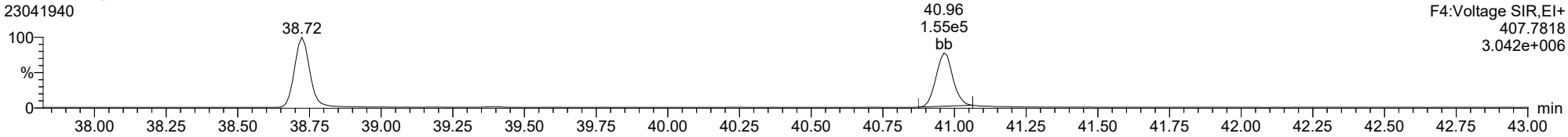


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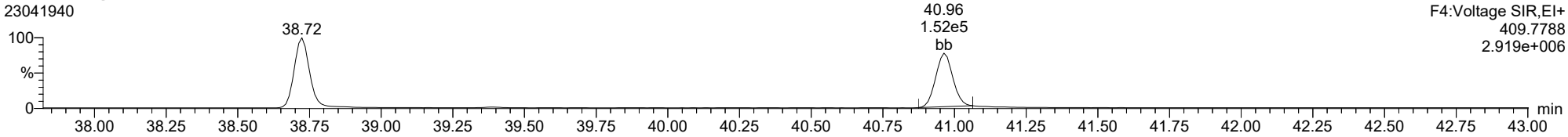


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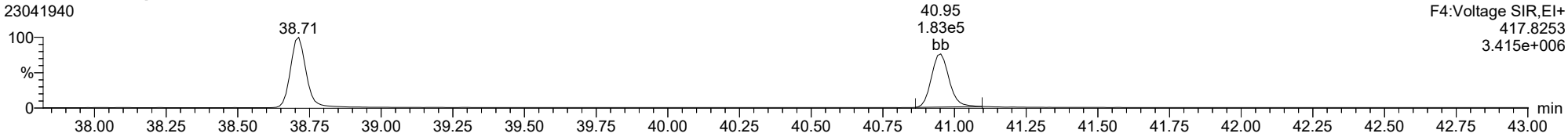
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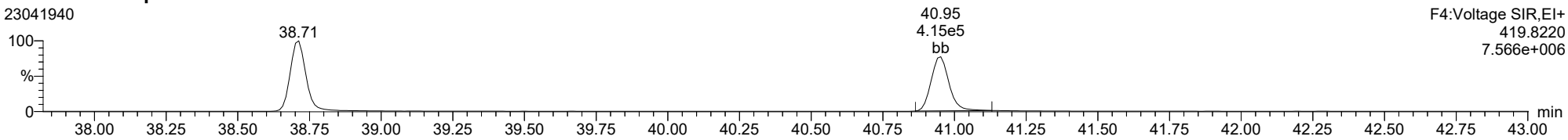
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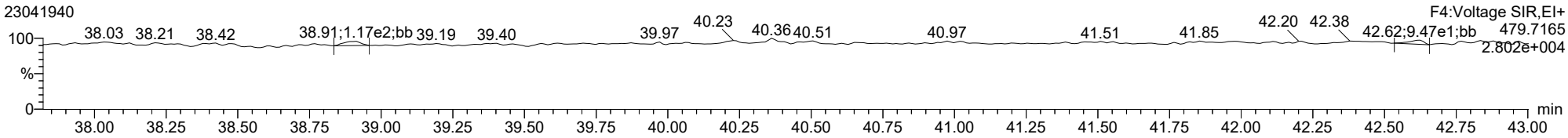
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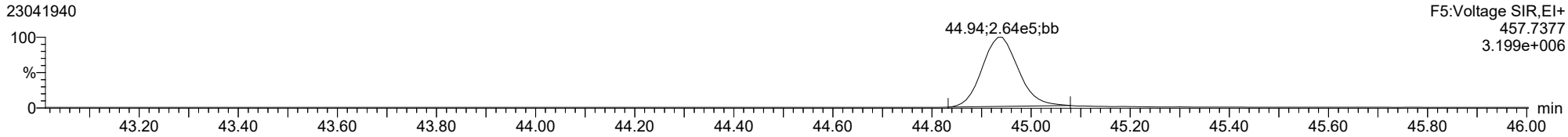


FUNCTION4 NCDPE

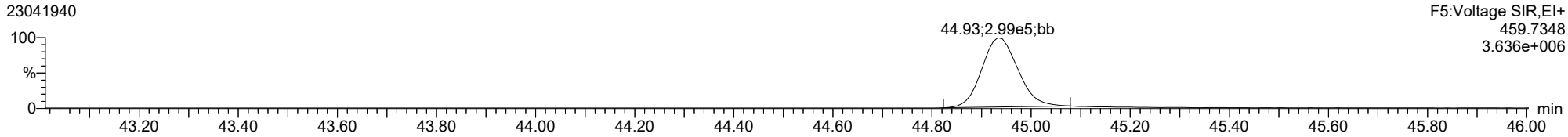


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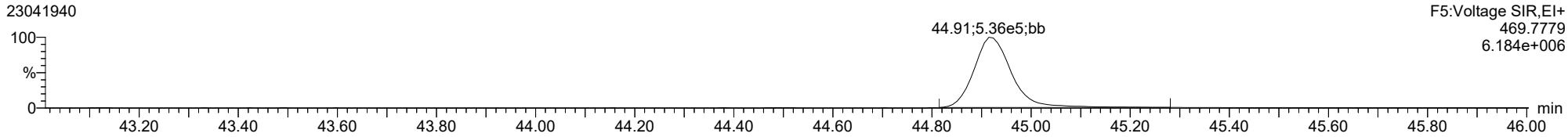
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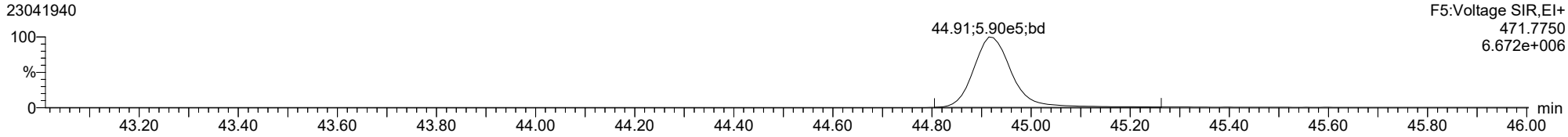
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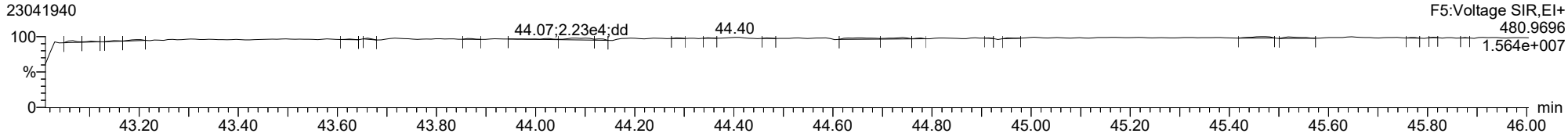
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13C-OCDD

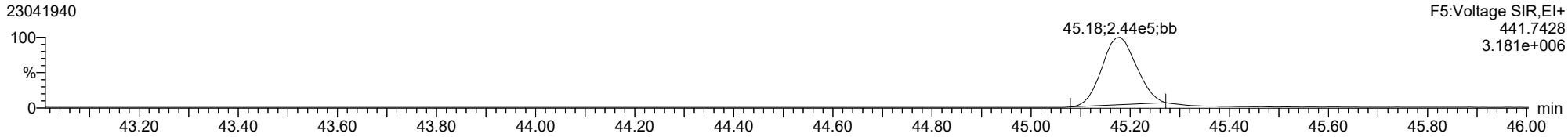


FUNCTION5 PFK

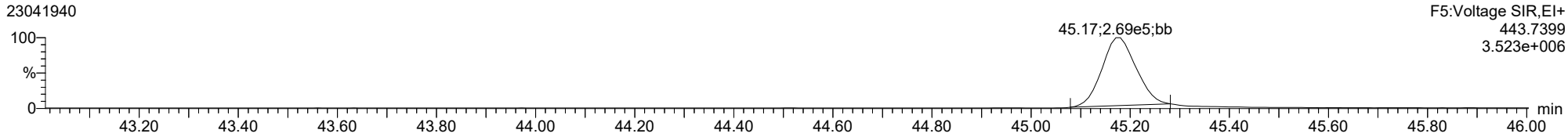


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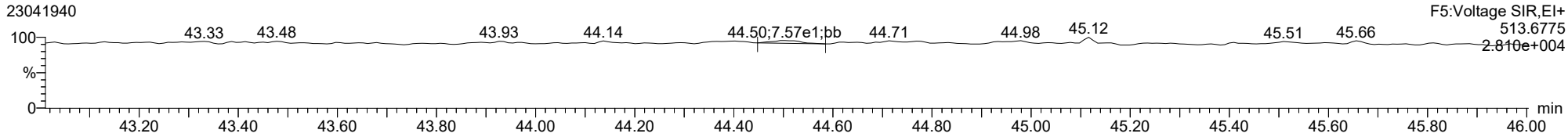
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OCDF

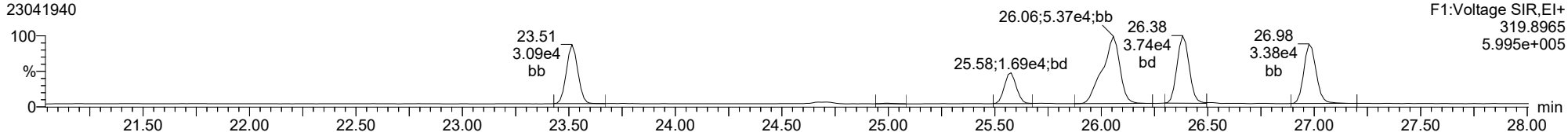


FUNCTION5 DCDPE

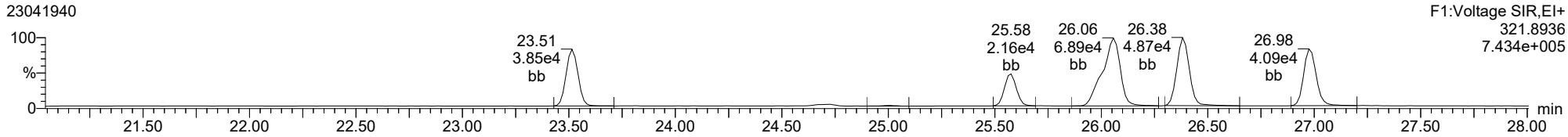


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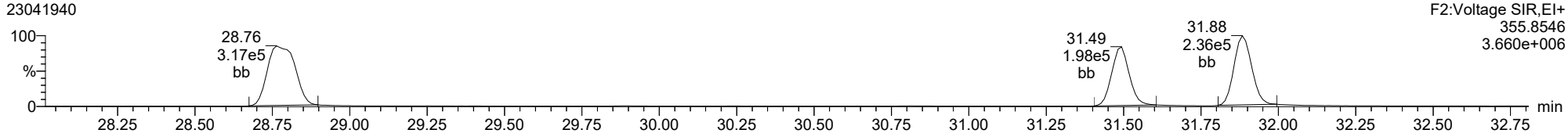
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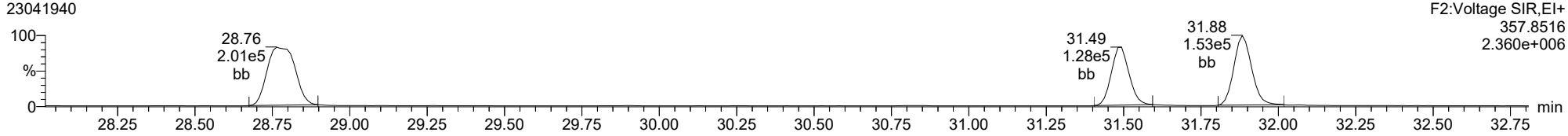
Total-tetradioxins



Total-pentadioxins

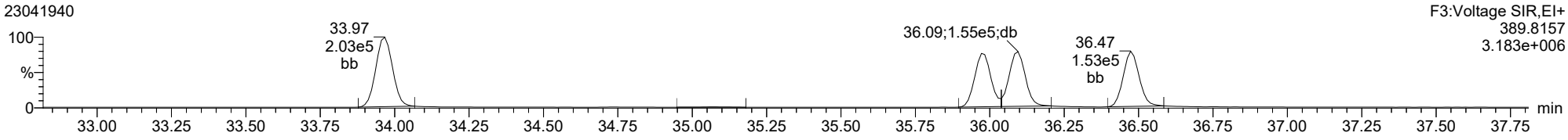


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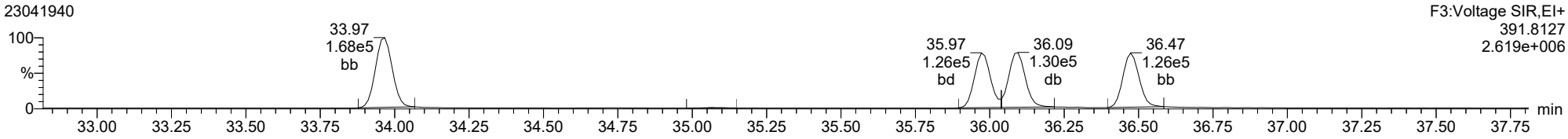


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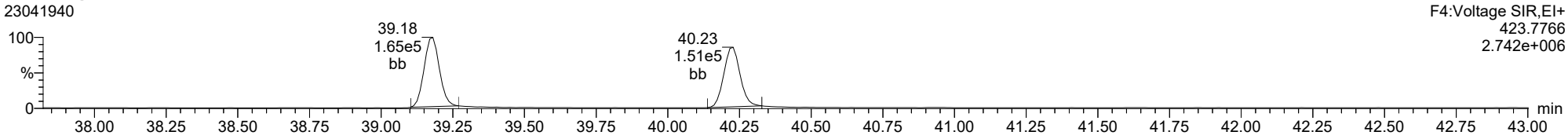
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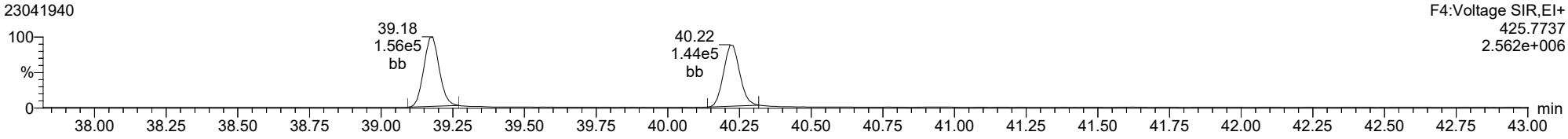
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Total-heptadioxins

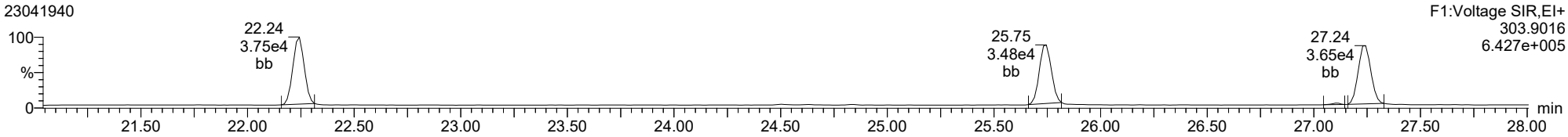


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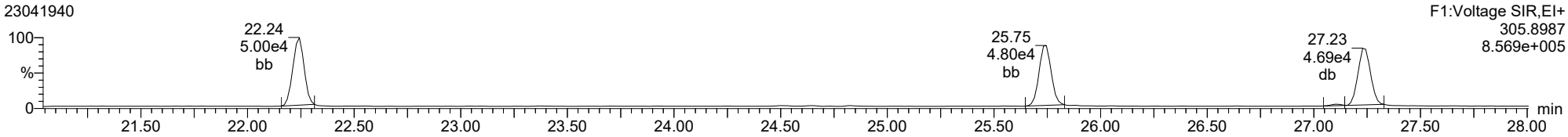


ID: CS3F5, Name: 23041940, Date: 20-Apr-2023, Time: 23:12:43, Conditions: AUTOSPEC01, User: pk

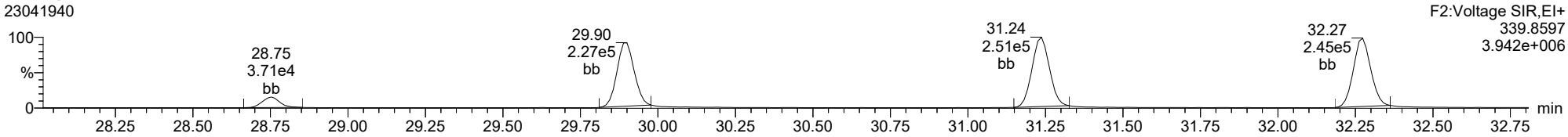
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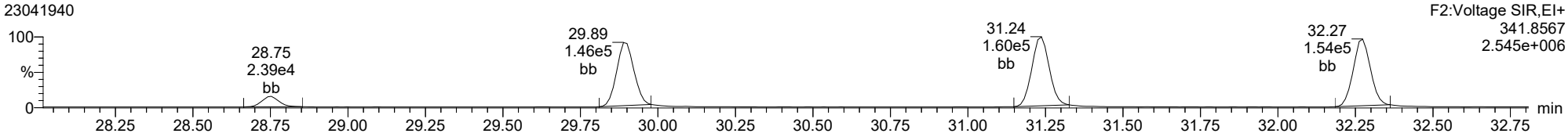
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Total-pentafurans

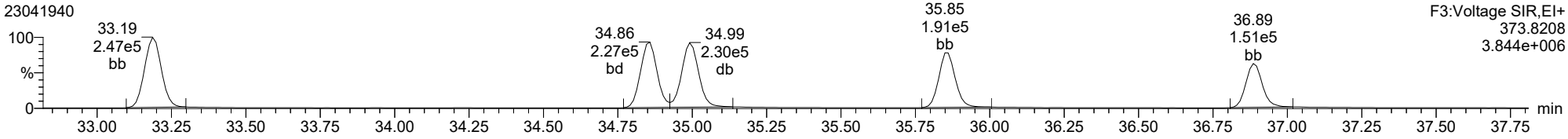


Total-pentafurans

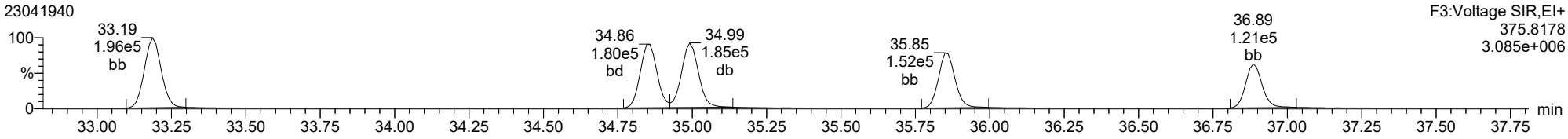


ID: CS3F5, Name: 23041940, Date: 20-Apr-2023, Time: 23:12:43, Conditions: AUTOSPEC01, User: pk

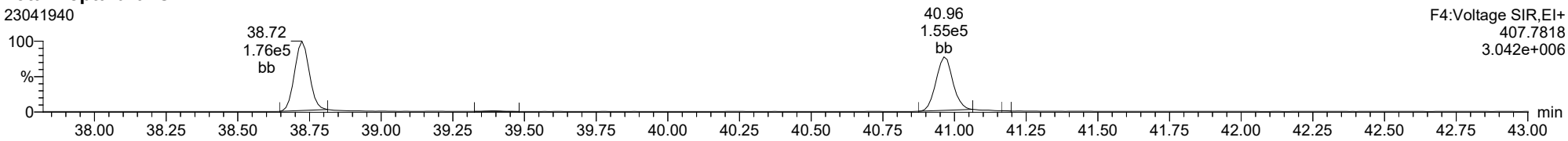
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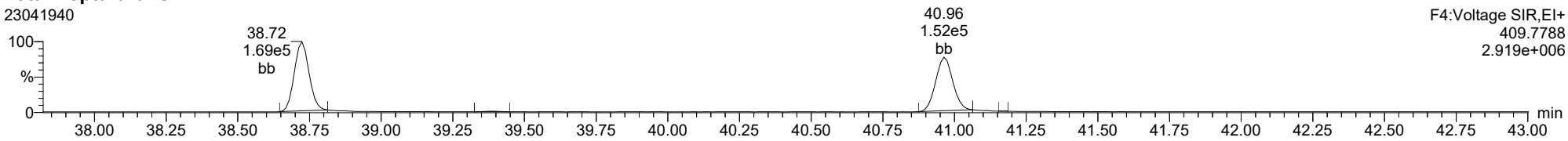
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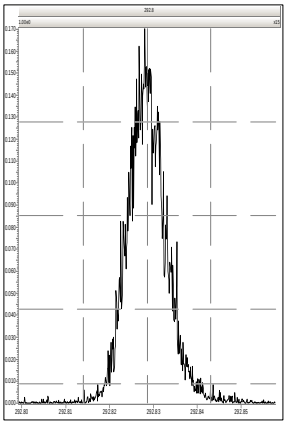


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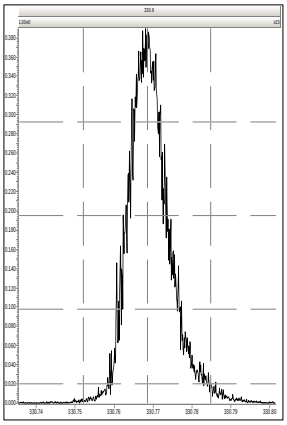


Printed: Friday, April 21, 2023 00:05:47 Pacific Daylight Time

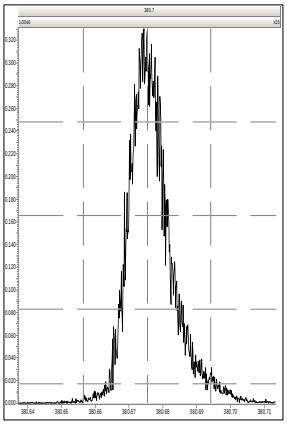
M 292.9824 R 14498



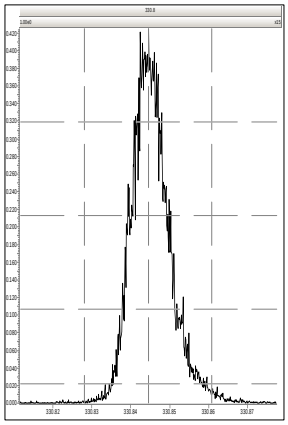
M 330.9792 R 13890



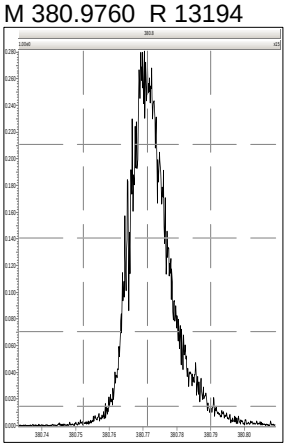
M 380.9760 R 13042



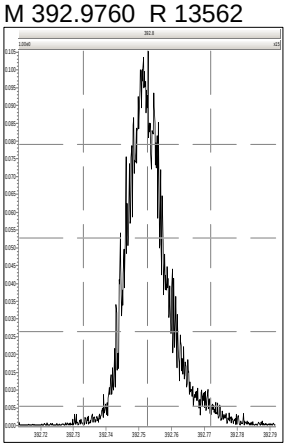
M 330.9792 R 14627



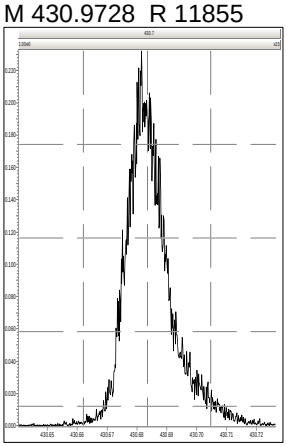
M 380.9760 R 13194



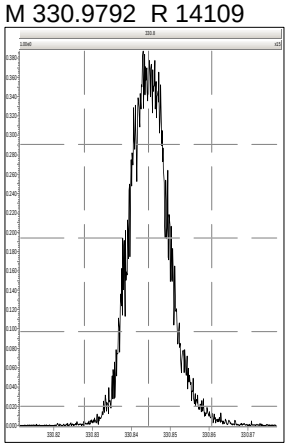
M 392.9760 R 13562



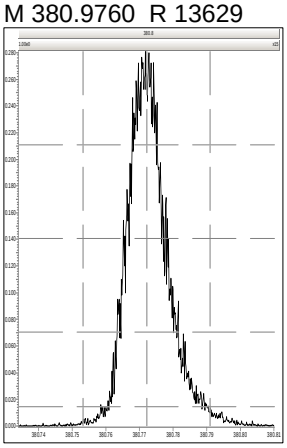
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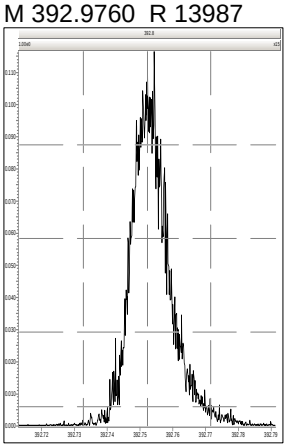
M 330.9792 R 14109



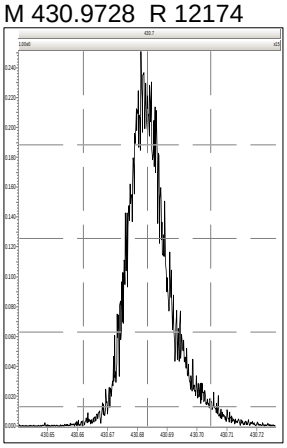
M 380.9760 R 13629



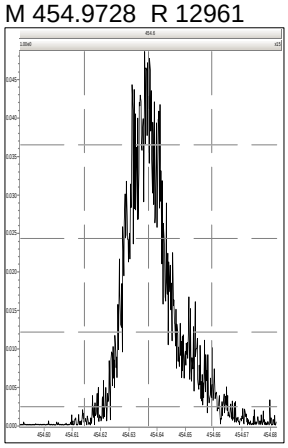
M 392.9760 R 13987



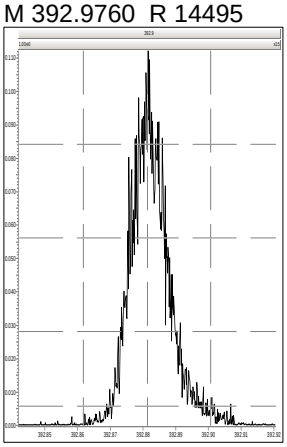
M 430.9728 R 12174



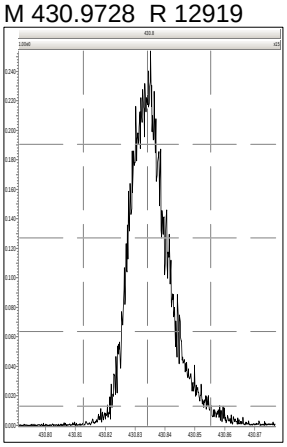
M 454.9728 R 12961



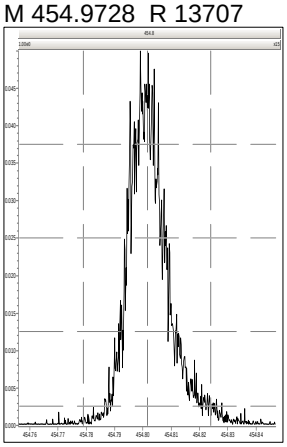
M 392.9760 R 14495



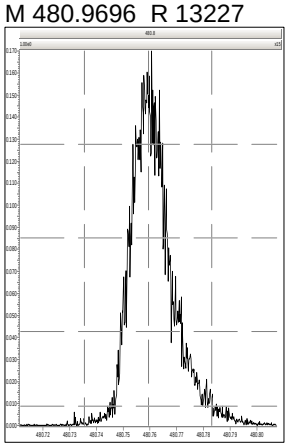
M 430.9728 R 12919



M 454.9728 R 13707

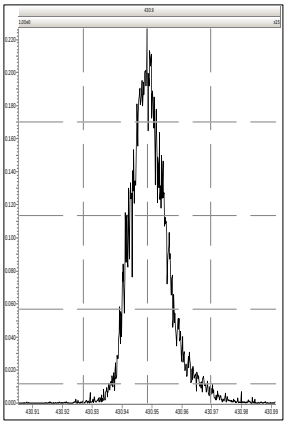


M 480.9696 R 13227

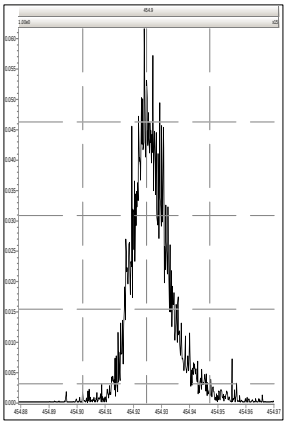


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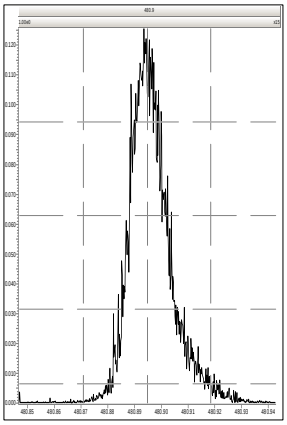
M 430.9728 R 15178



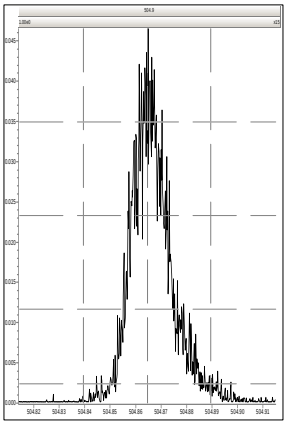
M 454.9728 R 16350



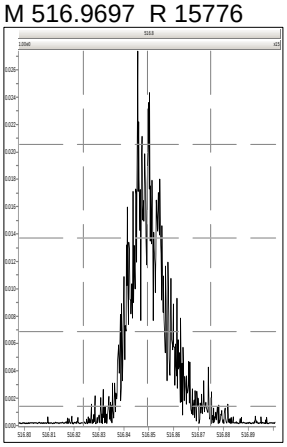
M 480.9696 R 13588

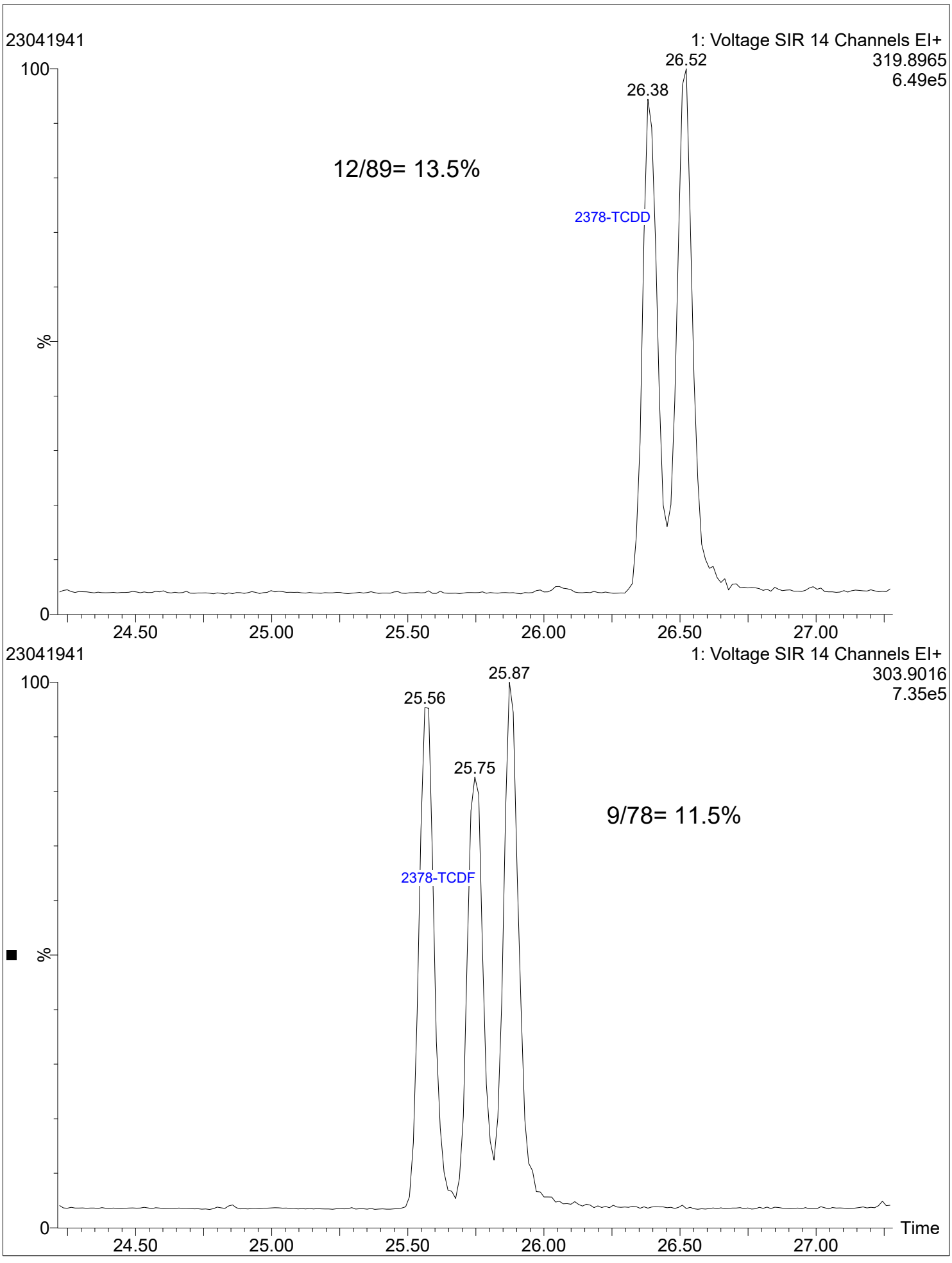


M 504.9696 R 14055



M 516.9697 R 15776




23041941
1: Voltage SIR 14 Channels EI+
319.8965
6.49e5
26.52
26.38
12/89= 13.5%
2378-TCDD
100
%
0
24.50
25.00
25.50
26.00
26.50
27.00
23041941
1: Voltage SIR 14 Channels EI+
303.9016
7.35e5
25.87
25.56
25.75
9/78= 11.5%
2378-TCDF
100
%
0
Time
24.50
25.00
25.50
26.00
26.50
27.00

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC SDG: 23C0619

Instrument .ID: AUTOSPEC01 Lab File ID: 23030303

Date Analyzed: 03/03/23 Time Analyzed: 10:39

Lab Sample ID: SLC0045-RES1 Sequence: SLC0045

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 8.8

3467-TCDF/2378-TCDF: 8.2

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLC0045-ICV1	CS3W1	23030302	03/03/2023	09:51
SLC0045-RES1	ISCW1	23030303	03/03/2023	10:39
SLC0045-CAL1	CSLCW	23030304	03/03/2023	11:28
SLC0045-CAL2	CS1CW	23030305	03/03/2023	12:23
SLC0045-CAL3	CS2CW	23030306	03/03/2023	13:16
SLC0045-CAL4	CS3CW	23030307	03/03/2023	14:06
SLC0045-CAL5	CS4CW	23030308	03/03/2023	14:59
SLC0045-CAL6	CS5CW	23030309	03/03/2023	15:47
SLC0045-SCV1	ICVCW	23030310	03/03/2023	16:36
SLC0045-CCV1	CS3V4	23030311	03/03/2023	17:25
SLC0045-RES2	ISCV4	23030312	03/03/2023	18:18

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23C0619
Instrument .ID: AUTOSPEC01
Lab File ID: 23030312
Date Analyzed: 03/03/23
Time Analyzed: 18:18
Lab Sample ID: SLC0045-RES2
Sequence: SLC0045

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 12.9

3467-TCDF/2378-TCDF: 11.7

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLC0045-ICV1	CS3W1	23030302	03/03/2023	09:51
SLC0045-RES1	ISCW1	23030303	03/03/2023	10:39
SLC0045-CAL1	CSLCW	23030304	03/03/2023	11:28
SLC0045-CAL2	CS1CW	23030305	03/03/2023	12:23
SLC0045-CAL3	CS2CW	23030306	03/03/2023	13:16
SLC0045-CAL4	CS3CW	23030307	03/03/2023	14:06
SLC0045-CAL5	CS4CW	23030308	03/03/2023	14:59
SLC0045-CAL6	CS5CW	23030309	03/03/2023	15:47
SLC0045-SCV1	ICVCW	23030310	03/03/2023	16:36
SLC0045-CCV1	CS3V4	23030311	03/03/2023	17:25
SLC0045-RES2	ISCV4	23030312	03/03/2023	18:18

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23C0619
Instrument .ID: AUTOSPEC01
Lab File ID: 23042403
Date Analyzed: 04/24/23
Time Analyzed: 16:04
Lab Sample ID: SLD0330-RES1
Sequence: SLD0330

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 9.6

3467-TCDF/2378-TCDF: 13.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLD0330-ICV1	CS3H1	23042402	04/24/2023	14:09
SLD0330-RES1	ISCH1	23042403	04/24/2023	16:04
BLD0089-SRM1	Reference	23042406	04/24/2023	18:30
23C0619-03	SED-08C:0-1	23042408	04/24/2023	20:08
23C0619-05	SED-09C:0-1	23042409	04/24/2023	20:57
23C0619-06	SED-09C:1-3	23042410	04/24/2023	21:46
23C0619-07	SED-12C:0-1	23042411	04/24/2023	22:35
SLD0330-CCV1	CS3H2	23042412	04/24/2023	23:24
SLD0330-RES2	ISCH2	23042413	04/25/2023	00:17
23C0619-08	SED-26C:0-1	23042414	04/25/2023	01:09
23C0619-10	SED-25C:0-1	23042415	04/25/2023	01:58
23C0619-12	SED-10C:0-1	23042416	04/25/2023	02:47
23C0619-13	SED-10C:1-3	23042417	04/25/2023	03:36
23C0619-14	SED-11C:0-1	23042418	04/25/2023	04:24
23C0619-15	SED-11C:1-3	23042419	04/25/2023	05:14
SLD0330-CCV2	CS3H3	23042421	04/25/2023	06:52
SLD0330-RES3	ISCH3	23042422	04/25/2023	07:44
SLD0330-CCV3	CS3H4	23042432	04/25/2023	15:57
SLD0330-RES4	ISCH4	23042433	04/25/2023	16:50

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23C0619
Instrument .ID: AUTOSPEC01
Lab File ID: 23042413
Date Analyzed: 04/25/23
Time Analyzed: 00:17
Lab Sample ID: SLD0330-RES2
Sequence: SLD0330

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 19.5

3467-TCDF/2378-TCDF: 21.4

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLD0330-ICV1	CS3H1	23042402	04/24/2023	14:09
SLD0330-RES1	ISCH1	23042403	04/24/2023	16:04
BLD0089-SRM1	Reference	23042406	04/24/2023	18:30
23C0619-03	SED-08C:0-1	23042408	04/24/2023	20:08
23C0619-05	SED-09C:0-1	23042409	04/24/2023	20:57
23C0619-06	SED-09C:1-3	23042410	04/24/2023	21:46
23C0619-07	SED-12C:0-1	23042411	04/24/2023	22:35
SLD0330-CCV1	CS3H2	23042412	04/24/2023	23:24
SLD0330-RES2	ISCH2	23042413	04/25/2023	00:17
23C0619-08	SED-26C:0-1	23042414	04/25/2023	01:09
23C0619-10	SED-25C:0-1	23042415	04/25/2023	01:58
23C0619-12	SED-10C:0-1	23042416	04/25/2023	02:47
23C0619-13	SED-10C:1-3	23042417	04/25/2023	03:36
23C0619-14	SED-11C:0-1	23042418	04/25/2023	04:24
23C0619-15	SED-11C:1-3	23042419	04/25/2023	05:14
SLD0330-CCV2	CS3H3	23042421	04/25/2023	06:52
SLD0330-RES3	ISCH3	23042422	04/25/2023	07:44
SLD0330-CCV3	CS3H4	23042432	04/25/2023	15:57
SLD0330-RES4	ISCH4	23042433	04/25/2023	16:50

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23C0619
Instrument .ID: AUTOSPEC01
Lab File ID: 23042422
Date Analyzed: 04/25/23
Time Analyzed: 07:44
Lab Sample ID: SLD0330-RES3
Sequence: SLD0330

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 21.1

3467-TCDF/2378-TCDF: 19

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLD0330-ICV1	CS3H1	23042402	04/24/2023	14:09
SLD0330-RES1	ISCH1	23042403	04/24/2023	16:04
BLD0089-SRM1	Reference	23042406	04/24/2023	18:30
23C0619-03	SED-08C:0-1	23042408	04/24/2023	20:08
23C0619-05	SED-09C:0-1	23042409	04/24/2023	20:57
23C0619-06	SED-09C:1-3	23042410	04/24/2023	21:46
23C0619-07	SED-12C:0-1	23042411	04/24/2023	22:35
SLD0330-CCV1	CS3H2	23042412	04/24/2023	23:24
SLD0330-RES2	ISCH2	23042413	04/25/2023	00:17
23C0619-08	SED-26C:0-1	23042414	04/25/2023	01:09
23C0619-10	SED-25C:0-1	23042415	04/25/2023	01:58
23C0619-12	SED-10C:0-1	23042416	04/25/2023	02:47
23C0619-13	SED-10C:1-3	23042417	04/25/2023	03:36
23C0619-14	SED-11C:0-1	23042418	04/25/2023	04:24
23C0619-15	SED-11C:1-3	23042419	04/25/2023	05:14
SLD0330-CCV2	CS3H3	23042421	04/25/2023	06:52
SLD0330-RES3	ISCH3	23042422	04/25/2023	07:44
SLD0330-CCV3	CS3H4	23042432	04/25/2023	15:57
SLD0330-RES4	ISCH4	23042433	04/25/2023	16:50

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23C0619
Instrument .ID: AUTOSPEC01
Lab File ID: 23042433
Date Analyzed: 04/25/23
Time Analyzed: 16:50
Lab Sample ID: SLD0330-RES4
Sequence: SLD0330

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 17

3467-TCDF/2378-TCDF: 17

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLD0330-ICV1	CS3H1	23042402	04/24/2023	14:09
SLD0330-RES1	ISCH1	23042403	04/24/2023	16:04
BLD0089-SRM1	Reference	23042406	04/24/2023	18:30
23C0619-03	SED-08C:0-1	23042408	04/24/2023	20:08
23C0619-05	SED-09C:0-1	23042409	04/24/2023	20:57
23C0619-06	SED-09C:1-3	23042410	04/24/2023	21:46
23C0619-07	SED-12C:0-1	23042411	04/24/2023	22:35
SLD0330-CCV1	CS3H2	23042412	04/24/2023	23:24
SLD0330-RES2	ISCH2	23042413	04/25/2023	00:17
23C0619-08	SED-26C:0-1	23042414	04/25/2023	01:09
23C0619-10	SED-25C:0-1	23042415	04/25/2023	01:58
23C0619-12	SED-10C:0-1	23042416	04/25/2023	02:47
23C0619-13	SED-10C:1-3	23042417	04/25/2023	03:36
23C0619-14	SED-11C:0-1	23042418	04/25/2023	04:24
23C0619-15	SED-11C:1-3	23042419	04/25/2023	05:14
SLD0330-CCV2	CS3H3	23042421	04/25/2023	06:52
SLD0330-RES3	ISCH3	23042422	04/25/2023	07:44
SLD0330-CCV3	CS3H4	23042432	04/25/2023	15:57
SLD0330-RES4	ISCH4	23042433	04/25/2023	16:50

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23C0619
Instrument .ID: AUTOSPEC01
Lab File ID: 23041933
Date Analyzed: 04/20/23
Time Analyzed: 17:28
Lab Sample ID: SLD0342-RES1
Sequence: SLD0342

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 18.3

3467-TCDF/2378-TCDF: 16.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLD0342-ICV1	CS3F4	23041932A	04/20/2023	16:35
SLD0342-RES1	ISCF4	23041933	04/20/2023	17:28
BLD0089-BLK2	Blank	23041934A	04/20/2023	18:18
BLD0089-BS2	LCS	23041935A	04/20/2023	19:07
SLD0342-CCV1	CS3F5	23041940A	04/20/2023	23:12
SLD0342-RES2	ISCF5	23041941	04/21/2023	00:05

Analytical Resources, LLC
Analytical Chemists and Consultants

CDD/CDF CHROMATOGRAPHIC RESOLUTION SUMMARY

EPA 1613B

Lab Name: Analytical Resources, LLC
SDG: 23C0619
Instrument .ID: AUTOSPEC01
Lab File ID: 23041941
Date Analyzed: 04/21/23
Time Analyzed: 00:05
Lab Sample ID: SLD0342-RES2
Sequence: SLD0342

Percent Valley Determination for Column: RTX-Dioxin2 ID: 0.25 (mm)

1278-TCDD/2378-TCDD: 13.5

3467-TCDF/2378-TCDF: 11.5

Quality Control (QC) Limits: ≤ 25%

Lab Sample ID	Sample Name	Lab File ID	Data Analyzed	Time Analyzed
SLD0342-ICV1	CS3F4	23041932A	04/20/2023	16:35
SLD0342-RES1	ISCF4	23041933	04/20/2023	17:28
BLD0089-BLK2	Blank	23041934A	04/20/2023	18:18
BLD0089-BS2	LCS	23041935A	04/20/2023	19:07
SLD0342-CCV1	CS3F5	23041940A	04/20/2023	23:12
SLD0342-RES2	ISCF5	23041941	04/21/2023	00:05

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor
Sequence: SLC0045
Instrument: AUTOSPEC01
Calibration: GC00015

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3W1	SLC0045-ICV1	23030302	NA	03/03/23 09:51
ISCW1	SLC0045-RES1	23030303	NA	03/03/23 10:39
CSLCW	SLC0045-CAL1	23030304	NA	03/03/23 11:28
CS1CW	SLC0045-CAL2	23030305	NA	03/03/23 12:23
CS2CW	SLC0045-CAL3	23030306	NA	03/03/23 13:16
CS3CW	SLC0045-CAL4	23030307	NA	03/03/23 14:06
CS4CW	SLC0045-CAL5	23030308	NA	03/03/23 14:59
CS5CW	SLC0045-CAL6	23030309	NA	03/03/23 15:47
ICVCW	SLC0045-SCV1	23030310	NA	03/03/23 16:36
CS3V4	SLC0045-CCV1	23030311	NA	03/03/23 17:25
ISCV4	SLC0045-RES2	23030312	NA	03/03/23 18:18

Printed: 3/6/2023 2:56:51PM

ANALYSIS SEQUENCE

SLC0045

Instrument: AUTOSPEC01 HRGCMS Column ID: K2310
Calibration ID: GC00015 Tune File: FEB0923_1-5
EM Voltage: 350 Resolution check times : 9:51, 18:18

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLC0045-ICV1	CS3W1	QC		1	K009821		03/03/2023 09:51	23030302	PK	
SLC0045-RES1	ISCW1	QC		2	L002084		03/03/2023 10:39	23030303	PK	
SLC0045-CAL1	CSLCW	QC		3	I005460		03/03/2023 11:28	23030304	PK	
SLC0045-CAL2	CS1CW	QC		4	I005456		03/03/2023 12:23	23030305	PK	
SLC0045-CAL3	CS2CW	QC		5	I005457		03/03/2023 13:16	23030306	PK	
SLC0045-CAL4	CS3CW	QC		6	K009821		03/03/2023 14:06	23030307	PK	
SLC0045-CAL5	CS4CW	QC		7	I005458		03/03/2023 14:59	23030308	PK	
SLC0045-CAL6	CS5CW	QC		8	I005459		03/03/2023 15:47	23030309	PK	
SLC0045-SCV1	ICVCW	QC		9	H008219		03/03/2023 16:36	23030310	PK	
SLC0045-CCV1	CS3V4	QC		10	K009821		03/03/2023 17:25	23030311	PK	
SLC0045-RES2	ISCV4	QC		11	L002084		03/03/2023 18:18	23030312	PK	

Dataset: T:\Autospec\Processed Data Batch\230303ICIH.qld
Last Altered: Monday, March 06, 2023 10:57:27 Pacific Standard Time
Printed: Monday, March 06, 2023 10:58:44 Pacific Standard Time

3/6/23 PK

Event	Details	Sample ID
Process Extract		
Process Integrate		
Process Calibrate		
Process Quantify		
Dataset Created		
Peak deleted	Sample:23030304, Compound:TD, RT:26.410	1
Peak deleted	Sample:23030304, Compound:OD, RT:44.990	1
Peak deleted	Sample:23030304, Compound:TF, RT:25.774	1
Pre modification peak	Sample:23030305, Compound:TF, RT:25.774	2
Peak modified	Sample:23030305, Compound:TF, RT:25.774	2
Pre modification peak	Sample:23030304, Compound:HPD, RT:40.261	1
Peak modified	Sample:23030304, Compound:HPD, RT:40.261	1
Peak deleted	Sample:23030308, Compound:PF, RT:32.328	5
Peak deleted	Sample:23030309, Compound:PF, RT:32.307	6
Peak deleted	Sample:23030309, Compound:HF, RT:33.220	6
Peak deleted	Sample:23030309, Compound:TD, RT:27.017	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.995	6
Peak deleted	Sample:23030309, Compound:PD, RT:31.917	6
Peak deleted	Sample:23030308, Compound:HD, RT:34.000	5
Peak deleted	Sample:23030308, Compound:HPD, RT:39.225	5
Peak deleted	Sample:23030309, Compound:HPD, RT:39.214	6
Pre modification peak	Sample:23030305, Compound:OF, RT:45.237	2
Peak modified	Sample:23030305, Compound:OF, RT:45.237	2
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230303ICIH.qld'	

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
		Calibration:	GC00015

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3H1	SLD0330-ICV1	23042402	NA	04/24/23 14:09
ISCH1	SLD0330-RES1	23042403	NA	04/24/23 16:04
Reference	BLD0089-SRM1	23042406	Solid	04/24/23 18:30
SED-08C:0-1	23C0619-03	23042408	Solid	04/24/23 20:08
SED-09C:0-1	23C0619-05	23042409	Solid	04/24/23 20:57
SED-09C:1-3	23C0619-06	23042410	Solid	04/24/23 21:46
SED-12C:0-1	23C0619-07	23042411	Solid	04/24/23 22:35
CS3H2	SLD0330-CCV1	23042412	NA	04/24/23 23:24
ISCH2	SLD0330-RES2	23042413	NA	04/25/23 00:17
SED-26C:0-1	23C0619-08	23042414	Solid	04/25/23 01:09
SED-25C:0-1	23C0619-10	23042415	Solid	04/25/23 01:58
SED-10C:0-1	23C0619-12	23042416	Solid	04/25/23 02:47
SED-10C:1-3	23C0619-13	23042417	Solid	04/25/23 03:36
SED-11C:0-1	23C0619-14	23042418	Solid	04/25/23 04:24
SED-11C:1-3	23C0619-15	23042419	Solid	04/25/23 05:14
CS3H3	SLD0330-CCV2	23042421	NA	04/25/23 06:52
ISCH3	SLD0330-RES3	23042422	NA	04/25/23 07:44
CS3H4	SLD0330-CCV3	23042432	NA	04/25/23 15:57
ISCH4	SLD0330-RES4	23042433	NA	04/25/23 16:50

Printed: 4/26/2023 11:20:43AM

ANALYSIS SEQUENCE

SLD0330

Instrument: AUTOSPEC01 HRGCMS Column ID: L2312
Calibration ID: GC00015 Tune File: MAR2023_1-5
EM Voltage: 350 Resolution check times : 14:04, 00:17, 07:44, 16:50

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLD0330-ICV1	CS3H1	QC		1	K009821		04/24/2023 14:09	23042402	PK	
SLD0330-RES1	ISCH1	QC		2	L002084		04/24/2023 16:04	23042403	PK	
BLD0089-SRM1	Reference	QC		3		K011414	04/24/2023 18:30	23042406	PK	
BLD0089-DUP1	Duplicate	QC		4		K011414	04/24/2023 19:19	23042407	PK	
23C0619-03	SED-08C:0-1	1613B Dioxin	C 01	5		K011414	04/24/2023 20:08	23042408	PK	
23C0619-05	SED-09C:0-1	1613B Dioxin	C 01	6		K011414	04/24/2023 20:57	23042409	PK	
23C0619-06	SED-09C:1-3	1613B Dioxin	C 01	7		K011414	04/24/2023 21:46	23042410	PK	
23C0619-07	SED-12C:0-1	1613B Dioxin	A 01	8		K011414	04/24/2023 22:35	23042411	PK	
SLD0330-CCV1	CS3H2	QC		9	K009821		04/24/2023 23:24	23042412	PK	
SLD0330-RES2	ISCH2	QC		10	L002084		04/25/2023 00:17	23042413	PK	
23C0619-08	SED-26C:0-1	1613B Dioxin	C 01	11		K011414	04/25/2023 01:09	23042414	PK	
23C0619-10	SED-25C:0-1	1613B Dioxin	C 01	12		K011414	04/25/2023 01:58	23042415	PK	
23C0619-12	SED-10C:0-1	1613B Dioxin	C 01	13		K011414	04/25/2023 02:47	23042416	PK	
23C0619-13	SED-10C:1-3	1613B Dioxin	C 01	14		K011414	04/25/2023 03:36	23042417	PK	
23C0619-14	SED-11C:0-1	1613B Dioxin	A 01	15		K011414	04/25/2023 04:24	23042418	PK	
23C0619-15	SED-11C:1-3	1613B Dioxin	A 01	16		K011414	04/25/2023 05:14	23042419	PK	
23D0008-01	LDW23-SS1816	1613B Dioxin	C 01	17		K011414	04/25/2023 06:02	23042420	PK	
SLD0330-CCV2	CS3H3	QC		18	K009821		04/25/2023 06:52	23042421	PK	
SLD0330-RES3	ISCH3	QC		19	K003933		04/25/2023 07:44	23042422	PK	
BLC0379-BLK1	Blank	QC		20		K011414	04/25/2023 08:36	23042423	PK	
BLC0379-BS1	LCS	QC		21		K011414	04/25/2023 09:25	23042424	PK	
BLC0379-SRM1	Reference	QC		22		K011414	04/25/2023 10:14	23042425	PK	

ANALYSIS SEQUENCE

SLD0330

Instrument: AUTOSPEC01 HRGCMS Column ID: L2312
Calibration ID: GC00015 Tune File: MAR2023_1-5
EM Voltage: 350 Resolution check times : 14:04, 00:17, 07:44, 16:50

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
BLC0379-DUP1	Duplicate	QC		23		K011414	04/25/2023 11:03	23042426	PK	
23C0071-02	LDW23-SS1037	1613B Dioxin	A 06	24		K011414	04/25/2023 11:52	23042427	PK	
23C0109-03	LDW23-SS1105	1613B Dioxin	A 06	25		K011414	04/25/2023 12:41	23042428	PK	
23C0174-01	LDW23-DB01 - <2mm	8290 Dioxin	A 03	26		K011414	04/25/2023 13:30	23042429	PK	
23C0174-02	LDW23-DB02 - <2mm	8290 Dioxin	A 03	27		K011414	04/25/2023 14:19	23042430	PK	
23C0174-03	LDW23-DB03 - <2mm	8290 Dioxin	A 03	28		K011414	04/25/2023 15:08	23042431	PK	
SLD0330-CCV3	CS3H4	QC		29	K009821		04/25/2023 15:57	23042432	PK	
SLD0330-RES4	ISCH4	QC		30	K003933		04/25/2023 16:50	23042433	PK	

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 11:51:13 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:54:33 Pacific Daylight Time 4/25/23 PK

Event	Details	Sample ID
Process Quantify		
Process Integrate		
Process Extract		
Pre modification peak	Sample:23042406, Compound:PF, RT:29.867	5
Pre modification peak	Sample:23042408, Compound:HF, RT:35.003	7
Pre modification peak	Sample:23042408, Compound:TD, RT:26.354	7
Pre modification peak	Sample:23042409, Compound:PF, RT:31.204	8
Pre modification peak	Sample:23042411, Compound:HD, RT:36.440	10
Pre modification peak	Sample:23042411, Compound:HD, RT:36.440	10
Pre modification peak	Sample:23042414, Compound:HF, RT:36.841	13
Pre modification peak	Sample:23042415, Compound:HF, RT:34.958	14
Pre modification peak	Sample:23042416, Compound:HF, RT:36.819	15
Pre modification peak	Sample:23042417, Compound:HF, RT:35.816	16
Pre modification peak	Sample:23042417, Compound:HF, RT:35.793	16
Pre modification peak	Sample:23042418, Compound:HF, RT:36.830	17
Pre modification peak	Sample:23042419, Compound:PD, RT:31.437	18
Pre modification peak	Sample:23042420, Compound:HF, RT:35.850	19
Pre modification peak	Sample:23042406, Compound:PF, RT:28.786	5
Pre modification peak	Sample:23042406, Compound:PF, RT:28.797	5
Pre modification peak	Sample:23042407, Compound:PF, RT:28.864	6
Pre modification peak	Sample:23042407, Compound:PF, RT:28.864	6
Pre modification peak	Sample:23042409, Compound:PF, RT:28.875	8
Pre modification peak	Sample:23042409, Compound:PF, RT:28.864	8
Pre modification peak	Sample:23042414, Compound:PF, RT:28.853	13
Pre modification peak	Sample:23042414, Compound:PF, RT:28.853	13
Pre modification peak	Sample:23042414, Compound:PF, RT:29.510	13
Pre modification peak	Sample:23042414, Compound:PF, RT:29.521	13
Pre modification peak	Sample:23042420, Compound:13C-12378-PeCDD, RT:31.438	19
Peak modified	Sample:23042406, Compound:PF, RT:29.867	5
Peak modified	Sample:23042408, Compound:HF, RT:35.003	7
Peak modified	Sample:23042408, Compound:TD, RT:26.354	7
Peak modified	Sample:23042409, Compound:PF, RT:31.204	8
Peak modified	Sample:23042411, Compound:HD, RT:36.440	10
Peak modified	Sample:23042411, Compound:HD, RT:36.440	10
Peak modified	Sample:23042414, Compound:HF, RT:36.841	13
Peak modified	Sample:23042415, Compound:HF, RT:34.958	14
Peak modified	Sample:23042416, Compound:HF, RT:36.819	15
Peak modified	Sample:23042417, Compound:HF, RT:35.816	16
Peak modified	Sample:23042417, Compound:HF, RT:35.793	16
Peak modified	Sample:23042418, Compound:HF, RT:36.830	17
Peak modified	Sample:23042419, Compound:PD, RT:31.437	18
Peak modified	Sample:23042420, Compound:HF, RT:35.850	19
Peak modified	Sample:23042406, Compound:PF, RT:28.786	5
Peak modified	Sample:23042406, Compound:PF, RT:28.797	5
Peak modified	Sample:23042407, Compound:PF, RT:28.864	6
Peak modified	Sample:23042407, Compound:PF, RT:28.864	6
Peak modified	Sample:23042409, Compound:PF, RT:28.875	8
Peak modified	Sample:23042409, Compound:PF, RT:28.864	8
Peak modified	Sample:23042414, Compound:PF, RT:28.853	13
Peak modified	Sample:23042414, Compound:PF, RT:28.853	13
Peak modified	Sample:23042414, Compound:PF, RT:29.510	13
Peak modified	Sample:23042414, Compound:PF, RT:29.521	13
Peak modified	Sample:23042420, Compound:13C-12378-PeCDD, RT:31.438	19
Peak deleted	Sample:23042411, Compound:TF, RT:25.732	10
Peak deleted	Sample:23042411, Compound:PF, RT:31.360	10

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 11:51:13 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:54:33 Pacific Daylight Time

Event	Details	Sample ID
Peak deleted	Sample:23042417, Compound:TD, RT:26.311	16
Peak deleted	Sample:23042419, Compound:PF, RT:29.844	18
Peak deleted	Sample:23042419, Compound:PF, RT:31.192	18
Peak deleted	Sample:23042419, Compound:TD, RT:26.339	18
Peak deleted	Sample:23042406, Compound:TF, RT:24.235	5
Peak deleted	Sample:23042406, Compound:PP, RT:27.031	5
Peak deleted	Sample:23042407, Compound:TF, RT:22.243	6
Peak deleted	Sample:23042407, Compound:TF, RT:25.237	6
Peak deleted	Sample:23042407, Compound:TF, RT:25.054	6
Peak deleted	Sample:23042409, Compound:HD, RT:36.919	8
Peak deleted	Sample:23042411, Compound:TF, RT:25.944	10
Peak deleted	Sample:23042414, Compound:TF, RT:22.766	13
Peak deleted	Sample:23042414, Compound:TF, RT:27.639	13
Peak deleted	Sample:23042414, Compound:HD, RT:36.919	13
Peak deleted	Sample:23042415, Compound:TF, RT:22.879	14
Peak deleted	Sample:23042415, Compound:TF, RT:25.930	14
Peak deleted	Sample:23042415, Compound:TF, RT:25.817	14
Peak deleted	Sample:23042415, Compound:TF, RT:25.209	14
Peak deleted	Sample:23042415, Compound:TF, RT:26.622	14
Peak deleted	Sample:23042415, Compound:TF, RT:23.542	14
Peak deleted	Sample:23042415, Compound:TF, RT:23.444	14
Peak deleted	Sample:23042415, Compound:PF, RT:31.928	14
Peak deleted	Sample:23042415, Compound:PF, RT:31.037	14
Peak deleted	Sample:23042415, Compound:TD, RT:25.690	14
Peak deleted	Sample:23042416, Compound:PF, RT:28.920	15
Peak deleted	Sample:23042416, Compound:PF, RT:29.387	15
Peak deleted	Sample:23042416, Compound:TD, RT:25.223	15
Peak deleted	Sample:23042416, Compound:PD, RT:30.379	15
Peak deleted	Sample:23042416, Compound:HD, RT:36.908	15
Peak deleted	Sample:23042417, Compound:PF, RT:29.265	16
Peak deleted	Sample:23042418, Compound:TF, RT:22.907	17
Peak deleted	Sample:23042418, Compound:TF, RT:27.314	17
Peak deleted	Sample:23042418, Compound:TF, RT:27.187	17
Peak deleted	Sample:23042418, Compound:TF, RT:27.102	17
Peak deleted	Sample:23042418, Compound:HPD, RT:39.404	17
Peak deleted	Sample:23042419, Compound:PF, RT:30.034	18
Peak deleted	Sample:23042419, Compound:HPD, RT:40.361	18
Peak deleted	Sample:23042420, Compound:TF, RT:24.235	19
Peak deleted	Sample:23042420, Compound:PD, RT:31.549	19
Peak added	Sample:23042405, Compound:13C-1234-TCDD, RT:25.506	4
Peak added	Sample:23042405, Compound:13C-1234-TCDD, RT:25.506	4
Peak added	Sample:23042416, Compound:PF, RT:29.855	15
Peak added	Sample:23042416, Compound:PF, RT:29.855	15
Peak added	Sample:23042420, Compound:HF, RT:35.827	19
Peak added	Sample:23042420, Compound:HF, RT:35.850	19
Peak added	Sample:23042406, Compound:PF, RT:28.441	5
Peak added	Sample:23042406, Compound:PF, RT:28.441	5
Peak added	Sample:23042406, Compound:TD, RT:24.461	5
Peak added	Sample:23042406, Compound:TD, RT:24.461	5
Peak added	Sample:23042406, Compound:PD, RT:29.855	5
Peak added	Sample:23042406, Compound:PD, RT:29.855	5
Peak added	Sample:23042407, Compound:PD, RT:29.276	6
Peak added	Sample:23042407, Compound:PD, RT:28.819	6
Peak added	Sample:23042407, Compound:PD, RT:29.276	6
Peak added	Sample:23042407, Compound:PD, RT:28.830	6

Dataset: T:\Autospec\Processed Data Batch\230424D1.qld
Last Altered: Tuesday, April 25, 2023 11:51:13 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 11:54:33 Pacific Daylight Time

Event	Details	Sample ID
Peak added	Sample:23042415, Compound:PF, RT:28.775	14
Peak added	Sample:23042415, Compound:PF, RT:28.775	14
Peak added	Sample:23042416, Compound:PD, RT:28.786	15
Peak added	Sample:23042416, Compound:PD, RT:28.752	15
Peak added	Sample:23042420, Compound:HF, RT:35.816	19
Peak added	Sample:23042420, Compound:HF, RT:35.805	19
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230424D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230424D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230424D1.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230424D1.qld'	
Dataset Created		

Dataset: T:\Autospec\Processed Data Batch\230424D2.qld
Last Altered: Tuesday, April 25, 2023 14:48:36 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 14:49:25 Pacific Daylight Time 4/25/23 PK

Event	Details	Sample ID
Process Quantify		
Process Integrate		
Process Extract		
Pre modification peak	Sample:23042423, Compound:OD, RT:44.878	1
Pre modification peak	Sample:23042423, Compound:OD, RT:44.860	1
Pre modification peak	Sample:23042425, Compound:TD, RT:26.353	3
Pre modification peak	Sample:23042425, Compound:TF, RT:25.689	3
Pre modification peak	Sample:23042426, Compound:HF, RT:36.830	4
Pre modification peak	Sample:23042426, Compound:HD, RT:36.451	4
Pre modification peak	Sample:23042427, Compound:HF, RT:36.818	5
Pre modification peak	Sample:23042427, Compound:TD, RT:26.339	5
Pre modification peak	Sample:23042427, Compound:PD, RT:31.426	5
Pre modification peak	Sample:23042428, Compound:HF, RT:36.819	6
Pre modification peak	Sample:23042428, Compound:TD, RT:26.339	6
Pre modification peak	Sample:23042428, Compound:HD, RT:35.961	6
Pre modification peak	Sample:23042429, Compound:HF, RT:36.841	7
Pre modification peak	Sample:23042429, Compound:TD, RT:26.353	7
Pre modification peak	Sample:23042429, Compound:HD, RT:36.083	7
Pre modification peak	Sample:23042429, Compound:HD, RT:35.972	7
Pre modification peak	Sample:23042425, Compound:PF, RT:30.914	3
Pre modification peak	Sample:23042426, Compound:TF, RT:25.704	4
Pre modification peak	Sample:23042427, Compound:PF, RT:28.775	5
Pre modification peak	Sample:23042428, Compound:PD, RT:28.786	6
Peak modified	Sample:23042423, Compound:OD, RT:44.878	1
Peak modified	Sample:23042423, Compound:OD, RT:44.860	1
Peak modified	Sample:23042425, Compound:TD, RT:26.353	3
Peak modified	Sample:23042425, Compound:TF, RT:25.689	3
Peak modified	Sample:23042425, Compound:TF, RT:25.689	3
Peak modified	Sample:23042426, Compound:HF, RT:36.830	4
Peak modified	Sample:23042426, Compound:HD, RT:36.451	4
Peak modified	Sample:23042427, Compound:HF, RT:36.818	5
Peak modified	Sample:23042427, Compound:TD, RT:26.339	5
Peak modified	Sample:23042427, Compound:PD, RT:31.426	5
Peak modified	Sample:23042428, Compound:HF, RT:36.819	6
Peak modified	Sample:23042428, Compound:TD, RT:26.339	6
Peak modified	Sample:23042428, Compound:HD, RT:35.961	6
Peak modified	Sample:23042429, Compound:HF, RT:36.841	7
Peak modified	Sample:23042429, Compound:TD, RT:26.353	7
Peak modified	Sample:23042429, Compound:HD, RT:36.083	7
Peak modified	Sample:23042429, Compound:HD, RT:36.083	7
Peak modified	Sample:23042429, Compound:HD, RT:35.972	7
Peak modified	Sample:23042429, Compound:HD, RT:35.972	7
Peak modified	Sample:23042425, Compound:PF, RT:30.914	3
Peak modified	Sample:23042427, Compound:TD, RT:26.339	5
Peak modified	Sample:23042426, Compound:TF, RT:25.704	4
Peak modified	Sample:23042427, Compound:PF, RT:28.775	5
Peak modified	Sample:23042428, Compound:PD, RT:28.786	6
Peak deleted	Sample:23042423, Compound:TF, RT:25.675	1
Peak deleted	Sample:23042423, Compound:PF, RT:29.833	1
Peak deleted	Sample:23042423, Compound:PF, RT:31.170	1
Peak deleted	Sample:23042423, Compound:HPF, RT:38.668	1
Peak deleted	Sample:23042426, Compound:TD, RT:26.339	4
Peak deleted	Sample:23042423, Compound:TF, RT:25.831	1
Peak deleted	Sample:23042424, Compound:HD, RT:36.863	2
Peak deleted	Sample:23042425, Compound:TF, RT:26.170	3

Dataset: T:\Autospec\Processed Data Batch\230424D2.qld
Last Altered: Tuesday, April 25, 2023 14:48:36 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 14:49:25 Pacific Daylight Time

Event	Details	Sample ID
Peak deleted	Sample:23042425, Compound:HD, RT:33.688	3
Peak deleted	Sample:23042426, Compound:TD, RT:25.986	4
Peak deleted	Sample:23042426, Compound:HD, RT:33.699	4
Peak deleted	Sample:23042427, Compound:HPF, RT:39.570	5
Peak deleted	Sample:23042428, Compound:TF, RT:26.382	6
Peak deleted	Sample:23042428, Compound:TF, RT:27.144	6
Peak deleted	Sample:23042428, Compound:TF, RT:22.356	6
Peak deleted	Sample:23042428, Compound:HPF, RT:39.537	6
Peak deleted	Sample:23042428, Compound:PD, RT:31.671	6
Peak deleted	Sample:23042428, Compound:HD, RT:33.688	6
Peak deleted	Sample:23042428, Compound:HD, RT:36.908	6
Peak deleted	Sample:23042429, Compound:TD, RT:25.223	7
Peak deleted	Sample:23042429, Compound:HD, RT:36.919	7
Peak deleted	Sample:23042429, Compound:HD, RT:33.699	7
Peak deleted	Sample:23042429, Compound:HPD, RT:40.373	7
Peak added	Sample:23042425, Compound:HF, RT:35.838	3
Peak added	Sample:23042425, Compound:HF, RT:35.838	3
Peak added	Sample:23042427, Compound:TF, RT:25.463	5
Peak added	Sample:23042427, Compound:TF, RT:25.463	5
Peak added	Sample:23042427, Compound:PD, RT:28.764	5
Peak added	Sample:23042427, Compound:PD, RT:28.741	5
Peak added	Sample:23042426, Compound:PF, RT:28.797	4
Peak added	Sample:23042426, Compound:PF, RT:28.797	4
Peak added	Sample:23042426, Compound:HPF, RT:40.930	4
Peak added	Sample:23042426, Compound:HPF, RT:40.930	4
Peak added	Sample:23042426, Compound:PD, RT:28.764	4
Peak added	Sample:23042426, Compound:PD, RT:28.764	4
Peak added	Sample:23042428, Compound:PD, RT:30.067	6
Peak added	Sample:23042428, Compound:PD, RT:30.067	6
Peak added	Sample:23042428, Compound:PD, RT:28.786	6
Peak added	Sample:23042428, Compound:PD, RT:28.775	6
Peak added	Sample:23042429, Compound:PF, RT:28.797	7
Peak added	Sample:23042429, Compound:PF, RT:28.808	7
Peak added	Sample:23042429, Compound:PD, RT:30.078	7
Peak added	Sample:23042429, Compound:PD, RT:30.078	7
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230424D2.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230424D2.qld'	
Dataset Created		

Dataset: T:\Autospec\Processed Data Batch\230424D3.qld
Last Altered: Wednesday, April 26, 2023 10:40:47 Pacific Daylight Time
Printed: Wednesday, April 26, 2023 10:41:57 Pacific Daylight Time 4/26/23 pk

Event	Details	Sample ID
Process Quantify		
Process Integrate		
Process Extract		
Pre modification peak	Sample:23042431, Compound:13C-12378-PeCDD, RT:31.437	2
Pre modification peak	Sample:23042431, Compound:13C-12378-PeCDD, RT:31.437	2
Peak modified	Sample:23042431, Compound:13C-12378-PeCDD, RT:31.437	2
Peak modified	Sample:23042431, Compound:13C-12378-PeCDD, RT:31.437	2
Peak modified	Sample:23042431, Compound:13C-12378-PeCDD, RT:31.437	2
Peak deleted	Sample:23042431, Compound:TF, RT:27.328	2
Peak deleted	Sample:23042431, Compound:HD, RT:36.907	2
Peak deleted	Sample:23042431, Compound:HD, RT:33.688	2
Peak added	Sample:23042430, Compound:PF, RT:29.098	1
Peak added	Sample:23042430, Compound:PF, RT:29.098	1
Peak added	Sample:23042431, Compound:PD, RT:30.212	2
Peak added	Sample:23042431, Compound:PD, RT:30.212	2
Peak added	Sample:23042431, Compound:PD, RT:30.067	2
Peak added	Sample:23042431, Compound:PD, RT:30.067	2
Peak added	Sample:23042431, Compound:PD, RT:30.379	2
Peak added	Sample:23042431, Compound:PD, RT:30.379	2
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230424D3.qld'	
Dataset Created		

Analytical Resources, LLC
Analytical Chemists and Consultants

ANALYSIS BATCH (SEQUENCE) SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0342	Instrument:	AUTOSPEC01
		Calibration:	GC00015

Sample Name	Lab Sample ID	Lab File ID	Matrix	Analysis Date/Time
CS3F4	SLD0342-ICV1	23041932A	NA	04/20/23 16:35
ISCF4	SLD0342-RES1	23041933	NA	04/20/23 17:28
Blank	BLD0089-BLK2	23041934A	Solid	04/20/23 18:18
LCS	BLD0089-BS2	23041935A	Solid	04/20/23 19:07
CS3F5	SLD0342-CCV1	23041940A	NA	04/20/23 23:12
ISCF5	SLD0342-RES2	23041941	NA	04/21/23 00:05

Printed: 4/25/2023 10:23:38AM

ANALYSIS SEQUENCE

SLD0342

Instrument: AUTOSPEC01 HRGCMS Column ID: l2312
Calibration ID: GC00015 Tune File: MAR2023_1-5
EM Voltage: 350 Resolution check times : 17:28, 00:05

Lab Number	Sample Name	Analysis	Container	Order	STD ID	ISTD ID	Analyzed	File ID	Analyst	Comments
SLD0342-ICV1	CS3F4	QC		1	K009821		04/20/2023 16:35	23041932A	PK	
SLD0342-RES1	ISCF4	QC		2	L002084		04/20/2023 17:28	23041933	PK	
BLD0089-BLK2	Blank	QC		3		K011414	04/20/2023 18:18	23041934A	PK	
BLD0089-BS2	LCS	QC		4		K011414	04/20/2023 19:07	23041935A	PK	
SLD0342-CCV1	CS3F5	QC		5	K009821		04/20/2023 23:12	23041940A	PK	
SLD0342-RES2	ISCF5	QC		6	L002084		04/21/2023 00:05	23041941	PK	

Quantify Audit Report MassLynx MassLynx V4.1 SCN909
Dataset: T:\Autospec\Processed Data Batch\230419IHQC.qld
Last Altered: Tuesday, April 25, 2023 10:01:18 Pacific Daylight Time
Printed: Tuesday, April 25, 2023 10:15:06 Pacific Daylight Time 4/25/23 PK

Event	Details	Sample ID
Dataset Created		
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230419IHQC.qld'	
Dataset Saved	Saved to 'T:\Autospec\Processed Data Batch\230419IHQC.qld'	
Peak deleted	Sample:23041933, Compound:13C-1234-TCDD, RT:25.563	2
Peak deleted	Sample:23041941, Compound:13C-1234-TCDD, RT:25.548	10
Peak deleted	Sample:23041941, Compound:13C-123789-HxCDD, RT:36.463	10
Peak deleted	Sample:23041934, Compound:TD, RT:26.396	3
Peak deleted	Sample:23041935, Compound:HPF, RT:41.364	4
Peak modified	Sample:23041932, Compound:HPF, RT:40.975	1
Peak modified	Sample:23041934, Compound:OD, RT:44.952	3
Pre modification peak	Sample:23041932, Compound:HPF, RT:40.975	1
Pre modification peak	Sample:23041934, Compound:OD, RT:44.952	3
Process Extract		
Process Integrate		
Process Quantify		

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLC0045	Instrument:	AUTOSPEC01
Sample ID:	SLC0045-ICV1	Calibration:	GC00015
File ID:	23030302	Analyzed:	03/03/23 09:51

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	94.0	71 - 129	25.7745	25.76487	0.0096	N/A	
13C12-2,3,7,8-TCDD	100.00	102	82 - 118	26.4242	26.40287	0.0213	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	92.2	76 - 124	29.9337	29.92235	0.0114	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	87.6	77 - 123	31.2707	31.2611	0.0096	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	84.3	62 - 138	31.5268	31.5192	0.0076	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	84.0	76 - 124	34.8915	34.88393	0.0076	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	74.6	70 - 130	35.0363	35.02318	0.0131	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.7	73 - 127	35.8942	35.88653	0.0077	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	99.9	74 - 126	36.9303	36.91718	0.0131	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	93.5	85 - 115	36.0167	36.00728	0.0094	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	86.9	85 - 115	36.1393	36.12053	0.0188	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	95.3	78 - 122	38.7685	38.7593	0.0092	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	98.7	77 - 123	41.008	40.99867	0.0093	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	105	72 - 128	40.2615	40.25773	0.0038	N/A	
13C12-OCDD	200.00	107	48 - 152	44.9993	44.98705	0.0122	N/A	
37Cl4-2,3,7,8-TCDD	10.000	90.5	0 - 200	26.4383	26.42402	0.0143	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLC0045	Instrument:	AUTOSPEC01
Sample ID:	SLC0045-SCV1	Calibration:	GC00015
File ID:	23030310	Analyzed:	03/03/23 16:36

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	96.9	0 - 200	25.7602	25.76487	-0.0047	N/A	
13C12-2,3,7,8-TCDD	100.00	96.6	0 - 200	26.3958	26.40287	-0.0071	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	73.2	0 - 200	29.9225	29.92235	0.0001	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	75.9	0 - 200	31.2593	31.2611	-0.0018	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	76.6	0 - 200	31.5155	31.5192	-0.0037	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.0	0 - 200	34.8802	34.88393	-0.0037	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	98.0	0 - 200	35.014	35.02318	-0.0092	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	93.4	0 - 200	35.8828	35.88653	-0.0037	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	97.9	0 - 200	36.9078	36.91718	-0.0094	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	95.9	0 - 200	36.0053	36.00728	-0.0020	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	97.7	0 - 200	36.1168	36.12053	-0.0037	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	0 - 200	38.7573	38.7593	-0.0020	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	104	0 - 200	40.9967	40.99867	-0.0020	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	102	0 - 200	40.2502	40.25773	-0.0075	N/A	
13C12-OCDD	200.00	80.8	0 - 200	44.9807	44.98705	-0.0064	N/A	
37Cl4-2,3,7,8-TCDD	10.000	87.1	0 - 200	26.4242	26.42402	0.0002	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLC0045	Instrument:	AUTOSPEC01
Sample ID:	SLC0045-CCV1	Calibration:	GC00015
File ID:	23030311	Analyzed:	03/03/23 17:25

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	89.4	71 - 129	25.7602	25.76487	-0.0047	N/A	
13C12-2,3,7,8-TCDD	100.00	86.0	82 - 118	26.3958	26.40287	-0.0071	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	92.6	76 - 124	29.9225	29.92235	0.0001	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	91.6	77 - 123	31.2593	31.2611	-0.0018	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	90.8	62 - 138	31.5157	31.5192	-0.0035	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.2	76 - 124	34.8805	34.88393	-0.0034	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	91.1	70 - 130	35.0253	35.02318	0.0021	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	96.9	73 - 127	35.883	35.88653	-0.0035	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	101	74 - 126	36.9193	36.91718	0.0021	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	97.6	85 - 115	36.0057	36.00728	-0.0016	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	98.4	85 - 115	36.117	36.12053	-0.0035	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	102	78 - 122	38.7577	38.7593	-0.0016	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	84.3	77 - 123	40.997	40.99867	-0.0017	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	92.0	72 - 128	40.2617	40.25773	0.0040	N/A	
13C12-OCDD	200.00	85.1	48 - 152	44.9903	44.98705	0.0032	N/A	
37Cl4-2,3,7,8-TCDD	10.000	75.4	0 - 200	26.424	26.42402	0.0000	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	SLD0330-ICV1	Calibration:	GC00015
File ID:	23042402	Analyzed:	04/24/23 14:09

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	95.5	71 - 129	25.7177	25.76487	-0.0472	N/A	
13C12-2,3,7,8-TCDD	100.00	95.8	82 - 118	26.3533	26.40287	-0.0496	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	104	76 - 124	29.8553	29.92235	-0.0671	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	102	77 - 123	31.2033	31.2611	-0.0578	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	85.1	62 - 138	31.4595	31.5192	-0.0597	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	93.2	76 - 124	34.813	34.88393	-0.0709	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	87.5	70 - 130	34.958	35.02318	-0.0652	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	92.9	73 - 127	35.8157	35.88653	-0.0708	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	92.4	74 - 126	36.8518	36.91718	-0.0654	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	97.4	85 - 115	35.9382	36.00728	-0.0691	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	91.0	85 - 115	36.0497	36.12053	-0.0708	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	117	78 - 122	38.6902	38.7593	-0.0691	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	105	77 - 123	40.9183	40.99867	-0.0804	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	92.0	72 - 128	40.183	40.25773	-0.0747	N/A	
13C12-OCDD	200.00	101	48 - 152	44.8778	44.98705	-0.1093	N/A	
37Cl4-2,3,7,8-TCDD	10.000	85.1	0 - 200	26.3675	26.42402	-0.0565	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	BLD0089-SRM1	Calibration:	GC00015
File ID:	23042406	Analyzed:	04/24/23 18:30

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.80	91.6	24 - 169	25.6895	25.76487	-0.0754	N/A	
13C12-2,3,7,8-TCDD	199.80	93.8	25 - 164	26.3252	26.40287	-0.0777	N/A	
13C12-1,2,3,7,8-PeCDF	199.80	104	24 - 185	29.8333	29.92235	-0.0891	N/A	
13C12-2,3,4,7,8-PeCDF	199.80	107	21 - 178	31.1702	31.2611	-0.0909	N/A	
13C12-1,2,3,7,8-PeCDD	199.80	83.5	25 - 181	31.4265	31.5192	-0.0927	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.80	87.5	26 - 152	34.7912	34.88393	-0.0927	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.80	79.0	26 - 123	34.936	35.02318	-0.0872	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.80	87.2	28 - 136	35.805	35.88653	-0.0815	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.80	79.1	29 - 147	36.83	36.91718	-0.0872	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.80	95.7	32 - 141	35.9277	36.00728	-0.0796	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.80	84.3	28 - 130	36.0502	36.12053	-0.0703	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.80	99.1	28 - 143	38.6683	38.7593	-0.0910	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.80	96.4	26 - 138	40.9075	40.99867	-0.0912	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.80	85.3	23 - 140	40.1612	40.25773	-0.0965	N/A	
13C12-OCDD	399.60	77.1	17 - 157	44.86	44.98705	-0.1271	N/A	
37Cl4-2,3,7,8-TCDD	79.920	86.8	35 - 197	26.3393	26.42402	-0.0847	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-03	Calibration:	GC00015
File ID:	23042408	Analyzed:	04/24/23 20:08

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.75	52.0	24 - 169	25.6895	25.76487	-0.0754	N/A	
13C12-2,3,7,8-TCDD	199.75	61.8	25 - 164	26.3393	26.40287	-0.0636	N/A	
13C12-1,2,3,7,8-PeCDF	199.75	82.7	24 - 185	29.8443	29.92235	-0.0781	N/A	
13C12-2,3,4,7,8-PeCDF	199.75	88.5	21 - 178	31.1923	31.2611	-0.0688	N/A	
13C12-1,2,3,7,8-PeCDD	199.75	69.9	25 - 181	31.4487	31.5192	-0.0705	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.75	78.0	26 - 152	34.8467	34.88393	-0.0372	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.75	71.2	26 - 123	34.9803	35.02318	-0.0429	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.75	81.4	28 - 136	35.8938	35.88653	0.0073	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.75	40.2	29 - 147	36.8855	36.91718	-0.0317	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.75	84.2	32 - 141	36.0163	36.00728	0.0090	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.75	73.9	28 - 130	36.139	36.12053	0.0185	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.75	93.9	28 - 143	38.6792	38.7593	-0.0801	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.75	86.1	26 - 138	40.9073	40.99867	-0.0914	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.75	78.4	23 - 140	40.1718	40.25773	-0.0859	N/A	
13C12-OCDD	399.50	76.1	17 - 157	44.878	44.98705	-0.1091	N/A	
37Cl4-2,3,7,8-TCDD	79.900	58.3	35 - 197	26.3535	26.42402	-0.0705	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-05	Calibration:	GC00015
File ID:	23042409	Analyzed:	04/24/23 20:57

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.81	86.4	24 - 169	25.6895	25.76487	-0.0754	N/A	
13C12-2,3,7,8-TCDD	199.81	89.0	25 - 164	26.3252	26.40287	-0.0777	N/A	
13C12-1,2,3,7,8-PeCDF	199.81	93.5	24 - 185	29.8443	29.92235	-0.0781	N/A	
13C12-2,3,4,7,8-PeCDF	199.81	94.2	21 - 178	31.1702	31.2611	-0.0909	N/A	
13C12-1,2,3,7,8-PeCDD	199.81	74.1	25 - 181	31.4263	31.5192	-0.0929	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.81	84.5	26 - 152	34.8022	34.88393	-0.0817	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.81	74.7	26 - 123	34.936	35.02318	-0.0872	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.81	82.4	28 - 136	35.816	35.88653	-0.0705	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.81	79.1	29 - 147	36.8298	36.91718	-0.0874	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.81	88.2	32 - 141	35.9385	36.00728	-0.0688	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.81	74.4	28 - 130	36.061	36.12053	-0.0595	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.81	94.7	28 - 143	38.6682	38.7593	-0.0911	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.81	83.0	26 - 138	40.8963	40.99867	-0.1024	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.81	77.6	23 - 140	40.161	40.25773	-0.0967	N/A	
13C12-OCDD	399.62	79.0	17 - 157	44.86	44.98705	-0.1271	N/A	
37Cl4-2,3,7,8-TCDD	79.924	85.2	35 - 197	26.3393	26.42402	-0.0847	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-06	Calibration:	GC00015
File ID:	23042410	Analyzed:	04/24/23 21:46

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.93	68.3	24 - 169	25.6753	25.76487	-0.0896	N/A	
13C12-2,3,7,8-TCDD	199.93	77.5	25 - 164	26.311	26.40287	-0.0919	N/A	
13C12-1,2,3,7,8-PeCDF	199.93	94.4	24 - 185	29.8333	29.92235	-0.0891	N/A	
13C12-2,3,4,7,8-PeCDF	199.93	94.6	21 - 178	31.1702	31.2611	-0.0909	N/A	
13C12-1,2,3,7,8-PeCDD	199.93	73.7	25 - 181	31.4263	31.5192	-0.0929	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.93	83.3	26 - 152	34.791	34.88393	-0.0929	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.93	77.4	26 - 123	34.9358	35.02318	-0.0874	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.93	84.7	28 - 136	35.7935	35.88653	-0.0930	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.93	78.8	29 - 147	36.8298	36.91718	-0.0874	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.93	87.6	32 - 141	35.916	36.00728	-0.0913	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.93	77.7	28 - 130	36.0275	36.12053	-0.0930	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.93	102	28 - 143	38.668	38.7593	-0.0913	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.93	83.7	26 - 138	40.9073	40.99867	-0.0914	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.93	81.6	23 - 140	40.1608	40.25773	-0.0969	N/A	
13C12-OCDD	399.86	81.9	17 - 157	44.8598	44.98705	-0.1273	N/A	
37Cl4-2,3,7,8-TCDD	79.972	72.2	35 - 197	26.3393	26.42402	-0.0847	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-07	Calibration:	GC00015
File ID:	23042411	Analyzed:	04/24/23 22:35

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.81	77.2	24 - 169	25.6895	25.76487	-0.0754	N/A	
13C12-2,3,7,8-TCDD	199.81	84.9	25 - 164	26.311	26.40287	-0.0919	N/A	
13C12-1,2,3,7,8-PeCDF	199.81	90.1	24 - 185	29.8332	29.92235	-0.0892	N/A	
13C12-2,3,4,7,8-PeCDF	199.81	88.3	21 - 178	31.1702	31.2611	-0.0909	N/A	
13C12-1,2,3,7,8-PeCDD	199.81	70.5	25 - 181	31.4265	31.5192	-0.0927	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.81	80.2	26 - 152	34.791	34.88393	-0.0929	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.81	73.4	26 - 123	34.9358	35.02318	-0.0874	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.81	83.0	28 - 136	35.7937	35.88653	-0.0928	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.81	76.3	29 - 147	36.8298	36.91718	-0.0874	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.81	85.6	32 - 141	35.9163	36.00728	-0.0910	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.81	76.9	28 - 130	36.0277	36.12053	-0.0928	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.81	91.0	28 - 143	38.6682	38.7593	-0.0911	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.81	79.0	26 - 138	40.9075	40.99867	-0.0912	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.81	77.5	23 - 140	40.1612	40.25773	-0.0965	N/A	
13C12-OCDD	399.61	79.0	17 - 157	44.8598	44.98705	-0.1273	N/A	
37Cl4-2,3,7,8-TCDD	79.923	80.6	35 - 197	26.3393	26.42402	-0.0847	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	SLD0330-CCV1	Calibration:	GC00015
File ID:	23042412	Analyzed:	04/24/23 23:24

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	88.5	71 - 129	25.6895	25.76487	-0.0754	N/A	
13C12-2,3,7,8-TCDD	100.00	95.3	82 - 118	26.3252	26.40287	-0.0777	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	101	76 - 124	29.8332	29.92235	-0.0892	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	99.1	77 - 123	31.17	31.2611	-0.0911	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	77.9	62 - 138	31.4262	31.5192	-0.0930	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.7	76 - 124	34.7908	34.88393	-0.0931	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	88.8	70 - 130	34.9357	35.02318	-0.0875	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	96.2	73 - 127	35.8047	35.88653	-0.0818	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	89.8	74 - 126	36.8297	36.91718	-0.0875	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	98.5	85 - 115	35.916	36.00728	-0.0913	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	90.4	85 - 115	36.0387	36.12053	-0.0818	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	117	78 - 122	38.668	38.7593	-0.0913	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	98.2	77 - 123	40.9073	40.99867	-0.0914	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	92.2	72 - 128	40.161	40.25773	-0.0967	N/A	
13C12-OCDD	200.00	104	48 - 152	44.8688	44.98705	-0.1183	N/A	
37Cl4-2,3,7,8-TCDD	10.000	81.2	0 - 200	26.3392	26.42402	-0.0848	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-08	Calibration:	GC00015
File ID:	23042414	Analyzed:	04/25/23 01:09

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.45	81.9	24 - 169	25.7037	25.76487	-0.0612	N/A	
13C12-2,3,7,8-TCDD	199.45	88.1	25 - 164	26.3393	26.40287	-0.0636	N/A	
13C12-1,2,3,7,8-PeCDF	199.45	92.1	24 - 185	29.8555	29.92235	-0.0669	N/A	
13C12-2,3,4,7,8-PeCDF	199.45	95.4	21 - 178	31.1923	31.2611	-0.0688	N/A	
13C12-1,2,3,7,8-PeCDD	199.45	75.2	25 - 181	31.4597	31.5192	-0.0595	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.45	83.2	26 - 152	34.8245	34.88393	-0.0594	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.45	73.9	26 - 123	34.9582	35.02318	-0.0650	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.45	78.8	28 - 136	35.8382	35.88653	-0.0483	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.45	73.3	29 - 147	36.8522	36.91718	-0.0650	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.45	84.5	32 - 141	35.9607	36.00728	-0.0466	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.45	78.4	28 - 130	36.0833	36.12053	-0.0372	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.45	88.8	28 - 143	38.6903	38.7593	-0.0690	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.45	80.2	26 - 138	40.9187	40.99867	-0.0800	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.45	76.6	23 - 140	40.172	40.25773	-0.0857	N/A	
13C12-OCDD	398.91	69.1	17 - 157	44.8872	44.98705	-0.0999	N/A	
37Cl4-2,3,7,8-TCDD	79.781	87.7	35 - 197	26.3533	26.42402	-0.0707	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-10	Calibration:	GC00015
File ID:	23042415	Analyzed:	04/25/23 01:58

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.97	81.8	24 - 169	25.6755	25.76487	-0.0894	N/A	
13C12-2,3,7,8-TCDD	199.97	88.9	25 - 164	26.3112	26.40287	-0.0917	N/A	
13C12-1,2,3,7,8-PeCDF	199.97	96.8	24 - 185	29.8333	29.92235	-0.0891	N/A	
13C12-2,3,4,7,8-PeCDF	199.97	96.2	21 - 178	31.1703	31.2611	-0.0908	N/A	
13C12-1,2,3,7,8-PeCDD	199.97	74.9	25 - 181	31.4265	31.5192	-0.0927	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.97	82.4	26 - 152	34.7913	34.88393	-0.0926	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.97	74.8	26 - 123	34.9362	35.02318	-0.0870	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.97	87.0	28 - 136	35.794	35.88653	-0.0925	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.97	86.5	29 - 147	36.8302	36.91718	-0.0870	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.97	90.6	32 - 141	35.9165	36.00728	-0.0908	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.97	79.5	28 - 130	36.028	36.12053	-0.0925	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.97	96.5	28 - 143	38.6685	38.7593	-0.0908	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.97	84.3	26 - 138	40.908	40.99867	-0.0907	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.97	78.1	23 - 140	40.1615	40.25773	-0.0962	N/A	
13C12-OCDD	399.94	78.3	17 - 157	44.8605	44.98705	-0.1266	N/A	
37Cl4-2,3,7,8-TCDD	79.988	81.5	35 - 197	26.3393	26.42402	-0.0847	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-12	Calibration:	GC00015
File ID:	23042416	Analyzed:	04/25/23 02:47

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.05	87.1	24 - 169	25.6753	25.76487	-0.0896	N/A	
13C12-2,3,7,8-TCDD	200.05	95.9	25 - 164	26.3108	26.40287	-0.0921	N/A	
13C12-1,2,3,7,8-PeCDF	200.05	104	24 - 185	29.833	29.92235	-0.0894	N/A	
13C12-2,3,4,7,8-PeCDF	200.05	104	21 - 178	31.17	31.2611	-0.0911	N/A	
13C12-1,2,3,7,8-PeCDD	200.05	78.6	25 - 181	31.4262	31.5192	-0.0930	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.05	90.5	26 - 152	34.7908	34.88393	-0.0931	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.05	82.1	26 - 123	34.9357	35.02318	-0.0875	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.05	89.4	28 - 136	35.8047	35.88653	-0.0818	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.05	90.2	29 - 147	36.8297	36.91718	-0.0875	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.05	96.4	32 - 141	35.9272	36.00728	-0.0801	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.05	85.2	28 - 130	36.0387	36.12053	-0.0818	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.05	104	28 - 143	38.668	38.7593	-0.0913	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.05	90.8	26 - 138	40.9073	40.99867	-0.0914	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.05	83.4	23 - 140	40.1608	40.25773	-0.0969	N/A	
13C12-OCDD	400.10	89.9	17 - 157	44.8688	44.98705	-0.1183	N/A	
37Cl4-2,3,7,8-TCDD	80.020	87.9	35 - 197	26.339	26.42402	-0.0850	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-13	Calibration:	GC00015
File ID:	23042417	Analyzed:	04/25/23 03:36

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.77	106	24 - 169	25.6753	25.76487	-0.0896	N/A	
13C12-2,3,7,8-TCDD	199.77	115	25 - 164	26.311	26.40287	-0.0919	N/A	
13C12-1,2,3,7,8-PeCDF	199.77	120	24 - 185	29.8218	29.92235	-0.1006	N/A	
13C12-2,3,4,7,8-PeCDF	199.77	119	21 - 178	31.17	31.2611	-0.0911	N/A	
13C12-1,2,3,7,8-PeCDD	199.77	96.9	25 - 181	31.415	31.5192	-0.1042	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.77	112	26 - 152	34.7907	34.88393	-0.0932	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.77	104	26 - 123	34.9245	35.02318	-0.0987	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.77	111	28 - 136	35.7933	35.88653	-0.0932	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.77	102	29 - 147	36.8295	36.91718	-0.0877	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.77	122	32 - 141	35.916	36.00728	-0.0913	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.77	105	28 - 130	36.0273	36.12053	-0.0932	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.77	124	28 - 143	38.668	38.7593	-0.0913	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.77	110	26 - 138	40.8962	40.99867	-0.1025	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.77	104	23 - 140	40.1608	40.25773	-0.0969	N/A	
13C12-OCDD	399.55	99.2	17 - 157	44.8597	44.98705	-0.1274	N/A	
37Cl4-2,3,7,8-TCDD	79.910	109	35 - 197	26.325	26.42402	-0.0990	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-14	Calibration:	GC00015
File ID:	23042418	Analyzed:	04/25/23 04:24

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	199.77	95.0	24 - 169	25.6753	25.76487	-0.0896	N/A	
13C12-2,3,7,8-TCDD	199.77	102	25 - 164	26.311	26.40287	-0.0919	N/A	
13C12-1,2,3,7,8-PeCDF	199.77	113	24 - 185	29.8332	29.92235	-0.0892	N/A	
13C12-2,3,4,7,8-PeCDF	199.77	112	21 - 178	31.1702	31.2611	-0.0909	N/A	
13C12-1,2,3,7,8-PeCDD	199.77	85.3	25 - 181	31.4265	31.5192	-0.0927	N/A	
13C12-1,2,3,4,7,8-HxCDF	199.77	97.1	26 - 152	34.7912	34.88393	-0.0927	N/A	
13C12-1,2,3,6,7,8-HxCDF	199.77	86.8	26 - 123	34.936	35.02318	-0.0872	N/A	
13C12-2,3,4,6,7,8-HxCDF	199.77	97.4	28 - 136	35.805	35.88653	-0.0815	N/A	
13C12-1,2,3,7,8,9-HxCDF	199.77	92.4	29 - 147	36.8302	36.91718	-0.0870	N/A	
13C12-1,2,3,4,7,8-HxCDD	199.77	101	32 - 141	35.9277	36.00728	-0.0796	N/A	
13C12-1,2,3,6,7,8-HxCDD	199.77	90.2	28 - 130	36.039	36.12053	-0.0815	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	199.77	107	28 - 143	38.6685	38.7593	-0.0908	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	199.77	92.5	26 - 138	40.9078	40.99867	-0.0909	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	199.77	88.6	23 - 140	40.1613	40.25773	-0.0964	N/A	
13C12-OCDD	399.55	86.5	17 - 157	44.8602	44.98705	-0.1269	N/A	
37Cl4-2,3,7,8-TCDD	79.910	91.8	35 - 197	26.3392	26.42402	-0.0848	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	23C0619-15	Calibration:	GC00015
File ID:	23042419	Analyzed:	04/25/23 05:14

Surrogate Compound	Spike Level ng/kg dry	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.04	83.4	24 - 169	25.6753	25.76487	-0.0896	N/A	
13C12-2,3,7,8-TCDD	200.04	91.2	25 - 164	26.311	26.40287	-0.0919	N/A	
13C12-1,2,3,7,8-PeCDF	200.04	98.5	24 - 185	29.833	29.92235	-0.0894	N/A	
13C12-2,3,4,7,8-PeCDF	200.04	97.1	21 - 178	31.1698	31.2611	-0.0913	N/A	
13C12-1,2,3,7,8-PeCDD	200.04	77.4	25 - 181	31.4262	31.5192	-0.0930	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.04	90.3	26 - 152	34.7908	34.88393	-0.0931	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.04	81.0	26 - 123	34.9357	35.02318	-0.0875	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.04	89.9	28 - 136	35.8045	35.88653	-0.0820	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.04	93.8	29 - 147	36.8297	36.91718	-0.0875	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.04	95.6	32 - 141	35.9272	36.00728	-0.0801	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.04	84.1	28 - 130	36.0385	36.12053	-0.0820	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.04	99.7	28 - 143	38.6678	38.7593	-0.0915	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.04	91.9	26 - 138	40.9072	40.99867	-0.0915	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.04	83.0	23 - 140	40.1607	40.25773	-0.0970	N/A	
13C12-OCDD	400.08	83.1	17 - 157	44.8593	44.98705	-0.1278	N/A	
37Cl4-2,3,7,8-TCDD	80.017	83.4	35 - 197	26.3392	26.42402	-0.0848	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	SLD0330-CCV2	Calibration:	GC00015
File ID:	23042421	Analyzed:	04/25/23 06:52

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	88.1	71 - 129	25.6752	25.76487	-0.0897	N/A	
13C12-2,3,7,8-TCDD	100.00	98.9	82 - 118	26.3108	26.40287	-0.0921	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	103	76 - 124	29.8218	29.92235	-0.1006	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	108	77 - 123	31.17	31.2611	-0.0911	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	86.8	62 - 138	31.415	31.5192	-0.1042	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	92.3	76 - 124	34.7908	34.88393	-0.0931	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	83.8	70 - 130	34.9245	35.02318	-0.0987	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	94.3	73 - 127	35.7933	35.88653	-0.0932	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	91.8	74 - 126	36.8295	36.91718	-0.0877	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	97.3	85 - 115	35.9158	36.00728	-0.0915	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	87.9	85 - 115	36.0273	36.12053	-0.0932	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	111	78 - 122	38.6678	38.7593	-0.0915	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	98.9	77 - 123	40.9073	40.99867	-0.0914	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	94.8	72 - 128	40.1607	40.25773	-0.0970	N/A	
13C12-OCDD	200.00	101	48 - 152	44.8597	44.98705	-0.1274	N/A	
37Cl4-2,3,7,8-TCDD	10.000	82.9	0 - 200	26.3392	26.42402	-0.0848	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0330	Instrument:	AUTOSPEC01
Sample ID:	SLD0330-CCV3	Calibration:	GC00015
File ID:	23042432	Analyzed:	04/25/23 15:57

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	89.8	71 - 129	25.6893	25.76487	-0.0756	N/A	
13C12-2,3,7,8-TCDD	100.00	100	82 - 118	26.325	26.40287	-0.0779	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	110	76 - 124	29.8442	29.92235	-0.0782	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	115	77 - 123	31.1812	31.2611	-0.0799	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	80.2	62 - 138	31.4263	31.5192	-0.0929	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	95.5	76 - 124	34.802	34.88393	-0.0819	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	83.0	70 - 130	34.9468	35.02318	-0.0764	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	95.6	73 - 127	35.8047	35.88653	-0.0818	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	95.4	74 - 126	36.8407	36.91718	-0.0765	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	93.0	85 - 115	35.9272	36.00728	-0.0801	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	81.4	85 - 115	36.0385	36.12053	-0.0820	N/A	*
13C12-1,2,3,4,6,7,8-HpCDF	100.00	120	78 - 122	38.6792	38.7593	-0.0801	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	111	77 - 123	40.9185	40.99867	-0.0802	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	101	72 - 128	40.172	40.25773	-0.0857	N/A	
13C12-OCDD	200.00	107	48 - 152	44.8778	44.98705	-0.1093	N/A	
37Cl4-2,3,7,8-TCDD	10.000	87.3	0 - 200	26.3392	26.42402	-0.0848	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0342	Instrument:	AUTOSPEC01
Sample ID:	SLD0342-ICV1	Calibration:	GC00015
File ID:	23041932A	Analyzed:	04/20/23 16:35

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	101	71 - 129	25.732	25.76487	-0.0329	N/A	
13C12-2,3,7,8-TCDD	100.00	103	82 - 118	26.3818	26.40287	-0.0211	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	121	76 - 124	29.8892	29.92235	-0.0332	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	126	77 - 130	31.2262	31.2611	-0.0349	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	115	62 - 138	31.4823	31.5192	-0.0369	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	90.0	76 - 124	34.8472	34.88393	-0.0367	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	88.8	70 - 130	34.992	35.02318	-0.0312	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	89.5	73 - 127	35.8498	35.88653	-0.0367	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	89.1	74 - 126	36.886	36.91718	-0.0312	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	93.6	85 - 115	35.9723	36.00728	-0.0350	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	102	85 - 115	36.0948	36.12053	-0.0257	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	93.9	78 - 122	38.7243	38.7593	-0.0350	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	84.1	77 - 123	40.9637	40.99867	-0.0350	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	67.5	72 - 128	40.2172	40.25773	-0.0405	N/A	*
13C12-OCDD	200.00	92.8	48 - 152	44.9428	44.98705	-0.0443	N/A	
37Cl4-2,3,7,8-TCDD	10.000	87.4	0 - 200	26.396	26.42402	-0.0280	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0342	Instrument:	AUTOSPEC01
Sample ID:	BLD0089-BLK2	Calibration:	GC00015
File ID:	23041934A	Analyzed:	04/20/23 18:18

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	85.6	24 - 169	25.7318	25.76487	-0.0331	N/A	
13C12-2,3,7,8-TCDD	200.00	89.4	25 - 164	26.3675	26.40287	-0.0354	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	116	24 - 185	29.889	29.92235	-0.0334	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	118	21 - 178	31.2258	31.2611	-0.0353	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	104	25 - 181	31.4822	31.5192	-0.0370	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	102	26 - 152	34.8468	34.88393	-0.0371	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	104	26 - 123	34.9805	35.02318	-0.0427	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	112	28 - 136	35.8495	35.88653	-0.0370	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	89.2	29 - 147	36.8745	36.91718	-0.0427	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	117	32 - 141	35.9722	36.00728	-0.0351	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	118	28 - 130	36.0835	36.12053	-0.0370	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	109	28 - 143	38.724	38.7593	-0.0353	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	100	26 - 138	40.9523	40.99867	-0.0464	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	79.7	23 - 140	40.217	40.25773	-0.0407	N/A	
13C12-OCDD	400.00	96.8	17 - 157	44.9337	44.98705	-0.0534	N/A	
37Cl4-2,3,7,8-TCDD	80.000	82.5	35 - 197	26.3958	26.42402	-0.0282	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0342	Instrument:	AUTOSPEC01
Sample ID:	BLD0089-BS2	Calibration:	GC00015
File ID:	23041935A	Analyzed:	04/20/23 19:07

Surrogate Compound	Spike Level ng/kg wet	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	200.00	91.9	24 - 169	25.7318	25.76487	-0.0331	N/A	
13C12-2,3,7,8-TCDD	200.00	89.8	25 - 164	26.3673	26.40287	-0.0356	N/A	
13C12-1,2,3,7,8-PeCDF	200.00	98.8	24 - 185	29.8888	29.92235	-0.0336	N/A	
13C12-2,3,4,7,8-PeCDF	200.00	104	21 - 178	31.2258	31.2611	-0.0353	N/A	
13C12-1,2,3,7,8-PeCDD	200.00	91.4	25 - 181	31.4822	31.5192	-0.0370	N/A	
13C12-1,2,3,4,7,8-HxCDF	200.00	77.1	26 - 152	34.8468	34.88393	-0.0371	N/A	
13C12-1,2,3,6,7,8-HxCDF	200.00	75.0	26 - 123	34.9805	35.02318	-0.0427	N/A	
13C12-2,3,4,6,7,8-HxCDF	200.00	86.3	28 - 136	35.8495	35.88653	-0.0370	N/A	
13C12-1,2,3,7,8,9-HxCDF	200.00	87.6	29 - 147	36.8745	36.91718	-0.0427	N/A	
13C12-1,2,3,4,7,8-HxCDD	200.00	95.0	32 - 141	35.972	36.00728	-0.0353	N/A	
13C12-1,2,3,6,7,8-HxCDD	200.00	95.1	28 - 130	36.0835	36.12053	-0.0370	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	200.00	112	28 - 143	38.7242	38.7593	-0.0351	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	200.00	106	26 - 138	40.9635	40.99867	-0.0352	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	200.00	85.8	23 - 140	40.217	40.25773	-0.0407	N/A	
13C12-OCDD	400.00	92.9	17 - 157	44.9337	44.98705	-0.0534	N/A	
37Cl4-2,3,7,8-TCDD	80.000	85.0	35 - 197	26.3957	26.42402	-0.0283	N/A	

* Values outside of QC limits

SURROGATE RECOVERY AND RT SUMMARY

EPA 1613B

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Sequence:	SLD0342	Instrument:	AUTOSPEC01
Sample ID:	SLD0342-CCV1	Calibration:	GC00015
File ID:	23041940A	Analyzed:	04/20/23 23:12

Surrogate Compound	Spike Level ng/mL	% Recovery	Recovery Limits	RT	Calibration Mean RT	RT Diff	RT Diff Limit	Q
13C12-2,3,7,8-TCDF	100.00	102	71 - 129	25.7178	25.76487	-0.0471	N/A	
13C12-2,3,7,8-TCDD	100.00	100	82 - 118	26.3677	26.40287	-0.0352	N/A	
13C12-1,2,3,7,8-PeCDF	100.00	120	76 - 124	29.8778	29.92235	-0.0446	N/A	
13C12-2,3,4,7,8-PeCDF	100.00	128	77 - 130	31.2147	31.2611	-0.0464	N/A	
13C12-1,2,3,7,8-PeCDD	100.00	113	62 - 138	31.471	31.5192	-0.0482	N/A	
13C12-1,2,3,4,7,8-HxCDF	100.00	101	76 - 124	34.8357	34.88393	-0.0482	N/A	
13C12-1,2,3,6,7,8-HxCDF	100.00	89.0	70 - 130	34.9805	35.02318	-0.0427	N/A	
13C12-2,3,4,6,7,8-HxCDF	100.00	88.8	73 - 127	35.8383	35.88653	-0.0482	N/A	
13C12-1,2,3,7,8,9-HxCDF	100.00	90.0	74 - 126	36.8743	36.91718	-0.0429	N/A	
13C12-1,2,3,4,7,8-HxCDD	100.00	97.4	85 - 115	35.9608	36.00728	-0.0465	N/A	
13C12-1,2,3,6,7,8-HxCDD	100.00	87.0	85 - 115	36.0722	36.12053	-0.0483	N/A	
13C12-1,2,3,4,6,7,8-HpCDF	100.00	119	78 - 122	38.7125	38.7593	-0.0468	N/A	
13C12-1,2,3,4,7,8,9-HpCDF	100.00	124	77 - 129	40.952	40.99867	-0.0467	N/A	
13C12-1,2,3,4,6,7,8-HpCDD	100.00	99.8	72 - 128	40.2055	40.25773	-0.0522	N/A	
13C12-OCDD	200.00	117	48 - 152	44.9147	44.98705	-0.0724	N/A	
37Cl4-2,3,7,8-TCDD	10.000	90.8	0 - 200	26.3817	26.42402	-0.0423	N/A	

* Values outside of QC limits

HOLDING TIME SUMMARY

Analysis: EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor

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
SED-08C:0-1 23C0619-03	03/22/23 08:07	03/24/23 16:25	04/06/23 13:16	15	365	04/24/23 20:08	18	365	
SED-09C:0-1 23C0619-05	03/22/23 08:33	03/24/23 16:25	04/06/23 13:16	15	365	04/24/23 20:57	18	365	
SED-09C:1-3 23C0619-06	03/22/23 08:33	03/24/23 16:25	04/06/23 13:16	15	365	04/24/23 21:46	18	365	
SED-12C:0-1 23C0619-07	03/22/23 09:25	03/24/23 16:25	04/06/23 13:16	15	365	04/24/23 22:35	18	365	
SED-26C:0-1 23C0619-08	03/22/23 10:38	03/24/23 16:25	04/06/23 13:16	15	365	04/25/23 01:09	18	365	
SED-25C:0-1 23C0619-10	03/22/23 11:19	03/24/23 16:25	04/06/23 13:16	15	365	04/25/23 01:58	19	365	
SED-10C:0-1 23C0619-12	03/23/23 08:17	03/24/23 16:25	04/06/23 13:16	14	365	04/25/23 02:47	19	365	
SED-10C:1-3 23C0619-13	03/23/23 08:17	03/24/23 16:25	04/06/23 13:16	14	365	04/25/23 03:36	19	365	
SED-11C:0-1 23C0619-14	03/23/23 08:42	03/24/23 16:25	04/06/23 13:16	14	365	04/25/23 04:24	19	365	
SED-11C:1-3 23C0619-15	03/23/23 08:42	03/24/23 16:25	04/06/23 13:16	14	365	04/25/23 05:14	19	365	

* Indicates hold time exceedance.

METHOD DETECTION AND REPORTING LIMITS

EPA 1613B

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor
Matrix: Solid
Instrument: AUTOSPEC01

Analyte	MDL	RL	Units
2,3,7,8-TCDF	0.058	1.00	ng/kg
2,3,7,8-TCDD	0.150	1.00	ng/kg
1,2,3,7,8-PeCDF	0.240	1.00	ng/kg
2,3,4,7,8-PeCDF	0.220	1.00	ng/kg
1,2,3,7,8-PeCDD	0.170	1.00	ng/kg
1,2,3,4,7,8-HxCDF	0.280	1.00	ng/kg
1,2,3,6,7,8-HxCDF	0.200	1.00	ng/kg
2,3,4,6,7,8-HxCDF	0.170	1.00	ng/kg
1,2,3,7,8,9-HxCDF	0.190	1.00	ng/kg
1,2,3,4,7,8-HxCDD	0.170	1.00	ng/kg
1,2,3,6,7,8-HxCDD	0.180	1.00	ng/kg
1,2,3,7,8,9-HxCDD	0.220	1.00	ng/kg
1,2,3,4,6,7,8-HpCDF	0.210	1.00	ng/kg
1,2,3,4,7,8,9-HpCDF	0.240	1.00	ng/kg
1,2,3,4,6,7,8-HpCDD	0.560	2.50	ng/kg
OCDF	1.10	2.50	ng/kg
OCDD	4.60	10.0	ng/kg
Total TCDF		1.00	ng/kg
Total TCDD		1.00	ng/kg
Total PeCDF		1.00	ng/kg
Total PeCDD		1.00	ng/kg
Total HxCDF		1.00	ng/kg
Total HxCDD		1.00	ng/kg
Total HpCDF		1.00	ng/kg
Total HpCDD		1.00	ng/kg

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT0918
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/24/2018
LAST TESTED: (mm/dd/yyyy)	10/29/2018
EXPIRY DATE: (mm/dd/yyyy)	10/29/2025
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native and $^{13}C_{12}$-labelled chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

CS3WT was designed and prepared to be used as a HRMS calibration standard according to U.S. EPA Method 1613B.

It is to be used for calibration verification in place of EPA-1613CS3 (Lot: 13CS30918). It also contains the PCDD and PCDF window defining congeners for a DB-5 (or equivalent) capillary column as well as the TCDD isomers required to test and confirm the resolution of 2,3,7,8-TCDD.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS10918
EPA-1613CS2	13CS20918
EPA-1613CS3	13CS30918
EPA-1613CS4	13CS40918
EPA-1613CS5	13CS50918
EPA-1613CSL	13CSL0918
EPA-1613CS0.5	13CS0.50918

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.
- Only the 2,3,7,8-substituted PCDDs and PCDFs should be used for quantitation. The other congeners (window defining and 2378-TCDD resolution testing) should be considered semi-quantitative (within ±20% of their design value). Impurities have been identified where possible.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Components and Concentrations (ng/ml, in nonane/4.5% toluene)**

QUANTITATIVE ANALYTES (ng/ml, ±5%)	
Native PCDDs & PCDFs:	
2,3,7,8-TCDD	10
2,3,7,8-TCDF	10
1,2,3,7,8-PeCDD	50
1,2,3,7,8-PeCDF	50
2,3,4,7,8-PeCDF	50
1,2,3,4,7,8-HxCDD	50
1,2,3,6,7,8-HxCDD	50
1,2,3,7,8,9-HxCDD	50
1,2,3,4,7,8-HxCDF	50
1,2,3,6,7,8-HxCDF	50
1,2,3,7,8,9-HxCDF	50
2,3,4,6,7,8-HxCDF	50
1,2,3,4,6,7,8-HpCDD *(WD)*	50
1,2,3,4,6,7,8-HpCDF *(WD)*	50
1,2,3,4,7,8,9-HpCDF *(WD)*	50
OCDD	100
OCDF	100
Labelled PCDDs & PCDFs:	
$^{13}C_{12}$-2,3,7,8-TCDD	100
$^{13}C_{12}$-2,3,7,8-TCDF	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100
$^{13}C_{12}$-OCDD	200
Cleanup Standard:	
$^{37}Cl_4$-2,3,7,8-TCDD	10
Internal Standards:	
$^{13}C_{12}$-1,2,3,4-TCDD	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100

SEMI-QUANTITATIVE ANALYTES (ng/ml, ±20%)	
Window Definers:*	
1,3,6,8-TCDD	10
1,2,8,9-TCDD	10
1,3,6,8-TCDF	10
1,2,8,9-TCDF	10
1,2,4,6,8/1,2,4,7,9-PeCDD	50
1,2,3,8,9-PeCDD	50
1,3,4,6,8-PeCDF	50
1,2,3,8,9-PeCDF	50
1,2,4,6,7,9-HxCDD	50
1,2,3,4,6,8-HxCDF	50
1,2,3,4,6,7,9-HpCDD	50
2378-TCDD Resolution Testing Isomers:	
1,2,3,4-TCDD	5
1,2,3,7/1,2,3,8-TCDD	5
1,2,3,9-TCDD	10

** 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD. Use 1,2,3,4,6,7,9-HpCDD to set window.*

** 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF. Use 1,2,3,4,6,7,8-HpCDF to set window.*

WD – Window Definer

Certified By: _____ **Date:** 10/30/2018
(mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

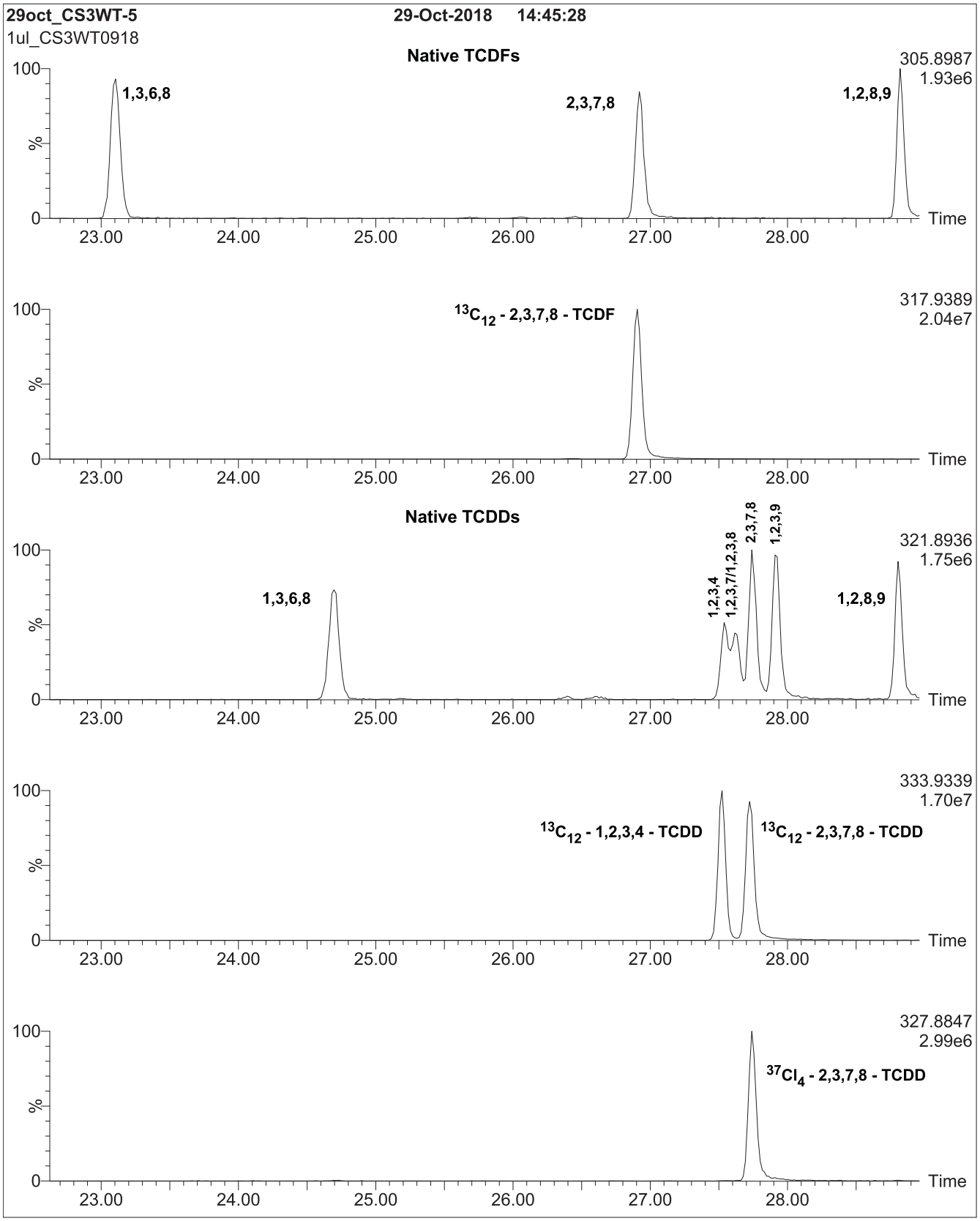


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

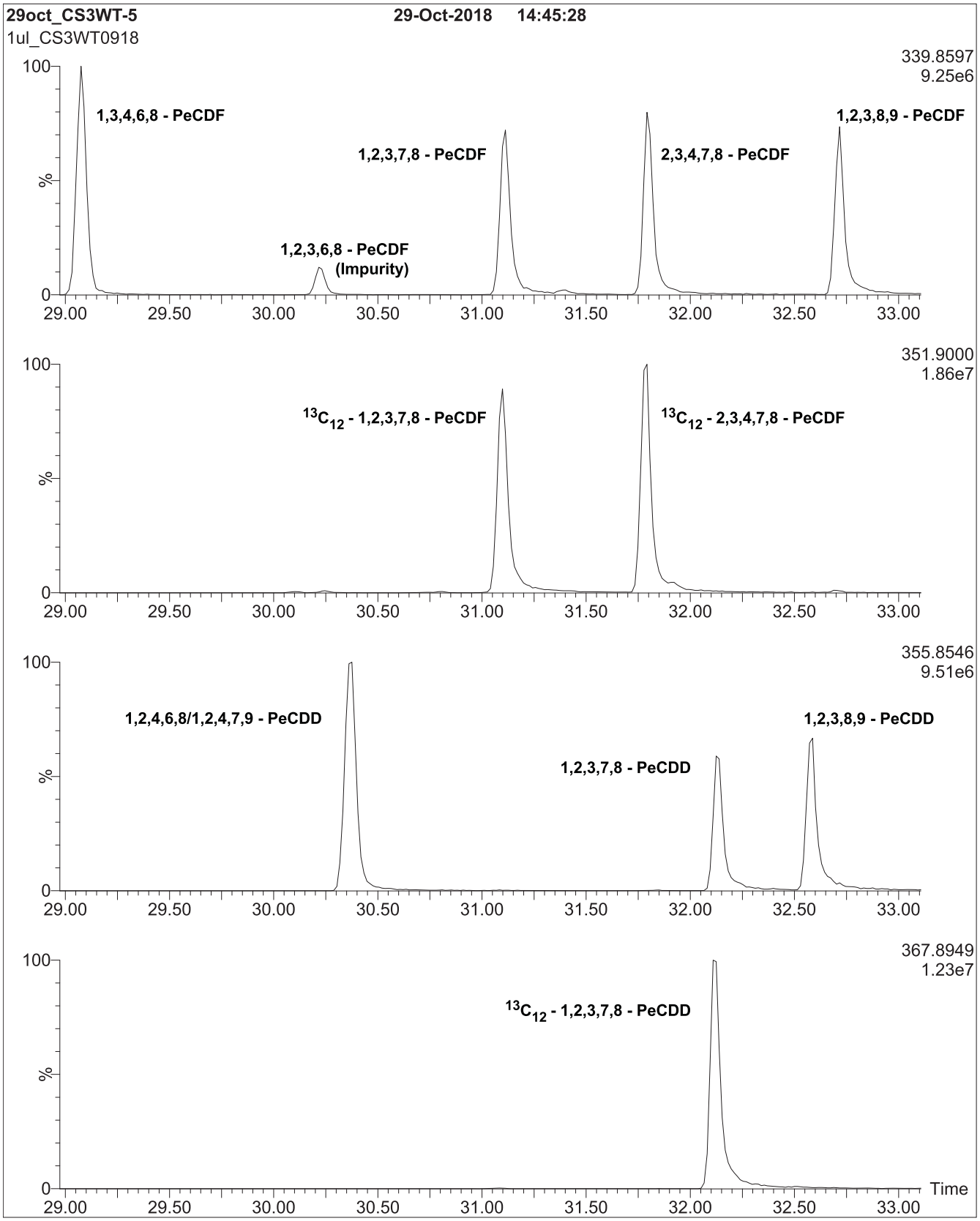


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

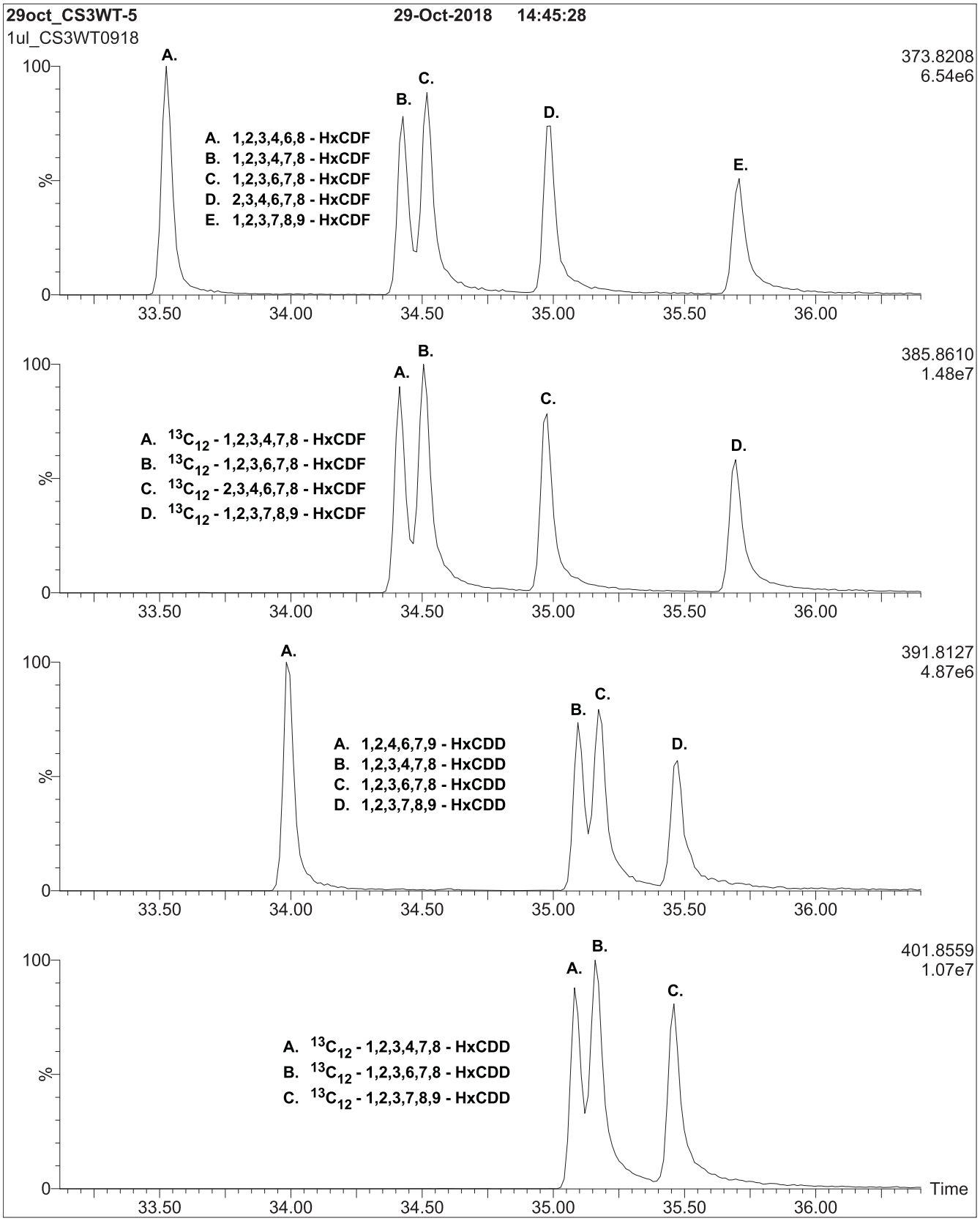


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

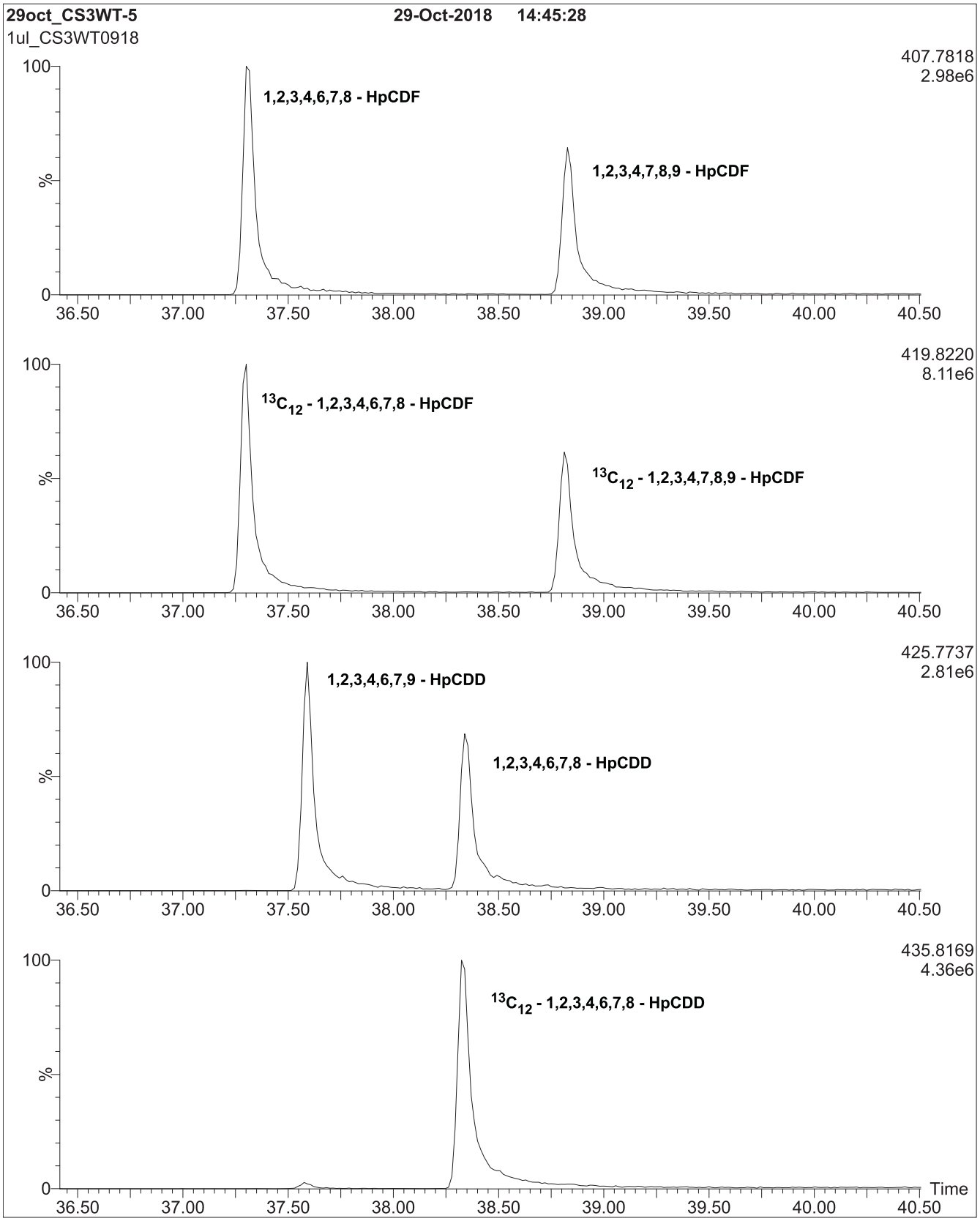
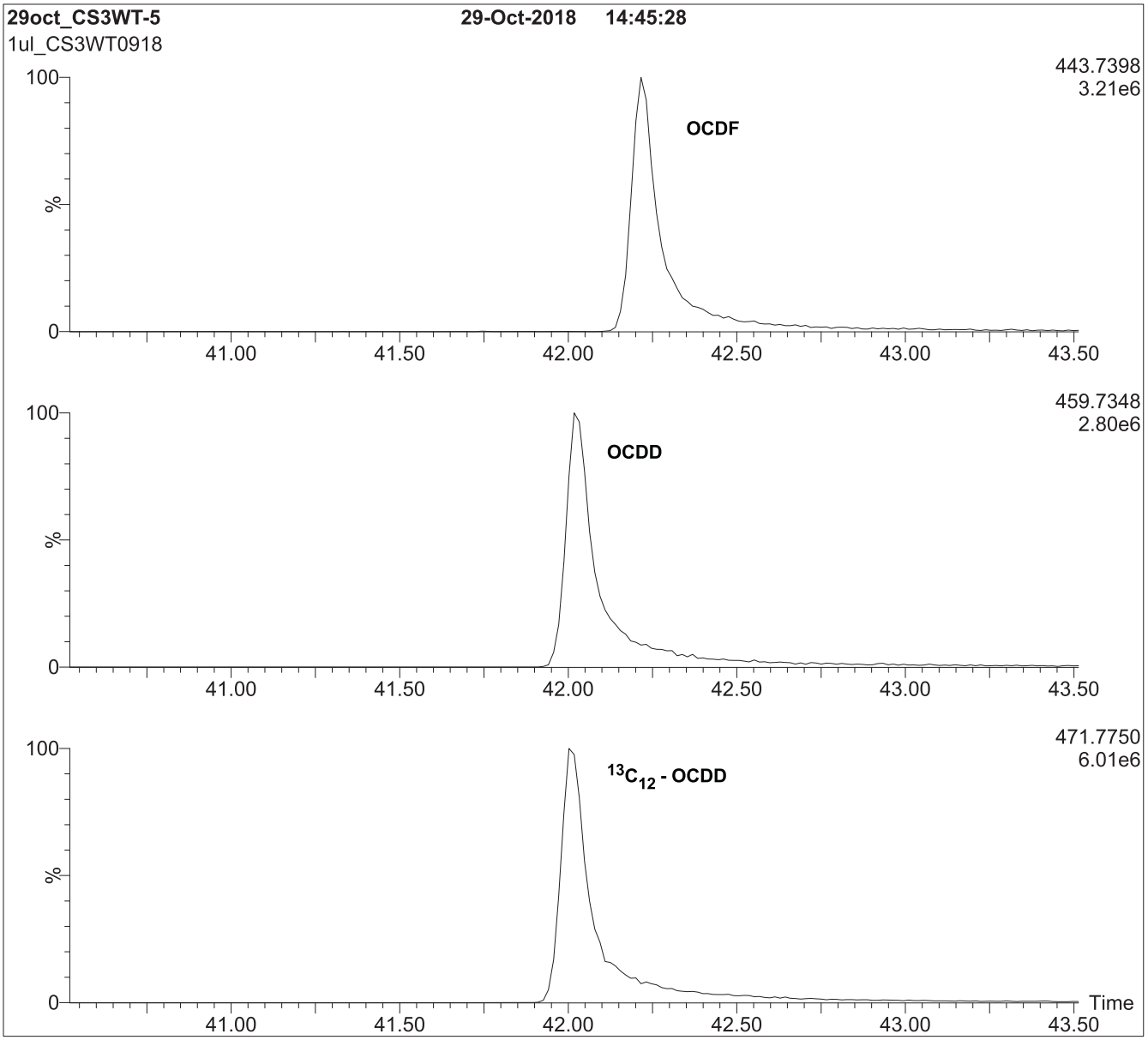


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow:	Constant at 1 ml/min	Oven:	150 °C (1 min)
Injector:	280 °C (Splitless Injection)		12 °C/min to 200 °C
Ionization:	EI+		3 °C/min to 235 °C
Detector:	280 °C		235 °C (8 min)
	SIR at 10,000 mass resolving power		8 °C/min to 310 °C
			310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005456
1613 CS1 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $\boldsymbol{u_c(y)}$, of a value $\boldsymbol{y}$ and the uncertainty of the independent parameters $\boldsymbol{x_1}$, $\boldsymbol{x_2}$,...$\boldsymbol{x_n}$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)
B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

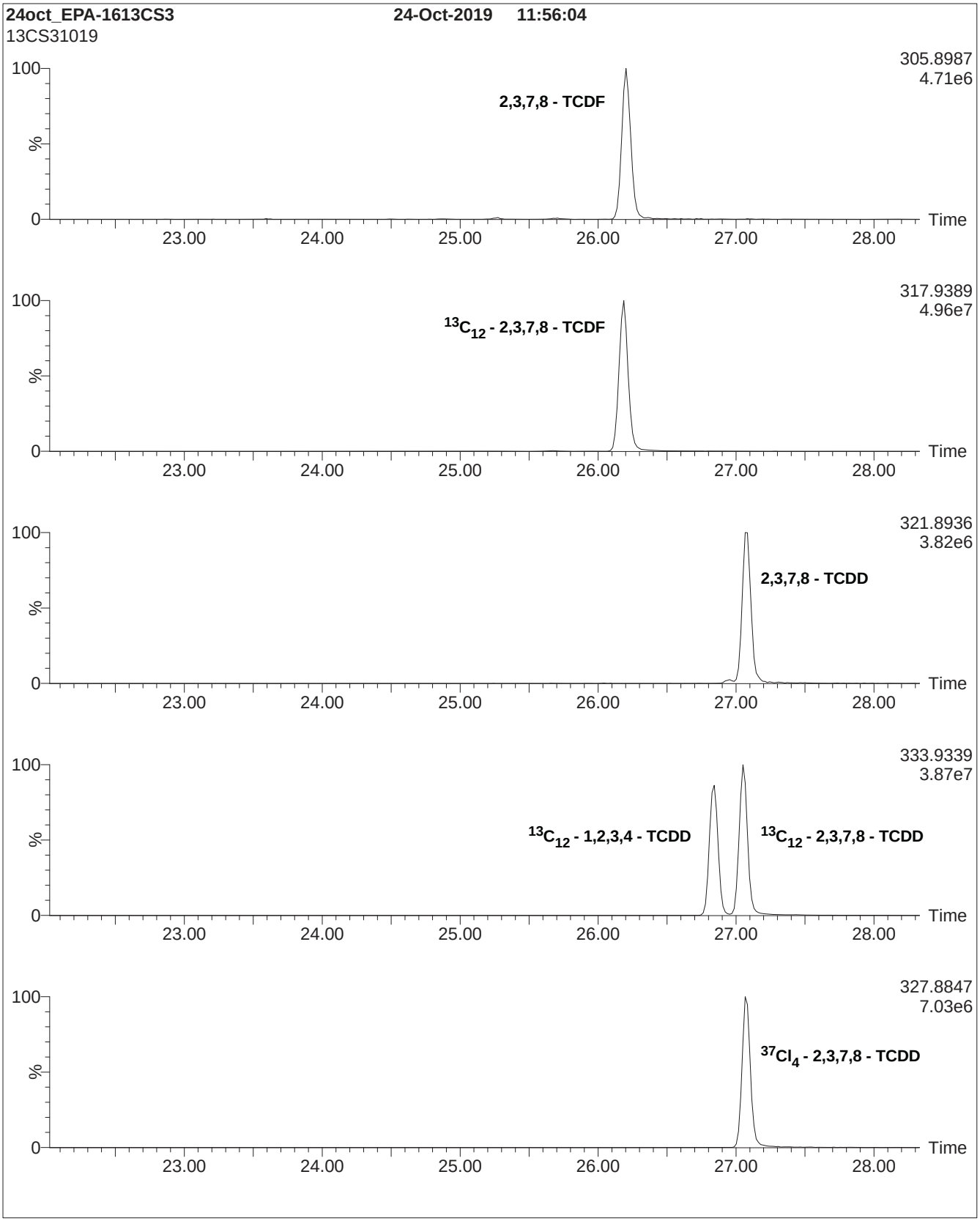


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

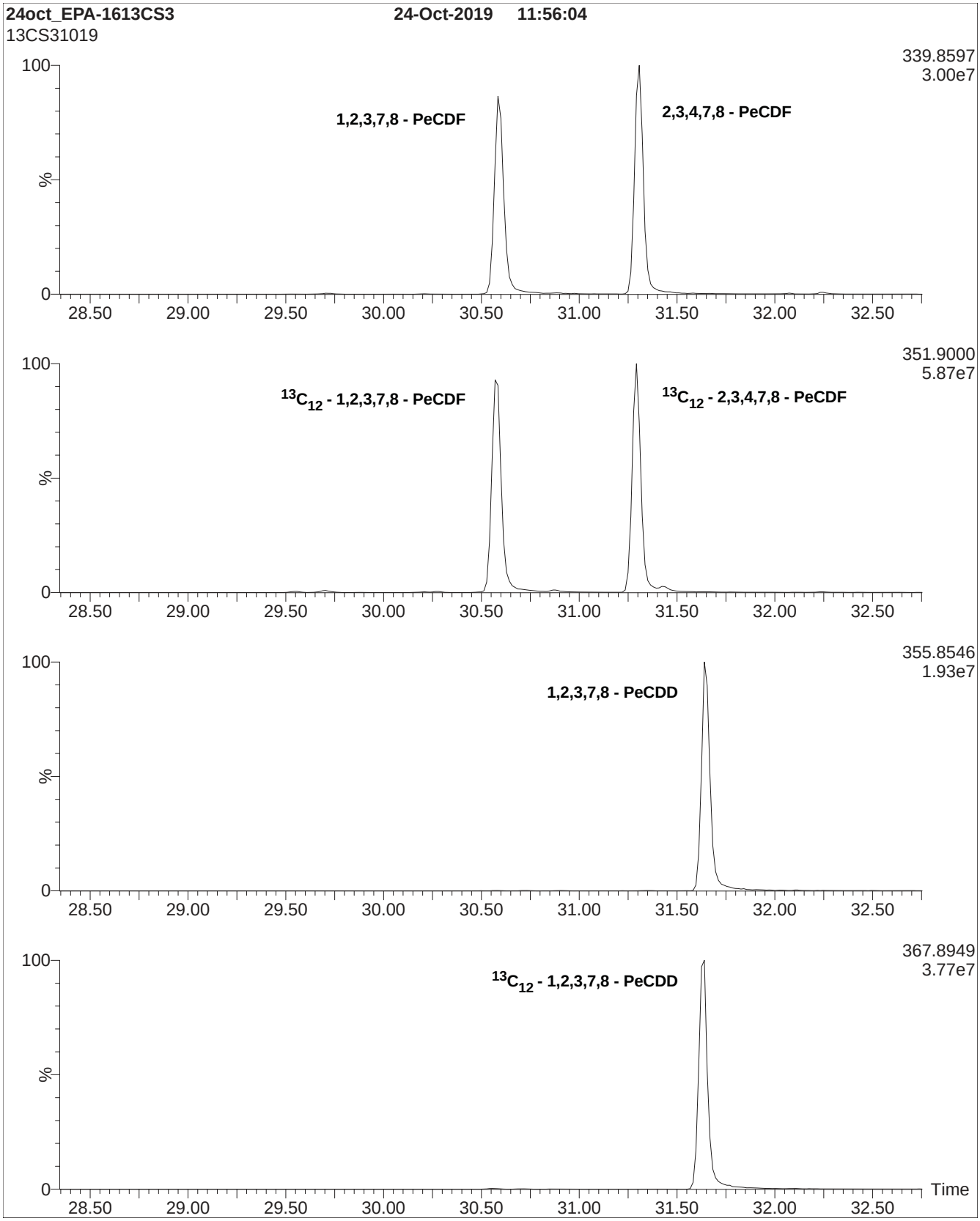


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

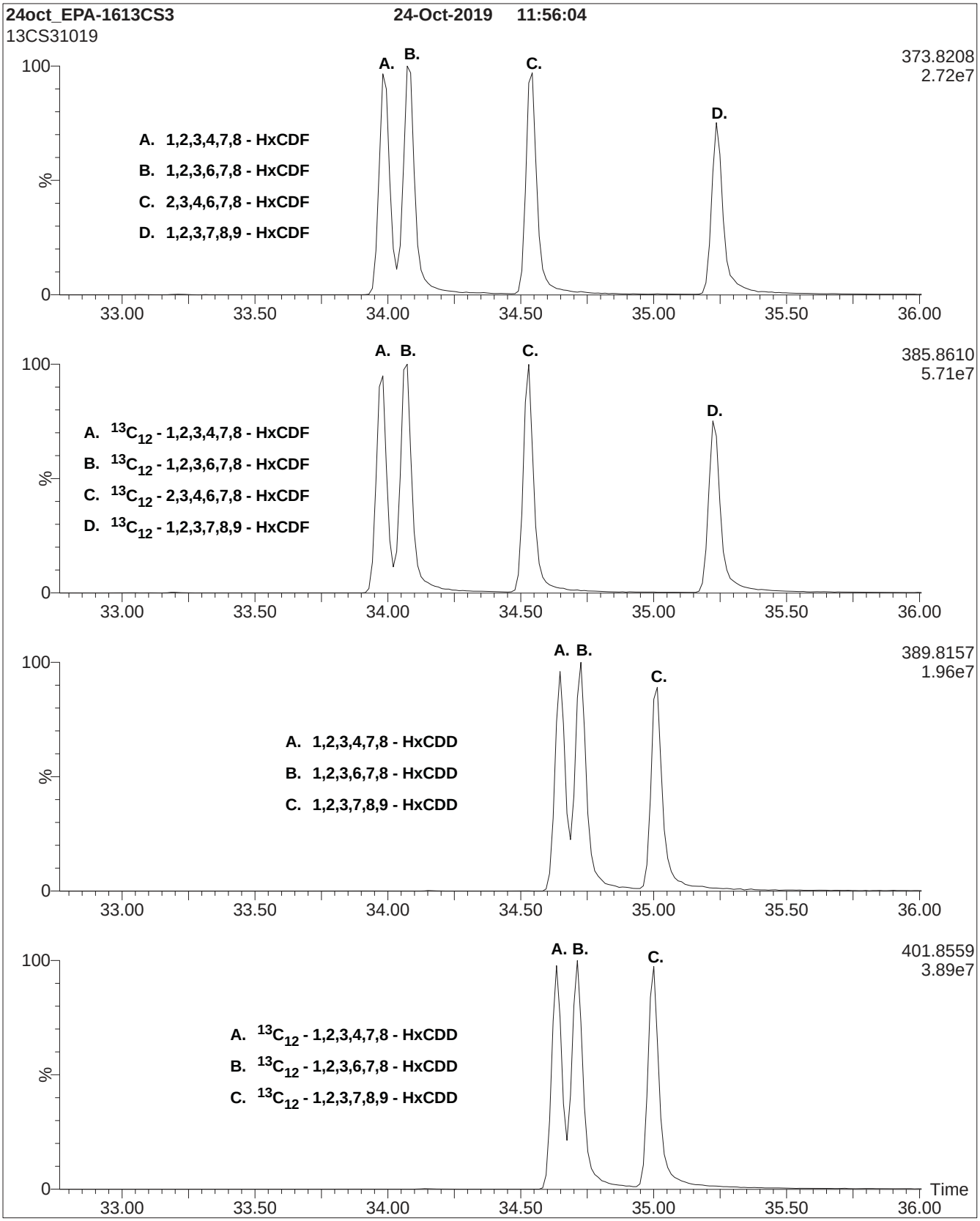


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

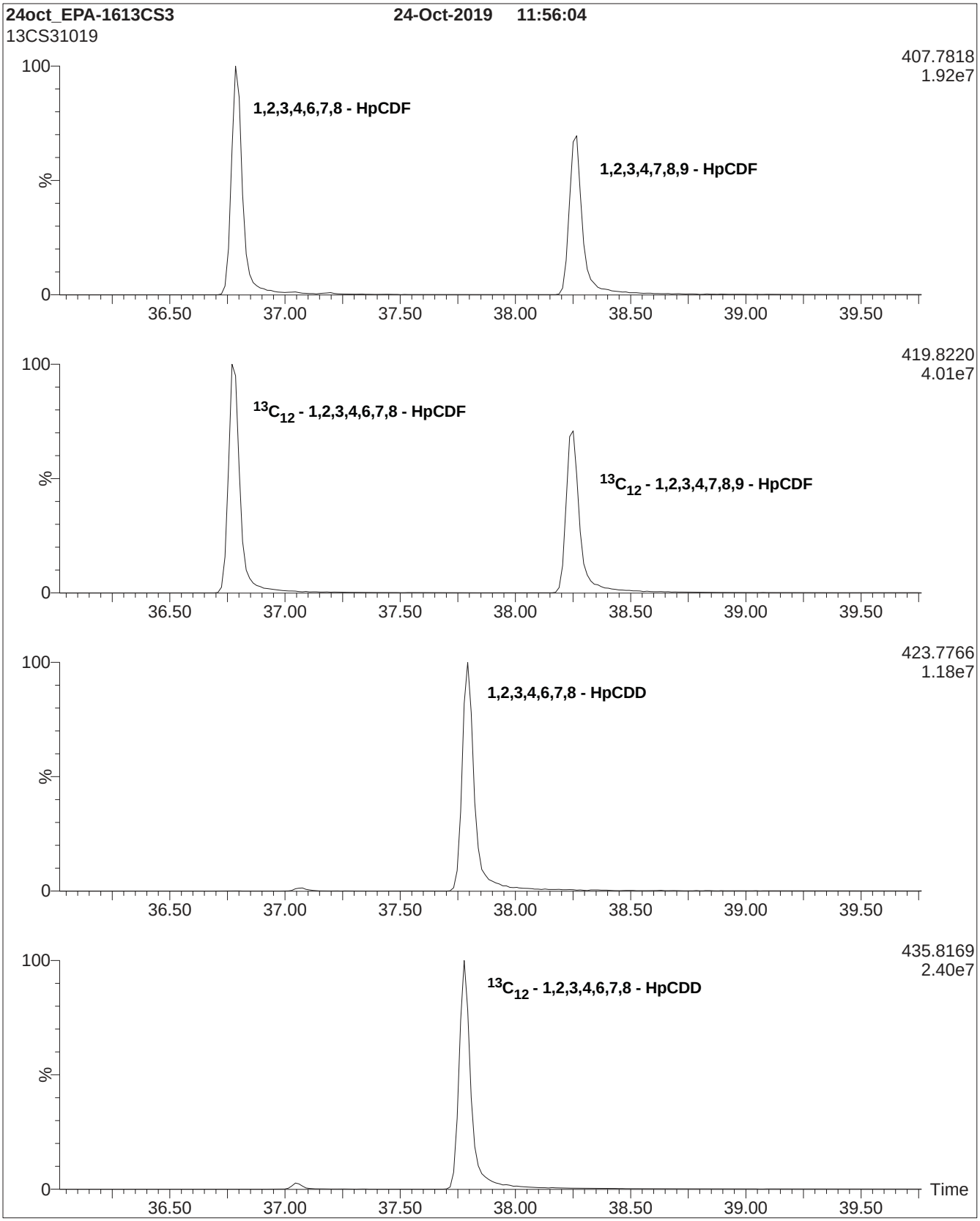
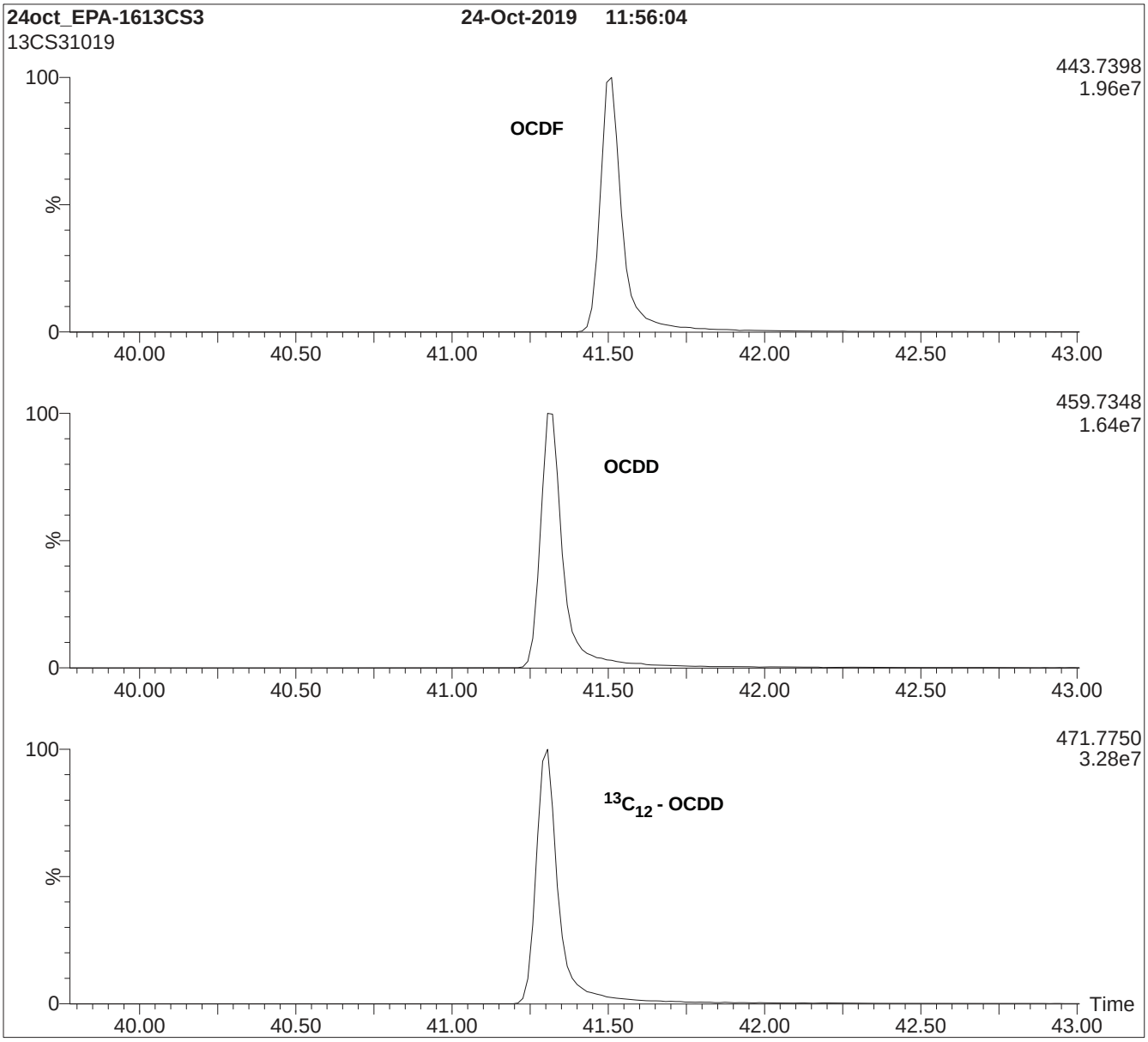


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005457
1613 CS2 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $\boldsymbol{u_c(y)}$, of a value $\boldsymbol{y}$ and the uncertainty of the independent parameters $\boldsymbol{x_1}$, $\boldsymbol{x_2}$,...$\boldsymbol{x_n}$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By: _____ **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

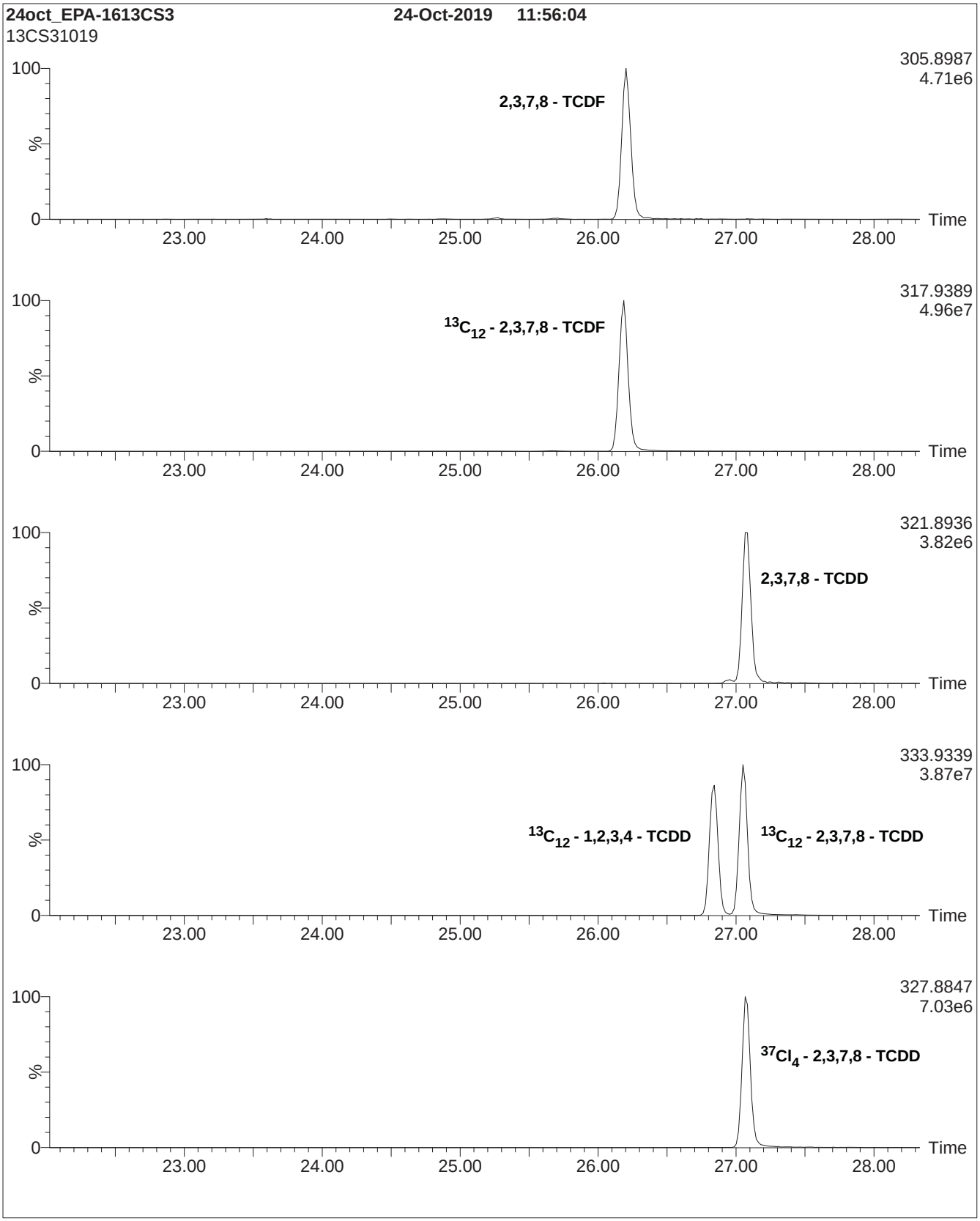


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

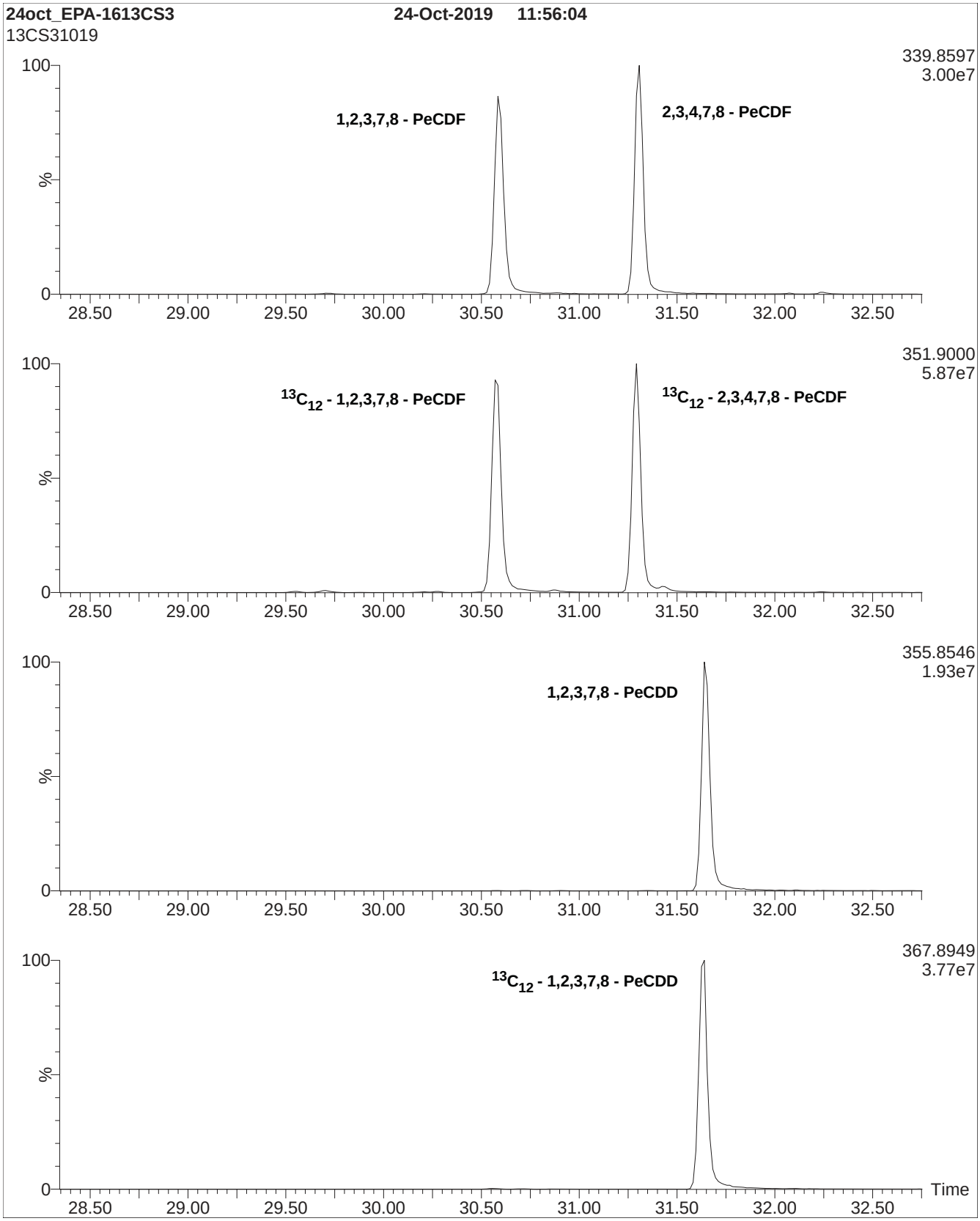


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

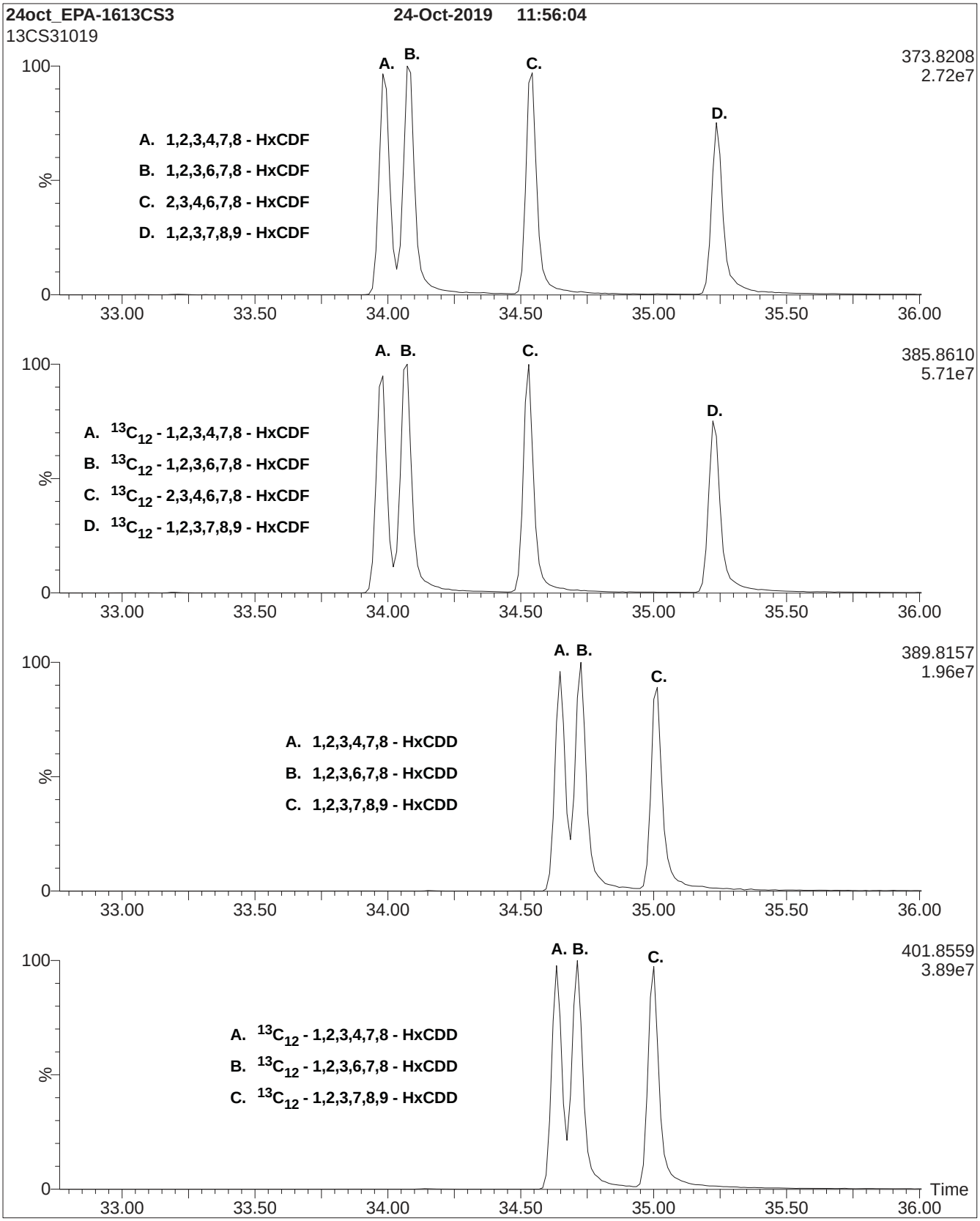


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

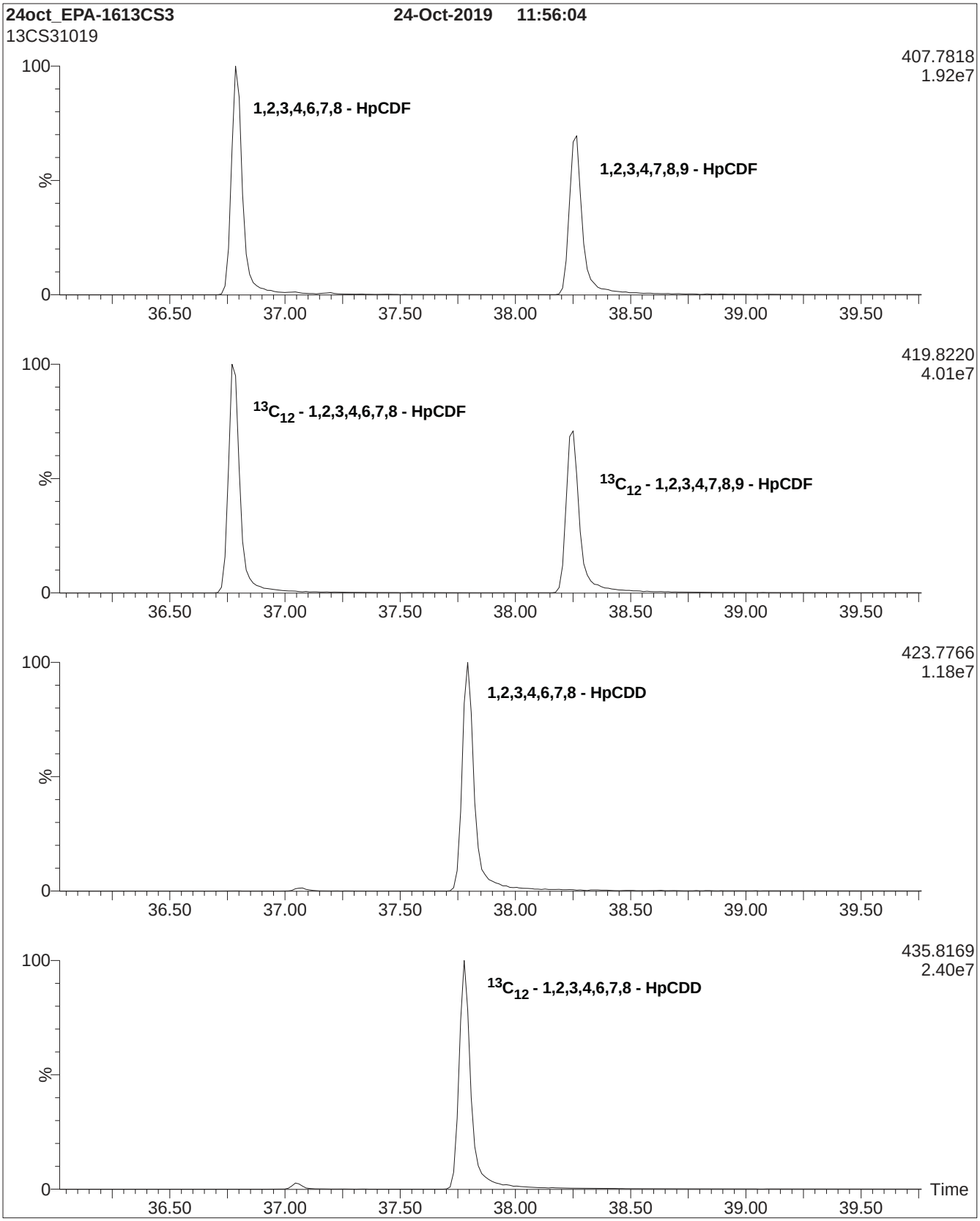
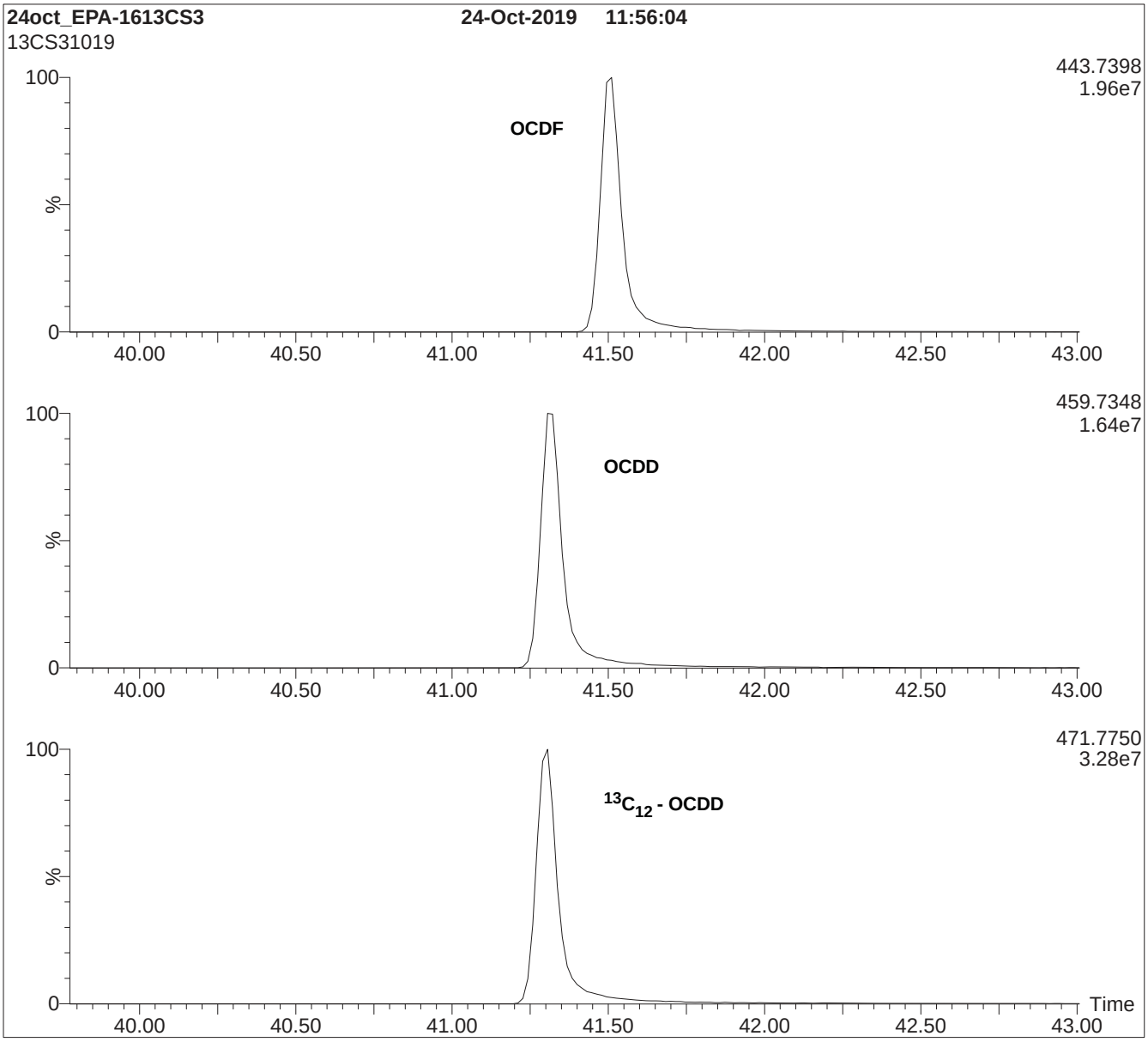


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005458
1613 CS4 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $\boldsymbol{u_c(y)}$, of a value $\boldsymbol{y}$ and the uncertainty of the independent parameters $\boldsymbol{x_1}$, $\boldsymbol{x_2}$,...$\boldsymbol{x_n}$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By:  **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

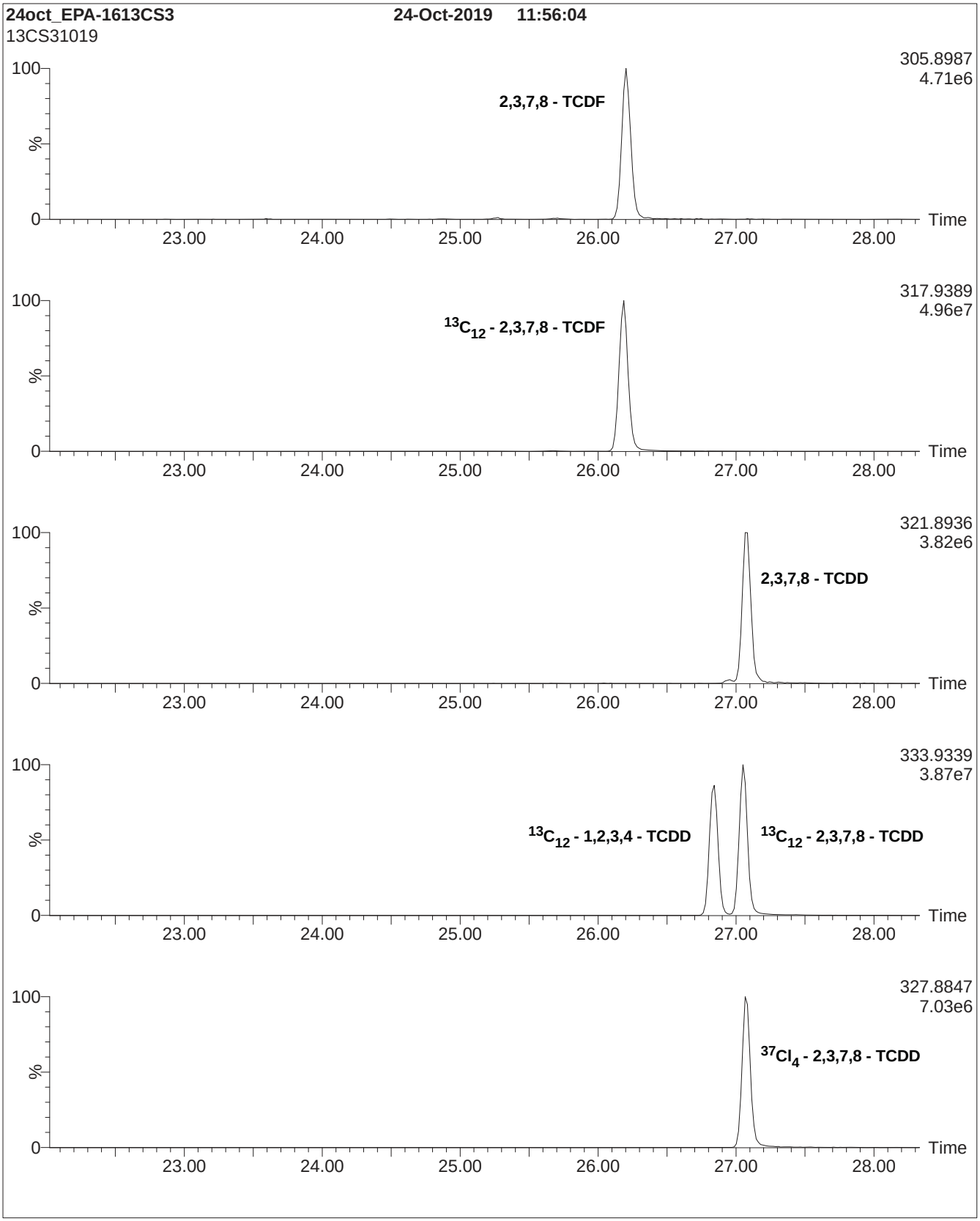


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

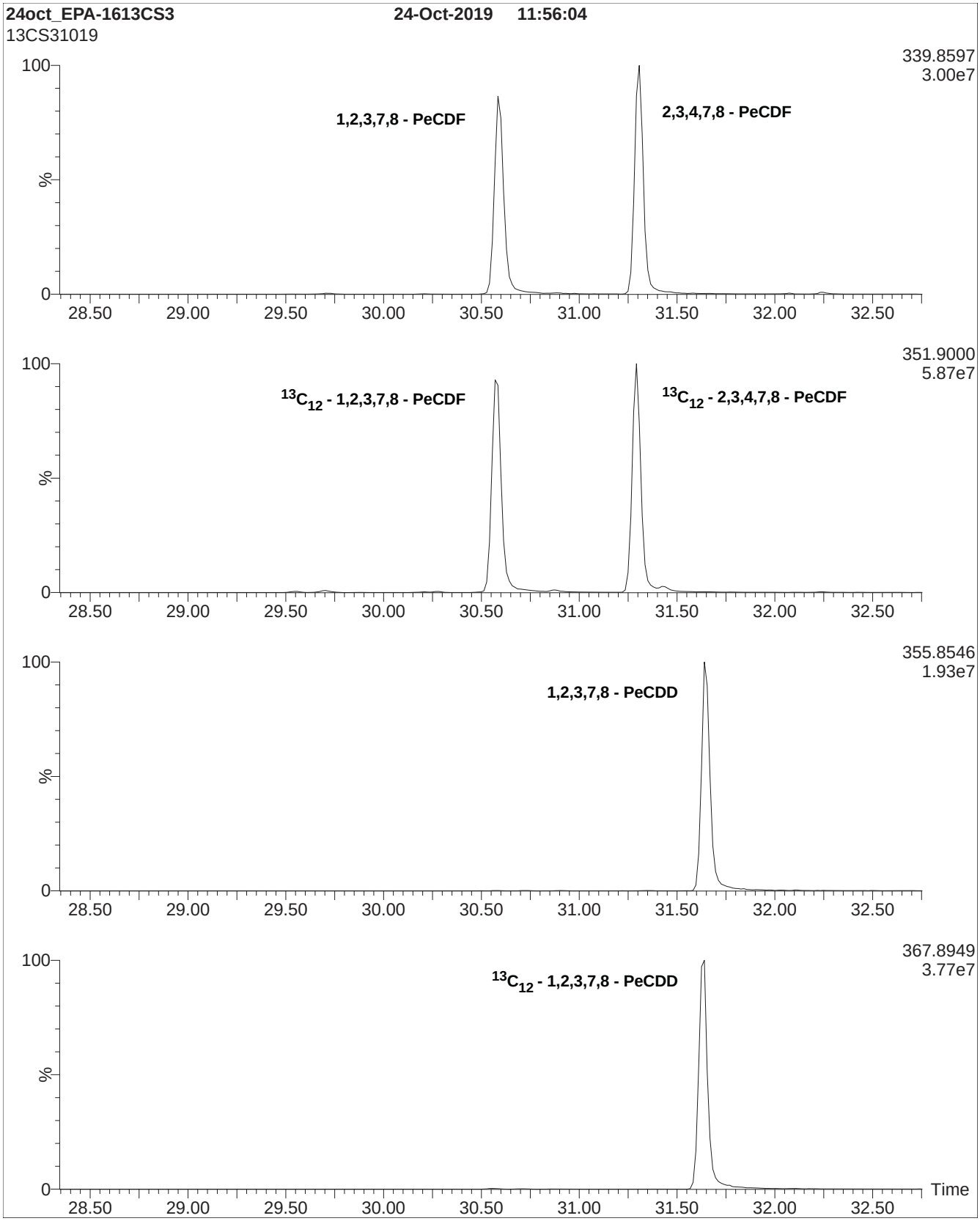


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

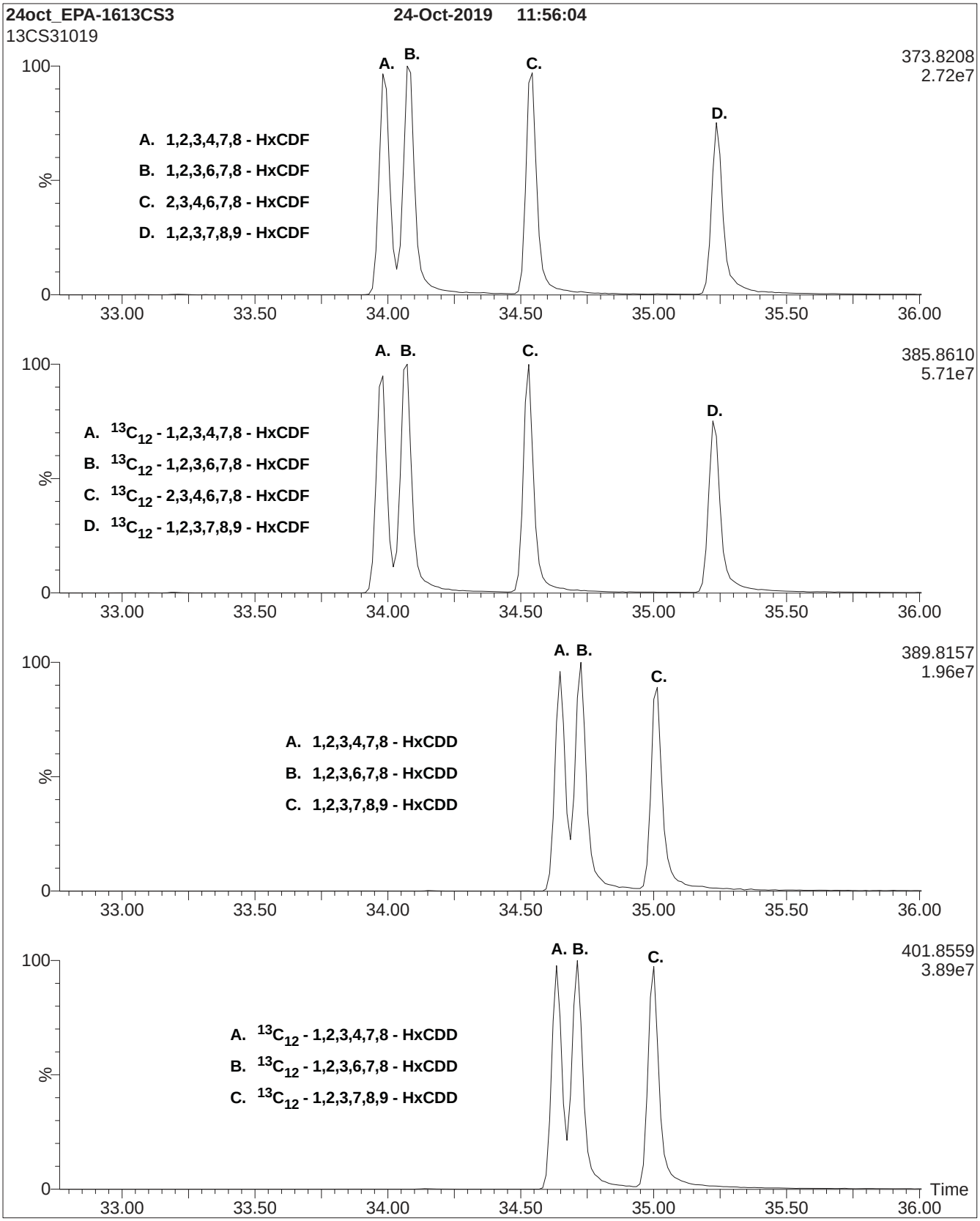


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

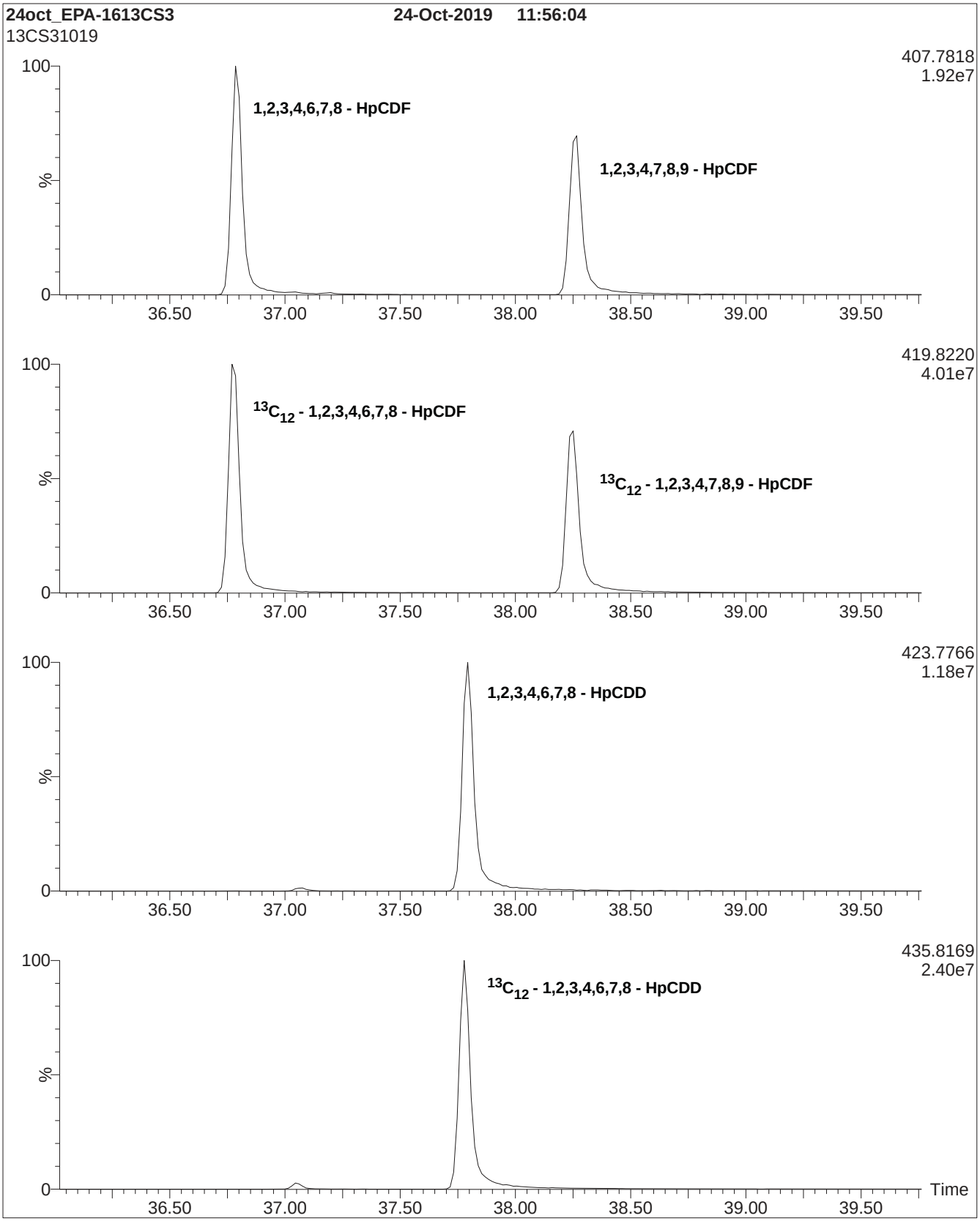
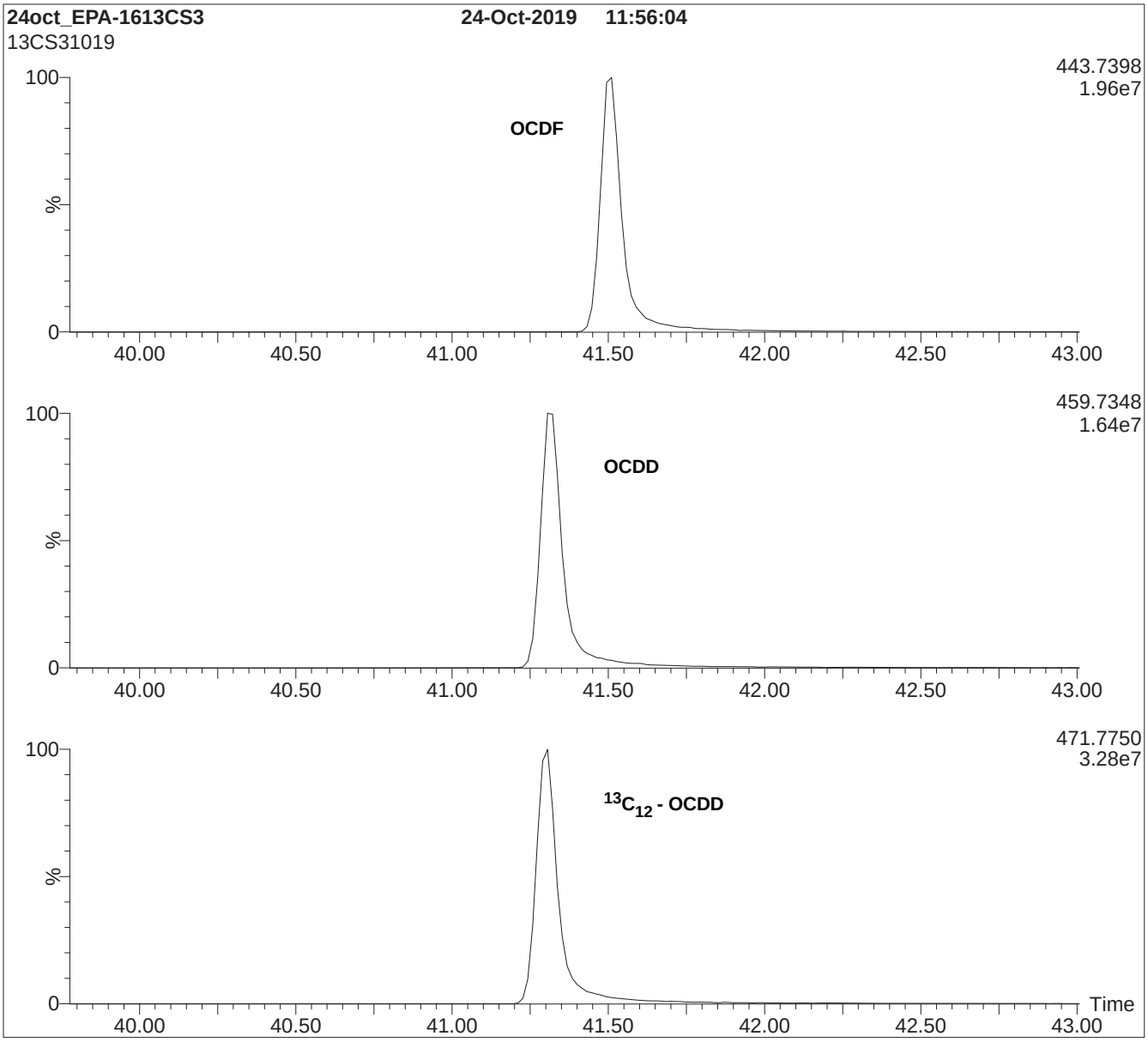


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005459
1613 CS5 CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $\boldsymbol{u_c(y)}$, of a value $\boldsymbol{y}$ and the uncertainty of the independent parameters $\boldsymbol{x_1}$, $\boldsymbol{x_2}$,...$\boldsymbol{x_n}$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By:  **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

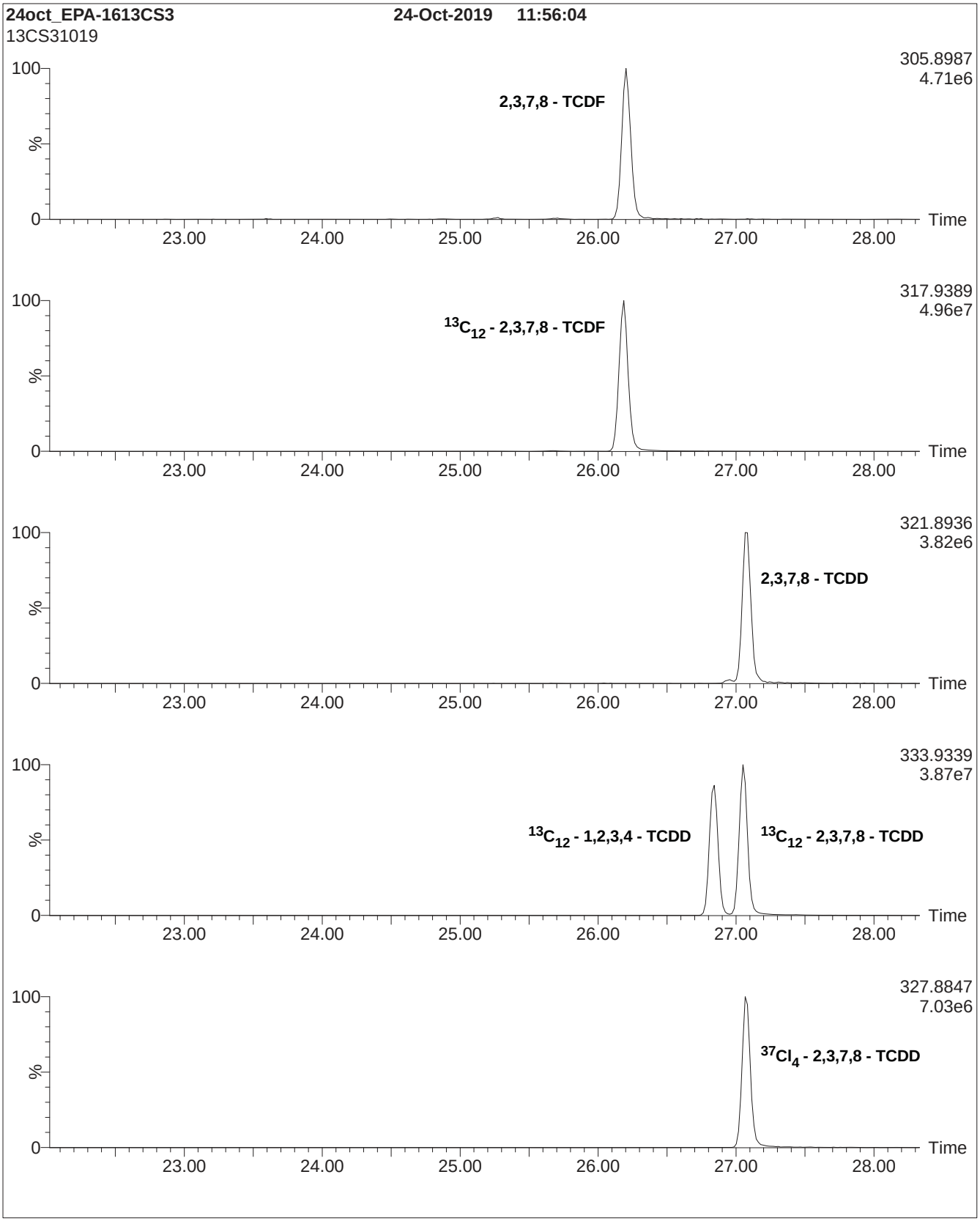


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

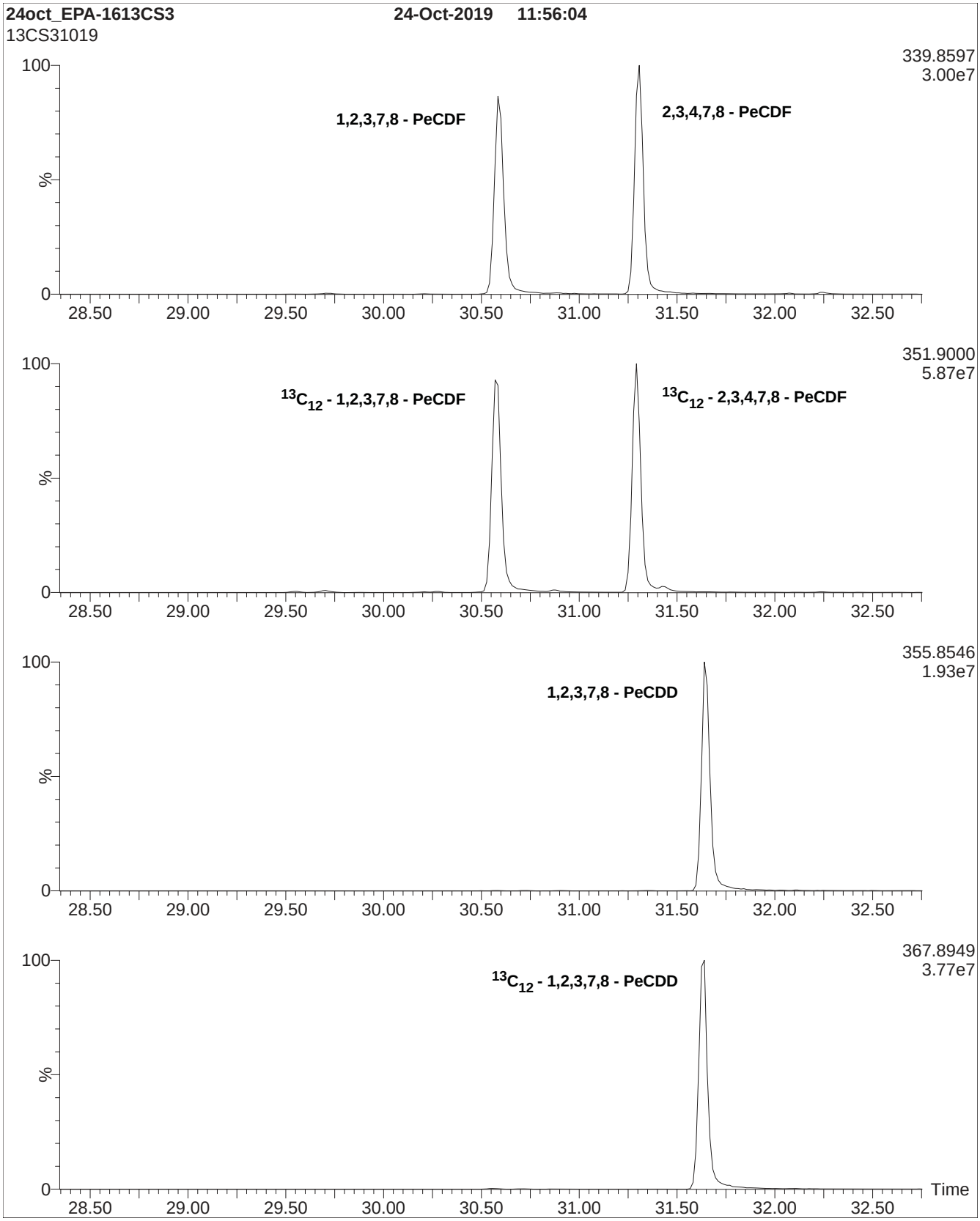


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

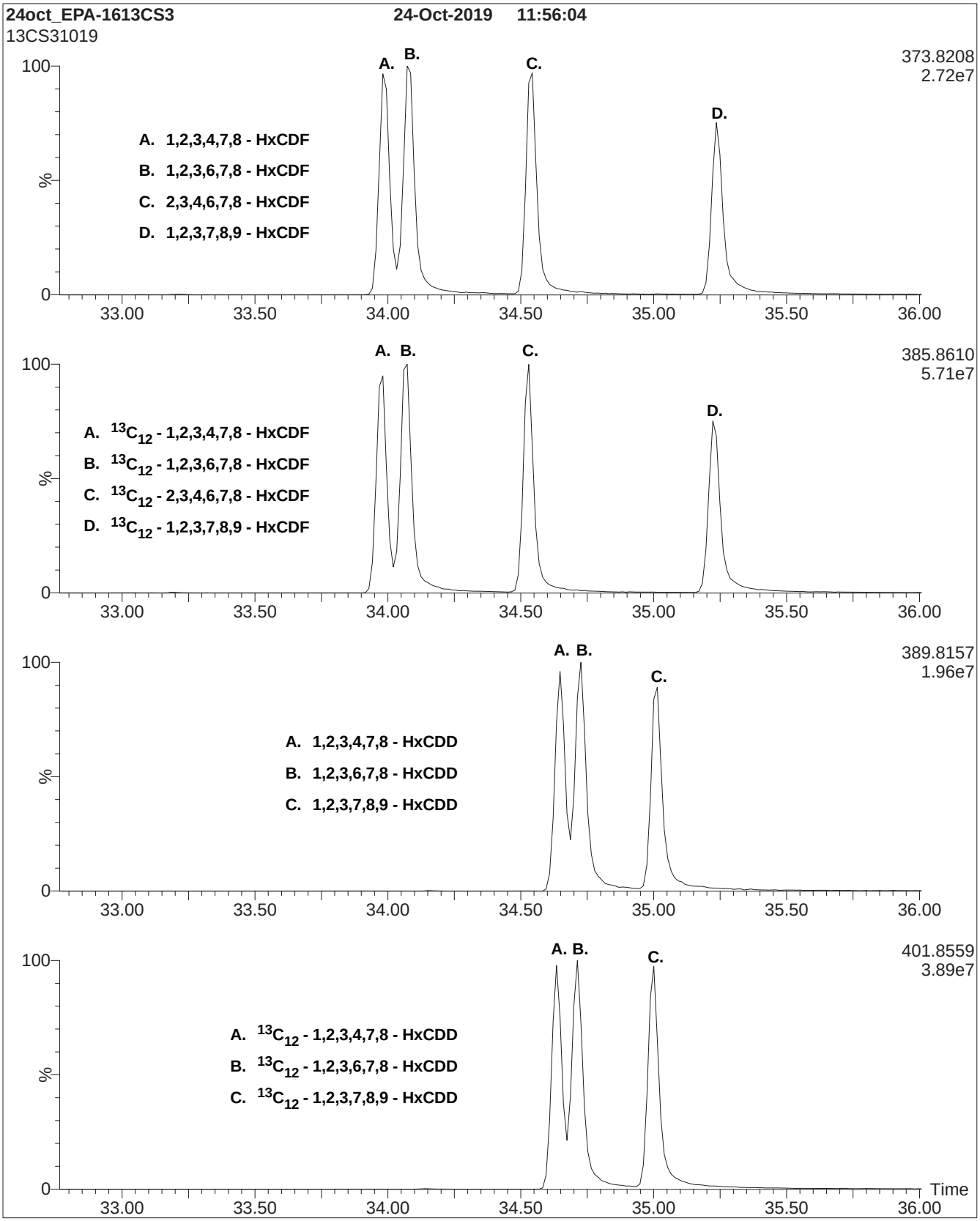


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

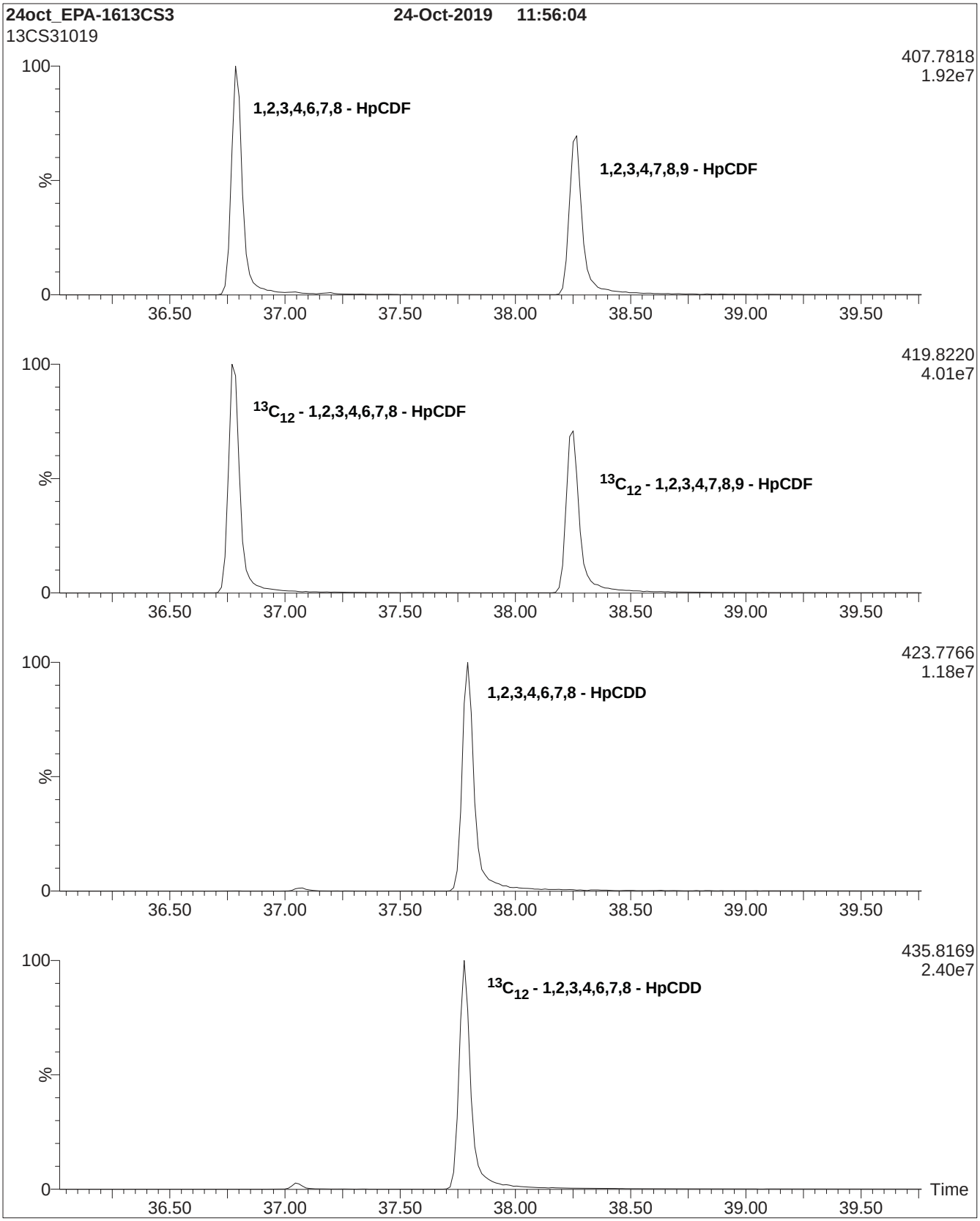
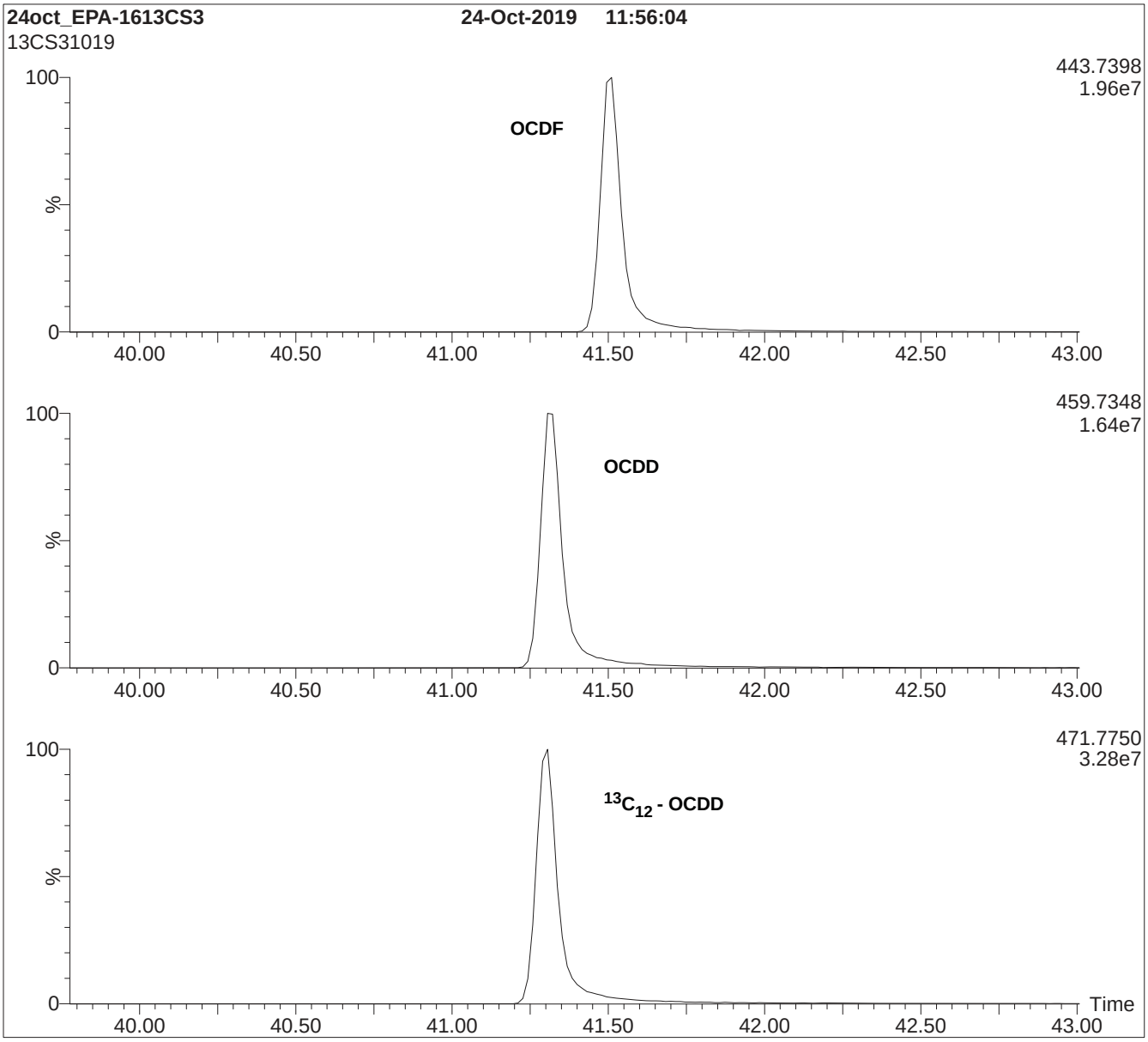


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CVS

U.S. EPA Method 1613 Calibration and Verification Solutions
plus Supplemental Calibration Solutions EPA-1613CSL & EPA-1613CS0.5

PRODUCT CODES:	EPA-1613CVS	**LOT NUMBERS:**	(see below)
	EPA-1613CS1		13CS11019
	EPA-1613CS2		13CS21019
	EPA-1613CS3		13CS31019
	EPA-1613CS4		13CS41019
	EPA-1613CS5		13CS51019

Note: EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to this calibration set that must be ordered separately.

EPA-1613CS0.5	13CS0.51019
EPA-1613CSL	13CSL1019

SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/22/2019
LAST TESTED: (mm/dd/yyyy)	10/24/2019
EXPIRY DATE: (mm/dd/yyyy)	10/24/2026
RECOMMENDED STORAGE:	Store ampoules in a cool, dark place

I005460
1613 CSL CAL STD
Expires 10/24/2026
Prepared By Joshua Rains 6/23/2020

DESCRIPTION:

EPA-1613CVS is a series of 5 calibration solutions containing native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$ and $^{37}Cl_4$) chlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs). The components of each solution, and their concentrations, are given in Table A.

They were designed for, and prepared to be used according to, U.S. EPA Method 1613 (Revision B). They are to be used as received.

EPA-1613CSL and EPA-1613CS0.5 are lower level extensions to EPA-1613CVS. Neither is required by the method, but either or both can be used to extend the calibration to lower levels.

The individual native PCDDs and PCDFs all have chemical purities of >98%. The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-$^{37}Cl_4$-Tetrachlorodibenzo-p-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Table B: 5-point HRGC/HRMS Calibration and RRF Summary
Table C: 7-point HRGC/HRMS Calibration and RRF Summary
Figure 1: HRGC/HRMS Data for EPA-1613CS3 (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 3 for further details.

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a series of standards for the identification and quantification of specific chemical compounds.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned values, and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $\boldsymbol{u_c(y)}$, of a value $\boldsymbol{y}$ and the uncertainty of the independent parameters $\boldsymbol{x_1}$, $\boldsymbol{x_2}$,...$\boldsymbol{x_n}$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analytes is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

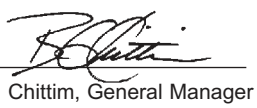
CALA Testing Accreditation No. A1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); Components and Concentrations (ng/ml, ± 5% in nonane/toluene)**

Compound	Concentration (ng/ml)						
Native PCDDs and PCDFs:	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CSL**	**CS0.5**
2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
2,3,7,8-TCDF	0.5	2	10	40	200	0.1	0.25
1,2,3,7,8-PeCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,7,8-PeCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000	0.5	1.25
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000	0.5	1.25
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000	0.5	1.25
OCDD	5.0	20	100	400	2000	1.0	2.5
OCDF	5.0	20	100	400	2000	1.0	2.5
Labelled PCDDs and PCDFs:							
$^{13}C_{12}$-2,3,7,8-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,7,8-TCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,7,8-PeCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	100	100	100	100	100	100	100
$^{13}C_{12}$-OCDD	200	200	200	200	200	200	200
Cleanup Standard:							
$^{37}Cl_4$-2,3,7,8-TCDD	0.5	2	10	40	200	0.1	0.25
Internal Standards:							
$^{13}C_{12}$-1,2,3,4-TCDD	100	100	100	100	100	100	100
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	100	100	100	100	100	100	100
Percent toluene (v/v)	3.6%	3.7%	4.2%	6.1%	16.2%	3.6%	3.6%

Certified By:  **Date:** 10/25/2019
(mm/dd/yyyy)

B.G. Chittim, General Manager

Table B: **EPA-1613CVS; 5-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard				
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5
2,3,7,8-TCDF	0.93	0.013	1.4	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.015	1.6	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.04	0.019	1.8	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.035	3.7	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.93	0.013	1.4	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.96	0.022	2.3	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.89	0.021	2.4	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.91	0.011	1.2	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.010	1.1	0.90	0.90	0.92	0.91	0.92
OCDF	1.19	0.056	4.7	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.05	0.023	2.2	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.97	0.018	1.9	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	1.00	0.019	1.9	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.98	0.032	3.2	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.97	0.016	1.6	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.025	2.5	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.013	1.3	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.57	0.047	3.0	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.21	0.078	6.5	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.17	0.081	6.9	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.020	1.5	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.51	0.034	2.2	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.38	0.012	0.9	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.014	1.2	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.033	2.5	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.08	0.046	4.3	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.13	0.036	3.2	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.79	0.047	5.9	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.027	3.1	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.04	0.010	1.0	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.017	2.1	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.74	0.055	7.4	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.026	2.6	0.95	0.94	0.99	0.99	0.99

Table C: **EPA-1613CVS (with EPA-1613CSL and EPA-1613CS0.5); 7-point HRGC/HRMS Calibration and RRF Summary**

Calibration RRF Summary				Calibration Standard						
Calibration Filename: 24oct_EPA1613CVS-CAL.QLD				CSL	CS0.5	CS1	CS2	CS3	CS4	CS5
Name	Mean	S. D.	%RSD	RRF#1	RRF#2	RRF#3	RRF#4	RRF#5	RRF#6	RRF#7
2,3,7,8-TCDF	0.92	0.045	4.8	0.96	0.83	0.92	0.95	0.93	0.92	0.95
1,2,3,7,8-PeCDF	0.93	0.013	1.4	0.94	0.92	0.92	0.92	0.93	0.93	0.95
2,3,4,7,8-PeCDF	1.02	0.058	5.7	0.90	1.00	1.03	1.02	1.05	1.05	1.07
1,2,3,4,7,8-HxCDF	0.96	0.029	3.0	0.96	0.97	0.94	0.92	0.98	0.99	1.00
1,2,3,6,7,8-HxCDF	0.92	0.030	3.3	0.90	0.86	0.92	0.94	0.94	0.91	0.94
2,3,4,6,7,8-HxCDF	0.94	0.047	5.0	0.87	0.89	0.95	0.94	0.97	0.97	0.99
1,2,3,7,8,9-HxCDF	0.88	0.029	3.3	0.83	0.88	0.87	0.88	0.90	0.90	0.92
1,2,3,4,6,7,8-HpCDF	0.90	0.033	3.7	0.83	0.93	0.90	0.90	0.90	0.92	0.92
1,2,3,4,7,8,9-HpCDF	0.91	0.018	1.9	0.89	0.94	0.90	0.90	0.92	0.91	0.92
OCDF	1.18	0.052	4.4	1.15	1.14	1.11	1.17	1.19	1.23	1.26
2,3,7,8-TCDD	1.03	0.051	5.0	1.03	0.92	1.01	1.06	1.05	1.05	1.07
1,2,3,7,8-PeCDD	0.95	0.042	4.4	0.87	0.98	0.95	0.95	0.98	0.97	0.99
1,2,3,4,7,8-HxCDD	0.97	0.066	6.8	0.83	0.98	1.01	1.00	1.00	0.96	1.01
1,2,3,6,7,8-HxCDD	0.96	0.044	4.5	0.90	0.92	0.93	0.98	0.99	1.01	1.01
1,2,3,7,8,9-HxCDD	0.94	0.054	5.7	0.83	0.92	0.95	0.96	0.98	0.99	0.98
1,2,3,4,6,7,8-HpCDD	1.01	0.033	3.3	0.95	1.03	1.01	0.97	1.02	1.03	1.04
OCDD	1.00	0.023	2.3	0.95	1.00	1.00	0.99	1.02	1.02	1.00
$^{13}C_{12}$-2,3,7,8-TCDF	1.56	0.042	2.7	1.52	1.54	1.52	1.55	1.55	1.57	1.65
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1.20	0.066	5.5	1.18	1.17	1.13	1.20	1.17	1.20	1.34
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1.16	0.071	6.1	1.12	1.13	1.09	1.15	1.13	1.17	1.31
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1.33	0.018	1.4	1.32	1.35	1.35	1.33	1.33	1.32	1.30
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1.53	0.045	3.0	1.60	1.56	1.47	1.48	1.53	1.53	1.54
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1.39	0.019	1.4	1.39	1.42	1.38	1.38	1.40	1.37	1.36
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1.19	0.012	1.0	1.19	1.19	1.18	1.16	1.20	1.19	1.20
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1.31	0.028	2.2	1.30	1.33	1.31	1.26	1.33	1.31	1.35
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1.07	0.045	4.2	1.02	1.08	1.06	1.03	1.09	1.08	1.15
$^{13}C_{12}$-2,3,7,8-TCDD	1.12	0.033	3.0	1.09	1.11	1.10	1.11	1.11	1.13	1.19
$^{13}C_{12}$-1,2,3,7,8-PeCDD	0.78	0.040	5.1	0.75	0.78	0.74	0.78	0.75	0.79	0.86
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	0.87	0.025	2.9	0.86	0.90	0.85	0.83	0.89	0.88	0.89
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1.05	0.015	1.5	1.08	1.06	1.05	1.05	1.04	1.05	1.03
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	0.81	0.016	2.0	0.79	0.81	0.81	0.80	0.80	0.81	0.84
$^{13}C_{12}$-OCDD	0.73	0.046	6.3	0.71	0.72	0.70	0.70	0.73	0.72	0.83
$^{13}C_{12}$-1,2,3,4-TCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.00	0.000	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
$^{37}Cl_4$-2,3,7,8-TCDD	0.97	0.053	5.4	0.90	1.07	0.95	0.94	0.99	0.99	0.99

Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

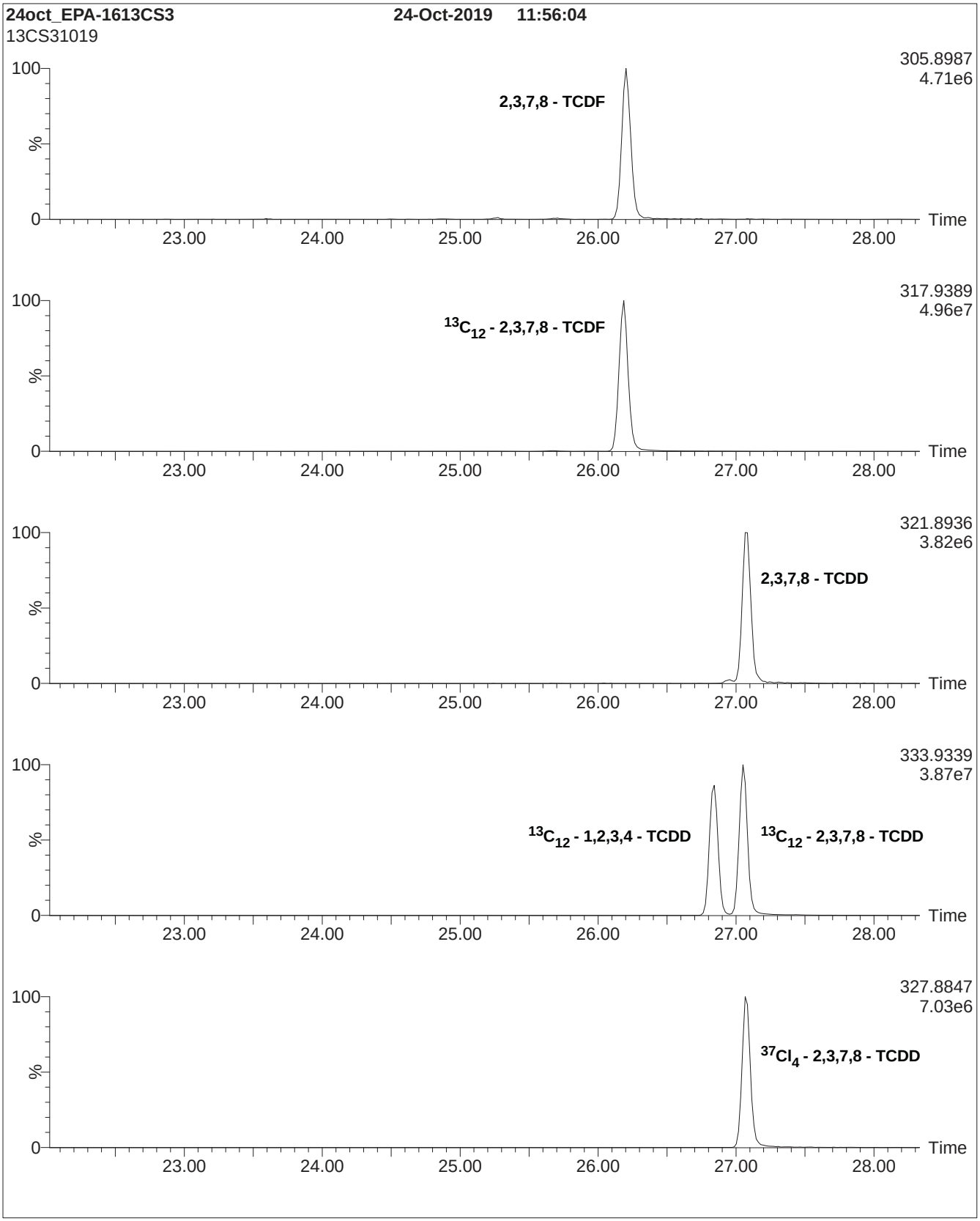


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

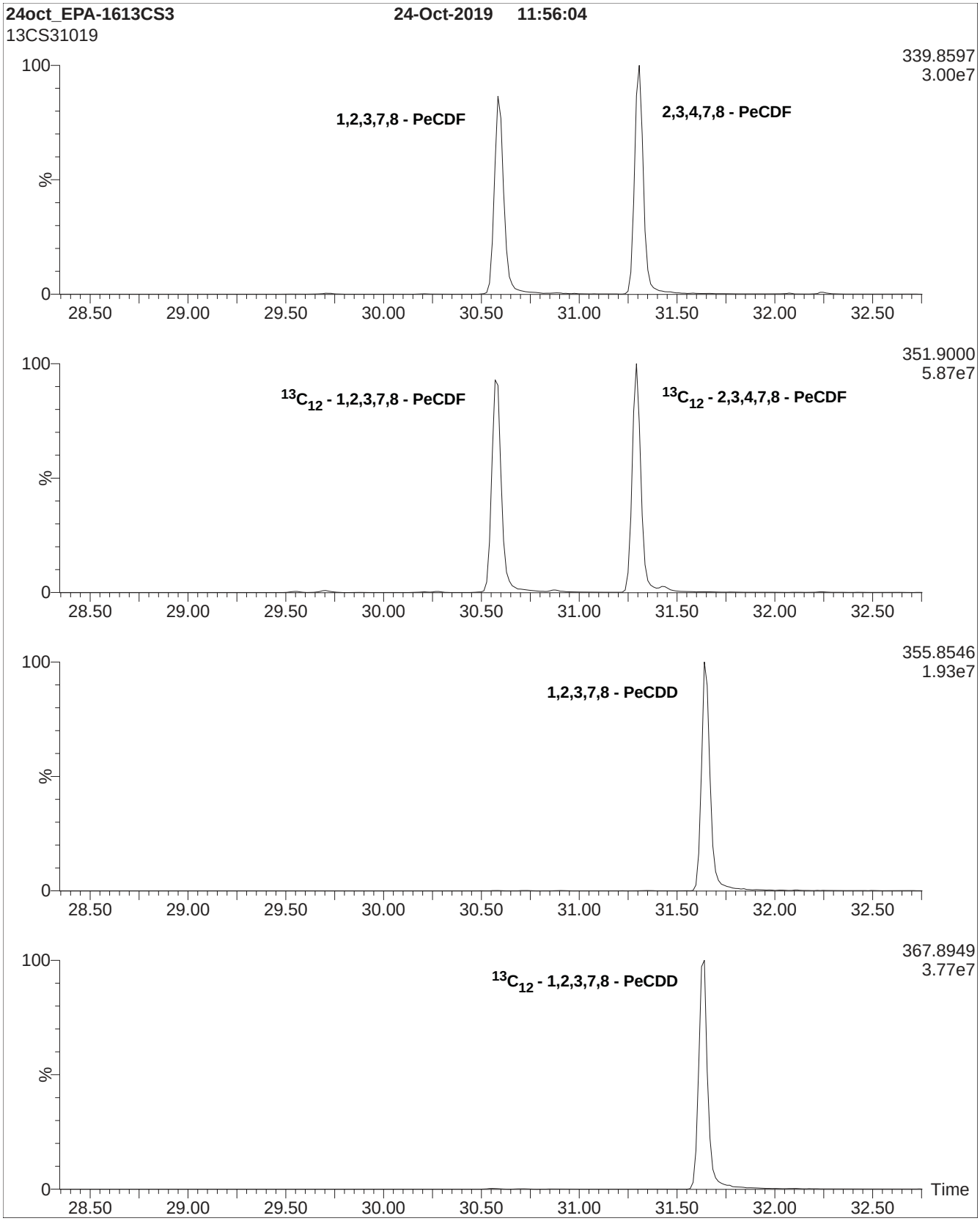


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

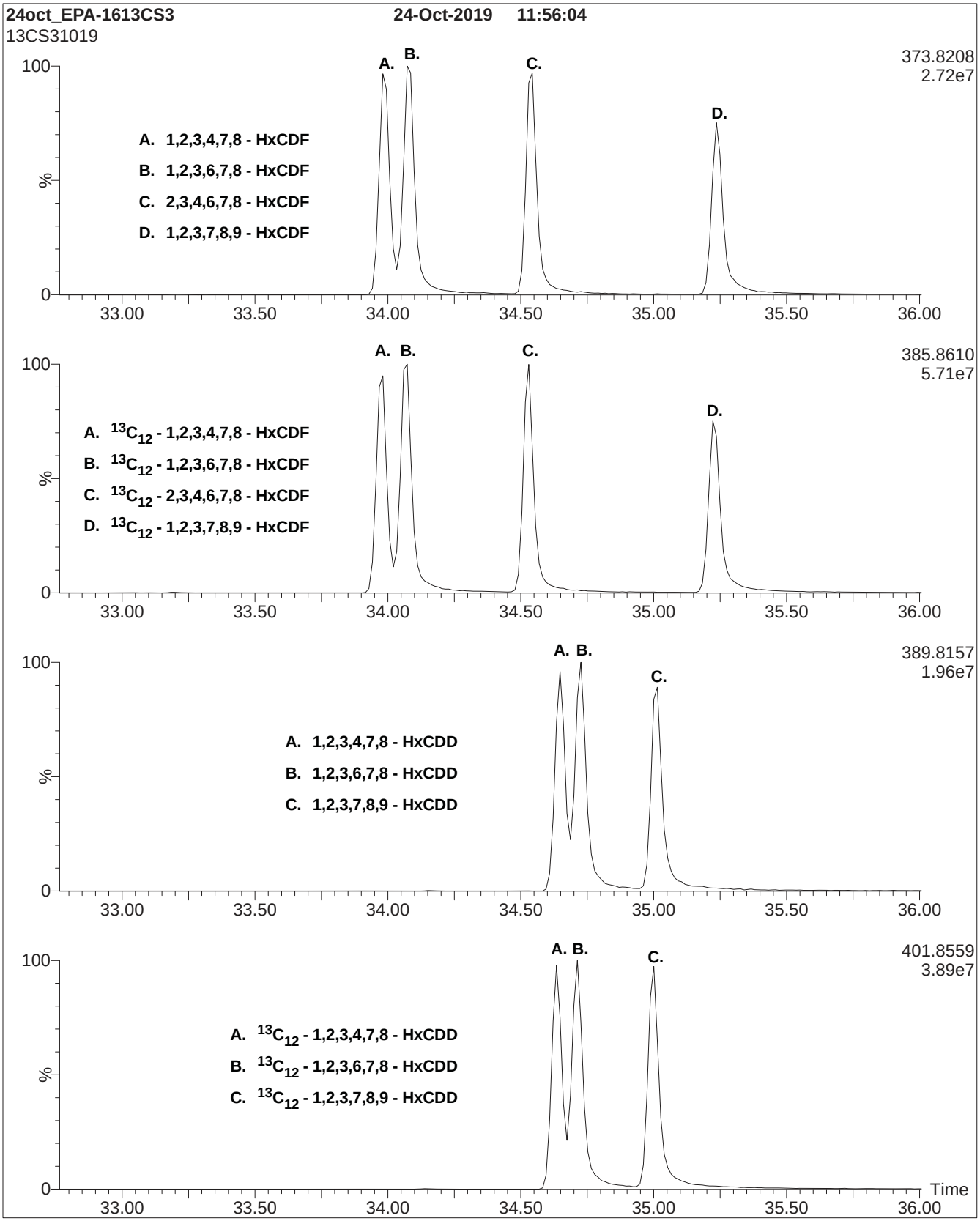


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**

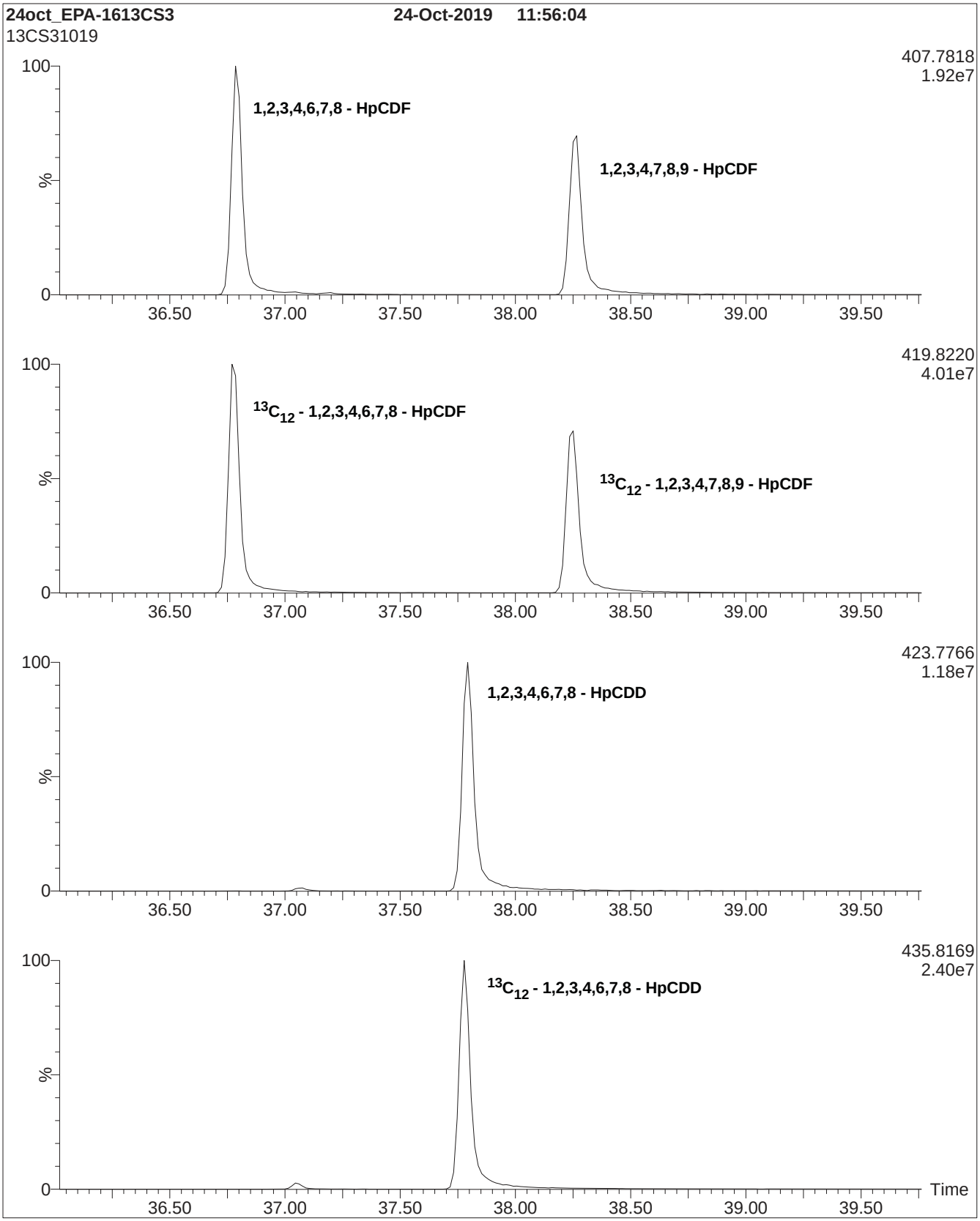
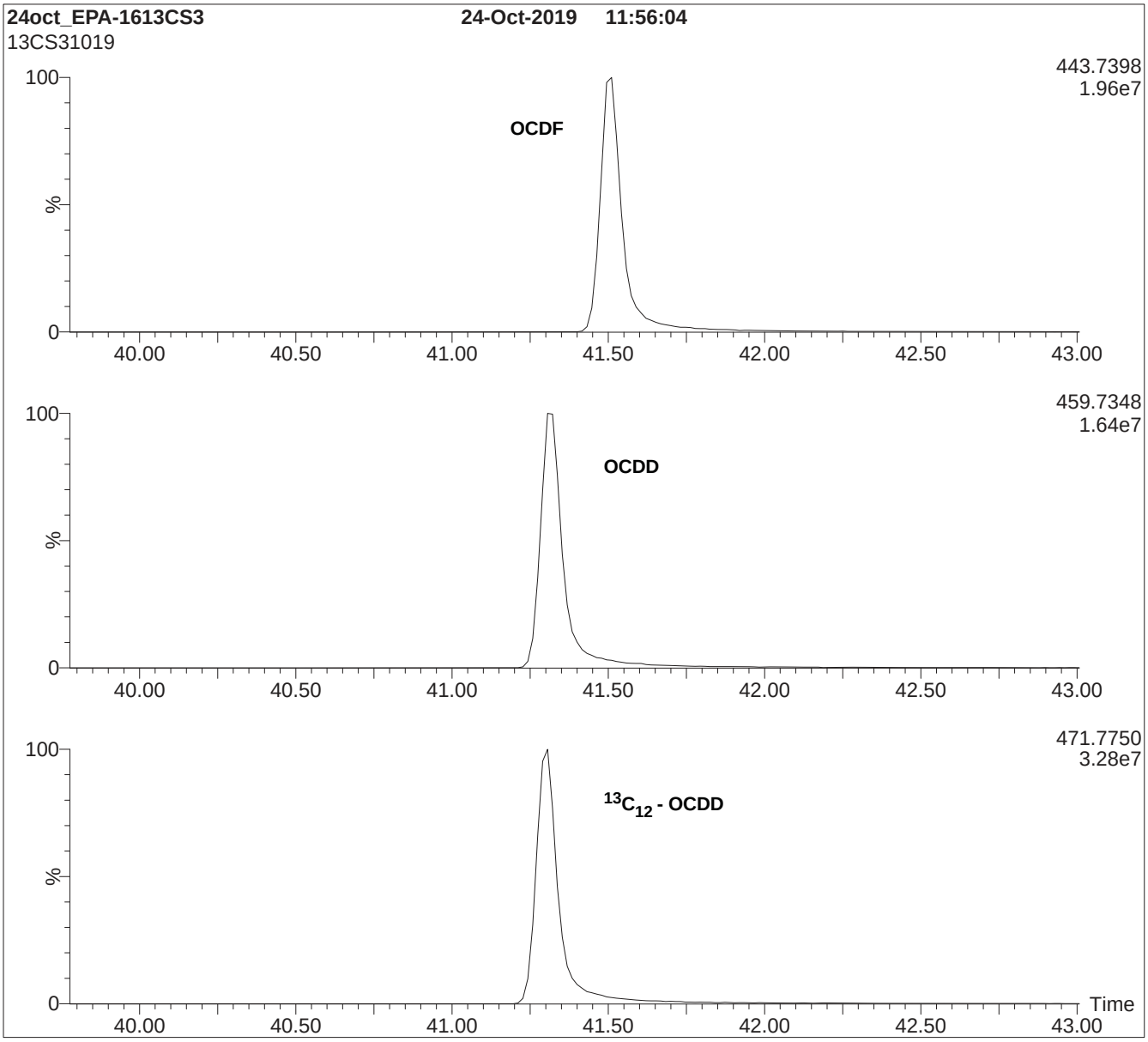


Figure 1: **EPA-1613CS3; HRGC/HRMS Data (60 m DB-5 Column)**



HRGC/HRMS:

Agilent 6890N (HRGC)
Autospec Ultima (HRMS)

Chromatographic Conditions:

Column: 60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W

Flow: Constant at 1 ml/min
Injector: 280 °C (Splitless Injection)
Ionization: EI+
Detector: 280 °C
SIR at 10,000 mass resolving power

Oven: 150 °C (1 min)
12 °C/min to 200 °C
3 °C/min to 235 °C
235 °C (8 min)
8 °C/min to 310 °C
310 °C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF
Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Read. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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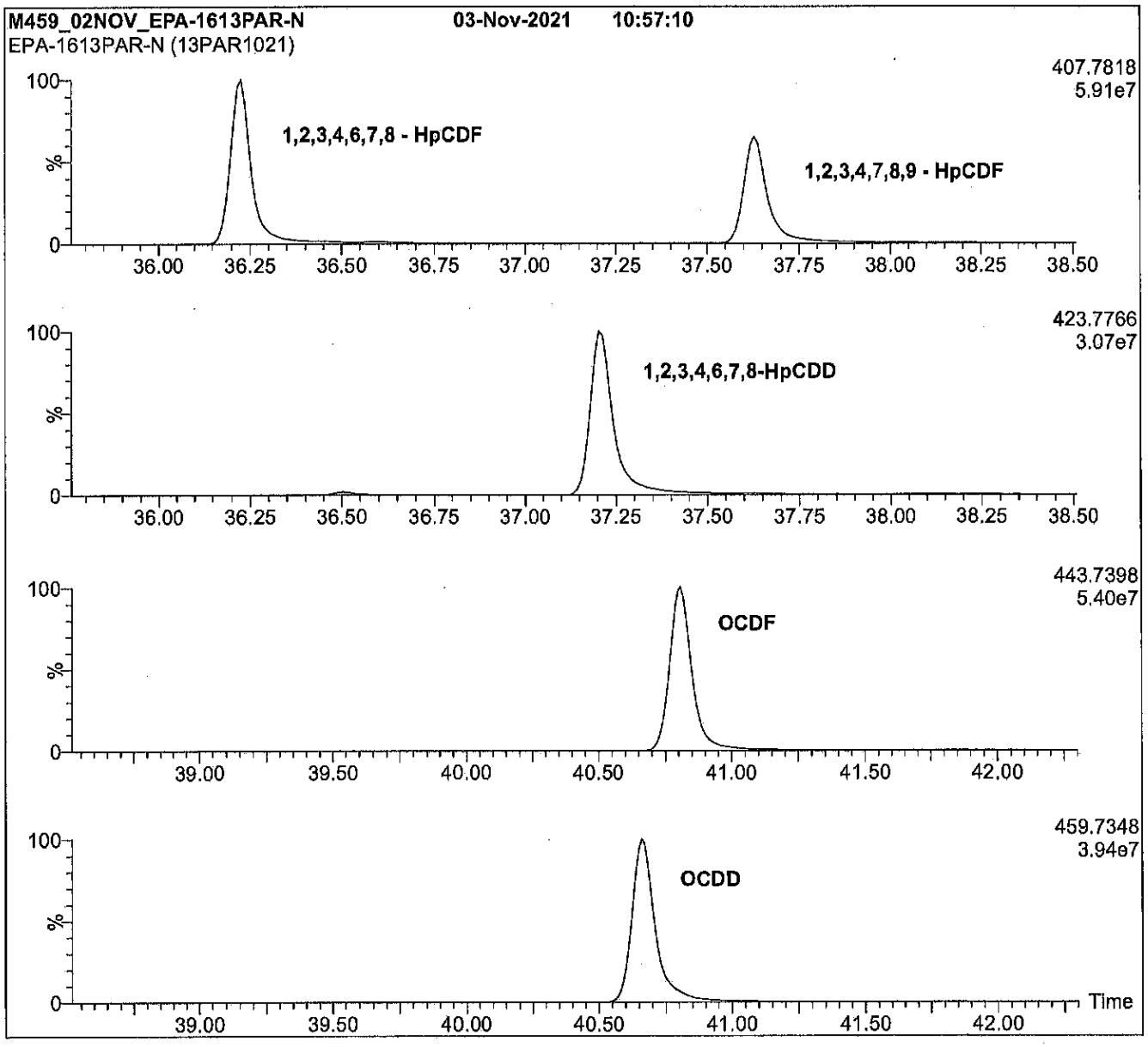
Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-1613PAR

U.S. EPA Method 1613 Native PCDD/PCDF
Precision and Recovery Stock Solution

PRODUCT CODE:	EPA-1613PAR
LOT NUMBER:	13PAR1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/25/2021
LAST TESTED: (mm/dd/yyyy)	11/03/2021
EXPIRY DATE: (mm/dd/yyyy)	11/03/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

J013397
Read. JR
12/20/21

DESCRIPTION:

EPA-1613PAR is a solution/mixture of all the 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613PAR was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual PCDDs and PCDFs all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

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519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, ...x_n$ on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613PAR; Components and Concentrations (ng/mL, ± 5% in nonane/2.4% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
PCDDs:			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	2,3,7,8-TCDD	1746-01-6	40.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1,2,3,7,8-PeCDD	40321-76-4	200
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	200
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	200
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	200
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	200
Octachlorodibenzo-*p*-dioxin	OCDD	3268-87-9	400
PCDFs:			
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TCDF	51207-31-9	40.0
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	200
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	200
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	200
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	200
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	200
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	200
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,6-HpCDF	67562-39-4	200
1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	200
Octachlorodibenzofuran	OCDF	39001-02-0	400

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**

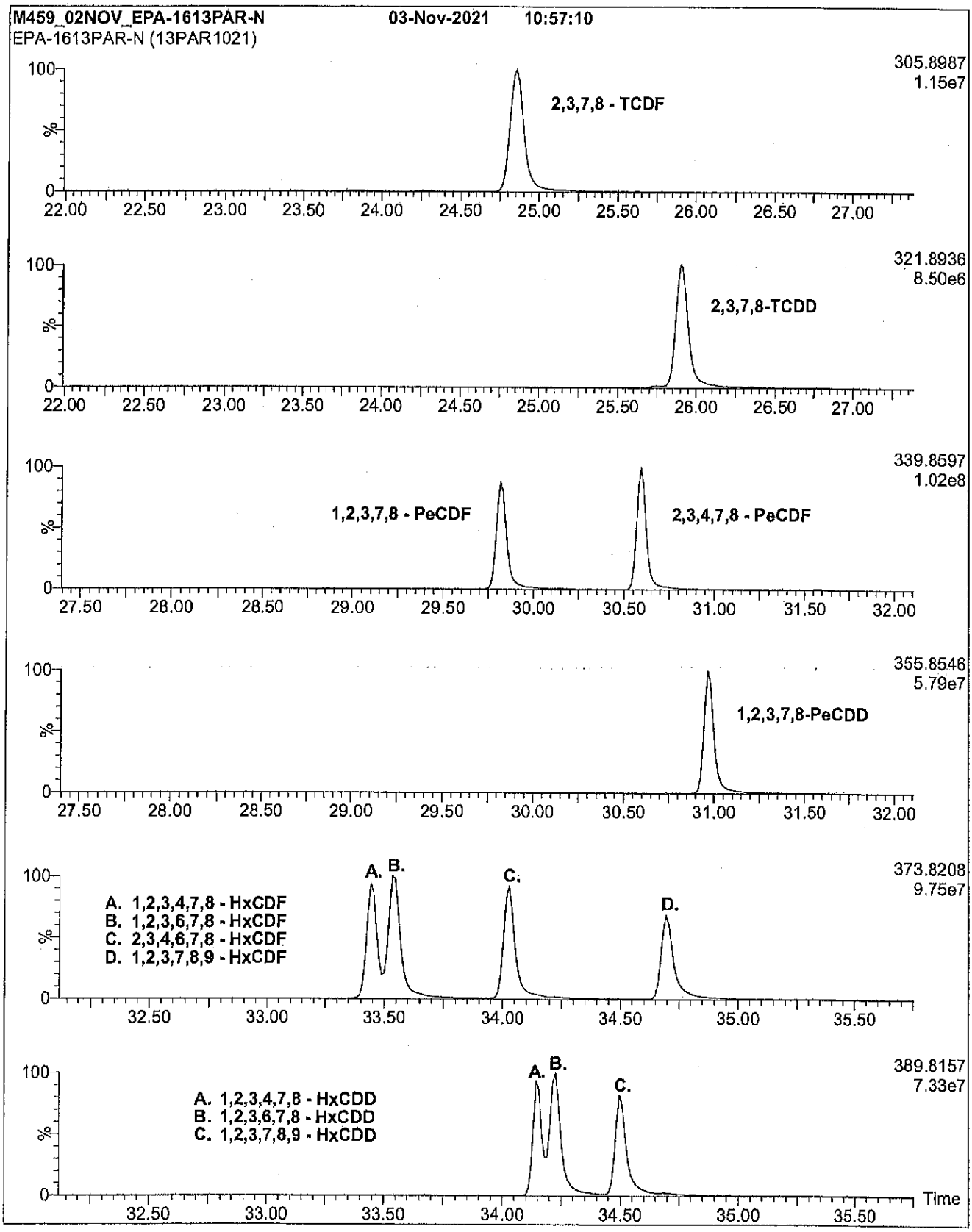
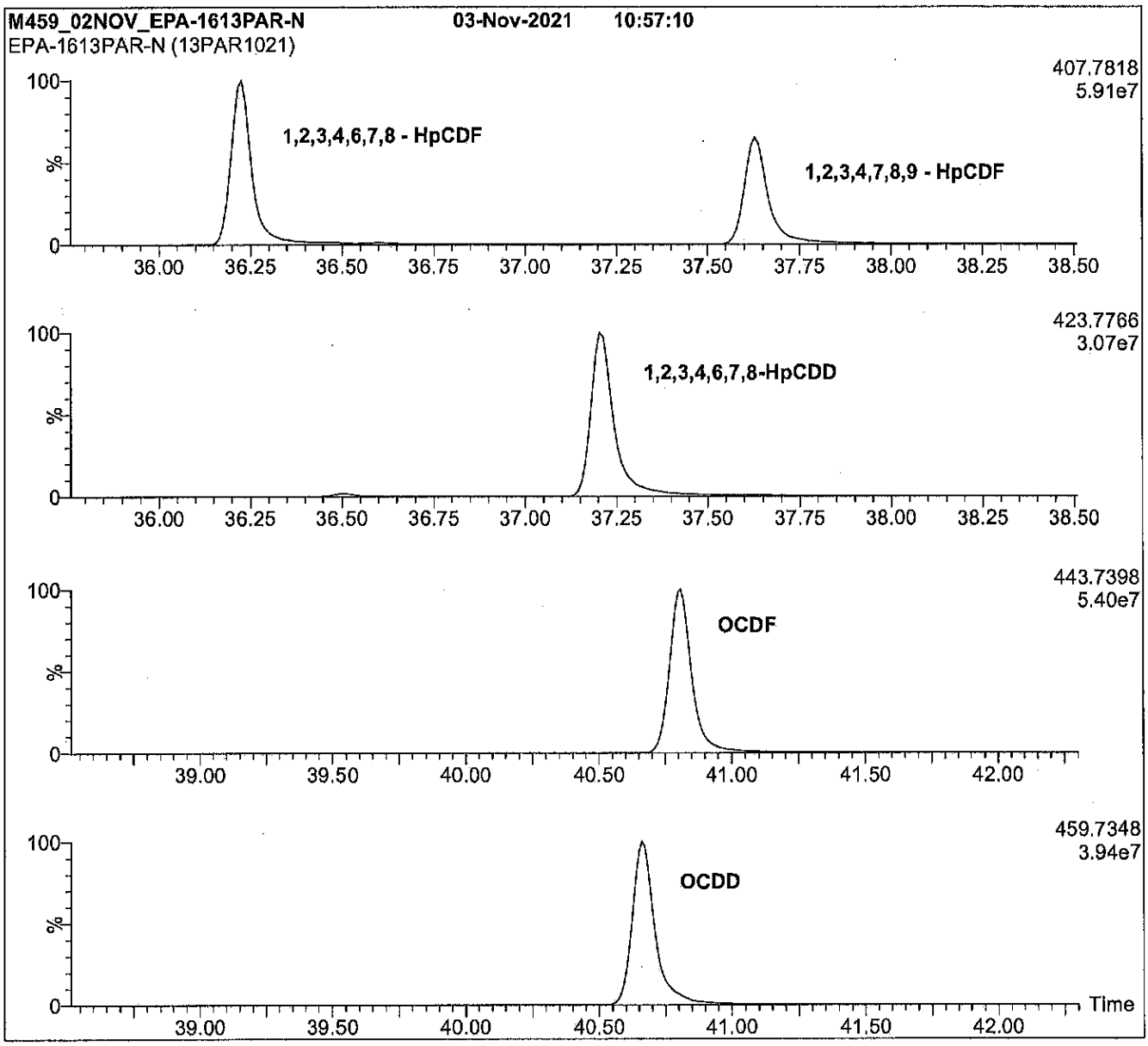


Figure 1: **EPA-1613PAR; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

K9821

CS3WT

Calibration and Verification Solution (EPA-1613CS3) combined with Window Defining and 2,3,7,8-TCDD Resolution Testing Congeners

PRODUCT CODE:	CS3WT
LOT NUMBER:	CS3WT1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	11/01/2021
LAST TESTED: (mm/dd/yyyy)	11/02/2021
EXPIRY DATE: (mm/dd/yyyy)	11/02/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

CS3WT is a solution/mixture of native ($^{12}C_{12}$) and mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Tables A and B.

CS3WT is an HRGC/HRMS calibration solution that was designed and prepared to be used according to U.S. EPA Method 1613, Revision B, in place of EPA-1613CS3 (lot: 13CS31021). Additionally, it contains the PCDD and PCDF isomers required to set retention time windows as well as test and establish isomer specificity for 2,3,7,8-TCDD on a DB-5 (or equivalent) capillary column.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%. The 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%. The individual native 2,3,7,8-substituted PCDD and PCDF congeners all have chemical purities of >98%; the other congeners (window defining and resolution testing) should only be considered semi-quantitative.

This current lot of CS3WT is to be used with the 1613 calibration solutions having the following lot numbers:

PRODUCT CODE	LOT NUMBER
EPA-1613CS1	13CS11021
EPA-1613CS2	13CS21021
EPA-1613CS3	13CS31021
EPA-1613CS4	13CS41021
EPA-1613CS5	13CS51021
EPA-1613CSL	13CSL1021
EPA-1613CS0.5	13CS0.51021

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INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters x_1, x_2,...x_n on which it depends is:

$$u_c(y(x_1, x_2, ...x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) has been assigned to the quantitative components in this product. A maximum combined percent relative uncertainty of ±20% has been assigned to the semi-quantitative components in this product.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **CS3WT; Quantitative Components and Concentrations (ng/mL, ± 5%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
Native PCDDs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin		2,3,7,8-TCDD	1746-01-6	10.0
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin		1,2,3,7,8-PeCDD	40321-76-4	50.0
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,4,7,8-HxCDD	39227-28-6	50.0
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin		1,2,3,6,7,8-HxCDD	57653-85-7	50.0
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	Last HxCDD[b]	1,2,3,7,8,9-HxCDD	19408-74-3	50.0
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	Last HpCDD	1,2,3,4,6,7,8-HpCDD	35822-46-9	50.0
Octachlorodibenzo-*p*-dioxin		OCDD	3268-87-9	100
Native PCDFs:	**Designation[a]**			
2,3,7,8-Tetrachlorodibenzofuran		2,3,7,8-TCDF	51207-31-9	10.0
1,2,3,7,8-Pentachlorodibenzofuran		1,2,3,7,8-PeCDF	57117-41-6	50.0
2,3,4,7,8-Pentachlorodibenzofuran		2,3,4,7,8-PeCDF	57117-31-4	50.0
1,2,3,4,7,8-Hexachlorodibenzofuran		1,2,3,4,7,8-HxCDF	70648-26-9	50.0
1,2,3,6,7,8-Hexachlorodibenzofuran		1,2,3,6,7,8-HxCDF	57117-44-9	50.0
1,2,3,7,8,9-Hexachlorodibenzofuran		1,2,3,7,8,9-HxCDF	72918-21-9	50.0
2,3,4,6,7,8-Hexachlorodibenzofuran		2,3,4,6,7,8-HxCDF	60851-34-5	50.0
1,2,3,4,6,7,8-Heptachlorodibenzofuran	First HpCDF[c]	1,2,3,4,6,7,8-HpCDF	67562-39-4	50.0
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Last HpCDF	1,2,3,4,7,8,9-HpCDF	55673-89-7	50.0
Octachlorodibenzofuran		OCDF	39001-02-0	100
Mass-Labelled PCDDs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:				
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran		$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100
Cleanup Standard:				
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin		$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	10.0
Internal Standards:				
1,2,3,4-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,4-TCDD	114423-99-3	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin		$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	109719-82-6	100

[a] First/Last eluting isomer for the specified homologue group (see Table B for additional Window Definers).
[b, c] – see Table B for footnote.

Table B: **CS3WT; Semi-Quantitative Components and Concentrations (ng/mL, ± 20%, in nonane/4.5% toluene)**

Compound		Acronym	CAS #	Concentration (ng/mL)
PCDD Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzo-*p*-dioxin	First TCDD	1,3,6,8-TCDD	33423-92-6	10.0
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	Last TCDD	1,2,8,9-TCDD	62470-54-6	10.0
1,2,4,6,8-/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin	First PeCDD	1,2,4,6,8-PeCDD 1,2,4,7,9-PeCDD	71998-76-0 82291-37-0	50.0[d]
1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin	Last PeCDD	1,2,3,8,9-PeCDD	71925-18-3	50.0
1,2,4,6,7,9-Hexachlorodibenzo-*p*-dioxin	First HxCDD	1,2,4,6,7,9-HxCDD	39227-62-8	50.0
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	First HpCDD	1,2,3,4,6,7,9-HpCDD	58200-70-7	50.0
PCDF Window Definers:	**Designation[a]**			
1,3,6,8-Tetrachlorodibenzofuran	First TCDF	1,3,6,8-TCDF	71998-72-6	10.0
1,2,8,9-Tetrachlorodibenzofuran	Last TCDF	1,2,8,9-TCDF	70648-22-5	10.0
1,3,4,6,8-Pentachlorodibenzofuran	First PeCDF	1,3,4,6,8-PeCDF	83704-55-6	50.0
1,2,3,8,9-Pentachlorodibenzofuran	Last PeCDF	1,2,3,8,9-PeCDF	83704-54-5	50.0
1,2,3,4,6,8-Hexachlorodibenzofuran	First HxCDF	1,2,3,4,6,8-HxCDF	69698-60-8	50.0
2,3,7,8-TCDD Resolution Testing Isomers:				
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin		1,2,3,4-TCDD	30746-58-8	5.00
1,2,3,7-/1,2,3,8-Tetrachlorodibenzo-*p*-dioxin		1,2,3,7-TCDD 1,2,3,8-TCDD	67028-18-6 53555-02-5	5.00[d]
1,2,3,9-Tetrachlorodibenzo-*p*-dioxin		1,2,3,9-TCDD	71669-26-6	10.0

[a] First/Last eluting isomer for the specified homologue group (see Table A for additional Window Definers).

[b] 1,2,3,4,6,7-HxCDD (last eluting HxCDD) not included; coelutes with 1,2,3,7,8,9-HxCDD on a 60 m DB-5 column. Use 1,2,3,7,8,9-HxCDD (see Table A) and 1,2,3,4,6,7,9-HpCDD to approximate the end of the HxCDD window.

[c] 1,2,3,4,8,9-HxCDF (last eluting HxCDF) not included; can interfere with 1,2,3,7,8,9-HxCDF on a 60 m DB-5 column. Use 1,2,3,4,6,7,8-HpCDF (see Table A) to approximate the end of the HxCDF window.

[d] Total concentration of isomers.

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

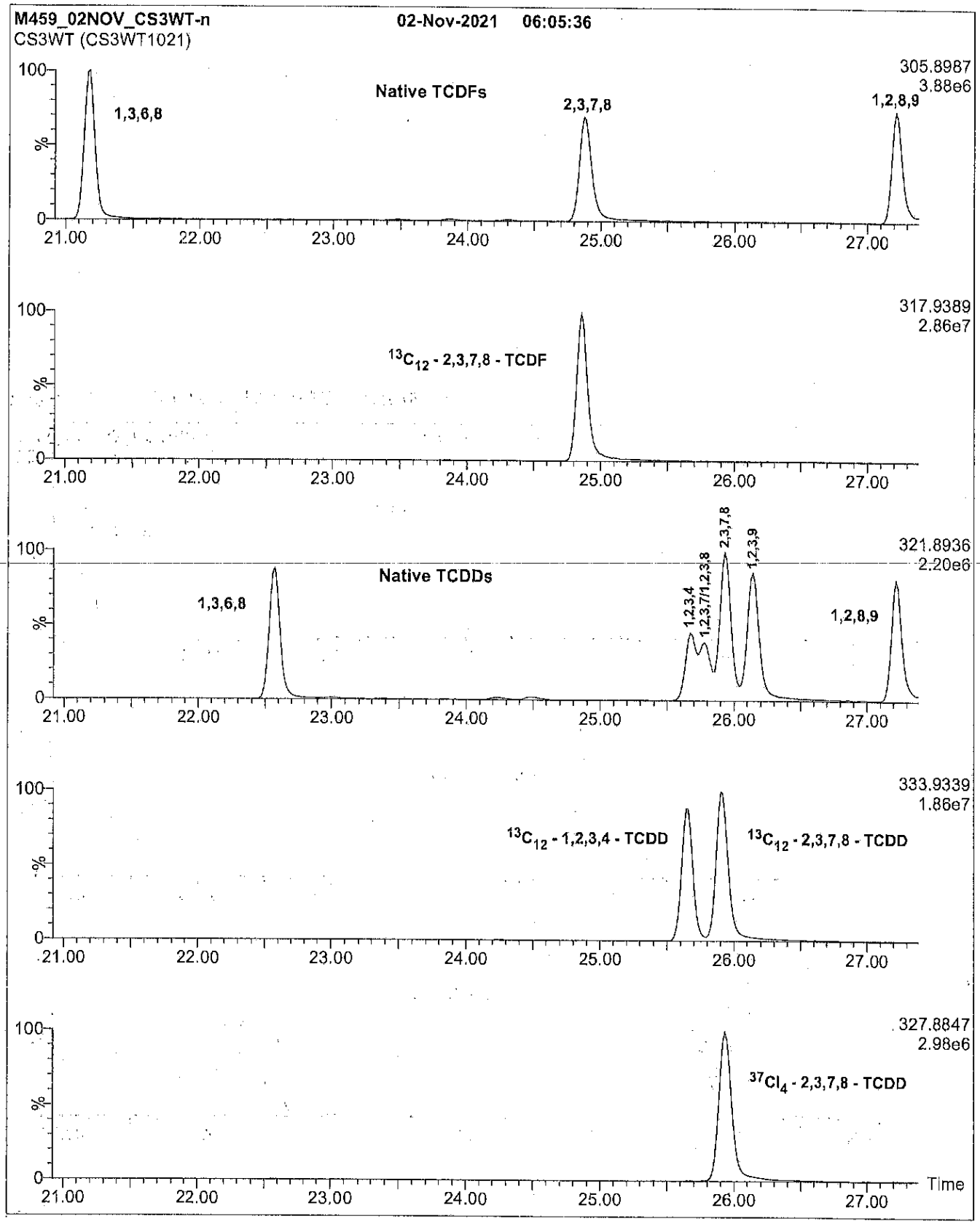


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

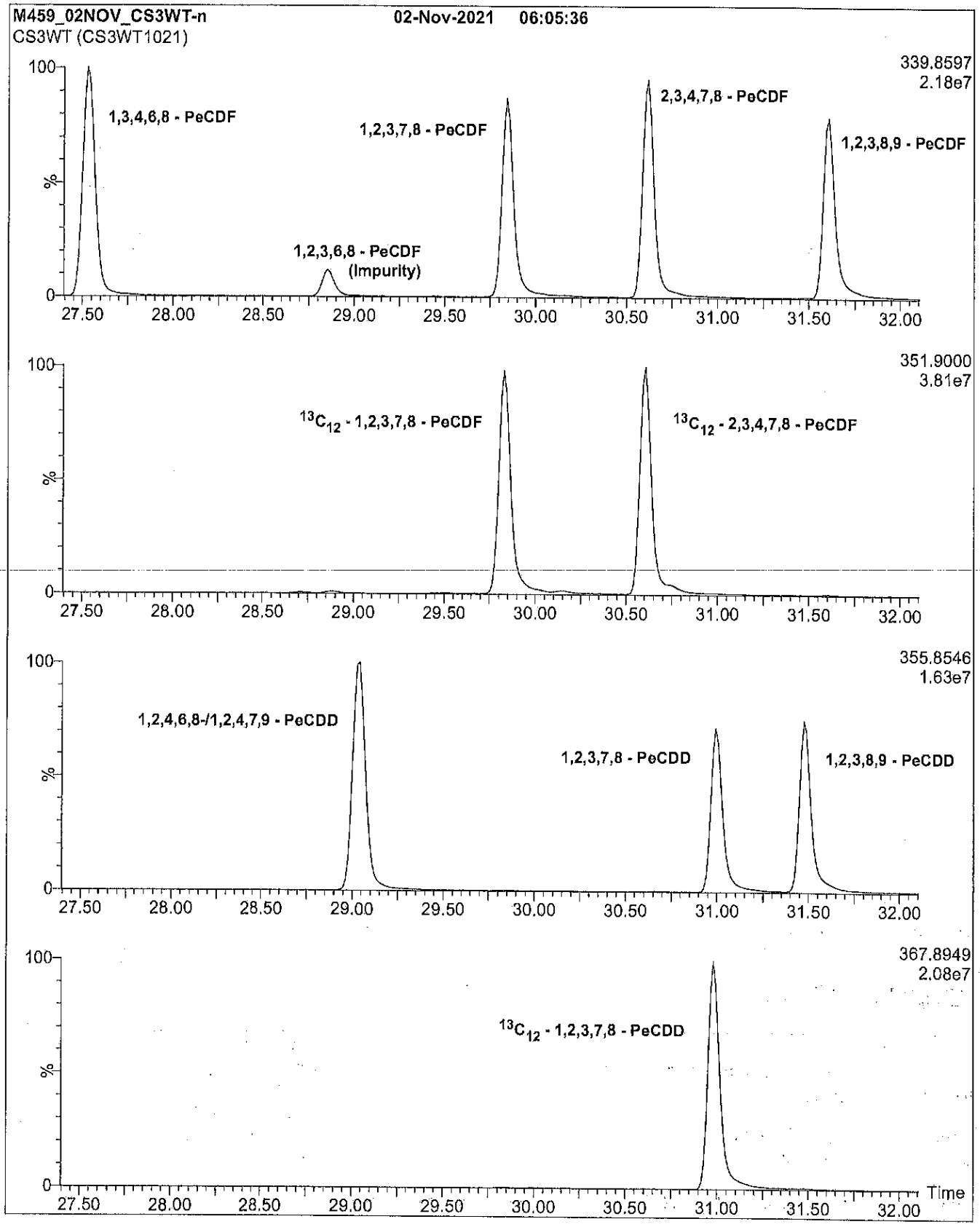


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

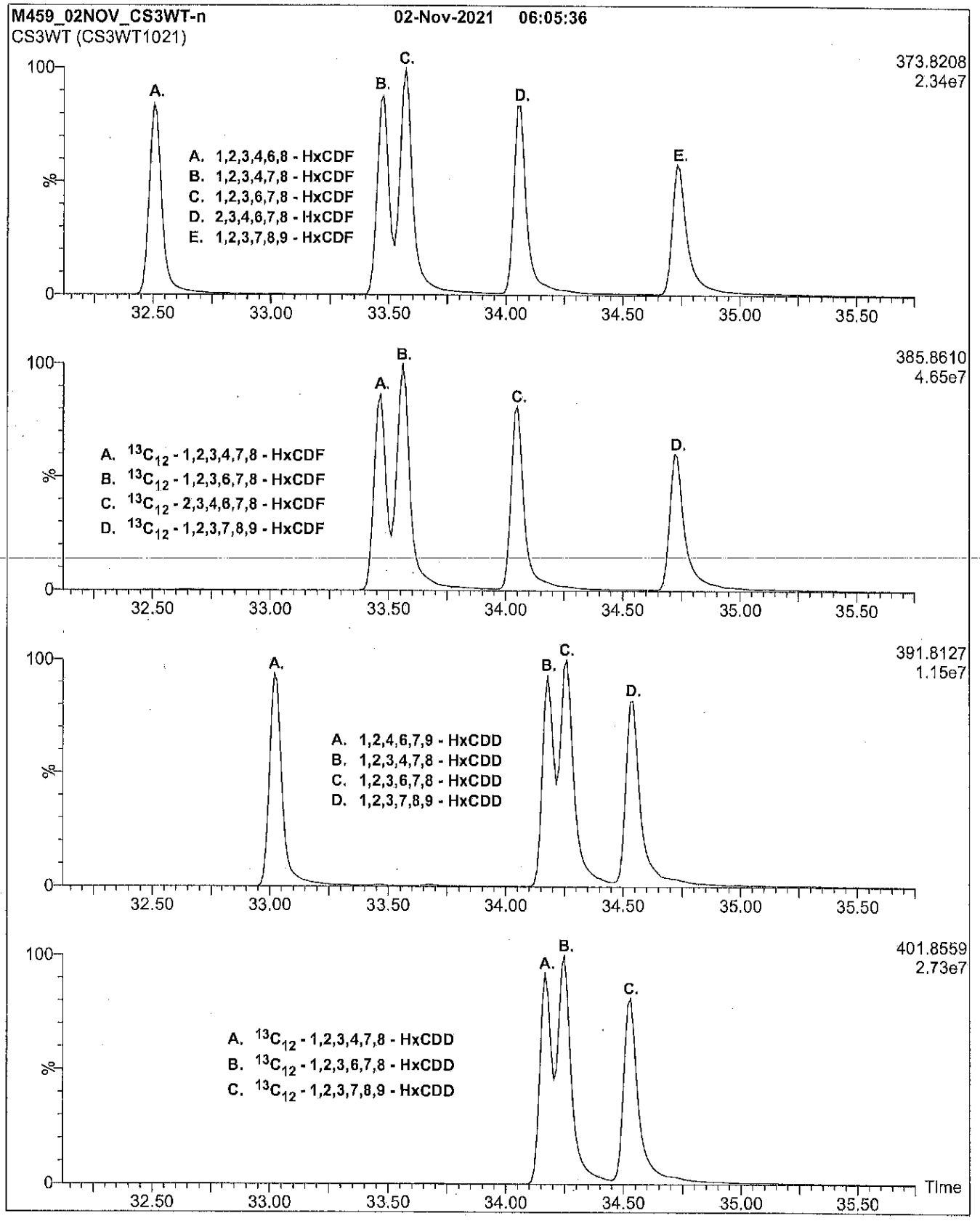


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**

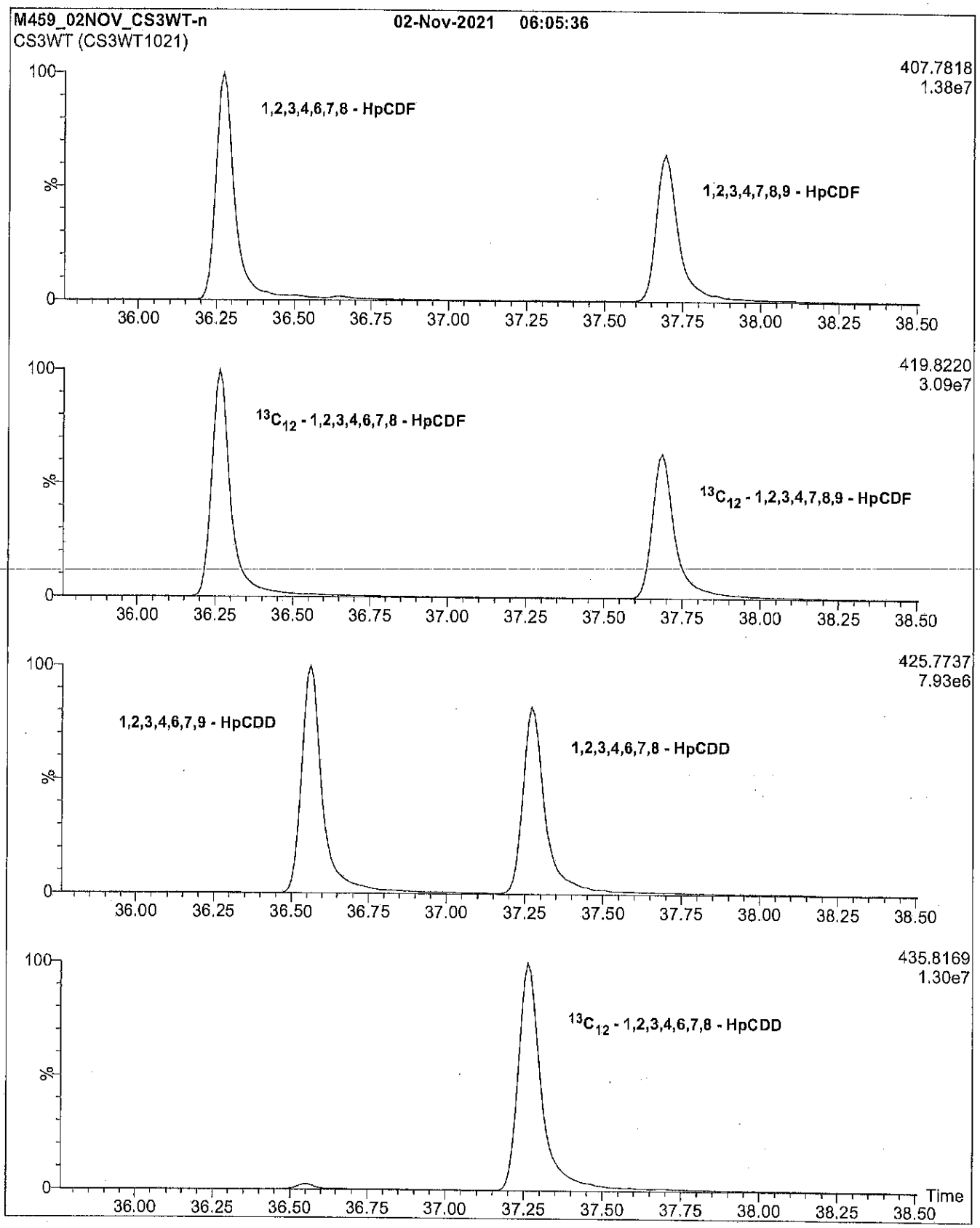
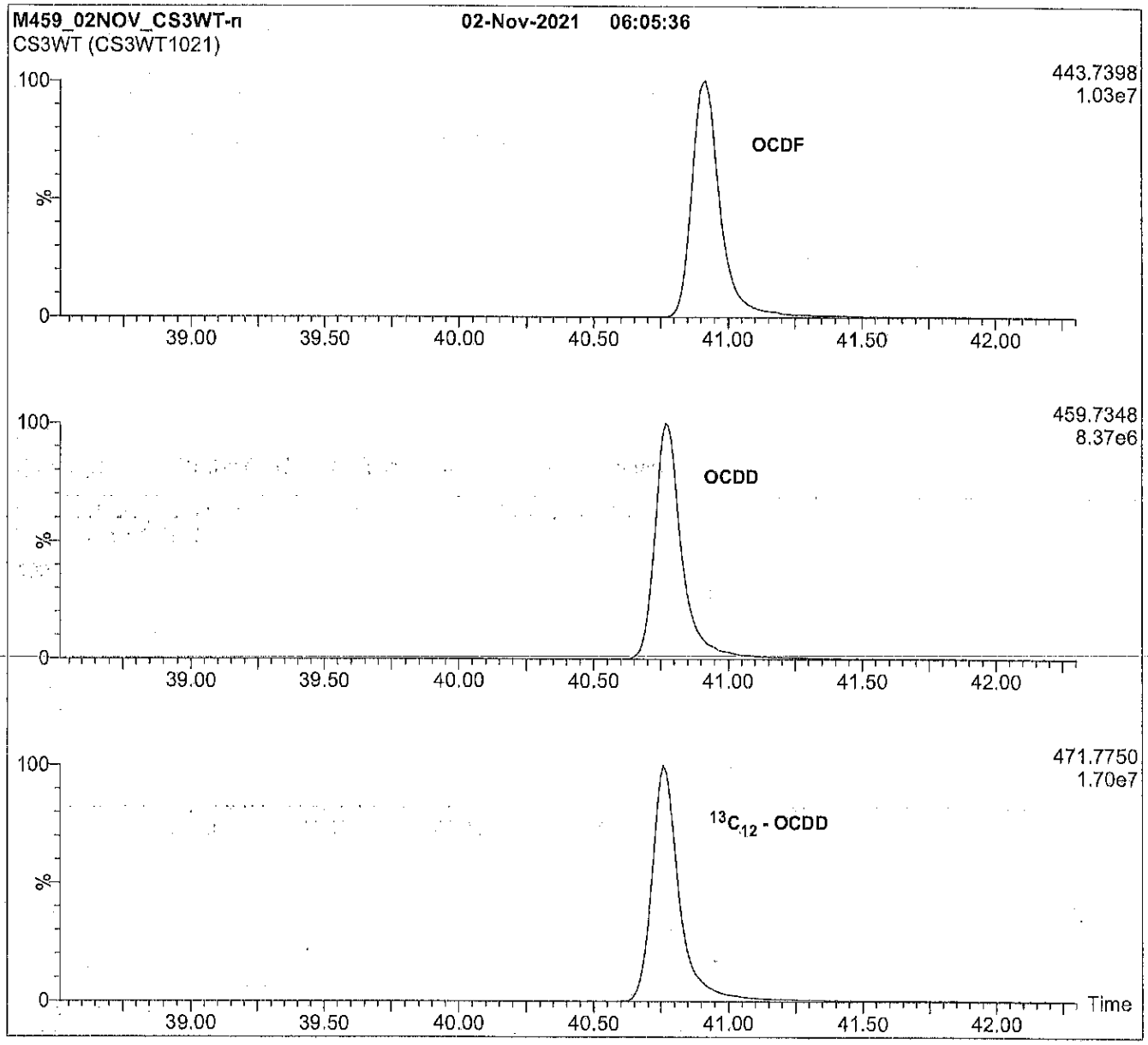


Figure 1: **CS3WT; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613LCS

U.S. EPA Method 1613
Labelled Compound Stock Solution

PRODUCT CODE:	EPA-1613LCS
LOT NUMBER:	13LCS1021
SOLVENT(S):	Nonane/Toluene
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

K 9985 JK Reed 10/27/22

DESCRIPTION:

EPA-1613LCS is a solution/mixture of mass-labelled ($^{13}C_{12}$) polychlorinated dibenzo-*p*-dioxins (PCDDs) and dibenzofurans (PCDFs). The components and their concentrations are given in Table A.

EPA-1613LCS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

The individual ^{13}C-labelled PCDDs and PCDFs all have chemical purities of >98% and isotopic purities of ≥99%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots, x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-1613LCS; Components and Concentrations (ng/mL, ± 5% in nonane/3.2% toluene)**

Compound	Acronym	CAS #	Concentration (ng/mL)
Mass-Labelled PCDDs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-2,3,7,8-TCDD	76523-40-5	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,7,8-PeCDD	109719-79-1	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	109719-80-4	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	109719-81-5	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	109719-83-7	100
Octachloro($^{13}C_{12}$)dibenzo-*p*-dioxin	$^{13}C_{12}$-OCDD	114423-97-1	200
Mass-Labelled PCDFs:			
2,3,7,8-Tetrachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,7,8-TCDF	89059-46-1	100
1,2,3,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8-PeCDF	109719-77-9	100
2,3,4,7,8-Pentachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,7,8-PeCDF	116843-02-8	100
1,2,3,4,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	114423-98-2	100
1,2,3,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	116843-03-9	100
1,2,3,7,8,9-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	116843-04-0	100
2,3,4,6,7,8-Hexachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	116843-05-1	100
1,2,3,4,6,7,8-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	109719-84-8	100
1,2,3,4,7,8,9-Heptachloro($^{13}C_{12}$)dibenzofuran	$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	109719-94-0	100

Certified By: _____ **Date:** 11/05/2021
(mm/dd/yyyy)

B.G. Chittim, General Manager

Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

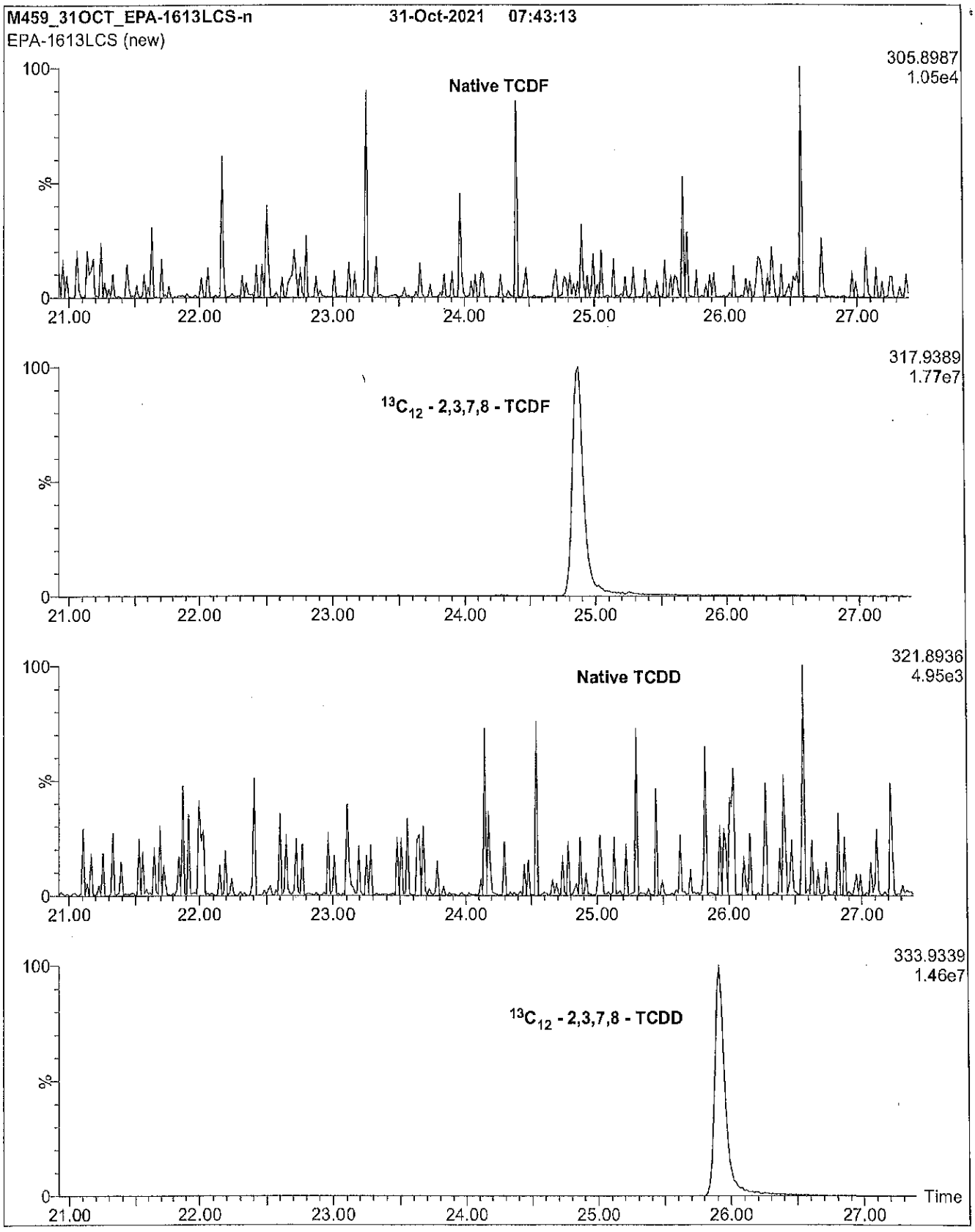


Figure 1: EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)

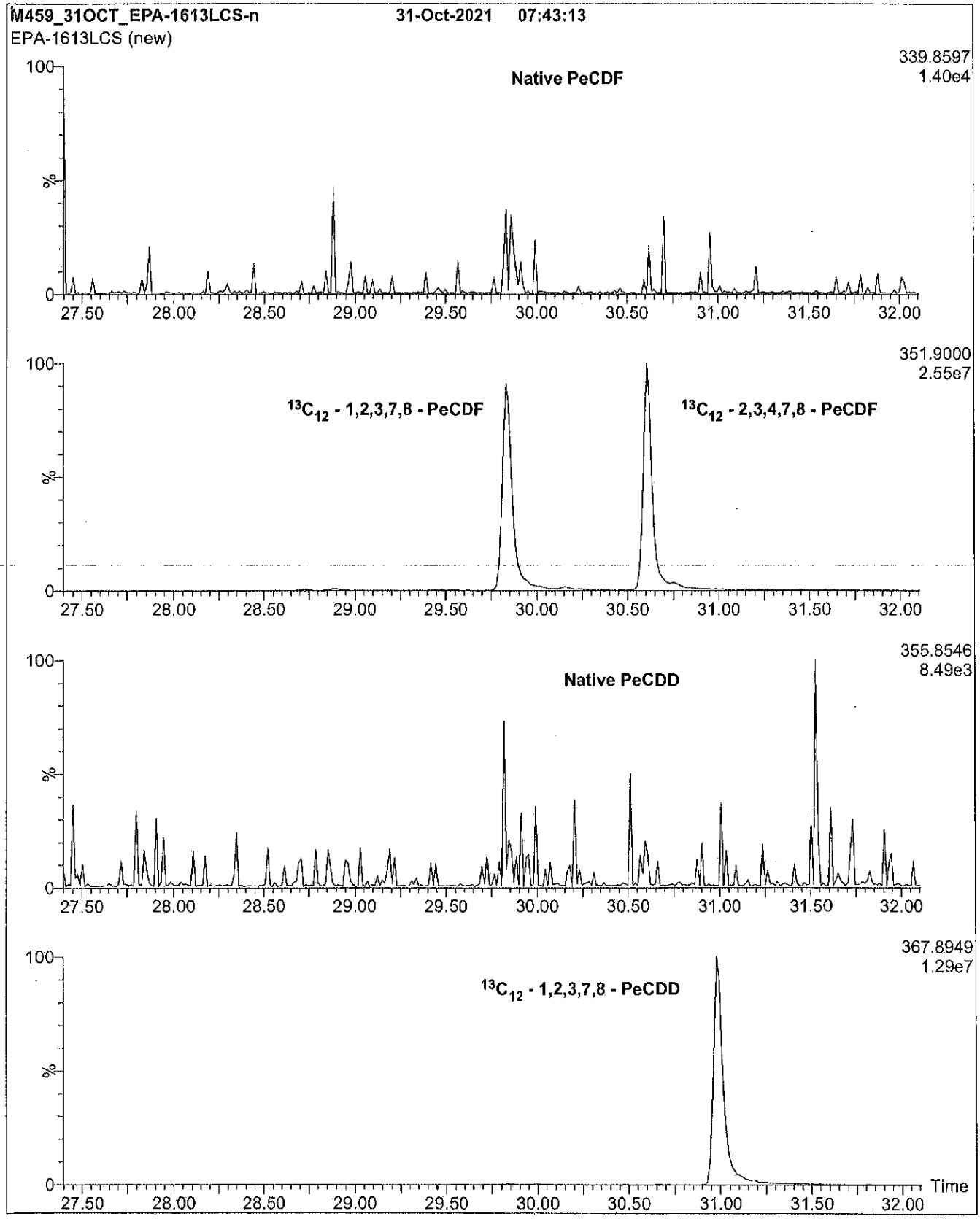


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

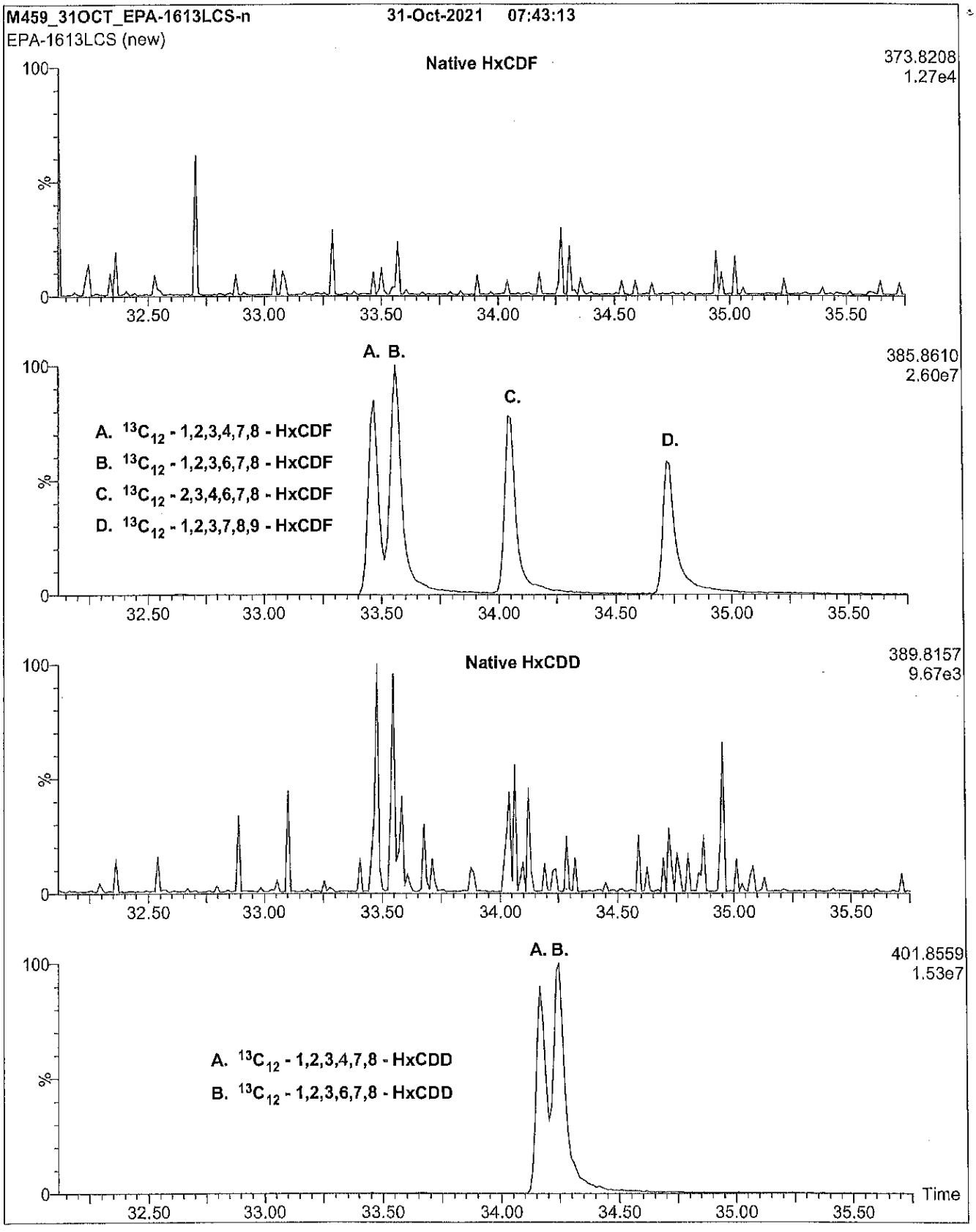


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**

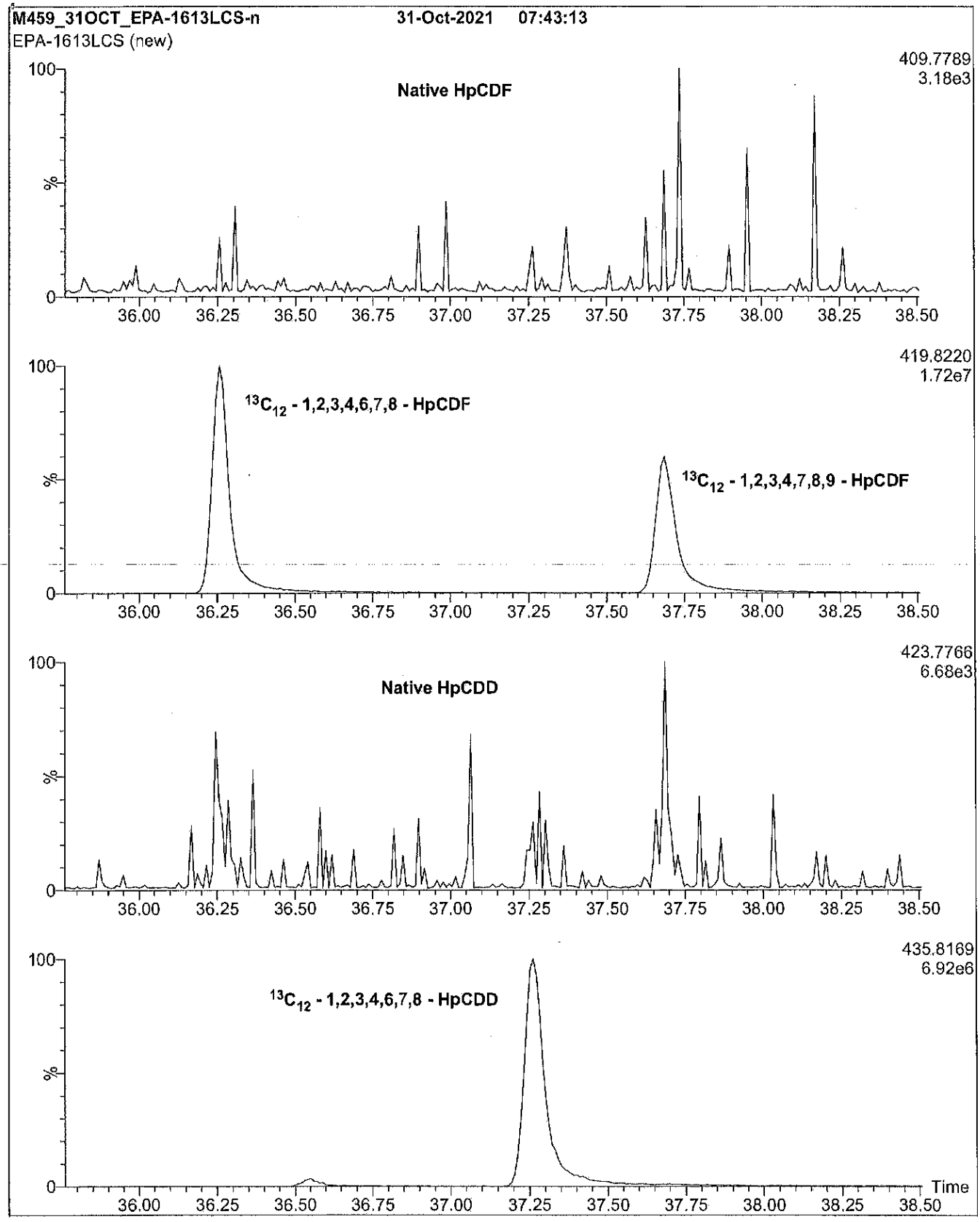
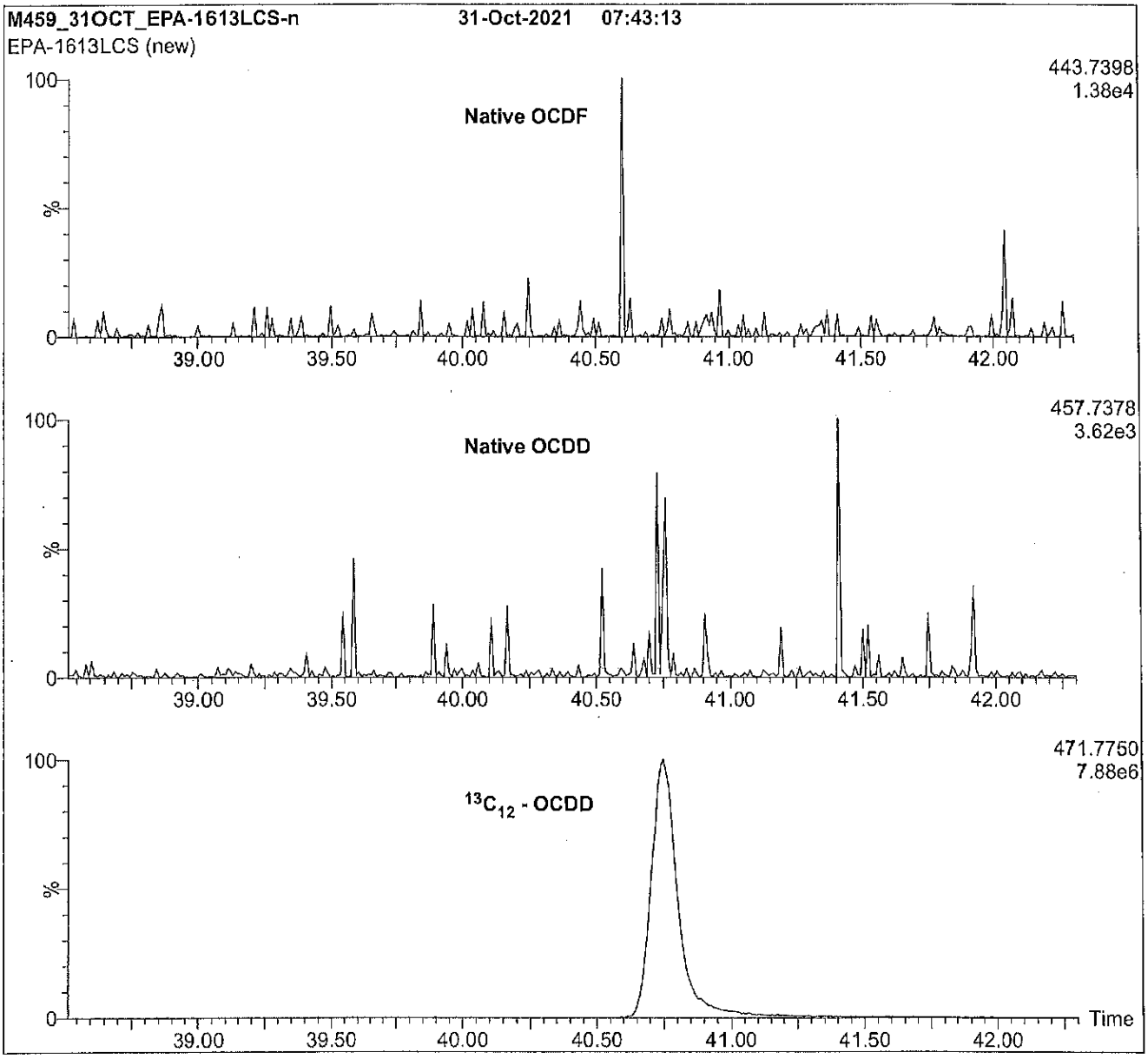


Figure 1: **EPA-1613LCS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

EPA-1613CSS

U.S. EPA Method 1613 Cleanup Standard Spiking Solution

PRODUCT CODE:	EPA-1613CSS
LOT NUMBER:	13CSS1021
SOLVENT(S):	Nonane
DATE PREPARED: (mm/dd/yyyy)	10/29/2021
LAST TESTED: (mm/dd/yyyy)	10/31/2021
EXPIRY DATE: (mm/dd/yyyy)	10/31/2028
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

K 9986 Recd. 10/27/22 JR

DESCRIPTION:

EPA-1613CSS contains 2,3,7,8-($^{37}Cl_4$)tetrachlorodibenzo-*p*-dioxin at the concentration given in Table A.

EPA-1613CSS was designed and prepared to be used according to U.S. EPA Method 1613, Revision B.

2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin has a chemical purity of >98% and an isotopic (^{37}Cl) purity of ≥95%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution
Figure 1: HRGC/HRMS Data (SIR; 10,000 mass resolving power)

ADDITIONAL INFORMATION:

- See page 2 for further details.

Table A: **EPA-1613CSS; Components and Concentrations (ng/mL, ± 5% in nonane)**

Compound	Acronym	CAS #	Concentration (ng/mL)
2,3,7,8-($^{37}Cl_4$)Tetrachlorodibenzo-*p*-dioxin	$^{37}Cl_4$-2,3,7,8-TCDD	85508-50-5	40.0

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/05/2021 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

HANDLING:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Our products are synthesized using single-product unambiguous routes whenever possible. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS, and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products, as well as mixtures and calibration solutions, are compared to older lots in a similar manner. This further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers. In order to maintain the integrity of the assigned value(s), and associated uncertainty, the dilution or injection of a subsample of this product should be performed using calibrated measuring equipment.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \ldots x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \ldots x_n)) = \sqrt{\sum_{i=1}^{n} u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of ±5% (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly calibrated by an external ISO/IEC 17025 accredited laboratory. In addition, their calibration is verified prior to each weighing using calibrated external weights traceable to an ISO/IEC 17025 accredited laboratory. All volumetric glassware used is calibrated, of Class A tolerance, and traceable to an ISO/IEC 17025 accredited laboratory. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

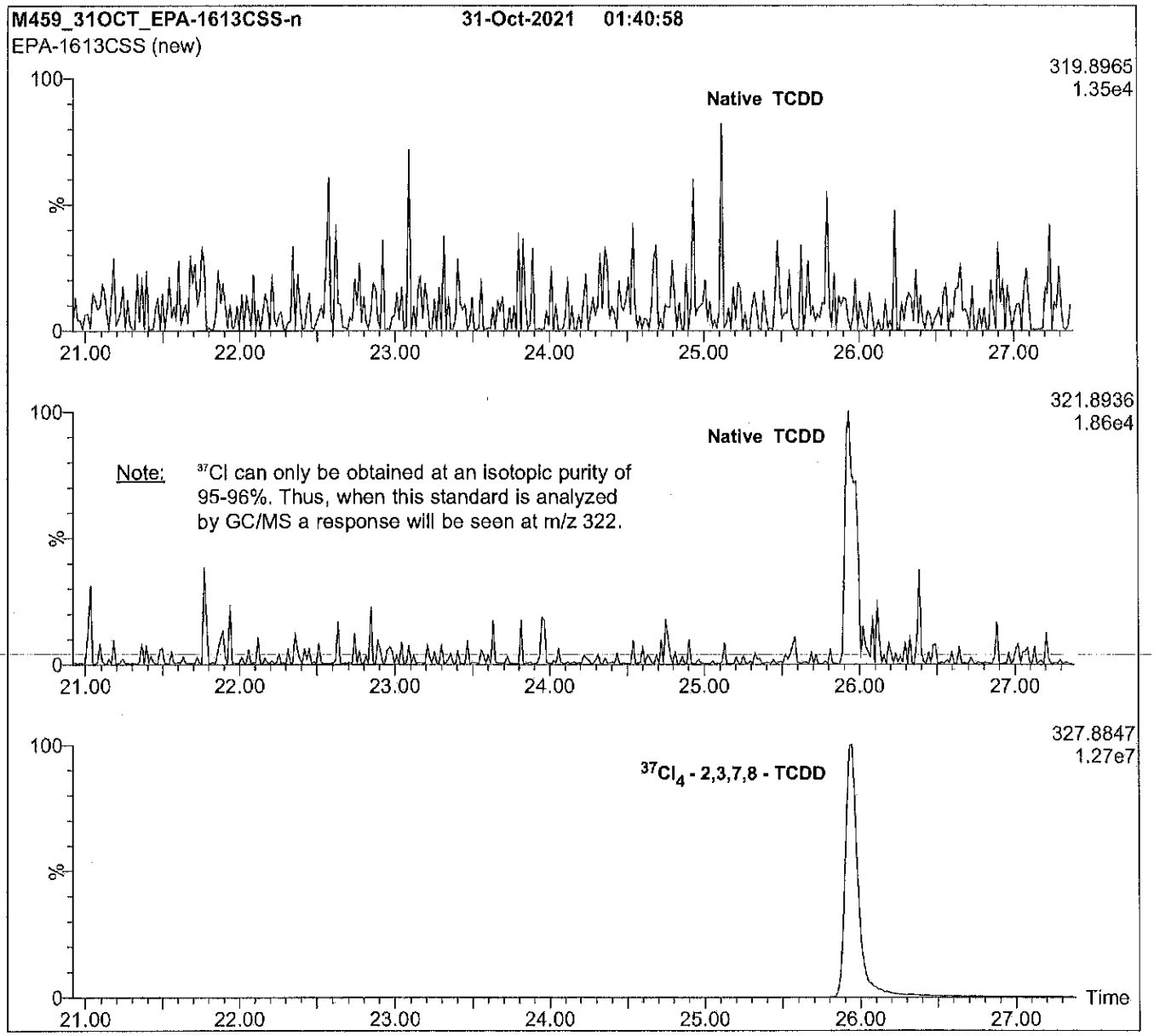
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A1226), and ISO 17034 by ANSI National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation No. A1226

ANAB ANSI National Accreditation Board ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Figure 1: **EPA-1613CSS; HRGC/HRMS Data (60 m DB-5 Column)**



Conditions for Figure 1:

Agilent 6890N HRGC
Autospec Ultima HRMS

Chromatographic Conditions:

Column:	60 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W		
Flow:	Constant at 1.4 mL/min	Oven:	150°C (1 min)
Injector:	280°C (Splitless Injection)		12°C/min to 200°C
Ionization:	EI+		3°C/min to 235°C
Detector:	280°C		235°C (8 min)
	SIR at 10,000 mass resolving power		8°C/min to 310°C
			310°C (8 min)

Recipient Copy

CHAIN-OF-CUSTODY RECORD

COC No. 15600

Order Number: CB015015 Date Shipped: 1/31/2023 AirBill No(s): 633163298570

From: QATS LABORATORY
2700 CHANDLER AVENUE, BLDG. B
LAS VEGAS, NV 89120
PHONE: 1-702-895-8712

To: SUE DUNNIHOO
ANALYTICAL RESOURCES INC.
4611 S. 134TH PLACE SUITE 100
TUKWILA WA 98168
250-695-6207

Sample ID	Qty	Description/Remarks	→ Catalogue Number
PSRM0172 - L441373	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0173 - L441374	1	PUGET SOUND SEDIMENT RM	PS-SRM
PSRM0174 - ~~L441374~~ L441375 JS 02/06/23	1	PUGET SOUND SEDIMENT RM	PS-SRM

01/31/2023

PUGET SOUND SRM FOR THE DUWAMISH AOC5 PROJECT

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	Received by: (Signature)	Date/Time
[signature]	(1400) 01/31/2023	[signature]	02/06/23 1415
Custody Seal(s): Present/Absent	Remarks:		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

Report No. 00, 9/11/2014 *SMP Version 3.3*

Analytical Standard Record

Standard ID: L002084 **Printed: 3/2/2023 8:59:18AM**

Description:	Dioxin ISC Mix	Expires:	24-Feb-2024
Standard Type:	Other	Prepared:	24-Feb-2023
Solvent:	Nonane	Prepared By:	Peter Kepler
Final Volume (mls):	1	Department:	HRGCMS
Vials:	1	Last Edit:	24-Feb-2023 11:19 by PK
Vendor:	NA	Lot #:	1234
Vendor Catalog #:			

Comments

Stock: H9902: 2378-TCDF, 3467-TCDF, 2348-TCDF, 1278-TCDD, 2378-TCDD. each @ 1000 ng/mL

10 ul to 1 mL FV in Nonane. Final Conc = 10 ng/mL. Analytes and units not available in Element.

Analyte	CAS Number	Concentration	Units
2,3,7,8-TCDF	51207-31-9	10	ug/mL
2,3,7,8-TCDD	1746-01-6	10	ug/mL

Analytical Resources, LLC
Analytical Chemists and Consultants

Form I
INORGANIC ANALYSIS DATA SHEET
EPA 9034

SED-27G:0-10

Laboratory:	Analytical Resources, LLC				
Client:	Friedman & Bruya Inc.				
Project:	Port of Friday Harbor				
Matrix:	Sediment	Laboratory ID:	23C0619-16 B	SDG:	23C0619
Sampled:	03/23/23 10:17	Prepared:	03/28/23 16:36	File ID:	
% Solids:	63.22	Preparation:	No Prep Wet Chem	Analyzed:	04/04/23 15:00
Batch:	BLC0751	Sequence:	SLD0180	Initial/Final:	5.129 g Wet / 100 g
Instrument:	S2 Buret			Calibration:	UNASSIGNED

CAS NO.	Analyte	Concentration (mg/kg dry)	Dilution Factor	MDL	MRL	Q
18496-25-8	Sulfide	86.4	1	30.8	30.8	

PREPARATION BATCH SUMMARY

EPA 9034

Laboratory: Analytical Resources, LLC SDG: 23C0619

Client: Friedman & Bruya Inc. Project: Port of Friday Harbor

Batch: BLC0751 Batch Matrix: Solid Preparation: No Prep Wet Chem

SAMPLE NAME	LAB SAMPLE ID	LAB FILE ID	DATE PREPARED	OBSERVATIONS
SED-27G:0-10	23C0619-16		03/28/23 16:36	
Blank	BLC0751-BLK1		03/28/23 16:36	
LCS	BLC0751-BS1		03/28/23 16:36	

Analytical Resources, LLC
Analytical Chemists and Consultants

Method: ***Sulfide, EPA 9034 Titration, Solid (PSEP)*** Analyst: CDE

Batch ID: BLC0751 Prep Date, Time: 3/28/2023 16:36

Revision Date & # : ***0*** ***7/1/2015***

Sample Preparation Log

Reagents, Equipment

HCl+Al:	***K010977***
pH Indicator:	J011724
0.2N ZnOAC:	K008611
Balance:	BAL9
Sulfide Stock:	L002834

Step By Step

5 grams sample
Fill traps to line with 0.2N ZnOAc
LCS and MS get 1mL S2 Stock
100mL dispersing water
~5mL HCl+Al to pH < 3 by
Bromophenol Blue Indicator
60 minutes at 90C
Decant to 100 mL with ZnOAc

Revision: ***0*** ***7/1/2015***

Lab Number	FALSE		Sample Amount (g/mL)	Final Volume (mL)	Spike ID	Spike Volume (µL)
23C0538-01			5.183	100		
23C0538-02			5.149	100		
23C0538-03			5.114	100		
23C0538-04			5.015	100		
23C0538-08			5.054	100		
23C0538-12			5.541	100		
23C0618-09			5.130	100		
23C0619-16			5.129	100		
BLC0751-BLK1			5.000	100		
BLC0751-BS1			5.000	100	L002834	1000
23C0538-01-DUP1			5.132	100		
23C0538-01-MS1			5.062	100	L002834	1000

Form I

METHOD BLANK DATA SHEET

EPA 9034

TotalAnalytes

Blank

Laboratory: Analytical Resources, LLC
SDG: 23C0619
Client: Friedman & Bruya Inc.
Project: Port of Friday Harbor
Batch: BLC0751
Laboratory ID: BLC0751-BLK1
Prepared: 03/28/23 16:36
Matrix: Solid
Preparation: No Prep Wet Chem
Analyzed: 04/04/23 15:00
Sequence: SLD0180
Calibration: N/A
Instrument: S2 Buret

CAS NO.	Analyte	Concentration (mg/kg wet)	Dilution Factor	MDL	MRL	Q
18496-25-8	Sulfide	ND	1	20.0	20.0	U

LCS / LCS DUPLICATE RECOVERY

EPA 9034

Laboratory:	Analytical Resources, LLC	SDG:	23C0619
Client:	Friedman & Bruya Inc.	Project:	Port of Friday Harbor
Matrix:	Solid	Analyzed:	04/04/23 15:00
Batch:	BLC0751	Laboratory ID:	BLC0751-BS1
Preparation:	No Prep Wet Chem	Sequence Name:	LCS
Initial/Final:	5 g / 100 g		

COMPOUND	SPIKE ADDED (mg/kg wet)	LCS CONCENTRATION (mg/kg wet)	Q	LCS % REC. #	QC LIMITS REC.
Sulfide	211	168		79.6	75 - 125

* Indicates values outside of QC limits